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**Working Paper**

## Farming subsidy reform dividends

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# **Farming subsidy reform dividends**

NZ Trade Consortium working paper no 45

July 2006

**The New Zealand Trade Consortium**

**in association with the**

**New Zealand Institute of Economic Research (Inc)**

# 1. Introduction<sup>1 2</sup>

A great deal has been written on the subject of ‘Farming without Subsidies’ in New Zealand. This paper draws heavily on much of that work, particularly Sandry and Reynolds (1990), Meat and Wool NZ (2005), Vitalis (2005), Gould (1982), Johnson and Forbes (2000), Lattimore (1987), Rayner et al (1991), Evans et al (1996), Silverstone et al (1996), Federated Farmers (2002) and Morrison et al (2000). Dalziel and Lattimore (2004) has a comprehensive bibliography of the business, economic, sociology and political science literature on the subject.

Twenty years on, the results of the farm subsidy reforms are clear. Sufficient time has passed for technological improvements to be generated and adopted. The macroeconomic climate is much more stable than it was in the 1980’s. It is now possible to confirm that there is a dividend payable from subsidy reform. Johnson and Forbes (2000) estimated that the rate of total factor productivity growth more than doubled from 0.7% over the high subsidy period, 1972-84, to 1.9% thereafter. Real farm incomes have now recovered and in some cases are significantly higher than they were during the period of high subsidies. Likewise, real farmland prices are higher than they were under high subsidies.

Nevertheless, in 2006, there are a number of cyclical problems facing NZ farmers. Incomes are down in many sectors, some key costs are rising rapidly, the exchange rate was 10-15% overvalued in 2004/2005, new bureaucratic procedures abound, and what subsidies government does grant are much more likely to go to film makers, sports events or yachtsmen than they are to farmers – yet aside from the usual anti-government chatter at stock sales, there is no groundswell to push for renewed subsidies.

The reason for this is that New Zealand farmers now know that business life without major subsidies anywhere in the private sector is not perfect but it is “as good as it gets”. Importantly, there is also now a more systematic policy framework in place to deal with the new issues that will inevitably rise. Perhaps the key element stimulating this view is the freer market environment that farmers face. New Zealand farmers now operate in an environment where they are closer to world market prices and costs than they have been for many decades. Those world market prices are, of course, highly distorted by foreign agricultural policy interventions but even given that, New Zealand farmers can make their own judgments about where to invest and where to disinvest. They face market risks on outputs and inputs including attendant foreign political risks but they haven’t faced large domestic political risks for 15 years. In other words, New Zealand farmers now

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<sup>2</sup> Paper prepared for the North American Agrifood Market Integration Consortium Meetings, May 31-June 2, 2006 Calgary, Alberta.

operate in the same sort of general economic environment as North American farmers but without having to submit much farm policy control to the state. This increased economic freedom is obviously important to farm efficiency in New Zealand even though it is difficult to quantify.

In this more-market environment, New Zealand farmers have expanded output rapidly based on accelerating productivity trends and associated higher incomes. Their contribution to the performance of the national economy has increased.

Agricultural productivity has grown rapidly in recent years. For example, there are only half the number of breeding ewes there used to be but the weight of lamb produced is roughly the same. Productivity improvements across the whole farming industry have led to record high farmland prices as farmers compete for resources for their investment plans. Their living standards exceed those of many highly subsidized farmers in other countries.

It has been a painful process for some farmers getting to this point and they have lost a few colleagues along the way. However, they don't want to go back.

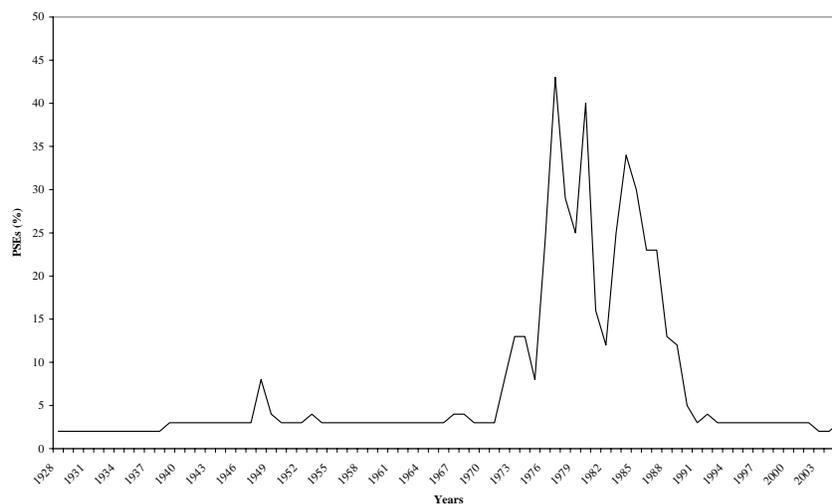
How did these subsidies arise in the first place? The New Zealand farm sector was initially granted some subsidies on inputs from the later part of the 19<sup>th</sup> century – but they were very low in producer subsidy equivalent (PSE) terms. This was done in an attempt to offset the extra costs on farming resulting from tariffs on imports of farm inputs. This 'import substitution policy with farm subsidy compensation' was ramped up significantly in 1938 under the first Labour Government. An import selection policy was introduced at that time that prohibited imports of competing goods, as was occurring in many other countries. Subsidies to farmers were not high initially with the Producer Subsidy Equivalent less than 5%. Overall economic growth suffered as a result.

There was a major attempt to rebalance this industry policy set in the late 1960's<sup>3</sup>. Initially, new export subsidies were provided for non-traditional exports in attempts to diversify the economy in the face of British entry to the EEC. In the early 1970's farm subsidies on inputs gradually started to rise to counteract the negative economic impacts of British entry and increased oil prices. In the late 1970's, large farm output subsidies were added for selected sectors, especially on sheepmeat and wool. The PSE in the sheep industry rose to around 45% in the early 1980's – on a par with EU and North American levels, Figure 1.

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<sup>3</sup> There was an earlier attempt in the early 1950's which was also aborted, Rayner and Lattimore (1991).

