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Agricultural Reform in New Zealand

Alastair Jardine

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Alastair Jardine

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"The backbone of this colony is the country"
- Sir Harry Atkinson, Premier of New Zealand, 1889

1.1 Britain's Farm

When Queen Elizabeth II toured New Zealand in 1953 the country wanted to show off. It was the first time a reigning monarch had visited, and it sent the country into a fit of patriotism. It's instructive what kind of New Zealand the organisers chose to present to her. Art galleries and museums did not feature on the itinerary. Instead she took in primarily the rural achievements of the former colony: her train passed through dairy, sheep and fruit country; she toured a dairy factory and a cannery; and she deigned to attend two agricultural shows, seeing the same champion shearer twice. Little of the urban was exhibited to her majesty – it wasn't considered important or iconic. The beautiful natural scenery that would in later decades be sold to tourists was passed over. Indeed, it probably wouldn't have occurred to the organisers to feature anything else: farming captured the heart of New Zealand.

New Zealand was more than one giant farm. About three quarters of the two million (now four million) Kiwis of the time lived in urban areas that did indeed possess museums and art galleries. Yet farming was revered. Part of the explanation was its large share of the economy: 29 percent of Gross Domestic Product (GDP) in 1953;[1] and nearly 95 percent of tangible exports.[2] Urbanites knew their standard of living – then one of the world's highest – owed much to farmers. When farmers had a bad year, everyone in the country did. In 1957 a fall in dairy prices in Britain ramified through farmers' export earnings and slapped the government's fiscal position, prompting it to raise taxes and crack down on imports.

Perhaps more significant than this dependence was what the farming sector meant to the national identity. By 1953 farmers had transformed the country from large tracts of native bush into a patchwork of pasture and crop land.

1 Farming and food-processing combined. Ralph Lattimore, Trinh Le, Iris Claus and Adolf Stroombergen (2009) "Economic Progress and Puzzles: Long-Term Structural Change in the New Zealand Economy, 1953-2006", Wellington: New Zealand Institute of Economic Research, iv.

2 Kym Anderson, Ralph Lattimore, Peter Lloyd and Donald MacLaren (2007) "Distortions to Agricultural Incentives in Australia and New Zealand", Washington DC: World Bank, 21.

This is what the original European settlers had wanted: an Arcadia. They had left behind what was seen as a Europe sclerotic with entrenched class and marred by industry. In New Zealand a surfeit of developable land offered freedom from both. Consistent with all British colonisation, the indigenous Maori were expected to acquiesce to the plan.[3]

The colonists wanted *development* – the transformation of unused natural resources into material wealth sufficient to sustain a living standard comparable to Europe's.[4] In principle, any type of production would do. It just happened that New Zealand suited agriculture, due to the nature of the land – temperate and arable, with a long grass-growing season – and the circumstances of the settlers – small in number but with the right farming know-how.

Economists say New Zealand had a 'comparative advantage' in farming. This means agriculture was the most productive thing the small number of settlers could do, given that they had access to world trade and thus did not have to make everything they needed themselves. As heirs to scientific revolutions in industry and agriculture, their labour in agriculture was technically productive. As participants in world trade, it was economical. The introduction of refrigerated shipping in 1882 sealed their fate. As Hawke and Lattimore (1999) explain, it "narrowed the product and market mix and induced the development of comparative advantages which squeezed the available resource base and aimed it at South-Eastern England." Thenceforth, New Zealand was devoted to producing wool and animal protein (sheepmeat, beef, and dairy products) for the international market.

The economy has diversified since 1882 but New Zealand has remained a 'small trading nation', as it's typically described. Historically, exports have fluctuated around 30 percent of GDP.[5] This has kept the country dependant on world trade and, in turn, dependant on its export industries. For most of the twentieth century, due to its large share of exports, that has been short-hand for saying New Zealand was dependent on its farmers.

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3 Hawke and Lattimore explain, "the element of race discrimination which New Zealand shared with other countries was that Maori had to live in a European manner – mainstream life could not accommodate continued adherence to Maori culture where there was any conflict." Gary Hawke and Ralph Lattimore (1999) "Visionaries, Farmers & Markets: An Economic History of New Zealand Agriculture", New Zealand Trade Consortium Working Paper No. 1, 11.

4 Ibid., 4.

5 Phil Briggs (2003) "Looking at the Numbers: A View of New Zealand's Economic History", Wellington: New Zealand Institute of Economic Research, 70.

1.2 Farmers and the State

New Zealand is famous for the radical reform period it went through in the 1980s and 1990s. Part of the narrative about that era is how interventionist New Zealand was on the eve of reform. This is true: trade in manufactures were restricted; exchange and interest rates were fixed; business was heavily regulated; and the state sector was large. In the case of agriculture, government assistance made up an average of 32 percent of farm GDP between 1980 and 1984;[6] about 4 percent of total GDP. A casual look at New Zealand agriculture during this period reveals an industry shot through with state interventions.

Yet that picture is misleading. Historically, New Zealand farmers have not consumed massive amounts of state assistance, à la farmers in the United States (US) and Europe. They didn't have to, they were productive. Typically, it was the state that used them to fund its projects, not the other way around. The incredible sums of assistance the industry got from the mid-1970s to the mid-1980s were actually a departure from the norm.

