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## **The red meat industry and employment in South Africa. Evidence based on statutory levies**

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### ***Abstract:***

*We empirically evaluated the role of the red meat industry towards employment in South Africa's agricultural sector. The paper used liner regression and delta method in the analysis. The results indicate that overall, a two-year extension of statutory levy regime in the red meat industry will positively influence employment (by 38%) in the economy. Although the focus was on the red meat industry, the increase in employment will occur along the various stages of the sheep and cattle value chains as well as in the other closely associated industries like the agro-processing and services industries.*

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# **The red meat industry and employment in South Africa. Evidence based on statutory levies**

## **Abstract**

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## **1. Background**

The Red Meat Industry Forum (RMIF) posits that it plays a critical role to ensure that South Africa attains sustainable transformation and development. RMIF puts emphasis on enabling previously disadvantaged individuals from designated groups to participate in the formal market. In practice, RMIF extends transformation and development projects to smallholder farmers, developing processors, abattoirs, butchers, livestock agents, and inspectors among other actors along the various red meat value chains. The role of the industry in job creation comes into play when the various RMIF member organisations (Annex 1) initiate and facilitate developmental programmes through which the above listed actors participate. In that respect and in accordance with the new guidelines on how to spend statutory levy income, issued by the National Agricultural Marketing Council (NAMC), the industry commits to spend at least 20% of the levy income towards transformation projects.

In March 2005 the RMIF submitted an application for the introduction of a proportional transaction statutory levy in terms of the marketing of agricultural products act, 1996 (act number. 47 of 1996) as amended (the MAP Act). In order to enhance the efficiency of levy administration and information collection, two ancillary statutory measures, namely registration and information collection, and the keeping and rendering of records and returns were also requested. The levy and measures are enforceable within the boundaries of the republic of south African and to red meat products, processed pork imported into South Africa and livestock exported from South Africa.

In pursuit of the above background, through the NAMC, the industry applied for a two years' extension of their statutory levy regime in 2018. However, the NAMC found it timely and fit to empirically evaluate the effect of statutory levy expenditure employment within the agricultural sector. Thus, the purpose of this study.

Overall, the paper aims at evaluating how statutory levy expenditure on the six core functions of the red meat industry affect employment within the agricultural sector. Additionally, to predict the likely effect on employment of the sought for two years' extension period (November 2018 – 2020) of the fourth statutory levy and measures.

