

## Fiji's Exports and Comparative Advantage

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### Abstract

*In this paper, an index of revealed comparative advantage (IRCA) is computed for Fiji's twelve major export products at the three-digit level of the Standard International Trade Classification for the period 1988-2001. Our results provide confirmation of Fiji having comparative advantages in its resource based products, namely sugar, canned fish, fresh fish, dalo, wood chips, gold, and manufactured goods such as textiles, garments and footwear. Our results also confirm that the comparative advantage position weakened for canned fish and gold over time while that for sugar, fresh fish, wood chips and garments strengthened over the post 1987. Interestingly, our IRCA scores reveal that yaqona, copra and coconut oil do not have any comparative advantages.*

### Introduction

Fiji has pursued an export-oriented strategy for growth since 1988, as part of a broader objective to reform the Fijian economy. The genesis of this reform came through the advice of the international organisations such as the International Monetary Fund (IMF) and the World Bank in the mid 1980s. However, the Fijian economy's performance has been less than impressive; economic growth over the 1987-2002 period has averaged a meagre 1.2 per cent per annum. Part of the explanation for low economic growth has been a sustained period of political instability and the non-resolution of land leases since 1987 (Narayan and Narayan, 2004a, 2004b; Narayan and Smyth, 2005; Narayan and Smyth 2006; Prasad and Tisdell, 1996). As a result, Fiji has neither succeeded in diversifying its export base nor has it been able to attract foreign investments in its export sectors. While Fiji's economic performance in the last three

years after the coup in 2000 has been relatively good, reaching 5 per cent in 2003, its export performance has been generally weak (see for example, Narayan and Narayan, 2005, and Narayan and Prasad, 2007). Since 2000 the trade deficit has continued to increase and traditional export sectors such as sugar, copra, kava and fish have performed poorly and are on the decline. Fiji's garment exports have contributed significantly to the economy over the last ten years (see for example, Narayan and Prasad). The prospect of the garment industry does not look promising, as the US has removed its preferential treatment of exports from countries like Fiji under the WTO rules.

The goal of this paper is to measure Fiji's comparative advantage using annual data for the post-1987 period. The balance of the paper is organized as follows. After discussing changes in Fiji's production structures, the paper provides overviews of the export patterns and compositions respectively. It then discusses the methodology on calculating the index of revealed comparative advantage. Next, it calculates the index and discusses the results. Finally, it discusses issues relating to market and export opportunities.

### Fiji's Changing Structure of Production

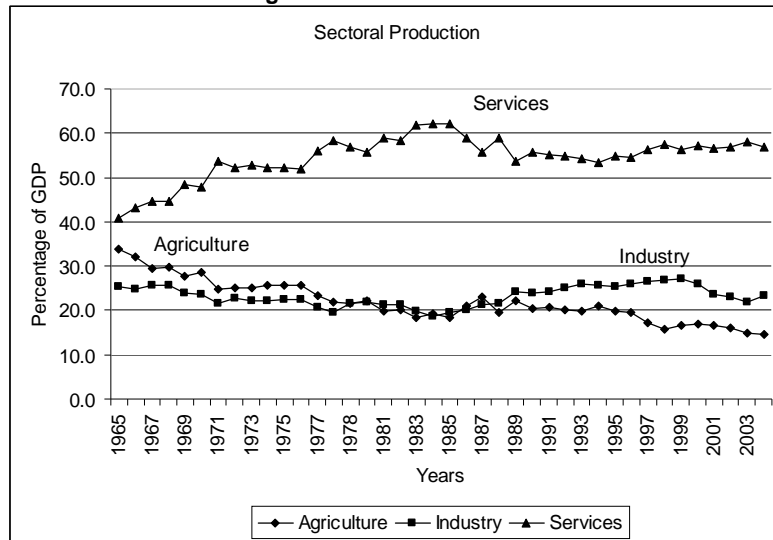
Fiji has experienced changes in its sectoral contribution to gross domestic product in the last four decades. Sectoral production data indicates that Fiji has gone through structural transformation (Figure 1). Theoretically, it has been posited that in a growing economy, the decline of the agricultural sector has generally been accompanied by a strong expansion of the manufacturing and/or services sector (see, for example, Kuznets, 1966 and Chenery and Syrquin, 1975). Based on Heckscher-Ohlin theory we would expect that changing economic structure and, therefore, changing factor endowments, would result in shifts in the structure of trade. Das (1998), in a study of Asian exports, has noted that production composition of exports would shift primarily from natural resource intensive exports to unskilled labour intensive exports; further to physical and human intensive exports and then on to technology and knowledge intensive exports.

