THE IMPOST OF GOVERNMENT TAXES AND CHARGES ON FARM BUSINESSES – A CASE STUDY ANALYSIS

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Abstract

Do government taxes and charges impose a significant financial impost on Australian farm businesses? A recent survey of farmers conducted for DPIE indicates that farmers say yes, with indirect government costs (levies, duties, charges) being of greater concern than direct taxation.

A case–study approach has been used to estimate the taxes and charges which would be paid on a mixed farm in the Central West of NSW. Initial results indicate that Government and industry non–tax charges are approximately 12–14 per cent of total farm costs, with the largest share being Local Government charges, followed by hypothecated levies, State Government and Commonwealth Government charges respectively.

In order to fully capture taxation effects, the model farm and operating assets were assumed to be purchased at the beginning of the study period and sold at the end. With the claw back of tax in the sale year, tax liabilities deferred over this period were found to have a significant effect on the market value balance sheet. Including this liability on balance sheets would significantly reduce net worth and equity.

Key Words: farm costs, taxes, non–tax charges, deferred taxes.

INTRODUCTION

The importance of government taxes and charges as a determinant of a competitive agricultural sector have long been recognised by farmers. In a 1993 survey conducted by Solutions Marketing and Research Group for DPIE of more than 2,000 Australian farmers, indirect costs (ie., government charges, levies and compliance costs) were nominated as the third major concern of farmers, while (income) taxation was nominated as eighth. Seventy five per cent of the farmers surveyed agreed with the statement "Under the current tax structure it is impossible for me to save enough during the good times to carry me through the bad times".

The aim of the study reported in this paper was to attempt to gain better insights into the nature and relative magnitudes of the Government imposts faced by broadacre farmers in New South Wales by examining the taxes and charges which would be paid if a Central West NSW farm was purchased, operated for five years and then disposed of.

PREVIOUS STUDIES

Surprisingly, there appears to have been few studies which have considered the impact of both direct and indirect taxes on Australian farmers (Davenport and Lynch 1992, Nixon and Perry 1993, Perry *et al* 1994). Previous studies have been partial and concentrated on income tax (Green Paper 1974, IAC 1975).

The focus of the 1975 Industries Assistance Commission Report *Rural Income Fluctuations – Certain Taxation Measures* (IAC, 1975) was the impact of taxation on stabilising farm incomes. The report concentrated on measures to reduce *period inequity*, the additional tax liability that may be imposed on fluctuating taxable incomes compared to stable taxable incomes. Indirect taxes were not examined at all. Papers at the Australian Tax Research Foundation Conference *Taxation and the Rural Economy* (1988) described tax provisions for farmers, but there was little analysis of the impact of the provisions.

Davenport and Lynch (1992) proposed that taxes and charges should be broken into two types:

> *Class 1 – direct revenue raising government charges, such as stamp duty and federal excise and state franchise fees, for which there is no service component; and,*

> *Class 2 – unrequited and requited charges associated with government instrumentalities and statutory authorities for which the farmer receives a service but which can also contain a tax component, such as rail freight and electricity charges.*

On this basis they then analysed the single year impact of government taxes and charges on a hypothetical farm representative of the Central–West of NSW. Their approach was based on selecting optimum enterprise levels from gross margin modules, plus an overhead cost module. The model did not take into account livestock dynamics and was for a single year.

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Class 1 taxes and charges (excluding income tax) were estimated to comprise 9.9 per cent of farm input costs, while Class 2 taxes comprised 3.6 per cent of input costs. Sensitivity analyses of changes in farm costs indicated that these estimates were reasonably robust. Contrary to conventional wisdom, it was found that of Class 1 costs, 57.3 per cent were imposed by Local Government, 33.2 per cent by the State Government and 9.5 per cent by the Federal Government.

The representative farm model was then optimised with and without taxes and charges. Importantly, the analysis indicated that enterprise mixes would change significantly in the absence of government taxes and charges.

Nixon and Perry (1994) analysed the impact of tax policy and social welfare programs on wheat farmers in the United States, Canada and Australia. The analysis was based on wheat farms at Moree, NSW (2,000 acres), Warner County, Alberta (2,100 acres) and Toole County, Montana (2,100 acres). Only one year was analysed (stated to be 1991, but the Australian analysis used 1989–90 income tax rates) and several minor errors appear in the assumptions.

Nixon and Perry concluded:

> *The results indicate that government tax and social programs in Australia provides that country's farmers with a competitive advantage in trade, particularly for the small and medium sized farms. Nonetheless, these tax and social program benefits were not sufficient to offset the disadvantages that Australian farmers incur by not having government farm program payments'.*

Closer examination of the results indicates that this benefit arises through lower pension/medicare and property taxes, and there were wide variations in particular tax classifications. Overall, the Australian tax system imposed similar costs on farmers, compared to the USA and Canada.

Perry *et al* (1994) extended the Nixon and Perry study to include Argentina and France. The study concluded that tax and social programs provided Canadian wheat farmers with an overall competitive advantage, but Australian tax and social programs allowed small and medium sized enterprises to remain competitive.

METHODOLOGY

Introduction
In brief, the study methodology was to:

- Specify a 'typical, average or demonstration' farm within the Condobolin area of the Central West.
- Identify the taxes and charges levied by Commonwealth, State and Local Government, Semi-Government Agencies and industry bodies, on farm businesses
- Use the specified data to simulate the physical and financial behaviour of such a farm, where it is purchased in year one, operated for five years and then sold in year seven.

- Analyse the financial reports available after year seven and draw conclusions to the total effect of government taxes and charges and the relative effects of individual and individual groups of taxes and charges.

The whole–farm model used was specified as part of the National Climate Variability Research Program project 'Drought Strategies to Enhance Farm Financial Viability'. The assistance provided by the project's principal researchers, Professor Roy Powell (Centre for Agricultural and Resource Economics, UNE), Garry Kennedy (West Australian Department of Agriculture) and Bob Douglas (NSW Agriculture), in making the model available for this project is gratefully acknowledged. The farm used in the study was developed in a modified version of RISKFARM (Milham 1992; 1994) and RISKFARM output in the form of business financial reports was used to identify the effect of the various taxes and charges on the farm business. Information on the physical and financial management characteristics of the farm model was obtained using the concensus data technique.