In this section we précis the history of farm-state relations. But first we must underline an obvious yet important point: New Zealand agriculture is and always has been based on the private property of tens of thousands of individual owners who operate their farms in a free market. Usually this isn't mentioned because private farming is common and accepted. It should be emphasised, however, because it is the key to agriculture's success. We know for certain that private property is essential for prosperity.[7] We can get an idea of the difference it made to New Zealand by looking at Uruguay, which began similarly but did not distribute its land between large numbers of explicit property owners as New Zealand did, and which as a consequence suffered the land monopolies colonial New Zealanders feared but avoided.[8]

Before the First World War the state's interventions were of two types. In the colonial period it propelled development: acquiring land from Maori; attracting immigrants and selling or leasing or giving them land; and then opening it up with state-funded roads and railways. Later, it provided public goods such pest and disease control, transport infrastructure, farming research and

6 R.W.M. Johnson (2001) "New Zealand's Agricultural Reforms and Their International Implications", London: Institute of Economic Affairs, Table 5.

7 Hernando De Soto (2000) *The Mystery of Capital: Why Capitalism Triumphs in The West and Fails Everywhere Else.* New York: Basic Books.

8 Jeorge Alvarez and Ennio Bilancini (2008) "Agricultural Institutions, Industrialization and Growth: The Case of New Zealand and Uruguay in 1870-1940".

education, and overseas market support. In the inter-war period the major development was the creation of various 'marketing boards' to organise processing and exports (see 3.2).

Agriculture received state assistance because it was perceived as the country's vehicle of development. New Zealanders were, and are, quite pragmatic and non-ideological, and it was considered to be to everyone's benefit. Inevitably, however, the same pragmatism that permitted giving assistance to agriculture was eventually used to justify extracting assistance from agriculture.

Tariffs provided government the tool. Introduced in the nineteenth century as a source of revenue, when most public figures were free-traders, the tariff regime evolved into a policy tool to favour domestic manufacturing.[9] By imposing taxes (tariffs) on certain imported goods the state raised their domestic prices above the world level, increasing the profitability of their domestic manufacture and thus encouraging the growth such industry and its use of labour.

This had two effects on agriculture – first, by increasing the returns in manufacturing relative to agriculture, it drew capital and labour from agriculture into manufacturing – second, by raising domestic prices, it imposed an implicit tax on agriculture through higher priced inputs.[10]

This strategy existed in some form from 1895 to 1984, increasing in magnitude after the election of the First Labour Government in 1935. It helps explain why agriculture did not receive substantial state assistance until the 1960s. Theretofore, assistance was small and considered compensation for import protection.[11] In effect, agriculture was a net source of assistance rather than a beneficiary. Things changed only when, for various reasons, government found itself needing to wring more value from agriculture than it ever had before.

9 Hawke and Lattimore (1999), 21.
10 Lattimore (1985), 4.
11 Ralph Lattimore (2006) "Farm Subsidy Reform Dividends", New Zealand Trade Consortium, Working Paper No. 45, 124.

2. Agriculture in the Political-Economy

In this chapter we look at New Zealand's political economy between 1938 and 1984. We need to evince the economic approach the state used in this period to understand why agriculture experienced a surge of assistance in the 1970s and 1980s (Figure 1). Agriculture had always been assisted but never that much, before or since. The explanation for it lies in the economy's deterioration in the 1970s. In the face of an economic crack up and tumbling terms of trade, the government attempted to use agriculture to boost export earnings and relieve a balance of payments deficit.

2.1 The Dual Strategy

The 'assistance explosion' agriculture went through has its origins in the 1930s, when government developed a policy of 'insulationism' in response to the Depression, War and economic turmoil of the era.[12] Insulationism was intended to increase domestic control of the economy; it included controlling foreign exchange, restricting imports and guaranteeing dairy prices for farmers. The government believed that the prices farmers received should be determined more by what was needed for a decent income in New Zealand and less by overseas interests. It managed exports and smoothed prices to approximate this end.

The control of foreign exchange and the restriction of imports were initially designed to solve a balance of payments crisis. This was a perception that the country was 'spending' – buying things overseas – more than it was 'earning' – selling things overseas. These two controls enabled the state to manage what New Zealanders bought overseas. After the War, when other governments began abandoning similar controls, New Zealand held on to them. 'Import substitution', as New Zealand's brand of protectionism was known, was popularly understood to remedy unemployment (it did not – it simply changed what jobs there were). Moreover, in the early 1950s the economy boomed and the balance of payments remained a concern, so there was little incentive to liberalise.[13]

The government understood that keeping this regime put pressure on the export sector, because it created infant industries that had to import capital and raw

12 Gary Hawke, "Overview of New Zealand Agriculture" in L.T. Wallace and Ralph Lattimore, eds. (1987) *Rural NZ: What Next?*, Christchurch: Lincoln College, 1-2.