## **2. Literature review: Statutory measures and the red meat industry in South Africa**

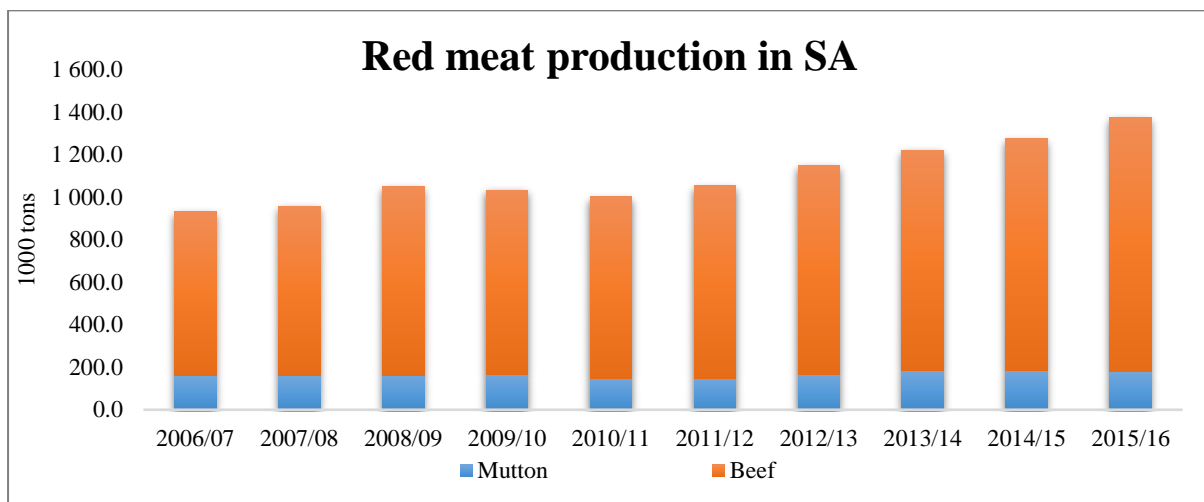
### **2.1 Statutory measures**

Since deregulation, majority of the industries collect statutory levies as provided for by the Marketing of Agricultural Products Act, No. 47 of 1996 (MAP Act). A statutory levy is a charge per unit of an agricultural commodity at any point in the marketing chain between the producer and the consumer, which is collected to finance a number of functions, namely administration, information and liaison, transformation, research, consumer assurance and consumer education (NAMC, 2015). The South African red meat industry has evolved from a highly regulated environment to one that is totally deregulated. Various policies, such as the distinction between controlled and uncontrolled areas, compulsory levies payable by producers, restrictions on the establishment of abattoirs, the compulsory auctioning of carcasses according to grade and mass in controlled areas, the supply control *via* permits and quotas, the setting of floor prices, removal scheme, etc., characterized the red meat industry before deregulation commenced in the early 1990s. Since the deregulation of the agricultural marketing dispensation in 1997, the prices in the red meat industry are determined by demand and supply forces.

### **2.2 Industry overview**

This section provides a comprehensive diagnostic of the red meat industry in South Africa. Various aspects of the value chain (production, consumption and trade performance) are analysed in order to identify where and how value is generated in the chain. The production of red meat, a sector that is value at approximately R46.3 billion per annum, is slowly emerging from one of the most difficult production periods on record as a result of the recent

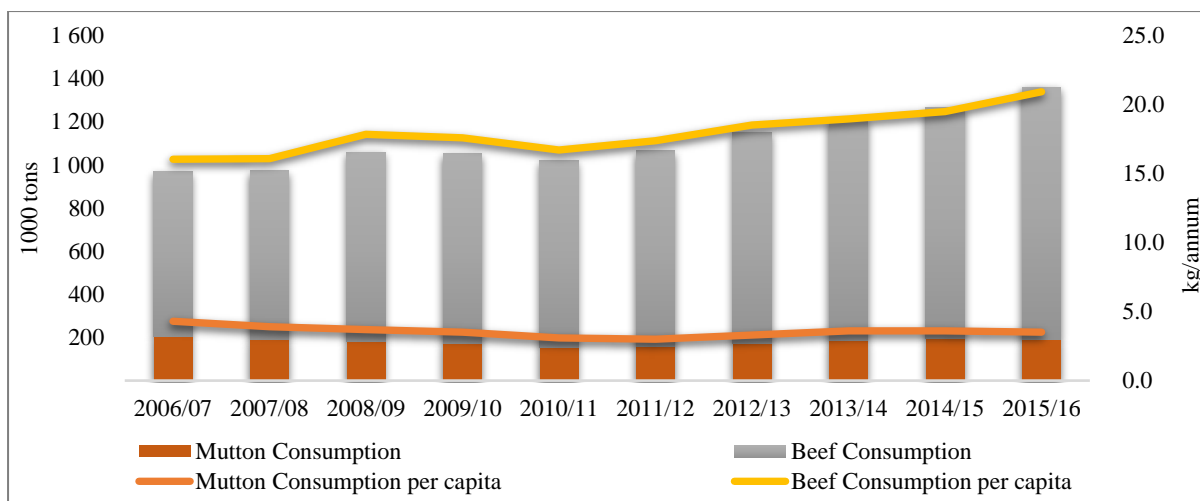
drought. As at June 2017, slaughtered cattle generated income of R34.04 billion, an increase of 11.1% on the previous year, and slaughtered sheep income was 16.2% more than 2015/2016 at R7 billion. **Figure 1** illustrates the production trends of beef and mutton between 2006/07 and 2015/16, measured in thousand tons. In 2015/16, South Africa has produced 1 195.8 thousand tons and 177.6 tons for beef and mutton, respectively.



**Figure 1: South African red meat production, 2006/07 – 2015/16**

Source: DAFF (2016)

South Africa is a net importer of beef and mutton. The local producer prefers fresh meat. In recent times, the consumption of beef and mutton has increased to an extent and the forecast is that it will be increasing for a considerable period. It is clear that the consumption of beef will sharply increase in developing countries but this is not the case in developed countries. Consumption in South Africa to increase considerably. **Figure 2** highlights beef and mutton consumption and consumption per capita performance between 2006/07 and 2015/16. It can be noted that South Africa consume more beef meat as compared to mutton. In 2015/16 South Africans consumed 1 170 thousand tons and 190 thousands of beef and mutton respectively.



**Figure 2: South African red meat consumption and consumption per capita**

Source: DAFF (2017)

### 2.3 Industry red meat trade performance

**Beef:** South African beef exports for 2016 was 38, 173 tons excluding live export of cattle, while formal production (local beef production) in 2016 was 792 095 tons. This means that 4.8% of local production was exported in 2016. Beef imports to South Africa for 2016 was 24 744 tons, excluding the live imports of cattle. The implication is that South Africa was a net exporter of beef in 2016 of 1.7% (RPO, 2017).