**Figure 1: Farm subsidies**  
percent



Source: NZIER

Output subsidies, mainly in the form of deficiency payments, constituted the highest share of total agricultural assistance over the period 1972-84. The output subsidies tended to vary inversely to world price so that in any particular year, the major commodities received different proportions of input and output subsidies. Table 1 gives the subsidy shares for 1984. It needs to be noted that, like highly subsidized farm sectors in other countries, smaller farm sub-sectors (like horticulture, most other crops and pigs) received very few subsidies relative to the larger sub-sectors (sheep, beef and dairying).

**Table 1: Farm subsidies (PSE) by commodity, 1984**  
Percent

	Commodity			
	Sheepmeat	Wool	Beef	Dairy
Output subsidies	88	43	13	15
Input subsidies	12	57	87	85
PSE	90	19	13	13

Source: Lattimore & Tyler (1990)

Farm subsidy reform in New Zealand is a very special case in the following sense. Prior to 1984, there were severe distortions in financial markets and an associated overvalued exchange rate and high inflation. So, in addition to removing farm subsidies and reducing import protection, the economic reform package involved radical financial deregulation – a floating exchange rate and the removal of interest rate controls. Accordingly, farm interest rates rose to around 25% (from 11% or less) just as subsidies disappeared. The extra farm costs added considerably to farm financial stress – lowering net farm incomes and farmland prices much more than the simple removal of farm subsidies would have done.

The aim of this paper is to discuss why farm subsidies were raised so much at that time, why, and how, they were quickly removed after 1984 and what have been the resulting effects on the farm sector.

## **2. NZ agricultural policy reforms**

### **2.1 Pressures for reform**

The problems that led to the complete removal of agricultural subsidies had their origins in the aftermath of World War 2. Unlike most OECD countries, New Zealand continued an isolationist economic policy that had been introduced during the Great Depression. It extended war-time-like price control systems and added additional monopoly marketing boards in the late 1940's. There was no political mandate for change – growth boomed as a result of high commodity prices and the joke was told that all the unemployed were known to the Minister of Labour on a first name basis. Around the early 1950's, New Zealand had the third highest per capita income in the world.

In this environment, industries were responding to distorted trends in world market signals and the import selection policy tended to stifle the incentive to import best practice technology, especially in manufacturing and in the service sector. The farm sector was caught in a major policy-induced cost-price squeeze – farm export prices were too low and costs were too high in New Zealand dollar terms.

With this badly structured economy, New Zealand slipped to around 24<sup>th</sup> place in the world per capita income rankings over the next 30 years, Gould (1982). Britain's entry to the EEC hit New Zealand hard as did the first two oil shocks – harder than they needed to, because the interventions had distorted world market signals and industries responded too slowly in the right direction.

By 1984, there were also severe macroeconomic imbalances. High levels of government foreign borrowing had resulted in credit rating downgrades and attempts were being made to offset the large twin deficits with price, wage and interest rate controls. The rate of economic growth was poor and underlying inflation was still around 20% per year.

Within agriculture, high sheep subsidies had led to unsaleable surpluses of sheepmeat, farm development on very marginal land, food quality problems arising from import controls and concern over the lack of agricultural diversification and the lack of product development for both the domestic and export markets.

The US Government added its stimulus by complaining about New Zealand agricultural subsidies and threatening countervailing action on exports.

There were some moves to correct policy imbalances in agriculture even as farm subsidies were being raised. For example, there were moves from the late 1970's-early 1980's to deregulate controls on the meat processing industry and the wheat industry. However, while there is no clear date when farm subsidy removal started, the rate of removal was accelerated from 1984. It was also announced before the 1984 election that the large output subsidies would have to be removed.

However, for all this, the real stimulus for economic reform and subsidy removal was the existence of a foreign exchange crisis in 1984 just prior to the election, Rayner (1990). The incumbents lost the election and the Fourth Labour Government won in a landslide. The economic crisis led to the appointment of Sir Roger Douglas as Minister of Finance with equally market-oriented deputies in key associated portfolios<sup>4</sup>. Sir Roger was given a very free hand for nearly four years to initiate economy-wide reforms. Furthermore, it is not surprising that a Labour Government should begin reforms with a strong emphasis on removing farm subsidies because the rural community was not a key supporter of the Labour Party.

## 2.2 Overcoming resistance

As just outlined, the high farm subsidies in New Zealand were partial compensation for the import selection policy and attendant policy interventions. After thirty years of policy analysis, the interconnected nature of the policy problem was well understood – import selection raised farm costs and farm subsidies partially compensated by lowering *some* costs and raising *some* farm revenues. In the late 1960's, farmer politicians had initially agreed to, and then withdrawn support for, a freer import regime. They were content to continue receiving offsetting subsidies, at least on inputs. Farmers knew that the compensation was only ever partial – subsidies were a poisoned chalice.

With this background, government was able to structure a set of reforms in 1984 that often provided prospective benefits to farmers in the form of lower costs at the same time as they withdrew farm revenue subsidies. The farmers union (Federated Farmers of New Zealand) strongly supported the two-sided deal on offer, just as they had in 1968, but this time they did not renege.

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<sup>4</sup> Prior to the election, Douglas had not received unequivocal support within his Party for his pro-market ideas but the crisis was sufficiently grave to consolidate support for his appointment to the finance ministry, Rayner (1990).

The government promise of freer imports in return for farm subsidy elimination had more credibility in 1984 because moves had been underway for some years to reduce import protection. Perhaps the most important catalyst was the signing of the free trade agreement with Australia in 1983. This ANZCERTA agreement includes all food and agricultural products<sup>5</sup> and a joint food standards authority to prevent non-tariff barriers arising. This agreement resulted in the tendering of increasing quantities of bilateral import licenses across a broad range of products, and the eventual removal of these quotas. Farmers could be more confident this time that the economic reforms would go to the core of the problem.

Douglas would use this strategy of ‘take and give’ repeatedly – with great political effect. For example, it was announced that a consumption tax (GST) would be introduced and that income taxes would be reduced at the same time. There was hardly any resistance to the introduction of the new tax and, in contrast to other countries, no exemptions to GST had to be made to gain acceptance.