Fiji's structural shifts in its production structure are due to a number of factors. First, declining agricultural value added has largely to do with falling prices, especially of sugar, and unresolved land lease issues. As a result of land tenure problems, a large number of sugarcane farmers moved out of agriculture, particularly in late 1990s and post-2000. Secondly, industrial policy reforms initiated after the political crises of 1987,

targeting the manufacturing sector, resulted in the establishment of several garment factories; these contributed significantly to gross domestic output. Thirdly, the services sector value added improved significantly as a result of a tourism boom resulting from extensive marketing of Fiji as a tourism destination, and government incentives to the hotel industry.

Taking a historical perspective and in line with the theoretical arguments of the authors noted above, available data reveals that structural transformation has been significant in Fiji.

**Figure 1: Sectoral Production**



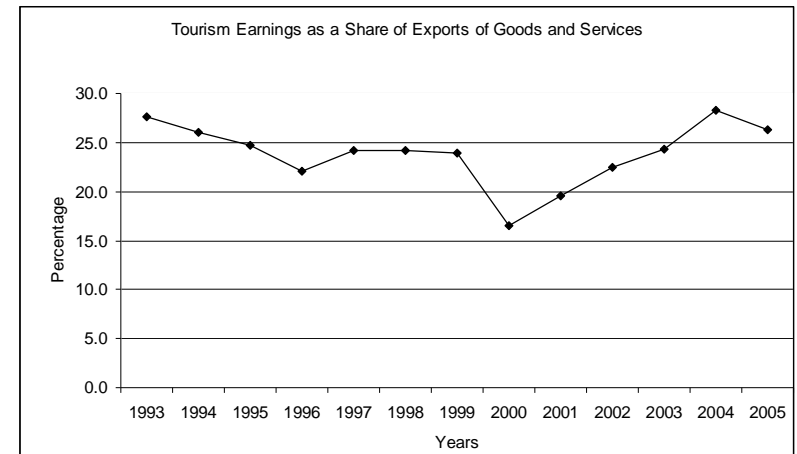
(Source of data: The World Bank, 2006).

Figure 1 shows that the agricultural sector has declined gradually over time; its proportion fell steadily from 39 percent of GDP in 1965 to 14.5 percent of GDP in 2004. In 1998, the agricultural sector recorded its lowest contribution, 15.7 percent in terms of value added to GDP. In contrast the share of industry rose from a low of 18.8 percent of GDP in 1984 to a high of 27 percent of GDP in 1999 and then falling to 23 percent of GDP in 2004. Since 1965, services have been the largest sector and currently account for just over 57 percent of GDP. The progress noted in terms of the contribution of industry, manufacturing and services to GDP particularly since late 1980s, is largely attributable to major reforms un-

dertaken by the interim government in 1987 following the military coups (see for example, Cameron, 1989,1993; Brown and Scott, 1989; Chandra, 1989; and Cole and Hughes, 1988). These reforms, including wage freeze, trade and foreign investment policy liberalisation and labour market reforms (see for example, Elek, et. al., 1993) led to a more outward looking economy.

It is also worth noting that while land and sea based commodity exports increased, tourism has also been a major income earner with earnings amounting to just over 26 percent of total exports of goods and services in 2005 (Figure 2).

