REGULATION OF THE SOUTH AFRICAN GAME RANCHING INDUSTRY: AN IMPACT ANALYSIS

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Abstract

Although game ranchers in South Africa compete with conventional farming practices for the same natural resources, they are regulated by a different set of rules and regulations. This is because the private game ranching industry falls under the policy umbrella of the Department of Environmental Affairs and not the Department of Agriculture, Forestry and Fisheries. As a result, game ranchers do not enjoy the same tax and subsidy benefits compared to their agricultural counterparts, despite competing for the same natural resources. The current study employed a policy analysis matrix approach to determine whether the inability of the game ranching industry to benefit from the same policy effects compared to their agricultural counterparts could have led to the inefficient allocation of scarce resources and lower levels of competitiveness. In general, results from the study revealed that the competitiveness of the game ranching industry would be increased if these producers are able to benefit from agricultural policies in the same way as their agricultural counterparts. This does not mean that the game industry should have free reins, but rather that the possibility should be considered to allow game ranchers to benefit from agricultural policy in the same way as their agricultural counterparts, and by doing so, allow for the more efficient allocation of scarce resources and higher levels of competitiveness.

Keywords: Policy analysis matrix, game ranching

1. Introduction

The path of economic development of any industry, including the game ranching industry in South Africa, is a direct result of the formal rules and informal constraints that regulate the way transactions are carried out. The foundation for growth in the South African game ranching industry was provided by a decisive policy change (the Game Theft Act, Act no 105 of 1991, as amended in Acts 18 of 1996 and 62 of 2000) that granted conditional ownership of wildlife to private land owners. The right of ownership entrusted a momentary value that laid the foundation for game to become a financially viable alternative agricultural land use option in South Africa. Moreover, it was this incisive policy that enabled game ranchers to transform what was believed to be a theoretical comparative advantage, into practice. As a result, game numbers in South Africa are at a historic high. It is estimated that approximately 18.6 million heads of game animals (du Toit, 2007) roam the just more than 20 million hectares of marginal agricultural land (Cousins *et al*., 2008; Dry, 2010, 2013).

However, concerns with regard to the current regulatory environment (Bürgener *et al*., 2001; Wynberg, 2002; Bürgener *et al*., 2005; Bothma *et al*., 2009) and the potential impact thereof on the competitiveness of the private game ranching industry have been raised. It is believed that most of these concerns stem from the fact that the regulatory environment did not keep up with the change in drivers behind the growth of the private game ranching industry. Thompson (2013) is of the view that many regulations are based on outdated historical impositions, which led to the overregulation of the private game ranching industry. This is because the private game ranching industry still falls under the umbrella of the Department of Environmental Affairs (DEA) and not Agriculture, Forestry and

Fisheries(DAFF), despite being considered by many as an agricultural venture. The foundation of most rules and regulations in the DEA policy framework were developed in the mid-to-late 1990s, with the aim to guide the management of state-owned natural resources, including game, in state- owned parks, conservancies and protected areas. Today, the framework extends its conservation goals well beyond the state-owned areas to include privately-owned ranches.

Despite competing against other traditional agricultural activities for the same natural resources, private game ranchers do not enjoy the same tax and subsidy benefits that are imposed by agricultural policies. According to Barnes (1998) and Jansen *et al*., (1992), the change in benefits or the inability to benefit from policy effects such as agricultural taxes and subsidies can lead to the inefficient allocation of scarce resources and non-competitive economic activities. This is something that can be ill afforded within the South African context, especially considering that the game ranching industry has an important contribution to make towards achieving both the economic and socio-economic imperatives of government.

Therefore, the need exists to determine whether the current policy framework has any impact whatsoever on the competitiveness of the private game ranching industry in South Africa given that, although game ranchers compete for the same natural resources, they are regulated by a different set of rules and regulations compared to their agricultural counterparts. This will be done by making use of the policy analysis matrix (PAM) methodology. The methodology provides a method whereby policy transfers and market failures can be systematically analysed to determine whether they have an impact on competitiveness and efficiency. A comparison between the policy transfers and market failures resulting from the current regulatory environment compared to that of DAFF will be used as a basis for the analysis.

