



Facilitating adjustment to the sugar woes in Fiji

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The resolution of problems with lease renewals in Fiji, particularly in the sugarcane districts, has ramifications for private investment and growth in the entire economy. The impending withdrawal of subsidies to sugar as world trade is liberalised has increased the urgency of finding solutions to these problems. This paper draws on game theory to characterise the problems facing the Fiji sugar industry. The incentives for land and ethnic politics are identified. Separate proposals are put forward to facilitate secure access to land and to minimise adjustment costs from the erosion of preferences under the Sugar Protocol. The rationalisation forced upon the sugar industry, if managed well, could induce land reforms that could improve the investment climate and the prospects for growth, whilst minimising pains of adjustment.

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The stresses facing the Fiji sugar industry from the expiry of land leases for many smallholder farmers and the erosion of trade preferences in the European Union have been raised by several commentators (see Reddy and Yanagida 1998; Levantis, Jotzo and Tulpule 2003; Prasad and Narayan 2004). Tenants knew some thirty years in advance of the exact date when their leases were going to expire, but were shocked when eviction notices did eventuate. The withdrawal of subsidies to sugar from the European Union was imminent since 1986 when agriculture was first brought within the ambit of GATT

and particularly since December 1994 following the commitment by the European Union to limit the value of export subsidies (and the volume of subsidised sugar exports from the European Union) at the conclusion of the Uruguay Round.

Preferential access for Fiji sugar into the United Kingdom and subsequently into the European Union (after the United Kingdom joined the European Economic Community in 1974) has existed since the inception of the industry in 1879. Some 60,000 workers, brought from India under the indenture scheme that lasted until 1916, subsequently

formed the smallholder sector growing sugarcane on land leased from the indigenous population. Preferential access into the European Union is provided for under the Sugar Protocol that took effect on 28 February 1975. The Protocol states that

...the [European] Community undertakes for an indefinite period to purchase and import, at guaranteed prices, specific quantities of cane sugar, raw or white, which originate in the ACP states and which these States undertake to deliver to it (Article 1 of the ACP/EU Sugar Protocol).

According to the Protocol, prices are to be negotiated annually, though in practice the price paid to the ACP (African, Caribbean, and Pacific) states is equal to that paid to EU producers. In its 1995 review of the sugar policy, the European Union clearly stated its intention to comply with its Uruguay Round commitments of 'substantial progressive reductions in agricultural support and protection'.¹ The impetus for withdrawal of EU sugar subsidies may have been hastened by disputes registered by Australia, Brazil and Thailand with the World Trade Organization (WTO).² The Cotonou Agreement lapses at the end of 2007, at which time the EU subsidies in the form of preferential prices for sugar imports will fall further.

Tenants were shocked by the non-renewal of their leases because of expectations that leases would be renewed. Political leadership was responsible for creating these expectations. For their part, landowners have had unrealistically high expectations of the profitability of sugarcane farming, and thus have been lured into sugar cane farming following the eviction of tenants. Communal politics, in the presence of rents in the form of sugar-subsidies, have encouraged inter-ethnic, rent-dissipating competition. Electoral support in an ethnically segmented population has been

maximised through the creation of discontent over the sharing of sugar proceeds between the growers (the majority of whom are ethnic Indians) and landowners (the majority of whom are indigenous). The availability of rents and opaque property rights provide fertile grounds for socially unproductive rent-seeking activity (see Bhagwati 1982 on directly unproductive profit-seeking activities). The loss of preferences for sugar (and greater transparency in decision-making), therefore, will reduce rent seeking.

This paper draws on a simple game-theoretic framework to analyse the problems faced by Fiji's smallholder sugarcane-growing sector. The model's predictions are consistent with the facts, thus allowing policy recommendations to be drawn for facilitating access to land and easing adjustment to declining preferences. The challenges of facilitating secure access to land should be considered separately from the challenges of facilitating adjustment to the withdrawal of subsidies to Fijian sugar. To achieve the former, the Native Land Trust Board (NLTB) should be 'unbundled' into two separate components: a regulator of the market for secure access to land and a competitive component responsible for land-intermediation. Adjustments to the withdrawal of sugar subsidies could be facilitated by 'decoupling' the subsidy implicit in locally produced sugar and using this as redundancy payments to farmers (and mill-workers) choosing to opt out of the industry. An illustrative example is used to show that such a process could increase the incomes of the farmers whilst reducing inefficiencies within the industry.

A synopsis of the sugar sector

Sugar is a large sector of the Fiji economy, contributing some 7 per cent of GDP, 22 per cent of total exports, and providing the livelihoods of nearly a quarter of the total



population (Prasad and Narayan 2004). Exports into the European Union receive prices that are from two to three times the world market price.³ There is little doubt that the preferences will fall over time, possibly in a stepwise fashion. The first of these reductions, of 50 per cent, is due to occur at the end of 2007; the complete erosion of the

subsidy could happen within a decade. The abolition of the preferential price arrangement is imminent given European Unions' commitment to abiding by the WTO process. The lapse of the subsidy, unless prepared for well in advance, will create serious pains of adjustment that are likely to flow on to the rest of the economy. The incentives for