The RISKFARM Model

To assess the importance of Government taxes and charges a model was needed that could assess the financial behaviour of a farm over a number of time periods. While this ability is not unique to RISKFARM, it was chosen because of the considerable amount of farm modelling work already completed for the 'Drought Strategies to Enhance Farm Financial Viability' project. RISKFARM is a computer model developed for simulating the financial structure and performance of a farm business under uncertainty using management accounting techniques. It was designed to model and simulate agricultural production in an uncertain environment, where the decision maker attributes probabilities to the uncertain events. RISKFARM was developed to evaluate the performance of various farm and non–farm investment options, in an uncertain economic and physical farming environment, and has since been used to model farm financial performance under various financial structures and drought management strategies (eg. Bromell, 1991; Kaine *et al*, 1993; Milham 1992; Tapp *et al*, 1995).

The use of RISKFARM in this project does not centre on the 'risk' modelling aspects, but the ability to model the financial performance of a business over a number of years. It is a dynamic whole–farm budgeting model, based on an Excel™ spreadsheet. RISKFARM itself is not a model of a farm, but a structure that holds the basic relationships between the various financial and production aspects of a farm business over a certain time period. Therefore the characteristics of the type of farm business to be modelled have to be entered. The data used to develop this particular farm are discussed later.

RISKFARM generates five years of annual financial statements and ratios. That is, it is not a single period analysis and the impact of a particular action or shock can be examined over time. This was particularly relevant to this study because many of the charges and taxes of interest are levied as a large lump sum in a particular period. RISKFARM enables the cumulative financial effect of those charges and taxes to be examined in subsequent years

While the model reports over a 5 year time span, this does not entail collecting 5 years historical data. Only the first year's production and financial data are specified, the values for subsequent

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year's data are obtained by sampling from probability distributions and in some cases the parameters of these distributions are estimated in nominal terms by using an appropriate inflation factor. During this study, however, prices and costs were kept in constant 1994 dollars, so that the tax effects could be easily isolated.

The data available from the financial reports in RISKFARM are quite detailed. All the financial transactions of the modelled farm business are accurately captured via relationships between physical production, income and costs, taxation, investment and finance.

The original RISKFARM model included some basic assumptions in the name of simplification. This ensured a fairly constant degree of detail over all areas of the model. However, the level of financial detail required for the drought management strategies project currently using RISKFARM (see Tapp *et al*, 1995) has required the taxation module to be revised. It has been re–developed so as to now provide comprehensive and detailed coverage of taxation and to reflect recent changes in taxation law and at the same time include more specific detail. Consequently the quality of financial detail available is comprehensive and very suited to examining the financial implications of government taxes and charges on a farm business.

While the RISKFARM model actually operates on a 5 year horizon, the financial analysis of the property was over a 7 year period. The additional 'years' were not full operational years. They are 'extraneous' years that allowed for the purchase of the property on the last day of year one, and the sale of the property on the first day of year seven. The other five years reflected the fully operational characteristics of the farm business. Separate spreadsheets were used to add the two extra years to the model. The analysis period began on 30 June 1994 and the tax regime (1993–94) was assumed to remain unchanged until the end of the modelling period on 1 July 1999.

THE DEMONSTRATION FARM

Using Concensus Data – The Farm Model Developed For The Condobolin Area
There were two main requirements when specifying a farm model for this project:

- identifying the physical and structural characteristics, production characteristics, and overhead and variable costs structure, during years of 'normal' or 'typical' operation.
- identifying the 'start–up' and 'wind–down' procedures and costs, associated with the purchase and then sale of this farm.

Some alternative methods for developing this model would be to specify an 'average' farm for the area using ABARE data in conjunction with local data, use a case–study farm, or as we have chosen to do, develop a 'demonstration' farm using a group of local farmers to specify the information. This technique is called the 'concensus data technique', where a group of farmers discuss and come to an agreement on the characteristics of a 'typical' farm in the local area. Some additional information was drawn from a local stock and station agent, insurance agents, bank personnel, and NSW Agriculture staff.

It was felt that this particular approach had various advantages over other methods. Using the average farm data technique, as previous studies have done, allows a farm structure that may never actually exist to be specified. The average property for a particular area would include some of every enterprise found in the area, yet in scales so small they would not be economical. The other alternative, using a case–study farm, has many of the benefits of the farm specified by consensus data, yet has some extra disadvantages. Like a case–study farm, the demonstration farm specified could actually exist in the area, yet unlike using a case–study farm, no particular idiosyncrasies of an individual operator unduly influence the model and it does not require an individual operator to discuss their financial arrangements, which could limit the quality of information made available.

Description of The Farm

The demonstration farm is a 2800 hectare dryland property to the south west of Condobolin. At the time of writing, the Condobolin area had experienced some months of drought conditions. However, the mod . developed reflects a 'normal' year of operation, without reference to the incomes and ^osts expected in a drought season.

Condobolin is situated in the central west of NSW and is in the Wheat–Sheep Zone. Soils are typically red and brown earths. Rainfall averages around 420 millimetres per annum, generally winter dominant, but variable. In the past, land–use was dominated by Wheat–Sheep activities. With the downturn in both wool and wheat prices in the early nineties, there has been increased interest in cattle grazing, opportunity feedlotting, forage cropping and pasture improvement with legume species.

Enterprises

Nine hundred hectares of country were cropped each year, 450 hectares sown to wheat, 225 hectares to barley and 225 hectares to oats. This was a rotation of wheat followed by barley or oats and then returning to pasture. Livestock carried on the remaining area were 1700 Merino ewes producing cross bred lambs, 60 Hereford cows (self replacing) and 26 steers for fattening (the progeny of the cows). The steers were sold finished at eighteen months. Cull heifers were sold as weaners. To handle livestock dynamics in the model, it was assumed that the ewes and cattle were purchased in the relevant age structures, so that the farm physical production and production income very quickly settled to a steady state.

Labour

Only family labour was used year round, with some casual labour used in periods of peak demand, such as shearing, harvesting and ground preparation/sowing.

Vehicles

The farm had three vehicles; a 4 wheel drive, a medium sized truck and a car, primarily for personal use. There were also two unregistered motor bikes for on–farm use. A dog trailer was available for towing either behind the tractors or the truck. The 4 wheel drive was assumed to be a six cylinder, diesel trayback. The truck was assumed to have an approximately 7.2 metre tipping tray, with a stock crate.

Machinery

The principal items of machinery are listed below. The consensus group determined machinery size, type and whether it was purchased new or second hand. No harvesting or haymaking equipment is owned, contractors were used for those activities.

- 250 hp tractor, 4-wheel drive – linkage
- field bins
- disc plough
- wideline
- wool press and grinder
- small tractor, 2-wheel drive – linkage, front end loader

- auger x 2
- grouper
- air seeder
- combine
- spray unit

Insurance

An insurance package specifically for rural holdings was used to insure the house, sheds and fences against fire and other destruction, and to cover public liability.