2. Regulatory environment and the economic impact on game ranching

The level of economic impact on game ranching when compared to other similar land use options such as livestock is not only affected by the institutional environment (direct and indirect tax and subsidy benefits), but also in terms of production costs that are inflated by the rules and regulations set by the regulatory environment. As mentioned, the game industry in South Africa falls under the umbrella of the DEA, and as a result is governed according to the rules and regulations of environmental and nature conservation. The Constitution of South Africa (The Republic of South Africa Act 104 of 1996) states that nature conservation is an area of concurrent competence, meaning that both the national and provincial spheres have the authority to make and implement environmental and conservation law. In other words, private game ranchers need to adhere to national legislation as well as provincial ordinances and local bylaws that pertain to the protection of the environment and conservation of natural resources. In addition, there is a multitude of other legislation that equally applies to livestock and game ranchers. The reasons being that wildlife ranching was at first generally seen as an activity regulated by legislation administrated by nature conservation. This changed, however, when the DAFF recognised wildlife ranching as a fully-fledged agricultural activity (Ramsay & Musetha, undated as cited by Cloete & Jordaan, undated).

The result is a fairly complex regulatory framework. Moreover, the primary regulatory mechanism for the enforcement of environmental and conservation policies is done by means of a permit or licence and/or certificate system. The status quo suggests that this system is not an efficiency-inducing administrative instrument that minimises transaction costs. Likewise, role-players have raised their concerns with regard to the cost of doing business that is associated with the current regulatory environment (Cousins *et al*., 2010).

Therefore, by incorporating the cost and potential benefits that are gained or lost depending on whether the game ranching industry is governed by the environmental or agricultural regulatory framework will allow for an accurate comparison and assessment, firstly, in terms of the efficiency in

which resources are allocated, and secondly, in terms of the impact on competitiveness. Although well documented by authors such as Jansen *et al*., (1992) and Barnes (1998), the influence of government policy on the efficient allocation of resources and the potential impact on the competitiveness of the South African game ranching industry have not been quantified as yet.

3. Methodology

Although financial analysis is the first step in assessing the profitability that, for some, can be an indication of the effectiveness of resource allocation, no account is made of market or policy failures that may distort potential financial benefits. On the other hand, economic analysis goes beyond financial analysis and allows for market prices to be adjusted for policy and/or market failures. This allows for the opportunity cost and distributional objectives of resources to be more thoroughly reflected. As a result, the study applies the PAM approach, which allows for both financial and economic profitability to be assessed within a single framework (Monke & Pearson, 1998).

3.1 Approach

Basavaraj *et al*. (2013) stated that the PAM is essentially a product of two accounting identities; one defining profitability, which is the difference between revenues and costs, and the other measuring the effects of divergences (distorting policies and market failures) as the difference between observed prices and social prices that would exist if the divergences were removed. The PAM is presented in a table where the first row provides a measure of private profitability, which is defined as the difference between observed revenues and costs valued at actual market prices (see Table 1). This calculates the competitiveness of a commodity with the present technologies, output and inputs valued at the current market prices (Basavaraj *et al*., 2013).

The second row in the matrix provides the social profitability measured at social prices that reflect social opportunity costs. This measures the comparative advantage or efficiency in the system (Basavaraj *et al*, 2013).

The third row is simply the first row minus the second row. It shows the net effect of distorting policies and market failure, and whether these effects amount to implicit tax or subsidy on the activity being studied. If revenue in financial prices exceeds revenue in economic prices, then government is directly subsidising production, causing an output policy effect. Similarly, tradable inputs are subsidised if the cost in financial prices is less than the cost in economic prices (Table 1; column 2 - B minus F).