13 Lattimore (2006), 126.

material which would have to be paid for from the export sector's foreign exchange earnings. This situation was known as New Zealand's 'foreign exchange constraint': a constant pressing of import demand against a limited supply of export receipts. In order to fund the import substitution regime and alleviate this pressure, the government decided to encourage the export sector.[14]

This 'dual strategy' was the trade policy component of New Zealand's 'informal welfare state' – the state interventions beyond outright welfare that shielded firms and workers from the free market.[15] A large bureaucracy, an extensive state sector, compulsory unionism, wage arbitration, business regulation, Keynesian cyclical management and trade policy were all used to orchestrate the economy. Import substitution was popularly considered responsible for achieving New Zealand's (measured) full employment. It was not. Its real effect was, as explained above, to shift resources out of agriculture and into manufacturing; and, of course, to reorient the manufacturing sector toward import substitutes – viz. to make manufacturers produce domestically what their customers would otherwise have got abroad. The intention was to affect an economy that suited New Zealanders' range of aptitudes and to speed industrial development.[16]

The problem with import substitution is that although it encourages a diverse economy, it also makes people poorer. It does this in two ways – first, it blocks what economists call 'gains from trade' – and second, it weakens the protected sector by shielding it from competition. Gains from trade are the benefits you accrue from the goods and services you get by trade. Your access to these goods frees you from the labour required to produce or purchase them locally, allowing you to use your time for more valuable things. In this sense trade has an identical effect to technology in that, like labour-saving devices, trade can save you time and effort.

Consider this re-worked example from economist David Friedman.[17] There were two ways to produce cars in New Zealand in the import substituting days. One was to manufacture them in a car plant in Auckland; the other was to grow

14 Robin Johnson, "Government and the Farmer" in Wallace and Lattimore, eds. (1987), 19-2.
15 Herman Schwartz (1999) "Free Market Experiments in the Laboratory of Democracy: The Long Decade of Policy Reform in New Zealand", *Australian Journal of Public Administration*, Vol. 58, No. 2, 121-124.
16 Hawke (1987), 1-5.
17 As related by Steven E. Landsburg (1996) *The Armchair Economist: Economics & Everyday Life*, New York: The Free Press.

them in Waikato dairy country, amidst the cows. Factory car production is well known, but the method of getting cars from cows is not. The trick is to grow tracts of verdant green dairy pasture, the raw material from which cars are made. You then farm cows on this pasture for slaughter or milk products, it doesn't matter which. Once you have processed the cows for their meat or dairy products, you package them and ship them to Japan. A few months later the ship comes back full of Nissans.

Of course there is nothing inherently better about either method. But if 'growing cars' is the cheaper option, it doesn't make sense to force people to buy them from Auckland car plants. Moreover, to the extent that you do force them to, you are making farmers subsidise manufacturing, by raising the price of farm inputs, like cars, above their international price. In effect, what you are doing is banning an immensely liberating labour-saving device from the economy, imposing more work on people and making them poorer.

The second problem with import substitution is that by banishing cheaper goods from the market, domestic firms are discouraged from adopting the latest improvements in their industries which, among their unprotected competitors, drive down costs and drive up quality. Again, it is the domestic customers of the protected firms, farmers among them, who must bear the cost through higher priced, lower quality products.

This is what economics teaches. Practically speaking, the dual strategy seemed to work. In 1950 New Zealand ranked eleventh in GDP per capita among OECD countries.[18] Growth was strong through to the 1960s, things were going well. And yet, although incomes were growing, they were growing faster in other countries. By 1969 New Zealand had slipped to twentieth place.

The problem was the source of the prosperity – it wasn't domestic. In the 1950s, when New Zealand could have easily abandoned its war-time policies, there was a boom in commodity prices which provided wonderfully high terms of trade. Terms of trade refer to the relative prices of a country's exports and imports. If they are high it means exports buy more imports; if they are low it means exports buy less imports. The very high terms of trade in the early 1950s were responsible for New Zealand's high standard of living at that time, because it meant the national product bought a great deal of imports.

18 Rankings vary depending on which source is used, but all show a decline. See Peter Mawson (2002) "Measuring Economic Growth in New Zealand", New Zealand Treasury, Working Paper 02/14.

Unfortunately, this didn't last. From the 1950s to 1980s the terms of trade declined due to increases in world-wide agricultural subsidies, protectionism and improvements in farm productivity.[19]

2.2 Deterioration to 1984

By the 1960s there was a growing realisation that New Zealand's growth was slipping behind other countries. In line with the policy philosophy of the time, the problem was diagnosed as a 'foreign exchange constraint' that was hampering growth, particularly in manufacturing.[20] The solution followed consistently: to reduce dependence on imports and solve the problem of 'spending too much', more import substitution was needed; and in order to pay for it – since manufacturers still relied on imported components – exports would have to be stimulated too. This would compensate for another problem that was becoming apparent – that import substitution was imposing high costs on farmers.

In the 1970s New Zealand experienced a series of terms of trade shocks. In particular, in 1973 Britain – recipient of 30 percent of New Zealand's exports – entered the European Economic Community, and the first OPEC oil shock hit, tripling of the price of oil. Together these shocks caused a tremendous 30 percent fall in the terms of trade and the balance of payments to plunge to a deficit of 14 percent of GDP.[21] This meant that the overseas value of New Zealand's production plummeted, causing the price of its consumption from overseas to skyrocket – and, that in the face of this contraction of economic wherewithal, the country did not cut its spending to match.