The wheat, oats and barley crops were insured for 100% of their value, against fire and hail. Only the more valuable vehicles and machinery were insured. The truck and the four wheel drive were insured separately, while both the tractors were insured as part of the farm package. There was no insurance on the stock.

Capital Structure

The land is freehold with a value of approximately $593 000 ($212/ha). Machinery and livestock assets are valued at approximately another $200 000. The owners have 100 per cent equity in the business. The net cash position is approximately $54 500 at the beginning of the modelling period, which rises steadily over the course of the next four years.

Financial Arrangements and Annual Income and Expenses

It was assumed that there was no debt and that a partnership tax structure, with two partners existed. It was assumed that the business operated a cheque account with an overdraft facility, and an investment account, where some interest was earned on deposits. Tax averaging was used and personal expenses were assumed to be $30 000 per year.

On the basis of the farm structure detailed above, the streams of annual income and expenses detailed in Table 1 were obtained. It can be seen that there is a steady increase in the net cash position over the modelling period.

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TABLE 1

Cashflow Statement – Years Two To Six

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	Year 2	Year 3	Year 4	Year 5	Year 6
Farm Enterprise Receipts					
Cropping	139343	138914	138914	138914	138914
Wool	41948	41896	42387	42387	42387
Livestock Sales	83311	73717	73272	73419	73265
Non–Farm Income					
Interest Received	0	1598	3892	6344	8908
Total Cash Inflows	**264602**	**256124**	**258464**	**261063**	**263474**
Livestock Purchases	29478	10199	10199	10199	10199
Operating Costs					
Cropping	88459	88459	88459	88459	88459
Livestock	28617	28702	28609	28645	28609
Unallocated	63471	63471	63471	63471	63471
Income Tax	0	0	0	838	885
Personal Expenses	30000	30000	30000	30000	30000
Total Cash Outflows	**240024**	**220831**	**220738**	**221611**	**221622**
Cumulative Cash Surplus	**24577**	**59871**	**97597**	**137049**	**178901**

DEFINING GOVERNMENT BASED FARM COSTS

There is a need to make some differentiation between direct revenue raising taxes and charges, and charges where some service is received by the farmer, so the effect of each can be separated and the overall incidence of government charges on a farm business can be evaluated. Hence, the categories of charges used in the study were initially, Commonwealth, State and Local, with each of these categories being divided into two further categories, 'no direct benefit', and 'some direct benefit'. The issue is not one of benefit from taxes, (farmers clearly benefit from government), but whether there is a direct nexus between the charge and some service which is received for it. There is no direct benefit received from paying income tax, but there is paying for electricity (say). In addition, accounting costs, as a compliance cost of taxation and levies on production were recorded separately. All other costs were classified as production costs.

The Different Levels of Government
The initial classification of costs and charges was between the three layers of Government. The main Commonwealth costs were fuel taxes, income taxation and employee's compulsory superannuation, as well as utilities such as postage and telephone. Local government costs were defined as Local Council land rates, Rural Lands Protection Board rates on stock carrying capacity

and the cost of electricity supply. The largest number of individual costs belonged to the State Government, which included stamp duties and fire services levies, the franchise fee on fuel sales, financial institutions deposit and debit levies and duties, the number of costs associated with vehicle registration, and nearly all the Government costs associated with the purchase and sale of the farm business.

No Direct Benefit

'No Direct Benefit' costs are defined as costs which are direct revenue raising government charges, such as stamp duty, State and Federal taxes on fuel, financial institutions duty, bank accounts debit tax and income tax. These were evaluated as providing no direct service to the farmer. RLPB rates and local council rates were included in this category as well.

There is no general levy for wild dog or other pest control in current RLPB rates. These services are available under a user–pays system. This suggests that the RLPB rates provide no direct service to the farmer, apart from the free services of a veterinary officer and ranger, which were judged to have a small impact on the animal health costs of an individual farmer. There are no direct service charges for country users in Local Council rates, such as water or garbage rates, therefore there is no obvious direct benefit to individual rural ratepayers.

Some Direct Benefit

'Some Benefit' costs are defined as costs levied by a Government or semi government body or Government instrumentality where a service is received, but, because there is a lack of competition in the provision of this service, it is possible for a tax to be included in the pricing structure. Examples of 'Some Benefit' costs are telephone, postage and electricity charges. In some cases it seems likely that in rural areas the pricing of these services may actually involve a subsidy to users, but this is difficult to assess.

It could be argued that there is likely to be no tax component in Telecom charges, due to competition from Optus. On the other hand, because Optus services are not yet available to all rural areas, Telecom may be still extracting monopolistic rents as a single service provider. It might also be that rural subscribers to Telecom services receive a subsidy on the cost of service connection and maintenance. It is difficult to determine the extent of the possible tax or subsidy inherent in rural electricity charges. There is no direct competition to this service, but there is competition from alternative energy sources such as gas, where both local councils and private businesses are suppliers. It is also difficult to estimate whether farmers pay a tax or receive a subsidy in postage charges.

Accounting Costs

Compliance costs can be defined as 'the cost incurred by companies in meeting the requirements of the income tax system' (Pope *et al*, 1994). Accounting fees qualify as a compliance cost in this model, because the complexity of the Australian taxation system makes it necessary for a farmer to hire an accountant to produce end of year financial reports etc., to ensure they meet all their taxation and financial reporting obligations.

Research Levies

Research levies are a hypothecated tax, ie., raised by government and spent on a particular purpose. They were separated because the benefit is indirect, but largely confined to agriculture. Research levies collected by Semi Government agencies and industry bodies were separated from production costs in the model. Most production levies are hypothecated to research which could lead to an overall benefit, not a cost, to the farm business.

Production Costs

Production costs are all other fixed and variable costs associated with operating the farm business, that have no direct tax component. For example: fertiliser costs, seed costs etc. It can be argued that a considerable component of on-farm input costs, like fertiliser costs, are actually transport, the variable costs of which are primarily fuel costs, so the end price actually has a built-in tax component through the tax on fuel and other taxes on the operation of a truck. However, the estimation of these costs is beyond the scope of this partial study, which allows for only more direct costs to be included.

Full details of the costs included in the model and the way they were categorised is provided in Appendix 1, p. 26.

