

THE SOUTH AFRICAN SUGAR INDUSTRY'S DIVISION OF PROCEEDS: THE EXISTING FORMULA AND THE MARGINAL SUCROSE PRICE

By B. A. JORDAN*

South African Cane Growers' Association, Durban

Abstract

The division of proceeds is a concept which has been used since 1936 to distribute the sugar industry's earnings between the equal partners in the industry – the milling and growing sections. The formula has been revised over the years to accommodate changes in the structure of the industry. The last major revision – the introduction of the 'two pools' system – was implemented in the 1985/86 season. The intention behind this revision was to improve the price signal to producers – moving from a situation where each additional ton of cane produced earned an average price to where that extra ton now attracts the B Pool price. The latter is a price which better reflects the earnings the industry will receive for the additional sugar produced. This is an important point to remember when assessing the impact of new technologies or other changes in individual farm (or mill) circumstances. Unless additional quota can be procured, all additional production should be valued at the B Pool price to avoid overestimating its income-generating potential.

Introduction

The South African sugar industry operates as an equal partnership between the milling (which includes the refiners) and the growing sections. One of the pillars of the partnership agreement is the division of proceeds, which has been used as the means of distributing the industry's earnings since 1936. As are many of the industry's activities, this is governed by the Sugar Industry Agreement of 1979 and administered by the South African Sugar Association (SASA). The formula has been revised over the years to accommodate changes in the structure of the industry. (As with any change of policy, any change in the principles governing the division of proceeds must be approved by the council of SASA – in other words, must have the approval of both partners.) The last major revision was the introduction of a 'two pools' system, which occurred in the 1985/86 season. This revision was intended to make the producer 'face the market' with his marginal production. The result is a compromise which maintains each section's relative share of the proceeds but, instead of an average price, presents the producer with the 'correct, market related' price signal. Since the introduction of the pools system, several changes have been made to the formula, mainly as a result of the implementation of deregulation proposals, but none of these alters the main principles.

Method

The current formula consists of two stages: the division of total proceeds and the pools and sucrose price calculation.

* Views expressed in this paper are the author's, and do not necessarily reflect the policy of the Association.

The division of total proceeds

Each section's share of the industrial proceeds is determined according to principles used before the pools system and detailed in Figure 1.

Some items may require clarification:

The Price Stabilisation Fund (PSF): The industry's proceeds consist of the total revenue from the sale of sugar and molasses, which may be reduced (or augmented) by a contribution to (or from) the PSF. The fund has been used over the years to 'smooth' the flow of revenue. In 'good' years some revenue has been diverted to the PSF to be held for 'lean' years when withdrawals from the PSF have helped offset production costs. Between 1980 and 1985, the industry raised some R327 m in loans to supplement the PSF through years of low production caused by drought or flood and/or consistently low world market sugar prices. Over the past few seasons, a provision for the repayment of these loans has been deducted from the revenue.

The Net Divisible Proceeds (NDP): These are the proceeds available for distribution after the costs of running the industry and of refining sugar for the national market have been met (the breakdown of these costs is illustrated in Figure 2). The two sections share the NDP in the ratio, firstly, of their cost requirements until these are satisfied, and then, of their allowed returns on capital.

The cost requirements, with the exception of the depreciation and management allowances, of both sections are determined by adjusting the average of the actual costs incurred in the three preceding seasons to reflect changes in the prices of inputs, using published indices, and in the size of the crop. (The actual costs recorded for each of the preceding three seasons are themselves adjusted to bring them to a common base, that of the immediately preceding season, before they are averaged.) The actual costs incurred by each section are determined by an annual, audited survey of all millers and a representative sample of growers.

There are a number of calculated allowances by which the sections recoup an amount for depreciation (and management for the growing section) and a return on capital, if the proceeds are sufficient to permit the latter. In most cases these are calculated by adjusting a pre-determined base value for changes in prices (for example, the milling section's depreciation allowance is adjusted by the mechanical engineers' index) and for structural changes (for example, the growing section's depreciation allowance is adjusted for changes in the area under cane).

