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Articles in the field of agricultural economics, suitable for publication in the journal, will be welcomed.

Articles should have a maximum length of 10 folio pages (including tables, graphs, etc.), typed in double spacing. Contributions, in the language preferred by the writer, should be submitted in triplicate to the Editor, c/o Department of Agricultural Economics and Marketing, Pretoria, and should reach him at least one month prior to date of publication.

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Application and utilisation of agricultural sector accounts

by

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University of Pretoria

1. INTRODUCTION

In 1967 Richter¹⁾ developed a method whereby macro-economic accounts can be prepared for the agricultural sector. Such accounts for the agricultural sector represent a macro-analysing technique for farming and links up with the South African system of national accounts. From this the contribution of agriculture to the gross domestic product and the gross domestic investment can be determined. In order to test the value and usefulness of such economic accounts for agriculture, sector accounts were prepared for nine sub-regions of the Letaba district, on the basis of information collected during a comprehensive farming survey in 1967²⁾.

2. PURPOSE OF SECTOR ACCOUNTS

Up to now, agricultural economists have mainly concentrated on economic surveys on production and cost studies. In this way insight was obtained into magnitudes such as the extent of production and investment, as well as the efficiency of production, while little attention was paid to pure financial aspects, as for example, the sources of funds and their utilisation. In sector accounts, the information concerning the origin and utilisation of funds, permits of a complete picture being obtained as to how the farming activities as an undertaking as well as other income and the pattern of spending of the farmer's entire household are merged. Mueller³⁾ states that: "Conventional farm-record systems have usually omitted the household accounting or have treated the household financial activities as a residual, i.e. the portion that remains after the farm has received its share. This omission presents problems, because the household financial activities are concurrent with the farm financial activities - in fact they often compete with the business for a share of cash and non-cash resources."

- 1) Richter, G.J. A methodological study on sector accounts within the framework of economic accounts with special reference to the flow of funds in agriculture. M.Sc. (Agric.) thesis, University of Pretoria, Pretoria, July, 1967.
- 2) Du Toit, J.P.F. The macro-economic structure of the Eastern Transvaal Lowveld. M.Sc. (Agric.) thesis, University of Pretoria, Pretoria, August, 1968.
- 3) Mueller, A.G. Flow-of-funds analysis in farm financial management. J.F.E. Vol. 48 No. 3, Part I, August, 1966.

While traditionally much attention was paid to individual branches of farming on a farm and/or in a region, the nature and extent of the sources and general utilisation of funds by farmers in a particular area, are accentuated in sector accounts. Through the medium of this flow-of-funds information, important insight is obtained in respect of:

- (i) The origin and application of funds.
- (ii) The extent of the financial surplus or shortfall.
- (iii) The influence exerted by financial intermediaries in the supplementation or application of the financial shortfall or surplus.
- (iv) The relative importance of the respective financial intermediaries in agriculture and the need which exists for the different types of credit available from the respective sources.
- (v) The extent of consumer spending, personal saving and gross investment in agriculture.
- (vi) The general level of prosperity of the farming community.

3. COMPONENTS OF SECTOR ACCOUNTS

Four accounts are used in sector accounts, viz. the production account, the income and expenditure account, the investment and savings account and the financial transaction account. Each account consists of an assets and liabilities side, which should always balance over the course of a specified period.

The production account shows on the liabilities side, all inputs, and on the assets side, all outputs in respect of production activities. From this it will be evident from which branches the farmer derives his income and what total costs (inputs) were involved. This account closes with a balance, known as the trading surplus or shortfall, depending on whether the amount is positive or negative. Two items in this account justify further elucidation.

Stocks: The items opening stock and closing stock are usually furnished very incomplete by farmers and in consequence a constant opening and closing stock of R500 is accepted for all sub-regions⁴⁾.

- 4) This assumption is realistic in farming, since farmers purchase supplies of seed, fertilizers, packing material etc. annually as these are required and since a farming unit usually does not aim at maintaining a fixed minimum supply as in the case of other enterprises.

Interest: All interest paid on loans for the acquisition of inputs for the purpose of production is included⁵⁾.

The income and expenditure account shows on the one hand the various sources of income for the farmer and his household and on the other hand how this income is expended or saved. This account closes with a balance called personal saving which, should it be negative, is also named personal dissaving.

