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Sugar tax in South Africa: estimating the financial impact on sugarcane growers

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Abstract In April 2018, the South Africa government implemented a tax on sugar added in non-alcoholic Sugar-Sweetened Beverages (SSBs), called the Health Promotion Levy (HPL). This study estimated the financial impact of the HPL, specifically on sugarcane growers in South Africa. The estimation was conducted across three annual seasons based on the final Recoverable Value (RV) prices paid to sugarcane growers in South Africa, compared to a hypothetical RV price, without the reduction in sugar sales to the SSB sector. The HPL resulted in the cost of sugar for SSB manufacturers rising above the threshold level and almost tripling instantly on 1 April 2018. Many SSB manufacturers in South Africa swiftly reformulated their product mixes by substituting sugar with artificial sweeteners, which resulted in a significant demand decrease for local sugar in South Africa, which is currently the greatest source of industry revenue. Sugar sales data over three seasons indicate that local sales to SSB manufacturers have been reduced by approximately 50% and contributed to an initial 14.6% decline in the RV price in 2018, as South African sugar industry legislation prescribes that the equivalent decrease in sugar sales be exported at lower prevailing world prices. The annual average large-scale SA Cane Growers Cost Survey results for rainfed and irrigated regions are analysed to demonstrate the negative impact of the HPL on the growers' returns. The earnings before interest, the management salaries, as well as the tax and depreciation are compared in the two scenarios over three seasons.

Key words Cane payments, sugar tax, sugarcane, South Africa

INTRODUCTION

Sugarcane is cultivated in South Africa on about 355 000 ha, with an average of about 250 000 ha harvested each year (Singels *et al.* 2019; SACGA 2021), with cane delivered to the remaining 12 sugar factories. Total sugarcane production averages around 19 Mt of cane, which results in an annual mean of 2 Mt of sugar.

In South Africa, sugarcane growers are remunerated for their sugarcane based on the Recoverable Value (RV) payment system (Todd and Forber 2005; Wynne 2009; Murray 2019). This payment system was introduced from the 2000/01 season, with revenue based on sugar and molasses. In this payment system, growers are incentivised to maximise sucrose and minimise both non-sucrose and fibre content in their cane deliveries (Groom 1999; Moor 2002).

In April 2018, the South Africa government implemented a new levy on non-alcoholic sugar-sweetened beverages (SSBs), named the Health Promotion Levy (HPL) (SARS 2018; Essman *et al.* 2021). When implemented, the HPL was based on sugar content, at a rate of R0.021 (≈US\$0.0013, with ZAR/US\$ = R16) for each gram of sugar over a threshold of 4 g/100 mL (SARS 2018). Whilst the rate may appear to be insignificant, it was, at the time of implementation, about 200% of the industrial price of domestic refined sugar (Nel and Musingadi 2019; Saxena *et al.* 2019; Stacey *et al.* 2019; Essman *et al.* 2021). Effectively, the cost of sugar, over the threshold, for SSB manufacturers, tripled instantly on 1 April 2018. To avoid passing this excessive additional cost onto consumers, most SSB manufacturers swiftly reformulated their product mixes by substituting sugar, beyond the threshold, with artificial sweeteners (e.g., Bosire *et al.* 2020; Stacey *et al.* 2019; Wrottesley *et al.* 2021)). This resulted in a significantly sharp decrease in demand for local sugar in South Africa.

Historically, SSB manufacturers purchased over 500 000 t of locally produced sugar averaged annually (e.g., BFAP 2019; Kadwa 2019). From the 2018/19 to 2020/21 seasons, three years of data since the HPL was introduced, indicate that sales have reduced in this sector by approximately 50%. Due to the South African sugar industry legislation (SIA 2000), the equivalent reduction in local sugar sales must be exported. In general, sugar export realized prices are considerably below the costs of production and are sold at a loss. Industry revenue according to the Division of Proceeds (DoP) calculation (SIA 2000), per tonne sugar, is therefore, reduced.

This paper estimates the financial impact of the HPL, specifically on sugarcane growers in South Africa, based on the reduction in sugar sales to the SSB sector.

METHODOLOGY

The financial estimation is based on comparing the actual final RV prices for the 2018/19, 2019/20 and 2020/21 seasons, to hypothetical final RV prices, for these three seasons, without the reduction in sales to the SSB sector, due to the HPL. Table 1 shows a summary of this calculation, with a constant ZAR to US\$ exchange rate of R16.00 being used. The LMDE difference includes changes to the carry-over sugar tonnages, based on the industry formula (SIA 2000). The additional industry revenue is estimated using the actual weighted average local and export price differential, for each season. Sugarcane legislated industry costs are assumed to remain the same.

