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Price, Costs and Income trends for New Zealand Pastoral Farms

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Abstract

An investigation of inflationary adjusted historical price trends of New Zealand pastoral farmers' income and expenses over the past thirty years was investigated.

The Consumers Price Index was used in the comparison of historical inflationary adjusted income and expenses of New Zealand lamb and beef farmers focusing on lamb production and returns compared to beef, venison and dairy farming.

The Question 'Are New Zealand pastoral farms economically sustainable at the current returns and costs that are imposed today? Or has the trend over the last thirty years been that lamb, beef, venison, wool and dairy product returns have been declining as expenses have been increasing?' was investigated using the

Research questions

1. How much have sheep and beef farm expenses changed over the past thirty years in relationship to farm returns and land prices?
2. How much has wholesale market returns changed for lamb and beef over the same period?
3. Are New Zealand sheep and beef farms as economically sustainable at the returns and costs that are currently being imposed on them as they were thirty years ago?
4. Where to in the future for sheep and beef farms expenses and income?

The study in farm income, also includes productivity gains that have been made on farms over the same period for

- Lamb
- Wool
- Beef
- Venison
- Milk Solids

With the venison and milk solid returns involve a shorter period due to data availability.

Other factors were investigated that affect pastoral farmer's economic sustainability and expenditure. Over the last five years expenses have increased and have been putting pressure on traditional sheep and beef farms. The data shows that the trend is no different than has been happening for the last thirty years. And farmers are not paying more for fertilizer, electricity, fuel, and interest, but more for rates, salaries, fertilizer spreading costs.

Keywords

Inflation Adjusted Price, to calculate inflation adjusted income and expenses the Reserve Bank of New Zealand inflation calculator, General – uses the “all groups” Consumers Price Index (“CPI”), published by Statistics New Zealand, up till the 4th quarter of 2010 <http://www.rbnz.govt.nz> was used

Real Price Beef and Lamb NZ Economic Services inflation adjusted price to June 2009/10

Weighted Schedule Calculation, Beef + Lamb NZ Economic Service. The weighted schedule is calculated for each weeks schedule including premiums x grade at each plant and cumulatively summed to give month, quarter and year total dollars. These totals are then divided by their respective cumulative slaughter tally to give the weighted schedule calculated results per head and per kg.

The schedules recorded exclude GST, Beef + Lamb New Zealand levies, Animal Health Board Adult Cattle levies and Ovis levies and Government inspection fees if shown as a deduction. Subsidies are deducted (Some companies quote schedule prices net of these two latter deductions). i.e., the net payment to farmers excluding GST.

Subsidies have been left out of the price calculations for reasons of consistency of prices calculated "post" of the deregulatory period of the 1980's.

Slaughter Numbers and Carcase Weight, Beef and Lamb NZ Economic Service. To calculate the weighted schedule, the computer system accesses the Meat Board production data which records weekly slaughter data for each class of livestock by grade and weight range at each plant. i.e., lamb PL, YM, YH grades etc., and for Cattle each grade and weight range within the grade for Steer & Heifer, Cow and Bull. Note: individual company data are not available. The cumulative result at the individual Island and NZ level are presented.

Beef Weighted average schedules, all grades average. Hot weights quoted. Nominal market prices excluding subsidies. Beef prices include lighter cull cows, excludes Bull Beef

Bull Beef Definition, Entire cattle with masculine characteristics

Beef Definition, is all cattle excluding Bull and bobby calves.

Lamb Definition: Young sheep under 12 months of age or which do not have any permanent incisor teeth in wear.

Mutton Definition: Female (ewe) and castrated male (wether) sheep having more than two permanent incisors in wear. A wether must not show any ram characteristics.

FOB (Free on Board) represents an exporter's requirement to deliver the goods to the ship, airline or other agreed mode of transport, at which time title (ownership and risk) passes to the buyer. The exporter pays for transportation of the goods to the port of shipment, plus loading costs. The buyer pays freight, insurance, unloading costs and transportation from the port of destination to its factory

Kg, Kilograms

Cwt. Hot Carcase Weight, weighed after skin and offal are removed, and before being chilled.

Sheep and Beef farms, farms that derive their main income from sheep and beef.

Preface

This dissertation started out of a conversation on an a flight with Emeritus Professor Tony Zwart. The conversation was along the lines, that perhaps it takes more lambs/cattle today to pay for a tonne of fertilizer, rates, electricity, fuel, fencing materials than it did thirty years ago. The only reason that Sheep and Beef farming is still viable today is because of the increase in on farm productivity, not the increase in farm gate returns as they have not kept up with inflation. Is this the case?

New Zealand Sheep and Beef farmers have over the last thirty years seen shifts in prices received for their products as well as what they are paying for products and services. Have they kept up with inflation or has there been a shift that farmers are receiving less for lamb, wool, beef and paying more for services?

With the introduction of nitrate caps in the Taupo Lake water catchment region and the Kyoto accord potentially limiting the ability of sheep and beef farmers to increase their productivity, will it mean that sheep and beef farming become financially unsustainable at current land values?

This dissertation sets out to see if Lamb, Beef and Wool have kept up with inflation from 1980 to 2010, as well as looking at Milksolids and Venison over shorter periods. Have selected farm expenses increased faster than inflation, and is productivity the only reason farmers have been able stay financially sustainable?

Acknowledgments

There are a number of people and organisations to thank for their time and contribution in helping me complete this dissertation

A special mention to Rob Davidson and Rob Gibson, Beef + Lamb NZ Economic services for their help in finding and putting together information that I required, as well as answering the countless phone calls and emails clarifying details when they themselves were busy.

The Lincoln University Library Staff, for finding articles, books that I required.

My advisor Ross Cullen, Professor of Resource Economics, Lincoln University, for all the help and supervision during the process of writing this dissertation.

My partner/wife for putting up with me, grammar and spell checking all the papers that have had to be presented throughout the four years it has taken to get to this stage and keeping the stock fed on the farm. As well as being the driving force for me to complete this paper.

Other sources of information that need to be mentioned are

- Deer Industry New Zealand
- NZX Agrifax Limited
- Statistics New Zealand
- Ministry of Agriculture and Forestry

Contents page

Figures

FIGURE 1 NEW ZEALAND SHEEP NUMBERS, ANNUAL JUNE (STATISTICS NZ)	18
FIGURE 2 VALUE AND QUANTITY OF NZ WOOL EXPORTS. END JUNE. (STATISTICS NZ) ..	19
FIGURE 3 BEEF AND DAIRY CATTLE NUMBERS. ANNUAL JUNE (STATISTICS NZ)	20
FIGURE 4 LAMBING AND CALVING PERCENTAGE. AVERAGE LAMB CARCASE WEIGHTS (CWT) (BEEF + LAMB NZ ECONOMIC SERVICES).....	21
FIGURE 5 TOTAL MEAT AND EDIBLE OFFAL'S, EXPORT EARNINGS. ANNUAL JUNE (STATISTICS NZ, HS02)	22
FIGURE 6 MILK POWDER, BUTTER AND CHEESE VALUE OF TOTAL PRINCIPAL EXPORTS (EXCL RE-EXPORTS) - (ANNUAL-JUN) KEY STATISTICS TABLE 7.04. (STATISTICS NZ)	24
FIGURE 7 LAMB NATIONAL AVERAGE WEIGHTED SCHEDULE, ALL GRADES AVERAGE. HOT- WEIGHT. EXPORT PRICE TRENDS (FARM) REAL 2009-2010 \$s, YEAR ENDS JUNE (BEEF + LAMB NZ ECONOMIC SERVICE)	29
FIGURE 8 MUTTON TOTAL NATIONAL AVERAGE WEIGHTED SCHEDULE. (FARM) REAL 2009- 2010 \$s, YEAR END JUNE (BEEF + LAMB NZ ECONOMIC SERVICE) 2010/11 ESTIMATE	31
FIGURE 9 WOOL AUCTION PRICE, CENTS PER KG CLEAN, ALL GRADES. YEAR END JUNE (BEE F+ LAMB NZ ECONOMIC SERVICES)	33
FIGURE 10 BEEF NATIONAL AVERAGE WEIGHTED SCHEDULE, ALL GRADES AVERAGE INCLUDING LIGHTER COWS, HOT WEIGHTS. EXPORT PRICE TRENDS (FARM) REAL 2009-2010 \$s, YEAR END JUNE (BEEF + LAMB NZ ECONOMIC SERVICE) 2010/11 ESTIMATE	35
FIGURE 11 BULL BEEF RETURN PER HEAD, 220.5 – 245KG CWT C/KG, REAL 2009/10 YEAR END JUNE (BEEF + LAMB NZ ECONOMIC SERVICES)	37
FIGURE 12 VENISON AVERAGE WEIGHTED SCHEDULE. YEAR-END DECEMBER (DINZ)	39
FIGURE 13 MILKSOLIDS AVERAGE DAIRY TOTAL PAYOUT. (NZ DAIRY STATISTICS 2009/10). EXCLUDES DAIRY COMPANY RETENTIONS AND DEDUCTIONS FOR DAIRY NZ LEVY. B AVERAGE DAIRY CO-OPERATIVE PAYOUT (FONTERRA, TATUA, WESTLAND) .	41
FIGURE 14 PERCENTAGE CHANGE IN RETURNS AND PRODUCTION FROM 1980/81 TO 2010. NOTE, VENISON AND MILKSOLIDS ARE FOR SHORTER PERIODS FROM 1992 FOR VENISON AND 1990/91 FOR MILKSOLIDS. REAL 2010.....	43
FIGURE 15 PERCENTAGE CHANGE REAL RETURNS FROM 2001/02 TO 2009/10, REAL 2010	45
FIGURE 16 ELECTRICITY CONSUMER PRICE (REAL 2010) SOURCE NZ MINISTRY OF ECONOMIC DEVELOPMENT	47
FIGURE 17 SUPERPHOSPHATE & UREA, BULK EX RAVENSDOWN CHRISTCHURCH STORE. (LINCOLN UNIVERSITY FINANCIAL BUDGET MANUALS).....	52
FIGURE 18 FERTILIZER GROUND AND AERIAL SPREADING COSTS (LINCOLN UNIVERSITY FINANCIAL BUDGET MANUALS) (REAL DEC 2010)	54
FIGURE 19 FERTILIZER EXPENDITURE PER HA (REAL 2009-10) BEEF + LAMB NEW ZEALAND ECONOMIC SERVICE	56
FIGURE 20 RETAIL PETROL, GST INCLUSIVE. SOURCE, NZ MINISTRY OF ECONOMIC DEVELOPMENT ANNUAL PRICES ARE WEIGHTED BY SALES	57

FIGURE 21 DIESEL, RETAIL AND WHOLE SALE, SOURCE, NZ MINISTRY OF ECONOMIC DEVELOPMENT ANNUAL PRICES ARE WEIGHTED BY SALES	57
FIGURE 22 FREIGHT FOR PRIME LAMBS PER HEAD, 80KM. (LINCOLN UNIVERSITY FINANCIAL BUDGET MANUALS) REAL DEC 2010	59
FIGURE 23 IVOMEC 2.5L AND ROUND UP 20L. (LINCOLN UNIVERSITY FINANCIAL BUDGET MANUALS)REAL DEC 2010	60
FIGURE 24 FLOATING FIRST MORTGAGE INTEREST RATES. (RESERVE BANK OF NEW ZEALAND.) INTEREST RATES SHOWN ARE WEIGHTED AGGREGATE RATES.	61
FIGURE 25 AVERAGE INTEREST PAYMENTS FOR SHEEP AND BEEF FARMS. (BEEF + LAMB NZ ECONOMIC SERVICE, FARM SURVEY)	62
FIGURE 26 COUNCIL RATES INCOME, \$, 000 EXCLUDING REGIONAL TRANSPORT AND CHATHAM ISLAND RATES. (STATISTICS NZ) REAL DEC 201	64
FIGURE 27 FARM RATES PER HA. SHEEP AND BEEF FARM SURVEY ALL CLASSES (BEEF + LAMB NZ ECONOMIC SERVICES) (REAL 2009-2010\$)	65
FIGURE 28 GOVERNMENT LAND VALUATION AND RATES FOR 'THE STEYNING' 316 HA DEER FARM, TIKOKINO, CENTRAL HB. (REAL DEC 2010)	67
FIGURE 29 MANAGERIAL SALARIES, ALL CLASSES. (BEEF + LAMB NZ ECONOMIC SERVICE) (REAL JUNE 2010)	69
FIGURE 30 TOTAL WORKING EXPENSES. (BEEF + LAMB ECONOMIC SERVICE, NZ FARM SURVEY) (REAL JUNE 2010).....	72
FIGURE 31 PERCENTAGE CHANGES OF COSTS OVER THIRTY YEARS.	74
FIGURE 32 PERCENTAGE CHANGE OF FARM COSTS FROM 2000/01 TO 2009/10 REAL 2010	75
FIGURE 33 FREEHOLD LAND VALUES, SHEEP AND BEEF FARMS. (BEEF + LAMB NZ ECONOMIC SERVICE, FARM SURVEY) (REAL JUNE 2010)	77
FIGURE 34 DAIRY FARM LAND SALES VALUES, (NZ DAIRY STATISTICS 2009/10)(REAL DEC 2009)	79
FIGURE 35 TERM LIABILITIES FOR SHEEP AND BEEF FARMS (BEEF + LAMB NZ ECONOMIC SERVICE, FARM SURVEY) (REAL JUNE 2010)	81
FIGURE 36 INTEREST PAYMENTS, SHEEP AND BEEF FARMS (BEEF + LAMB NZ ECONOMIC SERVICE, FARM SURVEY)(REAL JUNE 2010)	83
FIGURE 37 CHANGE IN LAND VALUES AND LIABILITIES OF SHEEP AND BEEF FARMS	85
FIGURE 38 CHANGES IN SHEEP AND BEEF FARMS VALUE, TERM LIABILITIES AND DEBT SERVICING, 2000/01 TO 2009/10. DAIRY FARM LAND SALES VALUES. REAL 2010	86
FIGURE 39 LONDON WHOLESALE PRIME NZ LAMB 13 TO 16KG, 1981 TO 1997. (REAL 2010)	88
FIGURE 40 UK LEG PRICE FOR NZ LAMB. ANNUAL DEC. 1996 TO 2010 (NZX AGRIFAX). (REAL 2010).....	90
FIGURE 41 US IMPORTED MANUFACTURING BULL BEEF, ANNUAL DECEMBER YEAR, SOURCE NZX AGRIFAX. (REAL 2010)	91
FIGURE 42 VENISON, FROZEN HIND LEG INTO THE GERMAN MARKET. ANNUAL DEC (NZX AGRIFAX) (REAL 2010).....	93
FIGURE 43 WHOLE MILK POWDER MARKET PRICES, DECEMBER YEAR (NZX AGRIFAX) (REAL 2010) ,INFLATION ADJUSTED US PRICE C/KG CALCULATED BY USING THE COIN NEWS WEBB SITE HTTP://WWW.COINNEWS.NET/TOOLS/CPI-INFLATION-CALCULATOR	95

FIGURE 44 PERCENTAGE CHANGE AND VARIATION FOR WHOLE SALE MARKET PRICES, LAMB, BULL BEEF, VENISON AND WHOLE MILK POWDER.	98
FIGURE 45 CHANGES IN MARKET VALUES FROM 2001 TO 2010. REAL 2010	99
FIGURE 46 ANNUAL REAL FOOD INDICES 2002-2004=100 (UNITED NATIONS FOOD AND AGRICULTURAL ORGANISATION).....	101
FIGURE 47 FOOD PRICE INDEX VS OIL PRICES. (UNITED NATIONS FOOD AND AGRICULTURAL ORGANISATION)	102
FIGURE 48 AVERAGE RETURNS PER HEAD (REAL 2010)	110
FIGURE 49 FREE HOLD LAND VALUES AND TERM LIABILITIES FOR SHEEP AND BEEF FARMS REAL 2010	112

Tables

TABLE 1 COMMERCIAL SHEEP/BEEF AND DAIRY FARMS (BEEF + LAMB NZ ECONOMIC SERVICE. NZ DAIRY STATISTICS 2009/10 TABLE 2.2 PAGES 7)	23
TABLE 2 LAMB NATIONAL AVERAGE WEIGHTED SCHEDULE. ALL GRADES AVERAGE HOT-WEIGHT. EXPORT PRICE TRENDS (FARM) REAL 2009-2010 \$S, YEAR ENDS JUNE (BEEF + LAMB NZ ECONOMIC SERVICE	30
TABLE 3, MUTTON, TOTAL NATIONAL AVERAGE WEIGHTED SCHEDULE. REAL 2009-2010 \$S, YEAR END JUNE (BEEF + LAMB NZ ECONOMIC SERVICE) 2010/11 ESTIMATE ..	32
TABLE 4 WOOL AUCTION PRICE CENTS PER KG CLEAN, ALL GRADES. YEAR END JUNE (BEEF + LAMB NZ ECONOMIC SERVICES)	34
TABLE 5 BEEF NATIONAL AVERAGE WEIGHTED SCHEDULE. ALL GRADES AVERAGE, INCLUDING LIGHTER COWS, HOT WEIGHTS. EXPORT PRICE TRENDS (FARM) REAL 2009-2010 \$S, YEAR END JUNE (BEEF + LAMB NZ ECONOMIC SERVICE) 2010/11 ESTIMATE	36
TABLE 6 BULL BEEF RETURN PER HEAD, 220.5 – 245KG CWT C/KG, REAL 2009/10 END JUNE (BEEF + LAMB NZ ECONOMIC SERVICES)	38
TABLE 7 VENISON, AVERAGE WEIGHTED SCHEDULE. YEAR-END DECEMBER (DINZ)	40
TABLE 8 MILKSOLIDS AVERAGE DAIRY TOTAL PAYOUT (NZ DAIRY STATISTICS 2009/10). 42	
TABLE 9 CHANGES IN RETURNS AND ON FARM PRODUCTION.....	44
TABLE 10 OPENING, HIGH, LOW AND CLOSING \$/KG. REAL.	44
TABLE 11 ELECTRICITY CONSUMER PRICE (REAL 2010) SOURCE NZ MINISTRY OF ECONOMIC DEVELOPMENT	48
TABLE 12 SUPERPHOSPHATE, UREA BULK EX RAVENSDOWN CHRISTCHURCH STORE. (LINCOLN UNIVERSITY FINANCIAL BUDGET MANUALS) NOTE UREA PRICE FROM 1981 TO 1990 IS BAGGED, (REAL DEC 2010)	53
TABLE 13 FERTILIZER GROUND AND AERIAL SPREADING COSTS (LINCOLN UNIVERSITY FINANCIAL BUDGET MANUALS) (REAL DEC 2010)	55
TABLE 14 SUPERPHOSPHATE, LIME AND UREA 1981 AND 2007 QUANTITY USED ON SHEEP BEEF AND DAIRY FARMS (STATISTICS NZ)	56
TABLE 15 PETROL DIESEL PRICES, CENTS LITRE. SOURCE, NZ MINISTRY OF ECONOMIC DEVELOPMENT ANNUAL PRICES ARE WEIGHTED BY SALES.....	58
TABLE 16 IVOMEK POUR ON 2.5LTR AND ROUND UP 20LTR. (LINCOLN UNIVERSITY FINANCIAL BUDGET MANUALS) REAL DEC 2010	60
TABLE 17 AVERAGE INTEREST PAYMENTS FOR SHEEP AND BEEF FARMERS. (BEEF + LAMB NZ ECONOMIC SERVICE, FARM SURVEY).....	63
TABLE 18 COUNCIL RATES INCOME, \$, 000 EXCLUDING REGIONAL TRANSPORT AND CHATHAM ISLAND RATES. (STATISTICS NZ) REAL DEC 2010.....	64
TABLE 19 SHEEP AND BEEF FARM RATES PER HA. SHEEP AND BEEF FARM SURVEY ALL CLASSES (BEEF + LAMB NZ ECONOMIC SERVICES) (REAL 2009-2010\$)	66
TABLE 20 GOVERNMENT LAND VALUATION AND RATES FOR 'THE STEYNING' 316 HA DEER FARM, TIKOKINO, CENTRAL HB. REAL DEC 2010	68
TABLE 21 MANAGERIAL SALARIES, MONTHLY. ALL CLASSES. (BEEF + LAMB NZ ECONOMIC SERVICES, FARM SURVEY)(REAL JUNE 2010	70
TABLE 22 SUB TOTAL FARM WORKING EXPENSES, (BEEF + LAMB ECONOMIC SERVICE, FARM SURVEY). (REAL JUNE 2010).....	73

TABLE 23 FREEHOLD LAND VALUES. (BEEF + LAMB NZ ECONOMIC SERVICE, FARM SURVEY)(REAL JUNE 2010)	78
TABLE 24 DAIRY FARM LAND SALES VALUES, (NZ DAIRY STATISTICS 2009/10) (REAL DEC 2009)	80
TABLE 25 TERM LIABILITIES FOR SHEEP AND BEEF FARMS (BEEF + LAMB NZ ECONOMIC SERVICE, FARM SURVEY) (REAL JUNE 2010)	82
TABLE 26 INTEREST PAYMENTS FOR SHEEP AND BEEF FARMS, (BEEF + LAMB NZ ECONOMIC SERVICE, FARM SURVEY) (REAL JUNE 2010)	84
TABLE 27 LONDON WHOLESALE PRIME 13 TO 16KG NZ LAMB 1981 TO 1997. (REAL 2010)	89
TABLE 28 UK LEG PRICE FOR NZ LAMB, ANNUAL DEC (NZX AGRIFAX) (REAL 2010)	90
TABLE 29 USA IMPORTED MANUFACTURING BEEF, ANNUAL DEC. (NZX AGRIFAX). (REAL 2010)	92
TABLE 30 VENISON, FROZEN HIND LEG INTO THE GERMAN MARKET. ANNUAL DEC. (NZX AGRIFAX) (REAL 2010)	94
TABLE 31 POWDERED WHOLE MILK POWDER MARKET PRICES. YEAR-END DEC (NZX AGRIFAX) (REAL 2010)	96
TABLE 32 NZ FARM GATE SHARE OF RETAIL PRICE IN UK OF LAMB (BEEF + LAMB NZ ECONOMIC SERVICE)	97
TABLE 33 MARKET PRICES OPENING, CLOSING, HIGHEST AND LOWEST PRICE, INFLATION ADJUSTED.....	99

Contents

Abstract.....	2
Keywords	4
Preface	6
Acknowledgments	7
Figures	8
Tables	11
Introduction.....	17
Nature and Scope of investigation.....	25
Chapter 1	27
Income.....	27
Lamb	28
Mutton	31
Wool.....	33
Beef	35
Bull Beef	37
Venison.....	39
Dairy	41
Conclusion for on farm returns and production.....	43
Chapter 2	46
Farm Expenditure.....	46
Electricity	47
Fencing	49
Fertilizer.....	52
Spreading.....	54
Petrol and Diesel.....	57

Freight.....	59
Registration and Road user chargers	59
Ivomec and Round up	60
Interest.....	61
Local body Rates	64
Managerial Salaries	69
Sub Total Farm Working Expenses	71
Conclusion Expenses	74
Chapter 3	76
Land Values and Term Liabilities	76
Freehold Land values	76
Dairy farm land sale values	79
Term Liabilities	81
Sheep and Beef farms term liabilities	81
Debt servicing.....	83
Conclusion.....	85
Chapter 4	87
Wholesale market returns	87
London wholesale lamb price 1981 to 1997	87
Lamb Leg price 1996 to 2010	89
Manufacturing Bull Beef	91
Venison.....	93
Whole Milk Powder.....	95
Conclusion.....	97
Chapter 5	100
Possible trends in farm expenses and income.....	100
Conclusion.....	105
Summary	108

1980/81 to 2009/10	108
Income.....	108
Costs	111
Land and Term Liabilities.....	112
2000/01 to 2009/10	113
Income.....	113
Costs	114
Land values and term liabilities	114
References.....	118

1. Introduction

The golden years of New Zealand Agriculture from the 1950s to the 1980s were a buoyant time for New Zealand farming. With the development of land, increasing stock numbers, improved livestock productivity and new prosperity. (Peden, Updated Mar 2009)

As overseas economies grew after the Second World War, markets opened up for New Zealand agricultural products. Rising prices and better returns gave farmers capital to invest in fertiliser, seed and new machinery. Farmers cleared land that had reverted back to scrub and gorse and converted it back into pasture.

Commercial aerial topdressing had begun in 1949 and by the mid-1950s 400 000 tonnes of fertiliser were spread annually by air and by 1982 this had increased to over one million tonnes per annum.

Between 1950 and 1960 sheep numbers increased by 40% the value of wool exports increased by 37%, and frozen meat exports by 183%. Dairy cattle numbers remained static, but rising overseas prices meant that export returns for dairy products increased by 55%. The dairy industry in the early 1950s shifted away from collecting cream only from farms to collecting whole milk.

With the development of new grassland species over 50% of New Zealand was in improved grasses by the 1970s. New breeds of sheep were developed and new cattle breeds imported from Europe to improve the traditional breeds.

In the 1960s wool earned one third of the country's export earnings. In 1966/67 wool prices fell sharply by 40% and although they later recovered it was the start of a gradual decline that continued to 2010 (Refer figure 2)

1973 saw the first international oil shock, which affected transportation and production costs. Also in 1973 Britain entered the European Economic Community, and although New Zealand had negotiated secure access to the British market for cheese and butter, earlier trade agreements for New Zealand products became void.

The Government's solution to rising costs and falling prices was to produce more. In 1977 it introduced the Livestock Incentive Scheme to encourage farmers to produce more. The following year it introduced a raft of subsidies and production incentives. Subsidies were introduced for superphosphate and lime. Superphosphate use peaked at 3.4 million tonnes in 1982. The supplementary minimum prices scheme guaranteed farmers price stability for pastoral product, despite their declining value in the market.

Stock numbers increased with sheep numbers peaking to over 70 million in 1982. (Refer figure 1)

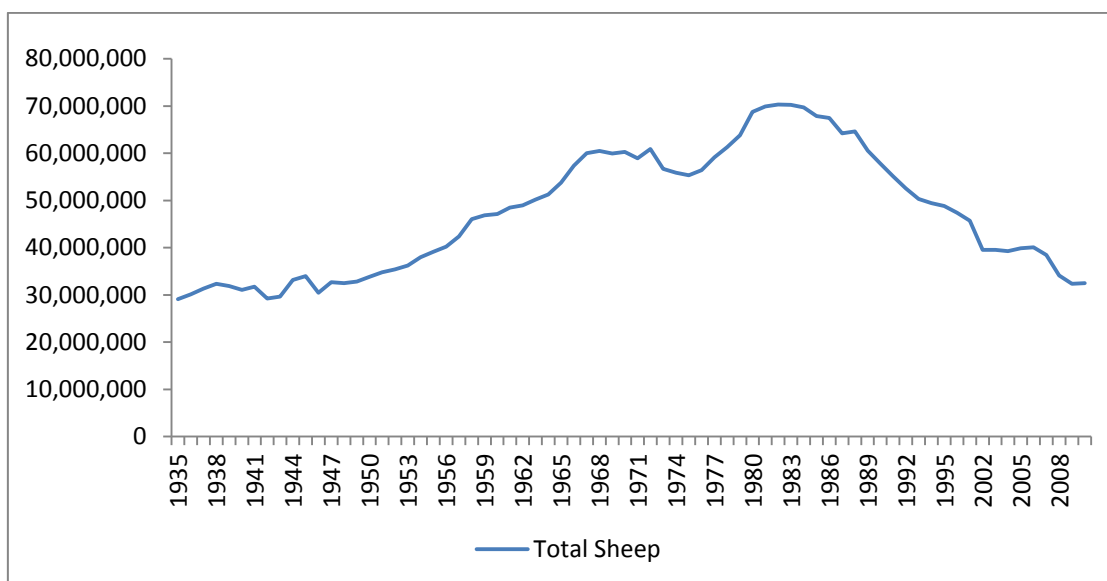


Figure 1 New Zealand Sheep numbers, annual June (Statistics NZ)

Between 1975 and 1985, wool exports increased in volume by 45% (Refer fig 2) and meat exports by 24%

(Peden, Updated Mar 2009)

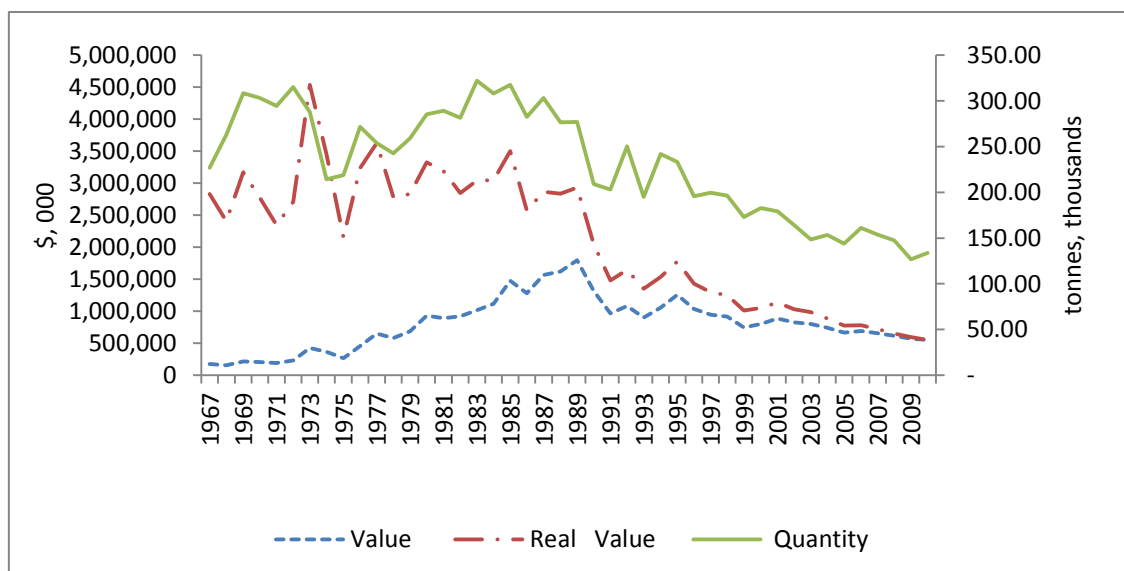


Figure 2 Value and Quantity of NZ Wool Exports. End June. Inflation adjusted to 4th Quarter 2010 (Statistics NZ)

In 1984 the newly elected Labour government began the deregulation of what had been a highly regulated economy. Supplementary minimum prices were among the first things removed. Fertiliser and noxious weed control subsidies were also removed.