Table 1 Sugar production statistics, 1971–2002

Year	No. of contracts	Area harvested (‘000 hectares)	Production (‘000 tons)	Sugar production (‘000 tons)
1971	15,548	47	2,545	323
1972	15,612	44	2,238	303
1973	16,533	46	2,496	301
1974	16,546	45	2,151	272
1975	17,264	45	2,160	264
1976	17,667	47	2,283	286
1977	18,395	52	2,674	362
1978	18,456	54	2,853	347
1979	19,152	62	4,063	473
1980	19,700	66	3,360	396
1981	21,000	66	3,931	470
1982	21,574	69	4,075	487
1983	21,880	59	2,203	276
1984	22,130	69	4,290	480
1985	22,159	70	3,042	341
1986	22,182	69	4,109	502
1987	22,255	66	2,960	401
1988	22,127	64	3,185	363
1989	21,771	71	4,099	461
1990	21,334	70	4,016	408
1991	24,479	73	3,380	389
1992	23,334	73	3,533	426
1993	23,454	74	3,704	442
1994	23,264	74	4,064	517
1995	22,449	74	4,110	454
1996	22,304	74	4,380	454
1997	22,100	73	3,280	347
1998	22,146	57	2,098	266
1999	22,178	65	3,958	377
2000	22,179	63	3,786	341
2001	21,882	66	2,805	293
2002	21,246	65	3,423	330

Source: Fiji, 1990. *Current Economic Statistics Bulletin*, January, Fiji Bureau of Statistics, Suva; Fiji, 2003. *Current Economic Statistics Bulletin*, June, Fiji Bureau of Statistics, Suva.

managing the adjustment process are strong. The Economic Partnership Arrangements of the European Union, moreover, contain measures to support adjustments to liberal trade as per WTO commitments (European Commission 2002).

The smallholder sector, which supplies all of the sugarcane, comprises some 21,000 farmers with supply-contracts to the Fiji Sugar Corporation (FSC). The average farm size is 4.6 hectares producing around 160 tons of sugarcane (data from Kingi 2004). All of the farms are rain fed and in a good year, total sugarcane production is approximately 4 million tons. The sugarcane is manually harvested by some 14,000 cutters who operate in small gangs, with the cane being transported to one of the four sugar mills operated by the FSC. Approximately equal quantities of cane are transported via the rail system operated by the FSC and on privately operated motor trucks (lorries); the latter have been increasing as sugarcane cultivation has expanded into areas without rail transport (FSC 2002). The mills are 68 per cent owned by the government, and employ around 3,000 workers—some only

during the half-yearly harvesting season. Depending on milling efficiency and the volume of throughput, total sugar production has ranged from 264,000 (in 1975) to 517,000 tons (in 1994, see Table 1).⁴ Most of the sugar produced is exported and some 80 per cent of the exports are sold to the European Union at a preferential price under the Sugar Protocol. The price paid to the grower for the cane is determined by a legislated formula that apportions the average price received for the sugar produced between the FSC and the grower (see Reddy 2004).

Seventy-four per cent of the farms are operated by Indo-Fijians with the vast majority of the farms on leased land. Leases have been expiring since 1997 with some 1,500 having expired in 2001 (see Table 2). The majority of the farms with expired leases have been taken over by the landowners, although a few are in the process of having their leases renewed. The area under sugarcane cultivation has been falling. In an attempt to stem this decline in sugarcane production, the government has been providing a grant of F\$10,000 to each landowner taking up sugarcane farming.

Table 2 Expiry of sugarcane farm leases in Fiji, 1997–2005

Year of expiry	Indo-Fijian leases		All cane leases	
	No.	Area (hectares)	No.	Area (hectares)
1997	27	232	27	232
1998	120	1,398	128	1,463
1999	158	1,708	170	1,962
2000	1,133	8,217	1,218	8,838
2001	1,494	7,861	1,542	8,337
2002	310	2,670	322	2,912
2003	435	2,945	465	3,240
2004	216	2,250	231	2,390
2005	228	2,297	245	2,490

Source: Reddy, M. and Naidu, V., 2001. 'Land tenure system in Fiji: the poverty implication of expiring leases', *Development Bulletin*, 55:33–35.



Many of the new landowner farmers have high expectations of the returns from sugarcane farming. Farmers enticed into the industry with public handouts will likely resist the withdrawal of subsidies when it does eventuate, and thus could become a strong lobby for domestic subsidies when the externally funded price support is withdrawn. Such subsidies would create their own set of political interests and ensuing problems.

Incentives for land (and ethnic) politics

Indigenous Fijians own some 87 per cent of total land; the state holds another 6 per cent, with the remainder being held under freehold title (Prasad 2004). The NLTB, established by the Native Land Trust Ordinance of 1940, has the sole legislative mandate to administer all land held in native title 'for the benefit of Fijian Owners.'⁵ The Board of Trustees of NLTB comprise the President, the Minister for Fijian Affairs, and another 10 members of whom at least 8 must be indigenous Fijians. The NLTB makes general policies regarding administration of native land, approval of leases, collection and distribution of proceeds from rental of land,⁶ and in building landlord-tenant relations. The NLTB, from its inception, has been remarkably successful in facilitating access to under-utilised land. Ratu Sir Lala Sukuna, the architect of the scheme, convinced landowners to release land for farming for the benefit of the nation as well as to farmers and the landowners. He argued to the 1936 Council of Chiefs that 'it is our duty to use our influence, our power, to open up waste *mataqali* land for agricultural purposes; whether they be taken up by Europeans, Indians, or Fijians' (quoted in Ward 1995:243). The scheme delivered gains from exchange and was based on trust between the lessees and lessors and, importantly, amongst the lessors themselves.⁷

The NLTB has a monopoly, granted via legislation, over the issue and administration of leases. This position has lent itself to abuse over time. Ward (1995:247), for example, suggested that the NLTB effectively dispossesses the owners of their land, while Vesikula (2002) noted that the distribution of rental income is a cause of considerable conflict within the landowning clan.