Government was also astute in not dismantling agricultural marketing boards in the early stages of the reforms. These boards, particularly the Dairy Board, were held in high regard by many farmers because they had been around for a long time, were co-operative in nature and appeared to act as political and economic safety nets. The boards were retained (in fact, a new one was added for kiwifruit) in spite of the strong suspicion in analytical circles that the boards implicitly hindered product and market development rather than aided it (i.e. that they were export taxes rather than export subsidies).

Government also took a number of actions to assist farmers in small but important ways. A subsidy was introduced to assist in pulling out unprofitable varieties of wine grapes. Government also subsidized a farm finance appraisal programme to assist farmers (and banks) faced with difficult financing questions in the face of some dramatic declines in farm viability. Drought relief packages were readily agreed to, government shares in agricultural infrastructure (like irrigation schemes) were sold to farm groups at discounted prices and a government fund of past fertilizer import profits was handed over to farmer control for R&D purposes. None of these measures were costly but they began to breed a culture of farmer control using their own funds based on the Douglas principle of shifting risk to firms in the best place to manage it (i.e. circumventing government failure).

The economic reform programme captured a great deal of political and popular press after 1984 because it was so extensive. Some attention was drawn away from the associated adjustment costs by the introduction of nuclear-free legislation and the high profile break-up of the Australia-New Zealand-United States joint defence arrangement.

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<sup>5</sup> A notable feature of the ANZCERTA agreement has been the way an embedded food standards arrangement can be manipulated to exclude a politically important product to Australia, apples. Australia has been able to continue refusing to import NZ apples since 1983 and the disagreement seems, finally, headed to the WTO disputes tribunal.

This was led by the Prime Minister, David Lange, who bankrolled the Finance Minister politically in many ways, over the period of radical reform.

### **2.3 Compensation arrangements**

In the context of current international discussions regarding the fate of small farmers when (if) farm subsidies are reduced, it is perhaps helpful to understand that New Zealand agricultural policy has always made a fairly clear distinction between commercially viable farm units and farms that do not provide a significant proportion of household income. The latter are called ‘hobby farms’ or ‘lifestyle blocks’ even though in the aggregate, they produce a sizeable proportion of farm output. In New Zealand, most commercial farmers are full-time working owners and very little private farmland is rented out. Compensation payments were limited to full-time working farmers.

Compensation for policy changes was quite modest in the New Zealand case. This was aided by the fact that private banks had a natural inclination not to bankrupt too many clients – their balance sheets were heavily skewed towards farm debt and the market for farmland was softening very quickly in the face of very high interest rates.

As already noted, government assisted Federated Farmers with farm finance appraisals and individual farmer negotiations with banks. The government owned Rural Bank made interest and principal concessions to selected borrowers based on the likelihood of the farm returning to profitability in the future. After the Rural Bank was sold to the private sector, government replaced these concessions with some interest rate subsidies on private loans. The Rural Bank also assisted with seasonal finance in the tight financial market around 1986. Social welfare assistance, not usually available to the self-employed, was made available to very low income farmers to underpin basic living expenses for a few years.

Where a commercial farmer appeared to have no hope of recovering financial viability, an exit package was provided by government. It comprised a grant of the family car and household furniture plus a cash grant that constituted a reasonable deposit on a house in town. Surprisingly, perhaps, few such packages were required.

Redundant farm employees were able to use standard relocation subsidies provided by central government to move to new jobs.

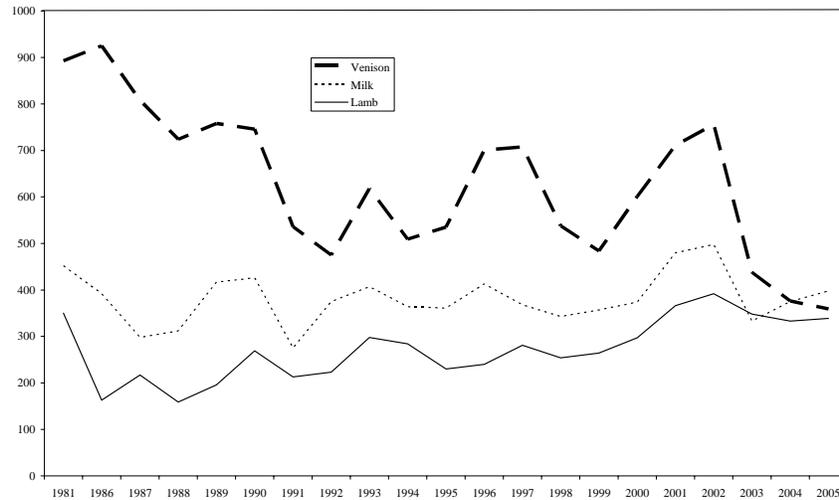
### **2.4 Immediate impacts**

The output subsidy removal impacted most acutely in 1986. Sheepmeat and wool prices fell dramatically (Figure 2) as a result of the withdrawal of output subsidies. Input prices rose where input subsidies were withdrawn (particularly for fertilizer and credit). In that year the real incomes of sheep and beef farmers (those with the highest output subsidies)

fell 60% from the previous year. Dairy farmer incomes fell 25% mainly as a result of rising debt servicing costs and the removal of fertilizer subsidies.