The pools system and the sucrose price calculations

Allocation of the crop

The fundamental controls in this industry are those aimed at protecting its economic stability. The international sugar market is notorious as a 'dumping ground' for excess production and is particularly vulnerable to speculative activity.

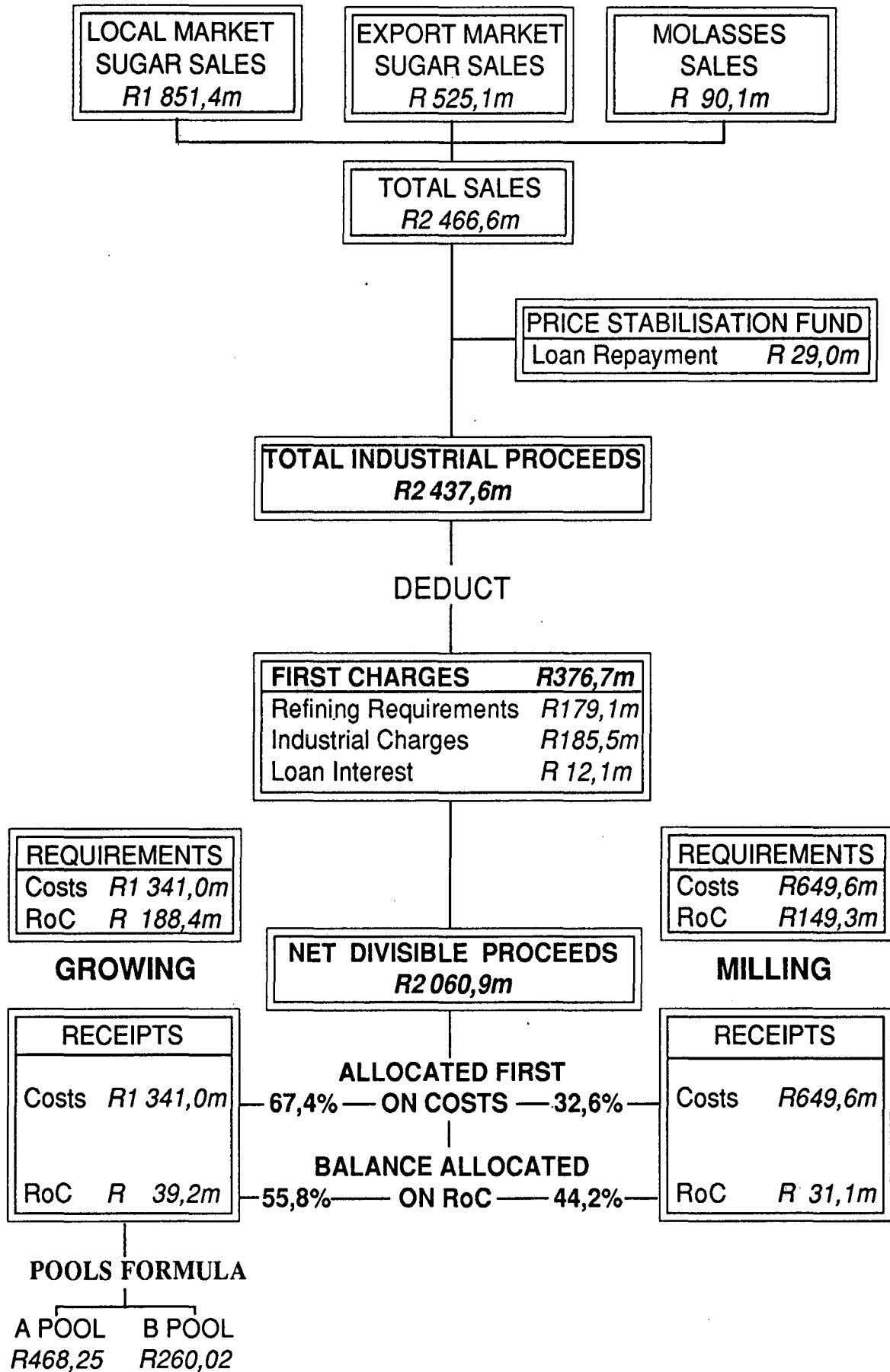


FIGURE 1 The division of proceeds and the sucrose price calculation, final 1991/92

