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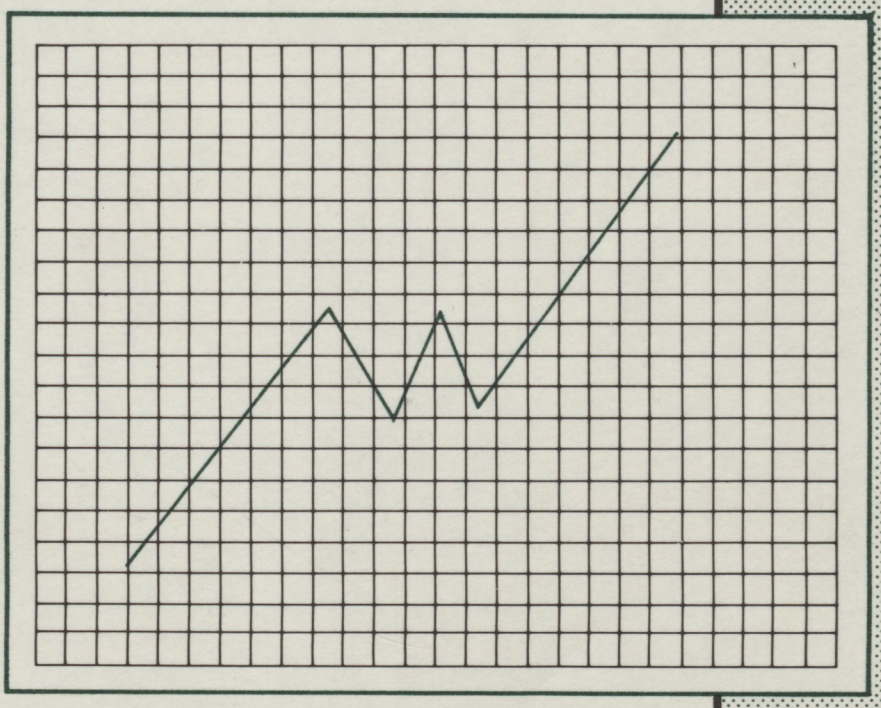

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ANNOUNCEMENTS, COMMENTS AND NOTES

COMMENTS

TAXING AGRICULTURAL LAND

Reply to comment by W.L. Nieuwoudt*

The comment from S.G. Fiske is appreciated, especially in the positive spirit in which it is made. Several points raised in the comment will be discussed.

1. Mr Fiske contends that no conflict between equity and efficiency exists and that equity is not a subjective concept. It is generally accepted that the free market will lead to maximum welfare (efficiency) for a given distribution of income. Changes in the distribution of income implies that one household is made better off at the expense of another. Such welfare distributional changes cannot be evaluated by efficiency criteria. Instead some criterion such as "equity" or "fairness" is needed. Shifts in economic power to bid for the use of the community's scarce resources occur with distribution of income. When such economic power is shifted among households with different tastes it is likely that producers will be induced to change their output mix in favour of goods preferred by households enjoying the increase in relative income.

Adam Smith's famous "invisible hand" results in an efficient allocation of resources in a competitive free-enterprise economy. This is however one of many possible efficiency results, each one differing with the initial income and wealth distribution. Some people may feel that a certain social uplifting of the poor may be necessary for social stability. Social stability may be seen as a public good (free rider problem, collectively consumed) and the free market economy driven by self interest may underinvest in this. Our progressive tax system implies some redistribution of wealth from the rich to the poor.

I am a strong supporter of Adam Smith's "invisible hand", and although it can go a long way, it cannot solve all the problems in our society.

Conflict between efficiency and notions of "equity" can thus arise. Each individual has a unique function and there is no objective basis for comparing the welfare of any two individuals. It is quite possible that no two households within the community will feel exactly the same concerning what constitutes an "equitable" income distribution. Comparisons are made on a subjective rather than objective basis. At best the economist can state the characteristics of the redistribution.

2. The land tax falls on land rents (farm and urban) only. Other factors also produce rents. Recently the world heavyweight boxing champion, Mike Tyson, received approximately R40 million from a single fight. According to Mr Fiske he will pay no taxes. A proper land tax cannot be shifted (supply inelastic) and Tyson can escape all taxation. Land rents in Sun City and Las Vegas are low due to the low opportunity cost value of land in these areas. These casinos will consequently pay almost no taxes under Mr Fiske's proposal. Land is not the only factor that earns rents.