The incentives for rent-seeking behaviour by the NLTB intensified over time as the preferential price accorded to sugar increased while an increasing population, in a subdued economic environment, raised the pressure on land. Political competition intensified following independence in 1970, and thus land ownership offered itself as a convenient mechanism for mobilisation of the indigenous electorate (Prasad 2004). Similar incentives for mobilisation of ethnic Indian voters were generated as a defensive response. The trust of landowners in the NLTB also eroded over time as the institution itself became increasingly politicised. Informal (*vakavanua*) arrangements emerged as the administrative burden and distrust of the NLTB grew, but such arrangements have been unpopular for long-term crops such as sugarcane. The lack of legislative legitimacy has made enforceability of *vakavanua* contracts a problem. However, the *vakavanua* arrangements have been popular, particularly in the Sigatoka valley, for short-term (seasonal) cash crops such as maize, rice and tobacco.

The sugar industry is highly regulated, encompassing institutionalised (often legislated) groupings of landowners, growers, the miller, and the government. The Sugar Industry Act of 1984 created the Sugar Commission of Fiji (charged with the responsibility for coordination between sections of the industry), the Sugar Industry Tribunal (to settle industrial disputes), the Sugar Cane Growers' Council (as the representative of the growers), and Mill Area Committees (to organise harvesting) (see FSC

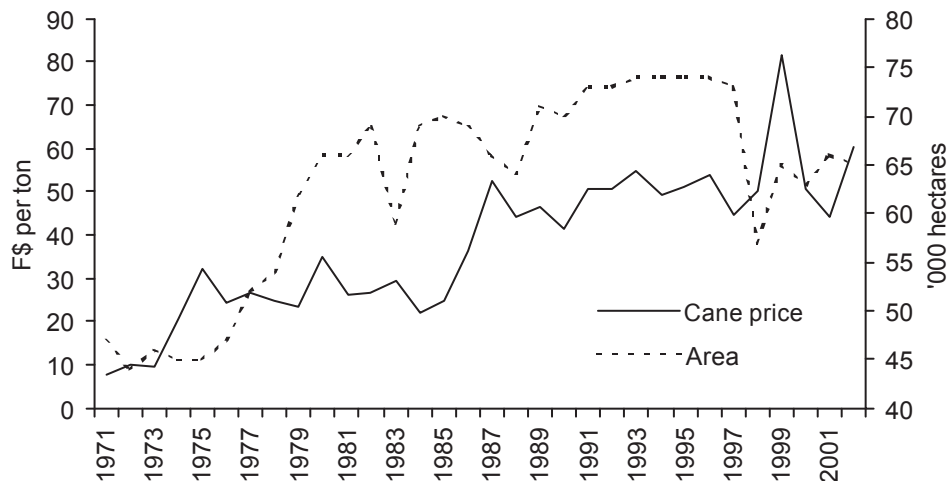
2002). The Fiji Sugar Corporation, the trade unions, the Fiji Sugar Marketing Company, and the Sugar Cane Research Station add yet other layers of organisational complexity. The apportionment of proceeds from sale of sugar between the miller and the growers is also governed by legislation in the form of a Master Award (Reddy 2004).

The electoral system, moreover, provides strong incentives for ethnic competition. Each of the three post-independence constitutions allocates the majority of the seats in the National Parliament (that is, the House of Representatives) on communal lines; the 1997 Constitution, for example, in the 71 member parliament has 23 and 19 seats, respectively, reserved for indigenous Fijians and ethnic Indians. One seat is reserved for Rotumans (that is, inhabitants of the island of Rotuma or registered as such) and another three are reserved for people not belonging to the communal groupings identified above.

The landowner–tenant divide thus serves as a convenient instrument for mobilisation of voters for political support at national elections.

The smallholder sector that produces sugarcane can be characterised as a perfectly competitive industry. It has minimal barriers to entry and exit. Population growth without job opportunities in the rest of the economy over the past three decades has led to the smallholder sector being the holding sector for the underemployed. Except at the peak of harvesting, supply of unskilled labour has not been a problem. The competitive nature of the smallholder sector implies that all rents to the growers are dissipated. First, the rent component of income from profitable farms such as those on alluvial plains close to the mills is capitalised; second, rising prices for sugarcane have led to an expansion of the area under cultivation (see Figure 1)—mainly onto marginal land and/or onto land further

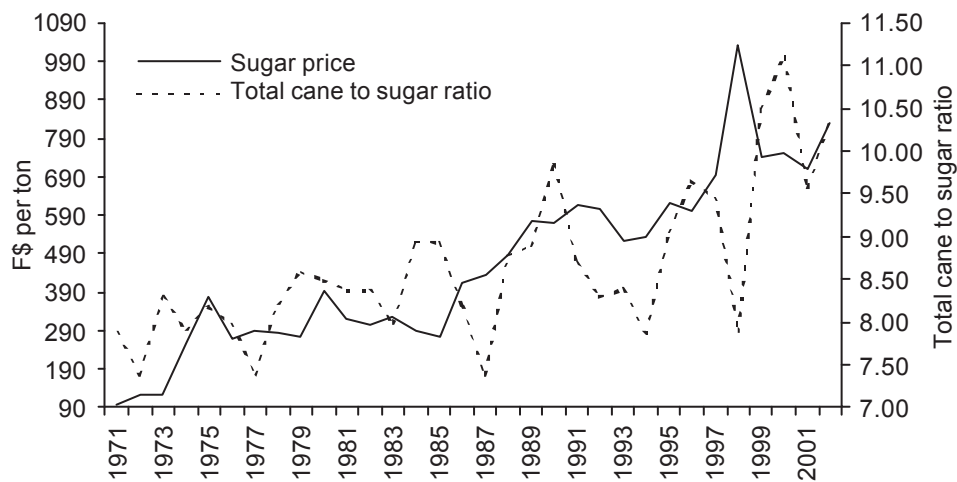
Figure 1 Expansion in area of sugarcane cultivation and price of cane, 1971–2002