**Figure 2: Tourism Earnings (as share of Exports of Goods & Services).**



(Data source: Asian Development Bank, 2006; Reserve Bank of Fiji, 2006)

In their study, Narayan and Prasad (2003) provide a comprehensive analysis of the structure and contribution of the tourism sector to Fiji's growth and development. Today, tourism is Fiji's top most export income earner. Tourism receipts accounted for 17% of gross domestic product in 2005 (Reserve Bank of Fiji, 2006). This increased significantly since 2000 as a result of 9/11 events in USA as well as government's incentives to the tourism industry. In 2001, the government carried out a major review of its investment incentives targeting various sectors of the economy. The incentives extended to the tourism industry included exemption of hotel developer profits, tourism vessel investment allowance of 55 percent of cost; and projects approved for hotel building or expansion to receive an investment allowance of 55 percent of the approved cost to off-

set against chargeable income. The government also approved a 'Short Life Investment Package' (SLIP) that allowed several tax concessions.

**Fiji's Export Patterns and Performance**

Following the first military coup, Fiji's total exports of goods and services earnings rose from \$US329 million in 1987 to US\$888.1 million in 2004 (see Table 1). As a share of GDP the export of goods and services also increased from 44 % in 1985 to just over 71 % in 2003. This export boom has generally supported Fiji's economic growth over the last two decades. The scatter plot in Figure 3 confirms this link.

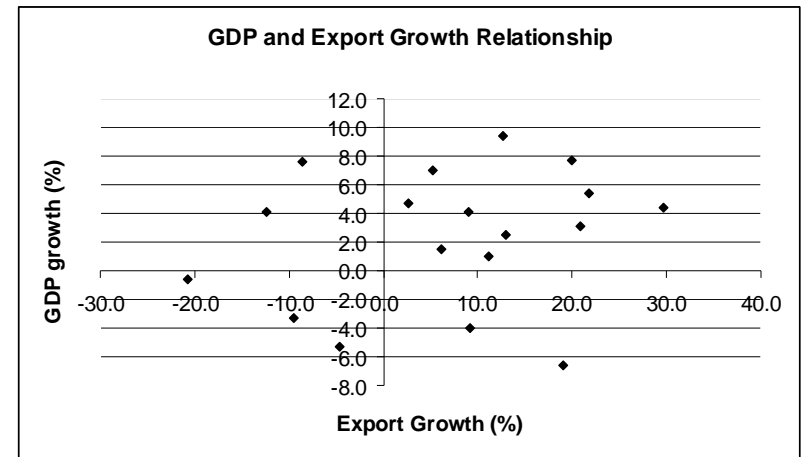
**Table 1: Export Performance Indicators**

Year	Total exports (Millions of USD)	Exports of goods & services; % of GDP	Exports of goods & services growth (%)
1985	229.8	44.4	9.1
1986	275.8	41.7	20.0
1987	328.5	45.3	19.1
1988	365.1	54.3	11.2
1989	384.0	62.7	5.2
1990	497.7	62.3	29.6
1991	450.6	57.3	-9.5
1992	412.1	51.9	-8.5
1993	449.1	60.9	9.0
1994	546.7	65.7	8.0
1995	617.8	69.2	5.3
1996	746.4	72.8	5.2
1997	591.5	71.5	-1.8
1998	627.4	71.1	-0.6
1999	707.2	71.1	0.0
2000	674.6	74.3	4.5
2001	692.3	69.4	-6.6
2002	606.3	71.1	2.4
2003	737.9	71.3	0.4
2004	888.1	63.7	-10.7

(Source: The World Bank, 2006, and Asian Development Bank, 2006)

During the post crisis period, the dollar value of exports grew at an average annual rate of 6 %. The year 1997, however, marked an unprecedented export earnings downfall largely as a result of the Asian financial crisis. During that year export earnings from sugar, molasses, canned and fresh fish and wood chips fell. The year 2000 also recorded a slump in export earnings as a result of the political crisis.

