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IMPACTS OF, AND FARMER RESPONSES TO, BANANA INDUSTRY DEREGULATION : EVIDENCE FROM LOWER SOUTH COAST BANANA FARMERS

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A survey of 28 banana growers on the Lower South Coast (LSC) of KwaZulu-Natal showed that Banana Industry deregulation led to increased price variability and farm financial stress. This made farmers more aware of the need to improve their marketing skills, consider product diversification and improve fruit quality. Respondents rated their willingness to take marketing risk as low relative to other farmers. Discriminant analysis identified growers who were more likely to be affected by the abolition of the Banana Board as those who (1) previously marketed most of their quality fruit through the Board, (2) were less willing to take production risks, (3) were not sole owners of their farm business, (4) perceived the marketing potential on the LSC to be poor, and (5) had relatively high debt-asset ratios. After the Board was abolished, most farmers still chose not to market the fruit themselves (due to relatively high opportunity cost of their time and low rating in product marketing skills relative to other farmers), but rather used marketing agents. Faced with increased price risk, farmers improved their market bargaining power with the agents by voluntarily forming a private co-operative, which also provided them with more market information and

IMPAK VAN, EN BOERE SE REAKSIE OP DEREGULASIE VAN DIE PIESANGBEDRYF : ONDERVINDING VAN PIESANGBOERE VAN DIE LAER SUIDKUS

'n Opname onder 28 piesangkwekers aan die Laer Suidkus (LSK) van KwaZulu-Natal het getoon dat deregulasie van die piesangbedryf gelei het tot groter prysskommelings en finansiële spanning op plase. Dit het boere meer bewus gemaak van die noodsaak om hulle bemarkingsvaardighede te verbeter, produkvertakking te oorweeg en vruggehalte te verbeter. Respondente het hulle bereidwilligheid om bemarkingsrisiko's te loop in vergelyking met ander boere laag aangeslaan. Diskriminerende ontleding het kwekers uitgewys wat waarskynliker geraak sou word deur die afskaffing van die Piesangraad as diene wat (1) voorheen die meeste van hulle gehaltevrugte deur die Raad bemark het, (2) minder bereidwillig was om produksierisiko's te loop, (3) nie alleeneienaars van hulle plaasbesigheid was nie, (4) die bemarkingspotensiaal aan die LSK as swak beskou het, en (5) betreklik hoë skuld-bateverhoudings gehad het. Na die Raad afgeskaf is, het die meeste boere steeds verkies om nie die vrugte self te bemark nie (weens betreklik hoë geleentheidskoste van hulle tyd en swak bemarkingsvaardighede relatief tot ander boere), maar liefste bemarkingsagente gebruik. Gekonfronteer met verhoogde prysrisiko het boere hulle markbedingingsmag by die agente verbeter deur vrywilliglik 'n privaot koöperasie te vorm wat aan hulle ook meer markinligting verskaf en vrugteverpakking en vervoer na die agente gekoördineer het.

1. Introduction

Banana production on the Lower South Coast (LSC) is characterized by a large number of relatively small producers farming an average of 30 hectares of bananas. This puts these producers in a relatively weak bargaining position with marketing agents, and they lack resources to keep abreast of changes in factors such as product prices and consumer tastes. It may thus be desirable for an organization to exist which renders essential marketing services to these producers (Strydom, 1985). The Banana Board was established for this purpose in 1958 to control the distribution and marketing of bananas outside of the production areas, develop new markets during times of overproduction, stabilize prices and standardise and improve the quality of the marketed product (Banana Control Board, 1958/59).

Over time the Banana Board's functions changed to the extent that more emphasis was laid on the effective marketing of the fruit to apparently ensure "stable banana prices and stability within the industry" (Banana Board, 1991/92). The major banana producing area is the Eastern Transvaal, which produces approximately 85% of South Africa's total banana crop. Producers on the LSC accounted

for only 15% of the total South African crop (Banana Board, 1991/92). With the advent of political change in the country, growing public dissatisfaction with controlled marketing, and pressure from large Eastern Transvaal banana growers who felt the Board was undermining their marketing efforts, the Banana Industry was deregulated in 1993. The Banana Board was replaced by a public company, Subtropico, through which farmers could voluntarily market their bananas. Growers thus had to decide to either continue to sell their fruit through Subtropico or another marketing agency, or market the product themselves. This has increased price, marketing and financial uncertainty in banana production.