Source: Fiji, 2003. *Current Economic Statistics*, June, Fiji Bureau of Statistics, Suva; Fiji, 1990. *Current Economic Statistics*, January, Fiji Bureau of Statistics, Suva.



Figure 2 Milling efficiency and sugar price, 1971–2002



Source: Fiji, 1990. *Current Economic Statistics*, January, Fiji Bureau of Statistics, Suva; Fiji, 2003. *Current Economic Statistics*, June, Fiji Bureau of Statistics, Suva.

away from the mills so that rents have been lost to rising costs of production and/or transportation; and third, subsidies have induced inefficiencies both in farming and milling. The simple correlation between the (current) price of cane and the area under cultivation over the 1971 to 1997 period (that is, before the lease renewals became a problem) is equal to 0.78.

Several surveys confirm that the majority of the farms make poor returns, with many continually in debt (Rao 2003). Milling inefficiency, represented by the ratio of tons of cane used to produce a ton of sugar, has also increased with the price of sugar (see Figure 2).⁸ The elasticity of tons of cane used to produce a ton of sugar with respect to the price for sugar for the 1971 to 2002 period is 0.1. This estimate is robust to the inclusion of area under cultivation to include the potential drop in cane quality with expansion of area under cultivation (see

Appendix Tables A1 to A3).⁹ The dissipation of subsidies in these ways is not peculiar to the Fiji sugar industry but is a common phenomenon across industries and countries (see Horstman and Markusen 1986; Vousden 1993; Chand 1999).

If rent dissipation is indeed the case, then the withdrawal of the subsidy to sugar should see a shrinkage in area under sugarcane production—possibly to those areas close to the mills and onto alluvial plains suitable for mechanised cultivation and harvesting, but without a significant loss of income to those growers over the longer-term. The short-term pains from such a shock are likely to be large and disproportionately felt by farmers on marginal land and land distant from the mills.

Landowners have been led to believe that the returns they have received are an unfairly low share of the rents from sugarcane



farming. Kurer (2001:1) notes that '[t]here is hardly a more universal complaint among Fijian landowners that they receive unfairly low rents from their land'. Such a perception has been common in village discussions, particularly around the kava bowl. It was given legitimacy via Davies and Gallimore (1999) when this study was publicised widely in the popular press. The conclusion that if 'just and fair' rents had been paid over the previous 30 years, each Fijian household would have received an additional accumulated total of approximately F\$15,000 was particularly noted. The 'exploitation' of landowners gained currency in the lead-up to the coup of 2000 when some indigenous Fijian political leadership pursued it.

Kurer (2001) in his detailed study confirms the competitive nature of the industry. He shows that the average farmer earns an annual cash income, inclusive of the costs of labour, of F\$862; this is in sharp contrast to the estimate of F\$8,000 by Davies and Gallimore (1999).¹⁰ Many commentators have repeatedly pointed out the low productivity of the sector, the prevalence of inefficient farming practices, and the unrealistic expectations landowners have of rewards from sugarcane farming (see Forsyth 1995; Kurer 2001; Rao 2003). Why then have indigenous leaders pursued the view of high returns from sugarcane farming? There are strong political incentives for such misinformation. Sugarcane farming and land serve as convenient instrument for mobilising the electorate on ethnicity. Together, they form the basis for ethnic politics; a process reinforced by the electoral system where the majority of the parliamentary seats are allocated on ethnic lines.

The NLTB presents the landowners as a united front, thus providing a strong incentive for tenants to unite in an adversarial environment. The process of lease renewals, moreover, is an outcome of political bargain between parties

representing the two major ethnic groups in the national parliament. The Agricultural Landlord and Tenants Act of 1976 (ALTA), for example, defined the term of lease renewals (of 30 years), the rights of tenants and landowners, and a rental formula together with dispute settling mechanism.¹¹ The Growers' Union, thus, earns its legitimacy only as a defender of the interests of the tenants, the majority of whom are ethnic Indians. This can be thought of as a capitalist (landowner) and labour (tenant) divide, but reinforced by an electoral system that allocates seats in parliament on the basis of ethnicity. In this context, aspiring leaders have an incentive to play up the landowner-tenant divide to maximise their support in national elections. Not surprisingly, land issues with divisive politics surface regularly during political strife. The system of incentives explains the prevalence of ethnically based politics, which is in essence a landowner-tenant struggle: a struggle given impetus via subsidies through the sugar protocol of the European Union. The above describes the deep causes of ethnically based competition in Fiji. Rents have been dissipated in 'wars of attrition' between the two ethnic groups, leading to an outcome akin to that of a 'prisoner's dilemma'.