**Figure 2 Real commodity prices**

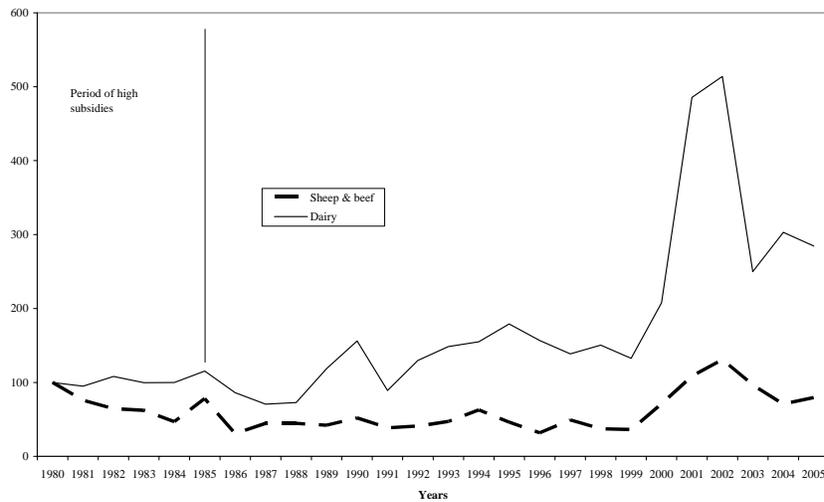
Real Prices, June 1999 NZ\$



Source: SONZA

**Figure 3 Farm real incomes**

Index 100 = 1980



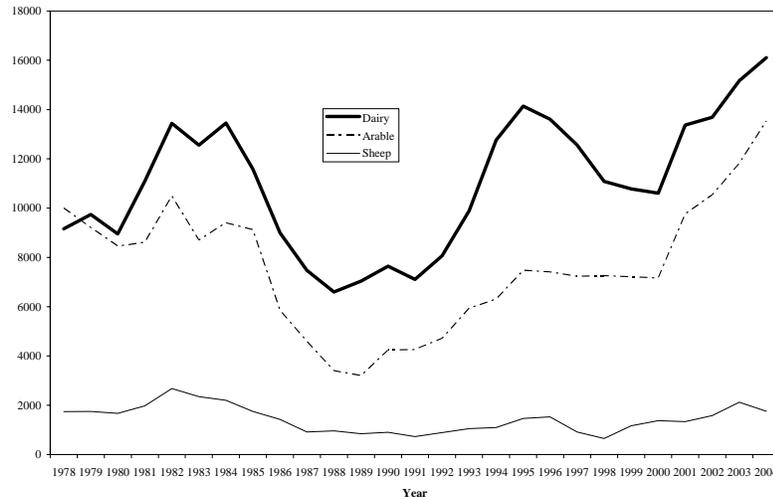
Source: Meat & Wool Boards' Economic Service and Dexcel

Farmland prices had been falling in real terms since 1982. In 1985 they were 30% lower than the peak and 50 to 65% lower by the time they bottomed out in 1987<sup>6</sup>. It is estimated

<sup>6</sup> Fifty percent lower for dairy farmers and 65% lower for sheep and beef farms.

that over the period 1985-89, around 5% of commercial farmers were declared bankrupt or simply left the farm.

**Figure 4: Real farmland values**  
1999 real NZ \$



Source: Quotable Value Limited

Farm families survived the crisis period by cutting costs, increasing revenue (including off-farm employment) and restructuring farm debt using the facilities created by government. Fertiliser use dropped nearly 50% over the period 1985-87 without a major drop in productivity. This is possible in New Zealand because the main fertilizer is phosphate and on many soils it has a strong residual effect. Repairs and maintenance and machinery and equipment purchases were postponed.

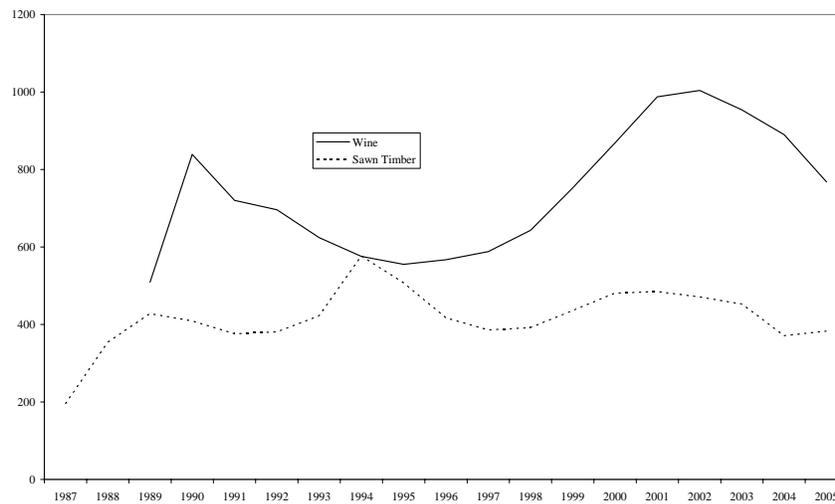
Farm employees were laid off resulting in the greater use of family labour and the adoption of additional labour saving practices.

Farmers and their wives took part-time work off the farm and diversified farm enterprises where they could – given the financial constraints. ‘Farm Stay’ accommodation blossomed at this time as farmers moved out of sheep into a wide range of other farm enterprises – farm forestry, deer, dairying, goats, wine grapes, kiwifruit and rural tourism. Large areas of marginal land were taken out of production and some land was sold for lifestyle blocks or leased to outside investors for forestry and other enterprises<sup>7</sup>. Two booming sectors at the time were plantation forestry and wine, Figure 5.

<sup>7</sup> It has been interesting in more recent years to see some lifestyle blocks being bought back by commercial farmers as farm profitability recovered in the 1990’s.

**Figure 5: Real Price of wine and timber**

Real Prices, June 1999 NZ\$



Source: SONZA

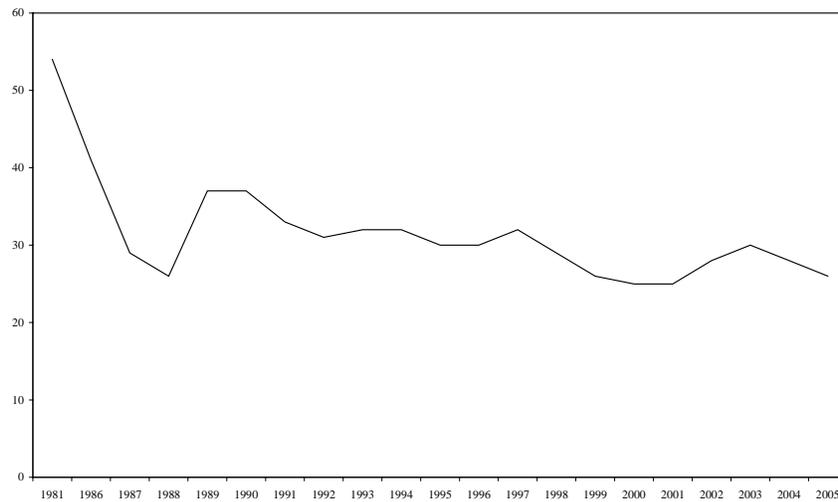
## 2.5 Did retail food prices fall?