**Figure 3: GDP and Export Growth Relationship.**



(Data source: Reserve Bank of Fiji, Various Issues)

**Fiji's Export Composition**

Fiji's export structure is largely based on land and sea resources. Fiji, thus, falls under the primary commodity exporting country category. Table 2a and 2b present data on Fiji's export composition. Until 1987, exports comprised sugar, molasses, canned fish, fresh fish, coconut oil and gold. Following the crisis of 1987, Fiji moved into trade liberalisation and its export composition began to change (see for example Hill, *et.al*, 1993). A major industrial expansion was the setting up of light manufacturing industry, in particular garments. Since then further diversification of the export mix has taken place with newer export products being developed. After the mid-1990s, export composition expanded to include additional commodities: mineral water, yaqona, copra, chemicals, textiles and footwear (Table 2b).

Since the late 1980's the composition of resource based products in the export basket - such as sugar, molasses, canned fish, coconut oil and gold - has been gradually declining. On the other hand, export composition of fresh fish, dalo, mineral water, textiles, garment and footwear has gradually expanded. One notable feature is that during the post crisis period, sugar and garments moved in opposite directions; export composition of sugar declined from a high of 37% in 1988 to 18% in 2003 while the garment composition rose from around 6% in 1988 to 20% in 2003.

Of all the commodities exported in the last five years, mineral water recorded the largest growth in terms of export earnings.

While Fiji's export structure has diversified in the post coup years, it is useful to know if Fiji's export products have comparative advantage. Fiji's comparative advantage can be numerically measured; this would provide a better understanding of Fiji's export competitiveness. The next section addresses this issue.

**Table 2a: Export Composition of Land Based Products (%)**

Years	Sugar	Molasses	Dalo	Mineral Water	Wood Chips	Yaqona	Copra	Coconut Oil	Gold
1988	37.3	2.1	0.1	0.0	1.1	0.0	0.0	0.6	15.3
1989	34.7	1.5	0.2	0.0	1.8	0.0	0.0	0.8	11.6
1990	30.6	0.9	0.4	0.0	2.1	0.0	0.0	0.7	10.4
1991	33.2	2.0	0.1	0.0	2.8	0.0	0.0	0.3	7.0
1992	33.2	2.0	0.3	0.0	3.4	0.0	0.0	0.9	9.1
1993	33.3	1.4	0.1	0.0	2.6	0.0	0.0	0.5	9.6
1994	30.5	1.6	0.7	0.0	1.9	0.0	0.0	0.5	7.6
1995	31.5	2.4	0.9	0.0	3.7	0.3	0.0	0.4	6.7
1996	28.7	2.1	0.9	0.0	2.5	0.2	0.0	0.5	7.8
1997	23.8	1.4	1.0	0.1	2.0	0.4	0.0	0.6	8.2
1998	24.0	1.0	0.8	0.2	3.4	3.4	0.4	0.9	6.9
1999	21.9	1.0	0.7	0.5	1.7	0.5	0.3	0.8	6.4
2000	19.1	0.8	1.1	1.2	2.0	0.5	0.2	0.3	6.1
2001	18.1	0.8	1.2	2.0	1.8	0.4	0.1	0.2	7.0
2002	19.7	1.0	1.4	2.6	2.1	0.2	0.0	0.5	6.5
2003	18.1	0.8	1.3	3.6	1.2	0.1	0.0	0.3	6.0

(Source: Fiji Bureau of Statistics, Various issues).

**Table 2b: Export Composition of Sea-Based Products & Manufactured Goods (%)**

Years	Canned Fish	Fresh Fish	Chemicals	Textiles	Garments	Footwear
1988	7.5	1.6	0.0	0.0	5.6	15.3
1989	6.0	0.8	0.0	0.0	15.1	11.6
1990	5.4	1.4	0.0	0.0	15.8	10.4
1991	5.4	1.6	0.0	0.0	19.7	7.0
1992	4.3	1.6	0.0	0.0	17.5	9.1
1993	4.5	1.7	0.0	0.0	18.6	9.6
1994	4.7	2.0	0.0	0.0	17.1	7.6
1995	3.9	3.2	0.6	1.1	21.1	6.7
1996	2.8	2.2	0.6	1.9	18.3	7.8
1997	2.7	2.3	0.6	2.7	27.2	8.2
1998	2.2	2.1	0.3	2.5	29.3	6.9
1999	1.9	0.8	0.4	2.5	26.8	6.4
2000	0.1	3.7	0.6	3.1	26.8	6.1
2001	0.6	4.2	0.7	1.8	25.6	7.0
2002	0.4	5.2	1.0	1.2	20.5	6.5
2003	0.2	5.6	1.1	0.8	19.8	6.0