**Mutton:** Total exports of mutton, including lambs was 883 tons in 2017 and 964 tons in 2016 (decrease by 8.4% between 2017 and 2016). Lesotho was the main mutton export destination from South Africa with a share value of 18.2%, followed by Botswana, Swaziland and Mauritius with a share of 17.6%, 12.9% and 8.3%, respectively. On the imports side, South Africa has imported a total of 6, 570 tons of mutton from international countries in 2017 and the imported volume is 2, 196 tons less as compared to 2016 imports. Therefore, South Africa imports more of mutton meat than it exports, to satisfy the local demand. Namibia was the main supplier of mutton to South Africa in 2017 with a total share of 61.2%, followed by Australia, New Zealand and Unspecified destination with a share of 29.5%, 6.1% and 3.1%, respectively.

### **3. Analytical approach**

#### **3.1 Methods**

The total amount of levy spent on the industry's core functions was used to evaluate how the red meat industry affects employment within the agricultural sector, as illustrated in the following reduced model.

$$Employment = f\{financial\ resource/levy\ spent, production\ capacity, capital\ input\}$$

In this context, financial resources are proxied by statutory levy expenditure which is assumed to be a variable input that caters for operational costs. It was assumed that all the levy income collected is used to undertake the industry's core functions by the end of that specific year. Statutory levy expenditure differs from capital inputs, which are perceived as long-term assets that only change over a long period of time. The value of capital assets on commercial farms was used as the proxy for capital inputs in the model. To avoid the double counting problem, the total value of capital assets on commercial farms used in this analysis does not include livestock as captured by DAFF (2017). The value of the year 2016 was also used as a proxy for 2017. Econometric estimation techniques were used. The marginal estimate of the first derivative of the model was then multiplied with the average number of jobs per quarter. To estimate the how the request for extension of the fourth statutory levy and measures period will impact on employment, the marginal estimate was also multiplied with the projected levy income, with a strong assumption that all the money will be used during the year in which it is collected.

#### ***Hypothesis***

H<sub>0</sub>: Increased statutory levy expenditure on the industry's core functions is not associated with more employment in the agricultural sector.

#### **3.2 Data in summary**

Employment data in the agricultural sector was obtained from statistics South Africa (Stats SA) while data for the industry's statutory levy expenditure was sourced from the NAMC's statutory measures annual publications. Data for the value of capital assets on commercial firms was obtained from DAFF (2016). South Africa's production capacity for the red meat industry was computed as the total carcass weight of the number of heads of cattle and sheep that are slaughter in the country as well the live exports. In addition, meat imports of sheep

and cattle were also considered. If live cattle and sheep were imported, the average carcass weight of cattle and sheep in South Africa was used to ascertain the quantity of meat, respectively. In the case of ready to eat meat of sheep and cattle, the imported volumes were directly added to the volumes produced within the country. The number of live sheep and heads of cattle were basis of conversion to volume given that they are the core starting point from which levies are charged in the value chain. That is, it is the live animals that are either taken to abattoirs or exported live, they are the source of hides and skins, and after slaughter, they are indispensable resources for manufacturers and butcheries. Thus, the more the number of heads of cattle and sheep that go through the respective value chains, the more the levies that are collected and the higher the likelihood that more employment opportunities arise. Similarly, to increase South Africa's heads of cattle and sheep (*hence the production capacity*), expenditure on the core functions of the industry which make it very competitive is unavoidable. Overall it was assumed that to produce a unit volume of red meat and the associated products (e.g. hides & skins, tannery), it entails employing a number of people along the value chains.

**Table 1** shows the number of jobs within the agricultural sector as well the amount of statutory levy spent by the industry over the years. On average, R 26.3 million is spent per year. The least amount of levy spent (R 15.12 million) was incurred in 2010 while the year 2017 has so far registered the highest expenses (R 39.71 million) incurred. The drastic rise in statutory levy expenditure is attributable to the increase in inflation within the economy in the recent past.