The farm output subsidies in the exportable sectors of agriculture took the form of deficiency payments (Supplementary Minimum Prices). Accordingly, their introduction did not affect demand prices for agricultural products in wholesale and retail markets. However, dairy products, meat and some other food prices were also protected by import licensing and tariffs for a period. The removal of these import restrictions led to some retail price reductions and increasing consumer choice. To the extent that food processing firms in these sectors had monopoly power in New Zealand, prices would only have fallen to import parity rather than export parity, but this is not a large differential in the absence of non-tariff barriers.

A number of New Zealand agricultural products, however, are import substitutes. Wheat and eggs are two such examples. In cases, production and pricing before 1984 (actually 1981 in the case of wheat) were highly controlled by marketing boards with extensive powers to promote self-sufficiency. Both industries were completely deregulated and commodity prices fell, Figure 6. This had noticeable effects on the retail price of eggs. It probably also reduced bread and flour prices though it would have been masked by the high value-added beyond the farm gate for these products.

**Figure 6: Real price of wheat**

Real Prices, June 1999 NZ\$, cents per kg.



Source: SONZA

The liberalization of imports had very noticeable effects on the variety of foods available in supermarkets. Prior to this time margarine had only been available in New Zealand on a doctors prescription! The varieties of dairy products, meat, fruits, vegetables and many other food products expanded a great deal after the 1980's.

## 3. Twenty years later

### 3.1 Sector profile, then and now

We expect economic development processes to gradually involve a shift of resources from the primary sector to manufacturing and finally to the service sector. This path has been followed in New Zealand but in somewhat different fashion for two reasons. First, the relative strength of New Zealand's comparative advantage in agriculture is greater than for most other developed countries. Secondly, the import substitution bias of policy in New Zealand was greater over the post-World War 2 period than it was in any other developed country.

In this context it is interesting to look at agriculture's share of GDP and agriculture's share of exports. In 1966, agriculture's share of GDP was 13.9%. It fell monotonically to 5.7% in 1987 when economic reforms were being enacted. Since then, agriculture's share has risen. In 2002 it was 7.6% of total GDP from farming alone. These shares are confined to value-added on farms only, and do not include major contributions to GDP from the food processing sector and other industries strongly allied to farming.

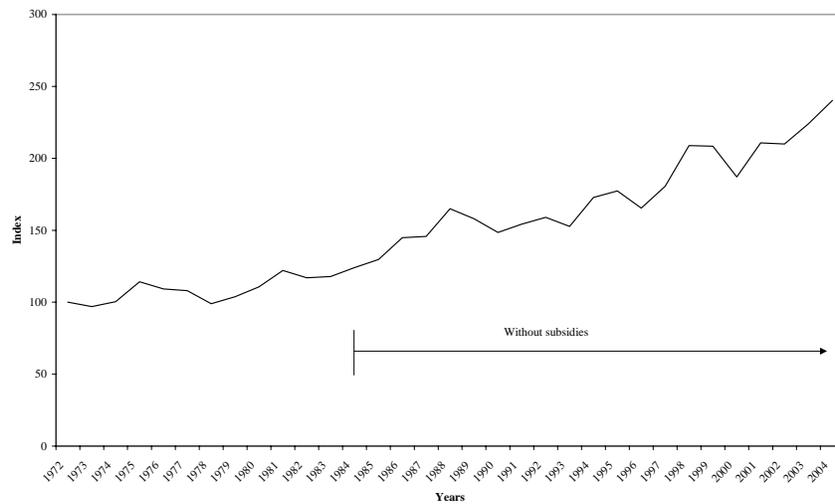
In 1960, agricultural exports represented over 90% of total exports. This figure fell to just over 60% by 1986. This decline reflects the sectoral diversification one can expect as a result of developmental processes and the bias against agriculture in industry policy. Following the removal of farm subsidies, agriculture's export share has continued to fall but at a much reduced pace – in 2005 it was fairly stable at around 55% of total visible exports. At the same time the proportion of value-added exports increased significantly.

The number of commercial farms grew following the removal of subsidies, from 77,000 in 1984 to around 80,000 over the period 1986-93. Over this period, pastoral farms got larger while many farms that diversified into deer and horticulture got smaller. There are currently around 66,000 commercial farms, in part, as a result of amalgamations of farm units in the expanded dairy industry<sup>8</sup>.

The farm labour force trended downwards to around 109,000 FTE's (full-time equivalent workers and working owners) in the early 1970's. Increasing farm subsidies resulted in an expanding agricultural labour force, peaking in 1983 at 127,000 FTE's. It has since declined to around 102,000 FTE's in 2004. Over the period since 1984, labour productivity has risen around 85%. This is one of the best indicators of changes in farmers incomes since subsidies were removed, as more than half the labour force is made up of working owners (see Figure 7).

**Figure 7: Labour productivity**

Base year 1972 = 100



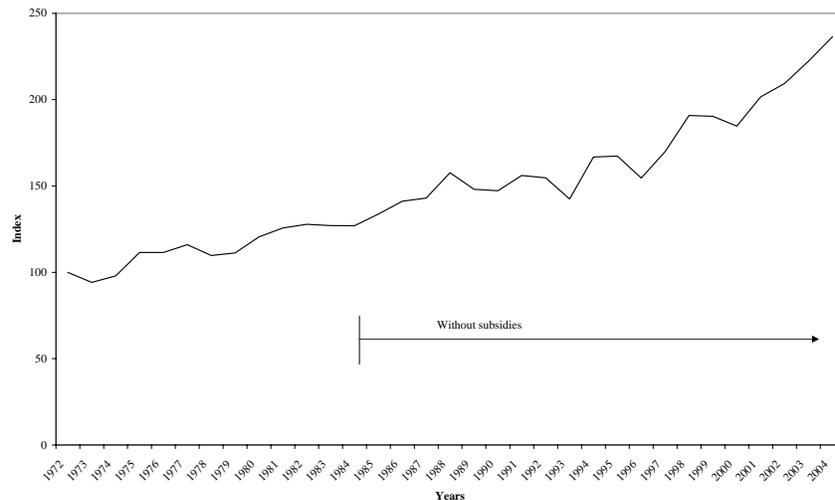
Source: Author's calculation

<sup>8</sup> Farm numbers also reduced as a result of changing statistical definitions.