The analytical framework

For tractability, assume that the NLTB has sole authority to make land available for sugarcane farming. Furthermore, let the Growers' Union be the sole representative of the smallholder sugarcane-growing sector. Rents are provided through subsidies to sugarcane production. We now have two players competing over the subsidy. Let the date of expiry of land leases be an endogenous outcome of political competition. The structure of incentives is one leading to reinforcing cleavage formation. The above characterises a non-cooperative two-player



Table 3 Pay-off matrix for tenant-owner game

		NLTB (on behalf of landowners)	
		Cooperate	Compete
Growers' Union (on behalf of tenants)	Cooperate	(3, 3)	(0, 4)
	Compete	(4, 0)	(0, 0)

(Nash) game between the two ethnic groups. This game is depicted in the payoff matrix given in Table 3.

The payoffs are hypothetical and only indicative of the relative magnitudes. The two players are the Growers' Union and the NLTB, with the payoffs to each given in parenthesis. As an example, if the two players choose to cooperate by equally sharing the rents, then each gets a payoff of 3 as shown in the third row of column 3. If, on the other hand, the growers choose to cooperate while the NLTB decides to compete (say by extracting goodwill from the growers), then all rents (net of dissipation of 2 units, in terms of resources spent to collect the goodwill) accrues to the latter. The payoff in the bottom left cell is for the converse case, while the payoffs are nil for each when both compete, as all rents are lost to dissipation. Note that in this game the joint payoff of 6 (that is, 3+3) is maximised when both players cooperate while non-cooperation leads to the worst possible outcome.

The Nash outcome, given by the bottom far right-hand cell with a nil payoff to both players, is discussed next.

A rent-seeking monopoly has the incentive to claim the presence of rents to justify its own existence. The monopoly, however, has the incentive to retain all rents given the competitive nature of its franchisees. The political leadership that

draws support from an ethnically based electorate has an incentive in maintaining the monopoly. One would therefore expect the NLTB to be highly politicised, legitimising its existence in a competitive framework as an agency for extracting rents from the competing party. The above presupposes the existence of rents to begin with but the NLTB has an incentive to exaggerate the existence of high profits earned by the ethnic-Indian farmers. The above explains why a study such as Davies and Gallimore (1999), supporting the presence of rents, would be popular amongst the indigenous (landowner) leadership while those challenging such a view, as did Kurer (2001), would largely be ignored.

The Growers' Union, as the representative of the tenants, has the incentive to convince tenants that lease-renewal can be achieved via the political process. That is, the Union loses its legitimacy should lease-renewals become independent of the political process. The Growers' Union is funded via levies (in contrast to the NLTB), and thus its existence depends on continuing political support. Such support, moreover, is critical for communal-parliamentary seats from the sugarcane growing districts; the politicisation of the industry on the part of the ethnic Indians is thus least surprising.

The game theoretic framework used above makes a number of simplifying

assumptions. This highly stylised representation of the land and sugar issues in Fiji, however, generates a number of predictions that are consistent with reality. The analysis, for example, provides the basis for the ethnically based and highly divisive politics in the country. Of note is the fact that changing the electoral rules to induce cross-cutting cleavages, as was attempted under the 1997 Constitution, was unsuccessful in ameliorating the ethnically divisive politics; possibly because it failed to address the deep roots of such competition.¹² In many respects, the competition between the landowners (capitalists) and tenants (labour) in Fiji is not too dissimilar to that seen elsewhere. The game theoretic framework used above, importantly, enables us to suggest remedies both in terms of improving access to land and in facilitating adjustment to the loss of subsidies. One clear implication is that sugar-subsidies have encouraged rent-seeking behaviour, and thus the erosion of trade preferences will reduce such socially harmful competition.

Facilitating adjustment to erosion of sugar subsidies from the European Union

Each smallholder producing sugarcane has a supply contract with the FSC in the form of a Farm Basic Allotment (FBA); as of 2002, the aggregate FBA stood at 4.08 million tons of sugarcane. As the first step in preparation for restructure of the sugar industry, the FBA could be assigned a property right. The value of the FBA can be deduced under the assumption that the preferences will fall in two equal steps; first at the end of 2007, and the remainder by the end of 2014. Under this assumption, we can calculate the value of subsidy implicit in each ton of sugar. Imagine a situation where the subsidy implicit in sugar exports is paid as a lump sum from

the European Union. The funds could then be used to purchase the FBA of individual farmers, thus creating a market for the asset created via the trade preference.

Let's use an illustrative case to demonstrate how such a market would work in practice. Assume that under current levels of subsidy, sugarcane is priced at F\$50 per ton. The assumptions regarding stepwise erosion of subsidies implies that this price will fall to F\$35 per ton from 2008, and decline to the subsidy-free price of F\$20 per ton by the beginning of 2015. Assuming a discount rate of 5 per cent, the net present value of subsidies implicit in each ton of FBA for the life of the Sugar Protocol is F\$156.67. Thus, on the basis of these assumptions, each ton of FBA as of the beginning of 2005 is worth F\$156.67. Of this, F\$9.40 would accrue to landowners as their share of the proceeds on the assumption that land rents amount to 6 per cent of the capitalised value of the subsidies.

A voluntary restructure of the industry could be induced via the purchase of the FBAs from smallholders funded by a lump-sum transfer of the subsidy (decoupled from sugar production) from the European Union. Farmers would have the following options: selling their FBA and exiting the industry; selling their FBA but remaining in the industry and selling their cane at the subsidy-free price; or remaining in the industry and enjoying the preferential price until it expires. These decisions could be left to the individual farmer, but they would be provided with the information on future sugar prices and the rationale for the purchase of the FBAs.