Meanwhile, unemployment grew. Negligible until the mid-1970s, it passed 2 percent in 1980, extraordinary in a country used to near full employment.

The National government (1975-1984) took the view that agriculture's problems were temporary, but that the price of oil would remain high indefinitely.[22] So, in line with its Keynesianism, it planned to stimulate the economy through

19 Tony Rayner "The Seeds of Change" in Ron Sandrey and Russell Reynolds, eds. (1990) *Farming Without Subsidies: New Zealand's Recent Experience*, Wellington: Government Printing Office, 16.

20 Ron Sheppard (1993) "New Zealand Agricultural Policy Change: Some Effects", Lincoln College: Agricultural Economics Research Unit, Discussion Paper 135, 3.

21 Paul Dalziel and Ralph Lattimore (1999) *The New Zealand Macroeconomy: A Briefing on The Reforms*, Auckland: Oxford University Press, 17.

22 James Belich (2001) *Paradise Reforged: A History of The New Zealanders from the 1880s to the Year 2000*, Auckland: Penguin, 401.

this 'temporary' downturn and insulate the country from high oil prices at the same time.[23] First, state spending and borrowing would be expanded and funnelled toward a series of massive construction projects designed to reduce the country's dependence on foreign oil. This would act to 'grow' the economy in the Keynesian manner, soaking up unemployment. Second, the balance of payments deficit would be addressed with measures designed to increase agricultural production and exports. These would come in two forms: stimulation of farm investment and stabilisation of farm income. The latter was designed to create among farmers high expectations for their future incomes, which the government wagered would be vindicated by an eventual economic recovery.

From the macro-economic point of view, the plan didn't work. We can get an idea of how bad the economy was by looking at the major indicators leading up to the 1984 election:[24]

> **Poor Growth** – Average annual increase in GDP of 0.6 percent between 1975 and 1984, compared to 2 percent in other small OECD countries
> **High Inflation** – Annual inflation between 11 and 17 from 1974 to 1984
>
> **Rising Unemployment** – Unemployment from less than 1 percent in 1977 to 5.7 percent in 1983
> **Large Debt** – Budget deficit between 2 and 4 percent from 1964 to 1975, to 9 percent in 1984; serving the public debt took 15 percent of public expenditure.

From agriculture's point of view, the plan was arguably a success: production and exports did increase.[25] After decades of being indirectly taxed by the import substitution regime, the yawning gap between falling world prices and the government's income stabilisation scheme minima channelled huge sums into the industry, temporarily relieving the implicit tax on exports (see 4.1). The cost, however, was ruinous: agricultural assistance accounted for nearly 40 percent of the budget deficit in 1985.[26] Clearly, something had to change. In 1984, before the election it was about lose, the National government announced it would end one of its main subsidies to the industry. Under the next government, much more was to come.

23 Dalziel and Lattimore (1999), 17-18.
24 Daniel M. Gouin (2006) "Agricultural Sector Adjustment Following Removal of Government Subsidies in New Zealand". Lincoln University: Agribusiness & Economics Research Unit, Research Report 294.
25 R. Johnson (1987), 19-13.
26 Gouin (2006), 12.

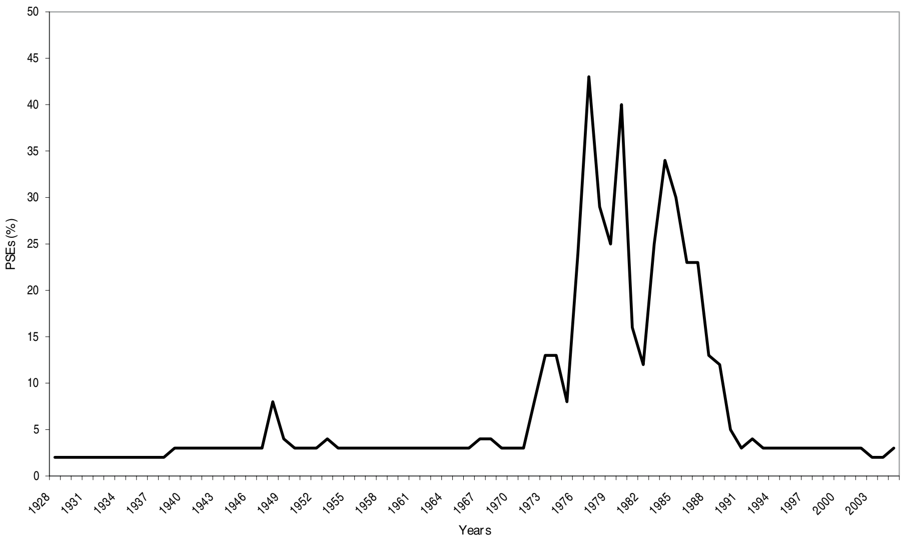
3. State Intervention in Agriculture

In this chapter we look at the panoply of state controls and subventions that had built up in agriculture by the early 1980s. First, we will look at their aggregate impact, then the individual policies, and lastly, their effect on the industry.

3.1 Aggregate Assistance

The state can help agriculture in different ways – with public goods, input subsidies, output subsidies, tax breaks and easy loans, and marketing boards. To make sense of the combined effect of these policies, economists use the concept of the Producer Subsidy Equivalent (PSE), which measures the equivalent subsidy effect of each policy (except for marketing boards) as a percentage of the value of total farm output.

