FINANCIAL STRESS AMONG FARMERS: A NEW ZEALAND EXPERIENCE.

by
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SUMMARY

This paper outlines the evolution of recent agricultural policy in New Zealand, emphasizing the nature and magnitudes of assistance and economic and financial performance in the 1970s and 1980s. Changes in financial conditions which have affected farmers and altered the productivity and efficiency of the agricultural sector are described. Financial stress which has risen appreciably on New Zealand sheep and beef farms in the post deregulation period since 1984 is examined. This shows the predominant influence of debt on farm household stress, as costs of servicing debt encroach on household expenditures when net farm income falls.

INTRODUCTION

Agriculture has dominated the export sectors of the New Zealand economy for more than a century. Principal export commodities are pastoral-based meat, wool, and dairy products. In 1984, pastoral products accounted for 90 percent of all agricultural exports and comprised over 60 percent of total export earnings. Policy intervention in New Zealand has had the principal objective of increasing agricultural exports, primarily those of the pastoral sector.

The impetus to assist agriculture arose with the realization that living standards were falling in the early 1960s and that technically, pastoral agriculture

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was potentially capable of a significant increase in output which could relieve the fall. Subsequent agricultural policies, aimed initially at increasing export earnings are identifiable in four separate periods. Initially agriculture was encouraged by nonintervention policies originating at the 1963 Agricultural Development Conference, which set ten-year output targets for wool, meat and dairy products. The initial target was 111 million livestock units by 1972, or 3.5 percent per year from a base of 73 million. Adequate financial resources were ensured by government policies. Only fertilizer received cost support. Drought and reduced net incomes from low wool prices and inflated costs arrested the increase at 99 millions in 1969. Market intervention policies were introduced in the 1970s in order to restart the growth in agricultural output. National budget funding was allocated for expanded extension, research, quality control and fertilizer subsidies, and significantly, heavily subsidized loans to producer boards to effect price stabilization measures. Furthermore, tax incentives were created to increase livestock numbers through the Livestock Incentive Scheme (LIS). The policies did not have a significant impact on pastoral output. Stock numbers increased by only 1 percent between 1969 and the end of the 1978 season.

Policymakers then set about encouraging agriculture through redoubled assistance. Commodity price subsidies were introduced in 1978. The Supplementary Minimum Price (SMP) scheme was devised to protect the incomes of farmers against rising inflation, excessive costs imposed by protected domestic industries, and effects of high exchange rates, and to minimize the risks incurred by expansion. Other measures exaggerated capital market distortions. Concessional finance for costs of increased output, additional tax concessions for inputs, and loan forgiveness were introduced. Combined with the assurances of government support for agriculture, competition for land and finance increased, while true indicators of farm profitability and equity were confused.

The assistance measures had pervasive effects throughout the economy, apart from obscuring the real profitability of agricultural investment, which would allow farmers to make optimal economic decisions. With successive increases in the fiscal deficit, foreign debt increased and by the mid 1980s the standard of living slipped to 25th in the world. The cost of assisting agriculture had now become nationally unsustainable. An environment for political change and economic

Table 1. Selected Economic Indicators, New Zealand Agriculture 1980 to 1990[a]