Assumptions Used to Determine Overhead Costs

RLPB Rates	Based on current stocking rates and crop areas, the current DSE rating is approximately 4400 DSE. RLPB rates are based on a conservative estimate of 3000 DSE.
Local Rates	The market value of the property was estimated to be approximately $212/ha. From this it was assumed that the conservative estimate placed on the land by the Valuer General's Department would be approximately $150/ha.
Banking Charges	To calculate administration costs – assumed overdraft facility of approximately $50 000.
	All receipts are deposited to a bank account, so Financial Institutions Duty calculation is based on total receipts.
Registrations	truck 5050 kg TARE weight
	four wheel drive 4000 kg TARE weight
	trailer 1500 kg TARE weight
Fuel	The diesel was $0.72 and for unleaded petrol $0.79.
	All fuel designated for off-road use is actually used as such. Therefore there is no indirect subsidisation of farmers by their using fuel which has received an excise rebate for on road purposes.

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THE PURCHASE AND SALE ASSUMPTIONS

The farm business, land, machinery, livestock and miscellaneous items, are assumed to be purchased at the beginning (Year 1) of the model period and then sold after five years of operation. The local concensus group was used to determine what livestock and equipment would be purchased, and the prices for the purchase and sale of the land, livestock and machinery. Additional information was drawn from a local stock agency, machinery dealership and the Valuer General's Office. Some machinery was purchased as new, but the majority was second hand. The land was purchased for $212 per hectare, putting the total purchase price for the land and other assets at approximately $800 000. Real land values in this area are falling and were taken into account when determining a sale value.

Obviously disposal methods other than sale could have been considered, such as gift or testamentary transfer. The objective would be to examine the straight cost effect of each option, relative to the others; and, the tax liability 'rolled over' or transferred to the recipient of the farm at the end of the period. While this work was beyond the scope of the project reported, some inferences regarding the relative costs of the alternative disposal options may be drawn from the results and are noted later in this paper.

RESULTS

The Taxes And Charges Burden – Purchase and Sale

In total, government taxes and charges incurred from the purchase of the property were approximately $24 000 (Table 2), with the most significant cost being the stamp duty on conveyance, followed by registration transfer on vehicles, and then a number of much smaller costs. These charges accounted for approximately three percent of the total purchase cost of the land, stock and machinery. Some additional costs would have been incurred if a loan was taken out. Assuming a loan for 25 per cent of the total assets value, approximately $200 000, and that a mortgage was taken over the whole property, additional Government costs would have been incurred. The establishment of a bank loan contributed approximately $2 400 to the total government cost burden (Table 3). There are very few costs to the seller of a farm business, the greatest cost being the selling costs if an agent is used. Only very minor government costs are imposed on the seller.

TABLE TWO

Government Taxes and Charges on the Property Purchase

Item		Cost
Purchase of land	– 2800 ha @ $212.00/ha	$593 600
Purchase of Livestock		$62 000
Purchase of Machinery and Vehicles		$180 000
Stamp Duty – Conveyance of Real Estate	– $22 040 + $4.50 per hundred over $590 000.	$22 202
Transfer of ownership of vehicles	– Flat fee of $18.00 to RTA, Stamp Duty – 2.5% of value payable.	$1559
Legal fees – Conveyancing of Real Estate		$2196
Local Council Certificate		$30
RLPB Certificate		$20
Rural Property Search		$40
Registering Title Change at lands office	– $50 per title	$50
Accounting Costs		$1500
Finance Costs	– Overdraft Establishment Fee, Overdraft = $50 000	$550

TABLE THREE

Government Taxes and Charges on Loan Finance

Item		Cost
Stamp Duty – On Mortgage Papers	– $5.00 for the first $16,000, plus $4.00 for every '000 after that	$2315.40
Legal – Mortgage Preparation		$337.00
Finance Costs	– Loan Establishment Fee, Loan = $200 000	$2000.00
Mortgage Registration	– $50.00 per title	$50.00

The Taxes And Charges Burden – Ongoing

While the farm operation was modelled over seven years, the results in Tables 1, 4 and 5 refer to the middle 5 year period. The buy and sell years, Years 1 and 7, are excluded, so that costs are primarily only operating costs (Table 5). There were slightly higher costs in Year 1, due to abnormal livestock purchases, but the only real effect of the initial property purchase reflected in the tables is the low taxable income in the early years of the model. This arose due to the combined effects of large amounts of depreciation being claimed initially on the machinery purchases and high average tax valuations for the livestock, as they are mostly purchased stock in the early years and conseq ently the average value was near market value.

Because of the assumptions of constant costs and a fixed taxation regime, the percentages shown in Table 4 remain reasonably stable until income tax, which is a Commonwealth 'no benefit' cost, begins to be paid in Year 4.

The total effect, before income tax, is approximately 9.9 per cent of income and 13.2 per cent of costs (Table 4). These percentages rise to 11.81 per cent of income and 16.31 per cent of costs in year 6, the final operating year, which includes some income tax.

When the charges which have some benefit are removed, levies and accounting costs are removed, the effect is reduced to 5.4% of income and 7.2% of costs. The proportionate effect can be seen in Figures 1 and 2.

TABLE FOUR

Government Taxes and Charges as a Percentage of Farm Costs

	Year 2	Year 3	Year 4	Year 5	Year 6
Commonwealth					
Income Tax	0.00	0.00	0.21	0.33	3.11
Fuel Excises and Royalties	0.70	0.77	0.77	0.77	0.77
Telephone and Postage	0.68	0.75	0.75	0.75	0.75
Superannuation	0.09	0.10	0.10	0.10	0.10
State					
Stamp Duties/Fire Services Levy	0.27	0.29	0.29	0.29	0.29
FID/BAD	0.99	1.08	1.09	1.09	1.09
Registrations	0.73	0.80	0.80	0.80	0.80
Local Government					
Council And RLPB Rates	3.60	3.96	3.97	3.96	3.97
Electricity	0.48	0.52	0.52	0.52	0.52
Research Levies	3.30	3.58	3.58	3.58	3.58
Accountancy Fees	1.19	1.31	1.31	1.31	1.31
TOTALS	12.02%	13.18%	13.41%	13.53%	16.31%

Taxable Income Over The Model Period

	Year 2	Year 3	Year 4	Year 5	Year 6
Production Income	264602	254527	254573	254720	254566
Cash Costs (Pre Tax & Personal Expenses)	210024	190831	190738	190773	190737
Farm Cash Operating Surplus	54578	63696	63835	63947	63829
Interest Income	0	1598	3892	6344	8908
Net Taxable Income Before Carry Forward Of Losses	−26587	−91	28831	45329	54725

FIGURE ONE

Contribution of Production Costs, Levies, Compliance Costs and Government Charges to Total Farm Costs – Pre Income Tax