**Table 1: Number of jobs within the agricultural sector, 2008 - 2017**

Year	Employment in Agricultural sector ('000)					Statutory levy expenditure (R million)
	Q1	Q2	Q3	Q4	Annual	
2008	799	790	767	764	780	21.967
2009	738	710	653	615	679	25.378
2010	658	630	640	627	639	15.116
2011	603	598	624	630	614	15.734
2012	656	638	661	685	660	21.715
2013	739	742	740	713	734	25.628
2014	709	670	686	742	702	25.694
2015	891	869	897	860	879	35.602
2016	876	825	881	919	875	36.248
2017	875	835	810	849	842	39.714

Note: Q1 -Q4 denote quarters within the year

**Source:** StatSA and NAMC’s statutory measures annual publications

**Table 2** shows the anticipated statutory levy income that shall be collected during the two years of the extension requested for approval.

Most levies are foreseen to come from cattle and sheep, in that order. Retailers are also projected to generate income to the industry but this shall largely dependent on how well informed and confident the clients/market in the industry’s products. Thus, the need to undertake consumer education seriously.

**Table 2: Red meat projected statutory levy income**

<i>Category</i>	<b>Projected statutory levy income<sup>1</sup> (November – November)</b>	
	<b>2018 - 2019</b>	<b>2019 - 2020</b>
<i>Cattle</i>	27749033	29413975
<i>Sheep</i>	10233550	10847563
<i>Manufacturers</i>	1230935	1304791
<i>Retailers</i>	1540281	1632698
<b>TOTAL</b>	<b>40753799</b>	<b>43199027</b>

**Source:** RMIF (2018)

According to **Table 3**, the largest proportion of levy expenditure is anticipated to be spent on consumer education activities, to create the desired awareness amongst the populace about the industry’s products.

**Table 3 shows estimated total expenditure by core function**

<i>Core function</i>	<b>Estimated total statutory levy expenditure (November – November)</b>	
	<b>2018 - 2019</b>	<b>2019 - 2020</b>
<i>Consumer assurances</i>	6198520	6570431
<i>Customer education</i>	10847831	11498701
<i>Transformation</i>	6833766	7243792
<i>Research and Development</i>	5473756	5802182
<i>Liaison</i>	3987264	4226500
<i>Product development</i>	7397691	7841553
<b>TOTAL</b>	<b>40753799</b>	<b>43183159</b>

**Source:** RMIF (2018)

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<sup>1</sup> This is the estimated net amount of levy income available for distribution following a 10% deduction for administration fees.

#### 4. Empirical results

**Table 4** reveals that the model explains about 83% of the factors influencing the employment in South Africa's agricultural sector. Results suggest that a one percent increase in levy expenditure (*LnLevy*) is associated with a 38% increase in employment in the agricultural sector. The increase in employment occurs along the various stages of the sheep and cattle value chains which constitute the red meat industry, including imported live cattle and sheep.

**Table 4. The effect of statutory levy spending on employment in the agricultural sector**

Linear Regression			
LnEmp1	Coef.	Robust Std. Err	t- value
LnLevy	0.387***	0.045	8.65
LnCapito	0.462**	0.199	2.33
LnProd_CAP1	-1.829**	0.689	-2.65
_Constant	11.591***	4.157	2.79
Number of obs	= 39		
F (3, 35)	= 92.26		
Prob> F	= 0.000		
R-squared	= 0.834		
Root MSE	= 0.056		

**Source:** Authors' own calculations

Marginal effects analytical results reveal that for every Rand of statutory levy spent in the red meat industry, the returns to scale is 0.917 towards employment in the entire sector. Employment in this case entails researchers, those providing logistics, the manufacturing sector, as well as traders/retailers, among others.

**Table 5. The average marginal effects of statutory levy**

Delta-method						
	ey/ex	Std. Err.	t	P>	t	[95% Conf.
LnLevy	0,917388	0,10571	8,68	0		0,702786
<b>Average marginal effects</b>			<b>Number of observations = 39</b>			

**Source:** Authors' own calculations

Based on the marginal effect estimate, the level of employment associated with the red meat industry's statutory levy expenditure between 2008 and 2017 was 679 thousand jobs per quarter. That is, the mean number of jobs per quarter (2008-2017) multiplied by marginal effects factor. Notably, the estimated number of jobs entail jobs that arise from other associated industries that may not directly fit into the agricultural sector but rather render

supportive services. For instance, administration, liaison and logistics. Furthermore, an extension of the statutory levy regime in the red meat industry is anticipated to translate into employment of over 9.5 million people<sup>2</sup> over the two-year period. The seemingly high level employment entails services and the agro-processing industries given that the industry's statutory levies are used to finance activities such as administration, liaison and consumer education which may involve participants that do not directly involved into agricultural activities (i.e. support industries).