The extent of gross investment and the manner in which it is financed, are shown in the investment and savings account. The item, provision for depreciation, is also included here as a source of investment, although generally the greater majority of farmers do not reserve a certain amount of money annually for this purpose in their own planning of activities⁶⁾. The closing balance in this account is termed the financial surplus or shortfall, which is an indication of ".....the excess of net acquisitions of financial assets over net incurrences of liabilities".

By means of the financial transaction account, the sources of funds utilised for financing shortfalls as well as the utilisation of surplus funds, are indicated. Short term credit granted by commercial banks excludes overdraft facilities and similarly facilities for accounts granted by co-operatives are excluded under this item. The items, obligations towards co-operatives at the beginning and at the end of the year, show whether a net credit allowance or a net repayment of debt by farmers took place at the co-operatives. The item, balance on co-operative account at the end of the year in respect of some farmers was obtained direct from the respective co-operatives in the Letaba district. The corresponding balance at the beginning of the year, however, had to be calculated as the residual.

4. ACCOUNTS FOR DUIWELSKLOOF FOREST REGION

For the purpose of illustrating the preparation and analysing of economic accounts, the case of one agro-economic sub-region of the Letaba district is now discussed briefly⁷⁾.

- 5) In traditional farming analyses, a fixed percentage of interest (5 per cent) is calculated on the total capital investment, which is then regarded as interest costs and not the amount actually paid as interest.
- 6) This view is endorsed by F.G. Steyn in his thesis, The financing pattern in South African agriculture with special reference to certain regions. M.Sc. (Agric.) thesis, University of Pretoria, Pretoria, June, 1968.
- 7) The Letaba district was divided into ten agro-economic sub-regions, following a survey in 1967. For further details see Jacobs Z.H. An agro-economic classification of the Letaba area. M.Sc. (Agric.) thesis, University of Pretoria, Pretoria, November, 1968.

It will be observed from the production account that the total outputs in this production year were R16 789. Labour costs (R3 931) was the most important single cost item and represented about 37 per cent of the total inputs. Thereafter follows, in order of importance, machinery and implement costs, packing material and depreciation. A trading surplus of R5 589 was realised.

This trading surplus, together with a high average non-farming income of R1 941, as indicated in the income and expenditure account, was the most important source of personal income. Consumer spending averaged R2 949, and an average personal saving of R4 150 was possible in this case.

According to the investment and savings account, there was, except for the purchase of vehicles, no fixed investment worth mentioning in respect of livestock, implements, tractors, land and permanent improvements. The sources of funds for investment purposes, viz., savings and provision for depreciation, exceeded gross investment by an average of R4 210 which could be transferred to the financial transaction account as financial surplus.

The favourable influence of this relatively high financial surplus becomes clearly evident in the financial transaction account. Thus, for example, the current banking accounts of farmers improved from an average overdraft of R685, to a credit balance of R852. Savings and fixed deposits also increased in the course of this year, while commitments at co-operatives also decreased appreciably. Farmers in this region availed themselves of approximately equal amounts of short term and interim credit viz. R450 and R478, respectively. Long term credit, mainly granted by the Land Bank, amounted to an average of R1 473.

5. COMPARISON OF FINANCIAL RESULTS BETWEEN AGRO-ECONOMIC SUB-REGIONS

The findings of Jansen⁸⁾ and Swanepoel⁹⁾, who compared the sub-regions concerned on the basis of traditional standards, are indicated in Table 1.

The great variation in total capital investment between the different sub-regions shown above, is striking. The best financial results were achieved by farmers in the sub-regions Duiwelskloof, New Agatha and Letaba river. Farmers in the cattle grazing region fared poorly, while exceedingly poor results were obtained in the Tzaneen small-holdings area. According to this analysis, therefore, farmers receive a very low remuneration for their management services.

- 8) Jansen A.A. An economic evaluation of smallholding units in the Letaba district. M.Sc. (Agric.) thesis, University of Pretoria, Pretoria, September, 1968.
- 9) Swanepoel G.H. A business economic survey concerning certain farming types in the Letaba district. M.Sc. (Agric.) thesis, University of Pretoria, Pretoria, September, 1969, p.69.