We can calculate the financial incentives facing farmers for each of the options listed above. Using the cash flow calculations provided in Kurer (2001: Table 4), an average farmer producing 160 tons of sugarcane would have the option of cashing their FBA for F\$23,564 (that is, 160 tons multiplied by



F\$147.27 per ton), followed by the option of remaining in the industry and facing the subsidy-free price of F\$20 per ton, or exiting the industry altogether.¹³ If this farmer invests this lump sum with the Fiji National Provident Fund, their cash income at an annual return of 7 per cent would amount to F\$1,649; should they decide to invest the amount in 15-year government bonds, the return at 5 per cent would amount to an annual income of F\$1,178; and, a fixed deposit with the commercial banks with a return of 3 per cent would yield an annual income of F\$707. The annual income from investing the sugar-rents in these ways range from 191 per cent to 82 per cent of the annual cash income of F\$862 earned by the farmer as reported in Kurer (2001).¹⁴ The financial incentives facing the farmer clearly favour selling the FBA and as soon as practical; the latter given the fact that the value of the FBA diminishes over time. The landowner, moreover, will continue to be paid land-rents; this will now be based on the revised UCV that, in turn, will depend on the quality of the land and how efficiently it is used. Demands for improved efficiency in land use will induce rationalisation within the smallholder sector. The revised UCV, however, will at least equal the old UCV less the capitalised value of rents; thus, landowners are unlikely to lose financially from the sale of the FBA.

Now to address some of the potential difficulties associated with the above strategy. First, will this mean the decimation of the sugar industry? Probably not, as the farms on the alluvial plains close to the mills will still find it profitable to grow sugarcane at the subsidy-free price. Even if it does mean a substantial reduction in the size of the industry, as in a worst-case scenario, this should not be of concern since the income earned from the land can remain healthy (that is, 'sweet') without relying on sugar. Next, will the European Union pay the aid implicit

in the sugar protocol as a lump sum? This is an issue for negotiation between the authorities, but such a request would be consistent with the WTO agenda and the EU Economic Partnership Agreements that encourage assistance with adjustment. If the European Union is willing to provide aid via trade, then it is hard to argue against continuing with the transfer as a one-off, lump sum payment to facilitate adjustment. If the European Union is unwilling to oblige, a request for assistance could be made to the international agencies.

How about the workers in the industry who will be made redundant? Given that the rents from preferential access to the European Union are divided between the manufacturer and the grower according to a set formula, a similar scheme to that for the grower can be devised for workers made redundant as the industry is forced to rationalise. What would be the political ramifications of paying out large sums of money to a select group of farmers? This could be tricky, but there is precedence in the government providing taxpayer-funded grants to farmers exiting the industry as well as landowners commencing sugarcane farming.¹⁵ The challenge for the leaders, and policymakers, would be to explain the logic for such a transfer as it is akin to making a fully-funded redundancy payout to farmers opting out of subsidised production for good.

Improving access to communally owned land

An efficiently operating market allowing access to land on the basis of a transparent and enforceable system of rules is critical for investment and growth in the broader economy (see de Soto 2000 and World Bank 2003). The market for land requires regulation. This is so for three reasons: first, due to the high costs and large economies of



scale of the institutional infrastructure needed to establish and maintain land rights; second, to allow for common standards and maintenance of records to enable impersonal exchange of land rights; and third, to minimise costs of enforcement of property rights (see World Bank 2003). An efficiently operating market facilitating access to land induces (long-term) investment, whereas a failing market can be a barrier to growth of the entire economic system. The costs of land conflicts, moreover, are disproportionately borne by the poor (World Bank 2003:xv) and have the potential to escalate into civil wars as demonstrated by the recent experience of Solomon Islands. Such 'externalities' justify public sector participation in securing property rights to land. We draw on the long-established systems for financial intermediation to think about facilitating secure, possibly long-term, access to communally owned land. It may be instructive to think of land as a fixed deposit, but with one major difference—land has spatial identity.

Accepting the need for a regulator to facilitate access to communally owned land, we consider how the existing system could be reformed. One sensible path to follow would be to unbundle the relevant components of NLTB into a Land Regulatory Authority (LRA) and a component responsible for intermediation of land between landowners and tenants. The component responsible for intermediation could be outsourced to the competitive private sector. The regulator would serve an analogous function to a Central Bank regarding supervision of the private sector intermediaries and in providing the regulatory framework for the efficient operation of the land-access market. More specifically, the role of the regulator would be in formulating rules regarding the operation of the market that facilitates access to land. The regulator would have to operate strictly at arm's length from lessees and lessors. Regulation would include the facility

to register land by any individual or group of individuals and in making available the use of such an asset for any length of time.¹⁶

Traditional landowners, for example, could be allowed to register their land either individually or jointly (via the *i-tokatoka* or *mataqali*).¹⁷ The existing parts of NLTB currently providing land-intermediation services could be broken up, possibly by provinces, and handed over to the provincial authorities. Land, much like fixed deposits, could then be made available for use for any period of time, subject to the prevailing regulations. The intermediary with appropriate regulatory supervision would have to guarantee that the leased land would revert back to the owner on the expiry of the lease. Payments for using the land would be a matter to be determined between the landowner and the tenant. Contracts would have to be drawn up, within the broad guidelines set by the regulator, and registered with the LRA such that a central repository of information on property rights is created and maintained. This should lead to the development of a secondary market for the lease. The payoff matrix between the tenant and the landowner would now look very different. Both will now be induced to cooperate in using any under-utilised resource for mutual gain. The intermediation services, moreover, are similar to that provided by real estate agents in respect of rental accommodation for housing within the major urban centres.