3. The land tax should fall on the unimproved portion of land, because if improvements are taxed, it will be a disincentive to investment (Henry George). There is no unimproved land in commercial agriculture and little data exist on the value of unimproved land. It is difficult if not impossible to calculate the taxable basis. In the non-farming sector it is easily possible to evade land taxes by erecting taller buildings or to live outside of town if property taxes are too high in residential areas. The point is land is not such an essential input in non-agriculture, it can be replaced by substitutes and taxes can be evaded.

4. Renting will not be more common with land taxes as the opportunity cost of land (land rents) allocates the resource. The same cost (opportunity cost) is attached to the non-using of land whether it is taxed or not taxed.

5. State expenditure and taxes in South Africa are excessive. We should learn from the British experience of cutting taxes and government involvement. The British economy is today amongst the strongest in Europe.

6. In all Western countries, state aid to agriculture exceeds taxes from agriculture. To what extent positive net taxes can be extracted from agriculture in the form of land taxes is questionable as it may be recycled back to agriculture by subsidies. A substantial increase in urban property taxes will lead to a relocation of industries, shopping complexes, residential areas etc. to avoid taxes which will lead to an inefficient allocation of resources.

7. Our tax system is based on the 'ability to pay' concept which includes the taxing of land rents (urban properties). A tax on land rents only could have been seriously considered in days of Henry George (1879) but not in 1989.

8. I highly respect Mr Fiske's views. Some form of land taxation in agriculture would be desirable for the reasons stated in my article. My main point, however, was that taxing agriculture and recycling the funds back by subsidies that exceed the taxes are an economic waste. Our prime attention should be an agricultural sector that can stand on its own feet more. Assistance to agriculture implies that other profitable industries must be taxed. High taxes are strangling the South African economy and contributed to the pullout of foreign investors from South Africa.

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TAXING AGRICULTURAL LAND

Comment by J.A. Groenewald*

The article on taxation of agricultural land by Nieuwoudt (1987) and the comment thereon by Fiske (1988) raise some interesting points which necessitate a brief look at some historical events in the development of economic doctrine relating particularly to value, land and development. Some of the doctrinal aspects can be traced to the antiquities of economic doctrine including some preceding Adam Smith (1723 - 1790). Adam Smith, while occupying a central place in the development of economic science and while being the first academic British economist, was not the founder, inventor or discoverer of Economics. Although they in their turn have relied on thoughts of classical philosophers such as Plato and Aristotle and religious thinkers such as St. Thomas Aquinas, Oresme and Thomas Mun, the real founders of Economics (then called Political Economy) as a distinct science were probably mainly William Petty (1623 - 1687) and a bit later, Locke, North, Cantillon and particularly, David Hume. To these have to be added the French physiocrats, among whom particularly Quesnay and Turgot were the main protagonists.

David Hume in particular had a large influence on the thoughts of Adam Smith (Gray, 1931; Roll, 1942).

The early economists, including Adam Smith, were not very much concerned with efficiency or equity in terms used today by economists, although in 1776, Smith averred that "The annual produce of the land and labour of any society can be augmented only in two ways: either, first by some improvement in the productive powers of the useful labour actually maintained within it; or secondly, by some increase in the quantity of that labour" (Smith, Vol. 2, 1910 edition, p. 170). In his *Theory of moral sentiments*, Smith ascribed all human behaviour to six motives: self-love, sympathy, desire for freedom, a sense of propriety, a habit of labour, and the propensities to truck, barter and exchange (Roll, 1942).

Hence his belief in a natural order. Thus, according to Smith, each man was the best judge of his own interest, and should be free to pursue his interest however he saw fit. In this natural order the benefit of one could not in any way conflict with the good of the community as such. The "invisible hand" precluded such an eventuality. Adam Smith could not have foreseen cubus (chain letter) types of milk cultures or industrial pollution phenomena. Smith and his early followers by and large adhered to a labour theory of value, as also did later socialist economists. This led Smith to use invective against what he regarded as the unproductive members of the community, particularly landowners. The following quotations (Smith, Vol. 1, 1910 edition, pp. 228 - 229) are illustrative in this regard: "Every improvement in the circumstances of the society tends either directly or indirectly to raise the real rent of land, to increase the real wealth of the landlord, his power of purchasing the labour or the produce of the labour of other people." "The landlord's share of the produce necessarily increases with the increase of the produce".