Following the removal of subsidies, the 1985-86 return for lambs including wool and pelt fell by about \$12 head, or 50%. Between 1982 and 1988, the value of grazing land fell by 32%. With a combination of rising interest rates and poor prices for lamb, wool and beef some farmers were forced to sell up.

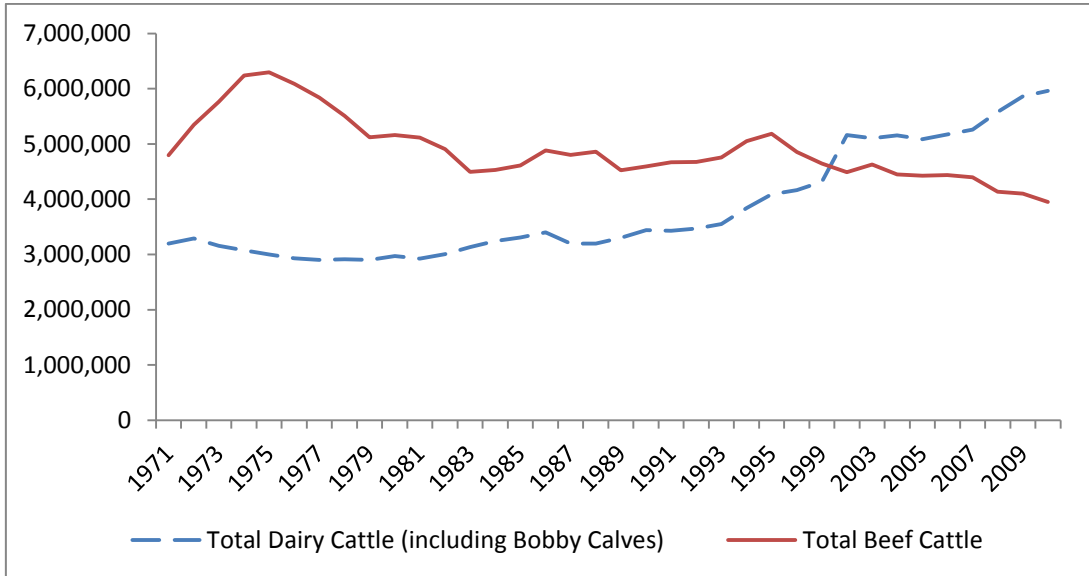


Figure 3 Beef and Dairy cattle numbers. Annual June (Statistics NZ)

Sheep numbers fell by over 43% from the heights of 1982, to around 40 million in 2002 and a further fall of 17.5% to around 33 million in 2010, a 53% decrease. (Refer figure 1)

Farmers showed resilience, sheep and beef farms adapted to the deregulated market to increase on farm productivity. From 1980/81 to 2009/10 lambing and calving percentages have increased from 99.2% to 123.4% for ewe lambing only and 73.4% to 83.3% for calving. Average carcass weight (Cwt) of lamb has increased from 13.35kg to 17.63kg. (Refer fig 4)

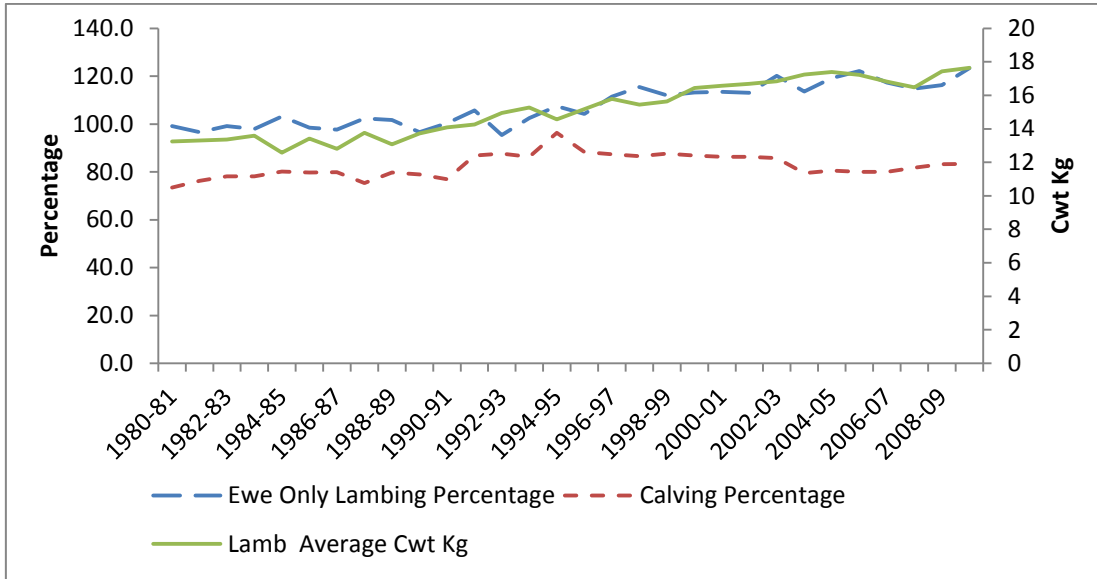


Figure 4 Lambing and Calving percentage. Average lamb Carcase weights (cwt) Inflation adjusted to 4th Quarter 2010 (Beef + Lamb NZ Economic Services)

Export earnings from meat and edible offal's increased from \$2,228 million in 1985 to \$4,111 million in 2003 making up 14% of the country's exports and by the fourth quarter of 2010 this has increased to \$5,087 million.

Real export earnings for meat and edible offal's in 1985 were worth \$5,285 million. In 2003 they were worth \$5,057 million, a decrease of \$198 million from 1985 to 2010. (Refer fig 5)

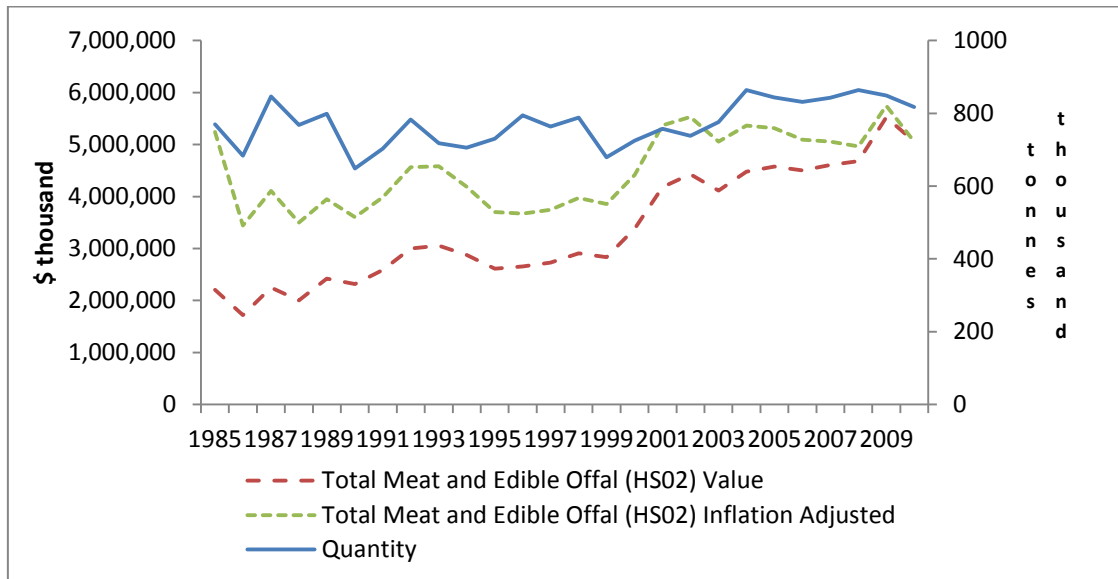


Figure 5 Total meat and edible offal's, export earnings. Annual June Inflation adjusted 4th Quarter 2010 (Statistics NZ, HS02)

The number of commercial sheep and beef farms decreased from 22,000 in 1980/81 to an estimate of 12,880 in 2010/11 a decrease of 41%. The average effective area per farm has increased from 508ha 1980/81 to 649ha estimated for 2010/11 an increase of 28%, stock units per hectare (ha) have decreased from 6.98 stock units (S.U) ha to 6.11 SU ha over the same period. (Source, Beef + Lamb NZ economic Services)

The decrease in the number of sheep and beef farms corresponded to the 25% decrease in the total effective area for sheep and beef farms, at the same time the total affective area of dairy farms increased by 57% increase. (Ref Table 1)

Sheep and Beef farms					Dairy Farms			
Year	Number Farms	Average Effective ha.	Total Effective ha.	Total per farm S.U. at Open	Total Herds	Average Effective ha.(b)	Total Effective ha.(a)	Average Cows per ha(b)
1980-81	22,000	508	11,176,000	3,461	15,821	63	996,723	2.07
1985-86	22,000	487	10,714,000	3,365	15,753	64	1,008,192	2.30
1990-91	19,600	514	10,074,400	3,415	14,685	70	1,023,545	2.35
1995-96	17,700	555	9,823,500	3,768	14,736	82	1,208,352	2.43
2000-01	15,740	589	9,270,860	3,894	13,892	96	1,329,173	2.62
2005-06	13,757	664	9,134,648	4,274	11,883	118	1,398,966	2.74
2009/10	-	-	-	-	11,691	134	1,563,495	2.81
2010-11e	12,880	649	8,359,120	3,918	-	-	-	-
Change	-41%	28%	-25%	13%	-26%	112%	57%	36%

Table 1 Commercial Sheep/Beef and Dairy farms (Beef + Lamb NZ Economic Service. NZ Dairy Statistics 2009/10 table 2.2 pages 7)

(a) Total effective hectares between 1981/82 and 1990/00 are estimates

(b) Average effected hectares and average cows per hectare for 1980/81 to 1990/91 are based on factory supply herds

Dairying is among the most successful sectors in New Zealand agriculture since the mid-1980s, growing significantly to increase dairy cattle numbers by 86% from 3 million dairy cattle, including bobby calves to just fewer than 6 million by June 2010 (Refer Fig 3)

Between 1989 and 2010 export earnings from dairy, milk powder, butter and cheese increased from \$1,872 million, to the fourth quarter in 2010 \$8,835 million an increase of 372% (Refer Fig 6)

Inflation adjusted export earnings from Milk Powder, Butter and Cheese were \$3,052 million in 1989 and increased to \$8,835 million in 2010, a real increase of 289%.

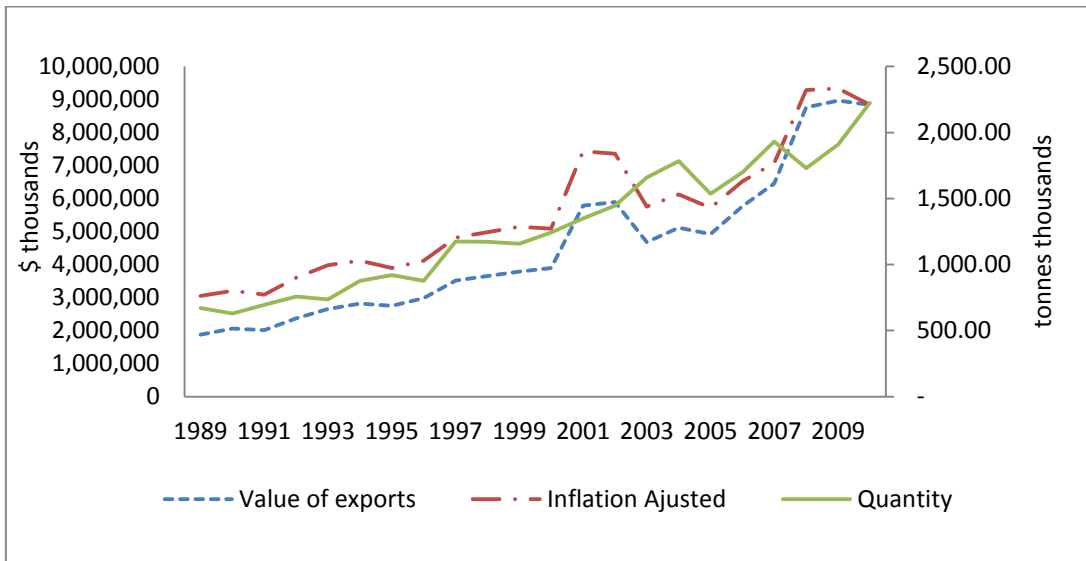


Figure 6 Milk Powder, Butter and Cheese value of total principal exports (excl re-exports) - (Annual-Jun) Key Statistics Table 7.04. (Statistics NZ) Inflation adjusted 4th Quarter 2010

Nature and Scope of investigation

New Zealand sheep and beef farmers over the last thirty years have seen shifts in prices received for their products as well as what they are paying for products and services. Comments from farmers who were farming in the early 1980s are that it takes more lambs/cattle today to pay for a tonne of fertilizer, rates, electricity, fuel, fencing materials than it did thirty years ago.

Are sheep and beef farmers receiving more today for their products than they were receiving thirty years ago, are they paying more today for fertilizer, fencing, fuel, electricity, rates, wages and interest or have prices remained relatively stable?

How much have inflation adjusted (real) farm expenses changed over the past thirty years in relation to individual product returns and rural land prices?

The objective of this dissertation is to look at prices and expenses, inflation adjusted by using the New Zealand Consumer Price index, for lamb and beef, clean wool returns paid to producers by processors/exporters, as well as farmer's expenses on selected items.

By using the Consumer Price Index to adjust the values to equivalent values as at the end of 2010, it will be possible to see how much prices for both income and expenditure items have changed over the past thirty years. The wholesale market returns for lamb in the UK, manufacturing bull beef in the USA, venison returns in the German Game Trade and milk powder international prices affect the farm gate returns.

Questions to be asked include, have the inflation adjusted market prices changed in line with the farm gate returns? By how much and is the change similar to the changes farmers have seen? For example has the wholesale return for NZ lamb in London changed over the last twenty years at a similar rate as the on farm return has?

Note; to get the real market price for Lamb, beef and venison the CPI of the country that the product is sold in was used. For whole milk powder the USA CPI was used.

There has been a lot of concern around the level of farm indebtedness in the sheep and beef and dairy sector. This dissertation will look at how much debt and debt servicing has changed in the last thirty years for sheep and beef farmers. Has farm equity eroded or is it better today than thirty years ago due to the increase in land values?

Chapter 1

Income

The change in selected farm incomes over the past thirty years in relation to prices received by farmers and land prices is considered. By using the Consumer Price Index (CPI) the real returns and expenses from 1980 to 2010 can be calculated.

To be able to determine just how much more or less farmers in 2010 are now receiving and paying in relation to what they were receiving and paying over the last thirty years, this chapter will look at prices for

- Lamb, Kg (cwt)
- Wool Clean, Kg
- Mutton, Kg (cwt)
- Beef, Kg (cwt)
- Bull Beef, Kg (cwt)
- Venison, Kg (cwt)
- Milksolids, Kg MS

These are weighted average schedules from 1980-81, all grades, hot weights are quoted and exclude subsidies and GST for Lamb, Mutton, Beef (Beef includes lighter cows but not Bulls), Bull Beef. Venison and Milksolids have been included for comparisons.

Sources are from Beef & Lamb NZ Economic Services, Statistics NZ, Deer Industry New Zealand, New Zealand Dairy Statistics and Agrifax NZ

Note, The mutton, lamb, beef, venison and bull beef prices are weighted average \$/head returns, net of subsidies at works. Subsidies have been left out of the price calculations for reasons of consistency of prices calculated "post" of the deregulatory period of the 1980's

Lamb

In 1980/81 farmers were receiving \$15.39hd, \$46.92hd real. By the end of June 2009/10 lamb was worth \$81.30hd, a 73.27% increase, or a 2.4% average increase per year.

Beef and Lamb are estimating a lamb will be worth \$107hd for 2010/11 which will be an increase of 133% over 1980/81 real returns, or an average of 4.4% increase per year.

This difference in return per head of lamb is brought about by two features,

1. The increase in average carcase weight. The average carcase weight (Cwt) of a lamb for the 1980/81 season was 13.35kg, but in 2009/10 the average Cwt was 17.63kg, an increase of 4.28kg or a 32% increase.
2. The increase in the national average weighted schedule from the real price in 1980/81 per kilogram of \$3.54kg Cwt, to \$4.62kg for 2009/10, an increase of \$1.08kg, or 30.5%. The lowest return for lamb kg cwt was in 1985/86 with lamb being worth only \$1.77kg cwt, the highest point to date (excluding 2010/11) being 2001/02 at \$5.57kg Cwt, a variation of over 214%. (Refer fig 7, table 2)

The lowest return for lamb was in 1985/86 at \$1.77kg/cwt or \$23.77hd. From the low point there has been a steady increase in returns to farmers up to a peak in 2001/02, not including the estimated returns for 2010/11, at \$5.57kg/cwt or \$92.96hd, this was followed by a sharp decrease to 2006/07 where the kg/cwt return was only \$0.11kg/cwt a 3.1% real return higher than in 1980/81.

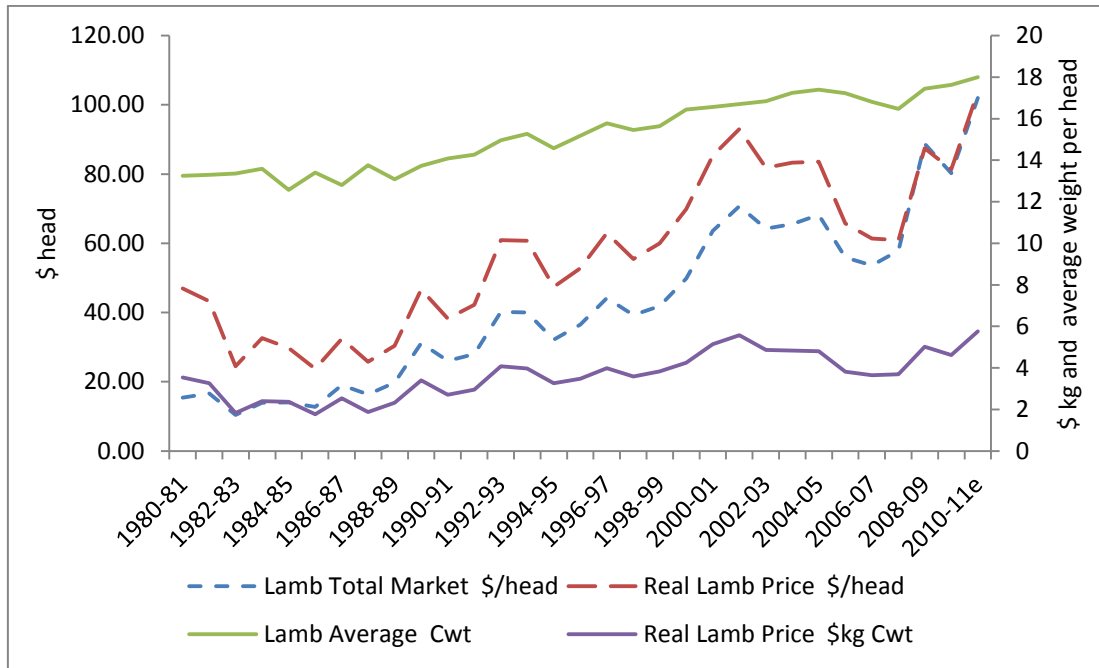


Figure 7 Lamb national average weighted schedule, all grades average. Hot-weight. Export Price Trends (Farm) Real 2009-2010 \$s, Year ends June (Beef + Lamb NZ Economic Service)

The return for lamb from its high in 2001/02 has decreased by 14.34% hd to 2009/10 level, this decrease has occurred due to an 20.80% decrease in the average weighted schedule price. The average carcass weight has increased by 5.56% which has helped to offset the decrease in the schedule price. From the peak it decreased to the low average schedule real return of \$3.70kg/cwt in 2006/07, increasing by 57.8% to 2010/11 estimated return of \$5.76kg/cwt.

Lamb

Year	Lamb Total Market \$/head	Real Lamb Price \$/head	Average Cwt	Real Lamb Price \$/kg Cwt
1980-81	15.39	46.92	13.25	3.54
1981-82	16.58	43.29	13.3	3.25
1982-83	10.38	24.48	13.35	1.83
1983-84	13.97	32.64	13.59	2.40
1984-85	14.05	29.70	12.58	2.36
1985-86	12.74	23.77	13.41	1.77
1986-87	19.06	32.47	12.80	2.54
1987-88	16.34	25.73	13.76	1.87
1988-89	19.78	30.43	13.07	2.33
1989-90	31.13	46.67	13.73	3.40
1990-91	26.04	38.24	14.09	2.71
1991-92	27.97	42.19	14.26	2.96
1992-93	40.16	60.94	14.95	4.08
1993-94	39.97	60.74	15.27	3.98
1994-95	32.16	47.43	14.57	3.26
1995-96	36.54	52.80	15.18	3.48
1996-97	44.20	62.96	15.78	3.99
1997-98	39.23	55.41	15.45	3.59
1998-99	41.82	60.00	15.64	3.84
1999-00	49.81	69.86	16.43	4.25
2000-01	63.62	85.28	16.57	5.15
2001-02	70.74	92.96	16.69	5.57
2002-03	64.23	81.82	16.84	4.86
2003-04	65.52	83.25	17.24	4.83
2004-05	68.25	83.54	17.39	4.80
2005-06	55.92	65.74	17.23	3.82
2006-07	53.61	61.38	16.82	3.65
2007-08	57.90	60.93	16.48	3.70
2008-09	88.76	87.47	17.44	5.02
2009-10	80.24	81.30	17.63	4.61
2010-11e	102.00	103.68	18.00	5.76

Table 2 Lamb national average weighted schedule. All grades average hot-weight. Export Price Trends (Farm) Real 2009-2010 \$s, Year ends June (Beef + Lamb NZ Economic Service

Mutton

1980/81 saw mutton returns to farmers at \$10.27hd/cwt, a real price of \$31.31hd/cwt, 1983/84 saw real prices to the farmer at negative \$13.45hd/cwt. Peaking in 2001/02 at \$68.19hd cwt. Inflation adjusted, the 2009/10 mutton return was \$56.43hd/cwt an increase of \$25.12hd/cwt and an 80% increase over 1980/81. (Refer fig 8, table 3)

In 1982/83 the average carcase weight (cwt) of adult sheep killed was 19.81kg/hd, in 2009/10 it was 24.76kg/hd a 25% increase. (Statistics NZ)

The average real return per kg for mutton in 1980/81 was \$1.58kg. In 2009/10 it was \$2.28kg, an increase of \$0.70 kg, a 44.3% increase.

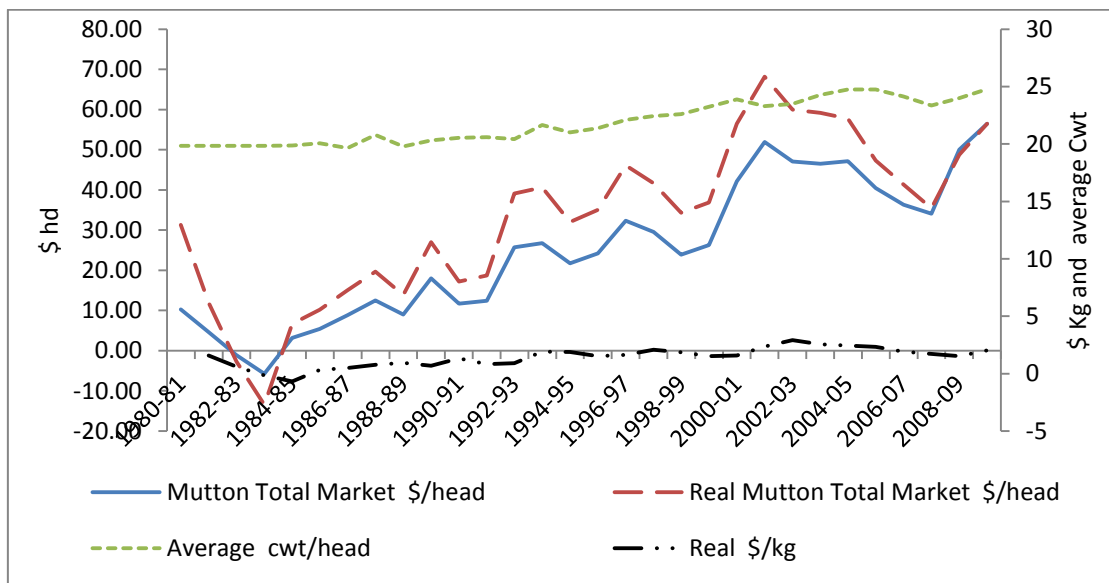


Figure 8 Mutton total national average weighted schedule. (Farm) Real 2009-2010 \$s, Year end June (Beef + Lamb NZ Economic Service) 2010/11 estimate

Mutton real return per kg/cwt has also followed the same trend as lamb peaking in 2001/02 at \$2.93kg/cwt then decreasing to \$1.52kg/cwt in 2007/08 a level lower than in 1980/81 by \$0.06kg/cwt.

Mutton

Year	Mutton \$/head	Real Market \$/head	Average Cwt	Real \$/kg
1980-81	10.27	31.31	19.85	1.58
1981-82	4.58	11.96	19.85	0.60
1982-83	-1.14	-2.69	19.85	-0.14
1983-84	-5.75	-13.43	19.83	-0.68
1984-85	3.18	6.72	19.86	0.34
1985-86	5.44	10.15	20.07	0.51
1986-87	8.82	15.03	19.64	0.77
1987-88	12.48	19.65	20.78	0.95
1988-89	9.00	13.85	19.79	0.70
1989-90	17.98	26.96	20.31	1.33
1990-91	11.69	17.17	20.53	0.84
1991-92	12.41	18.72	20.58	0.91
1992-93	25.76	39.09	20.42	1.91
1993-94	26.73	40.62	21.64	1.88
1994-95	21.70	32.01	21.02	1.52
1995-96	24.22	35.00	21.38	1.64
1996-97	32.36	46.10	22.09	2.09
1997-98	29.52	41.69	22.44	1.86
1998-99	23.92	34.32	22.60	1.52
1999-00	26.27	36.84	23.23	1.59
2000-01	42.13	56.47	23.88	2.36
2001-02	51.89	68.19	23.28	2.93
2002-03	47.06	59.95	23.49	2.55
2003-04	46.54	59.14	24.26	2.44
2004-05	47.15	57.71	24.74	2.33
2005-06	40.44	47.30	24.76	1.91
2006-07	36.30	41.34	24.14	1.71
2007-08	34.08	35.46	23.35	1.52
2008-09	50.01	48.70	24.00	2.03
2009-10	56.43	56.43	24.79	2.28
2010-11e	90.00	87.21		

Table 3, Mutton, total national average weighted schedule. Real 2009-2010 \$s, Year end June (Beef + Lamb NZ Economic Service) 2010/11 estimate

In figure 8 and table 3 the 1982/83 and 1983/84 mutton prices are negative, -\$1.14 and -\$5.75. These returns were the actual market price paid at the farm gate less subsidies. The returns with subsidies added in, in 1982/83 was \$10.46hd and in 1983/84, \$12.12hd. This represents a subsidy of \$11.60hd and 17.87hd for the respective years and is not inflation adjusted to the real price.