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
1. Total Agricultural Output ($billion)	4.4	4.5	5.0	5.0	5.9	7.6	6.9	6.9	7.6	8.3	9.9
a. Real 1976 dollars	2.6	2.3	2.2	1.9	2.2	2.5	2.0	1.7	1.7	1.8	2.0
2. Agriculture as a percent of GDP	10.1	8.8	7.7	6.7	7.0	9.2	7.0	5.9	6.0	5.9	6.9
3. Agricultural Debt ($billion)	3.5	4.2	5.2	5.8	6.8	7.4	8.0	8.5	8.0	7.8	—
4. Farmland Values (Real 1976 $/hectare)	818	1018	1284	1208	1095	1023	815	616	542	569	—
5. Assistance to Pastoral Ag.											
a. Total ($million)	408	344	778	1189	1093	1035	863	521	542	284	206
b. as percent of output	16	12	25	34	30	23	23	13	12	5	3
c. output support ($million)	102	14	405	802	635	571	260	25	8	0	0
d. input assistance ($million)	88	79	84	83	85	64	29	21	14	14	18
e. capital assistance ($million)	127	142	156	156	223	248	410	307	375	142	66
f. off-farm assistance ($million)	91	109	133	148	150	152	164	168	145	128	122
6. Sheep and Beef farms											
a. Total Stock Units – Beef (million)	5.1	5.1	5.1	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9
b. Total Stock Units – Sheep (million)	63.5	68.8	69.9	70.3	70.3	69.7	67.8	67.5	64.2	64.6	60.7
c. Real Net Farm Income (1975/76=1000)	1066	807	686	663	503	832	329	475	475	431	433
d. Real Net Worth Index (1975/76=1000)	1285	1423	1378	1120	1117	883	531	524	445	421	447

Sources: MAF, Valuation New Zealand, Department of Statistics, Johnston and Frengley (1990b).

[a]Annual data, some of which are calendar year, some government fiscal year ending March 31, and some production year ending June 30. 1988-90 figures range from provisional through to forecast.

reform had been created.

In the snap election of 1984 the Labour Party was elected and immediately introduced a succession of economic liberalization reforms to restore freemarket conditions. The New Zealand dollar was devalued 20 percent. Policy procedures were introduced to phase out all subsidies and most agricultural capital distortions, to obtain cost recoveries for all forms of services and to sell state owned enterprises. Readjustment of the New Zealand agricultural sector to freemarket conditions began. For many farmers the changes have been traumatic and after six years of adjustment the process is incomplete.

AGRICULTURAL SECTOR PERFORMANCE IN THE 1980s

Table 1 summarizes selected economic indicators for the 1980-84 and the post-1984 periods. The nominal value of agricultural output increased by a third from 1980 through 1984, but in real terms fell by 15 percent. Agriculture's contribution to GDP decreased markedly (from 10.1 to 7 percent). The debt/output ratio increased, and by 1984, the capital efficiency of agriculture had been severely undermined by the variety of input, output and capital distortions.

(Table 1 about here)

From 1984, most of the direct assistance to agriculture was quickly removed as part of the general fiscal policy to reduce government spending. The impact of the new policies of economic liberalization are described below. Total agricultural output rose considerably in the following year (1985), but subsequently fell. Although it increased from 1987 through 1990, it has not yet recovered in real terms (line 1a). Agriculture as a percentage of GDP has only ranged from 5.9 to 7.0 in the years since 1985. Agricultural debt rose progressively from $3.5 billion to $8.5 billion in 1987. It has since declined by write off and repayment efforts. The real value of all farmland peaked at $1,284 per hectare in 1982. It has since fallen by 60 percent to an estimated 1989 value of only $569 per hectare.

The value of the assistance to pastoral agriculture which initiated the distortions later to beset farmers, peaked in 1983 at 1.189 billion (34 percent of total output), fell to 23 percent by 1985, and dropped to 3 percent by 1990. The effective rate of assistance to agriculture in 1990 is negative, disadvantaging

agriculture by 3 percent against other sectors. Although all forms of financial assistance caused farmers' investment decisions to be distorted, the most important of these were output (commodity price) support and capital assistance to the sector. Output support alone had amounted to $1.8 billion over the period 1982-84 before being gradually withdrawn (another $0.8 million in 1985-86) and falling to zero in 1989.

Distortion induced by capital assistance may appear to be less severe. It generally was of an order of magnitude of one to two hundred million dollars annually through 1985. However, concessional interest rates were an integral part of these assistance policies and affected prices willingly paid by farmers using borrowed funds. Furthermore, a variety of concessions were used to ease the cost of resources needed for output expansion and land purchase for new farmers. All affected profits and land prices and the distortion encouraged farmers to accept long term debt levels which would later prove unsustainable in the deregulated economy. All factors affecting net agricultural rent are capitalized into fixed factors of production, notably land, and because concessional interest rates were an important feature of the financial support, land values were inflated by this source as well.