(Source: Fiji Bureau of Statistics, Various issues).

## Measuring Fiji's Revealed Comparative Advantage

An appropriate measure of a country's comparative advantage is the index of revealed comparative advantage (IRCA). According to Balassa (1965), the IRCA measures a country's relative export performance in specific product categories compared to its overall export performance in the global trade. This measure indicates whether a country is in the process of extending the products in which it has a trade potential, as opposed to situations in which the number of products that can be competitively exported is static (Koekman, Mattoo and English, 2002). Based on Balassa's approach, we formulate Fiji's IRCA in export of the *ith* product on the basis of the following general equation:

$$IRCA_i^{FJ} = \frac{\left[ \frac{X_i^{FJ}}{WX_i} \right]}{\left[ \frac{TX_{all}^{FJ}}{WX_{all}} \right]}$$

where,

$X_i^{FJ}$  = Fiji's export of product *i*,

$WX_i$  = World exports of product *i*,

$TX_{all}^{FJ}$  = Fiji's total exports of all products; and

$WX_{all}$  = World exports of all goods.

Based on the above formulation, the IRCA's are interpreted as follows:

- If  $IRCA > 1$ , Fiji is said to have revealed comparative advantage in the production of the good.
- If  $IRCA < 1$ , Fiji is at a disadvantage in the production of that good (Hoekman, Mattoo and English, 2002).

The IRCA of Fiji is computed using published time series data. Long-term time series data is not available for all product categories. Consistent time series data for products considered in this study were available for the post 1985 period. We choose annual data for the period 1988-2001 for twelve major export products so as to assess the post crisis achievements. The data on export products for Fiji was extracted from *Key Statistics* (Fiji Bureau of Statistics, various issues). The data for world exports of the twelve commodities studied was extracted from *International Trade Statistics Yearbook* (United Nations, various issues),

while the data for world exports of all goods was extracted from *UNCTAD Handbook of Statistics* (United Nations, various issues).

The values obtained for IRCA is presented in Tables 3a and 3b.

**Table 3a: IRCA for Land-Based Products**

Years	Sugar	Dalo	Wood Chips	Yaqona	Copra	Coconut Oil	Gold
1988	93.3	0.2	23.8	0.0	0.0	0.1	39.9
1989	88.4	0.3	38.9	0.0	0.0	0.1	29.0
1990	79.6	0.8	50.5	0.0	0.0	0.1	26.1
1991	110.0	0.3	74.6	0.0	0.0	0.0	18.0
1992	116.3	0.6	106.9	0.0	0.0	0.1	21.2
1993	118.8	0.2	72.9	0.0	0.0	0.1	21.5
1994	110.8	1.4	52.9	0.0	0.0	0.0	16.6
1995	115.5	2.0	91.9	0.2	0.0	0.0	16.4
1996	98.0	2.0	67.2	0.2	0.0	0.0	20.4
1997	89.9	2.4	56.5	0.2	0.0	0.1	21.2
1998	98.8	1.9	100.9	2.0	1.5	0.1	16.6
1999	110.3	1.7	53.7	0.3	1.2	0.1	16.4
2000	120.0	3.1	66.7	0.3	0.8	0.1	16.4
2001	935.4	2.9	64.6	0.2	0.5	0.0	17.8

(Source: Authors computations based on data sources discussed above).