There is a contradiction between this and the notion of an "invisible hand". The unproductive landlord was thus able to enrich himself through the labour of the productive members of society. It is therefore probably not quite correct to state, as done by Fiske (1988), that Smith had as central theme no conflict between equity and efficiency.

Adam Smith and the early classical economists wrote their works in days before more modern production economics embodied the realisation that production occurs through a symbiosis of labour, land, capital and entrepreneurship. Neither could they have had a clear concept of technological change. The result was that particularly landowners became regarded as unproductive. This sentiment also comes to the fore in Smith's chapter on "The discouragement of agriculture" (Smith, Vol. 1). Smith further argued that the value of labour never varies and remains alone the ultimate standard by which the value of all commodities can at all times and places be estimated and compared. Given that the landlords' share would increase the result would surely be inequitable. Smith did not however see the big solution for this in taxing land but rather advocated trade liberalization, which would remove shackles on the smaller, private farmer. This would remove him from virtual serfdom - "A person who can acquire no property, can have no other interest but to eat as much and to labour as little as possible" (Smith, Vol. 1, p. 345).

One could however argue that taxation of land would render landownership more expensive and, in this sense, reduce rather than enhance equity.

The most important protagonists of land taxes were the physiocrats. Their philosophy was built on the importance of land: "Let the sovereign and the nation never forget that the land is the only source of wealth and that it is agriculture which multiplies it ..... Upon this rich source depends the success of all parts of the administration of the kingdom". (Quesnay, 1758; translation in Kapp & Kapp, 1949).

Therefore, agricultural labour was productive and all other labour sterile. The surplus produced by farming, industry and trade was according to them, a gift attributable not to the productivity of labour (or any other resource), but exclusively the productivity of nature. Proprietors of land held nothing, but had a claim on farmers for rent. The proprietors spent a large part of the rent on the purchase of manufactured goods from the sterile class, and farmers also spent a large part of their income in likewise fashion, thereby benefiting the "sterile classes" (Roll, 1942). The notion that manufacture and trade were incapable of creating new values was central to their dogma. The physiocrats also favoured complete liberty of trade, although "emigration of inhabitants who take their wealth

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with them should be avoided" (Quesnay 1758).

The physiocrat dogma brought them to the conclusion that industry and trade should be freed from all taxation. Since only agriculture created value, only agriculture should be taxed; taxation of industry and trade would be uneconomical.

Their fiscal maxim was a single tax on land. Since labourers' wages would be determined by subsistence, any surplus would accrue to the proprietors, who were the people who should pay all taxes (Roll, 1942).

If later developments in Economic theory are to be taken seriously at all, the physiocrat stance is untenable, being based on recognition of only one real factor of production, namely land, and only one type of productive labour: farm labour.

The writings of Henry George (1839 - 1897) harboured similar sentiments. According to him, private ownership (and therefore monopoly) of land stultifies the right of everyone to apply his labour to the cultivation of land. As the community progresses, the landowners exact an ever-increasing toll in the form of increased rents, hence the paradox of progress and poverty (or otherwise stated, efficiency and equity). The remedy was to be found in taxation of land values (Roll, 1942). George had it primarily against private ownership of land: "What more preposterous than the treatment of land as individual property? In every essense land differs from things which, being the product of human labour, are rightfully property. It is the creation of God; they are produced by man." According to George, private property leads to misallocations: ". . . . .look where you will, and it is evident that the private ownership of land keeps land out of use; that the speculation it engenders crowds population where it ought to be more diffused, diffuses it where it ought to be closer together" (George, 1931, pp. 176, 177).