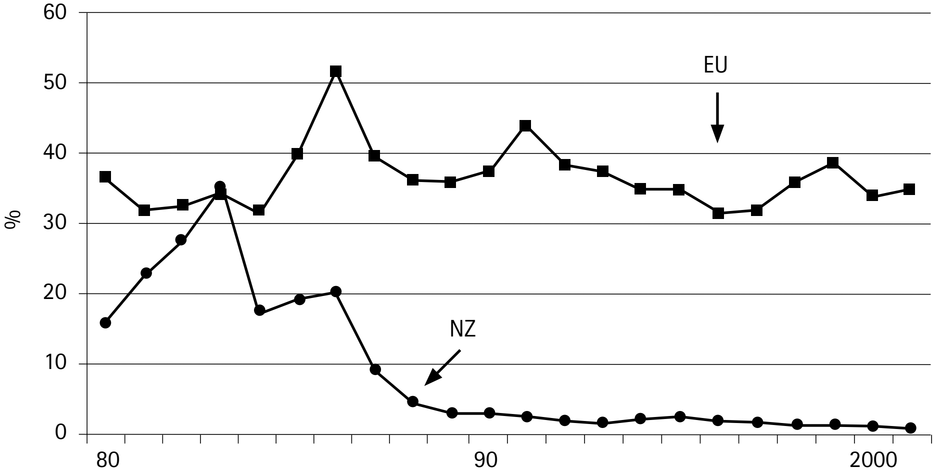
Figure 1: New Zealand Farm Subsidies



Source: Lattimore (2006)

This long series (Figure 1) illustrates New Zealand's history of giving little assistance to farmers and the 'assistance explosion' 1970-1990. The rise of this peak coincides with the deteriorating terms of trade government answered by pumping agriculture for extra foreign earnings. The decline represents the progressive removal of assistance from 1984.

Figure 2: New Zealand and European Union Farm Subsidies



Source: Allan Rae, Chris Nixon and Ralph Lattimore (2003) "Adjustment to Agricultural Policy Reform: Issues and Lessons from the New Zealand Experience". International Agricultural Policy Reform and Adjustment Project (IAPRAP)

Figure 2 compares New Zealand's PSE with the European Union's (EU). New Zealand's PSE reached its apex in 1983 with 35 percent, just matching the EU's of that year.

3.2 The Interventions

There are different ways to categorise the interventions. Taking our lead from Gouin (2006) we have split them up according to the following policy goals: investment promotion, income support/input support, and marketing.

Policies designed to promote investment

Beginning in the 1960s and accelerating in the 1970s the government introduced a number of schemes to increase investment in farming. They fell into the categories of outright subsidies, easy loans and tax concessions.

The principal schemes were the Livestock Incentive Scheme (LIS), created in 1976, and the Land Development Encouragement Loan (LDEL) Scheme, introduced in 1978. Both were funded through the state-owned Rural Bank, which accounted for about 40 percent of the farm mortgage market.[27] The LIS institutionalised the ad hoc practice of encouraging farmers to retain stock during low-price years; but thence had the aim of increasing stock numbers. The scheme offered either a loan of $12 or a $24 tax deduction per stock unit if certain targets were met.[28] If the increase was maintained for at least two years, the loan was written off. The LIS operated until 1982 and paid out a total of $140 million.[29]

The LDEL replaced earlier schemes to encourage development. Its aim was to turn unimproved land and hill country into pasture. Loans of up to $250 per hectare for a 15 year term were offered, to be used for the initial costs of development like fertiliser, lime, and drainage. If the development was maintained to the Rural Bank's satisfaction, the interest was written off and only half the principal had to be paid. By the time it ended in 1981, the scheme had paid out nearly $150 million in loans.

Additionally, there were various tax concessions available to farmers. These avoided direct transfers from taxpayers but nonetheless are typically measured as part of the PSE. Tyler and Lattimore (1990) calculate they reached a maximum value of $168 million in 1986.

Income support and price stabilisation

Historically, price stabilisation was administered by the marketing boards. Price minima were set in advance of the season, and depending on how the market price moved the boards would either save the surplus of a higher price or dip into the fund to meet the difference of a lower price. If the boards fell into deficit, they could get low interest finance from the Reserve Bank (the central bank). The idea behind price stabilisation was to obviate the risk of price fluctuations, which are particular problem in agriculture due to its long production processes and the volatility of the market.

As shocks to the terms of trade roiled the market in the 1970s, the government twice stepped in to help the boards maintain farm incomes. In 1978 it decided to set up a more permanent instrument to do this, the Supplementary Minimum Price (SMP) scheme. The government's stake in setting price minima went beyond smoothing prices; in the context of macro-economic stimulus, it

27 Laurence Tyler and Ralph Lattimore "Assistance to Agriculture" in Sandrey and Reynolds (1990), 66.
28 Sheppard (1993), 3.
29 Gouin (2006), 18.

wanted to raise the overall level of prices, further obviating the risks to farmers and driving up their expectations about investing at the margin.[30] The danger to the taxpayer was that the government could set the minima too high relative to how far prices might fall, thereby exposing them to a massive bailout of the agricultural industry. This is exactly what happened. The government's point of view was that the poor commodity prices and terms of trade were temporary, and that the extra production it was pushing would be vindicated when the market recovered.