Wool

Real returns for clean wool at auction from 1980/81 to 2009/10 have decreased from 1058c/kg real clean, to 420c/kg clean in 2009/2010. A decrease of 638c/kg clean, a 60.3% decrease. Peak real price for wool was in 1984/85 at 1073.6c/kg clean and the lowest return was in 2008/09 at 404c/kg (Refer fig 9, table 4)

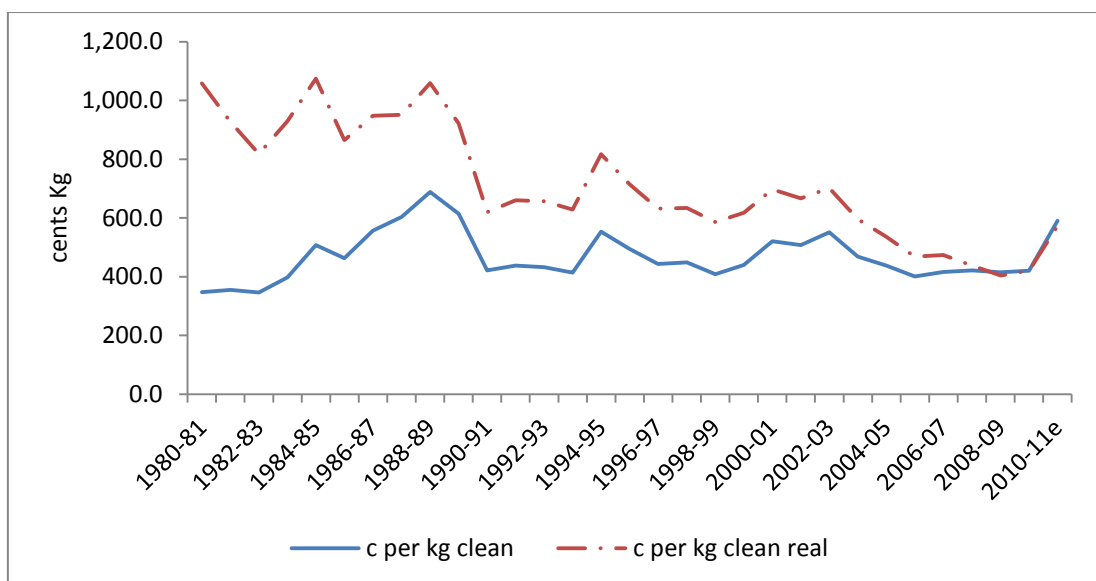


Figure 9 Wool auction price, cents per kg clean, all grades. Year end June (Beef + Lamb NZ Economic services)

Wool Auction Price Clean

	c per kg clean	c per kg clean Real
1980-81	347.1	1,058.20
1981-82	355.1	927.2
1982-83	346.7	817.7
1983-84	397.7	929.2
1984-85	507.9	1,073.80
1985-86	463.3	864.4
1986-87	556.3	947.7
1987-88	603.6	950.6
1988-89	688.0	1,058.50
1989-90	614.4	921.1
1990-91	421.9	619.5
1991-92	437.4	659.7
1992-93	432.8	656.8
1993-94	413.8	628.9
1994-95	553.8	816.8
1995-96	494.3	714.3
1996-97	443.1	631.2
1997-98	448.9	634.0
1998-99	408.4	585.9
1999-00	440.0	617.1
2000-01	520.3	697.5
2001-02	507.7	667.1
2002-03	551.0	701.9
2003-04	468.6	595.4
2004-05	437.7	535.7
2005-06	400.7	468.7
2006-07	415.8	473.6
2007-08	421.1	438.2
2008-09	415.4	404.5
2009-10	420.8	420.8
2010-11e	590.8	572.5

Table 4 Wool auction price cents per Kg clean, all grades. Year end June (Beef + Lamb NZ Economic services)

Beef

1980/81 beef returns, are for all cattle killed excluding bull beef and lighter cows, to farmers was \$3.37 kg/cwt, real. In 2009/10 the beef return was \$3.14 kg/cwt a decrease of \$0.23kg, a 7.3% decrease.

The total market return \$/head for beef in 1980/81 was \$973.89hd real, in 2009/10 it was \$841.19hd, a \$132.70hd or 13.62% decrease. The highest returns were in 2000/01 at \$4.82kg, \$1254hd, the lowest was in 1995/96 at \$2.39kg or \$589hd. (Refer Fig 10, table 5)

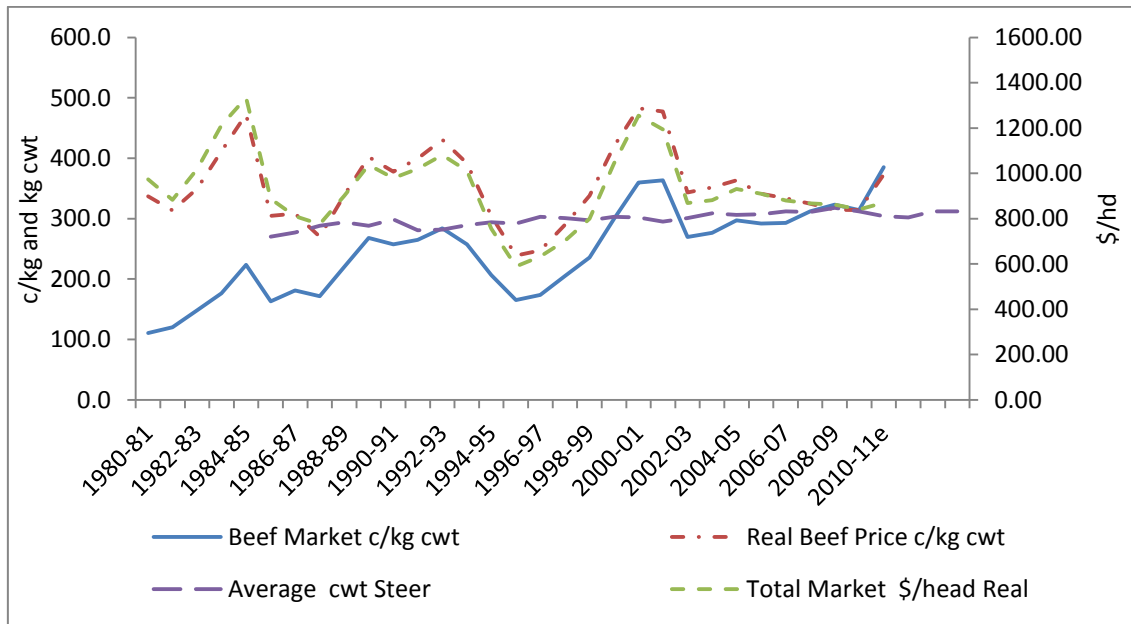


Figure 10 Beef national average weighted schedule, all grades average including lighter cows, hot weights. Export Price Trends (Farm) Real 2009-2010 \$s, Year end June (Beef + Lamb NZ Economic Service) 2010/11 estimate

The average carcass weight of a steer has increased by 42kg from 270kg to 312kg over the same period of time or 15.55% (Statistics NZ)

Beef

Year	Beef Market c/kg cwt	Beef Price c/kg cwt Real	Total Market \$/head Real	Average cwt Steer
1980-81	110.5	336.9	973.89	
1981-82	120.2	313.8	883.10	
1982-83	148.2	349.5	1018.75	270
1983-84	176.3	411.9	1212.52	277
1984-85	223.6	472.6	1333.98	288
1985-86	163.3	304.6	887.86	294
1986-87	180.9	308.1	811.02	288
1987-88	171.6	270.3	775.56	299
1988-89	220.6	339.3	901.89	281
1989-90	268.3	402.2	1037.66	282
1990-91	257.2	377.6	979.63	289
1991-92	264.9	399.6	1019.55	294
1992-93	283.9	430.8	1081.03	292
1993-94	257.5	391.4	1011.15	303
1994-95	206.5	304.5	756.17	301
1995-96	165.4	239.1	588.95	297
1996-97	173.7	247.5	632.51	303
1997-98	205.1	289.6	701.99	302
1998-99	235.6	338.0	799.29	295
1999-00	299.3	419.8	1041.98	301
2000-01	359.9	482.5	1254.23	309
2001-02	363.4	477.6	1193.94	306
2002-03	269.5	343.3	868.38	307
2003-04	276.7	351.6	881.99	312
2004-05	297.1	363.7	931.55	311
2005-06	291.7	341.2	909.91	318
2006-07	293.1	333.9	880.28	312
2007-08	312.0	324.6	867.59	304
2008-09	323.3	314.8	861.11	302
2009-10	314.1	314.1	841.19	312
2010-11e	385.0	373.0	870.00	312

Table 5 Beef national average weighted schedule. All grades average, including lighter cows, hot weights. Export Price Trends (Farm) Real 2009-2010 \$s, Year end June (Beef + Lamb NZ Economic Service) 2010/11 estimate

Bull Beef

Bull beef returns in 1980/81 were 372.3c/kg/cwt for a bull between 220.5 – 245kg real. In 2009/10 the same bull was worth 325.5c/kg/cwt, a 46.8c/kg/cwt or a 14.38% decrease. This decrease is also reflected in the 1980/81 average national return per head of a bull, including all weight ranges, was \$1231.68hd real. But in 2009/10 the average return per head was \$1062.89hd, a \$168.79 hd or a 15.89% decrease. (Refer Figure 11, table 6)

The lowest return for bull was in 1995/96 at 237.7c/kg/cwt real and the highest return was in 1984/85 at 509.3c/kg/cwt (Beef + Lamb NZ Economic Service)

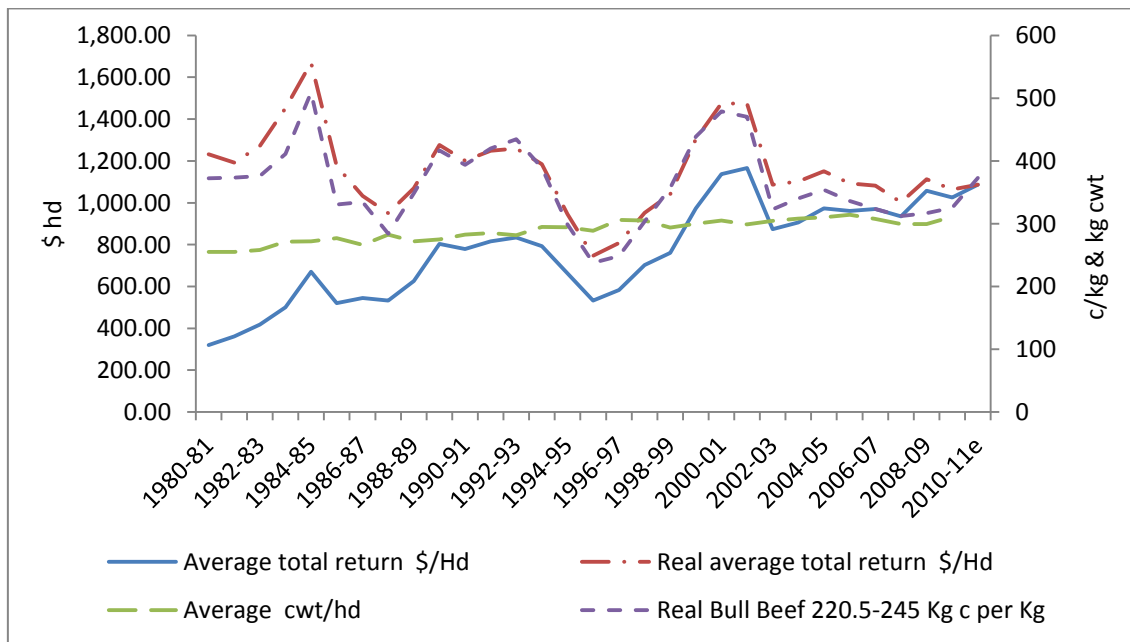


Figure 11 Bull Beef return per head, 220.5 – 245kg cwt c/kg, real 2009/10 year end June (Beef + Lamb NZ Economic Services)

The average carcass weight of a bull has increased by 56.4kg from 255kg to 311.4kg or 18.14% over the same period. (Statistics NZ)

Bull Beef

	Average total return \$/Hd	Real average total return \$/Hd	Average Cwt/Hd	Real Bull Beef 220.5-245 Kg c/ Kg
1980-81	319.44	1231.68	255	372.3
1981-82	361.57	1191.79	255	373.4
1982-83	417.75	1271.76	258.19	375.7
1983-84	499.81	1452.92	271.57	411.0
1984-85	669.75	1669.37	271.88	509.3
1985-86	520.31	1174.58	276.80	330.4
1986-87	544.21	1032.74	266.07	334.8
1987-88	532.43	950.16	282.41	284.1
1988-89	625.97	1069.66	271.92	348.2
1989-90	803.36	1275.62	275.10	416.8
1990-91	778.28	1201.79	282.74	393.7
1991-92	815.99	1248.05	285.05	419.6
1992-93	834.05	1259.17	281.67	434.7
1993-94	793.39	1184.82	294.70	389.4
1994-95	662.59	946.09	294.54	299.1
1995-96	533.21	746.41	288.52	237.7
1996-97	583.58	807.90	306.04	248.3
1997-98	701.79	952.24	304.78	303.4
1998-99	760.95	1039.89	293.75	357.0
1999-00	972.54	1303.10	300.01	438.7
2000-01	1,137.07	1475.76	304.81	479.2
2001-02	1,166.31	1473.14	299.02	470.4
2002-03	873.33	1087.07	304.38	323.1
2003-04	906.38	1102.13	308.03	340.2
2004-05	973.96	1151.48	310.03	353.9
2005-06	960.97	1092.61	314.09	336.0
2006-07	970.92	1082.30	307.57	323.2
2007-08	934.71	1001.71	299.26	312.4
2008-09	1,057.79	1112.61	299.50	316.7
2009-10	1,024.58	1062.89	311.14	325.5
2010-11e	1,087.25	1087.25		373.0

Table 6 Bull beef return per head, 220.5 – 245kg cwt c/kg, real 2009/10 end June (Beef + Lamb NZ Economic Services)

Venison

1992 year end saw the average weighted schedule price for venison was \$8.18kg/cwt real. In 2010 it was \$7.26kg, a \$0.92Kg or 11% decrease.

The average weighted schedule per head return in 1992 was \$417.18hd real, in 2010 it was \$402.61hd, a \$14.57hd or 3.49% decrease.

Venison has experienced some large cycles, real price highest returns of \$608.41hd, \$11.04kg/cwt were in 2001, the lowest of \$266.41hd, \$5.17kg in 2005, a fluctuation of \$5.87kg or 113.53% greater than the lowest return. (Refer fig 12, table 7)

The average real price for venison from 1992 to 2010 has been \$7.45kg.

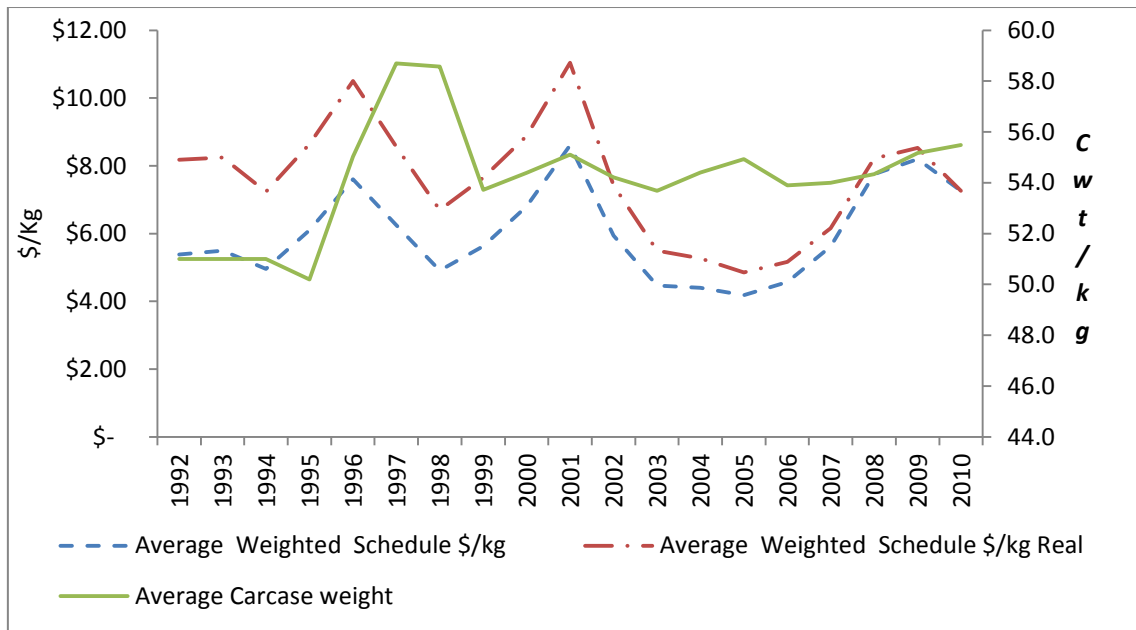


Figure 12 Venison Average Weighted Schedule. Year-end December (DINZ)

The average carcass weight for venison has increased by 4.6kg, or 9%, from 1992 at 51kg to 2010 to 55.5kg.

The average weight has been influenced by the increased kill of velvet stags, this is evident in 1997 and 1998 when the kill of velvet stags increased due to farmers decreasing their reliance on velvet income or removing their velvet herds completely due to poor returns.

	Average Weighted Schedule \$/kg	Average Weighted Schedule Real \$/kg
1992	5.38	8.18
1993	5.5	8.25
1994	4.96	7.23
1995	6.1	8.64
1996	7.6	10.5
1997	6.25	8.57
1998	4.91	6.7
1999	5.63	7.65
2000	6.8	8.88
2001	8.6	11.04
2002	5.94	7.42
2003	4.47	5.5
2004	4.4	5.27
2005	4.18	4.85
2006	4.57	5.17
2007	5.62	6.16
2008	7.75	8.22
2009	8.2	8.53
2010	7.26	7.26

Table 7 Venison, average weighted schedule. Year-end December (DINZ)

Dairy

The average weighted dairy company total payout received by dairy farmers from the seasonal dairy companies in 1990/91 was \$3.62 Kg milksolids real, peaking in 2007/08 at \$7.69kg MS. In 2009/10 the average payout was \$6.37kg MS, a 75.96% increase over the last twenty years. (Refer figure 13, table 8)

In 1992/93 the average kg of milksolids production per cow was 259kg, and in 2009/10 the average milksolids production per cow had increased to 318kg, a 22% increase. Peak production was in 2006/07 at 330kg MS per cow (New Zealand Dairy Statistics 2009-10, p8, table 2.3)

With the increase in cows per hectare from 2.43hd in 1992/93 to 2.81hd in 2009/10 this has led to an increase of 39.66% of milksolids per hectare from 653kg to 912kg/Ms/hec over this period. (New Zealand Dairy Statistics 2009-10, p7, table 2.2)

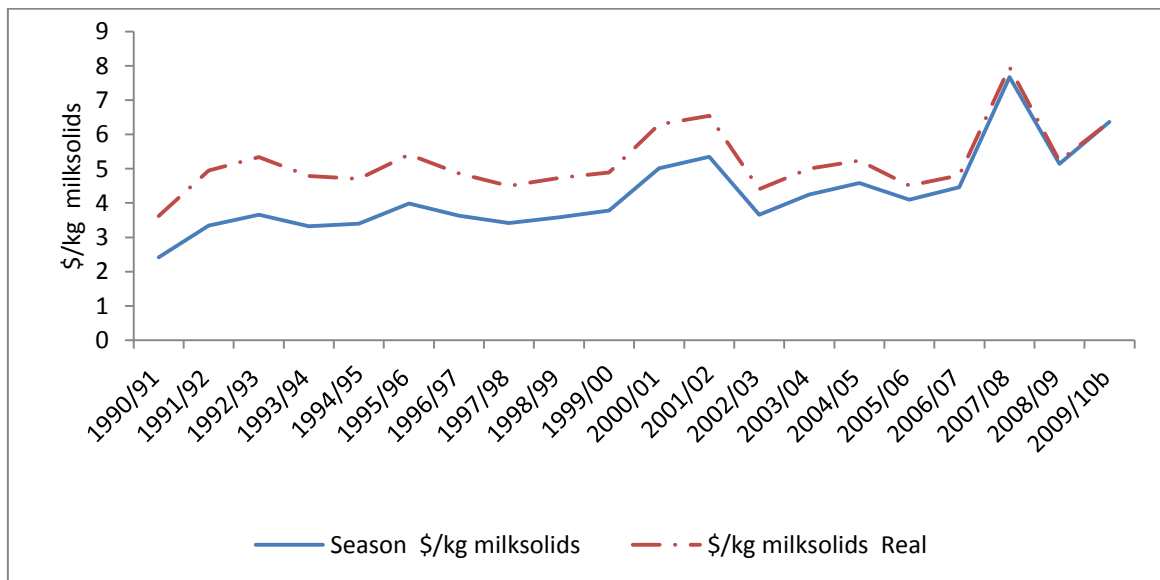


Figure 13 Milksolids average dairy total payout. (NZ Dairy Statistics 2009/10). Excludes dairy company retentions and deductions for Dairy NZ Levy. b Average dairy co-operative payout (Fonterra, Tatua, Westland)

The average real returns per hectare and per cow have increased from \$1383 per cow in 1992/93 to \$2025 in 2009/10, 46.66%, per hectare from \$3487ha to \$5809ha a 66.6% increase

Diary Payout

Season	Average Dairy Company total payout (\$/kg milksolids)	Dairy Company payout \$/kg milksolids Real
1990/91	2.42	3.62
1991/92	3.34	4.95
1992/93	3.66	5.34
1993/94	3.32	4.79
1994/95	3.4	4.7
1995/96	3.99	5.41
1996/97	3.63	4.86
1997/98	3.42	4.5
1998/99	3.58	4.73
1999/00	3.78	4.89
2000/01	5.01	6.29
2001/02	5.35	6.54
2002/03	3.66	4.41
2003/04	4.25	5.00
2004/05	4.58	5.24
2005/06	4.1	4.51
2006/07	4.46	4.81
2007/08	7.67	7.96
2008/09	5.14	5.23
2009/10b	6.37	6.37

Table 8 Milksolids average dairy total payout (NZ Dairy Statistics 2009/10). Excludes dairy company retentions and deductions for DairyNZ Levy.
b Average dairy co-operative payout (Fonterra, Tatua, Westland)

Conclusion for on farm returns and production

Lamb and mutton returns have experienced increases, of 30.5% and 44.3% per kg/cwt, as well as increases in production which is reflected in the change in per head returns from \$46.92hd/cwt to \$81.30hd/cwt for lamb and \$31.31hd/cwt to \$56.43hd/cwt for mutton.

Lamb carcase weights have the greatest increase from 13.35kg cwt to 17.63kg cwt over the thirty years, a 1.06% increase per year. While venison carcase weights have had the smallest increase from 51kg to 55.5 kg over only eighteen years, a 0.25kg/hd/yr increase, or a 0.5% increase per year.

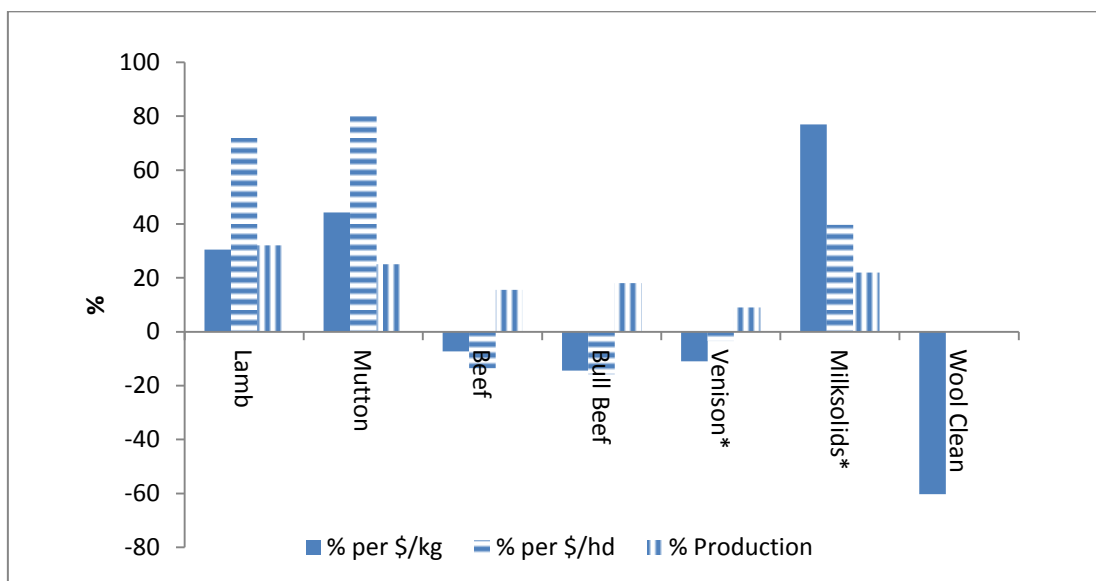


Figure 14 Percentage change in returns and production from 1980/81 to 2010. *Note, venison and milksolids are for shorter periods from 1992 for venison and 1990/91 for milksolids. Real 2010.

In figure 14 and tables 9 and 10 it compares the changes in inflation adjusted returns and production for farmers from 1981 to 2010, excluding venison and milksolids which are over a shorter period.

Wool has experienced the greatest fall in returns from \$10.58kg clean to \$4.20kg clean. Beef and Bull Beef as well as Venison (over a shorter period of time from 1992) have all experiences falls in inflation adjusted returns. (See tables 8 & 9)

	Change in returns % per/kg	Change in returns % per/hd	Change in Production %
Lamb	30.5	73.27	32
Mutton	44.3	80	25
Wool Clean	60.3		
Beef	-7.3	-13.62	15.5
Bull Beef	-14.38	-15.89	18
Venison	-11	-3.49	9
Milksolids	76.9	39.66	22

Table 9 Changes in returns and on farm production

Milksolids have had the biggest increase in returns per kg from \$3.62kg to \$6.27kg, from 1990/91 to 2009/10.

	Open \$/kg	High \$/kg	Low \$/kg	Close \$/kg
Lamb	3.54	5.57	1.77	4.62
Mutton	1.58	2.93	-0.14	2.28
Wool Clean	10.58	10.73	4.2	4.2
Beef	3.37	4.83	2.39	3.14
Bull Beef	3.72	4.79	2.38	3.26
Venison	8.18	11.04	4.85	7.26
Milksolids	3.62	7.69	3.62	6.37

Table 10 Opening, high, low and closing \$/kg. Real.

Real returns for lamb, manufacturing beef, venison and milksolids dairy pay-out all peaked between 2001/02, these peaks were a result of the Foot and Mouth outbreak in the United Kingdom, February 2001, where ten million sheep and cattle were killed in an attempt to halt the spread of the disease. New Zealand product was seen as safe as customers looked for alternative supply.

Percentage change in returns

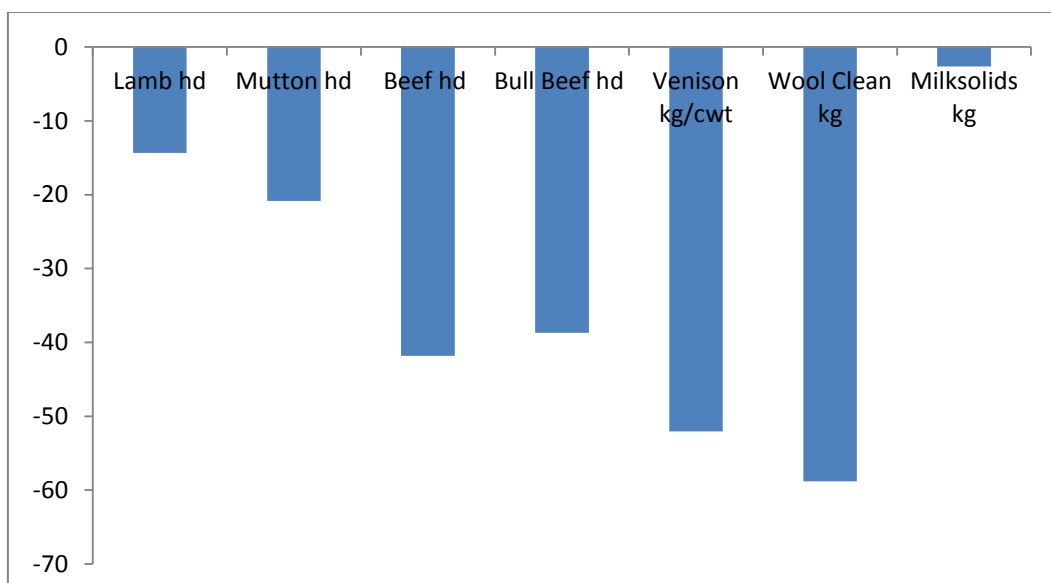


Figure 15 Percentage change real returns from 2001/02 to 2009/10, Real 2010

From the peaks in 2001/02 real returns for all farm products have decreased, wool by 58.8% and Milksolids by 2.62% (Refer fig 15)

Chapter 2

Farm Expenditure

In this chapter I the changes in selected farm expenses over the past thirty years is examined. Real costs have been used over this period as much as possible, but in most cases the Lincoln University Farm Budget Manuals have been used. Figures quoted in these manuals are updated yearly by the Farm Management and Rural Valuation Departments by using the previous year's figures, for

- Bulk Superphosphate
- Bulk Urea
- Fertilizer application
- Freight for a prime lamb traveling 80km
- Fencing
- Drench

For those listed below I have used a combination of Statistics NZ, NZ Ministry of Economic Development as sources for

- Electricity
- Diesel and Petrol
- Rates
- Wages

Electricity

Electricity cost 11.70 cents kWh real price in 1980, but in 2010 the estimated cost for a kWh is 10.40c a 1.3c or 12.5% decrease for a kWh (Refer Figure 16, table 11)

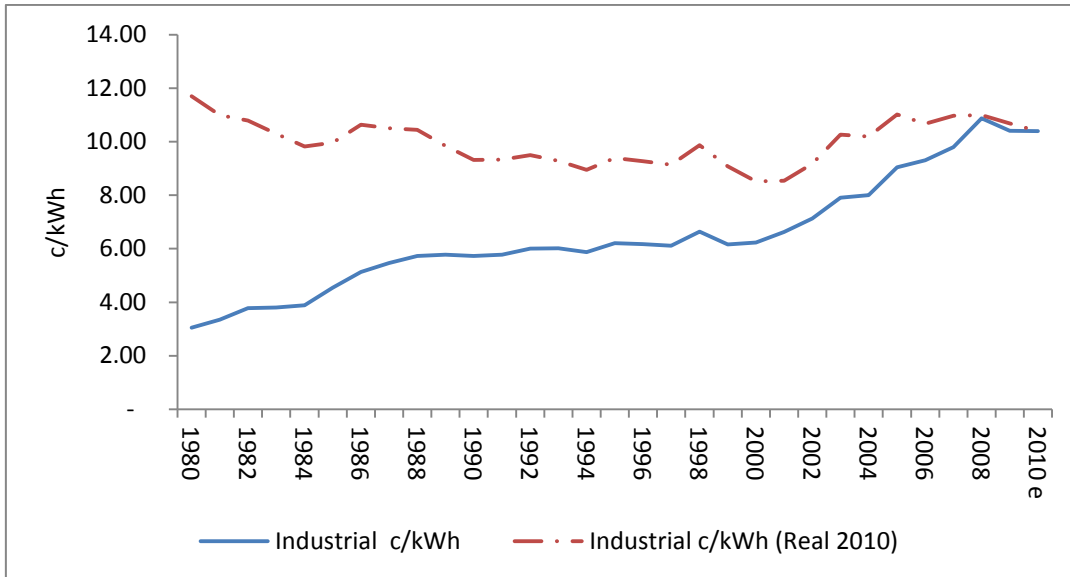


Figure 16 Electricity Consumer Price (Real 2010) Source NZ Ministry of Economic Development

Notes

1. Price information shown has been adjusted into real terms using the price deflators in Table I.6. Ministry of Economic Development
<http://www.med.govt.nz/templates/StandardSummary>
2. Industrial sector includes Agriculture, Forestry and Fishing -
E = Estimate
Estimates are provided for the calendar year 2010 as actual information is collected on a March year basis.