**Table 3b: IRCA for Sea-Based and Manufactured Good exports**

Years	Canned Fish	Fresh Fish	Textiles	Garments	Footwear
1988	107.3	3.6	0.0	21.5	0.0
1989	101.6	2.0	0.0	64.3	0.0
1990	84.3	3.5	0.0	65.3	0.0
1991	81.1	3.8	0.0	76.0	0.0
1992	67.8	4.0	0.0	64.7	0.0
1993	78.1	4.5	0.0	70.0	0.0
1994	78.8	5.5	0.0	66.7	0.0
1995	72.5	9.2	1.8	85.4	2.2
1996	53.3	6.4	3.1	71.9	1.5
1997	56.4	6.8	4.2	104.2	2.5
1998	42.9	6.1	4.1	108.4	2.0
1999	40.6	2.4	4.6	95.2	1.6
2000	3.1	11.2	5.9	100.5	3.0
2001	14.3	12.0	3.5	91.0	2.7

(Source: Authors computations based on data sources discussed above)

Our analysis included the computation of IRCA for products categorised at the three-digit level of the Standard International Trade Classifi-

cation (SITC). The period covered is 1988-2001. The starting year, 1988, falls in the post coup period and serves our interest in terms of analysing IRCA when Fiji's political instability was intense accompanied by trade liberalisation policies during this period. Our period of analysis ends in 2001, as data beyond 2001 was severely deficient.

The IRCA reveals that Fiji's comparative advantage in global trade remained narrow with products largely concentrated on land and sea based resources. Based on our results, we can categorise the export products into four main groups. These groups are as follows:

- Group 1: the IRCA achievers group (IRCA > 1)
- Group 2: The IRCA declining group (IRCA < 1)
- Group 3: The IRCA gainers group
- Group 4: The IRCA non-achievers group

#### **Group 1: The IRCA Achiever Group**

Of the twelve products under study, the IRCA confirms that nine products are in the IRCA achievers group. These are sugar, canned fish, fresh fish, dalo, wood chips, textiles, garments, footwear and gold. In general most of these products are resource based (land or sea) and continued to remain in the IRCA achievers group during the post coup period. The results also confirm that during the post coup period, the IRCA has strengthened for sugar, dalo, textiles, garments and footwear. This also supports the fact that Fiji's competitiveness in the world trade of these products has continued to remain strong.

#### **Group 2: The IRCA Declining Group**

Of the twelve products being studied, the IRCA also reveals that while some products continue to have a comparative advantage (IRCA > 1), their comparative advantage position has been weakening. Canned fish and gold are clear examples of this. For canned fish, the IRCA dropped from a high of 107.3 in 1988 to a low of 14.3 in 2001. The IRCA of gold also followed a similar pattern as that of canned fish. Gold had a high IRCA value of 39.9 in 1988; this gradually declined to 17.8 by 2001.

#### **Group 3: The IRCA Gainer's Group**

While some products achieved IRCA status, they, in fact, reveal increasing values over the post-1987 period. These products are sugar, fresh fish, wood chips and garments. These products not only reveal strong comparative advantage but also the strengthening of comparative advantage position over time.

#### Group 4: The IRCA Non-achievers Group

Of the twelve products considered, the IRCA's of the three products reveal that they do not have any comparative advantage. These products are yaqona, copra and coconut oil. For yaqona, the IRCA has been below one for all years except 1998. For copra, other than for years 1988 and 1999, all other years revealed IRCA of less than one. For coconut oil, the IRCA's have been less than one throughout the 1988-2001 period. The results clearly indicate that Fiji does not have any comparative advantage in their production.

#### Markets and Export Opportunities

Since Fiji began to diversify its export base following the crisis in 1987, there has been a growing concern in Fiji in terms of seeking more markets. Prior to 1990's, as Table 4 shows, the UK was the main market followed by Australia, New Zealand and USA. However, since 1990, exports to UK have declined. Average export to UK during 1985-1989 was 30.6%, while between 2000 and 2004, it stood at 12.0%. On the other hand exports to the USA gained momentum, rising from 4.7% during 1985-1989 to 24.1% during 2000-2004. Fiji's exports to Japan and New Zealand gradually declined since 1985. Fiji, nevertheless has been gaining increasing market share in some of the neighbouring Pacific Island countries: Samoa, Tonga and Kiribati. While the Pacific Island markets are positive developments, they are, however, very small. Fiji, thus, needs to break into high-income markets so as to maintain a viable export structure.