Table 1: Policy analysis matrix

Description	**Revenues**	**Costs**		**Profits**
		Tradable inputs	**Domestic factors**	
Private prices (market prices)	A	B	C	D
Social prices (opportunity cost)	E	F	G	H

Effect of divergences and efficient policy	I	J	K	L

Source: Monke and Pearson, 1989

Conclusively, the PAM provides analytical ratios that reveal the potential impact of different policies on a single commodity, an entire farming operation or a specific industry compared to another. By comparing the ratios calculated from the different policies (i.e. environmental and conservation compared to agricultural), the impact in terms of the efficiency of resource allocation and competitiveness of the industry became evident. The ratios that were calculated and a description of each are provided in Table 2.

Table 2: Policy analysis matrix coefficients

Ratio	Description
PCR (Private cost ratio)	C/(A-B): The PCR is the ratio of domestic factor cost to the added value in private prices. This ratio must be as low as possible to be competitive.
DRC (Domestic resource cost ratio)	G/(E-F): The DCR is the ratio between the real cost of production of one unit of the item in demand and the income from the sale of that item. A DCR value of less (more) than 1 indicates that the economy saves (incurs costs) in terms of net foreign exchange from local production.
NPCO (Nominal protection Coefficient on tradable outputs)	A/E: The NPCO is the ratio between the private prices and the social prices of tradable outputs. An NPCO greater than 1 indicates that policies would cause market prices to increase with a percentage higher than that of social prices.
NPCI (Nominal protection Coefficient on tradable inputs)	B/F: The NPCI is the ratio between the private prices and the social prices of tradable inputs. This ratio must be as low as possible to be competitive.
EPC (Effective protection coefficient)	(A-B)/(E-F): The EPC is the ratio between the value of the value adding of domestic inputs in private prices (A-B) and the value of value adding of domestic inputs in social prices (E-F). An EPC greater (less) than 1 indicates positive (negative) incentive effects of commodity policy.
PC (Profitability coefficient)	D/H: The PC is the ratio of private and social profits. A PC greater than 0 means that the government policies provide incentives to producers and vice versa.
SRP (Subsidy ratio to producers)	L/E: The SRP is the net policy transfer as a part of the total social income. The smaller the SRP, the less distorted the agricultural system.

3.2 Data

The study used primary data that was collected by means of a web-based online electronic questionnaire that was directed at the members of Wildlife Ranching South Africa (WRSA). An email was sent to the approximately 3 000 members providing them with the necessary background, aim of the research, request to participate and a link to the questionnaire. This was supplemented through telephonic interviews with 120 WRSA members. Random sampling was used to select the respondents for the telephonic interviews. The interviews were guided by a structured questionnaire, similar to the one that was completed by online respondents. Thirdly, face-to-face interviews with ten of the leading game ranchers and key industry informants were held. The latter allowed for the gathering of more detailed financial information on the one hand, and it also provided the opportunity to discuss and validate the financial information (results) that was obtained through the online and telephonic surveys. The questionnaire included sections pertaining to demographics, general land use information, species numbers and composition, financial information and views on factors relating to sustainability.

3.3 Computing the PAM

To determine financial profitability, an enterprise budget for a typical 600 large stock (game equivalents) ranching operation in each of the four different ecological regions included in the study was compiled. Revenue consists of live game sales and tourism-related activities in the form of accommodation and game drives. The value of live animals was based on the 2014 average auction prices. Income from tourist-related activities was calculated based on (i) the number of tourists that can successfully be accommodated given the size of the farm and the ecological characteristics of the region, (ii) occupancy rate of 20%, and (iii) average income of R1 200 per tourist.

Cost was calculated based on the primary data that was gathered through the online web- based survey, telephonic interviews as well as person interviews. The values reflect the actual prices of inputs and services in 2014. Taxes and tariffs were obtained from Shell and the government tax guides.

4. Results

When examining the results in Table 2, it can be seen that the PCR value was lower when the policies of the DAFF were enforced rather than the DEA. The average value in all three areas for the DEA was 0.438, while it is 0.436 for the DAFF. This indicates that the producers will be more competitive under regulation of the DAFF. Grassland regions are also regarded as more competitive when compared to the other two regions, with the Karoo the least competitive

Moreover, all the DCR values in all three regions are below 1, indicating that the economy saves in terms of net foreign exchange from local production. However, the Grassland regions save the most, while the Karoo regions save the least in terms of foreign exchange from local production. However, the economy saves more in terms of foreign exchange from local production under the umbrella of the DEA.