Electricity prices lowest real price was in 2000 at 8.52c/kwh, a 37.32% decrease from 1980. From 2000 they have increased by 22% to 2010.

Electricity Consumer Prices	Industrial c/kWh	Industrial c/kWh (Real 2010)
1980	3.05	11.70
1981	3.34	10.99
1982	3.78	10.79
1983	3.80	10.29
1984	3.88	9.82
1985	4.55	9.96
1986	5.13	10.64
1987	5.47	10.50
1988	5.73	10.44
1989	5.78	9.84
1990	5.73	9.32
1991	5.78	9.33
1992	6.00	9.49
1993	6.01	9.28
1994	5.88	8.95
1995	6.21	9.39
1996	6.17	9.27
1997	6.11	9.14
1998	6.64	9.87
1999	6.17	9.07
2000	6.23	8.52
2001	6.62	8.54
2002	7.12	9.18
2003	7.91	10.26
2004	8.00	10.19
2005	9.05	11.02
2006	9.30	10.66
2007	9.79	10.97
2008	10.87	11.00
2009	10.40	10.68
2010 e	10.40	10.40

Table 11 Electricity consumer price (Real 2010) Source NZ Ministry of Economic Development

Notes

1. Price information shown has been adjusted into real terms using the price deflators in Table I.6. Ministry of Economic Development

<http://www.med.govt.nz/templates/StandardSummary>

2. Industrial sector includes Agriculture, Forestry and Fishing -

E = Estimate

Estimates are provided for the calendar year 2010 as actual information is collected on a March year basis.

Fencing

The budgeted cost of fencing for a boundary Deer Fence on flat to rolling country in 1985 was \$16.89 per metre inflation adjusted and in 2010 budgeted cost for the same fence was \$15.57 metre, a \$1.32m or 8.48% decrease. (Refer table 13)

The budgeted cost for a Sheep/Cattle boundary fence on Flat to rolling country in 1985 was \$9.80 metre, inflation adjusted and in 2010 budgeted cost for the same fence was \$12.50m, a \$2.70m or 27.55% increase. (Refer table 14)

The main increase for both fence types was in labour from \$2.25m in 1985 (inflation adjusted) to \$4.00 in 2010, a 77.77% increase. For the deer fencing the labour increase was offset by the cost of a roll of deer netting from \$766.49 real price in 1985 to \$312 per roll in 2010, a 59.3% decrease

	2.5mm H.T Wire	2.5mm H.T Wire Real Dec 2010	Deer Netting 11 1550 by 300	Deer Netting 11 1550 by 300 Real Dec 2010	Posts 1/2 round 1.8m	Posts 1/2 round Real Dec 2010
1981	26.25	93.78	146.27	522.56	3.05	10.90
1985	36.61	86.84	188.94	448.17	4.00	9.49
1987	43.85	80.27	223.45	409.04	4.40	8.05
1990	50.82	79.04	187.11	291.01	5.96	9.27
1992	49.78	75.67	240.00	364.82	5.96	9.06
1995	53.15	75.32	238.00	337.27	7.38	10.46
1998	55.00	75.10	247.00	337.27	7.38	10.08
2000	47.00	61.41	196.00	256.09	7.38	9.64
2002	54.00	67.46	227.00	283.58	8.12	10.14
2004	63.00	75.46	214.00	256.32	7.71	9.23
2006	64.00	72.41	290.00	328.11	7.71	8.72
2008	90.00	95.46	282.67	299.82	8.30	8.80
2010	81.00	81.00	367.11	367.11	9.55	9.55

Table 12 Wire and Posts. (Lincoln University Financial Budget Manuals)

From 2000 to 2010, 2.5mm wire has increased by 32.7%, deer netting by 43%

Deer Fence , boundary fence for flat to rolling country. 400m Posts 5m apart, strainers every 200m Excluding GST						
Materials Required for 400m	1985 Individual Prices	1985 Total price for 400m	1985 Individual Prices Real Dec 2010	1985 Total price for 400m Real Dec 2010	2010 Individual Prices	2010 Total price for 400m
Posts 2.7m 125mm, 80 Posts	\$6.42	\$513.60	\$15.23	\$1218.4	\$23.75	\$1,900.00
Strainers 3.7m 175mm, 3 total	\$17.50	\$52.50	\$41.51	\$124.53	\$47.00	\$141.00
Stays 2.7m 115mm, 3 total	\$9.70	\$20.10	\$23.00	\$69.00	\$23.00	\$69.00
2.5mm H T wire 1 coil	\$72.00	\$72.00	\$170.53	\$170.53	\$81.00	\$81.00
150mm by 1900mm netting 13 line, 400m 4 roles @ 100m	\$323.14	\$1,292.56	\$766.49	\$3,065.96	\$312.00	\$1,248.00
Gate 3.66 *1900mm/ 1	\$129.16	\$129.16	\$306.37	\$306.37	\$303.00	\$215.00
Staples 40mm, 12kg	\$24.10	\$24.10	\$57.16	\$57.16	\$59.52	\$59.52
Gudgeons lock through post 1	\$7.05	\$7.05	\$16.72	\$16.72	\$16.44	\$16.44
Gudgeons through post 1	\$5.35	\$5.35	\$12.69	\$12.69	\$8.44	\$8.44
Gate fastener and staple 1	\$6.20	\$6.20	\$14.71	\$14.71	\$10.22	\$10.22
Materials Costs per meter	\$5.31	\$2,122.62	\$12.64	\$5,056.08	\$9.73	\$3,748.62
Post Driver 11 hours	\$31.50hr	\$346.50	\$74.72hr	\$821.92	\$80.00hr	\$880.00
Labour Costs per meter	\$16-\$22 per 20m	\$380.00	\$37-\$52 per 20 m	\$901.36	\$4.00	\$1,600.00
Total fence	\$7.12m	\$2,849.12	\$16.89m	\$6,756.00	\$15.57m	\$6,228.62

Table 13 Deer Fence 400m Boundary Lincoln University Financial Budgets Manuals)

Standard Sheep/Cattle Fence for Flat to Rolling Country, boundary fence. 400m Posts 4m apart, 4 droppers between each post, Strainers every 400m Fence design with 8 2.5mm + 1.7 Wires. Excluding GST						
Materials required for 400m	1985 Individual Prices	1985 Total Price for 400m	1985 Individual Prices Real Dec 2010	1985 Total Price for 400m Real Dec 2010	2010 Individual Prices	2010 Total price for 400m
Posts 1.8m 100 -125mm, 80 Posts	\$4.72	\$472.00	\$11.20	\$896.00	\$12.33	\$986.40
Strainers 2.1m 200mm, 2 total	\$13.65	\$27.30	\$32.38	\$64.76	\$30.40	\$60.80
Stays 2.7m 75-100mm, 3 total	\$6.81	\$13.62	\$16.15	\$48.45	\$23.00	\$46.00
2.5mm H T wire 3200m	\$0.06m	\$192.00	\$0.14m	\$448.00	\$0.18m	\$592.00
Droppers 400 50*50mm*1m	\$0.75	\$300.00	\$1.78	\$712.00	\$1.50	\$600.00
Gate 3.6m	\$63.47	\$63.47	\$150.55	\$150.55	\$242.95	\$242.95
Staples 4mm, 12kg	\$24.10	\$24.10	\$57.17	\$57.17	\$200	\$200
1 Gudgeons lock through post	\$7.05	\$7.05	\$16.72	\$16.72	\$8.44	\$8.44
1 Gudgeons through post	\$5.35	\$5.35	\$12.69	\$12.69	\$16.44	\$16.44
Gate fastener and staple 1	\$6.20	\$6.20	\$14.71	\$14.71	\$10.22	\$10.22
Materials Costs per meter	\$2.78	\$1111.19	\$6.05	\$2,421.05	\$6.90	\$2763.25
Post Driver 8 hours	\$31.50	\$252.00	\$74.72	\$597.76	\$80	\$640
Labour Costs per meter	\$0.95m	\$380.00	\$2.25	\$900.00	\$4.00m \$37.50hr	\$1600.00
Total fence per metre	\$4.36	\$1743.19	\$9.80	\$3,918.81	\$12.50	\$5003.25

Table 14 Standard Sheep/Cattle fence for Flat to Rolling Country
(Lincoln University Financial Budgets Manuals)

Fertilizer

1981 Superphosphate was \$339t real, in 2010 it was \$311t ex Ravensdown Christchurch store bulk, a decrease of 8.25%. 2004 was the lowest real price of \$189 and 1981 had the highest real price of \$339t.

In 1990 Urea bulk prices ex Ravensdown Christchurch store was \$608t, in 2010 \$620t, a 1.97% increase. 2000 was the lowest price at \$374t, 2005 highest at \$741t bulk real price.

From 1981 to 1990 Urea was sold bagged, in 1981 \$1468t, \$673t in 1990.

Note Prices are from the Lincoln University Financial Budget Manuals and are a budgeted price. (Refer Fig 17, table 15)

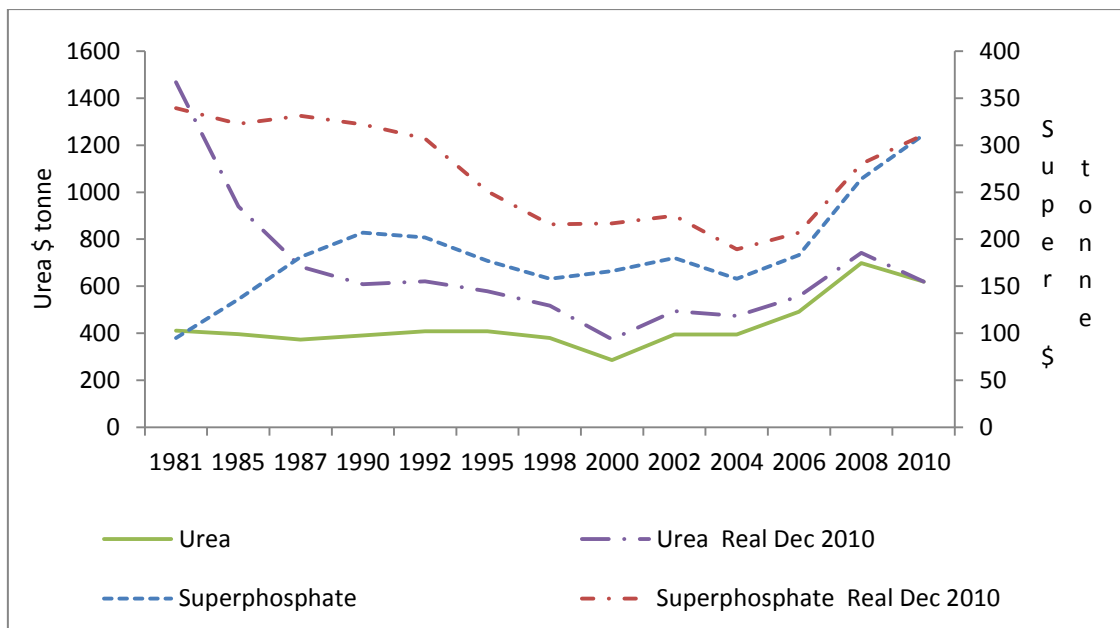


Figure 17 Superphosphate & Urea, Bulk ex Ravensdown Christchurch store. (Lincoln University Financial Budget Manuals)

Note, Urea price from 1981 to 1990 is bagged

	Superphosphate	Superphosphate Real	Urea	Urea Real
	\$/tonne	\$/tonne	\$/tonne	\$/tonne
1981	95	339	411	1468
1985	136	323	396	939
1987	181	331	373	683
1990	207	322	391	608
1992	202	307	408	620
1995	177	251	408	578
1998	158	216	379	518
2000	166	217	286	374
2002	180	225	395	493
2004	158	189	395	473
2006	183	207	492	557
2008	264	280	699	741
2010	311	311	620	620

Table 15 Superphosphate, Urea Bulk ex Ravensdown Christchurch store.
(Lincoln University Financial Budget Manuals) Note Urea price from 1981 to 1990 is bagged, (Real Dec 2010)

The lowest real price for superphosphate was in 2004 at \$189t for Urea it was \$374t in 2000.

The real price for Superphosphate and Urea have both increased since from 2000 to 2010 by 43.31% and 65.77%.

Spreading

Spreading costs per tonne for fertilizer have increased for ground spreading from \$36/t real in 1990 to \$48/t in 2010, a 33.33% increase. Fixed wing aerial spreading was \$54/t real, in 1990 it had increased to \$85/t in 2010, a 37%, increase. (Refer Fig 18, table 16)

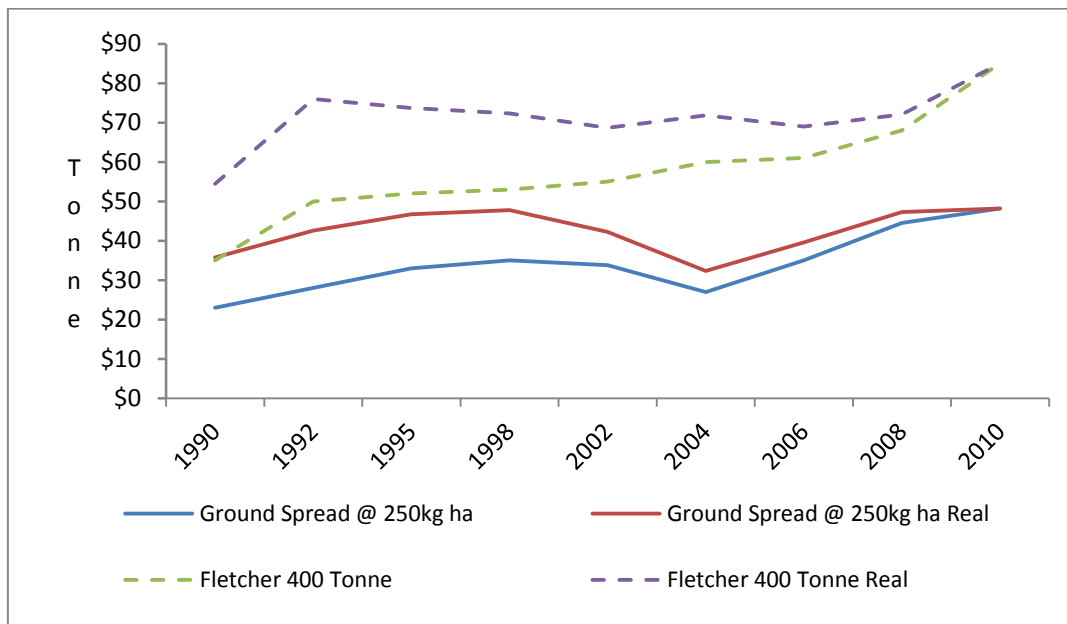


Figure 18 Fertilizer ground and aerial spreading costs (Lincoln University Financial Budget Manuals) (Real Dec 2010)

Note these prices are taken from the Lincoln University Financial Budget Manuals and are approximate costs as individual prices are affected by location, airstrip condition and proximity to the area being targeted.

	Ground Spread @ 250kg ha	Ground Spread @ 250kg ha Real	Fletcher 400 Tonne	Fletcher 400 Tonne Real
1990	23	36	35	54
1992	28	43	50	76
1995	33	47	52	74
1998	35	48	53	72
2002	34	42	55	69
2004	27	32	60	72
2006	35	40	61	69
2008	45	47	68	72
2010	48	48	85	85

Table 16 Fertilizer ground and aerial spreading costs (Lincoln University Financial Budget Manuals) (Real Dec 2010)

The cost for sheep and beef farms fertilizer expenditure per hectare of \$39.14 ha in 1980/81, real to \$51.98 ha in 2009/10, has increased by 32%. This is a reflection of the increase in the amount of fertilizers applied onto Sheep and Beef farms (Refer fig 19). In 1980/81 total superphosphate used was 794,010 tonnes. In 2007 that had increased by 59% to 1,269,729t (Refer table 17)

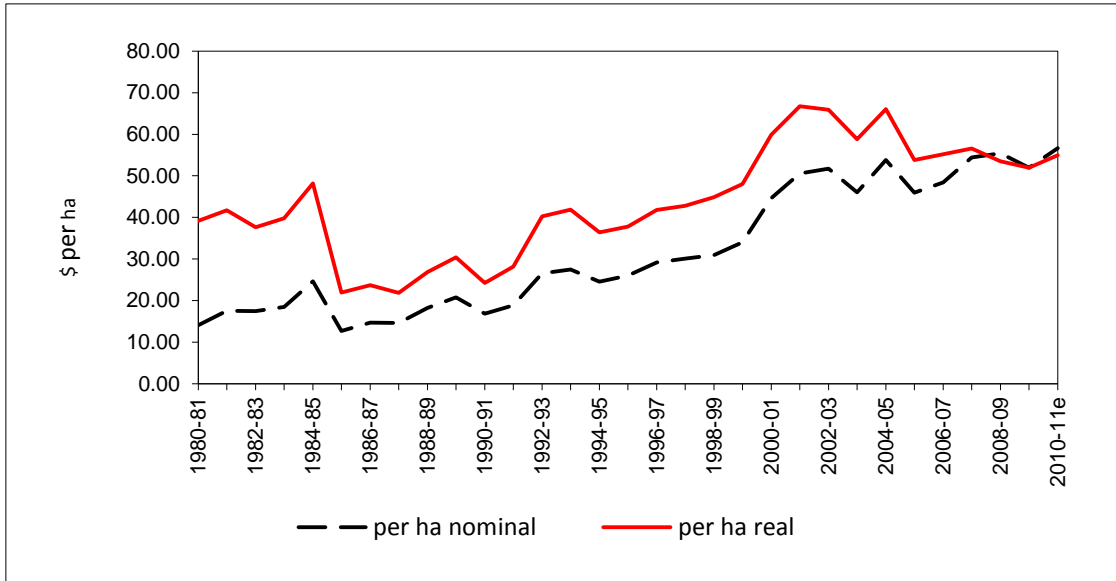


Figure 19 Fertilizer expenditure per ha (Real 2009-10) Beef + Lamb New Zealand Economic Service

Fertilizer used	1981 total tonnes used	2007 total tonnes used	% increase
Superphosphate	794,012	1,269,729	59%
Lime	1,354,788	1,486,963	9.75%
Urea	17,319	433,331	2402%

Table 17 Superphosphate, Lime and Urea 1981 and 2007 quantity used on sheep beef and dairy farms (Statistics NZ)

Petrol and Diesel

Retail Petrol, (GST included), in 1980 was 212.18c/l real, 2010 179.79c/l and a 32.39c/l or 18 % decrease from 1980. Peak retail price was in 1985 at 219.18c/l. 1998 had the lowest average retail price of 112.94c/l. (Refer figure 20)

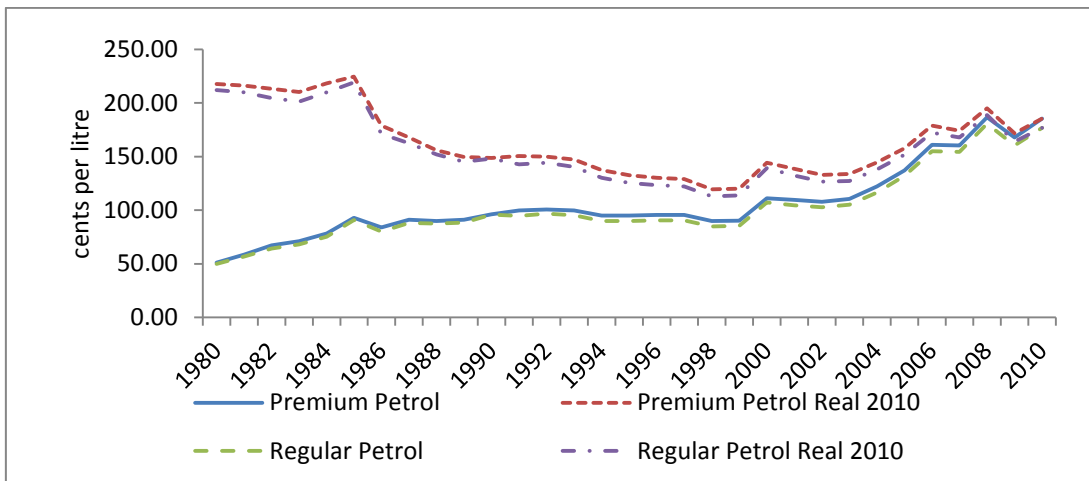


Figure 20 Retail Petrol, GST inclusive. Source, NZ Ministry of Economic Development Annual prices are weighted by sales

Wholesale Diesel, GST exclusive, in 1983 was 150.24c/l real and in 2010 98.55c/l, a 51.69c/l or 34.4% decrease. Peak Diesel wholesale price was in 1984 at 165.56c/l. (Refer Figure 21)

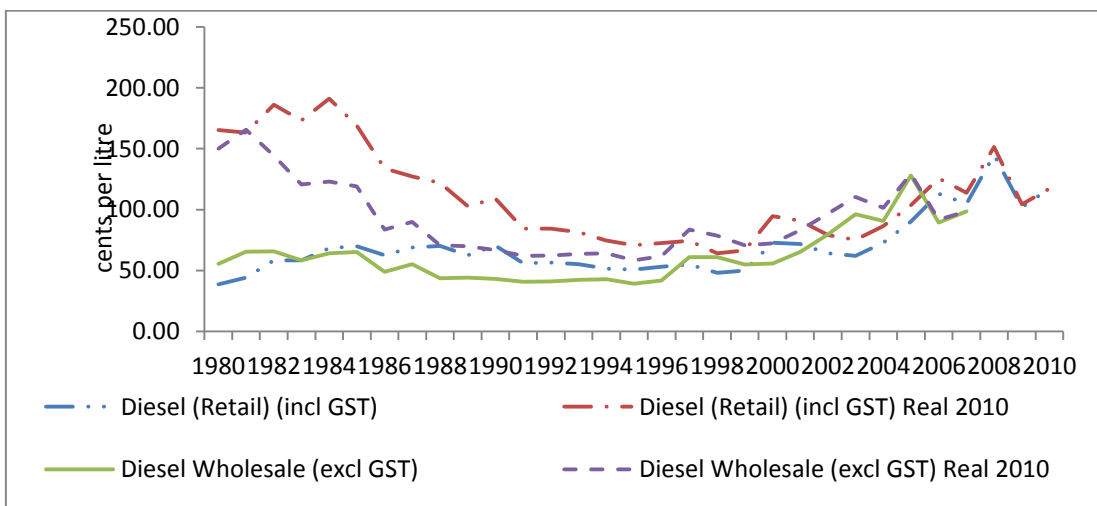


Figure 21 Diesel, retail and whole sale, Source, NZ Ministry of Economic Development Annual prices are weighted by sales

During the 16 year period between 1987 and 2002, petrol prices remained relatively stable in nominal prices, but both petrol and diesel decreased as real prices. Since 2002, real petrol prices have increased by 42.9%, a 5.37 % average yearly increase. Diesel prices have followed a similar trend increasing during 2002 to 2010 by 45%, a 5.6% average yearly increase.

	Premium Petrol	Premium Petrol	Regular Petrol	Regular Petrol	Diesel	Diesel
	<i>Incl GST</i>	<i>Incl GST</i>	<i>Incl GST</i>	<i>Incl GST</i>	<i>(Wholesale)</i>	<i>(Wholesale)</i>
					<i>(excl GST)</i>	<i>(excl GST)</i>
		Real 2010		Real 2010		Real 2010
1980	51.08	217.65	49.79	212.18		
1981	58.58	216.36	56.83	209.93		
1982	67.08	213.28	64.33	204.56		
1983	71.00	210.32	68.00	201.44	55.50	150.24
1984	78.30	218.46	75.29	210.07	65.50	165.56
1985	92.93	224.64	90.67	219.18	65.90	144.37
1986	83.85	179.04	80.16	171.16	58.30	120.78
1987	91.03	167.93	88.00	162.34	64.16	123.14
1988	89.93	155.95	87.58	151.88	65.36	119.21
1989	91.20	149.62	88.40	145.02	49.06	83.58
1990	96.28	148.86	95.83	148.18	55.20	89.86
1991	99.80	150.41	94.63	142.62	43.79	70.68
1992	100.61	150.07	96.65	144.18	44.32	70.10
1993	99.88	147.10	95.24	140.27	43.25	66.76
1994	94.95	137.45	90.01	130.30	40.82	62.17
1995	95.01	132.58	89.96	125.53	41.20	62.24
1996	95.43	130.17	90.43	123.35	42.35	63.61
1997	95.61	128.90	90.58	122.13	42.89	64.16
1998	89.85	119.60	84.85	112.94	39.26	58.36
1999	90.14	120.14	85.36	113.77	41.94	61.72
2000	111.19	144.41	107.11	139.11	61.10	83.54
2001	109.46	138.53	104.52	132.27	60.98	78.67
2002	107.92	133.02	102.85	126.76	54.97	70.83
2003	110.48	133.82	105.04	127.23	55.71	72.33
2004	122.04	144.52	116.44	137.88	65.20	83.07
2005	137.12	157.58	132.02	151.72	79.58	96.91
2006	160.94	178.94	154.95	172.28	96.33	110.45
2007	160.33	174.12	154.47	167.76	90.70	101.58
2008	186.63	194.97	180.79	188.86	128.03	129.49
2009	167.90	171.77	160.30	163.99	89.33	91.74
2010	185.39	185.39	176.79	176.79	98.55	98.55

Table 18 Petrol Diesel Prices, cents per litre. Source, NZ Ministry of Economic Development Annual prices are weighted by sales.

Freight

Freight for a prime lamb traveling 80km (80km use for consistent data from the Lincoln University Financial Budget manuals) in 1981 was \$0.87 or \$3.11 real. In 2010 it was \$1.95 per lamb a decrease of \$1.16, or 59%. (Refer figure 22)

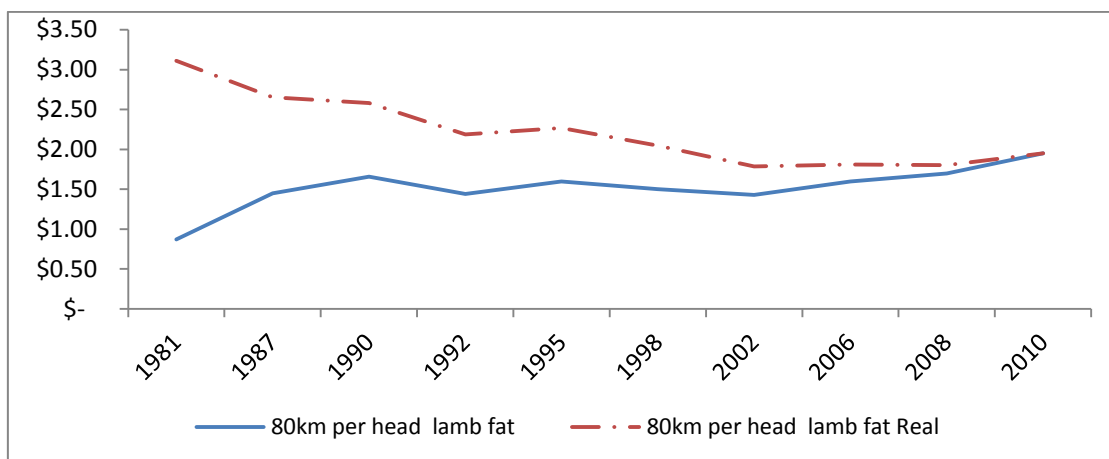


Figure 22 Freight for prime lambs per head, 80km. (Lincoln University Financial Budget Manuals) Real Dec 2010

Registration and Road user chargers

Registration for a twelve month period for an average petrol car in 1985 was \$275, real price, decreasing to \$247 in 2010, or 11.3%. Road user charges for 10 000km, two tonne, a type 1 vehicle in 1982 were \$291, real price , increased to \$355 in 2010, or 22%.