Production Costs 86.7%

Levies 3.6%

Government Charges 8.3%

Accounting Costs 1.3%
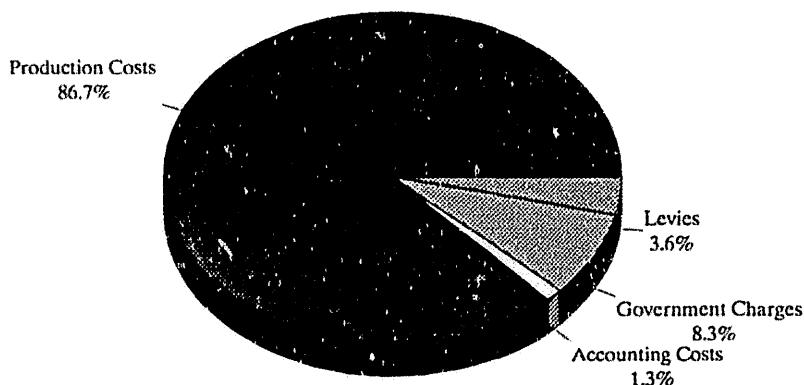
Before income taxation is considered, local rates, and research costs are the largest costs, both amounting to approximately three times the accounting fees, the third largest cost. Accounting costs are followed closely by State Government charges on bank transactions, the FID and BAD tax, which is followed by vehicle registrations. The combined cost burden of RLPB and local council rates was approximately 4.0 per cent of total costs ($7 430), research levies approximately 3.6 per cent ($6 800), accounting fees approximately 1.3 per cent ($2 480), FID and BAD tax approximately 1.1 per cent ($2 100) and vehicle registrations were approximately 0.8 per cent ($1 520). The burden from the remaining costs, all individually less than 0.8 per cent, as well those listed above, are illustrated in Table 4 and Figure 2.

Only levies incurred at or before the farm gate have been captured in this analysis. Numerous other levies, such as the sheepmeat levy, are levied post farm gate, yet almost certainly have some effect via lower net prices back to the farmer.

An expected result was that Commonwealth Government taxes and charges, particularly income tax, would be the largest cost imposts on the farm business. When income taxation is introduced, there are very large increases in tax annually from Year 4 onwards. By the end of year six a steady state income stream has not yet been reached so it is impossible to judge what will be the order of magnitude of income taxation in a 'normal' year. However, what is known is that including the relatively small percentage of tax paid in Year 6, the impost of 'No Benefit' charges on the farm is already approximately 10.1 per cent of total farm costs.

Collectively, 'no benefit' charges by the State Government account for approximately 2.2 per cent of farm costs. Of this, a surprisingly large share was charges on deposits and withdrawals from financial institutions. In fact, this cost was greater than the cost of annual vehicle registrations which has been commonly perceived by farmers as a very significant cost burden. The nature of these duties and taxes could cause them to be largely a hidden burden, the financial institutions debits accounts on a regular basis, so each individual amount is likely to be quite small. However, despite this, it would seem likely that these charges would influence the way that banking arrangements and accounts are set up, with the objective of minimising the number of deposits and withdrawals made. These taxes and duties would possibly also limit the benefits to farmers of specialised 'harvest accounts' that have been designed to minimise overdraft costs.

However, the total burden could have been significantly greater. The exemption from land tax currently enjoyed by farmland holders would be approximately of the same magnitude as the total State taxes and charges in this model.

The results from this study appear consistent with those from the Davenport and Lynch study, pre-taxation. Their Type One charges are directly comparable to the 'No Benefit' charges in this model, plus industry levies. From Table 4, 'No Benefit' government charges and industry levies add to 10.58 per cent of total costs, compared to 9.6 per cent of Type One charges, with the dollar amounts being $20 189 and $17 403 respectively. Other cost classifications have widely different inclusions, so they were not comparable.

FIGURE TWO

Government Taxes And Charges – No Income or Provisional Tax
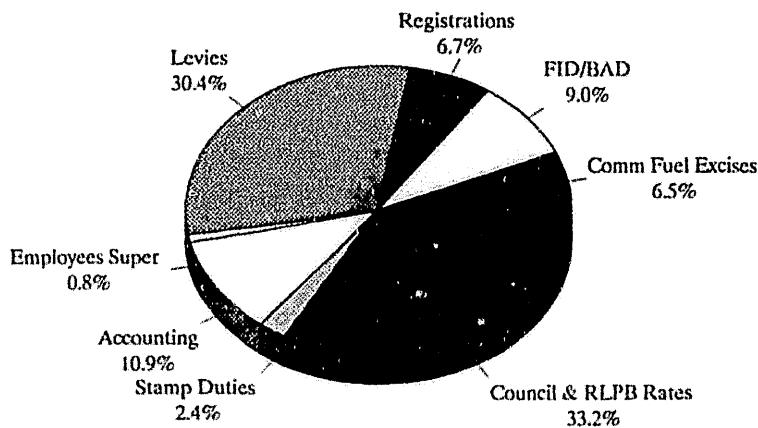
DEFERRED TAXES

What Is A Deferred Tax?

A deferral of income taxation occurs when there is a difference between the tax value of an item, on the market value balance sheet, and the market value of an item (the taxation valuation being lower). The result is a contingent tax liability that is called a deferred tax liability because it is deferred until the asset is realised. There are two main provisions in Australian taxation law that allow this situation to occur in farm businesses: (i) the generous depreciation allowances available for farm machinery and vehicles; and, (ii) the lower than market price valuations for taxation purposes of livestock and natural increase using the cost price method of valuation. The amount of deferred tax will vary from year to year, altering with changes in market values and the tax values of livestock and machinery. In Australia, deferred taxes are currently not included as a liability on balance sheets.

A Previous Study

LaDue (1994), in a study of 84 dairy farms over a representative set of counties in the USA found that the inclusion of deferred taxes on market–value balance sheets reduced the owner's net worth by an average of 33 per cent. He further found that the average tax valuation of farm assets was 34 per cent of market value. Inclusion of deferred taxes clearly influenced balance sheets. The average deferred tax was approximately $160,982. This represented 18 per cent of the value of the assets and 31 per cent of the total equity calculated without consideration of deferred taxes. Even small farms (defined as having less than $400 000 assets) accrued deferred taxes of approximately $45 000. Farms with over $1 million in assets would have had to pay on average $350,000 in deferred taxes if the business was sold.

It is not expected that the deferred tax effect will be as great in Australia as in the USA. The USA's tax system has high depreciation rates for machinery and vehicles, as does Australia, but livestock valuations are more generous. In the La Due (1994) study for example, the livestock, which are dairy cattle, are given a zero tax valuation, but have a very high market value, leading to very large tax deferrals.