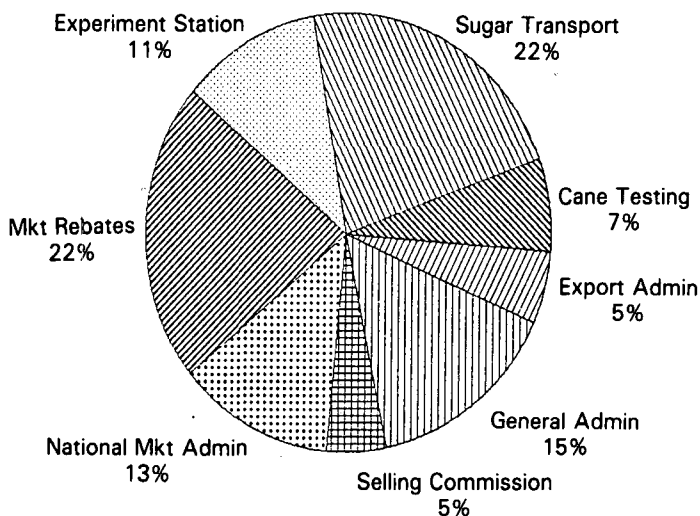


FIGURE 2 Industrial charges, 1991-1992

This industry has historically exported about 40% of its production (unpublished data), so any increase in production would mean an increasing exposure to the low world market price, which could seriously undermine the economic viability of the industry. The primary limit to production is the level of A Pool basic quotas.

This was set, at the introduction of the pools system, as that required to meet the demand in the national market and fulfil long term export contracts. The national market originally comprised about 64% of the tonnage in the A Pool. By 1990/91 it comprised 71%, and the industry had extended the A Pool to include small growers' entire deliveries and an expansion in quota.

The B Pool production was initially limited in that a grower could not produce more than the equivalent of his A Pool quota. This limitation has been relaxed and a grower may now deliver up to 140% of his A Pool tonnage in the B Pool (personal communication).

Quotas are linked to a particular mill, which is entitled to produce the sugar equivalent of the sum of the growers' sucrose quotas in the A Pool. The remainder of its production is designated B Pool. If some growers fail to deliver their full A Pool quotas, the miller may use B Pool sucrose deliveries to make up the full A Pool entitlement. Individual growers now have the opportunity to temporarily sell the right to deliver A Pool sucrose. That portion of the quota which they are unable to deliver in any one season may be sold for that season to another grower at the same mill.

Allocation of proceeds

Although the A Pool was originally set at a level which would ensure sufficient production to cover long term export contracts, proceeds from particular export markets and/or contracts are not allocated specifically between the pools. In the A Pool the national market is satisfied first and the remaining production is valued at the average export earnings.

Allocation of requirements

The sections' requirements are allocated between the pools in the following ratios:

Variable costs and return on capital allowances are allocated in proportion to production – sugar produced in the case of the milling section and sucrose delivered in the case of the growing section.

Fixed costs are allocated between the pools in the same ratio as variable costs if the total sugar production falls below the industry's standard crop (2,1m tons). If it exceeds the standard crop the allocation is based on sugar production, with the A Pool allocation being:

$$\text{Total fixed costs} \times \frac{\text{actual sugar produced in A Pool}}{2,1\text{m tons}}$$

The remaining fixed costs are allocated to the B Pool.

Industrial costs are mostly attributable to either the national or the export marketing activity and are allocated between the pools in the ratio of the tonnage of sugar in each pool allocated to the particular market. Those which cannot be attributed in this way are allocated in the ratio of the total tonnage of sugar produced in each pool. The industrial loan repayment and interest are allocated to the A Pool only.

The B Pool calculation

The B Pool sucrose price is calculated first to ensure that all growers delivering B Pool sucrose receive the correct price – specifically where there is a shortfall in A Pool deliveries, as has been the case in each season since the introduction of the pools system. To achieve this, the proceeds and costs in the B Pool are determined on the basis of the 'deemed' sugar production – i.e. the sugar that would have been produced and sold in the B Pool had all the B Pool sucrose delivered been used for that purpose. The division of these proceeds follows the same principles as in the division of total proceeds.