Ivomec and Round up

Ivomec pour on for cattle and Round up for pasture renovation have been two products that farmers have used over the past. Ivomec ‘pour on’ has been used in combating parasites in cattle and deer, in 1990 2.5litres of Ivomec pour on cost \$552 inflation adjusted, decreasing to \$275 in 2010, a 50.18% decrease. Round up in 1987 cost \$1534 for 20 litres, real, in 2010 it had decreased to \$138 for 20l’s, a \$1396 decrease or 91%. (Refer fig 23, table 19) due to the removal of patents.

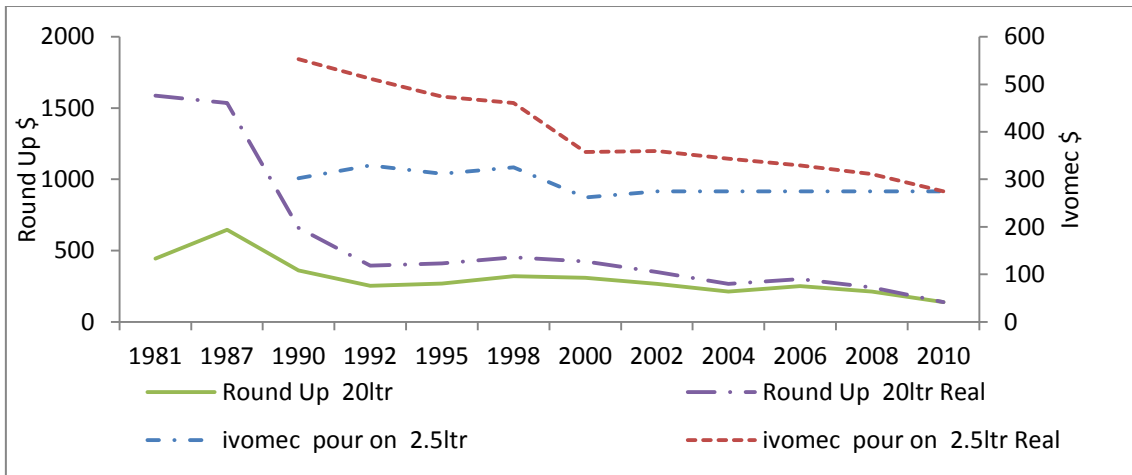


Figure 23 Ivomec 2.5l and Round up 20l. (Lincoln University Financial Budget Manuals)Real Dec 2010

	Ivomec pour on 2.5ltr	Ivomec pour on 2.5ltr Real	Round Up 20ltr	Round Up 20ltr Real
1981			444	1,586.22
1987			647	1,534.70
1990	302	552.83	360	659.00
1992	329	511.69	254	395.04
1995	312	474.27	270	410.42
1998	325	460.56	320	453.48
2000	262	357.75	310	423.29
2002	275	359.31	267	348.86
2004	275	343.55	213	266.09
2006	275	329.39	251	300.64
2008	275	311.14	213	240.99
2010	275	275.00	138	138.00

Table 19 Ivomec pour on 2.5ltr and Round up 20ltr. (Lincoln University Financial Budget Manuals) Real Dec 2010

Interest

Interest rates for floating first mortgage new customer housing have decreased from 12.98% in January 1980 to 6.39% in December 2010, a 50.77% decrease. Peak interest rates occurred June 1987 at 20.5%, with the lowest rate occurring from November 2009 to March 2010 at 5.9%. (Refer fig 24)

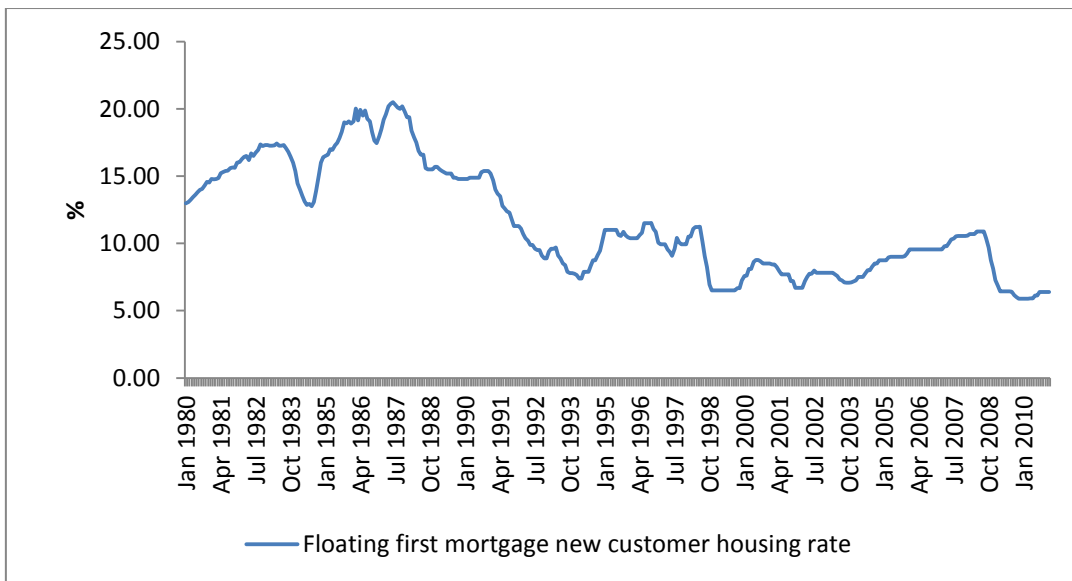


Figure 24 Floating First Mortgage Interest rates. (Reserve Bank of New Zealand.) Interest rates shown are weighted average rates.

The interest payment for the average sheep and beef farms in 1980/81 was \$68 per ha, or \$10 per S.U real. By 2009/10 they have increased to \$76 per ha or 11.76% per ha and \$12 per S.U or 20% per S.U. (Refer figure 25, table 20)

The increase in interest payments corresponds with the increase in term liabilities, from \$759 per ha in 1980/81 to \$948 per ha in 2009/10 a 24.9%. Refer more to this in chapter 3 for more details.

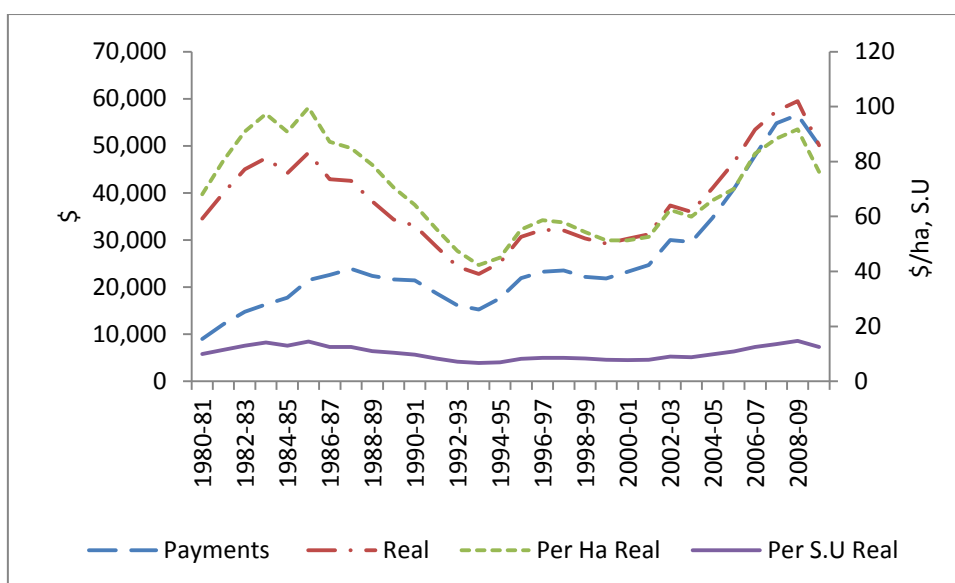


Figure 25 Average Interest payments for sheep and beef farms. (Beef + Lamb NZ Economic Service, farm survey).

Average interest payments for sheep and beef farms

	Payments	Interest Real	Interest Per Ha Real	Interest Per S.U Real
1980-81	8,964	34,565	68	10
1981-82	12,137	40,007	80	11
1982-83	14,782	44,994	91	13
1983-84	16,305	47,394	97	14
1984-85	17,736	44,208	91	13
1985-86	21,509	48,554	100	14
1986-87	22,619	42,927	87	12
1987-88	23,862	42,585	85	13
1988-89	22,379	38,242	79	11
1989-90	21,642	34,362	71	10
1990-91	21,398	33,044	64	10
1991-92	18,729	28,644	56	8
1992-93	16,154	24,386	47	7
1993-94	15,269	22,801	42	7
1994-95	17,647	25,197	45	7
1995-96	21,906	30,665	55	8
1996-97	23,237	32,168	59	9
1997-98	23,524	32,033	58	9
1998-99	22,193	30,330	54	8
1999-00	21,808	29,220	51	8
2000-01	23,301	30,242	51	8
2001-02	24,715	31,217	53	8
2002-03	30,008	37,351	62	9
2003-04	29,570	35,954	60	9
2004-05	34,688	41,010	66	10
2005-06	40,899	46,502	70	11
2006-07	47,937	53,436	83	13
2007-08	54,811	57,374	88	13
2008-09	56,586	59,517	92	15
2009-10	50,086	50,086	76	12

Table 20 Average Interest payments for sheep and Beef farmers. (Beef + Lamb NZ Economic Service, farm survey)

Local body Rates

Local body rates from 1993 to 2009 have all increased

- District Council 72.6%
- Regional Council 74.4%
- City Council 65.3%

Excluded are Chatham Island and Regional transport rates.
(Refer to fig 26, table 21)

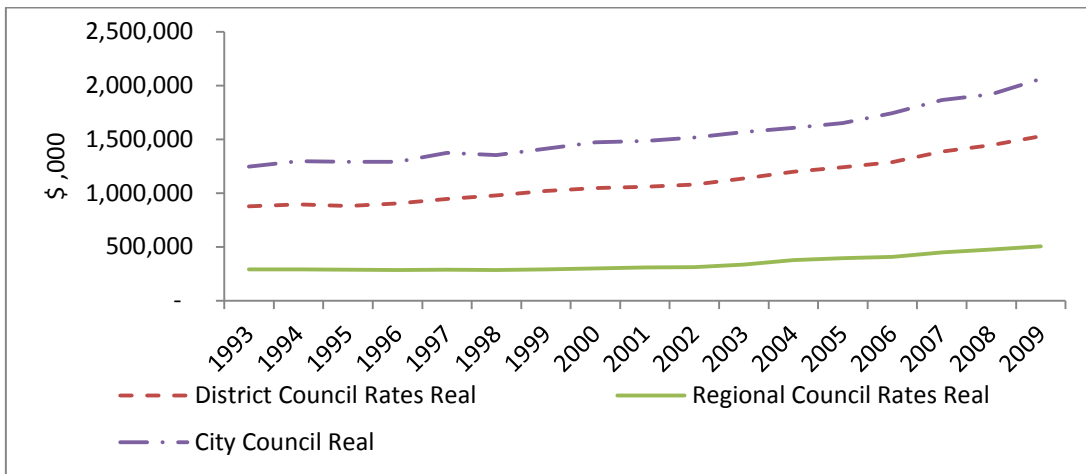


Figure 26 Council Rates income, \$, 000 excluding Regional Transport and Chatham Island rates. (Statistics NZ) Real Dec 2010

	Regional Council Rates Real	District Council Rates Real	City Council Real
1993	875,857	291,990	1,246,852
1994	896,090	290,029	1,297,276
1995	879,575	286,681	1,289,994
1996	902,462	285,139	1,290,337
1997	944,892	286,291	1,373,919
1998	977,839	285,064	1,353,349
1999	1,018,701	290,294	1,413,433
2000	1,047,154	299,112	1,470,722
2001	1,058,509	307,277	1,482,846
2002	1,078,655	310,314	1,516,155
2003	1,134,524	334,213	1,566,934
2004	1,198,717	378,306	1,607,396
2005	1,238,791	394,082	1,651,724
2006	1,288,799	406,547	1,743,563
2007	1,386,114	448,903	1,865,432
2008	1,445,835	476,555	1,919,508
2009	1,527,870	504,008	2,061,230

Table 21 Council rates income, \$, 000 excluding Regional Transport and Chatham Island rates. (Statistics NZ) Real Dec 2010

Sheep and beef farm real cost of rates per hectare in 1980/81 were \$10.89 per ha, 2009/10 they were \$14.82 per ha real, an increase of 26.51% from 1980/81.

The real cost of rates in 1980/81 relative to 2000/01 have increased from \$10.89 per ha to \$13.32 per ha or 22.31%. From 2000/01 to 2009/10 the average farm rates per hectare has increased by 9.31%. (Refer fig 27, table 22)

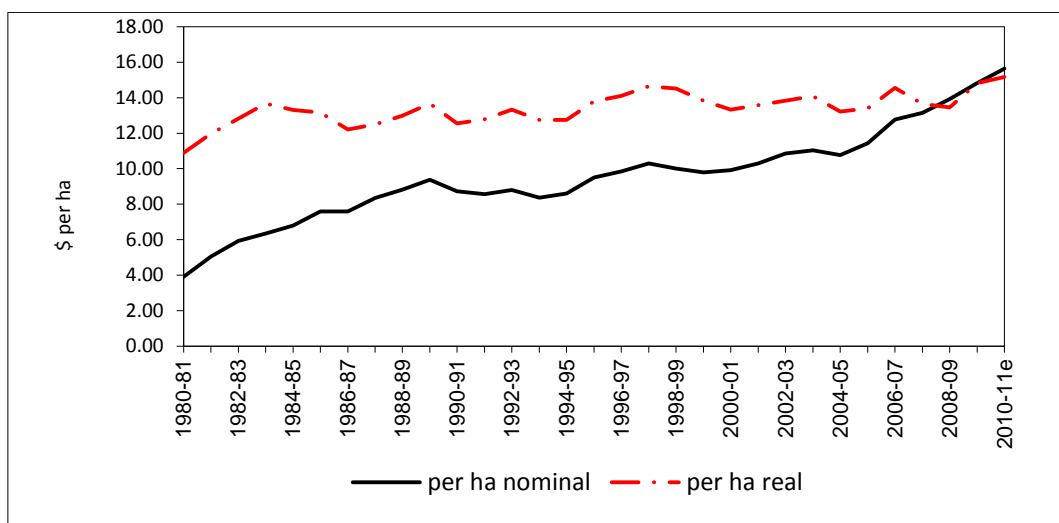


Figure 27 Farm Rates per ha. Sheep and Beef farm Survey All Classes (Beef + Lamb NZ Economic Services) (Real 2009-2010\$)

Sheep and beef farm rates

	Rates \$ per ha.	Rates \$ per ha. Real
1980-81	3.92	10.89
1981-82	5.04	11.98
1982-83	5.94	12.82
1983-84	6.34	13.67
1984-85	6.80	13.31
1985-86	7.60	13.16
1986-87	7.59	12.20
1987-88	8.35	12.49
1988-89	8.82	12.98
1989-90	9.37	13.67
1990-91	8.72	12.55
1991-92	8.56	12.79
1992-93	8.80	13.32
1993-94	8.36	12.75
1994-95	8.60	12.75
1995-96	9.50	13.80
1996-97	9.85	14.11
1997-98	10.29	14.64
1998-99	10.00	14.51
1999-00	9.80	13.84
2000-01	9.92	13.32
2001-02	10.30	13.58
2002-03	10.85	13.83
2003-04	11.03	14.09
2004-05	10.76	13.21
2005-06	11.44	13.40
2006-07	12.77	14.56
2007-08	13.14	13.66
2008-09	13.93	13.45
2009-10p	14.82	14.82
2010-11e	15.64	15.17

Table 22 Sheep and Beef farm rates per ha. Sheep and Beef farm Survey All Classes (Beef + Lamb NZ Economic Services) (Real 2009-2010\$)

Example of Land Valuation and Rate increases

The Government valuation, land only, (GV) for a 316.8763 hectare deer farm in Central Hawkes Bay in 1996/97 ranged from \$900 000 or \$1 245 906 real (Dec 2010). In 2010 the GV land was \$3,434,795.00 an increase of 63.73%, 4.9% increase per annum from the real value.

Rates in 1996/97 for the above farm were \$6,777.00 real or \$31.16 per ha, 54.71% more than the average sheep and beef farm. In 2010 the total rates were \$12,963.00 or \$39.45 per ha, a 21.01% increase from 1996/97, 62.43% more than the average sheep and beef farm. (Figure fig 28, table 23)

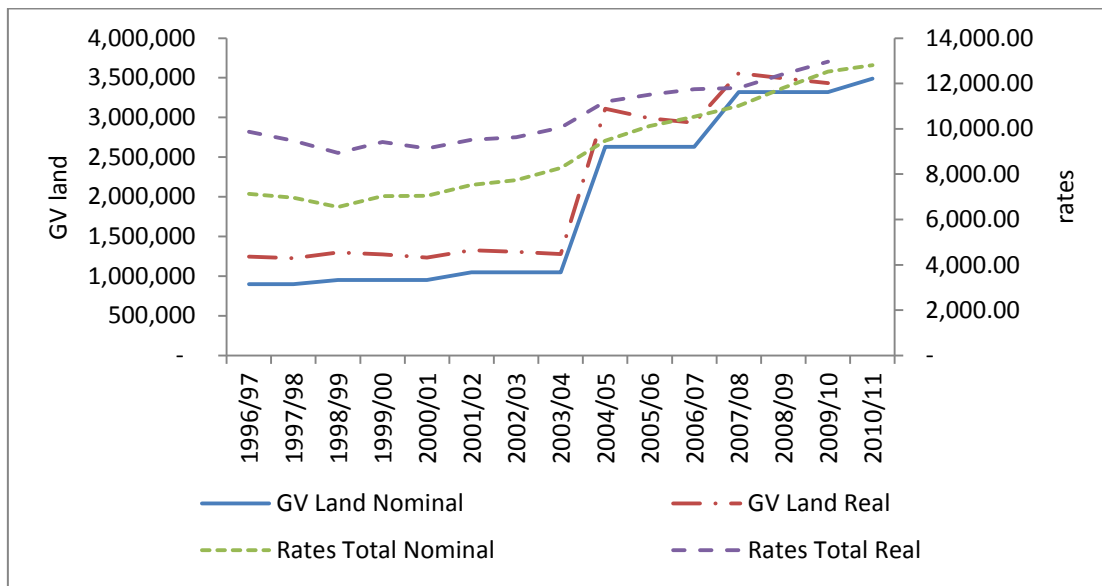


Figure 28 Government Land valuation and Rates for 316 ha Deer farm, Tikokino, Central HB. (Real Dec 2010)

The Steyning land value and rates total

	GV Land	GV Land	GV ha	Rates Total	Rates Total	Rates ha
	Nominal	Real	Real	Nominal	Real	Real
1996/97	900,000	1,245,906.00	3,931.84	7,133.50	9,875.00	31.16
1997/98	900,000	1,225,538.00	3,867.56	6,957.90	9,474.00	29.90
1998/99	950,000	1,298,335.00	4,097.29	6,545.00	8,944.00	28.23
1999/00	950,000	1,272,876.00	4,016.95	7,033.00	9,423.00	29.74
2000/01	950,000	1,232,991.00	3,891.08	7,038.00	9,134.00	28.83
2001/02	1,050,000	1,326,249.00	4,185.38	7,529.75	9,511.00	30.01
2002/03	1,050,000	1,306,925.00	4,124.40	7,733.40	9,625.00	30.37
2003/04	1,050,000	1,276,694.00	4,029.00	8,271.10	10,056.00	31.73
2004/05	2,630,000	3,109,303.00	9,812.36	9,468.25	11,193.00	35.32
2005/06	2,630,000	2,990,310.00	9,436.84	10,125.00	11,512.00	36.33
2006/07	2,630,000	2,931,676.00	9,251.80	10,536.00	11,744.00	37.06
2007/08	3,320,000	3,557,813.00	11,227.77	11,012.00	11,800.00	37.24
2008/09	3,320,000	3,491,988.00	11,020.04	11,798.00	12,409.00	39.16
2009/10	3,320,000	3,434,795.00	10,839.55	12,530.00	12,530.00	39.54
2010/11	3,490,000			12,812.00		

Table 23 Government Land valuation and Rates for 'The Steyning' 316 ha Deer farm, Tikokino, Central HB. Real Dec 2010

Managerial Salaries

Managerial salaries have increased from \$1,534.66 a month in 1980/81 real to \$2,399.00 in 2009/10, a 36.05% increase. Broken down into a per hectare cost, salaries increased from \$3.02/ha to \$3.65/ha, a 17.26% increase, but they have decreased as a per stock unit basis by 26.10% from \$2.26 per S.U 1980/81 real to \$1.67 per S.U 2009/10. (Refer to figure 29, table 24)

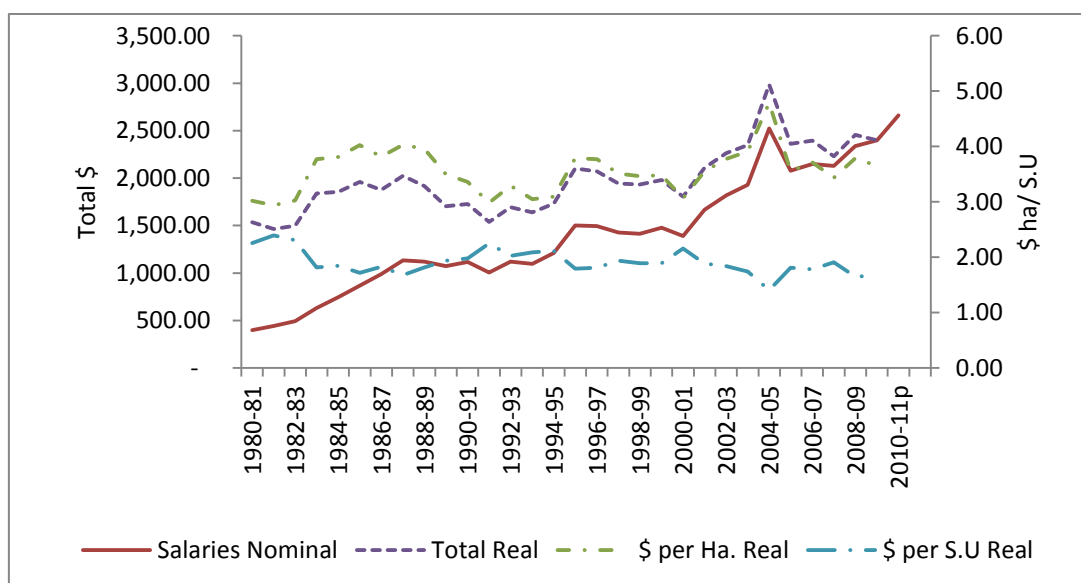


Figure 29 Managerial Salaries, all classes. (Beef + Lamb NZ Economic Service) (Real June 2010)

From 2000/01 to 2009/10 real salaries have increased by 32.98%, but this has been offset by the increase in the size of the farms that are employing managers, from an average size of 589ha to 657ha, or 11.54%. 19.28% per ha increase.

Managerial salaries

	Total			Total Real	\$ per Ha. Real	\$ per S.U Real	Total Effective Area Ha.
	Nominal	\$ per Ha.	\$ per S.U				
1980-81	398.00	0.78	0.11	1534.66	3.02	2.26	508
1981-82	444.00	0.89	0.13	1463.56	2.94	2.40	498
1982-83	492.00	0.99	0.14	1497.57	3.03	2.31	495
1983-84	632.00	1.3	0.19	1837.06	3.77	1.82	487
1984-85	745.00	1.53	0.22	1856.95	3.81	1.84	487
1985-86	868.00	1.78	0.26	1959.41	4.02	1.72	487
1986-87	989.00	2.01	0.29	1876.97	3.81	1.83	492
1987-88	1,134.00	2.26	0.33	2023.76	4.03	1.68	502
1988-89	1,122.00	2.31	0.32	1917.30	3.95	1.82	485
1989-90	1,073.00	2.2	0.32	1703.65	3.50	1.94	487
1990-91	1,118.00	2.18	0.33	1726.49	3.36	1.98	514
1991-92	1,006.00	1.95	0.29	1538.59	2.98	2.25	516
1992-93	1,121.00	2.18	0.33	1692.26	3.29	2.02	514
1993-94	1,098.00	2.04	0.32	1639.60	3.05	2.09	538
1994-95	1,213.00	2.17	0.33	1731.99	3.09	2.12	560
1995-96	1,501.00	2.7	0.40	2101.17	3.79	1.79	555
1996-97	1,495.00	2.72	0.40	2069.59	3.77	1.81	549
1997-98	1,427.00	2.58	0.38	1943.16	3.51	1.94	554
1998-99	1,414.00	2.53	0.39	1932.43	3.46	1.89	558
1999-00	1,479.00	2.6	0.39	1981.67	3.48	1.89	569
2000-01	1,390.00	2.36	0.36	1804.06	3.06	2.16	589
2001-02	1,668.00	2.81	0.42	2106.84	3.55	1.89	593
2002-03	1,818.00	3.04	0.44	2262.85	3.78	1.84	599
2003-04	1,930.00	3.22	0.47	2346.69	3.91	1.74	600
2004-05	2,524.00	4.05	0.60	2983.98	4.79	1.41	623
2005-06	2,078.00	3.13	0.49	2362.69	3.56	1.81	664
2006-07	2,148.00	3.33	0.50	2394.39	3.71	1.78	645
2007-08	2,129.00	3.28	0.50	2228.57	3.43	1.91	649
2008-09	2,336.00	3.6	0.58	2457.01	3.79	1.65	649
2009-10	2,399.00	3.65	0.60	2399.00	3.65	1.67	657
2010-11p	2,663.00	4.05					

Table 12 Managerial Salaries, Monthly. All classes. (Beef + Lamb NZ Economic Services, farm survey)(Real June 2010

Sub Total Farm Working Expenses

The sub total 'working expenses' – include

- Wages,
- Animal Health,
- Weed and Pest Control,
- Shearing Expenses,
- Fertiliser,
- Lime,
- Seeds,
- Vehicle Expenses,
- Fuel, Electricity,
- Feed & Grazing,
- Irrigation Charges,
- Cultivation and Sowing,
- Cash Crop Expenses,
- Repairs and Maintenance,
- Cartage,
- Administration Expenses.

but excludes Interest payments

Real farm working expenses have decreased by \$6.66 per hectare from \$327.82ha in 1980/81 to \$306.00ha in 2009/10, an average decrease rate of 2.17% per annum.