Deferred Taxes in this Study.

In this study, all the livestock, vehicles and machinery necessary for the running of the farm were assumed to be purchased in Year 1 and sold in Year 7.

Early in the study period (Years 2 and 3) no income tax is paid, due to a very low taxable income resulting from the considerable amounts of depreciation claimed on equipment and vehicles, and the reduction in the average valuation of the livestock. However, this effect slows in subsequent years. Income tax increases as the amount of depreciation able to be claimed falls and the average value of livestock declines due to the inclusion of natural increase.

Due to the rates of accelerated taxation depreciation being greater than the economic rates, the tax value of the machinery and vehicles is falling quicker than the economic or market value. When the asset is eventually realised, the excess tax deferred through the application of the accelerated depreciation allowance will form part of assessable income and tax will be paid at the appropriate marginal tax rate[1]. That is, any tax deduction in excess of the actual cost to the business of owning the asset (ie. its purchase price minus its sale price) is recouped by the Government when the asset is realised.

How The Deferred Tax Effect Was Captured.

As noted earlier, RISKFARM was extensively modified in order to ensure that all taxation provisions and allowances were accounted for in the calculations of the tax liability. It could be seen (Table 5) that there was a dramatic increase in taxable income over the years of operation, even though cash costs remained steady and the annual increase in income (due to interest paid on cash reserves) was much less than the corresponding rise in taxable income. This suggested that there was a significant deferral of income taxation occurring in early years, but it was impossible to estimate the magnitude of the deferral from the on-going financial statements.

To draw out the deferred tax effect, the sale of the farm business needed to be incorporated into the model. This sale was assumed to take place instantaneously on the first day of the financial year in Year 7 and no other transactions occurred[2]. That is, there was no other income in that year and the estimated tax liability in Year 7 was purely tax clawed back from the initial deferral (Table 6).

Livestock were sold at their purchase-in price, and the sale of machinery was at dealer-estimated prices. As a form of sensitivity analysis, the dealer prices for machinery and vehicles were lowered by 50 per cent and the effect on taxable income measured again (Table 7).

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[1] Section 59 will allow rollover in some circumstances.

[2] For simplicity, levies on the sale of cattle have been ignored as a cost in the sale year.

Realising the assets of the farm business and calculating the deferred tax liability after just five years of operation may seem to place an unrealistic burden on the business. After all, how often is a farm business purchased and sold within five operating years? In the context of this analysis however, the period of time before sale is not highly constraining. Under a diminishing balance depreciation regime most vehicles and machinery have depreciation periods longer than five years, however there are very large amounts of depreciation in the early years which falls very sharply over time, following approximately an inverse exponential curve. The effect in initial years is thus much larger than the effect in subsequent years.

The average tax value of the cattle fell very quickly from a market value in the first year of approximately $400.00 per head, to approximately $42.00 per head in Year 6, while the value in the sheep flock fell from $25.00 per head to approximately $9.00 per head. Thus the average livestock values were rapidly approaching their terminal value, thus allowing little scope for further tax deferrals through rapidly declining stock values.

That is, by the end of the five year model period, most of the deferred tax effect was captured by the sale, so that the overall effect on the deferred tax liability of extending the business's operating life would be relatively minor.

In this model the deferred taxable income, in relation to livestock, was 75 per cent of market value. Note that if market value as opposed to cost price is used to determine taxation values of livestock, no tax deferral will occur due to livestock valuations.

Results

The results presented in Table 6 are for a two-person partnership, both with and without averaging. Tax payable includes the medicare levy but excludes provisional tax.

TABLE SIX

Taxable Income and the Deferred Tax Liability in Year Seven

Income In Year 7	
Production Income	$0
Profit On The Sale Of Livestock	$58333
Profit On The Sale Of Machinery	$74475
Total Taxable Income	$132808
Average Taxable Income	$41457
Tax Payable – Averaging	$21529
Tax Payable – No Averaging	$46392

In Year 7, after the sale, taxable income was estimated to be \$133 000. Since there was no other income in that year, for a farm sold in full operation this estimate of taxable income would be in addition to normal taxable income. Tax deferred during the 5 years of operation was clawed back. The monetary value of this claw back was found to be substantial, approximately \$22 000 under averaging and \$46 000 without, assuming no other income. The market balance sheet, as it has been prepared traditionally without tax deferrals as a liability, thus overestimated the owners equity in the business by between 3–7 percent, depending on the averaging option taken.

Assuming the owners of this farm used averaging and permanently left agriculture after the sale, the difference between the liability under averaging and without averaging (approximately \$24 000 in this case) would be a windfall gain to the owners that could not be clawed back in taxation in subsequent years.

Using the information from the consensus group and machinery dealers on purchase and resale values, the increase in taxable income in the sale year was approximately \$74 000. This result was tested to see how sensitive it was to the resale value of the equipment. Assuming a fifty per cent reduction in resale value, the increase in tax..ble income was still significant, amounting to approximately \$19 000 (Table 7).

As expected, the tax deferral effect on an Australian farm was not as significant as the deferral effect reported by LaDue (1994), during his North American study. However, while the tax deferred in the model on the case–study farm was not as great, the effect was still significant, and there were a number of factors that indicate the deferral effect, with some modest changes to the model, could have actually been greater. The deferred effect is greatest with self replacing flocks or herds and for capital intensive operations, particularly well maintained machinery with a high re–sale value. On this farm, only the cattle herd was self replacing and contractors were used for a number of farming operations such as harvesting and haymaking, so the purchase of a number of large pieces of machinery, often found on a property of this type, was avoided.

If deferred tax liabilities became generally accepted as a debt for inclusion on balance sheets a reduction in equity levels would occur. This reduction in equity may mean that under current guidelines farmers originally excluded may become eligible for assets–tested social security programs and rural assistance support. On the other hand however, there are some risks inherent in formally acknowledging this additional liability. Some farmers currently eligible for support from the RAA may be deemed to be non–viable and risk–sensitive rural lenders may feel inclined to increase risk premiums or constrain credit to the rural sector. It could be expected, however, that banks would require similar information from other industry sectors and, hence, this problem may not cause a shift in the relative cost or availability of rural credit.