The residual division

Where B Pool sucrose has been used to make A Pool sugar the proceeds distributed in the 'deemed' calculation exceed those actually earned. Milling proceeds in the B Pool will therefore be the residual after growing 'deemed' proceeds are deducted from the actual B Pool proceeds. Similarly, as each section's total proceeds has been determined (in the first stage), sectional proceeds in the A Pool are residuals – as illustrated in Table 1.

Table 1

Residual division of net divisible proceeds

| NDP (R million) | Total | Growing | Milling |
|-----------------|---------|---------|---------|
| Total | 2 060,9 | 1 380,2 | 680,7 |
| B Pool | 197,8 | 144,4 | 53,4 |
| A Pool | 1 863,1 | 1 235,8 | 627,3 |

The milling section redistributes proceeds from the millers, who paid B Pool sucrose prices for sucrose used to make A Pool sugar, to those who paid the A Pool price for that sucrose.

The sucrose prices

The declared prices per ton of sucrose relate to the growing section's proceeds in each pool after the deduction of levies. In the past, most of these have been amounts for redistribution amongst growers (e.g. the Equalisation Fund and the Cane Transport Fund). From the 1992/93 season, the only deduction will be the levy used to fund the Growers' Association.

Discussion

The obvious effect of the pools system is that it provides the producer (be he miller or grower) with much better information regarding the value of any marginal production. It also has the advantage that the risk of the extra tonnage produced earning a return less than the cost of producing it, as often happens on the world market, is borne by the individual rather than averaged across all producers in the industry.

Table 2 shows the final sucrose prices since the introduction of the pools system, compared with the industrial average price. This illustrates the above points. By showing the different prices, it indicates the importance of using the correct price when assessing the impact of new technologies or of other changes in individual farm circumstances. (For a mill, the milling margin rather than the sucrose price in each pool would be considered.)

Table 2
Final prices

| Season | Price of sucrose | | Price of cane |
|----------|------------------|--------|---------------|
| 1985/86 | A POOL | 236,64 | 31,07 |
| | B POOL | 103,11 | 13,54 |
| | IND. AVE. | 217,68 | 28,58 |
| 1986/87 | A POOL | 298,90 | 38,26 |
| | B POOL | 162,06 | 20,74 |
| | IND. AVE. | 278,93 | 35,70 |
| 1987/88 | A POOL | 299,68 | 35,96 |
| | B POOL | 132,97 | 15,96 |
| | IND. AVE. | 268,62 | 32,23 |
| 1988/89 | A POOL | 339,10 | 42,76 |
| | B POOL | 257,93 | 32,52 |
| | IND. AVE. | 323,76 | 40,83 |
| 1989/90 | A POOL | 387,32 | 51,01 |
| | B POOL | 358,92 | 47,27 |
| | IND. AVE. | 382,36 | 50,36 |
| 1990/91 | A POOL | 436,19 | 56,31 |
| | B POOL | 362,09 | 46,75 |
| | IND. AVE. | 429,21 | 55,41 |
| 1992/93* | A POOL | 468,25 | 61,08 |
| | B POOL | 260,02 | 33,92 |
| | IND. AVE. | 435,59 | 56,80 |
| 1992/93* | A POOL | 679,00 | 87,10 |
| | B POOL | 330,00 | 42,90 |
| | IND. AVE. | 646,00 | 84,00 |

SOURCE: 1985/86 onwards - Final Sucrose Price Books (SASA)
* Estimates

At times the use of the industrial average would be appropriate but in many instances, such as when considering the introduction of new technology that would increase production from an established cane farm, its use would dangerously overstate the potential to generate income. (It would seem that, on average, the overstatement is likely to be about R25 per ton in 1991 Rand terms.) If a grower is already producing his full A Pool quota and extra quota cannot be procured, the feasibility of increasing production must be assessed using the B Pool price.