George advocated equal rights to land, not by equally dividing it, but by collecting the ground-rent for the common benefit. Therefore, taxation should be concentrated on the value of land, and all other forms of taxation should be abolished (George, 1931, p. 179). And, as implied by him, the value only of land advances as society advances, therefore widening the tax base. The taxation should thus be on land values, "irrespective of improvements" (George, 1930, p. 30). George's basic premise once again depends on labour being the only real factor of production, and private ownership being merely a means of extortion: "For labour, as the active factor, is the producer of all wealth . . . . . The only utility of private ownership of land . . . . . is the evil utility of giving to the owner products of labour he does not earn" (George, 1930, p. 57).

Acceptance of Henry George's conclusions without simultaneously accepting both his logic and premises would be unscientific. Both modern theory and twentieth century experience militate against Henry George's premises, as well as those of some earlier economists, including Adam Smith and the physiocrats. Modern theory recognises the symbiosis of different factors of production. Neo-classical distribution theory makes provision for returns to all factors of production including but not exclusively land and labour. More recent developments in managerial theory have, through risk and uncertainty theory, placed the role of management and entrepreneurship in more proper perspective. Twentieth century economic growth has improved living standards on a wide scale in many economies in which private land ownership is the rule, and where land was not the main tax base. This also applies to agricultural workers.

When earlier economists are criticised, it should always be against the background that the modern economist has much more previous thought and experience at his disposal than for example, Quesnay, Adam Smith and Henry George. It is quite probable that neither of them would today reach exactly the same conclusions.

Land taxation would certainly, if it had to be a major source of state revenue, encounter extremely difficult practical snags. If based on value without improvements, the valuation becomes very difficult in a disciplinary sense. If valued according to its potential for its best use, taxation based thereupon will encourage entrepreneurs to select second or third best alternatives in order to obtain tax savings. This will militate against efficiency. Such valuations will, in any case, be reliant on a host of assumptions which will render their scientific acceptability rather dubious. Changes in resource base can reduce equity.

Consider for example a farm on which mineral deposits are discovered. An immediate revaluation will be arduous, because of succession problems. What portion should be valued for mining purposes, what for residential use, what for recreation, industry or business? Immediate taxation will force the present owner to sell - incurring the heavy hand of government - without necessarily enabling him to obtain landed property of similar quality and quantity. If taxation would be levied on only one factor of production - e.g. land - the burden would also fall disproportionally on suppliers of that input, thereby reducing equity.

The distinction between equity and efficiency is also important, the former being a moral concept and the latter merely an economic ratio: Output divided by input. Economists should be concerned with equity, but no clear definition, accepted by all, exists. Equal revenues, equal opportunity, equal access and equal ownership all constitute possible definitions, and they differ from one another. Joan Robinson (1962) points out that metaphysical statements do have content, and they provide a quarry from which hypotheses can be drawn. Although they do not belong to the realm of science, they are necessary to it. They are necessary to point out what we want to know. Metaphysical statements, for example, that equal opportunity or absence of state involvement in economics will create maximum welfare - provide a programme for research. Only then will it be possible to evaluate their correctness. One main difficulty for such research is that ideology has soaked into the very material we have to deal with.

The same applies to equity concepts relating to property and taxation. In this, the economist can probably do no better than to draw up a matrix (implicit or explicit) of costs and benefits. In this respect, Prof. Nieuwoudt did well in his article on the taxation of agricultural land.

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NOTES

MARKETING OF VENISON BY RETAIL BUTCHERS IN TRANSVAAL

Research note by J. Behr and J.A. Groenewald*

ABSTRACT

A mail questionnaire survey was conducted with regard to the marketing of venison. The majority of butchers do not trade with venison and the total volume per butcher is small. Venison prices are comparable to those of super beef and lamb. Butchers experience problems to obtain venison. Venison production may become viable only if marketing channels are created.

INTRODUCTION

Considerable interest has developed in recent years in game farming in South Africa. Apart from the development of technical aspects of game production and game cropping, the creation of marketing channels for venison is a prerequisite for the development of game farming as a viable agricultural industry.

Knowledge of the present situation is in its turn a prerequisite for such development. A mail questionnaire survey was conducted in this respect during 1986 with the aim of gathering information on retail butchers' experience in the venison trade. Ninety seven addresses in Transvaal were obtained.