TABLE SEVEN

The Depreciation Effect

ASSET	Original Cost	Scrap Value	Year 5 Wdv	Balancing Charge	50% Scrap Value	Balancing Charge
Motor Bikes, Etc						
Bike	2000	200	63	137	100	37
Bike	2000	200	63	137	100	37
Totals	4000	400	126	274	200	74
Machinery With Motors						
Tractor	60000	30000	10085	19915	15000	4915
Tractor	13000	7500	2186	5314	3750	1564
Landcruiser	32000	16000	5379	10621	8000	2621
Hino Truck	25000	7500	4203	3297	3750	−453
Totals	130000	61000	21853	39147	30500	8647
Machinery Without Motors						
Wideline	6000	4000	1379	2621	2000	621
Plough	5000	4000	1149	2851	2000	851
Plough	5000	4000	1149	2851	2000	851
Spray	2000	2000	460	1540	1000	540
Airseeder	18000	17500	4132	13368	8750	4618
Tools	10000	5000	2297	2703	2500	203
Augers	5600	2500	1287	1213	1250	−37
Trailer	3200	5000	736	4264	2500	1764
Grouper	4000	3000	919	2081	1500	581
Field Bins	4000	1000	919	81	500	−419
Wool Press and Grinder	4000	2000	919	1081	1000	81
Totals	66800	50000	15346	34654	25000	9654
Section 75b						
Pump	5000	400	0	400	200	200
Totals	205800	111800	37325	74475	55900	18575

Alternative Methods Of Disposal

Other methods of disposing of the assets will alter the tax paid on disposal. If the farm was disposed of to a family member (intergenerational transfer), tax would normally be paid on the market value of the transferred assets (s. 36), with a similar liability to that calculated. However, by the simple expedient of bringing the new owner into partnership for one year, trading stock (including livestock) can be transferred at book value (s.36A), thereby transferring the contingent liability to the new owner. Section 37 provides a similar method of transferring trading stock (including livestock) on death. The effect is that not only are the assets transferred, but also any deferred tax liabilities. The result is that the deferred tax from livestock becomes a permanent loan to the taxpayer (and family). Similar methods apply for the transfer of depreciated plant.

Other Issues

If a business has deferred taxes, yet remains in operation, then this liability is carried forward as a type of 'loan' to the business. Deferred taxes only become an issue when the business assets are realised. There are some situations where the sale of a farm business will result in less of a deferred tax burden than that estimated in this study:

(i)   if the average sale values of the livestock and capital inventories are similar to their taxation values then the deferred tax liability will be small;

(ii)   if the income from farm machinery and stock etc. are not realised at the time of sale, for example if they are retained to start farming on other land, the liability is simply transferred to the new business; and,

(iii)   the deferral effect may not be as large if stock and machinery are slowly sold over a number of years, so that the added income from sales each financial year is relatively small. There are two effects here: (1) the deferred tax burden, in total, may well be lower if the assets are disposed of in this way because of the smaller amount realised from sales each financial year, and (2) the small increase in tax is less noticeable.

POTENTIAL FURTHER RESEARCH

There are a number of areas for potential further research to build on the findings of this study. This study shows that approximately 13 per cent of farm costs are non tax Government charges, but how does this compare with other small businesses? Further research would be to conduct an intersectoral study to compare the deferred tax burden across a range of other industries. It would be expected that businesses with a proportionately high capital usage, such as heavy engineering, manufacturing etc, would evidence high deferrals of tax relative to businesses which are more labour intensive, such as an accounting firm. A link has been established with Southern Cross University (Lismore) for co-operative research in this area and work has commenced.

Another possibility is that an optimising approach could be used to estimate behavioural response ie: see what affect removing or adjusting a tax will have on the decisions of farmers. To capture these behavioural responses, another model would need to be developed, as it is not possible to optimise the RISKFARM model.

This study has been partial, with only direct government costs and charges being examined. Possible research could be to broaden this approach, by estimating the full burden on farm businesses of government imposts by including the effect of government taxes, duties etc. on the price of essential farm inputs such as fertiliser and chemicals. In addition to this, the transport cost inherent in many prices, including the effect of fuel and other road–user taxes on this cost could be investigated. This may be achieved using a general equilibrium framework.

The findings of this study are based on one farm model, it would be desirable to model other farming systems, to see how rigorous these results are, as there is a possibility that the cost burden will vary widely across farming systems. As well as more case study type analysis, there is the potential to examine the deferred taxation issue on a much larger scale. Further research could involve estimating deferred tax liabilities on a regional, State and National basis, using existing farm survey information. Using this information, it could be possible to investigate the likely impact on farming families access to social welfare and rural assistance programs due to formally incorporating a deferred tax liability in financial statements. Work of this nature will need to be done before any real conclusions can be drawn as to the expected deferred tax liabilities on Australian farms.

CONCLUSIONS

The findings of this study are based on a single farm situation. Overall quite a low measurable burden from 'no direct benefit' or revenue raising Government taxes and charges was evident, but this result is tempered with the fact that the amount of income taxation normally paid is unknown, due to the strong tax deferral effect.

Pre–income taxation, Local Government rates are quite significant, followed by research levies and State Government Charges. Bank charges are a big and growing proportion of State taxes. It seems possible that they are not neutral and that may affect business financial structures.

It is likely that on a farm business with either large amounts of machinery in good condition (ie. market values higher than written down values) or with substantial self–replacing flocks and herds, the amount of deferred tax will be significant.

It was interesting to note that while this farm business property is eligible for capital gains tax assessment, it actually makes a capital loss, which cannot be used to offset the large increase in income tax in this year resulting from deferred taxes.

Within this model, taxable income figures indicate a degree of period inequity and were a poor indicator of economic gains and losses. With production income and costs remaining constant, taxable income varies over a range of $100 000 in 5 years. Therefore it seems that the variability must be caused by the measurement of taxable income itself, not exogenous factors such as crop failure or a price collapse. This has some ramifications for the averaging system and poses the question: if concessional valuations were removed, would this alleviate the need for an averaging system?

It would not be appropriate to discuss policy implications more fully at this stage of the project, further research is needed to more fully examine the issues, as results are only initial findings from a partial analysis. More extensive research and more sophisticated techniques are needed to measure the 'Government taxes and charges' effect in input costs. From an analysis such as this, it is impossible to guage if agriculture is disadvantaged or advantaged compared to other industries.

REFERENCES.

Australian Tax Research Foundation (1988), *Taxation and the Rural Economy*, Australian Tax Research Foundation Conference Series No. 7, Sydney.

Bromell, I.S. (1991), The Financial Viability Of Australian Woolgrowers Following The Abandonment of the Wool Reserve Price Scheme: A Stochastic Analysis, Unpublished BAgEc Dissertation, University of New England, Armidale.

Commonwealth of Australia (1985), *Reform of the Australian Taxation System : Draft White Paper*, AGPS, Canberra.