Farm working expenses per stock unit over the same period have increased by 4%, from \$48.12 per S.U to \$50.12 per S.U, (Refer figure 30, table 24) real. This increase is reflected in the decrease of the stocking rate on sheep and beef farms of 14%, from 6.98 a stock unit per effective hectare in 1980/81 to 6.11 per S.U ha 2009/10, (refer table 1, p14)

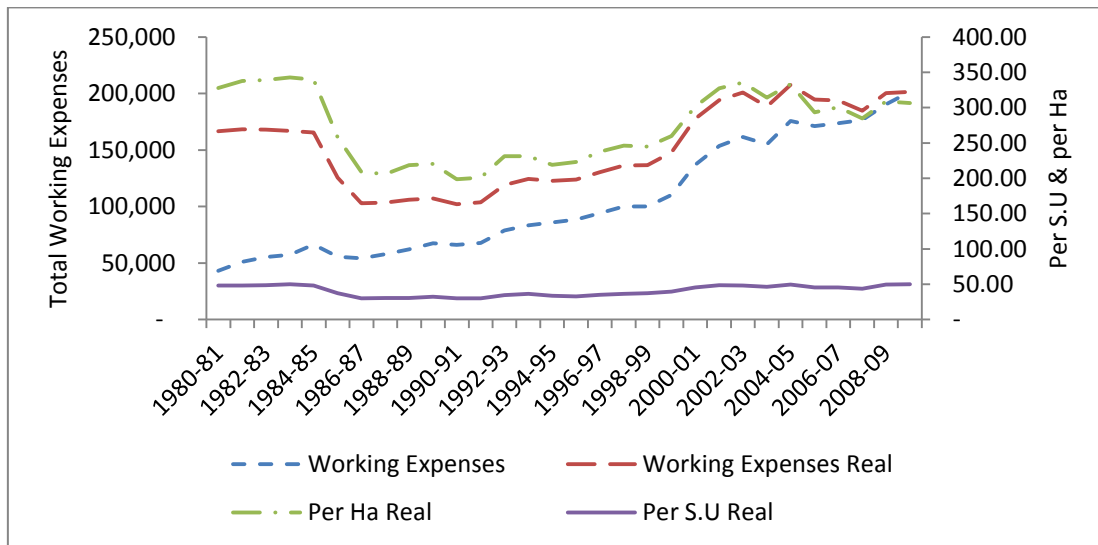


Figure 30 Total Working Expenses. (Beef + Lamb Economic Service, NZ farm survey) (Real June 2010)

Sub Total farm working expenses

Year	Working Expenses	Working Expenses Real	Working Expenses \$ Per Ha Real	Working Expenses \$ Per S.U Real
1980-81	43,189	166,534	327.82	48.12
1981-82	51,023	168,188	337.73	47.96
1982-83	55,169	167,926	339.24	48.60
1983-84	57,381	166,792	342.49	49.92
1984-85	66,354	165,390	339.61	48.30
1985-86	55,602	125,515	257.73	37.30
1986-87	54,215	102,892	209.13	29.95
1987-88	57,941	103,403	205.98	30.47
1988-89	61,969	105,894	218.34	30.41
1989-90	67,562	107,271	220.27	32.48
1990-91	66,086	102,055	198.55	29.88
1991-92	67,800	103,694	200.96	29.99
1992-93	78,761	118,898	231.32	34.72
1993-94	83,294	124,380	231.19	36.29
1994-95	85,928	122,693	219.09	33.49
1995-96	88,391	123,734	222.94	32.84
1996-97	94,192	130,394	237.51	34.84
1997-98	100,166	136,397	246.20	36.21
1998-99	99,971	136,624	244.85	37.33
1999-00	110,302	147,790	259.74	39.38
2000-01	136,900	177,681	301.66	45.63
2001-02	153,709	194,149	327.40	48.81
2002-03	161,464	200,973	335.51	48.22
2003-04	154,910	188,355	313.93	46.15
2004-05	175,684	207,701	333.39	49.54
2005-06	171,240	194,700	293.22	45.55
2006-07	173,806	193,743	300.38	45.39
2007-08	176,436	184,688	284.57	43.45
2008-09	190,400	200,263	308.57	49.50
2009-10	201,328	201,328	306.44	50.12
2010-11p	215,361.00	-	-	-
2011-12e	226,095.00	-	-	-

Table 13 Sub Total Farm Working expenses, (Beef + Lamb Economic Service, farm survey). (Real June 2010)

Conclusion Expenses

The average real farm expenses have decreased by 2.65%, over the past 30 years. The decrease on working expenses have mainly been driven by the decrease in prices of commodity items (Refer Fig 31)

- Fertilizer
- Electricity
- Fencing hardware
- Fuel
- Fright

As well as

- Floating interest rates

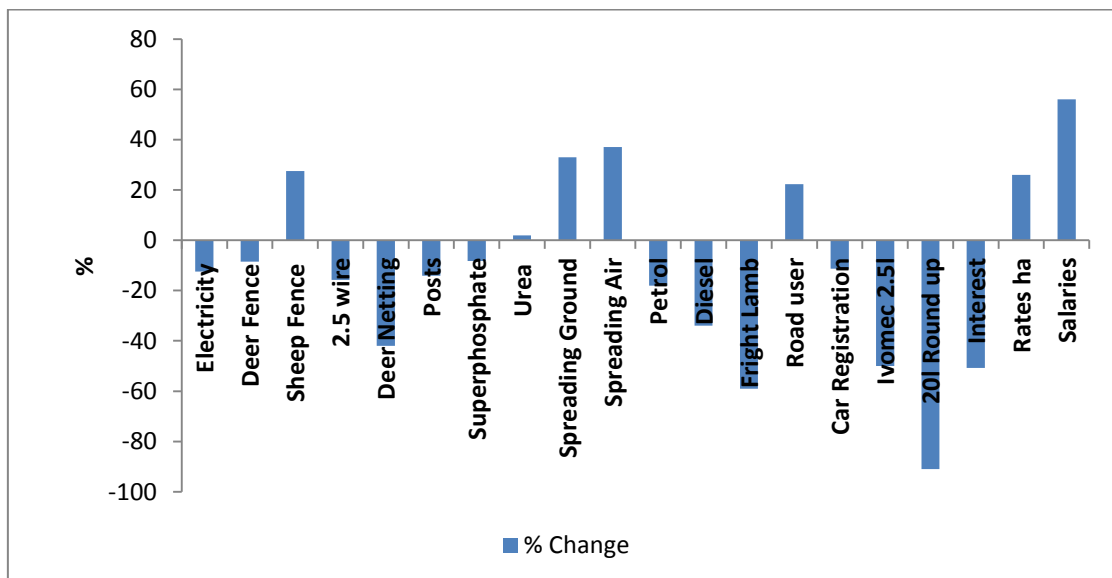


Figure 31 Percentage changes of costs over thirty years.

The lowest point for real expenses over the past thirty years was during the 1990's after most expenses decreased from the mid 1980's and stayed relatively static for the next 15 years until 2000/01. Most expenses from 2000/01 to 2009/10 increased, with rises from 11.26% for rates per ha to 65.77% for urea, with the sub total average expenses on farms increasing by 19.28%. (Refer Fig 32)

Expenses that have increased are

- Rates
- Salaries
- Road user charges
- Fertilizer Spreading

These expenses are non-commodity items are subject to legalisation being imposed by central and local government.

While Regional and District Council rates income increased by 72% (refer figure 26) from 1992/93 to 2008/09 a 4.23% increase per year above inflation. The average rates on a sheep and beef farm have only increased by 10.12%, (refer figure 27). The difference can be attributed to the fact that some farms, those that are classed as easier country with a potential to be either developed into dairy or have the ability to be irrigated, have had significant rate increases, Refer to the example fig 28, table 23 pages 67, 68 68, where the rates per hectare have increased by 91.3% per ha over the same period, (Refer fig 28).

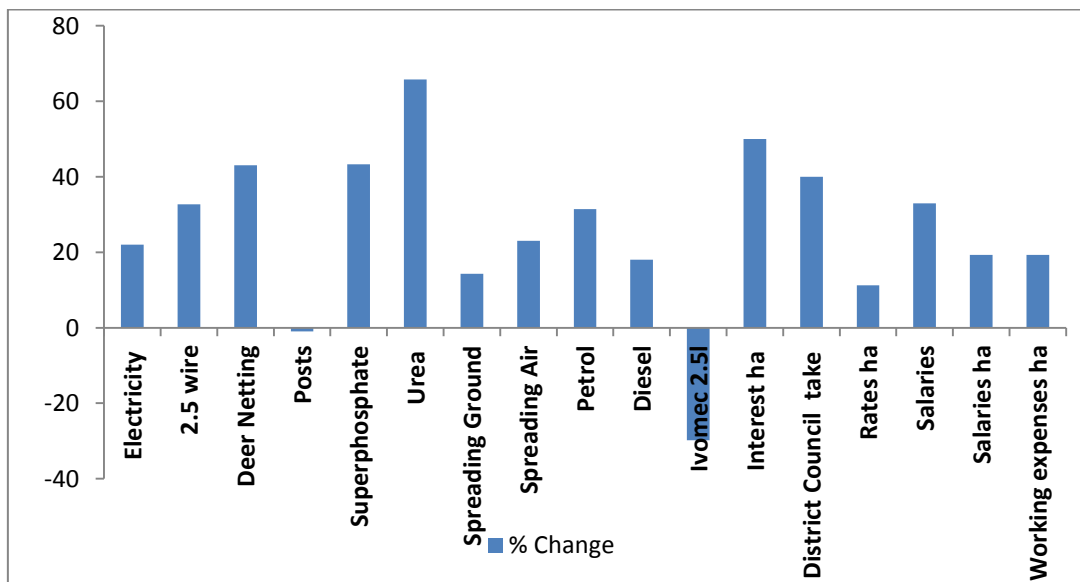


Figure 32 Percentage change of farm costs from 2000/01 to 2009/10 Real 2010

Chapter 3

Land Values and Term Liabilities

Chapter 3 looks at the movement in land values and debt. Questions considered are 'how have they changed over the past thirty years' and 'have term liabilities increased at the same rate?'

Land price corrections tend to be triggered by major events. Examples are the major economic reforms of 1980 to 1990, the Asian financial crises and droughts in the late 1990s, and more recently the global financial crises.

Freehold Land values

Freehold land values for sheep and beef farms have increased from 1983/84 from \$3,509 ha to \$6,880 per ha in 2009/10, real, a 96.06% increase. Land values have not had a steady rise with a decrease of 61.58% from 1983/84 to 1987/88 from \$3,509 ha to \$1,348ha. For the next 13 years, from 1987/88 to 2000/01, land increased by 7% per annum. Over the next seven years land values increased at 19.3% per annum, from \$2,602 per ha in 2000/01 to \$7,634 per ha by 2008/09, driven by the expectation of capital gain, the expansion of available credit, and sheep, beef farms being sold for dairy conversions. From 2000/01 to 2009/10 real land values have increased by 164.41%.

The main overall increase was in the per stock unit value, increasing by 120% a S U, from \$511 per S.U in 1983/84 inflation adjusted to \$1,125 per S.U. in 2008/09. This increase is partly due to the decrease in stock units per hectare, down 11.8% from 6.81 S.U per ha in 1983/84 to 6.09 S.U per ha in 2009/10.

In 2009/10 the effects of the financial crises with the tightening of available credit coupled with falling revenue in the dairy sector contributed to the fall in land values from the high in 2008/09 of \$7,634 per ha to \$6,880 per ha the following year, a 10.5% decrease for sheep and beef farm values. (Refer figure 33, table 26)

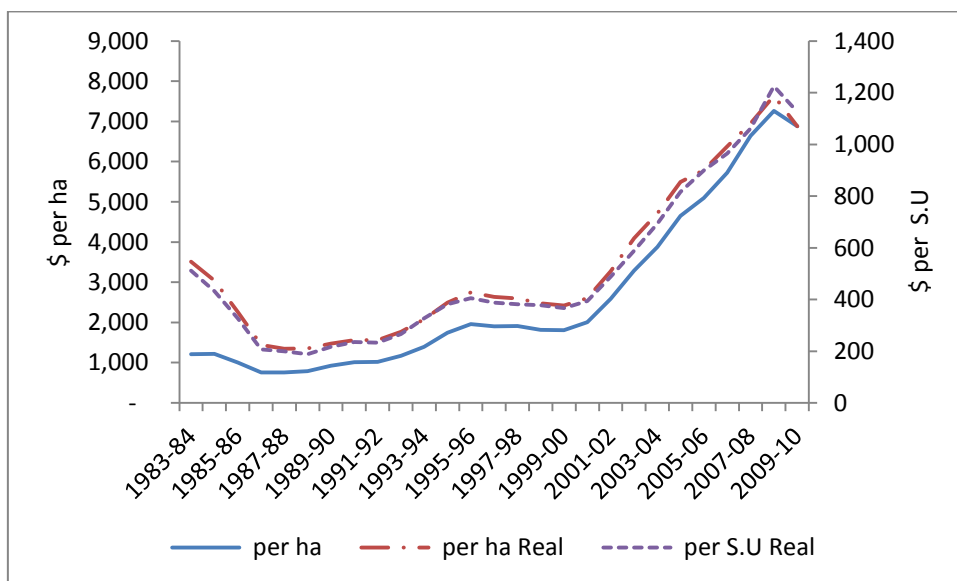


Figure 33 Freehold Land Values, Sheep and beef farms. (Beef + Lamb NZ Economic Service, farm survey) (Real June 2010)

Note This includes land plus buildings – but does not include the homestead as the values of homesteads can vary greatly, skewing the results.

Freehold sheep and beef farm values

	Average Farm	Average Farm	per ha	per S.U
		Real	Real	Real
1983-84	587,865	1,708,770	3,509	511
1984-85	594,304	1,481,330	3,042	433
1985-86	487,275	1,099,967	2,259	327
1986-87	373,320	708,504	1,440	206
1987-88	379,134	676,610	1,348	199
1988-89	384,124	656,400	1,353	189
1989-90	450,732	715,647	1,470	217
1990-91	519,790	802,696	1,562	235
1991-92	527,713	807,093	1,564	233
1992-93	603,204	910,596	1,772	266
1993-94	749,826	1,119,687	2,081	327
1994-95	978,278	1,396,837	2,494	381
1995-96	1,089,174	1,524,680	2,747	405
1996-97	1,046,695	1,448,981	2,639	387
1997-98	1,056,708	1,438,929	2,597	382
1998-99	1,010,907	1,381,547	2,476	377
1999-00	1,028,548	1,378,120	2,422	367
2000-01	1,180,746	1,532,473	2,602	394
2001-02	1,536,780	1,941,098	3,273	488
2002-03	1,970,077	2,452,136	4,094	588
2003-04	2,325,724	2,827,847	4,713	693
2004-05	2,894,915	3,422,497	5,494	816
2005-06	3,381,700	3,844,992	5,791	900
2006-07	3,691,547	4,114,989	6,380	964
2007-08	4,310,406	4,511,999	6,952	1,061
2008-09	4,710,239	4,954,247	7,634	1,224
2009-10	4,520,436	4,520,436	6,880	1,125

Table 26 Freehold Land Values. (Beef + Lamb NZ Economic Service, farm survey)(Real June 2010)

Note this includes land plus buildings – but does not include the homestead as the values of homesteads can vary greatly, skewing the results.

Dairy farm land sale values

The value of dairy farm sales decreased by 16.32% over a similar period from 2008 at \$36,435 per ha to \$31,323 per ha in 2009.

Dairy farm land sales values have increased by 215% since 1990, from \$9,935 per ha to \$31,323 per ha in 2010 (refer figure 32, table 27)

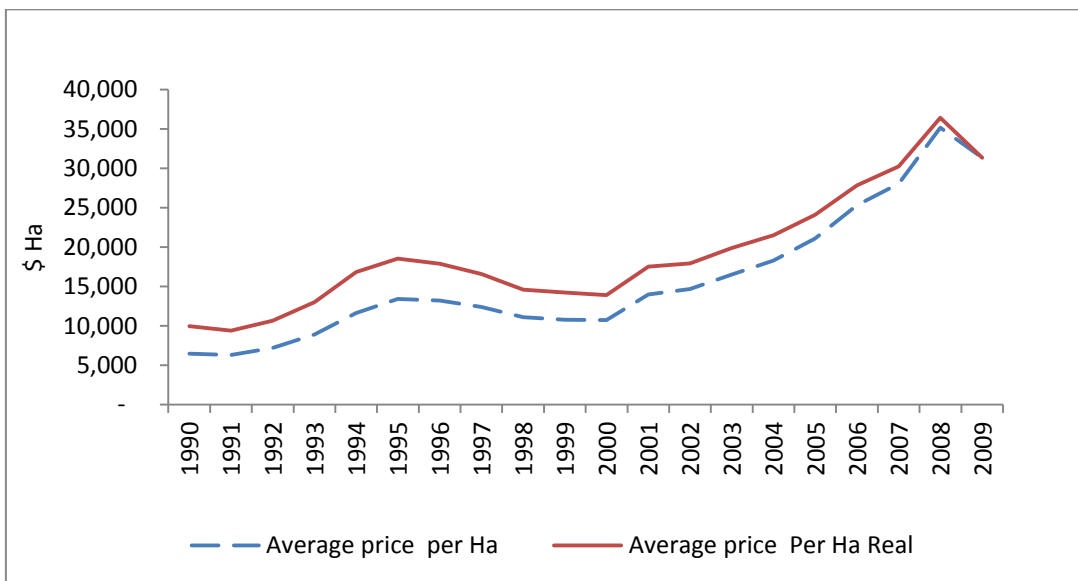


Figure 34 Dairy farm land sales values, (NZ Dairy Statistics 2009/10)(Real Dec 2009)

Dairy farm land sales values have increased from 2000 to 2009 at an average rate of 12.5% per annum, a total of 125%.

Dairy Farm land sale values

	per Ha	Per Ha Real
1990	6,467	9,935
1991	6,283	9,390
1992	7,183	10,634
1993	8,903	13,006
1994	11,640	16,825
1995	13,400	18,518
1996	13,187	17,864
1997	12,388	16,598
1998	11,076	14,591
1999	10,759	14,225
2000	10,740	13,915
2001	13,959	17,528
2002	14,658	17,915
2003	16,498	19,877
2004	18,287	21,514
2005	21,085	24,110
2006	25,308	27,839
2007	28,035	30,234
2008	35,143	36,435
2009	31,323	31,323

Table 27 Dairy farm land sales values, (NZ Dairy Statistics 2009/10) (Real Dec 2009)

Term Liabilities

Sheep and Beef farms term liabilities

Sheep and beef farms term liabilities have increased from \$759 per ha, and \$111 per S.U in 1983/84 to \$948 per ha, \$155 per S.U in 2009/10 and 24.9% per ha, or 39.6% per S.U increase.

From 1983/84 to 1994/95 term liabilities decreased to \$425 per ha, or \$65 per S.U but have increased at 8.2% per ha or 9.2% per S.U a year to 2010 from their low point in 1994/95 (Refer fig 35, table 28) this increase in term liabilities is in line with the increase in land values.

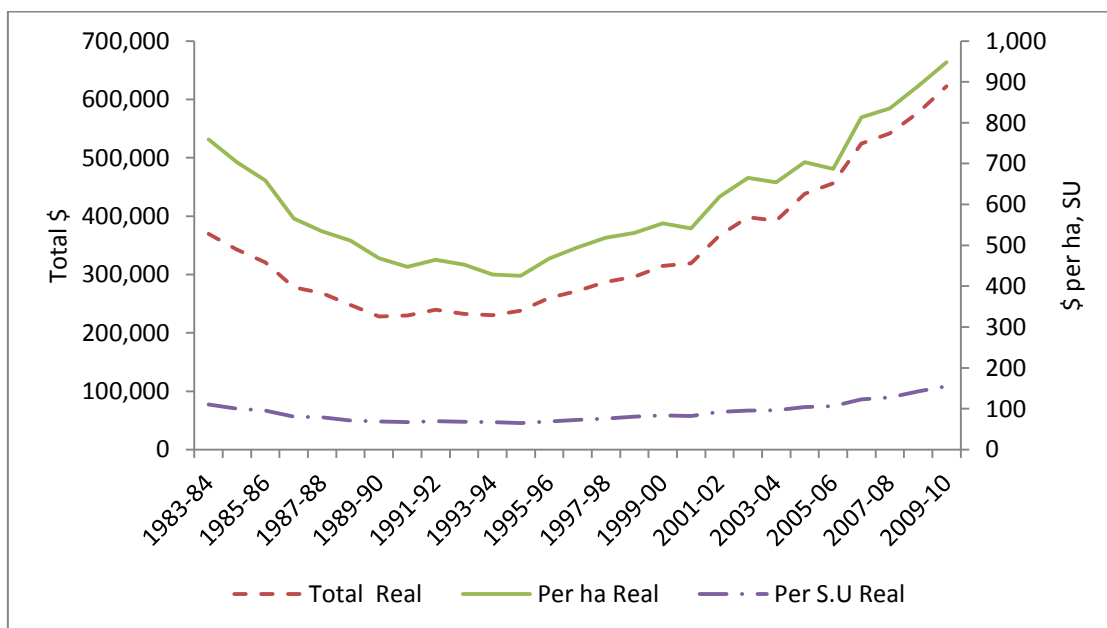


Figure 35 Term Liabilities for Sheep and Beef farms (Beef + Lamb NZ Economic Service, farm survey) (Real June 2010)

Term liabilities from 2000/01 to 2009/10 have increased by

- per hectare 75%
- per stock unit 89%

Term liabilities sheep and beef farms

	Total	Total Real	\$ per ha Real	\$ per S.U Real
1983-84	127,233	369,833	759	111
1984-85	137,485	342,688	704	100
1985-86	142,176	320,946	659	95
1986-87	146,549	278,127	565	81
1987-88	150,186	268,025	534	79
1988-89	145,089	247,931	511	71
1989-90	143,688	228,140	468	69
1990-91	148,848	229,861	447	67
1991-92	156,822	239,846	465	69
1992-93	154,106	232,638	453	68
1993-94	154,309	230,424	428	67
1994-95	166,777	238,133	425	65
1995-96	185,499	259,671	468	69
1996-97	196,395	271,877	495	73
1997-98	210,846	287,111	518	76
1998-99	216,670	296,110	531	81
1999-00	235,068	314,960	554	84
2000-01	245,811	319,035	542	82
2001-02	290,540	366,979	619	92
2002-03	319,906	398,184	665	96
2003-04	322,602	392,252	654	96
2004-05	370,550	438,081	703	104
2005-06	401,382	456,371	687	107
2006-07	470,375	524,330	813	123
2007-08	517,530	541,734	835	127
2008-09	549,037	577,479	890	143
2009-10	622,675	622,675	948	155

Table 28 Term Liabilities for sheep and beef farms (Beef + Lamb NZ Economic Service, farm survey) (Real June 2010)

Debt servicing

Interest payments for sheep and beef farms have increased by 11.76% per ha or 20% per S.U from \$68 per ha or \$10 per S.U in 1980/81, to \$76 per ha or \$12 per S.U in 2009/10. (Refer table 36, table 29)

Over this same period interest rates for floating first mortgage new customer housing had decreased from 12.98% in January 1980 to 6.39% in December 2010, a 50.77% decrease, (Refer fig 36, table 29).

The increase in debt servicing is the result of the 24.9% increase in term liabilities.

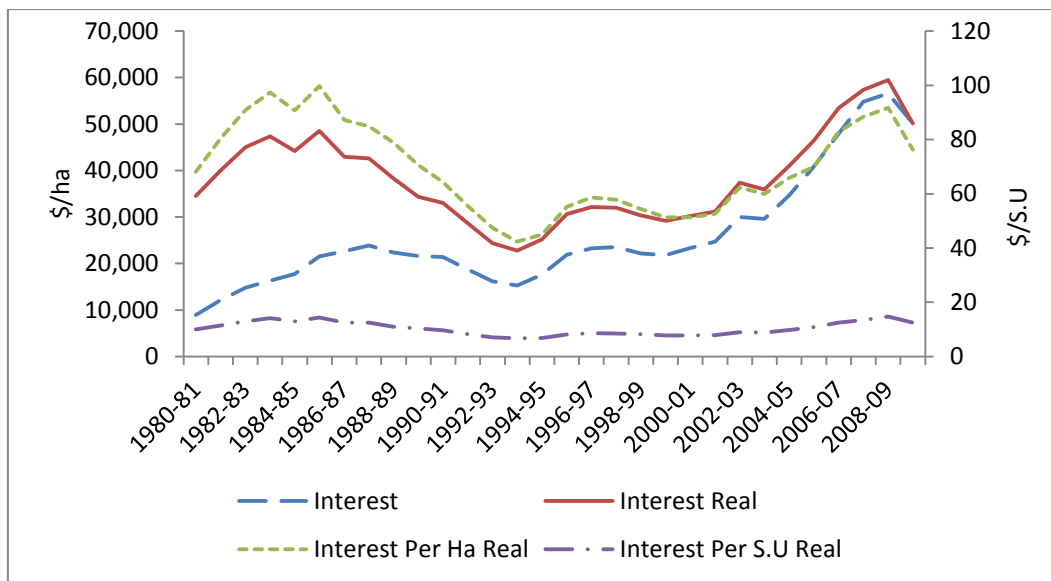


Figure 36 Interest payments, sheep and beef farms (Beef + Lamb NZ Economic Service, farm survey)(Real June 2010)

Interest Payments				
	Payments	Payments Real	\$ Per Ha Real	\$ Per S.U Real
1982-83	14,782	44,994	91	13
1983-84	16,305	47,394	97	14
1984-85	17,736	44,208	91	13
1985-86	21,509	48,554	100	14
1986-87	22,619	42,927	87	12
1987-88	23,862	42,585	85	13
1988-89	22,379	38,242	79	11
1989-90	21,642	34,362	71	10
1990-91	21,398	33,044	64	10
1991-92	18,729	28,644	56	8
1992-93	16,154	24,386	47	7
1993-94	15,269	22,801	42	7
1994-95	17,647	25,197	45	7
1995-96	21,906	30,665	55	8
1996-97	23,237	32,168	59	9
1997-98	23,524	32,033	58	9
1998-99	22,193	30,330	54	8
1999-00	21,808	29,220	51	8
2000-01	23,301	30,242	51	8
2001-02	24,715	31,217	53	8
2002-03	30,008	37,351	62	9
2003-04	29,570	35,954	60	9
2004-05	34,688	41,010	66	10
2005-06	40,899	46,502	70	11
2006-07	47,937	53,436	83	13
2007-08	54,811	57,374	88	13
2008-09	56,586	59,517	92	15
2009-10	50,086	50,086	76	12

Table 29 Interest Payments for sheep and beef farms, (Beef + Lamb NZ Economic Service, farm survey) (Real June 2010)

Conclusion

The average sheep and beef farm 1982/83 value was \$3,509 per ha, with term liabilities of \$759 per ha real. This represents an average equity ratio of 78%. In 2009/10 the value was \$6,880 per ha with term liabilities of \$948 per ha, an equity ratio of 86%, an increase in the equity ratio of 9.3%. The average sheep and beef farmer were better off by the end of 2009/10 than they were in 1982/83, in regard to their equity ratio due to the increase in land values (Refer fig 35)

The increase in debt servicing over this period meant that farmers were paying more to service their debt which had increased by 11.6%, due to their increase in term liabilities of 24.9% per ha. The full amount of the increase in term liabilities was offset by the decrease in the cost of money, interest rates by 50%.

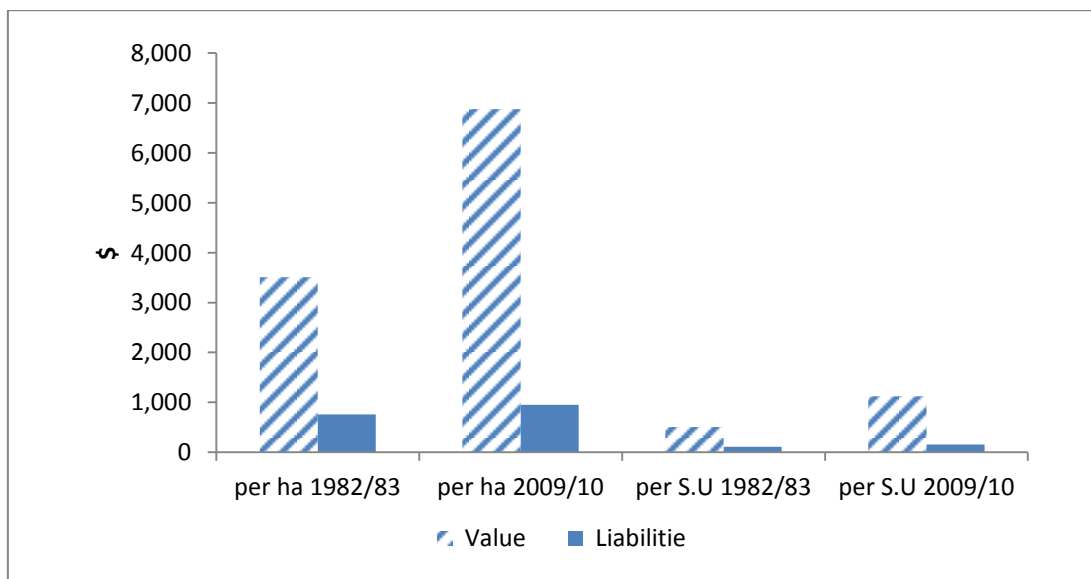


Figure 37 Change in land values and liabilities of sheep and beef farms

From 2000/01 to 2009/10 the biggest change occurred with farm values increasing by 164.41%, correspondingly term liabilities have increased by 95% with debt servicing increasing by 65%.

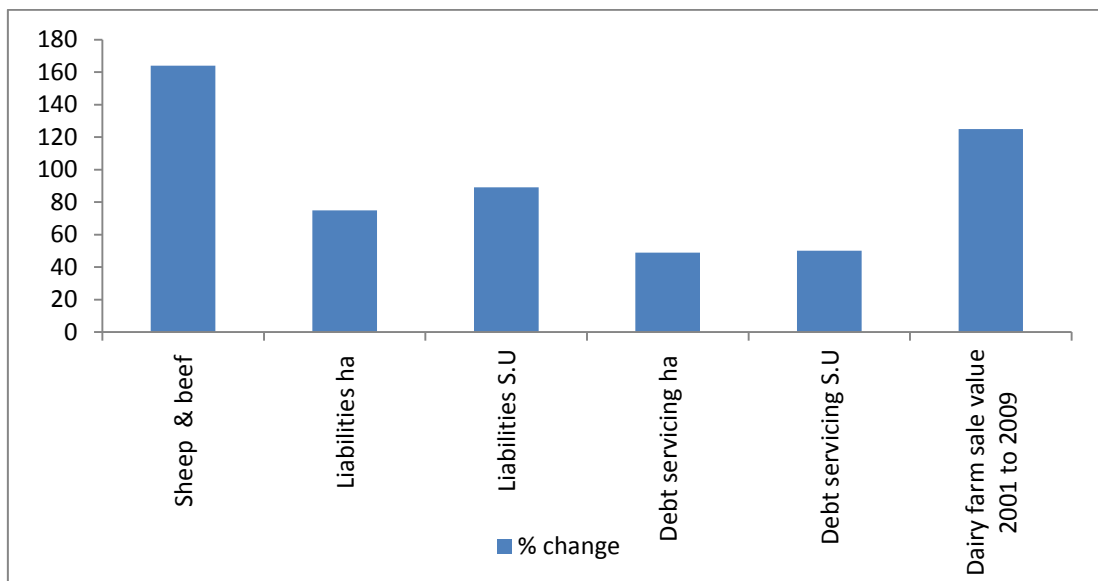


Figure 38 Changes in sheep and beef farms value, term liabilities and debt servicing, 2000/01 to 2009/10. Dairy farm land sales values. Real 2010

Sheep and beef farms have increased term liabilities but it is costing less to service that debt because of the decrease in the cost of money.