The land devoted to livestock and arable farming has declined from 14 million hectares in 1984 to around 12 million hectares in 2003. At the same time livestock (overwintered) on this land has been reduced from around 110 million stock units to 100 million stock units – but they are much more productive animals. The productivity of breeding ewes has risen over 60% since 1991 (in terms of kilograms of lamb produced per breeding ewe) while the quantity of milksolids produced per dairy cow has risen over 20% (see Figure 8 and Table 2).

**Figure 8: Land productivity**

Base year 1972 = 100



Source: Author's calculation

Land devoted to horticulture has risen from 87,000 hectares in 1984 to 121,000 hectares in 2003 while the area of plantation forests on farms rose around 350,000 hectares after 1984.

The quality of food products improved in some areas as a direct result of the reforms. One example is the case of wheat. Prior to 1981, New Zealand had attempted to pursue a self-sufficiency policy in wheat, with import quotas supporting a domestic price set by fiat. Each year, farmers were offered a basic price for wheat delivered to the nearest train (ensuring that wheat was not grown in the most productive regions).

Quality differentials tended to reflect the ease with which the various types of wheat could be grown and less to do with consumer preferences. Furthermore, wheat farmers were able to influence wheat breeding research ensuring that new varieties were developed to suit growing conditions, rather than millers, bakers and consumers. The result was that most of the wheat grown in New Zealand had low baking scores by world standards and this was reflected in bread quality. The deregulation of the wheat industry

resulted in some reduction in New Zealand's level of self-sufficiency but an increase in the quality of wheat grown.

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**Table 2: Productivity comparison**

	1990-91	2004-05
Lambing percentage	101.6	123.2
Av. lamb weight (kgs)	14.35	17.14
Lambs sold kgs/ewe	9.76	15.80
Wool kg/head	5.28	5.78
Av. steer weight (kgs)	297	318
Milksolids per cow (kg)	260	322

Source: Meat & Wool New Zealand

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Dairy farmer incomes started to recover from 1988 and the improvement accelerated after 1991. Sheep and beef farmer incomes improved more slowly from 1987, Figure 3. Both farm types received a setback during the Asian Crisis after 1996 as this region is a very important set of farm markets for New Zealand. More latterly, there have been some spectacular rises (and falls) in farmer incomes. The large rise in 2001 for dairying triggered more major conversions of sheep farms to dairy farms.

Farmland prices bottomed out in 1988, Figure 4, and immediately began to recover. Again the recovery was slowest for sheep farmland prices but this is not surprising given the relative trend in sheep and beef farmer incomes and the fact that many sheep farms are on the extensive margin of the agricultural sector. Around 1996 there was some speculative activity in dairy and arable farmland. This activity was sufficient to attract the attention of the central bank governor and the ensuing interest rate hikes resulted in some of those gains being lost. The falls in dairy farmland prices after 1997 are also partly the result of lower export prices around the time of the Asian Crisis. The upward trends in farmland prices resumed from 2001.

### **3.2 Avoiding new income support**

The economic reforms set out to create a 'level playing field' for all industries including agriculture (with minor exceptions still under discussion like textiles and apparel) and adopting a 'market led approach'. This was achieved by about 1997. At the same time governments have reformed monetary, taxation, competition and fiscal policy to ensure they are more transparent and more goal focused. With the removal of exchange rate distortions and virtually all import protection, there is now a new culture developing that

sees no need to treat the business of farming any differently from any other business<sup>9</sup>. Accordingly, pleas for special treatment are now more likely to be subjected to objective efficiency and equity tests than was previously the case. It is a harder filter to penetrate, and discourages industry groups from trying.

New Zealand governments, like all governments, are always on the lookout for a worthy infant industry. However, the record of past poor public investments in ‘think big’ projects and ‘picking winners’ is still remembered (though the memory is probably decaying).

Government over the last 15 years has redirected its fiscal efforts towards improvements in infrastructure including education and research. In agriculture, these efforts are most apparent in biotechnology research, telecommunications accessibility, international market support, international relations, occupational safety, environmental policy, training, and competition policy.

Until recently, governments have been constrained by the high fiscal costs associated with the major fallout from the economic reforms – unemployment. During the reform period 1984-91, unemployment rose from 4% to 11% (the level it peaked at during the Great Depression). It has taken nearly 15 years to get it back down to below 4% and at high cost in terms of education, mentoring and training subsidies. A second fiscal constraint is that GDP per capita is significantly lower than that of the countries we emulate in health, education and welfare standards. This puts considerable strain on government budgets and makes it difficult to gain priority for industry assistance unless it is seen to have generic or eye-catching appeal.

Finally, there is the need for growth. New Zealand cannot afford to have too many resources, in important sectors, misallocated by distorting policy interventions. If resources cannot earn a profitable return at world market prices, they must be encouraged to move. The failures of farm subsidies and import selection in this regard are reminders of impediments to growth.

### **3.3 Impacts on agri-business**

The agribusiness sector was generally liberated by the broad ranging economic reforms, and for the same sorts of reasons farmers have come to appreciate, Sandrey and Reynolds (1990, p. 233). Business had been hampered by the repressed financial sector and policy uncertainty generally. They welcomed the macroeconomic stability, more neutral taxation system and the freedom to import.

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<sup>9</sup> In economic terms, the foreign exchange restraint has been removed.

Business also benefited from labour market deregulation at the end of the reform period but the deregulation of the meat processing industry meant increased wage flexibility in that large food processing industry even before the reforms had started.

Inflation and fiscal control that gradually took hold in the 1990's creating greater certainty for business. The new environment has, however, brought a new challenge in the form of fluctuating real exchange rates under the floating exchange rate regime. Farmers and agribusiness got a taste of this problem in the late 1980's when the floating rate began to appreciate just at the time subsidies were being removed.