AGRICULTURAL SECTOR ACCOUNTS FOR DUILWELSKLOOF FOREST REGION, AVERAGE PER FARM, JULY, 1966 TO JUNE, 1967

1. Production Account

Liabilities	R	Assets	R
1. 1 Stocks on farm (1/7/66)	500	1. 9 Income from crops sold	14 453
1. 2 Intermediate goods and services	5 048	(a) Citrus	1 288
(a) Seed, small trees and plants	306	(b) Other fruit	7 283
(b) Fertilizers	958	(c) Vegetables	912
(c) Railage	82	(d) Forestry	4 785
(d) Threshing costs, bags, twine and packing material	1 049	(e) Other crops	185
(e) Spraying materials	351	1. 10 Income from livestock	463
(f) Medicine and veterinary costs	17	(a) Animal products sold	351
(g) Fodder	160	(b) Livestock appreciation	112
(h) Other costs	181	1. 11 Products used on farm	277
(i) Bank charges	96	(a) Domestic consumption	88
(j) Machinery and implement costs	1 848	(i) Crops	33
1. 3 Labour costs	3 931	(ii) Livestock	55
1. 4 Depreciation	1 413	(b) Labour consumption	189
1. 5 Rent paid	-	(i) Crops	163
1. 6 Interest paid	308	(ii) Livestock	26
1. 7 Trading surplus (2. 7)	5 589	1. 12 Other farming income	1 096
1. 8 Total inputs	16 789	1. 13 Stocks on farm (30/6/67)	500
		1. 14 Total outputs	16 789

2. Income and expenditure account

Liabilities	R	Assets	R
2. 1 Consumer spending	2 949	2. 7 Trading surplus	5 589
(a) General goods and services	2 292	2. 8 Transfers received	11
(b) Farm products consumed	88	2. 9 Rent received	43
(c) Motor costs for non-farming purposes	569	2. 10 Non-farming income	1 941
2. 2 Interest on consumer loans	15		
2. 3 Direct tax	365		
2. 4 Transfers given (donations)	105		
2. 5 Personal savings (3. 5)	4 150		
2. 6 Personal spending	7 584	2. 11 Personal income	7 584

3. Investment and savings account

Liabilities		R	Assets		R
3.1 <u>Gross fixed investment</u>		1 559	3.5 <u>Personal savings</u>		4 150
(a) Net purchases plus livestock appreciation	26		3.6 <u>Provision for depreciation</u>		1 619
(b) Net purchases of implements	149		(a) Implements	160	
(c) Net purchases of tractors and power machinery	155		(b) Tractors and power machinery	523	
(d) Net purchases of vehicles	1 171		(c) Vehicles	229	
(e) Net purchases of land	-		(d) Permanent improvements	707	
(f) Permanent improvements	58		3.7 <u>Capital transfers received (subsidies)</u>		-
3.2 <u>Change in stocks</u>		-			
3.3 <u>Financial surplus</u> (4.13)		4 210			
3.4 <u>Gross investments</u>		5 769	3.8 <u>Financing of investments</u>		5 769

4. Financial transaction account

30	4.1 <u>Balance on co-operative account (1/7/66)</u>		R	4.10 <u>Current banking account (1/7/66)</u>		R
	4.2 <u>Instalments paid on loans received</u>			4.11 <u>Savings and fixed deposits (1/7/66)</u>		-685
	4.3 <u>Loans granted</u>			4.12 <u>Financial surplus (3.3)</u>		1 184
	4.4 <u>Premiums on life insurance</u>			4.13 <u>Repayments on loans granted</u>		4 210
	4.5 <u>Shares purchased</u>			4.14 <u>Short term credit</u>		32
	(a) Co-operatives	-		(a) Banks	92	450
	(b) Public companies	537		(b) Co-operatives	-	
	(c) Private companies	326		(c) Trust companies	-	
	4.6 <u>Other financial assets acquired</u>			(d) Financing corporations	231	
	4.7 <u>Savings and fixed deposits (30/6/67)</u>			(e) Seller	-	
	4.8 <u>Current banking account (30/6/67)</u>			(f) Private	127	
				(g) Other	-	
				(h) Government	-	
				4.15 <u>Interim credit</u>	478	
				4.16 <u>Long term credit</u>	1 473	
				4.17 <u>Other financial liabilities incurred</u>	-	
				4.18 <u>Balance on co-operative account (30/6/67)</u>	327	
	4.9 <u>Acquisition of financial assets</u>	7 469	4.19 <u>Incurrence of financial liabilities</u>		7 469	