**Table 6: Projected two years' (2018/19 – 2019/20) statutory levy extension effect on employment in the agricultural sector**

Year	Projected statutory levy spending per quarter (R)	Mean employment per quarter ('000) <sup>3</sup>
2018/19	10188450	9343
2019/20	10795790	9900

**Source:** Authors' own calculations

## 5. Conclusion and policy recommendations

Given that the industry sought to extend its statutory levy regime for two years (2018/19 – 2019/20), we empirically evaluated the role of the red meat industry towards employment in South Africa's agricultural sector. Based on quarterly data spending the period 2008-2017, we estimated the effect of the industry's statutory levy expenditure on employment and then projected how the spending of the anticipated levy income is likely to affect employment. Overall, a two-year extension of statutory levy regime in the red meat industry will positively influence employment (by 38%) in the economy. Although the focus was on the red meat

<sup>2</sup> The large estimate of employment may also be attributed to the data used to proxy the industry's total production capacity which involved the conversion of imported live sheep and cattle into the quantity of meat equivalents. The estimated live weight of sheep and cattle is presented in Annex 2. In addition, it was assumed that all of the levy income is spent within the year it is collected, yet in reality some of the money is carried forward for use in the subsequent year. For instance, in 2008 about R28.95 million was collected but only R21.97 million was spent. This example relates to other years as well – 2017 & 2015. In other cases, the industry spends more than the levy income realised in a specific year. A good example is of 2016 during which about R34.78 million was collected but the industry spent slightly over R36 millions.

<sup>3</sup> On average, the estimated average for the level of employment is much higher as compared to the trends in the previous years. The high estimates may be associated with the fact that the quantification of the industry's production capacity entailed inclusion of imports of both live animals and meat which all require the use of statutory levies to either inspect for quality, research and development, consumer education, industry liaison as well as administration. Thus, a proportion of the estimated employment may not directly be in the agricultural sector but rather in the services industry.

industry, the increase in employment will occur along the various stages of the sheep and cattle value chains as well as in the other closely associated industries like the agro-processing and services industries.

However, due to the aggregated nature of employment data obtained from StatsSA, we were not able to ascertain the proportion of employment that accrues to individuals from previously disadvantaged designated groups. In addition, the extent to which industry activities allow for entry of previously disadvantaged individuals from designated groups to partake into the formal markets was not accessed.

### **Policy recommendations**

- There is a need to further extend the statutory levy for two more years' for the red meat industry.
- Through the voluntary member organisations, the RMIF must take and/ strengthen record keeping for individuals from previously disadvantaged designated groups partaking in industry activities.

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National Agricultural Marketing Council (NAMC) (2015). Short report on statutory measures implemented in terms of the Marketing of Agricultural Products Act, Act no. 47 of 1996.

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RMIF (2018). Submission to the National Agricultural Marketing Council (NAMC) for the extension of the fourth statutory levy and measures period in accordance with the marketing of agricultural products act, 1996 (ACT 47/1996) as amended.

Snyman, M.A. (2014). South African sheep breeds: SA Mutton Merino sheep. Info-pack ref. 2014/028. Grootfontein Agricultural Development Institute.

### **Annex 1: Organisations ascribing to the RMIF**

- Association of Meat Importers and Exporters (AMIE);
- National Emergent Red Meat Producers' Organization (NERPO);
- Federation of Meat Traders' Employees Union (FMTEU);
- National Federation of Meat Traders (NFMT);
- Red Meat Abattoir Association (RMAA);
- Red Meat Producers' Organization for Large stock (RPO);
- Red Meat Producers' Organization for Small-stock (RPO);
- Skins Hides and Leather Council (SHALC);
- South African Federation of Livestock Agents (SAFLA);
- South African Feedlot Association (SAFA);
- South African Meat Processors' Association (SAMPA);
- South African National Consumer's Union (SANCU); and
- South African Pork Producers' Organization (SAPPO).

### **Annex 2: Values used to computation the industry's production capacity**

- Average live weight of cattle = 416 kg (based on data from auctions at Umhlumayo, Phelindaba and Nqutu between 2016 & 17). The data is compiled by the National Red Meat Development Programme (NRMDP) managed by the National Agricultural Marketing Council (NAMC)
- Average weight of sheep<sup>4</sup> = 98 kg (Snyman, 2014).

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<sup>4</sup> This however differs from the average weight (39 kg) for the five merion and merino-type dam lines reported in a brief by Poggenpoel (2014) extracted from a publication by Cloete *et al.* (2004) featuring in *Southern African Journal of Animal Science* 2004, 34(3): 135-143.