SMPs affected sheepmeat most of all. In 1981/82 the world price for sheepmeat fell below both the SMP and the Meat Board's floor price. For three seasons from 1981 to 1984 the Meat Board compulsorily acquired the sheepmeat production, paying out farmers at the SMP and driving their account into deficit.[31] Between 1982 and 1986 this cost $766 million from the SMP scheme and over $1 billion from the stabilisation account.[32]

The situation was better for wool, beef and dairy. In the same period, wool received just $427 million from SMPs, beef $101 million and dairy nothing at all. Their use of their respective stabilisation accounts was also modest compared to sheepmeat's.

Subsidising Inputs

Together with government support of product marketing, the subsidisation of farm inputs was the government's traditional and monetarily modest intervention into agriculture. Input subsidies increased in the 1970s as part of government's general tactic of boosting production. In 1980 the main input subsidy was for fertiliser, for which $62 million was spent that year.[33] Other subsidies existed for things like weed control and irrigation.

The marketing boards

New Zealand has a political tradition of creating statutory authorities for the various agricultural industries – in Wool (1921), Meat (1922), Dairy (1923), Fruit (1926), Hops (1939), Kiwifruit (1977), Pork (1982) and more. They are called 'marketing boards' or 'producer boards', and they exist to control, to various extents, what occurs between the farm gate and the customer: they

30 R.W.M. Johnson (2001), 20.
31 Gouin (2006), 20.
32 Tyler and Lattimore (1990), 72.
33 Ibid.

buy the raw product from farmers, control its quality, grading, processing, packaging, sale and export; and provide leadership, advice, research and support services to producers.

The most important power a board can have is the right to buy and sell its industry's products. In 1984 the four main export industry boards – Dairy, Meat, Wool, and Apple and Pear – all had this power. So too did the domestic boards of Eggs, Wheat and Milk. As said, some boards also had the power to smooth prices, with the Reserve Bank's help. By 1984 the Dairy, Meat and Wool boards had all accumulated debt with the Bank – the Dairy and Meat boards by approximately $750 million and $1.3 billion respectively.[34]

Apart from the outright debt they accumulated, the effect of marketing boards is hard to quantify. Farmers often hold them in high regard, because they see them as a pool of influence with the government and in the market, not to mention as a safety net in bad times.[35] The original boards were created during a period of low prices that were attributed to the malign influence of middlemen and overseas interests, and came from a staunch belief that a statutory organisation would improve returns.[36] Analysts, on the other hand, tend to view marketing boards as plain monopolists, subject to the same problem as all monopolistic power – namely that the market-entry barriers which effect it reduce the monopolist's incentive to improve its services and lower its prices. In practical terms, it means that better ways of marketing cannot be tried; the boards' singular views hold sway over its outlawed competitors.[37]

3.3 The Effect of Intervention

The upshot of these interventions was that the price environment in which farmers worked was distorted. In terms of specific agricultural policy, the interventions generally lowered the prices farmers paid for inputs like fertiliser and raised the prices they received for their goods like sheepmeat and beef. This was of course designed to have farmers produce more despite the negative effects of other state interventions like import substitution and restrictive labour laws. Although the interventions 'worked' in as much as they raised

34 Ibid., 68.
35 Lattimore (2006), 128-129.
36 Rodolfo M. Nayga and Allan N. Rae (1993) "New Zealand's Statutory Marketing Boards: Their History and Some Recent Developments", *Journal of Food Distribution Research*, Vol. 23, No. 1: 94-100.
37 Veronica Jacobsen and Grant Scobie (1995) "Statutory Power and Agricultural Marketing: The New Zealand Experience", *Agenda*, Vol. 2, No. 1: 73-80.

production and sustained incomes, real costs were incurred – the simple monetary price of effecting it and the flow-on consequences of misallocation and entrepreneurial disincentive.

The Ministry of Agriculture and Forestry's (MAF) expenditure gives a summary view of the taxpayer's burden.[38] Before 1970 MAF expenditure was less than $20 million per annum. By 1984 it had reached nearly $800 million, and by 1987 had peaked at more than $1.700 billion, the year government wrote off some marketing board debt. These figures represent 13 and 25 percent of agricultural GDP in their respective years.

Misallocation refers to how resources are shifted away from their free-market uses. Because free prices generally allocate resources well, it is a general principle in economics that interfering with the 'price mechanism', as it is called, will result in things like over-production and under-production. Sheepmeat, for example, was the most heavily assisted product in the period we're talking about and suffered, as a result, the worst distortion. From 1983 to 1986, it averaged a PSE of 82 percent.[39] This created too many sheep and non-saleable surpluses of sheepmeat. The number of sheep peaked at 70 million in 1983 and declined by 10 million over the following six years as assistance was removed.[40]

This overproduction represents not only a waste of sheepmeat but also the lost opportunity to use those resources consumed in its production for something else – what economists call the 'opportunity cost'. Producing extra sheepmeat means producing less of what people value more than sheepmeat: alternative commodities like dairy and beef, for instance.