TABLE 1 - Financial results, average per farming unit, Letaba area, 1966/67

Sub-region	Total capital investment R1 000	Efficiency standards		
		Net farming income/ R100 cap.	Entrepreneur's remuneration R	Capital turnover (years)
Tzaneen small-holdings	26	1.0	-1 053	7.4
New Agatha highlands	45	7.1	931	5.8
Duiwelskloof forest region	103	8.2	3 359	5.3
Letsitele valley	58	5.9	530	4.5
Transitional region	87	5.6	524	7.1
Letaba rivier region	122	5.8	863	4.1
Mokeetsi region	44	5.5	238	2.8
Cattle grazing region	57	3.7	-758	9.2
Trichardtsdal region	76	5.7	494	4.0

Source: Jansen, A. A. and Swanepoel G. H. etc.

The standards mentioned, however, fail to indicate in what measure the actual financial position of the farmers improved or deteriorated during a particular year or period.

It will be observed from Table 2, that, with the assistance of sector accounts, it is possible to determine the actual changes in the financial position of farmers in the respective sub-regions. In the financial transaction account, heed was taken of the increase or decrease in assets and liabilities by paying attention, amongst other, to balances such as:

- (i) Changes in current banking accounts (credit excluded).
- (ii) Commitments at co-operatives (credit excluded).
- (iii) Changes in savings and fixed deposits.

If the sum total of personal savings and financial surplus is positive, the financial position improved - if negative, it deteriorated. It was thus

found that the financial position of farmers in the Tzaneen smallholdings region, Letsitele valley and the Mokeetsi region had deteriorated in the year in question although in the latter two regions they showed a positive trading surplus. The positive trading surplus, together with other income, was, however, insufficient to provide for domestic expenditure. In the sub-regions New Agatha and Trichardtsdal, the financial position of farmers remained practically unchanged, while it improved in the Duiwelskloof region, the Letaba river region and the cattle grazing and transitional regions.

Apart from important information acquired concerning production (as primary source of income), insight was also obtained into the manner in which farmers apply available funds, as well as the sources from which such funds are augmented. With the assistance of this flow-of-funds technique, it is thus possible to obtain a wider insight into the welfare of farmers in a particular area.

TABLE 2 - Financial results according to sector accounts, average per farming unit, Letaba area, 1966/67

Sub-region	Trading surplus R	Personal saving R	Financial surplus ¹⁰ R	Changes in general financial position
Tzaneen small-holdings	-125	-307	-757	Deteriorated
New Agatha	544	-107	-310	Practically unchanged
Duiwelskloof	5 589	4 150	4 210	Improved
Letsitele valley	1 362	-635	-715	Deteriorated
Transitional region	3 701	1 628	1 554	Improved
Letaba river region	6 146	3 132	-45	Improved
Mokeetsi region	820	-480	-1 599	Deteriorated
Cattle grazing region	3 329	2 451	-503	Improved
Trichardtsdal region	3 585	1 084	-602	Practically unchanged

10) In the Letaba river region and the cattle grazing region, the financial position of farmers improved in spite of a financial shortfall. This is possible if it is accepted that investments were financed from credit, while savings were applied towards meeting obligations at banks, co-operatives etc.

6. CONCLUSION

With the aid of agricultural sector accounts, the nature and extent of certain strategic variables in the economy, for example production, consumption, saving, investment and financing, are calculated. No economic planning is possible

or has any sense, without sufficient knowledge concerning these magnitudes, whether for the country as a whole, a region or an individual farming unit.

Regional analysis and economic planning on a regional basis, is the order of the day. Increasing attention will have to be paid by agricultural economists to macro-economic aspects, not only for the purpose of filling gaps, but also to develop a more efficient working system, especially in respect of agricultural economic investigations or situation determinations, particularly in distress or disaster areas.

Efficient production, without rational and thrifty use of scarce funds, cannot under existing

conditions, possibly lead to expansion and accumulation of assets over the long term. More detailed information on the assets and liabilities of subjects in a region will permit of a wider understanding concerning the welfare, growth and productivity within a region.

The framing and interpretation of economic accounts is a simple process and can be utilised fruitfully by both research worker and farmer, since an appreciable amount of confidential information is required. For the farmer it can serve as a comprehensive survey of activities over a period, comparable to the annual report of a business enterprise.