Capital assistance increased to its peak in 1986, in part influenced by the Rural Bank capital write off and was large for several years. In real terms, farmland values increased to 1982 (nominally 1983) although real agricultural output and real net farm incomes were falling. Stock units rose rapidly in the early 1980s to peak in 1984 and 1985 at a total of 4.9 million beef and 70.3 million sheep units. Thereafter stock numbers fell. The 1990 total (which is less than 1980) has been exacerbated by drought. Despite the host of assistance policies in place during the early 1980s, real sheep and beef net farm incomes have fallen almost continuously except for recovery in the 1985 year spawned by the 20 percent devaluation. The 1985 rise was short-lived and the real stresses of readjustment to the freemarket economy have persisted. Real net farm incomes appear to have levelled off at about 40 percent of their 1980 incomes. The fall in incomes exposed borrowers to the full impact of reversed leverage and numbers of farms quickly became insolvent. Land values fell and average sheep and beef farm real equities (see real net worth index) by 1989 fell to about 30 percent of the 1981

Table 2. Selected Financial Indices and Measures of Stress. NZ Sheep and Beef Farmers 1970/71 to 1989/90[a]

Year Ending June 30	Gross Farm Income	Total Farm Expenditure	Net Farm Income	Interest Expense	Financial Ratios					Consumption Measures			
					Activity: Interest as % Gross Farm Expend.	Profitability: Return on Capital	Leverage: Net Worth to Total Assets Ratio	Leverage: Interest as % of Gross Farm Income	Leverage: Times Interest Earned	Personal Drawings: Nominal	Personal Drawings: Real (1975/76 = 1000)	Savings: Real (1975/76 = 1000)	Interest Expense to Drawings Ratio
	(dollars)	(dollars)	(dollars)	(dollars)	(percent)	(percent)	(ratio)	(percent)	(ratio)	(dollars)	(index)	(index)	(ratio)
1971	$ 20226	$ 14404	$ 5822	$ 1889	13.1	3.7	72	9.3	4.1	$ 4451	7456	-404	0.42
1972	22941	15833	7108	2164	13.7	4.6	71	9.4	4.3	4569	7030	1605	0.47
1973	39307	20488	18819	2331	11.4	9.0	78	5.9	9.1	5926	8564	8676	0.39
1974	38198	23940	14258	2692	11.2	5.2	80	7.0	6.3	6913	9096	2740	0.39
1975	26690	21322	5368	2912	13.7	1.3	78	10.9	2.8	6382	7430	-1003	0.46
1976	40750	27125	13625	3506	12.9	4.3	78	8.6	4.9	8092	8092	2765	0.43
1977	52025	31831	20194	3896	12.2	5.4	78	7.5	6.2	10482	9110	2708	0.37
1978	50928	35943	14985	5070	14.1	3.4	78	10.0	4.0	10070	7670	-475	0.50
1979	60917	41422	19495	5848	14.1	3.4	80	9.6	4.3	10735	7368	2866	0.54
1980	77667	52896	24771	7438	14.1	3.5	83	9.6	4.3	13739	8058	1826	0.54
1981	83251	61554	21697	8964	14.6	2.2	85	10.8	3.4	13112	6662	307	0.68
1982	95586	74185	21401	12137	16.4	1.9	84	12.7	2.8	15071	6584	180	0.81
1983	105373	81978	23395	14782	18.0	2.7	81	14.0	2.6	15262	5895	898	0.97
1984	104775	86284	18491	16305	18.9	2.1	80	15.6	2.1	17038	6310	-811	0.96
1985	132623	98415	34208	17736	18.0	4.6	77	13.4	2.9	20143	6690	2843	0.88
1986	106319	90980	15339	21509	23.6	3.3	69	20.2	1.7	18776	5463	-3517	1.15
1987	117127	91270	25857	22619	24.8	4.8	72	19.3	2.1	21178	5297	-179	1.07
1988	126178	97691	28487	23862	24.4	5.6	71	18.9	2.2	23116	5242	-875	1.03
1989	126800	99100	27700	23000	23.2	5.2	72	18.1	2.2	24000	5193	-1450	0.96
1990	130300	101400	28900	21300	21.0	4.5	74	16.3	2.4	24500	5002	-857	0.87