Table 1. Estimating the HPL impact on the RV Price in South Africa: 2018/19 – 2020/21 seasons.

Parameter	2018/19 Final RV Price		2019/20 Final RV Price		2020/21 Final RV Price	
	Actual	Hypothetical	Actual	Hypothetical	Actual	Hypothetical
RV (t)	2404397	2404397	2420833	2420833	2221356	2221356
Saleable sugar (t)	2183821	2183821	2217055	2217055	2018224	2018224
Local market sales (t)	1227709	1477709	1247282	1497282	1435583	1685583
Carry-over (t)	255269	307250	257464	309069	297891	349767
Less Carry-in (t)	(341989)	(341989)	(255270)	307250	(257464)	309069
LMDE (t)	1140989	1442970	1249476	1499101	1476010	1726281
LMDE difference (t)		301981		249625		250271
Export availability (t)	1042832	740851	967579	717954	542214	291943
Additional industry revenue (USD)		85859 548		72415 660		69415 404
Growers' D.O.P share		64.3127%		64.3127%		64.3127%
Additional growers' proceeds (USD)		55218 593		46572 466		44642 921
RV price change (ZAR)		367.45		307.81		321.55
Final RV price (ZAR)	3574.41	3941.86	4220.58	4528.39	5030.39	5351.94
RV Price change (USD)		22.97		19.24		20.10
Final RV price (USD)	223.40	246.37	263.79	283.02	314.40	334.50

Average large-scale grower annual SA Canegrowers Cost Survey results for rainfed and irrigated regions are analysed to demonstrate the HPL negative impact on growers returns. Farm economics of large-scale growers (growers delivering more than 1800 t of cane per annum) were analysed using survey data from SA Cane Growers' Association (SACGA 2019). Actual data for the 2017/18 season were used as this was the base year for the analysis, and the data for the 2018, 2019 and 2020 season were estimated using indices from the Crops and Markets Reports released by the Department of Agriculture, Forestry and Fisheries (DAFF 2019, 2020). The survey elicited cost and income data from a sample of large-scale growers from the 14 mill-supply area (MSAs) in South Africa. Average cost and income statistics reported in this study were determined by weighting MSA values by the deliveries of large-scale growers in each MSA.

Earnings in South African Rands (ZAR) before interest, management salaries, tax, and depreciation (EBITD) are compared in the two price scenarios. The positive difference in EBITD is calculated by taking the actual difference between the EBITD per tonne from the Actual scenario and the EBITD per tonne from the Hypothetical scenario. This shows the amount the grower would have gained in the Hypothetical scenario. These are converted to United States Dollars (USD) at the assumed exchange rate of ZAR16.00 to 1USD.

RESULTS AND DISCUSSION

Table 2 shows the comparison between the actual revenue, costs, EBITD per tonne and the hypothetical revenue, costs, EBITD per tonne if the HPL levy was not promulgated and had the effect it had on the Local Market Demand Estimate (LMDE). The initial decrease of the RV price in 2018/19 season due to the HPL policy caused already struggling rainfed growers to incur a R27.90 (\$1.74) EBITD per tonne loss. The irrigated growers fared slightly better with a R104.77 (\$6.55) EBITD profit per tonne. However, if the HPL policy had not come into effect the Hypothetical scenario presented in Table 2 would have played out as the Local Market Demand would not have been depressed by the SSB sector having to change formulation to other sweeteners. Sugar would have still formed part of their major sweetening ingredients. The Hypothetical RV price of R3941.86 (\$246.37) per ton RV for the 2018/19 would have provided the rainfed and irrigated growers with an increase in gross revenue of 10%. This would have contributed to the rainfed growers making a small EBITD profit of R17.31 (\$1.08) per tonne and the irrigated growers would have been better off by R153.83 (\$9.61) per tonne than the actual. The positive difference of EBITD for the rainfed growers is R45.21 (\$2.83) per tonne and the positive difference for the irrigated growers is R49.05 (\$3.07) in the Hypothetical scenario. Therefore, all growers in the 2018/19 season would have been better off and financially viable in the Hypothetical scenario.

Table 2. Earnings before Interest, Management Salaries, Tax and Depreciation (EBITD) for the Actual 2018/19, 2019/20 and 2020/21 RV Price compared to the Hypothetical Price for the same seasons.