This study investigates farmer responses to market deregulation and abolition of the Banana Board, using a sample of banana farmers on the Lower South Coast (LSC) of KwaZulu-Natal. Discriminant analysis is used to identify characteristics of farmers whose farm operations were more markedly affected by abolition of the Board. The data source is first outlined, after which farmer characteristics, marketing risk, effects of disbanding the Board and subsequent farmer responses are discussed. The discriminant analysis is then presented, followed by a conclusion which discusses management implications of the study.

2. Data source

A personal survey of banana growers on the LSC from Ifafa to Port Edward was conducted using a detailed questionnaire adapted from Ortmann *et al* (1992). A simple random sample of farmers was not drawn because the local Banana Growers' Association Chairman indicated that many of the growers had very small farms and so would not be able to provide the detailed information. It was decided to take a cross-section sample of 30 (out of 150) farmers in the study area who were most able to provide the required data.

Twenty-eight of the 30 sample farmers completed the questionnaire, giving a 93% response rate. The success of the survey can be attributed to good personal contact between the main author and the farmers.

3. Characteristics of the respondents

All of the 28 respondents were male with a mean age of 47 years and an average of 13 years of formal education. Twenty-five respondents were employed full-time on the farm and all of them owned land, while five rented additional land on a cash rent and seven on a share lease basis. Farm sizes ranged from 11 hectares to 3400 hectares with the mean and median farm sizes being 326 hectares and 135 hectares respectively. The main enterprises included bananas, sugar-cane and timber (eucalyptus); irrigated bananas provided 62% of gross farm turnover on average, while sugar-cane and timber contributed 15% and 3% respectively. The mean area planted to irrigated bananas was 30 hectares compared to sugar-cane and timber average areas of 220 hectares and 86 hectares respectively. Sample farmers thus produced bananas under intensive conditions and derived most of their income from this enterprise. Other crops included macadamia nuts, litchis, mangoes, granadillas, papaws and timber (pine and wattle), but these only accounted for a small portion of gross farm turnover.

The median gross farm turnover was R600 000 per annum. The sample farmers were relatively solvent, with 84% reporting debt-asset ratios below 30%. The respondents were asked to rate their management skills relative to other farmers in farm production, product marketing, farm finance and overall farm management on a Likert type scale of one (low) to five (high). The survey farmers rated their product management skills the highest, with a mean rating of 4,21. Skills in product marketing relative to other farmers were rated lowest with a mean rating of 2,79. This emphasises the farmers' past dependence on the Banana Board for banana marketing services - which led farmers to focus on banana production rather than acquiring necessary marketing skills themselves.

4. Marketing risk

4.1 Sources of and responses to marketing risk

Respondents rated greater banana price variability as one of the most important sources of risk associated with Banana Board abolition (Kuhn, 1994). Important marketing responses to increased price risk were the establishment of a private co-operative, to coordinate packing days and transportation of fruit, and the acquisition of more timely marketing information. Barry *et al* (1995) suggest that pooling arrangements available through marketing co-operatives enable farmers to transfer storage, sale, and pricing functions to larger organizations. The private co-operative formed by the LSC banana growers did not assume all of the above functions but, in addition to coordinating the packing days and fruit transport, provided up-to-date information about market trends and prices to the farmers. Selling on the free market, as a response to increased marketing risk, was rated very low by respondents as many did not have the experience or necessary time to do so (Kuhn, 1994).

4.2 Willingness to take marketing risk

Respondents were asked to rate their willingness to take risks relative to other farmers on a Likert-type scale ranging from one (low) to five (high). They rated their willingness to take production risks relative to other farmers the highest with a mean rating of 3,64. Willingness to take risks in product marketing was rated the lowest with a mean rating of 3,00. Table 1 summarises key respondent characteristics for different levels of willingness to take risks in product marketing. Younger farmers with relatively more formal education, higher gross incomes and lower debt-asset ratios seem much more willing to take marketing risk than other farmers. They may be more willing to bear greater price variation since their relatively healthier financial position increases risk bearing capacity (Barry *et al*, 1995).