Sources: Johnston and Frengley (1990a), NZMWBES.

[a]1989-90 figures range from provisional through to forecasts.

peak.

The fall in real net farm incomes initiated the stresses which are still affecting those who borrowed. As net farm incomes have failed to recover substantially, investors are still wary of agriculture despite the fall in real farmland values and the improved returns to capital.

FINANCIAL PERFORMANCE OF NEW ZEALAND SHEEP AND BEEF FARMS

Financial conditions in the years leading up to deregulation in 1984/85, and the subsequent financial readjustment of New Zealand sheep and beef farms, are examined in Table 2. The production year for pastoral agriculture is from July 1 of the year first identified, to June 30 of the following year.

(Table 2 about here)

Income/expenditure indices in the first columns of Table 2 are in nominal terms. Apart from the effects of the oil price shock (1975) and post devaluation (1985) exchange rate readjustment, gross farm incomes have risen progressively since the start of the 1970s. Total farm expenditure has followed suit.

The next two columns contain annual estimates of net farm incomes and interest expenses. In 1980, at the start of the period of commodity price support and the intensification of concessional lending, average interest expense was only 30 percent of net farm income. In the worst income year following economic liberalization, 1986, average interest expense was 1.4 times greater than net farm income. Estimates for 1990 suggests it has now fallen to 74 percent of average net farm income, in part effected by debt forgiven or repaid, ownership changes and a minor fall in the interest rate. Coupled with the precipitous fall in real net worth after deregulation, many farmers have experienced financial hardships affecting both income and assets, induced in part by their immutable debt.

Table 2 also contains several of the principal ratios used to evaluate financial change through time. Several of these ratios are reported annually by the NZMWBES. The activity ratio, interest expense as a percentage of gross farm expenditure relates to firm efficiency. The fraction of total farm expenditure

attributable to interest expense rose disproportionately from 13.1 percent in 1971 to 24.4 percent in 1987. As the ratio of interest expense increases productive variable inputs such as fertilizer, weed control, repairs and maintenance etc. are crowded out. High ratios indicate reduced efficiency among those firms as is the case from 1986 on.

The profitability ratio, the NZMWBES' return on capital has remained lower than the commercial rate of interest throughout the period (except for 1973) suggesting that investment in agriculture has not been efficient or that land has been overvalued. That would not be unexpected, in view of the opportunities for financial leverage which existed throughout the period before economic reform.

Three financial leverage ratios are shown. The first, the net worth ratio, reflects proportional owner equity. The ratio changes with debts or asset values peaking in the early 1980s. Following economic liberalization, the ratio dropped quickly as debt increased. The more recent recovery reflects reduced debt and a levelling off of land prices.

Interest as a percentage of gross farm income relates the cost of debt servicing to the farm's ability to meet the commitment as a first call on income. In the 1970s, interest expense was around 10 percent of annual gross farm incomes. The subsequent rise to 20 percent in 1986 reflected both the falling incomes and rising interest rates. Improved gross incomes, a fall in the interest rate and debt repayment have reduced the ratio (provisionally) to 16 percent.

As with the previous ratio, the times interest earned ratio reflects likely cash flow problems. The numerator is earnings before interest and taxes and the denominator, interest expense. High ratios reveal the capacity of the firm to easily service its debt and that capacity diminishes with smaller ratios. Throughout the 1970s, the ratio was only once smaller than 4.0 but it has not been above 2.9 since 1981. The ratio infers that the liquidity problems of sheep and beef farms have not been reduced appreciably since assistance has been removed.