2018/19 Season	Rainfed				Irrigated			
	Actual (ZA)	Hypothetical (ZA)	Actual (USD)	Hypothetical (USD)	Actual (ZA)	Hypothetical (ZA)	Actual (USD)	Hypothetical (USD)
Gross income per tonne	439.24	484.45	27.45	30.28	477.18	526.24	29.82	32.89
Total operating costs per tonne	467.14	467.14	29.20	29.20	372.41	372.41	23.28	23.28
EBITD per tonne	-27.90	17.31	-1.74	1.08	104.77	153.83	6.55	9.61
Positive difference in EBITD per tonne		45.21		2.83		49.05		3.07
	10%				10%			
2019/20 Season	Rainfed				Irrigated			
	Actual (ZA)	Hypothetical (ZA)	Actual (USD)	Hypothetical (USD)	Actual (ZA)	Hypothetical (ZA)	Actual (USD)	Hypothetical (USD)
Gross income per tonne	530.95	569.67	33.18	35.60	549.10	589.14	34.32	36.82
Total operating costs per tonne	534.28	534.28	33.39	33.39	394.11	394.11	24.63	24.63
EBITD per tonne	-3.33	35.39	-0.21	2.21	154.99	195.04	9.69	12.19
Positive difference in EBITD per tonne		38.72		2.42		40.05		2.50
	7%				7%			
2020/21 Season	Rainfed				Irrigated			
	Actual (ZA)	Hypothetical (ZA)	Actual (USD)	Hypothetical (USD)	Actual (ZA)	Hypothetical (ZA)	Actual (USD)	Hypothetical (USD)
Gross income per tonne	632.82	673.27	39.55	42.08	643.53	684.59	40.22	42.79
Total operating costs per tonne	557.90	557.90	34.87	34.87	429.93	429.93	26.87	26.87
EBITD per tonne	74.92	115.37	4.68	7.21	213.60	254.66	13.35	15.92
Positive difference in EBITD per tonne		40.45		2.53		41.06		2.57

Similarly in the following two seasons, the 2019/20 and 2020/21 season rainfed and irrigated growers would have been better off in the Hypothetical scenario compared to the Actual scenario in gross revenue by 7% in 2019/20 and 6% in 2020/21 season. The positive EBITD impact that growers could have achieved compared to actual was an average for both seasons of R39.59 (\$2.59) per tonne for rainfed growers and R40.55 (\$2.71) per tonne for irrigated growers in the Hypothetical scenario compared to the Actual scenario.

As the 2018/19 season was the initial season where the HPL was implemented there was an impact showing just how effective a tax of this nature could be on lowering demand of sugar for SSB production. The 2018/19 and 2019/20 seasons show a 20% decrease in the LMDE for the Hypothetical scenario compared to the Actual scenario for sugar as shown in table one but only a 17% decrease in 2020/21 between the two scenarios. A 3% improvement in the LMDE is a positive sign that the industry worked together to mitigate some of the impact of the HPL. The reduction in the LMDE in the 2020/21 season did not occur at the same rate as the previous two seasons.

However, two years post the implementation of the HPL due to the need for an industry plan to ensure sustainability and job creation for the near future, the Sugar Industry Master Plan was developed by all industry stakeholders. The Sugar Industry Master Plan has a stated vision of "A diversified and globally competitive, sustainable, and transformed sugarcane-based value chain that actively contributes to South Africa's economic and social development, creating prosperity for stakeholders in the sugarcane value chain, the wider bioeconomy, society, and the environment (DTI 2020)." The Sugar Industry Master Plan was implemented to arrest the decline of the South African Sugar Industry by engaging all stakeholders in the industry and design a way forward to ensure industry sustainability and job retention.

To achieve this vision the starting point among many objectives is to stabilise the industry and the first action commitment in this regard is to restore the local market by encouraging local manufacturers and retailers to buy South African sugar. There are six other action commitments aimed at delivering on the vision of the Master Plan. However, this first action commitment implemented in the 2020/21 season has already played a role in slowing down the rate of decline of the Local Market Demand Estimate. This can be seen in the data presented as the RV Price improved over the 2019/20 and 2020/21 seasons due to improvements in the actual LMDE achieved.

CONCLUSION

The promulgation of the HPL has had an immediate impact on South African growers due to the average reduction of 19% of the local market demand over the 2018/19, 2019/20 and 2020/21 seasons. It also highlighted that the SSB sector over years has been preparing for this scenario and the ease and pace at which they could substitute sugar in their production lines. The lower demand for sugar led to an immediate decrease in the price paid to growers for the Recoverable Sugar extracted from their sugarcane. The impact in 2018/19 season price reduction of 14.6% was in many ways a direct response to the HPL implementation. However, RV prices did recover somewhat in the Actual scenario due to industry engagements with the market in 2019 and the Sugar Industry Master Plan's first objective of stabilising the local market and offtake of South African sugar.