After the questionnaire had been tested, it was mailed to the 97 addresses, accompanied by a covering letter. After 3 weeks, a reminder was mailed to the outstanding addresses. A response was obtained from 41 butchers. Only 20 of these 41 questionnaires contained useful information regarding venison sales. The majority of butchers had not sold venison in the previous year or ever before, or could not supply the required information. This may have been a cause for the relatively poor response.

Table 1 shows the number of years in which the butchers had already traded in venison.

TABLE 1. Number of years in which butchers had been trading with venison (1986)

Years	Number of butchers
1 to 3	4
4 to 6	7
7 to 9	0
10 to 12	3
14 to 15	2
16 or more	4

The majority of the 20 butchers have traded in venison for a relatively short period; eleven have done it for less than 6 years.

MAGNITUDE OF VENISON TRADE ACTIVITIES

Fourteen of the 20 butchers obtained venison direct from game farmers, while wholesalers are the second most important suppliers. Five of the butchers own farms from which they obtain venison. Between 1981 and 1985, sales varied between 55,7 and 95,3 carcases per butcher per annum. Total mass varied between 2 989 and 4 531 kg per butcher per year.

Impala meat constituted the most commonly traded venison and represented between 30 and 60 per cent of the total. Kudu was second in importance with 20 to 30 per cent followed by springbok, blesbuck and blue wildebeest. Of the total sales mass, 20 per cent is sold as biltong, 14 per cent is sold as dried sausage and 26 per cent is sold in the form of whole carcases. The remaining 40 per cent is sold in the form of cuts. Haunch cuts are most popular, followed by loin chops, half impalas and shoulder cuts. Sales occur predominantly during the hunting season (May to August). Only six of the 20 butchers advertise venison.

PRICES

Table 2 shows the highest, lowest and mean sales prices of different cuts of venison in 1985 as well as

*Respectively of Theron, Prinsloo, Grimsehl & Pullen (Consulting Civil and Structural Engineers), Pretoria, and the University of Pretoria.

The research was funded by the Directorate of Agricultural Production Economics

TABLE 2. Comparative retail prices for certain meat cuts, Pretoria and Witwatersrand

Item	Haunch, leg, rump	Filet	Shoulder	Neck	Loin	Venison stew	Half impala
				c/kg			
Venison (1985)							
Highest Price	750	1 075	900	598	750	598	390
Mean	568	831	530	423	565	441	317
Lowest price	350	500	280	280	380	280	230
Beef (1984/85):*							
Super A, Pretoria	644	913	571	363	-	-	-
Super A, Witwatersrand	632**	876	514	375	-	-	-
Lamb (1984/85):*							
Super, Pretoria	577	-	-	443	-	-	
Super, Witwatersrand	524	-	-	395	-	-	-
Game (mean)				%			
Beef:							
Super A, Pretoria	88,1	91,0	92,8	116,5	-	-	-
Super A, Witwatersrand	89,9	94,9	103,1	112,8	-	-	-
Lamb:							
Super, Pretoria	98,4	-	-	95,5	-	-	-
Super, Witwatersrand	108,4	-	-	107,1	-	-	-

*Source: Bruwer (1986)
**Topside

available retail prices (Bruwer, 1986) for high quality beef and lamb cuts in 1984/85.

As far as venison is concerned, fillets realised the highest prices and half impala carcases the lowest.

Average prices for venison haunch cuts were approximately 11 per cent lower than those of Super A beef rumps, and venison fillets were sold at prices approximately 7 per cent below those of beef. Average prices of shoulder cuts were comparable to those of Super A beef, while venison neck cuts were sold at higher prices (approximately 14 per cent higher) than beef neck cuts. Venison haunch cuts and neck cuts were sold at higher prices (approximately 8 per cent higher) than super lamb at the Witwatersrand.

On the whole, venison prices were comparable to those of Super beef and lamb.

Opinions regarding price sensitivity of venison as compared to beef and lamb, appear in Table 3. No consensus exists.

TABLE 3. Opinions of 20 Transvaal retail butchers on price sensitivity of venison compared to beef

Much more sensitive	4
More sensitive	5
Equally sensitive	2
Less sensitive	8
Much less sensitive	1

PROBLEMS ENCOUNTERED IN THE TRADE

The respondents identified procurement as the largest single problem in the marketing of venison. Of the 20 respondents, 12 experienced problems with supply from producers. At the time of the survey, telephonic contact was made with various butchers and a considerable number (excluding the 20 from whom data were obtained) wanted to know where they could obtain venison. This contact occurred in the midst of the hunting season.