A system of the kind proposed above has several advantages over the existing system. First, it devolves decision-making on access to communally owned land to the individual owners and investors, but within a regulated system. Second, it permits leases of whatever length to be traded on the market with a price determined via forces of supply and demand. Third, it brings in competition over land-intermediation, thus encouraging mutually beneficial exchange between landowners



and investors, as opposed to the prisoner's dilemma outcome (Table 3). As an example, a landowner may act strategically in giving secure long-term access to a small parcel of their land in order to raise the value of the surrounding land. Such a scheme has been used relatively successfully in availing land for a major tourist development on Denerau Island. The system proposed above, moreover, will also erode incentives for ethnically based politics in Fiji.

Conclusions

The expiry of land leases on which sugar cane has been grown has brought to a head the challenges of facilitating secure long-term access to land. Doing so is particularly critical as a healthy market for secure and long-term access to land has implications for investment and growth of production in the broader economy. The impending erosion of preferences to sugar exports to the European Union as world trade is liberalised has increased the urgency for deciding on policies relating to adjustments to such a large shock. Much of the popular discussion has tried to address the issues regarding facilitating long-term access to land in the same breath as meeting the adjustment challenges posed by the erosion of sugar subsidies. This paper argues that these two, albeit related, are separate issues deserving their own distinct solutions. The issue of facilitating long-term secure access to land is a long-term challenge; the resolution of which necessitates building on the success of the existing mechanisms, the Native Land Trust Board arrangements in particular. The issue of facilitating adjustment to the erosion of preferential access to sugar exports to the European Union is a short-term challenge and one that is likely to be painful due to forced rationalisation; but one way or another this problem will be resolved in the next 14 years or so.

By subsidising resettlement of landowners on sugarcane farms vacated by tenants on the expiry of leases, policymakers have encouraged entry into a declining industry. This will exacerbate the pains of adjustment as EU subsidies delivered through the payment of preferential prices for Fijian sugar exports are withdrawn. There is the distinct possibility that the newly settled growers will undergo an unnecessary round of adjustment pains as the price of sugarcane falls. The prospective erosion of subsidies paid for sugar sold to the European Union is already placing severe demands on efficiency and productivity, both in growing the sugarcane and in milling the crop. Placing these demands on new growers is only likely to lead to even greater distress.¹⁸

This paper suggests interventions to facilitate long-term and secure access to communally owned land and argues for the creation of a regulatory agency charged with the responsibility of providing arms-length supervision of a market driven process that allows landowners to make their land available to investors. The model followed here is akin to that of financial intermediation where banks take fixed deposits, which are on-lent to investors for use on agreed terms and prices and under conditions of certainty. Such a system is likely to induce cooperation between the owners of land and those with the capital to make the most productive use of the asset. Private sector intermediaries make the market while the regulator ensures prudential supervision to avoid problems in the market spilling over to the rest of the economy. Achieving the above reforms is a long-term challenge and one likely to impact on the rate of investment and growth of the economy.

Facilitating adjustment to the loss of preferential access into the European Union, in contrast, is a short-term challenge. The Fijian economy would have to adjust, possibly very painfully, if nothing was done

to ease such pains as the preferential price is reduced. The solution proposed here is relatively clean in terms of economic efficiency, though the political acceptance of such a solution is hard to gauge. We propose that the aid implicit in sugar subsidies from the European Union be 'decoupled from production' and provided as a lump sum. This amount could then be used to purchase the sugarcane supply contracts (that is, the farm-based allotments) from the smallholder sector. Using an illustrative example, we show that farmers, in all likelihood, will happily sell their farm-based allotments on purely financial considerations. A similar mechanism could be used to rationalise the milling sector by paying-off workers made redundant from the rationalisation of the industry. This proposal facilitates rapid adjustment, participation of the stakeholders is totally voluntary, and the proposal is fully funded and consistent with WTO rules. This proposal has applicability beyond Fiji, particularly for adjustment in industries supported by preferential access into foreign country markets.

Notes

- ¹ This was the Punta del Este Declaration of ministers of trade made in September 1986 (quoted from <http://www.acpsugar.org/eusugar1995review.htm>, accessed on 18 October 2004).
- ² These are registered as DS265, DS266, and DS286, respectively. The WTO is reported to have ruled against the subsidies and the European Union has announced its intentions to appeal this decision (reported by *Economic News*, <http://economy.news.designerz.com/wto-rules-against-eu-sugar-subsidies-bloc-to-appeal.html> accessed on 18 November 2004).
- ³ As of 2004, the price paid for ACP exports of sugar to the European Union was 600 euros per ton, while the world market price was 250 euros. The total value of transfers via the subsidy, assuming that the EU-agreed quota

of 165,348 and the 19,181 tons sold under the Special Preferential Sugar (with the latter sold at a price that is 85 per cent of the guaranteed quota price under the former) quota is satisfied, will amount to nearly 64 million euros.