Chapter 4

Wholesale market returns

Chapter four looks at how the wholesale market returns have changed for NZ lamb as well as manufacturing beef (Bull Beef), venison and whole milk powder. The question is whether the change is similar to that of the farm gate prices?

To compare the returns to the New Zealand farmer, has been inflationary adjusted (Real price) using the wholesale market price to the CPI of the country that the product is being sold. The Forex exchange rate was then used to compare the price in New Zealand dollar terms.

Agrifax data was used for the periods that it is available, as well as data from the New Zealand Year book for whole sale lamb from 1980 to 1997. These prices are average annual prices and are not weighted. Where high and low prices are quoted they are based on the annual price. Monthly prices may reflect different highs and lows.

London wholesale lamb price 1981 to 1997

The International Meat Trades Association's London wholesale lamb price for the last week of March at the Smithfield market in 1981 for a 13kg to 16kg prime grade lamb was £3.04 per kg real return, but in 1997 had decreased to £2.58 per kg real return , or a 17.83% decrease from 1981 to 1997. (Refer figure 39, table 30)

Note: to determine the inflation adjusted returns for lamb in the United Kingdom, the United Kingdom's Consumer Price index calculator, <http://www.whatsthecost.com/cpi.aspx> was used.

The highest price on the Smithfield market in the period from 1981 to 1997 for a 13kg to 16kg Prime NZ lamb was in 1982 at £3.31 per kg, decreasing to £1.79 per kg in 1991 an 84.91% variation on the wholesale price.

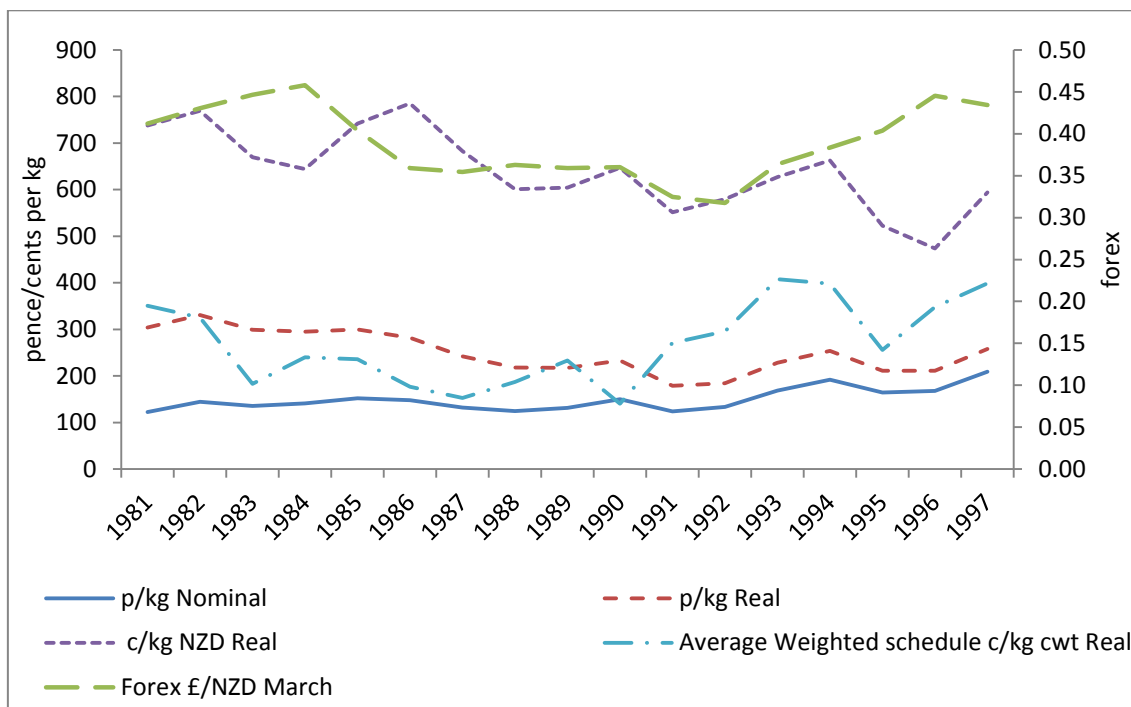


Figure 39 London wholesale prime NZ lamb 13 to 16kg, 1981 to 1997. (Real 2010)

The International Meat Trade Association of the United Kingdoms, London's wholesale lamb, "ex hooks to retailers at Smithfield market" New Season lamb, last week March. (New Zealand Year Books)

The New Zealand average weighted schedule for lamb 1981 was \$3.51 per kg/cwt, by 1997 it had increased to \$3.99 per kg/cwt, real return, or \$0.48 per kg/cwt, 12% increase. Over the same period the real return for NZ lamb at the Smithfield market converted back into NZD has decreased from \$7.38 per kg to \$5.95 per kg, or 24%.

London Wholesale Prime frozen lamb 13kg to 16.5kg					
	Forex			NZ Lamb average weighted schedule cents per kg cwt	
	Pence per kg Nominal	Pence per kg Real	GBP/NZD March	Cents per kg NZD Real	Real
1981	123	304	0.41	738	351
1982	145	331	0.43	769	325
1983	136	299	0.45	670	183
1984	141	295	0.46	644	240
1985	152	300	0.40	742	236
1986	148	282	0.36	785	177
1987	132	242	0.35	683	153
1988	125	218	0.36	601	187
1989	131	217	0.36	605	233
1990	150	233	0.36	647	140
1991	124	179	0.32	551	271
1992	133	184	0.32	580	296
1993	169	228	0.36	627	408
1994	192	254	0.38	662	398
1995	164	211	0.40	523	256
1996	168	211	0.45	474	348
1997	209	258	0.43	594	399

Table 30 London Wholesale Prime 13 to 16kg NZ lamb 1981 to 1997. (Real 2010)

The Imported Meat Trade Association of the United Kingdoms, London's wholesale lamb, "ex hooks to retailers at Smithfield market" New Season lamb, last week March. (New Zealand Year Books

Lamb Leg price 1996 to 2010

NZ lamb leg price in the UK in 1996 was £3.71/kg, real price (using the UK CPI calculator). By the end of 2010 it had increased to £4.12 per kg an 11% increase. The lowest price was in 2000 of £2.40 per kg, with the highest price in 2010 at £4.12 per kg, a variation of 71.66%. (Refer fig 40, table 31)

The New Zealand average weighted schedule real for lamb in 1996 was \$3.48 per kg/cwt, by 2010 it had increased to \$4.61 per kg/cwt, a 32.47% increase. Over the same period the real return for a leg of NZ lamb in the UK converted back into NZD has increased from \$8.42 per kg to \$8.83 per kg, or 3.68% change.

From 2001 to 2010 a leg of lamb in the UK increased by 51.47%, a 5.15% average yearly increase.

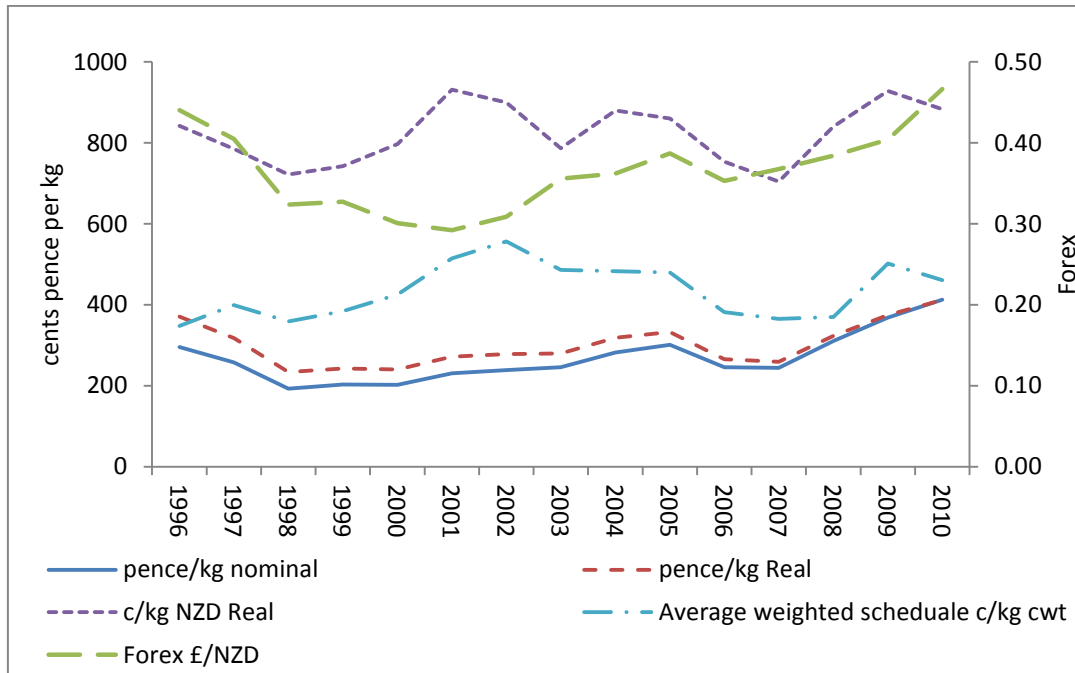


Figure 40 UK leg price for NZ lamb. Annual Dec. 1996 to 2010 (NZX Agrifax). (Real 2010)

	Pence per kg nominal	Pence per kg Real	Forex GBP/NZD	Cents per kg NZD Real	NZ Lamb average weighted schedule cents per kg cwt Real
1996	295	371	0.44	842	348
1997	258	318	0.40	785	399
1998	193	234	0.32	722	359
1999	203	243	0.33	742	384
2000	202	240	0.30	797	425
2001	231	272	0.29	931	515
2002	239	278	0.31	900	557
2003	245	280	0.36	786	486
2004	282	319	0.36	881	483
2005	301	333	0.39	860	480
2006	246	266	0.35	754	382
2007	244	259	0.37	704	365
2008	310	323	0.38	840	370
2009	368	375	0.40	928	502
2010	412	412	0.47	883	461

Table 14 UK Leg price for NZ lamb, annual Dec (NZX Agrifax) (Real 201

Manufacturing Bull Beef

From 1990 to 2010 the real price for manufacturing bull beef in the USA has decreased from USD \$4.60 per kg to USD \$3.70 per kg, this represents a \$0.90 per kg, or 19.6% decrease. The highest price was in 1990 of USD \$4.60 per kg and the lowest price was in 1998 at \$2.53 per kg USD, a variation of 81.81%. (Refer fig 41, table 32)

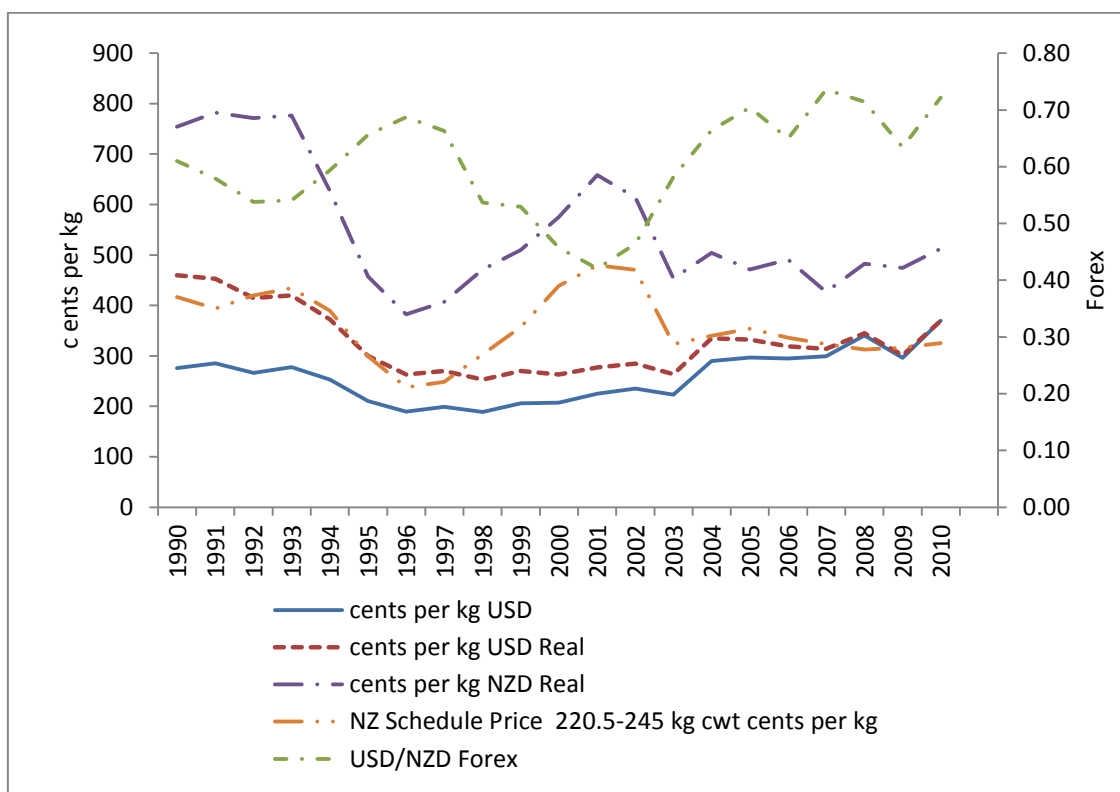


Figure 41 US Imported Manufacturing Bull beef, annual December year, Source NZX Agrifax. (Real 2010)

Inflation adjusted US price c/kg calculated by using the Coin news Webb site <http://www.coinnews.net/tools/cpi-inflation-calculator>

The New Zealand average weighted schedule real for a 220.5-245 kg cwt bull was \$4.17 per kg in 1989/90, by 2009/10 it had decreased to \$3.25 per kg, a 28.3%. Over the same period the real return for manufacturing beef in the USA converted back into NZD has decreased from \$4.18 per kg to \$3.25 per kg, or 28.61% change.

USA manufacturing imported beef

	c/kg USD	c/kg USD	USD/NZD	c/kg NZD	NZ Schedule Price 220.5-245 kg cwt c/kg
		Real	Forex	Real	Real
1990	276	460	0.61	754	416.8
1991	285	453	0.58	782	393.7
1992	267	415	0.54	771	419.6
1993	278	420	0.54	777	434.7
1994	253	372	0.59	627	389.4
1995	210	300	0.66	457	299.1
1996	189	263	0.69	382	237.7
1997	199	270	0.66	407	248.3
1998	189	253	0.54	471	303.4
1999	206	270	0.53	510	357.0
2000	208	263	0.46	575	438.7
2001	225	277	0.42	658	479.2
2002	235	285	0.46	614	470.4
2003	223	264	0.58	454	323.1
2004	290	335	0.66	505	340.2
2005	297	332	0.70	471	353.9
2006	295	319	0.65	491	336.0
2007	299	314	0.74	427	323.2
2008	341	345	0.71	483	312.4
2009	296	301	0.63	474	316.7
2010	370	370	0.72	513	325.5

Table 32 USA Imported Manufacturing beef, annual Dec. (NZX Agrifax). (Real 2010)

Inflation adjusted US price c/kg calculated by using the Coin news Webb site <http://www.coinnews.net/tools/cpi-inflation-calculator>

From 2001 to 2010 imported manufacturing beef in the USA increased by 33.57%.

Venison

70% of New Zealand venison exports are into Germany for their traditional game season, September to December, though the NZ kill is all year. This limited period of sales has in the past created a numbers of large shifts in price due to game traders speculating by buying NZ venison in advance, freezing it down together with other game products with the expectation of stability or rises in the markets.

In 1993 the price of a frozen hind leg was €4.36 per kg real, in 2010 that had increased to €5.63per kg, an increase of 29.12% from 1993 to 2010.

Market prices for frozen hind leg have varied from highs in 1996 of €6.51kg and 2001 of €6.53kg, to a low of €2.68kg in 2003, real, a variation 143.65% (Refer fig 42, table 33)



Figure 42 Venison, frozen hind leg into the German market. Annual Dec (NZX Agrifax) (Real 2010)

The New Zealand average weighted schedule real for venison in 1992 was \$8.18 per kg, by 2010 it had decreased to \$7.62 per kg, or 11%. Over the same period the real return for a frozen hind leg of venison in Germany converted back into NZD has increased from \$9.74kg to \$10.10kg, or a 3.69% increase.

	€ per kg Nominal	€ per kg Real	Forex €/NZD	NZD/kg Real	Average Weighted Schedule Real
1993	3.81	4.36	0.45	9.74	8.25
1994	3.73	4.19	0.48	8.72	7.23
1995	4.85	5.40	0.47	11.51	8.64
1996	5.85	6.51	0.52	12.58	10.5
1998	3.17	3.50	0.47	7.42	6.7
1999	4.04	4.50	0.49	9.13	7.65
2000	5.38	5.92	0.47	12.55	8.88
2001	6.02	6.53	0.46	14.08	11.04
2002	3.25	3.49	0.50	7.04	7.42
2003	2.52	2.68	0.53	5.09	5.5
2004	3.49	3.68	0.54	6.82	5.27
2005	3.87	4.07	0.58	6.97	4.85
2006	4.13	4.27	0.52	8.17	5.17
2007	4.67	4.79	0.53	9.08	6.16
2008	5.71	5.79	0.44	13.18	8.22
2009	5.38	5.42	0.49	10.99	8.53
2010	5.63	5.63	0.56	10.10	7.26

Table 33 Venison, frozen hind leg into the German market. Annual Dec. (NZX Agrifax) (Real 2010)

From 2001 to 2010 a frozen hind leg of venison in Germany decreased by 15.98%.

Whole Milk Powder

The average price for whole milk powder in 1991 was \$2,345 per tonne USD real. In 2010 the average price had increased to \$3,505 per tonne USD, a 49.46% increase over the period. (Refer to fig 43, table 34)

In 2007 the real price peaked at \$4,387 per tonne USD, with the lowest real price of \$1,677 per tonne USD in 2002, a 161.59% variation from the lowest to highest price.

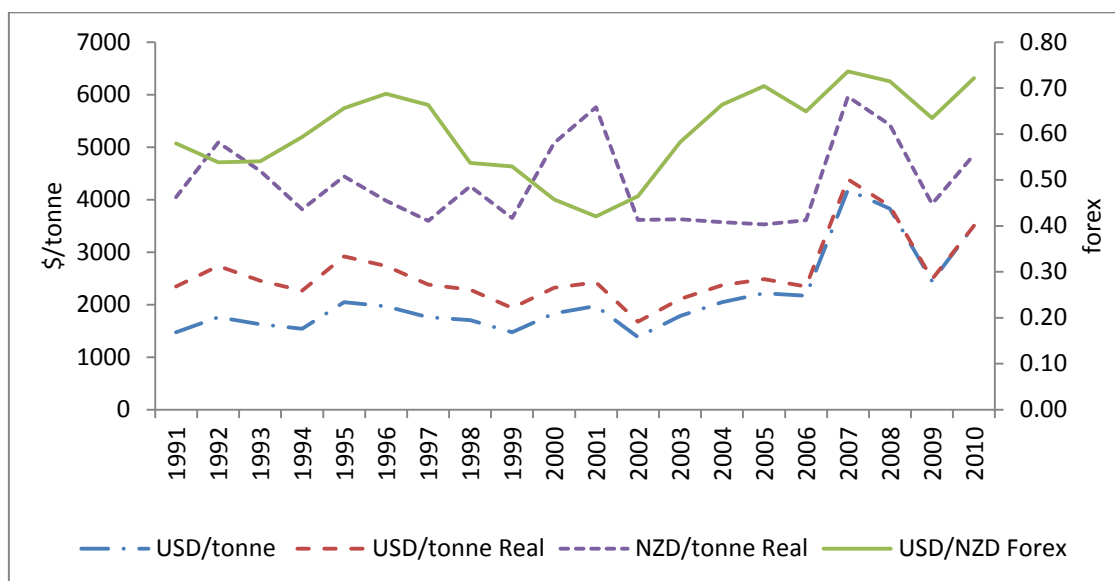


Figure 43 Whole Milk Powder market prices, December Year (NZX Agrifax) (Real 2010), Inflation adjusted US price c/kg calculated by using the Coin news Webb site <http://www.coinnews.net/tools/cpi-inflation-calculator>

The New Zealand Dairy company payout in 1990/91 was 3.62 per kg Ms real and by 2009/10 it had increased to \$6.37 per kg Ms, or a 75.67% increase. Over the period from 1991 to 2010 the real return for a tonne of whole milk powder had increased from \$4,049.07 per tonne NZD to \$4,857.19 per tonne NZD, or a 19% increase (refer figure 43, table 34)

Powdered whole milk market price

	USD per tonne	USD per tonne	USD/NZD	NZD per tonne	Dairy Company payout
		Real	Forex	Real	Real
1991	1476	2345	0.58	4049.07	3.62
1992	1758	2737	0.54	5085.71	4.95
1993	1626	2457	0.54	4544.07	5.34
1994	1538	2264	0.59	3812.94	4.79
1995	2046	2916	0.66	4442.10	4.7
1996	1969	2737	0.69	3980.62	5.41
1997	1759	2384	0.66	3595.60	4.86
1998	1705	2282	0.54	4251.68	4.5
1999	1476	1934	0.53	3652.15	4.73
2000	1833	2323	0.46	5079.26	4.89
2001	1970	2423	0.42	5758.35	6.29
2002	1383	1677	0.46	3612.60	6.54
2003	1785	2110	0.58	3625.78	4.41
2004	2049	2369	0.66	3567.84	5.00
2005	2220	2484	0.70	3526.03	5.24
2006	2168	2344	0.65	3609.62	4.51
2007	4185	4387	0.74	5959.95	4.81
2008	3829	3875	0.71	5423.35	7.96
2009	2448	2486	0.63	3918.34	5.23
2010	3502	3505	0.72	4857.19	6.37

Table 34 Powdered Whole Milk Powder market prices. Year-end Dec (NZX Agrifax) (Real 2010)

Inflation adjusted US price c/kg calculated by using the Coin news Web site <http://www.coinnews.net/tools/cpi-inflation-calculator>

From 2001 to 2010 a tonne of powdered whole milk market price increased by 44.65%.

Conclusion

While the real returns for a 13.5kg to 16kg frozen NZ lamb at the Smithfield Market decreased by 17.83%, over 1981 to 1997, the returns in NZD decreased by 24% due to the fluctuation in the forex exchange rate. Over this same period the NZ average weighted schedule for lamb increased by 12%.

The real returns for a leg of NZ lamb in the UK from 1996 to 2010 increased by 11%. Whereas it increased by 4.86% in NZD over the same period the average weighted schedule for lamb in NZ increased by 32.47%.

This would suggest that the NZ farm gate share of the wholesale price in Britain has increased, with the increase in the schedule price increasing more than the wholesale market price. This is by no means a comprehensive analysis but an indication that there has been a shift towards the farmer getting a greater share of the wholesale price. Tables 35 from Beef + Lamb NZ Economic Service also bear this out with the NZ farm gate share in 2004/05 being 36% increasing to an estimated share of 55% in 2010/11, a 52% increase. This increase has been influenced mainly by the limited supply of lamb into the UK market.

NZ Farm Gate Share of Retail Price in Britain NZ \$ per Head 17 kg CWE lamb							
	2004- 05	2005- 06	2006- 07	2007- 08	2008- 09	2009- 10	2010-11 YTD
NZ Farm Gate	62	54	52	58	84	79	96
NZ FOB	90	87	88	94	113	106	114
UK Retail Value	171	177	174	158	177	174	177

% of Total Market							
	2004- 05	2005- 06	2006- 07	2007- 08	2008- 09	2009- 10	2010-11 YTD
NZ Farm Gate	36%	31%	30%	37%	48%	45%	55%
NZ Farm Gate to FOB	16%	18%	21%	23%	16%	16%	10%
NZ FOB to Retail	48%	51%	49%	40%	36%	39%	35%
Total	100%	100%	100%	100%	100%	100%	100%

Table 35 NZ Farm gate share of retail price in UK of lamb (Beef + Lamb NZ Economic Service)

Manufacturing Bull Beef from 1990 to 2010 had a variation in real returns of 81.81% from a high of \$4.60 per kg USD in 1990 to a low of \$2.63 per kg USD in 1996, with the average real price of \$3.27 per kg, manufacturing beef return in NZD over this period decreased by 45%, with the schedule for 220.5kg – 245 kg/cwt bull decreasing by 28 %. (Refer fig 44, table 36)

Whole milk powder sales in USD had the greatest variation in price from 1990 to 2010 of 161.5%, with an average real price in USD of \$2,602 per tonne. The real return in NZD for whole milk powder was affected by the increase in the exchange rate with the USD, increasing only by 19%, with the average price of \$4,317per tonne. Over the same period real dairy company payouts increased by 75.96%

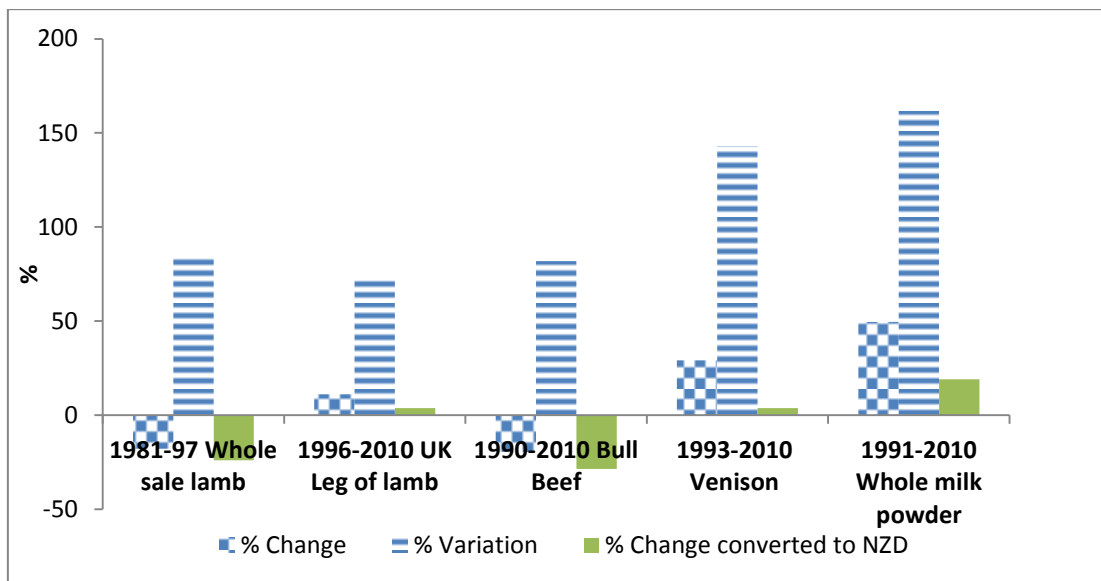


Figure 44 Percentage change and variation for whole sale market prices, Lamb, Bull Beef, Venison and Whole Milk Powder.

The real average price of the hind leg of venison in Germany for the 1993 to 2010 was €4.79 per kg, with a variation of 143.65% from a high of €6.85 per kg to the low of €2.68 per kg. The average real price for the frozen hind leg converted back into NZD was \$9.60 per kg increasing by 3.69% over the period from \$9.74 per kg to \$10.10 per kg, over the same period the average weighted schedule for venison in NZ decreased by 11%.

	Opening Real	Lowest Real	Highest Real	Closing	% Change
1981-97 Whole sale lamb £/kg	3.04	1.79	3.37	2.58	-17.83
1996-2010 UK Leg of lamb £/kg	3.71	2.34	4.12	4.12	11
1990-2010 Bull Beef US \$/kg	4.60	2.53	4.60	3.70	-19.6
1993-2010 Venison €/kg	4.36	2.68	6.85	5.63	29.12
1991-2010 Whole milk powder US \$/t	2345	1667	4387	3505	49.46

Table 36 Market prices opening, closing, highest and lowest price, inflation adjusted

Real returns in the market from 2001 to 2010 changed with leg of lamb having the biggest increase of 51.47% while a leg of venison in Germany decreased by 15.98%

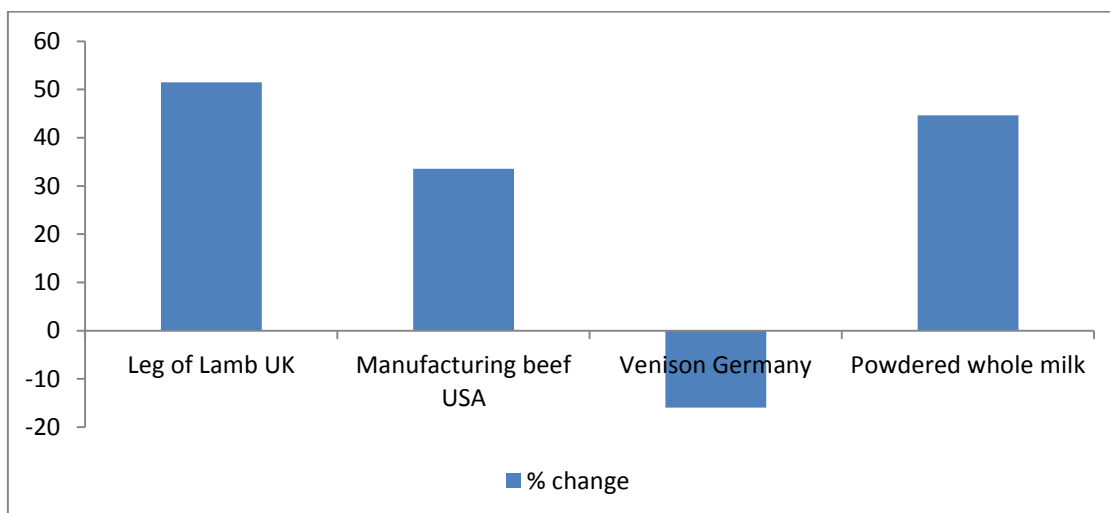


Figure 45 Changes in market values from 2001 to 2010. Real 2010

Chapter 5

Possible trends in farm expenses and income.