It thus appears that a lack of information exists among retail butchers regarding availability of venison or possible sources thereof. The enquiries indicate that an interest in venison may potentially exist, but there is no indication of effective market communication and/or promotion. The question arises whether game farmers and their organisations have any awareness of the potentialities and importance of retail marketing of their product.

Butchers also mentioned the following problems:

- Some carcases have bad bullet wounds which cause losses.
- Transport costs from remote areas are high.
- Consumers are ignorant about the preparation of venison.
- Sales tax is levied on venison.

CONCLUSION

Butchers do not have access to sufficient game to make meaningful trade possible. Until this shortcoming has been rectified, meaningful trade with venison will be out of the question. The opportunity probably exists for a firm, person or organisation to render a marketing service to butchers on a basis of profit. Certain problems will however first have to be overcome. The hunting and therefore production season nowadays stretches only over approximately three months. It will require high fixed costs to erect facilities specifically for the handling of venison carcases and to utilise these for only three months

per year. In addition, the turnover in venison is relatively so small compared to that of beef and mutton, that firms which trade with other types of meat may regard it not to be worth the trouble to include venison in their product portfolio. The handling of venison may therefore require a specialised, relatively small type of business. The high fixed costs associated with a short hunting season will therefore be a distinct stumbling block. This stumbling block can be overcome only if commercial game farmers are exempted from the hunting season ordinances and are thereby permitted to market at any time of the year.

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DISCREPANCIES IN AGRICULTURAL DATA FROM TWO OFFICIAL SOURCES

Research note by J.A. Groenewald* *

Modern commercial agriculture is dependent on reliable information for its smooth functioning. Farmers, suppliers of inputs as well as distributors and processors of farm products can increase their effectiveness and efficiency in a market-related system only if they have access to reliable information with which to project future projections. The State also needs such information for determining and analising its policy. Projections or research can be of use only if they are based on reliable information. It is therefore important to evaluate available information. In this note it has been done in respect of certain information on fresh produce as published by two government agencies.

The most important sources of data on the primary production of fresh produce in South Africa

*The author is indebted to anonymous referees for useful hints
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TABLE 2. Data with regard to fruit production in the RSA, 1980/81

Fruit type	Production		
	Census*	Abstract**	Abstract
	1 000 t		Census
Citrus			
Oranges	682,3	546,8	0,930
Lemons	42,7	38,9	0,911
Grapefruit	74,7	71,7	0,959
Naartjies	18,0	26,2	1,455
Subtropical			
Guavas	27,2	20,5	0,753
Litchis	3,5	3,0	0,857
Mangoes	21,5	14,2	0,660
Avocados	20,7	21,1	1,019
Bananas	146,7	111,5	0,760
Pineapples	167,2	226,7	1,355
Pawpaws	12,5	24,6	1,968
Granadillas	0,7	1,0	1,428
Deciduous fruit			
Peaches	203,0	165,9	0,817
Apricots	42,2	38,8	0,919
Grapes	1 308,5	1 204,8	0,920
Apples	457,8	394,2	0,861
Pears	133,8	136,2	1,017
Plums	12,4	9,5	0,766
Prunes	5,8	5,2	0,896
Cherries	0,9	0,4	0,444

*Source: 1981 *Agricultural Census* Report 06-01-18
**Source: 1987 *Abstract of Agricultural Statistics*