The NPCO is equal to 1.14 for all regions in both departments. This is due to the value added tax that is universal in all areas and departments in South Africa (see Table 2).

The average NPCI is equal to 1.203 for the DEA, which is an indication that producers are paying a premium for tradable inputs. The average market price of tradable inputs is therefore 20.3% higher than social prices. This shows that domestic producers are therefore indirectly taxed. When compared to the average NPCI for the DAFF (1.189), taxes on tradable inputs would decrease by 1.4 to 18.9%. The Karoo regions are paying the highest premium on tradable inputs and the Grassland regions the least. However, it should be noted that the NPC ignores the effects of transfers in the factor market and therefore does not reflect the full extent of incentives to farmers.

In terms of the average EPC, the ratio for all three regions amounts to 1.117. The fact that the ratio is larger than 1 implies positive incentive effects of commodity policy to farmers. However, the ratio of 1.12 under the DAFF umbrella reflects the potential of higher subsidies to farmers when compared to the 1.11 of the DEA.

The average PC for the DEA and DAFF is equal to 1.233 and 1.253, respectively. This is an indication that private profits will be higher than social profits under the DAFF policy umbrella and it can therefore be concluded the DAFF will provide more incentives for producers to engage in wildlife production.

The SRP is equal to 0.086 for the DEA and 0.091 for the DAFF. This suggests that producers are effectively being taxed under the current DEA policy umbrella. The PC is lower than the EPC showing that when factor markets are taken into account, overall transfers are increased. This suggests that there are significant divergences in factor markets of labour and capital.

Table 2: PAM analytical ratio results

600 LSU Farm	**PCR**	**DCR**	**NPCO**	**NPCI**	**EPC**	**PC**	**SRP**
Karoo (DEA)	0.610	0.668	1.140	1.221	1.101	1.294	0.066
Karoo (DAFF)	0.607	0.673	1.140	1.203	1.109	1.332	0.073
Bushveld (DEA)	0.426	0.474	1.140	1.202	1.119	1.220	0.086
Bushveld (DAFF)	0.424	0.476	1.140	1.188	1.123	1.235	0.091
Grassland (DEA)	0.279	0.313	1.140	1.187	1.130	1.186	0.107
Grassland (DAFF)	0.277	0.314	1.140	1.177	1.132	1.193	0.110
Average (DEA)	0.438	0.485	1.140	1.203	1.117	1.233	0.086
Average (DAFF)	0.436	0.488	1.140	1.189	1.121	1.253	0.091

5. Conclusion

In an effort to determine the influence of government policy on the efficient allocation of resources and the potential impact on the competitiveness of the South African game ranching industry, the study applies the PAM approach, which allows for both financial and economic profitability to be assessed within a single framework. The PAM provides analytical ratios that reveal the potential impact of different policies in a specific industry.

The PAM approach was applied in three different production regions within South Africa. This was done to obtain a better representation of the country-wide effect of the two different regulatory environments in which the game ranching industry can operate. Results from the PCR revealed that the regulatory environment of the DAFF would increase the competitiveness of the producers in the game ranching industry in South Africa. However, the DCR revealed that the economy saves more in terms of net foreign exchange from local production when the policy environment of the DEA is applied, rather than the DAFF. Further results indicated that the regulatory environment of the DAFF creates more tax relief, more producer incentives and higher gross revenues compared to the regulatory environment of the DEA.

Based on these results, the competitiveness of the game ranching industry in South Africa would increase when the regulatory environment of the DAFF is enforced rather than the DEA. This does not

imply that game ranchers should be given free reins, but rather that the possibility should be considered to allow game ranchers similar subsidy and tax benefits compared to their agricultural counterparts and by doing so allow for the more efficient allocation of scarce resources and higher levels of competitiveness.

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