For example, a grower considering introducing a potentially higher yielding cane variety which requires a higher level of expenditure on inputs, may take different decisions, all other things being equal, if the additional sucrose yield was contributing to the performance of newly acquired quota

rather than increasing B Pool deliveries. Indeed, in the latter case the correct decision, based on the B Pool price, may be not to replant at all. The danger of using an average price in assessing feasibility is self-evident.

However, having recognised that the particular circumstance involves potential additional B Pool production, and that the marginal prices (and costs) should be used in assessing the feasibility, one is faced with the problem of estimating the price. Figure 3 illustrates some of the data presented in Table 2, together with the seasonal average price of sugar on the New York market, and shows how quickly the B Pool price responds to changes in the world market. Most investments in the sugar industry are either medium or long term in nature. An attempt should therefore be made to use the best available estimate of the medium term B Pool price.

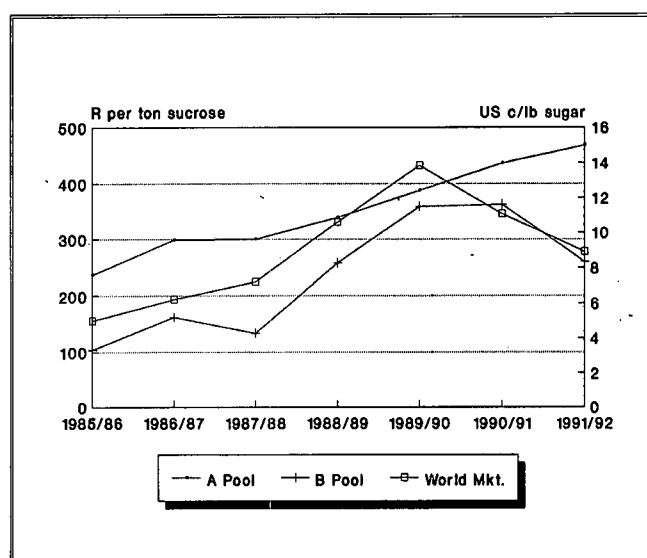


FIGURE 3 Price of sucrose and sugar

When assessing the economic feasibility of technical change for the small grower, the appropriate price is, the A Pool price (provided the change does not push production over the limit of an average of 150 tons of sucrose in any two year period).

One matter which raises concern over the method of dividing the proceeds may be seen in the data in Table 2. In recent years these producer prices have increased but at rates below inflation - yet producers face input costs which have kept pace with or risen faster than inflation. Although cane growers have become more cost efficient since the introduction of the pools system, it is debatable to what extent efficiencies can continue to be improved in order to beat this cost-price squeeze. The charge that the method of dividing the industry's proceeds is, to some extent, responsible for this price trend must be investigated and answered.

The effect of the pools system under drought conditions can also be seen in Table 2. The estimates of prices for the 1992/93 season are based on a crop of 1,85m tons of sugar (the industry's normal production being about 2,1m tons). Growers who normally deliver a tonnage of B Pool cane, but who have been affected by local drought conditions to the extent of being able to produce only for the A Pool, will be better off by about R3,00 per ton of cane under the pools system than facing an average price.

One other advantage of the current method is that it is self-adjusting and therefore can quickly reflect the most important structural changes. For example, a change in size, such as the opening of a new mill or the switch of cane land to timber production, will have an immediate impact through the current formula. The alternative, a fixed share of proceeds for each section, would require recognition of the change (easy enough for the opening of a new mill, not so with the gradual withdrawal of cane land), investigation of its effect and renegotiation of the fixed division.

Conclusion

The division of proceeds provides important economic and market information to producers through the sucrose prices and the milling margins. The structure of the formula is such that the veracity of the information is dependent on the willingness of the partners to preserve the integrity of the agreement. The introduction of the pools system has improved the information conveyed by the prices by allowing producers to 'face the market' to some extent. It is therefore important, when assessing the economic implications of technological change, that use is made of the available information.

Acknowledgements

I wish to thank Mr EJ Buchanan and Mr JR Hudson for encouragement and helpful criticism.