Competition policy has had both positive and negative effects. It has provided more cover for smaller agribusiness firms but, at times, it has hampered the merger expansion plans of large firms. Large New Zealand agribusiness firms are not large by world standards and some view competition policy constraints as barriers to increasing international competitiveness. The case of the formation of the dairy co-operative, Fonterra, is illustrative. When government allowed Fonterra to be formed by merging two very large co-operatives, it required an exemption from competition law. This was granted but subject to quite restrictive behavioural constraints in New Zealand to try to prevent monopsonistic actions in the raw milk market. Given that Fonterra is only about the fourteenth largest dairy company in the world, in a country with one of the strongest comparative advantages in dairying, some view competition law as unduly restrictive.

The changing composition of farm output and general market deregulation (in wheat, for example) opened the way for significant change in agribusiness. Farmer co-operatives bought out the last remaining multinational meat processing companies in New Zealand. There were many mergers and new entrants in the bakery and cereal industry, wineries, forestry, beverages, dairy products, agricultural research, banking, the farm input supply industry and in fertilizers. Competition policy ensured that competitiveness was not reduced, and in many instances markets involving agribusiness firms have become more competitive.

### **3.4 Lessons from providing compensation**

The compensation offered to farmers was provided in a timely and credible fashion, involving, as it did, a partnership with Federated Farmers. To the extent possible, farm subsidies were only continued (e.g. interest write-offs and holidays) in cases where the farm was thought to be viable at world market prices. To this extent it was efficient in not blocking the transfer of valuable resources within the agricultural sector or between agriculture and other sectors. Where this criteria could not be met, exit grants which quickly freed up resources, also appear to have been efficient. No compensation was offered for the loss of quota rents.

It is always more difficult to assess equity aspects of compensation packages in farming because farmers have traditionally been amongst the wealthiest individuals in New

Zealand society. The exit package does not appear extravagant in this context. It might also be viewed as sufficient given that many of the farmers who found themselves with negative equity probably would have had to leave farming even if the subsidies had remained – the reforms merely accelerated the process. This latter argument, however, is implicitly using the relative wealth position of the non-farming community as the comparator for horizontal equity. If one uses the relative wealth of farmers who survived the subsidy removals as the comparator, it is easy to come to quite a different conclusion. Farmer-banker negotiations led to banks making decisions on who would survive and who would not. Both groups often had negative equity at realistic market prices. The judgment must have involved strong subjective elements and the wealth outcomes today would be quite different. Farmers who survived the bank negotiation have current wealth levels measured in the millions, whereas the farmers who exited have a fraction of that wealth level.

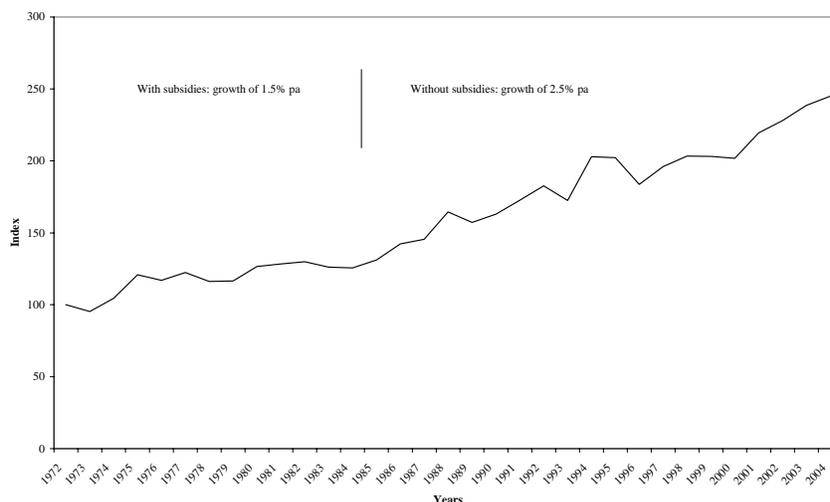
The adequacy of farmer compensation in the New Zealand case also needs to be judged in the context of the economic reforms. The reforms were a response to a crisis and while the compensation was offered in a timely fashion, the programmes were put together hastily and developed as extensions of existing social welfare programmes with their level of support. That, of course, may be the most equitable basis upon which to design farmer compensation.

### **3.5 Winners and losers: how well were they predicted?**

The winners in agriculture from the economic reforms are those farmers (the majority) who withstood the short-term adjustment costs and stayed in farming long enough for farm incomes and farmland prices to recover. They won in large part because they developed and adopted new technology to boost farm productivity. This is best indicated by the acceleration in total factor productivity (TFP) illustrated in Figure 9. TFP is the ratio of value-added in farming to an index of primary factor inputs. Here the primary factors for New Zealand farming are land, labour, farm machinery and equipment, the stock of female breeding animals and the stock of fertilizer (the historic 3 year moving average of fertilizer applied).

**Figure 9: Total factor productivity estimates**

Base year 1972 = 100



Source: Author's calculation

As shown in the figure, there appears to have been almost a doubling of TFP from the highly subsidized period, 1972-84, to the unsubsidized period thereafter. Some perspective on these TFP growth rates may be gained by considering that at a TFP growth rate of 1.5% pa, it would take nearly two generations to double a farmer's income but at 2.5%, it would only take 1 generation.

The losers were those farmers who left or were forced out of the industry while farmland prices remained low. There were some farmer suicides and there was a high incidence of personal and social anxiety in rural areas. Farm employees who were laid off had to find alternative employment, often in other regions.

Government overestimated the number of farms that would be declared bankrupt or otherwise forced off their farms. During the reforms, government forecast that around 20% of farmers would lose their farms. In the event, only about 1% of farmers took exit packages and about 5% of farmers left the land over the period 1985-89. These numbers are not significantly greater than the normal rate of farm bankruptcies.

Outside the farm sector, workers with lower skills bore the brunt of the adjustment costs emanating from the economic reforms. Some ethnic minorities were heavily represented in this group: as groups they were also in the process of undergoing structural social changes. It took more than 15 years for the labour market performance indicators of these groups to normalize.