The cost to growers in potential revenue through higher prices is visible in the data presented. The impact on the HPL could not come at a worse time, where the South African sugar industry coming out of the drought of 2014, 2015 and 2016, high imports in 2017 and the HPL in 2018. Growers also have incurred above inflation increases in wages, electricity, and fuel over the seasons under analysis. Growers play a significant role in rural employment as 30% of their farm budget is allocated to farm staff. Direct farm employment is estimated at 65, 000 people and the livelihoods of these people are at risk when growers' profitability is threatened (SACGA 2019).

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Taxe sur le sucre en Afrique du Sud: estimer l'impact financier sur les producteurs de canne à sucre

Résumé. En avril 2018, le gouvernement sud-africain a mis en place une taxe sur le sucre ajouté dans les boissons sucrées non alcoolisées (SSB), appelée Health Promotion Levy (HPL). Cette étude a estimé l'impact financier de la HPL, en particulier sur les producteurs de canne à sucre en Afrique du Sud. L'estimation a été réalisée sur trois saisons annuelles sur la base des prix finaux de la valeur recouvrable (RV) payés aux producteurs de canne à sucre en Afrique du Sud, par rapport à un prix RV hypothétique, sans la réduction des ventes de sucre au secteur SSB. La HPL a entraîné une augmentation du coût du sucre pour les fabricants de SSB au-dessus du seuil et a presque triplé instantanément le 1er avril 2018. De nombreux fabricants de SSB en Afrique du Sud ont rapidement reformulé leurs gammes de produits en remplaçant le sucre par des édulcorants artificiels, ce qui a entraîné une baisse significative de la demande pour le sucre local en Afrique du Sud, qui est actuellement la plus grande source de revenus de l'industrie. Les données sur les ventes de sucre sur trois saisons indiquent que les ventes locales aux fabricants de SSB ont été réduites d'environ 50 % et ont contribué à une baisse initiale de 14,6 % du prix des véhicules récréatifs en 2018, la législation sud-africaine de l'industrie sucrière prescrivant que la diminution équivalente des ventes de sucre soit exportée à des prix mondiaux en vigueur plus bas. Les résultats annuels moyens à grande échelle de l'enquête SA sur les coûts des producteurs de canne pour les régions pluviales et irriguées sont analysés pour démontrer l'impact négatif de la HPL sur les revenus des producteurs. Les revenus avant les intérêts, les salaires des dirigeants, ainsi que les impôts et les amortissements sont comparés dans les deux scénarios sur trois saisons.

Mots-clés: Paiements de la canne, taxe sur le sucre, canne à sucre, Afrique du Sud

Impuesto al azúcar en Sudáfrica: estimación del impacto financiero para los cultivadores de caña de azúcar

Resumen. En abril de 2018, el gobierno de Sudáfrica implementó un impuesto sobre el azúcar añadido en las bebidas azucaradas no alcohólicas (SSBs), llamado Impuesto para Promover la Salud (HPL). Este estudio estimó el impacto financiero de HPL, específicamente en los productores de caña de azúcar en Sudáfrica. La estimación se realizó a lo largo de tres temporadas anuales en base a los precios finales del Valor Recuperable (RV) pagados a los productores de caña de azúcar en Sudáfrica, en comparación con un precio RV hipotético, sin la reducción en las ventas de azúcar al sector de SSB. El HPL hizo que el costo del azúcar para los fabricantes de SSB aumentara por encima del nivel umbral y casi se triplicara instantáneamente el 1 de abril de 2018. Muchos fabricantes de SSB en Sudáfrica reformularon rápidamente sus mezclas de productos al sustituir el azúcar por edulcorantes artificiales, lo que resultó en una disminución significativa de la demanda para el azúcar local en Sudáfrica, que actualmente es la mayor fuente de ingresos de la industria. Los datos de ventas de azúcar durante tres temporadas indican que las ventas locales a los fabricantes de SSB se redujeron en aproximadamente un 50% y contribuyeron a una disminución inicial del 14,6% en el precio de RV en 2018, ya que la legislación de la industria azucarera de Sudáfrica define que la disminución equivalente en las ventas de azúcar sea exportada a precios mundiales más bajos. Se analizan los resultados promedio anuales a gran escala de la Encuesta de Costos de Productores de Caña de SA para las regiones de secano y de regadío para demostrar el impacto negativo del HPL en los ingresos de los productores. Las ganancias antes de intereses, los salarios por manejo, así como los impuestos y la depreciación se comparan en los dos escenarios durante tres temporadas.

Palabras clave: Pagos de caña, impuesto al azúcar, caña de azúcar, Sudáfrica