**Table 4: Direction of Exports  
(% of Total Exports, Period Averages)**

	1985-89	1990-94	1995-99	2000-04
Australia	18.0	17.4	30.4	20.3
United States of America	4.7	12.5	12.3	24.1
United Kingdom	30.6	24.2	16.8	12.0
Japan	3.9	6.3	5.3	4.8
New Zealand	7.3	7.4	6.3	3.6
Samoa	1.5	0.4	2.7	5.3
Portugal	2.5	0.7	1.8	2.4
Tonga	0.2	0.0	2.1	2.6
Hong Kong	0.6	0.7	0.9	2.0
Kiribati	0.6	0.3	1.0	1.6

(Source: Asian Development Bank, 2006).

#### Summary and Policy Implications

This paper provides a measure of Fiji's comparative advantage using annual data for the 1988-2001 periods for twelve major export products. Our analysis included the computation of IRCA for products at the three-digit level of the Standard International Trade Classification. The computations of IRCA confirm that nine export products are in the IRCA achievers group, with IRCA values greater than one. These are largely resource-based products and include sugar, canned fish, fresh fish, dalo, wood chips, textiles, garments, footwear and gold. In this group, the results confirm that during the post coup period, the IRCA has strengthened for sugar, dalo, textiles, garments and footwear, providing strong evidence that Fiji's competitiveness in the world trade of these products has continued to remain strong. Our results also confirm that the comparative advantage position weakened for canned fish and gold over time. The IRCA scores for sugar, fresh fish, wood chips and garments increased over the post 1987 period. This not only reveals strong comparative advantage but also the strengthening of comparative advantage position. The IRCA scores revealed that yaqona, copra and coconut oil do not have any comparative advantage, as the IRCA scores remained less than one.

It is to be noted that data deficiencies constrained our computation of IRCA in the post-2001 period. Fiji's trade expanded in the post-2000 period with growing exports of food crops to Australia and New Zealand. In recent times, Fiji has also managed to strengthen its trade relationship with Pacific Island countries and countries in Asia. Our computations of IRCA utilised the standard procedure as given in the literature by considering the world output. This study could be further strengthened by focusing on major trading partners. We do not consider major trading markets in our analysis as a result of data constraints and in particular the mismatch of commodities under consideration. Future research can take this into account within a modified framework by substituting world output with Fiji's major trading partners. In addition, it would also be useful to include newer trading partners in the Asia Pacific region as Fiji's trade within the Asia Pacific region is gathering momentum.

Fiji's economy underwent structural transformation, which had a direct bearing on factor endowments. Its structural transformation and changing factor endowments led to some transformation of the industrial sector. The IRCA provides evidence of resource-based products having comparative advantage. These are largely primary products. While Fiji's comparative advantage position is stronger in primary products, Fiji faces strong competition from other primary producers around the world. Fiji's

export structure is exposing the economy to exogenous shocks in terms of export price and earnings instability. Therefore, Fiji needs to diversify its export base so as to dampen the possibility of exogenous shocks.

Fiji also has a high level of structural openness as reflected in the share of its trade in GDP/GNP; this was often close to and in some years over 100 percent. Such trade openness means that Fiji has a high degree of exposure to exogenous shocks generated in the global economy, and, therefore, highly vulnerable to developments in the global trading environment. As such, the phased introduction of global trade reform within the principles of World Trade Organisation hold both opportunities (like overcoming diseconomies of scale through market expansion) and threats (like income and employment) to its growth prospects. Therefore, Fiji needs to diversify its export base perhaps into high value added products to reap the benefits of global freer trade regimes.

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