5. Effects of Banana Board abolition

Respondents were asked to indicate on a Likert type scale ranging from one (low) to five (high) what effects disbanding of the Board had on their farming operations. Increased price variability (also an important source of risk) and business financial stress had the highest mean ratings of 3,92 and 3,60 respectively. The new situation reflects a freer market where one can expect greater price fluctuations that will directly affect cash flow and ability to meet debt repayment and other cash needs. The abolition of the Banana Board also increased time spent on, and difficulty

Table 1: Respondents' characteristics for different levels of willingness to take risks in product marketing, LSC banana farmers, 1994 (n = 24)

Willingness to take marketing risk	n	Gross income (Rand)	Education (years)	Age (years)	Debt/Asset Ratio
Much less willing	5	497000	13,6	57	0,28
Less willing	3	1050000	12,0	49	0,08
Willing	8	1292090	14,2	47	0,21
More willing	4	347500	13,5	45	0,16
Much more willing	4	1408500	16,0	38	0,17

n = number of respondents.

Table 2: Marketing of bananas before and after abolition of the Banana Board, LSC banana farmers, 1994

Marketing channel	Before disbanding		After disbanding	
	n	Mean % of crop marketed	n	Mean % of crop marketed
Sell on farm	11	34,2	12	35,6
Sell to local stores	6	8,4	6	10,6
Durban Market			2	45,0
Pietermaritzburg Market			1	20,0
Banana Board	27	87,9		
Marketing Agents			26	84,6

* n = number of respondents.

** Percentages exceed 100 because some respondents marketed their fruit in more than one category.

in, marketing bananas. Many respondents were not fully aware of the logistics involved in banana marketing and the services provided by the Board. In addition, most farmers considered diversifying their farming operation to reduce some of the income risk due to fluctuating prices. Farmers also identified a need to improve the quality of their fruit. Now that sales are no longer guaranteed, poor quality fruit is less likely to be sold. Thus to maintain sales and market share, respondents must produce high quality fruit to attract customers and potentially receive a better product price.

6. Marketing responses to Banana Board abolition

Farmers could freely market their bananas once the Board was abolished, but most still chose to use a formal marketing agency (such as Numbi) to do the marketing on their behalf (see Table 2).

Most fruit (87,9%) was previously marketed through the Banana Board, with 17 respondents selling some of their fruit, mostly rejects, on the farm and in local towns. The Board therefore had significant control over the marketing and distribution of the fruit produced by respondents. A year after the Banana Board was disbanded, four more respondents were personally marketing their produce, either on the farm or on the Durban and Pietermaritzburg markets, but most of the fruit (84,6%) was still marketed through marketing agents. The main reasons given by respondents for using these agents were: insufficient time to personally market the fruit, insufficient resources for own marketing, better prices were obtained when marketing through an agency, and the marketing agents were better able to distribute the fruit. According to Barry *et al* (1995), the marketing firm's knowledge of market conditions, large size, and specialized management enhances its ability to cope with the marketing risk and increases the probability of securing better prices which may add to expected profits of farmers.

7. Discriminant analysis

Discriminant analysis was used to identify factors which distinguish between farmers who felt they were or were not markedly affected by abolition of the Banana Board. The dependent variable AFFECT was dichotomous, equalling 1 (if the respondent felt that abolition greatly affected his farm operation) or 0 (if the respondent felt that abolition did not markedly affect his farm operation). Independent variables considered as determinants of AFFECT included: area planted to bananas, percentage of turnover generated by bananas, percentage of quality grade bananas previously

marketed through the Board, percentage of crop marketed as large and extra large grades, level of farm diversification (1 = low, 5 = high), total farm size, willingness to take risks in farm production (1 = not willing, 5 = very willing), willingness to take risks in product marketing (1 = not willing, 5 = very willing), off farm business activities, farm ownership structure (1 = sole ownership, 2 = partnership, 3 = company, 4 = trust, 5 = close corporation), banana marketing potential on the LSC (1 = bad, 3 = good) and debt-asset ratio (degree of financial stress). Fifteen of the 28 respondents reported that disbanding of the Banana Board did affect their banana operation, while 13 felt that it had no marked effect. The 16 variables were included in the discriminant function on an exploratory basis (missing data limited the sample size to 23).