In recent times global commodity prices have experienced the largest boom in more than 100 years. From 2000 to 2008 global prices were characterised by a very large, long and generalised boom on international markets, peaking in January 2008 than falling back to 2006 levels by the end of 2008, due to the impact of the international financial crises. (Refer to fig 47) Sullivan and Aldridge (2011, p2) noted 'Meanwhile, underlying demand has remained strong for all commodities, influenced heavily by rapid growth in wealth and urbanisation in developing Asia, and this has been underpinning food prices. For example, meat prices, which have been the weakest performer, have nearly doubled since 2000'.

Commodity food prices by the end of 2010 have surpassed the January 2008 record high, (Refer Fig 46) boosted by supply disruptions, particularly in the grain markets. Weather related constraints are a short term factor, causing significant spikes in prices. Drought, fire and export restrictions in Russia, as well as flood damage in Australia, are all factors in restraint of supply.

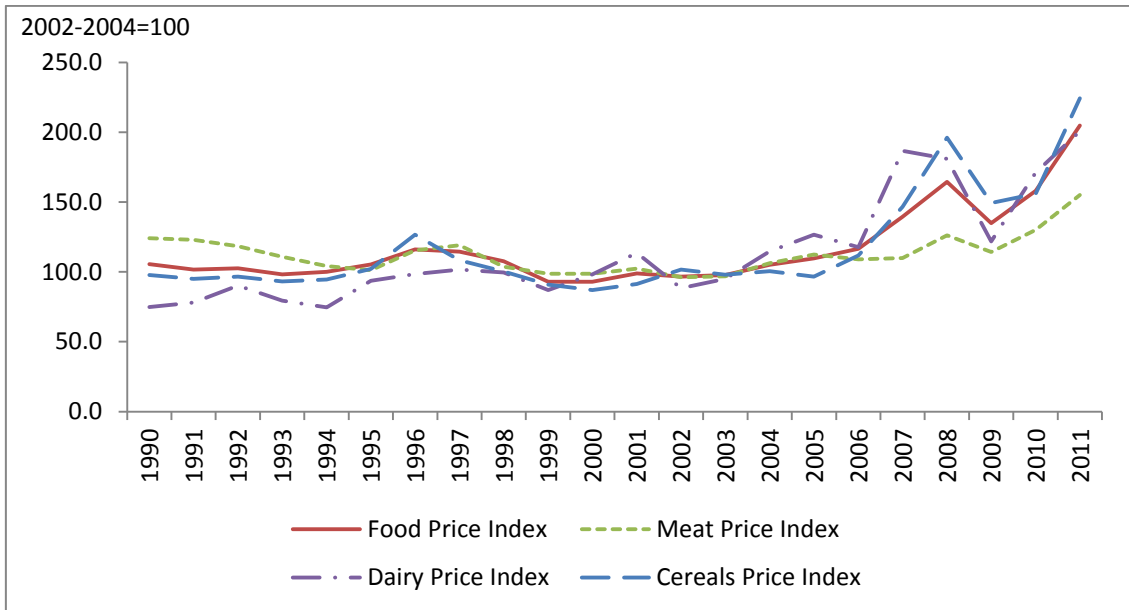


Figure 46 Annual real food indices 2002-2004=100 (United Nations Food and Agricultural Organisation)

Bio fuel production over the past several years has been a major driver for the increased grain and oilseed consumption and consequent price rises.

Sullivan and Aldridge (2001, p6) noted 'Currently 40% of the United States corn production is used to produce ethanol, which is blended into petrol and diesel. A 2009 UN study found that the corn required for producing a full tank of ethanol in a large four wheel drive sports utility could feed one person for almost a year. Because of the rise in importance of biofuels, the link between food prices and oil prices is becoming stronger. As the price of oil rises, biofuel production becomes more economically viable, and so the price of food rises.'

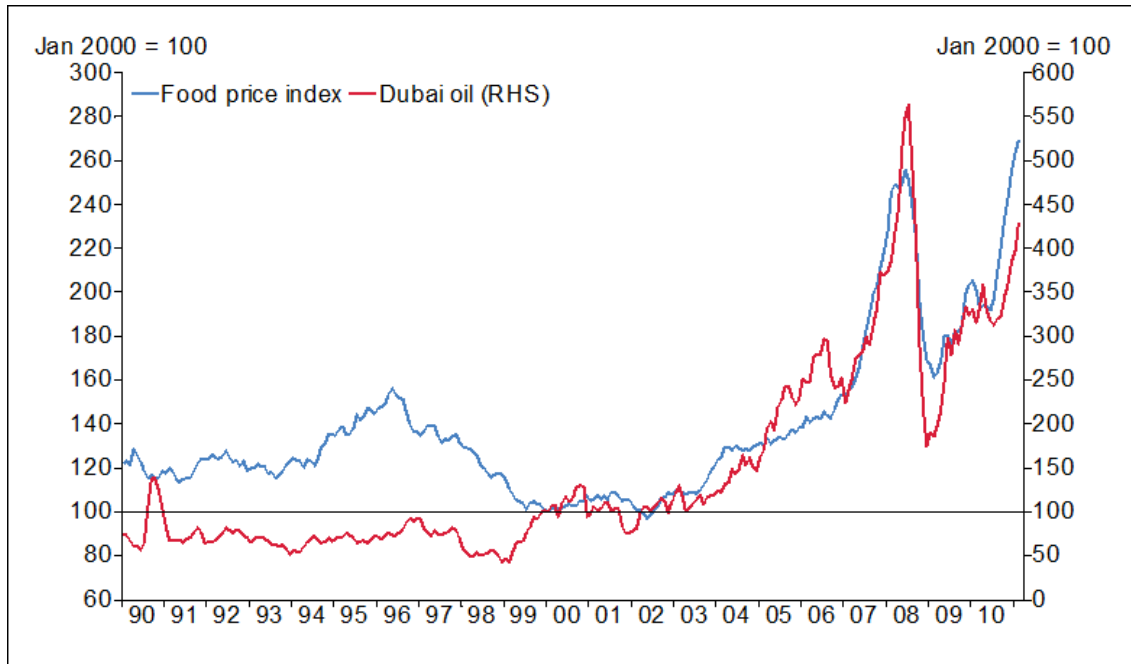


Figure 47 Food price index vs oil prices. (United Nations Food and Agricultural Organisation) (Sullivan and Aldridge, 2011, p2)

Agricultural reform policy in North America and the European Union of reduced producer prices has seen production fall and food inventories reduced. The effect has been most stark in dairy where stock piles of milk powder and butter fell dramatically between 2002 and 2008, contributing to a run up of prices over that time.

Rabobank noted that a lasting rally in agricultural commodity prices into 2011 and beyond is likely as pressures in agricultural markets and constrained resources, including land, farm inputs and credit prevent an optimal supply response to higher prices. Further low inventory levels and robust demand will support high agricultural prices.

Global demand for commodities is expected to continue to increase as the population continues to grow, migration to cities accelerates, incomes rise and consumer preferences change.

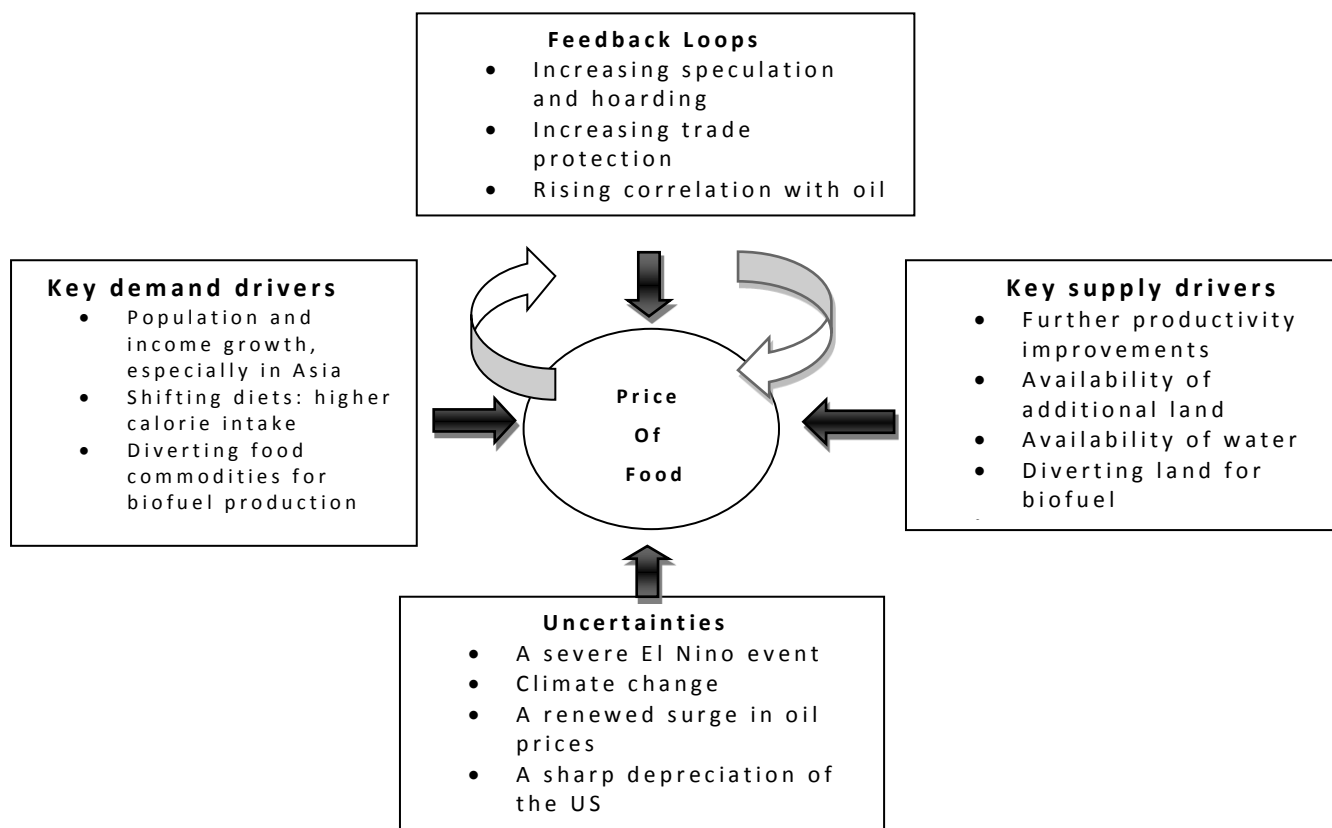
The short to medium term outlook for agricultural prices remain relatively positive, with the rebuilding of Australian and United States cattle herds and European production remaining subdued till the next round of Common Agricultural policy (CAP) reform due in 2020.

With the decline in sheep flocks, not just in New Zealand but other key sheep meat exporters, Australia, United Kingdom as well as China (world's largest domestic flock), this decline is due to drought, CAP change in subsidies away from breeding ewes to land type, changing land use has shortened supply into key markets which has led to the higher prices. With recovery in NZ production expected to be limited for the next two years and the continual changing of land use this restriction potentially could remain.

Sullivan and Aldridge (2011, p9) 'Over the longer horizon, the ability of countries like India and China and South America to increase productivity and production will undoubtedly lead to greater supply, reducing the likelihood of large real price increases continuing. Overall it seems likely that the terms of trade will persist around the current high levels for the foreseeable future. However, this is only returning the terms of trade to levels seen in the 1960's and 1970's. Indeed, rather than current levels being viewed as high, it is more likely that the term of trade during the 1980's and 1990's were very low.'

The drivers for global food prices are expected to increase as the population continues to grow, urbanisation, incomes rise and consumer preferences change, are just some of the drivers that influence food prices. (Refer fig 44) These changes are evident in Asia particularly in China and India where the standard of living is rising for a number of people who are demanding more goods and a change in the types of protein they are consuming, moving away from the traditional low calorie diet towards a higher calorie diet that includes more dairy products and meat.

Figure 44, Drivers of Global food prices



Source Global Economic and Strategy, 8th September 2010, p5. Nomura

The risks for the outlook for New Zealand food prices of sheep meats, beef and venison are as follows.

1. Prices become too high and consumers look for alternative forms of proteins.
2. High prices will encourage other suppliers to increase production through productivity gains through the investment in updated farming methods, infrastructure and better genetic livestock. Fonterra estimated that annual world milk production can grow at around 2-3 percent even with growing production in none traditional areas. This growth is barely enough to keep up with consumption over the next few years. (Sullivan and Aldridge 2011, p6, par3)

3. Geopolitical tensions
4. Weather events
5. EU CAP reform enabling EU countries to increase production
6. Drop in demand from a customer as they grow their own production and are able to meet demand, China or India.
7. Oil prices decrease, bio fuel production decreases, more land becomes available for food production and commodity prices fall in line with oil prices.
8. Trade barriers

Conclusion

International demand for all commodities is expected to increase as the population increases, migration into cities accelerates, incomes rise and consumer preferences change. As an example, in the 1980's Chinese food spending averaged over 50% of the individual's income. By 2009 it had declined to 36% for those in urban areas. This compares to New Zealand households spending 18% in 2010. While the proportion of food spending per household in China has declined across the regions, in real terms between 2004 and 2008 it has increased by 17% per annum. (Sullivan and Aldridge 2011, p8)

Sullivan and Aldridge 2011 state that 'New Zealand agricultural export prices are likely to remain at elevated levels for some time. Demand is underpinned by urbanisation and wealth growth in developing countries, especially China. However there is potential for near term price falls as supply becomes less weather disrupted.

The outlook for farm gate returns for the next 2 to 5 years for

- Lamb is expected to decrease from what is expected to be record highs for the year ended June 2011, but will still be above the five year average. With the increase in global flock numbers, with the exception of the EU, and pressure from consumers looking for alternative proteins due to retail cost increases from £7kg for a leg of lamb in 2008 to £11kg

in 2011, this increase has led to the overall decline of sheep meat consumption in the UK by 20% over the last three years.

- China will not have an impact on lamb farm gate returns as they are almost self-sufficient in sheep meat production and current exports into China tend to be low value products.
- Wool returns increased rapidly from August 2010 to November 2010 due to the rebuilding in the global supply chain. Prices are expected to remain high due to lower supply and the increase prices for competitive fibres such as cotton.
- Manufacturing beef experienced record highs in the US due to drought in several beef producing countries as well as high grain prices affecting USA fed lots production. Price conscious consumers help increase demand as they traded down from the traditionally more expensive products. The outlook for the next two years is for prices to fall in USD as supply constraints improve as herd rebuild, Asia will have a longer term affect with increases in demand
- Venison is experiencing increasing demand from overseas consumers, with little likelihood of an increase in production in NZ as land use changes keeping deer numbers static. Venison has not experienced the lifts in the market prices that lamb has so should have more upside than down.
- Dairy is positive, experiencing high international prices, strong global demand, especially from developing countries.

While the average real farm expenses have increased by 3.99% over the past thirty years from 1980/81 to 2009/10. Real far expenses decreased from 1980/01 to 1990/01 by 37.90%. From 1990/01 to 2009/10 real farm expenses have increased by 43.47%.

(Refer fig 32, page 73)

The outlook for the cost of farm expenses is dependent on the demand for global natural resources. Commodity products such as fertilisers, which are expected to increase as strong demand continues with supply constraints continuing.

Oil prices will have the most impact on both farm prices and costs, bio fuel production increases as the cost of oil increases limiting the production of food, this will be corrected as developing countries start to become more self-sufficient with increased production by adopting better farm practises, technologies and genetics from developed countries like New Zealand. We are already seeing this with China and parts of South America with the adoption of NZ dairying systems, improved herd, and grasses genetics from NZ as well as management systems and infrastructure.

Weather events will continue to have a direct bearing on commodity prices for New Zealand farmers and as the debate on global warming continues this uncertainty around how it will affect agriculture will continue to affect commodity prices, with the introduction of carbon tax already having downstream effects on the price of freight and power all the way through the supply chain.

Summary

1980/81 to 2009/10

Income

Agricultural prices in New Zealand have changed over the last thirty years, from 1980/81 to 2009/10 with real returns to sheep and beef farmers increasing over the CPI for

- Lamb by 30% per kg cwt
- Mutton by 44% per kg cwt
- Bull beef by 0.2% per kg cwt

While wool, beef and venison prices have decreased over the same period

- Wool by 151% per kg clean
- Beef by 7.3% per kg cwt
- Venison returns have decreased by 11% per kg cwt over a shorter period from 1991/92 to 2009/10

Dairy farmers have had the biggest return increase for Milksolids of 76% per kg MS from 1990/91 to 2009/10

Wholesale market prices have also had increases over shorter periods for, with manufacturing beef the main decrease (Refer fig 48)

Whole sale market	Market Price	Market price NZD	Average Schedule
Frozen 13kg to 16kg lamb 1981 to 1997	-17%	-24.24%	-13.67%
Leg of lamb UK 1996 to 2010	11%	4.86%	32.47%
Manufacturing Beef USA 1990 to 2010	-19.6%	-45%	-28%
Frozen hind leg venison Germany 1993 to 2010	29.12%	3.69%	-11%
Whole milk powder 1991 to 2010 USD	49.46%	19%	75.67%

Table 37 Change in wholesale prices, in local currency and NZD. Average NZ Schedule (Real 2010)

Productivity gains over all sectors have also helped increase real returns for farmers, the average carcass sizes have increased for

- Lambs by 32%
 - Mutton by 25%
 - Beef cattle by 15.5%
 - Bull by 18.14%
 - Venison by 10%
 - Milksolids production per cow has increased by 22%
- 39.66% per ha

With the increase in real returns and carcass weights the average real return per head for the sheep sector has increased for

- lamb by 73.27%
 - mutton by 80%
- Note Beef + Lamb are estimating a lamb will be \$107hd for the 20010/11, a 133% increase over the 1980/81 return.

The cattle and deer returns have not benefited from the same increases for the sheep industry, with real returns per head decreasing for

- beef cattle by 13.62%
- bull beef by 15.89%
- deer by 3.49% (over a shorter period from 1992 to 2010)

Real dairy returns have increased from 1992/93 to 2009/10 by

- 66.6% per ha
 - 46.47% per hd
- (Refer to fig 45)

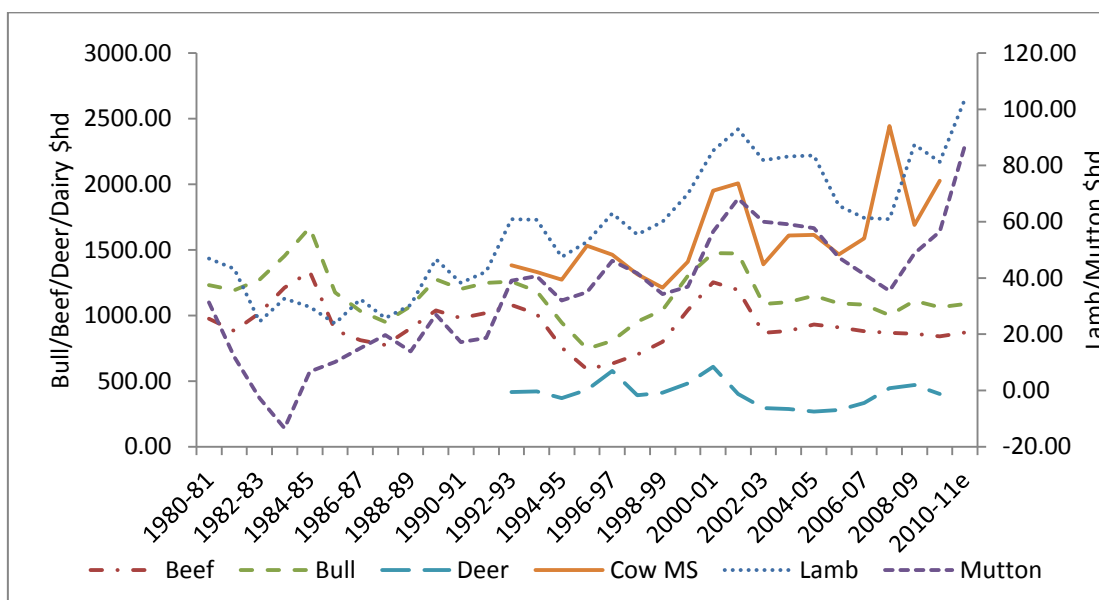


Figure 48 Average returns per head (Real 2010)

Over the same period lambing and calving percentages have also increased

- lambing by 23%
- calving by 13.6%

The increases in productivity gains have come through the investment in improved techniques for

- selective breeding
- irrigation
- fertilizer use
- seed selection

Costs

While the real farm costs for commodities and interest over the last thirty years have decreased, non-commodities such as rates, salaries, road user charges have increased. (Refer fig 31, p 72)

Decreased

◦ Electricity	-12.5%
◦ Deer Fence	-8.48%
◦ Sheep Fence	27.5%
◦ 2.5 wire	-15.77%
◦ Deer Netting	-42%
◦ Posts	-14.13%
◦ Superphosphate	-8.25%
◦ Petrol	-18%
◦ Diesel	-34%
◦ Fright Lamb	-59%
◦ Car Registration	-11.3%
◦ Ivomec 2.5l	-50%
◦ 20l Round up	-91%
◦ Interest	-50.77%
◦ Working expenses ha	-6.86%

Increased

- Urea 1.97%
- Spreading Ground 33%
- Spreading Air 37%
- Road user 22.3%
- Rates ha 26%
- Salaries 56%

Land and Term Liabilities

The real average value of a sheep and beef farm over the last thirty years has increased, while term liabilities per ha has also increased. Equity has improved from 78% in 1982/83 to 86% by 2009/10. (Refer fig 50, table 51)

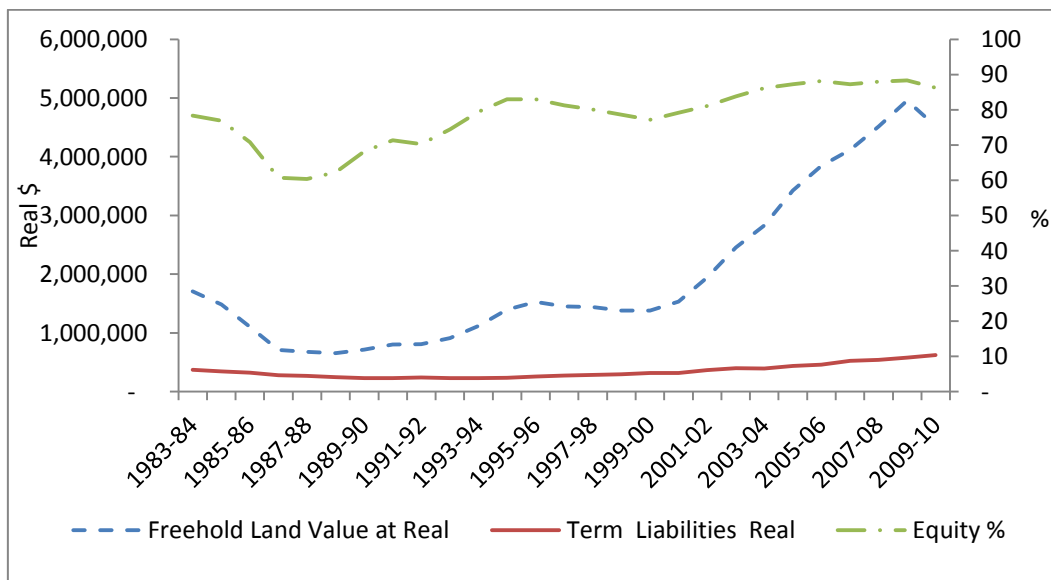


Figure 49 Free hold land values and term liabilities for sheep and beef farms Real 2010

2000/01 to 2009/10

Income

The concern for sheep and beef farmers is that over the past ten years all income has decreased per head from 2000/01 to 2009/10 by

- Lamb 14.34%
- Mutton 20.83%
- Beef 41.84%
- Bull 38.7%

- Venison kg/cwt 52.06%
- Wool clean 58.8% kg
- Milksolids payout 2.62%

These decreases of farm income are against the trend in the whole sale market where all products increased with the exception of venison

- Leg of Lamb UK £ 51.47%
- Manufacturing beef USA 33.57%
- Whole milk powder 44.65%
- Venison Germany € -15.98%

The average increase excluding venison was 43.23%

Converted into New Zealand dollars they decreased by

- Leg of lamb UK 5.4%
- Manufacturing beef 28.26%
- Venison Germany 39.4%
- Whole milk powder 18.55%

The average decrease was 22.9%

Costs

While the real farm costs for commodities and interest over the last thirty years have decreased, none commodities such as rates, salaries, road user charges have increased. (Refer fig 31, p 72)

The decrease has not been over the whole period with most costs in the last ten years from 2000/01 to 2009/10 increasing

Electricity	22%
2.5 wire	32.7%
Deer Netting	43%
Superphosphate	43.31%
Urea	65.77%
Spreading Ground	14.28%
Spreading Air	23%
Petrol	31.39%
Diesel	18%
Salaries ha	19.28%
Interest ha	50%
District Council take	40%
Rates ha	11.26%

The average farm working expenses increased by 19.28%

Land values and term liabilities

Sheep and beef farms open free hold land value has increase in the last ten years at 164.41%, driven up by dairy conversions, expectation of capital gains and the expansion of available credit. The average sized farm has increased over this period from 589ha to 657ha, 11.54%.

Term liabilities have also increased in the last ten years by 95%, debt servicing by 49% ha.

Land values have fallen due to the restriction of available credit after the global financial crises, for the period from 2008/09 to 2009/10 by 10.95%.

Are sheep and beef farmers better off at the end of 2010 than they were thirty years ago?

Farmers are receiving more for lamb and mutton, inflation adjusted than thirty years ago, but not for wool and beef. The biggest increase has come with lamb in productivity gains, carcase weights increasing by 32% and lambing percentages by 23%

Expenses have decreased apart from those that are related to Central and Local Government through legislation, rates, salaries, road user charges and with rates increasing on real terms for the average farm by 26% and managerial salaries by 56%.

Freehold land values and term liabilities have also increased with land values decreasing to its lowest in 1985/86. While term liabilities have increased, the average farms equity position has improved.

If asked the same question of the last ten years

“Are sheep and beef farmers better off at the end of 2010 than ten years ago?”

Real farm returns for all products have decreased against the trend of increasing wholesale returns in the market and in New Zealand dollar values. Costs have all increased as well as freehold land values and term liabilities increasing by 95%, debt servicing increasing by 65%.

Where to for the future?

International demand for all commodities is expected to increase as the population increases, migration into cities accelerates,

incomes rise and consumer preferences change. The increase in affluence in the Asian area is changing the dynamics of consumer spending on proteins.

The outlook for farm gate returns for the next 2 to 5 years for

- Lamb is expected to decrease from what is expected to be record highs for the year ended June 2011, but will still be above the five year average.
- Wool prices are expected to remain high due to lower supply and the increase prices for competitive fibres such as cotton and oil based products.
- Manufacturing beef experienced record highs in the USA due to drought in several beef producing countries as well as high grain prices affecting USA feedlot production. The outlook for the next two years is for prices to fall in USD as supply constraints improve as herds rebuild, Asia will have a longer term affect with increases in demand
- Venison is experiencing increasing demand from overseas consumers, with little likelihood of an increase in production Venison has not experienced the lifts in the market prices that lamb has so should have more upside than down.
- Dairy is positive, experiencing high international prices, strong global demand, especially from developing countries.

The outlook for the cost of farm expenses is dependent on the demand for global natural resources. Commodity products such as fertilisers, which are expected to increase as strong demand continues with supply constraints continuing. Oil prices will have the most impact for on both farm prices and costs. Bio fuel production will increase as the cost of oil increases limiting the land area for the production of food. As developing countries become more self-sufficient with increased in production by adopting better farm practises, technologies and genetics from

developed countries like New Zealand the cost of food may decrease.

Government legislation will have an impact on farm returns, expenses and production. Kyoto and Nitrate caps could have the most effect with production levels being capped as Local and Central Government look at limiting the amount of Nitrogen leached into ground water by imposing limits and in some cases reducing the amount of nitrogen leached off farms. On farm costs will increase as businesses look for ways to recoup any carbon taxes. Farm returns may decrease as those in the supply chain look for ways to pass on their increased costs.

Sheep and beef farmers are at a similar level today as they were in 1980, however there remains uncertainty due to the Global Financial Crises.

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