Curran, B., Minnis, P., & Freeman, F. (1988), 'Taxation Implications of Rural Income Fluctuations' in Australian Tax Research Foundation, *Taxation and the Rural Economy*, Australian Tax Research Foundation Conference Series No. 7, Sydney.

Davenport, S. & Lynch, J. (1992), 'An evaluation of the significance of government and industry charges at the farm-level', paper presented to the 36th Annual Conference of the Australian Agricultural Economics Society, Australian National University, 10-12 February, Canberra.

Douglas, R. A. & Davenport, S. V. (1992), 'Rural Taxation and Self Reliance', paper presented to the 36th Annual Conference of the Australian Agricultural Economics Society, Australian National University, 10-12 February, Canberra.

_____ (1993), *A Review of the Income Equalisation Deposit Scheme*, NSW Agriculture Economic Policy Report, Orange, NSW.

Industries Assistance Commission (1975), *Rural Income Fluctuations – Certain Taxation Measures*, AGPS., Canberra.

Kaine, G., Wright, V. and Lees, J. (1993), *The Strategic Management of Farm Businesses*, The Rural Development Centre, University of New England, Armidale.

LaDue, E.L., (1994), 'Deferred taxes: estimation errors and effects on analytical ratios', *Agricultural Finance Review*, Cornell University, New York, USA.

Milham, N. (1992), Financial structure and risk management of wool-growing farms: a dynamic stochastic budgeting approach, unpublished MEc dissertation, Department of Agricultural Economics and Business Management, University of New England, Armidale.

Milham, N. (1994), 'The Practice of Whole-Farm Stochastic Budgeting – With Particular Reference to the RISKFARM Model', in CARE, *Analysing Drought Strategies to Enhance Financial Viability*, proceedings of a National Seminar, Centre for Agricultural and Resource Economics, UNE, Armidale.

Nixon, C. J. and Perry, G. M (1993), 'Tax policy and competitive advantage: a case study of US, Canadian and Australian wheat producers', *Agribusiness*, 9 (1), 43–55.

Perry, G. M, Nixon, C.J., Actis, J. J., Bunnage, K., and Batterham, R. (1994), *The Effect of Taxes and Social Programs on Competitiveness in International Agriculture : A Case Study of the Wheat Industry*, Oregon State University Agricultural Experiment Station Bulletin 679, Corvallis.

Pope, J., Fayle, R., and Chen, D.L., (1994), *The Compliance Costs of Companies' Income Taxation in Australia*, Australian Tax Research Foundation, Study No. 23.

Tapp, N. , Milham, N., Douglas, R., and Hoadley, J., (1995), 'Stochastic analysis of selected drought preparedness strategies in NSW', paper contributed to the 39th Annual Conference of the Australian Agricultural Economics Society, University of Western Australia, Perth, 13–16 February.

APPENDIX 1

Classification Of Unallocated Fixed Costs

Cost	Commonwealth	State	Local	Levies	Other
Seed, Seedlings					Total Cost
Fertilisers & Sprays					Total Cost
Chemicals					Total Cost
Contract Work					Total Cost
Fuel — Diesel – Off Road	royalties, resources rent tax.(NB)				
— Diesel – On Road	royalties, resources rent tax, excise (NB)	Franchise Fee (NB)			
— Petrol	royalties, resources rent tax, excise (NB)	Franchise Fee (NB)			
Oil and Lubricants					Total Cost
Repairs — P & E					Total Cost
— Improvements					Total Cost
Freight/Cartage					Total Cost
Casual Labour Costs	Employees Superannuation (NB)				
Heat, Light, Power		Total Cost (SB)			
Water Supply					Total Cost
Postage	Total Cost (SB)				
Telephone	Total Cost (SB)				
Subscriptions					Total Cost
Accounting & Legal Services					Total Cost
Rates and Rents — RLPB rates			Total Cost – MIA levy (NB)	MIA Levy	
— Local Council Rates			Total Cost (NB)		
Registrations — Vehicles		Fund Levy, Registration Fee Weight Tax, Bridge Levy (NB)			

Bank Charges & Account Costs		Financial Institutions Duty Bank Accounts Debit Tax (NB)			
Insurance	– Public Risk	Stamp Duty – 11.5% of the premium (NB)			
	– Buildings, Machinery, Fencing	Stamp Duty – 11.5% of the Premium, Fire Services Levy – 25% (NB)			
	– Comprehensive & CTP Vehicle	Stamp Duty – 2.5% of the Premium (NB)			
	– Workers Compensation				Total Cost
	– Crop	Stamp Duty – 2.5% of premium (NB)			

Classification of Property Purchase Costs

Cost	Commonwealth	State	Local	Levies	Other
Purchase of Land					Total Cost
Purchase of Stock					Total Cost
Purchase of Machinery and Vehicles					Total Cost
Stamp Duty – Mortgage		Total Cost (NB)			
Stamp Duty – Conveyance		Total Cost (NB)			
Transfer of Vehicle Registrations		Total Cost (NB)			
Legal fees – Conveyance					Total Cost
Registering Title Change		Total Cost (NB)			
Accounting Costs					Total Cost
Finance Costs					Total Cost
Mortgage Registration		Total Cost (NB)			
Legal – Mortgage Preparation					Total Cost
Local Council Certificate		Total Cost (NB)			
RLPB Certificate		Total Cost (NB)			
Rural Property Search					Total Cost

Classification of Property Sale Costs

Cost	Commonwealth	State	Local	Levies	Other
Agents Fees					Total Cost
Legal Fees – Selling					Total Cost
Loan Penalty Cost and Mortgage Discharge					Total Cost

Classification of Cropping Enterprise Costs (Wheat, Barley, Oats).

Cost	Commonwealth	State	Local	Levies	Other
Fuel and Oil	Royalties, resources rent tax (NB).				
Seed					Total Cost
Fertiliser					Total Cost
Chemicals					Total Cost
Undersown Pasture					Total Cost
Contract Work					Total Cost
Miscellaneous				Levies: wheat – 3.03% nfg, barley & oats, 1.03% nfg.	

Classification of Livestock Costs (Ewes, Cows, Steers).

Cost	Commonwealth	State	Local	Levies	Other
					Total Cost
Dips, drenches					Total Cost
Veterinary expenses					Total Cost
Shearing, crutching					Total Cost
Fuel and oil	Royalties, Resources rent tax. (NB)				
Freight and cartage					Total Cost
Feed costs					Total Cost
Misc expenses		Cattle Tail Tag Costs (SB)	AMLC – $3.60/head cattle, 8.5% levy on gross wool sales	