- ⁴ By international standards, Fiji is a high cost producer. Cane output in Fiji of around 50 tons per hectare compares unfavourably with that for Mauritius of 80 tons per hectare. The Fiji Prime Minister, moreover, has stated that cane yield per hectare in Fiji is the second lowest and sugar yield the worst amongst the 20 ACP sugar-producing states (*Fiji Sun*, 6 October 2004). The costs of producing a ton of sugar at the four mills, according to the Prime Minister, in Fiji dollars are 340, 320, 230, and 160 at the Penang, Lautoka, Labasa, and Rarawai mills, respectively.
- ⁵ Information on the NLTB, including the quote, is sourced from <http://www.nltb.com.fj/history.html>, accessed on 17/09/2004.
- ⁶ Land rents are set at a maximum of 6 per cent of unimproved capital value; the NLTB retains 25 per cent of the rental proceeds to cover administrative costs, the holder(s) of the three upper-most chiefly title within the traditional hierarchy take another 22.5 per cent, leaving the remaining 52.5 per cent to be shared by the rest of the *mataqali* (Ward 1995:221).
- ⁷ Such cooperation was possible under a statesman like Ratu Sir Lala Sukuna and perhaps assisted via a strong colonial regime that under-wrote all formal contracts. Ratu Sir Lala Sukuna had no illusions about the challenges facing land intermediation, pointing out to the chiefs in his address to the Council of Chiefs in 1933 that: 'We regard the Indian desire for more permanent tenancy as a natural and legitimate consequence of an agricultural community settling in any country. But how was this desire to be reconciled with the need to protect the interests of present and future Fijian landowners?' (as quoted in NLTB 2004).
- ⁸ Part of the rise in the total cane to sugar ratio (TCTS) is attributed to planting of varieties such as *Mana* that have low pure obtainable cane sugar and to increased burning of cane



during harvest; these in turn are due to cane being grown on marginal land with weeds being a major problem. Burning of cane increases at the end of the season when farmers rush to clear the standing crop from the fields.

- ⁹ The estimate here is of a long-run elasticity; the short time series disallows use of an error correction form (ECM) to decipher short and long run elasticities. The diagnostics do not suggest serious problems with the preferred model, however.
- ¹⁰ Davies and Gallimore reach this figure by multiplying the average price of cane of F\$50 by the average farm production of 160 tons, ignoring the costs of all inputs (including land rents, harvest and transportation costs, etc).
- ¹¹ ALTA superseded the Agricultural Landlord and Tenant Ordinance (ALTO) of 1966 that legislated 10-year leases.
- ¹² The 1997 Constitution can be seen as an attempt at imbedding the above game within a super-game with payoffs to force the cooperative outcome; with the benefit of hindsight of the 1999 elections, this proved not to be the case.
- ¹³ These payments would accrue to farms with leases up to 2014; leases expiring earlier than 2014 would have the payments to the stakeholders mimic what happens implicitly under the current system.
- ¹⁴ Kurer (2001) in arriving at this figure does not include transportation costs and costs attributed to supply of domestic labour; land rents and debt servicing are factored in his calculations, however.
- ¹⁵ The People's Coalition Government provided F\$28,000 rehabilitation grants to displaced farmers, while the SDL Government has been providing F\$10,000 grants to landowners entering the industry.
- ¹⁶ The UCV is maximised with a perpetual lease. That is, the UCV for a piece of land that generates rent (super-normal profit) of one unit each year equals $1/r[1-e^{-rT}]$, where r and T are the discount rate and the length of the lease, respectively.
- ¹⁷ The hierarchy of the indigenous social groupings has as its apex the *vanua* with the following breakdown as one progresses down the pyramid: *yavusa*; *mataqali*; and,

tokatoka. This characterisation was made uniform via the colonial authorities in preparation for land registrations in 1896 (see Ward, 1995: 202).

- ¹⁸ The *Fiji Sun* of 4 September 2004:21 in an article titled *Lega ni taukei e na tei dovu* (Trouble for landowners growing sugarcane) notes that displaced sugarcane farmers settled on government land in Navua were earning good cash income from traditional crops, while landowners in sugarcane farming were facing trouble.

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Appendix

Table A1 **Basic statistics on variables modelled; sample period, 1971–2002**

Variable(s)	Sugar price (current F\$)	Cane price (current F\$)	Area (‘000 hectares)	TCTS (ratio)
Maximum	1031.0	81.79	74.00	11.10
Minimum	97.00	7.95	44.00	7.38
Mean	460.78	37.74	62.78	8.65
Coefficient of variation (per cent)	48.00	44.00	16.00	11.00

Table A2 **Correlation matrix of variables**

	Sugar price	Cane price	Area	TCTS
Sugar price	1.000			
Cane price	0.85985	1.000		
Area	0.5234	0.6291	1.000	
TCTS	0.58234	0.55984	0.42913	1.000

Table A3 **Model estimates for milling efficiency to sugar price** (dependent variable: log TCTS)

Variable	Model 1	Model 2	Model 3	Model 4
Constant	1.54** (9.41)	1.47** (9.22)	1.27** (3.33)	2.09** (4.03)
Log(sugar price)	0.10** (3.75)		0.083** (2.28)	
Log (sugar price _{t-1})		0.11** (4.31)		0.19 (0.31)
Log (area)			0.092 (0.78)	-0.34 (-0.73)
Time trend	No	No	No	Yes
Number of observations	32	31	32	31
Adj. R-squared	0.30	0.37	0.29	0.40
DW-statistic	1.68	1.51	1.56	1.78

Notes: t-ratios are given in parenthesis; ** denotes the coefficient estimate is statistically significant at 5 per cent level of significance; and the TCTS is tons of cane to ton of sugar. Given the small number of observations, care has to be taken in interpreting the results above. The errors generated from each of the models were diagnosed for problems of misspecification, autocorrelation, joint-significance of parameter estimates, etc. The plot of error terms from Model 1, the preferred model, is give below.