FINANCIAL STRESS ON FARM FAMILIES: CONSTRAINED CONSUMPTION.

Changes in income affect the well-being of farm families, but neither changes in gross incomes nor in net incomes can be a direct measure of change in the

family's potential consumption and/or likely financial stress. The financial objective which is consistent among farmers is to optimize the outcome of decisions to consume or invest. The surplus cash obtained from farm production is available for household consumption or investment. Excessive consumption enforces dissaving or disinvestment and in an ecomomic downturn the constrained farm cash surplus creates a special dilemma. Net farm income in that year may be too small to support a farmer's realistically desired consumption. Any decision to maintain the preferred standard of living will force dissaving and increase debt.

Maintaining current consumption can only be effected at some cost to future living standards. If present consumption can only be maintained by withdrawing capital through borrowing, interest costs will rise, future consumption may be even more constrained and the risk that the farm may become insolvent increases. The trade-off between the necessity to pay additional interest costs in an uncertain future or reduce current living standards stresses farmers. And when debt servicing constrains consumption, consumption decisions become stressfull and continuous.

High ratios of interest payments to drawings therefore indicate considerable consumption stress while falling ratios suggest that farmers do not have to use capital to support their chosen standard of living.

The right hand side of Table 2 is used to examine consumption stress. The data shows nominal and real personal drawings, savings and the ratio of interest expense to drawings. This latter ratio is used to examine more closely the extent to which financial stress affecting farm families has changed over time. As the ratio rises to reflect greater interest payments relative to consumption, financial stress rises. Any fall reflects a fall in the marginal utility of increased consumption and a reduction in financial stress. Low ratios suggest minimal financial stress.

Real personal drawings have progressively declined following deregulation in 1985, inferring that real consumption opportunities for sheep and beef farmers have continued to deteriorate. The principal interventionist policies commenced in the early 1970s with extended cost subsidies. Commodity price support began in 1979. Real drawings remained comparatively high through the 1970s, fell through the period of commodity price support in the early 1980s, and since deregulation have

continued to fall.

The interest expense to drawings ratio used as the measure of household financial stress indicates that the marginal utility of additional income available for consumption for average sheep and beef farmers, was in 1986 seemingly more than 3 times greater than it was at the peak year (1977) for drawings. In combination with real drawings the ratio shows that in aggregate, sheep and beef farmers probably reached their peak stress in 1986, the year of peak dissaving and the highest ratio. Without disaggregated information and knowledge of the sales of insolvent firms, it is not possible to estimate how severely stressed are farmers who commenced farming in the late 1970s or early 1980s. These farmers are thought to have been the most severely affected by deregulation.

It is especially noteworthy that in the thirteen years between 1971 and 1984, farmers were obliged to use savings only three times to support their standard of living. In the seven years since, they have only once managed to save.

CONCLUSION

Clearly the interaction of farm debt with household consumption is a principal cause of farmer stress. The legacy of debt incurred during the period of government support for agriculture now impacts on farm household expenditure. Although the average interest to drawings ratio has fallen from 1.15 to.87, since 1986, farmers whose debt to asset ratio exceeds 20 percent have continued to use equity to support drawings. (In 1988 this represented 60 percent of all sheep and beef farmers and includes most entrepreneurial risk takers and young farmers). They are increasingly stressed and their financial survival is becoming even more tenuous. The likelihood that their stress can be alleviated is dependent on New Zealand's position in world trade and finance. Now, as at no other time, has a successful outcome to the GATT talks had such import for these farm families.

Distortion of the agricultural price system by government market interference gave short term rewards to some farmers. Stresses of readjustment have rebounded on any who used tax levered borrowing at that time. If there is to be a lesson, apart from the need to ensure governments do not interfere with freemarket prices, it is to remember that financial risk and the stress of farm families is exaccerbated by debt.

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