The following linear discriminant function (equation 1) was estimated:

$$Z_i = 0,76X_1 - 0,64X_2 - 0,53X_3 + 0,41X_4 + 0,40X_5 \tag{1}$$

(0,017)** (0,020)* (0,024)
(0,028)* (0,033)*

where ** and * denote significance at the 1% and 5% levels (t - distribution) respectively, and

- Z_i = discriminant score of the ith farmer,
- X₁ = percentage of quality grade bananas previously marketed through the Board,
- X₂ = marketing potential on the LSC,
- X₃ = willingness to take risks in farm production,
- X₄ = farm ownership structure, and
- X₅ = degree of financial stress.

A low Wilk's lambda of 0,51 and a high 86% of correctly classified farmers indicate a good discriminant function. Classification results are upwardly biased since the same variables were used to derive the discriminant function and to classify farmer groups. Based on the standardized coefficients, the percentage of quality grade bananas previously sold through the Board (X₁) is the main discriminator. This is plausible as most quality grade bananas were sold through the Board, and its abolition initially led to less effective quality grade distribution. Monitoring of markets by the Board on a national level - which ensured that the respective markets were not oversupplied - was replaced by marketing agents who predominantly distribute the fruit within KwaZulu-Natal, causing lower prices for quality fruit due to increased

supply. There is no longer the situation where an undersupply of bananas in the Western Cape could be met by the Board transporting LSC bananas there, or of supplies to one market being restricted by the Board to maintain prices.

Marketing potential on the LSC (X_2) is the second most important factor. Respondents who were more affected by the abolition of the Board had a low weighting on this variable since they see limited scope for diverting fruit to the LSC market. The negative coefficient for willingness to take production risks (X_3) suggests that those respondents affected by abolition of the Board were less willing to take production risks. The risk inherent in banana production has increased with increased price variability, and so farmers who are more willing to take production risks are expected to perceive less impact compared to their more risk averse counterparts.

The positive coefficient for farm ownership structure (X_4) identifies respondents other than sole owners (partnerships, close corporations and companies) as being more affected by Board disbandment. Farmers with these business forms tended to have larger farms and marketed most of their banana crop through the Board as the local market did not have the capacity to absorb large quantities of fruit (Kuhn, 1994). Sole owners tended to have smaller farms with smaller fruit output which could be marketed locally. Thus abolition of the Board did not markedly affect their sale and distribution of bananas. The positive debt-asset ratio (X_5) coefficient means that farmers with greater financial stress were more likely to be affected by abolition of the Board. Increased price variability would make it more difficult for these farmers to service their relatively higher debt levels.

8. Conclusion

Greater price variability, leading to increased farm financial stress, were the main sources of risk and perceived effects of banana market deregulation. The Banana Board previously controlled product distribution which led to relatively stable producer prices. After the Board was abolished, co-ordination at the national level weakened and local markets received erratic supplies of bananas, which meant greater price variability. Study farmers responded to increased price uncertainty by trying to improve marketing knowledge, improve fruit quality and diversify farm operations. However, they were not likely to assume the marketing function themselves, as they were mainly small banana producers who rated their marketing skills below average relative to other farmers. Recent drought has probably meant a greater need for them to focus more on day-to-day farm management activities than on marketing in the short run.

This short-term response is reflected by the percentage of bananas marketed through formal marketing agents not declining significantly a year after deregulation. Most

respondents considered themselves risk averse, which in addition to low marketing skills, would probably explain why they used marketing agents. The opportunity cost of time to these farmers is also relatively high, and time spent marketing the fruit could rather be spent on day-to-day business management. Respondents who were more affected by the abolition of the Board (1) previously marketed most of their quality grade fruit through the Board, (2) were less willing to take production risks, (3) perceived limited local marketing potential for their bananas, (4) tended not to be sole owners (greater product volume previously marketed by the Board) and (5) had relatively high debt-asset ratios (less able to manage price variability).

In order to co-ordinate packing days and transport of the fruit to marketing agents, the sample farmers formed a voluntary private co-operative which also provides them with important information on price trends and consumer behaviour. This organisation gives the small growers bargaining power to effectively deal and negotiate with marketing agents. It has essentially taken over the functions of the Banana Board on a localised basis and is a good example of how individual farmers can cope with increased marketing uncertainty arising from industry deregulation.

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