TABLE 1. Data with regard to vegetable production in the RSA, 1980/81

Vegetable type	Production		Price** R/t nat. markets	Total value***	Gross value**	Fresh market sales		
	Census*	Abstract**					% of total	
	1 000 t			R million	R million	1 000 t**	Census	Abstract
Potatoes	900	859	136	122,4	140,0	500	55,6	58,2
Beetroot	16	43	128	2,1	4,0	20	125,0	46,5
Cauliflower	17	48	93	1,6	4,3	18	105,9	37,5
Carrots	112	107	135	15,3	10,9	47	42,0	43,9
Green beans	19	32	356	6,8	7,6	13	68,4	40,6
Green peas	13	23	283	3,7	6,7	2	15,4	8,7
Cabbage	138	225	58	8,0	12,2	149	108,0	66,2
Sweet potatoes	21	45	182	3,8	5,8	17	81,0	37,8
Pumpkin	105	141	115	12,1	19,0	95	90,5	67,4
Tomatoes: market	157	310	345	-	66,2	181	81,2	58,4
Tomatoes: factory	66							
Onions	127	142	224	28,4	30,1	96	75,6	67,6
Sweet corn and green mealies	27	210	152	4,1	23,7	4	14,8	1,9

*Source: 1981 *Agricultural Census* Report 06-01-18
**Source: 1987 *Abstract of Agricultural Statistics*
***Production according to census multiplied by the price

are the agricultural census reports as compiled by the Central Statistical Service and data from the Directorate of Agricultural Economic Trends of the Department of Agricultural Economics and Marketing. Particulars on production for 1980/81 appear in Tables 1 and 2.

These tables show discrepancies in data from the above-mentioned sources. In Table 1 there are published data on the production of 12 vegetable types. A calculation of total value was done by multiplying the production according to the 1981 *Agricultural Census* by the average price per ton as published in the 1987 *Abstract of Agricultural Statistics*. Gross values, as published in the *Abstract*, are shown in the next column. These values are later compared in respect of 11 vegetable types. Data on sales on the municipal fresh produce markets also appear in the table. The *Abstract* showed a higher production volume than the *Agricultural Census* for 10 of the 12 vegetable types, and for 10 of the 11 on which the comparison was made, the published gross production value (*Abstract of Agricultural Statistics*) was higher than the total value obtained by multiplying average price by volume (*Agricultural Census*). It would also seem that published marketing volumes on fresh produce markets for three vegetable types exceeded the total production volume of the *Agricultural Census*. It is obvious that not both the sets of data can be correct in respect of these three vegetable types. Since fresh market data are subjected to audits before aggregation, the accuracy of particularly the census data can be seriously doubted.

Table 2 shows the production volumes of 20 fruit types as published in the two sources. Since the *Abstract of Agricultural Statistics* differentiates between sales on fresh produce markets and sales for other purposes (processing, drying, etc.) in respect of average prices, gross value and total value according to *Agricultural Census* data could not be compared. *Agricultural Census* data give a higher production for 14 of the 20 fruit types than reported in the *Abstract of Agricultural Statistics*.

The order sizes of the differences are shown in Tables 2 and 3. The *Abstract* value is divided each time by the census value.

The production volume reported in the *Abstract* was more than double that of the *Agricultural Census* data for 4 of the 12 vegetable types, and exceeded the census data by more than 60% for a further three vegetable types. There was an excess of between 30% and 60% in a further two products. There was therefore a difference of more than 30% for 9 out of the 12 vegetable types in the two sets of production data.

TABLE 3. Relationships in respect of production volumes and values of vegetables according to *Abstract* and *Agricultural Census* data

Vegetable type	Abstract data/Census data	
	Production volume	Gross value and total value
Potatoes	0,954	1,143
Beetroot	2,687	1,904
Cauliflower	2,823	2,687
Carrots	0,955	0,712
Green beans	1,684	1,117
Green peas	1,769	1,810
Cabbages	1,630	1,525
Sweet potatoes	2,142	1,526
Pumpkin	1,342	1,570
Tomatoes	1,390	-
Onions	1,118	1,059
Sweet corn and green mealies	7,777	5,780

Sources: 1987 - *Abstract of Agricultural Statistics*
1981 - *Agricultural Census*

In the comparison of gross value/total value the *Abstract* data exceeded the other set by more than 50% in 7 of the 11 vegetable types.

Differences greater than 20% were found in production data for 9 of the 20 fruit types.

CONCLUSION

The inevitable conclusion of the above-mentioned is that there is reason for serious concern over the quality of data in respect of fresh produce. It would also benefit researchers in other fields of agriculture first to investigate the quality of data available to them. This problem is also not new; it existed already two decades ago (Brand, 1969).

Research in order to improve official data series should now receive a very high priority in the public sector.

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