We can presume, especially in light of the structural changes which followed its removal, that assistance created a great deal of this kind of over-production and its corollary under-production. The over-use of marginal land is an example. Another is that, together with the tax effect of import substitution, assistance discouraged diversity and product development in the industry. Farmers concentrated too much on traditional sheepmeat, wool, beef and dairy, and added little value to them, because those were the products assistance

38 Gouin (2006), 16-17.
39 Tyler and Lattimore (1990), Table 4.2.
40 Rae, A., Nixon, C., Lattimore, R. (2003) "Adjustment to Agricultural Policy Reform: Issues and Lessons from the New Zealand Experience", International Agricultural Policy Reform and Adjustment Project (IAPRAP), 3.

targeted[41] and because the anti-export bias drove them toward their strongest advantages.[42]

Farmers also suffered from a disincentive in entrepreneurialism and efficiency. In a similar manner to manufacturers under import substitution, farmers under assistance suffered a lack of incentive to lower costs, increase productivity and innovate. The level of productivity growth during the era of high subsidies was low and, as we shall see, high afterwards (see 4.3).

This is an especially important point in regards to the common complaint against low and unfair world commodity prices. While it's true that world prices often reflect unfair assistance to foreign farmers, it's also true that, historically, commodity prices always fall due to increased productivity. 'Correcting' prices to neutralise the effect of foreign subsidies will not alter this fact – prices would still fall in a purely competitive market. The only way grapple with this problem is to keep up with foreign farmers' productivity; and the best method to achieve that is to have an unassisted industry (see 5.3).

An irony should be noted. One of the rationales for the dual strategy was that it protected the economy from world market fluctuations: import substitution was partly autarkic in aim; export assistance partly a remedy for the decline of the terms of trade. But by retarding the size of the tradables sector,[43] it probably made the country more vulnerable to fluctuations. Since the 'dual strategy' was abandoned, New Zealand's exports have broadened and it has become less vulnerable to fluctuations in the terms of trade.[44]

41 Vangelis Vitalis (2008) "Case Study 4: Domestic Reform, Trade, Innovation and Growth in New Zealand's Agricultural Sector". OECD Journal: General Papers, 209.

42 Anderson et al (2007), 2.

43 Ibid., 6.

44 Lattimore et al (2009), iv-v.

4. Reform

New Zealand's agricultural reforms were part of a larger wave of reforms that swept the country from 1984 to 1993.[45] They can only be noted here: they covered economic, constitutional and social matters. A simple way to describe the economic reforms is to say that they ended the 'informal welfare state' we described earlier – the web of interventions that had shielded firms and workers from the market for 40 years. The dual strategy we've described was an integral part of this system and was, as a result, at the front line of reform.

The 1984 election ousted the conservative National party and ushered in the centre-left Labour party. National's government ended ignominiously with a run on the New Zealand dollar, epitomising for many its senseless economic management. During the interregnum Labour devalued the dollar 20 percent, beginning a government of dramatic economic restructuring. Finance and exchange market controls were removed, export assistance was ended, tariffs were lowered and input controls abolished. Many state assets were sold off or directed to run on a profit. The Reserve Bank was told to target inflation independent of government.

Labour governed until 1990. The following National government added an addendum of social spending cuts and the liberalisation of the labour market, bringing the reform period to an end in 1993 (though it governed till 1999).

4.1 The Dual Strategy Abandoned

A number of things put agriculture at the top of Labour's list of sectors to reform. To begin with, the fisc was suffering a large deficit and, with farmers consuming about 40 percent of it, cutting their assistance was an obvious move. The previous National government had presaged this by announcing the end of the SMP scheme, in realisation of its unaffordability and the fact that the terms of trade showed no sign of improving, as they had hoped. Moreover, the assistance was irritating New Zealand's trading partners, who were threatening trade retaliation. Indeed, the assistance farmers got can be interpreted

45 For its economic history Dalziel and Lattimore (1999) and its newer editions are recommended. Raymond Miller, ed. (1997) *New Zealand Politics in Transition*. Auckland: Oxford Uni, Press covers the period's politics well.

in terms of a fiscal competition with the US, EU and Japan.[46] Figure 2 shows how New Zealand's PSE of 35 percent in 1983 was extraordinary for it but commonplace for the EU. In this light, it may have been simply untenable for New Zealand to artificially maintain farmer incomes.

As important as these fiscal reasons were, they would have justified a retrenchment under National, had it remained in power. What set Labour apart and allowed it to end export assistance definitively was that it decided to end the import substitution regime which was its primary justification.

Since the War successive governments had continued import substitution as part of their employment strategy. It was understood that it caused problems but the basic policy thinking of the time was that these were simply a price to be paid for providing New Zealanders with this type of society.[47] Its cost to farmers was straightforward – protection raised prices, farm inputs included. Less well understood was that import substitution engendered New Zealand's chronic 'foreign exchange constraint'. The implicit tax on exporters decreased their earnings and thus the country's foreign exchange supplies, thereby overvaluing the nominal exchange rate and stimulating imports. Additionally, import substitution introduced 'infant industries' that needed capital goods and raw materials to establish themselves, exacerbating the demand for imports. The idea that import controls somehow remedied the problem of 'spending too much' was bogus – they caused the problem in the first place. It was simply an effect of import substitution that had to be treated with the other prong of the strategy, assistance to exporters.