## **4. Case study: the NZ dairy industry**

### **4.1 Institutional structure**

Changes in the New Zealand dairy industry provide one example of the changes in market orientation that resulted from the reforms. Prior to 1984, the industry was controlled by a statutory marketing board with monopoly export rights. In addition, the Dairy Board administered New Zealand's bilateral dairy quotas. The industry was also protected by import restrictions on dairy products under the import selection regime. Some dairy farmer inputs (credit and fertilizer, for example) were subsidized and deficiency payments on output were provided for a short period after 1978. As mentioned earlier, the subsidies were removed quickly after 1984 but the Dairy Board structure remained until 2001. Throughout the 1990's there were large scale amalgamations of dairy co-operatives in anticipation of the removal of the Board. In 2001, only four companies remained – 2 very large companies and 2 small companies.

In that year, government agreed to allow the 2 large companies to form a single co-operative – Fonterra. The Dairy Board was abolished and the bilateral trade quotas it administered were given to the 3 co-operative dairy companies. Westland and Tatua sold their shares in the quotas to Fonterra. In 2006, under accusations by the EU and other trading partners that Fonterra was a State Trading Enterprise, the New Zealand government agreed to phase out the company's trade quotas and institute a new allocation mechanism (yet to be decided).

In agreeing to the formation of the monopsonistic company, government imposed a set of restraints on Fonterra in the domestic market for raw milk. Under those regulations, Fonterra is obliged to sell reasonable quantities of raw milk to competing dairy companies at cost. This was done in order to offset the market power of the company domestically.

### **4.2 Competitive position**

A number of new private dairy processing companies have been established since 2001, gaining a foothold by using the regulations. There has also been some threat of shareholder movement (and actual movement) to and away from Fonterra.

The industry appears to have adapted to the new structure with little difficulty. Companies are free to compete in the export market, save in the areas where New Zealand's bilateral quotas apply. Tatua dairy co-operative is a specialist producer of industrial and pharmaceutical ingredients from milk while Westland has a product range more similar to Fonterra. The new dairy companies tend to be aiming at special cheese markets at home and abroad.

There are no major competition issues in New Zealand at present and the regulations appear to be robust enough to deal with future eventualities. Furthermore, the dairy companies are in the process of co-operating on some research and development programmes of common interest.

### **4.3 Growth opportunities**

There are growth opportunities for the smaller companies to attract dairy farmer shareholders away from Fonterra and explore domestic and international market developments. Given that export market opportunities will likely be greatest in emerging markets like China and India (where NZ has no import quota rights), these companies will only be disadvantaged by the high cost of establishing market beach-heads. Fonterra has the size and existing market linkages to expand in these new markets but it is vulnerable to smaller companies picking off suppliers at home.

If Michael Porter is right about the existence of external economies in world markets, the New Zealand economy will benefit from this competition at home. On the other hand, if Schumpeter is right, New Zealand might still gain if the size distribution of the dairy companies doesn't change too much.

On questions regarding the future of dairying, I'd like to quote a much wiser person. Chou En-Lai is reputed to have once said that "It is still too soon to tell what lessons can be learnt from the French Revolution"! That seems to be a very reasonable position to take here too. More seriously, given the current world market prospects, dairying is one of the most competitive industries in New Zealand. Furthermore it has grown in competitiveness in recent years, bidding significant resources away from other sectors of the economy. If the market (international protectionism) changes and/or the rate of technological progress weakens then the dairy industry will shrink. If the opposite occurs (and the industry is working hard on that) the dairy industry will increase value-added but little in terms of milk output – that's what farming without subsidies is designed to effect.

## **5. Final comments**

There are a number of important lessons that can be drawn out of the New Zealand experience with subsidies.

The first lesson is that, if it is imperative to subsidise farmers, the best policy instrument is an income grant or a deficiency payment – policies that do not give control of market demand to farm organizations. Protection from imports is the worst policy response because consumer welfare is lost in terms of higher prices and in terms of lower product quality. Trade policies steer the sector in the wrong direction in product and market development terms and they impede the entry of international best-practice technology.

The second lesson is that the removal of subsidies does not necessarily mean a huge drop in farmland prices, even in the short-term. In the New Zealand case, sheep and beef farmers had a PSE averaging 44% in 1983/84. Dairy farmers had a PSE averaging 15%. Both sets of subsidies were removed and interest rates rose from around 10% to over 20%. The short-term response was a 65% fall in sheep land values and a 50% fall in dairy land values. If we equate the 29% differential in PSE level with the 15% differential in land price reduction, then it implies that a 1% fall in the level of PSE will cause a short-term decline of only 0.5% in land prices – with most of the land price fall in the New Zealand case due to financial deregulation and higher interest rates. This is a very rough back-of-the-envelope calculation but it may be in the ballpark given that a doubling of interest rates will halve the present value of an annuity.

A third lesson is that farmers are much more likely to survive the adjustment period if they have access to the best possible support and advice when negotiating with their bankers. If the subsidy level has been very high then radical restructuring of balance sheets will be necessary. The associated business plan has to be marketed well to financing institutions.

The fourth lesson is that farm incomes and farmland prices will recover. They will recover faster, the greater is the scope for farmers to make essential new investments – and that is very difficult during the survival phase following reform. In other words, the sooner efficient farmers can be put back into a viable commercial position (given the new market realities) the faster the recovery will be. The dividend from farm subsidy reform in New Zealand has been large, so it is worth investing in recovery to gain it more quickly.

The fifth lesson does not normally apply to developed country cases. The overall New Zealand economic reform programme was technically inefficient in the sense that it imposed unnecessary cost on farmers. Net farm incomes and farmland prices did not have to fall as much as they did in the short-term. Unfortunately, for farmers, New Zealand policy generally was in crisis and the timing and sequencing of the reforms was dictated by political realities rather than good planning. Where reforming countries already have a reasonably stable macroeconomic environment, farm subsidy removal would be much less painful than it was in New Zealand.

The New Zealand case provides a cautionary note on the equity of compensation. It appears as though the exit grant for farmers in New Zealand was based on a horizontal equity rule that compared their position with citizens generally – they had access to a new home, a car and the household furniture. This approach probably resulted in the shareholders of banks paying a higher proportion of adjustment costs than would have otherwise been the case.

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