Figure 3 illustrates the effect of the dual strategy. Manufacturing's nominal rate of assistance describes the state's effort to substitute domestic production for imports. Agricultural and non-agricultural tradables' nominal rates of assistance describe the effort to assist exporters. The Relative Rate of Assistance (RRA) measures the anti-export bias in these nominal rates.

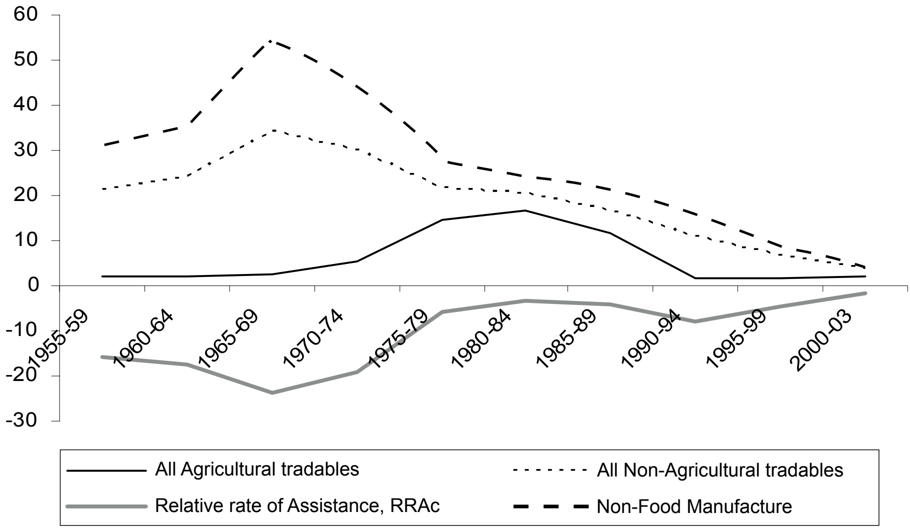
The 'assistance explosion' shown in Figures 1 and 2 is rendered here by the nominal rates; but note the RRA: it shows how this 'explosion' only just compensated exporters for the effects of assistance to non-tradables. One can see how the RRA declined from the mid-1980s as export assistance was cut more

46 John Gibson, Jimmye Hillman, Timothy Josling, Ralph Lattimore and Dorothy Stumme (1992) "Agricultural and Trade Deregulation in New Zealand: Lessons for Europe and the CAP", Presented to The European Agricultural Economic Association Conference, Lisbon 1992.

47 Hawke and Lattimore (1999), 24.

and more quickly than manufacturing assistance, then rose, approaching neutrality, as the tariffs which protected manufacturing came down.

Figure 3: New Zealand's Nominal Rates of Assistance to Manufacturing, all Non-Agricultural Tradables, all Agricultural Tradables, and the Relative Rate of Assistance



Source: Anderson et al (2007)

By simultaneously ending import substitution and export assistance, Labour was able to excise agriculture from the political economy. It eliminated the cause of chronic balance of payments problems and greatly reduced import protectionism, removing the basis for the government's felt need to intervene in agriculture for the sake of equity and the manufacturing sector's livelihood.

4.2 Agricultural Reform

In the following sections we track the reforms and their results in agriculture from 1984 through an adjustment phase to 1991, to post-assistance normality. The next chapter covers the industry's long term changes.

As said, National began the reforms by ending the SMP scheme. They also started charging the marketing boards market rates for their Reserve Bank accounts.

Later, under Labour, stabilisation and the accounts were phased out entirely. The Meat and Dairy Boards had much of their debt written off.

Labour's 1984 Budget announced the abolition of the policies designed to promote investment, the LIS, LDES and other concessionary loans. Various input subsidies, such as for fertiliser, were terminated. In 1985 farmers' taxation concessions were stopped.[48] The government directed MAF to start charging for some of its services like animal health inspection, in line with the 'user-pays' principle it was implementing across the public service. The Rural Bank was first instructed to commercialise itself; then in 1989 was privatised completely.

The deregulation of the marketing boards was uneven. In the 1980s three boards oriented toward the domestic market were deregulated – the Wheat, Egg and Milk Boards. Writing in 1990, Sandrey averred that although "the debate continues over the appropriate structure for export oriented commodities, the policy debate about domestic industries is effectively over."[49] It was generally accepted that these boards resulted in a wealth transfer from consumers to producers, as they let the producers cartelise the market; although not everyone agreed. Shortly before being abolished, the Egg Board remonstrated that they "reject totally, claims that market forces will or could result in a balancing of supply and demand".[50]

Labour actually created a new marketing board with an export monopoly at this time, the Kiwifruit Board (subsequently privatised in 2000). Reform of the other boards came later, in the 1990s, as government rescinded the monopoly export rights of the Meat and Apple & Pear Boards, and abolished the Dairy Board entirely in 2001. Fonterra, the private successor to the Dairy Board, remains in the hands of producers, collectively owned in shares by 95 percent of New Zealand's dairy farmers. It's the country's largest company and is responsible for a third of the international dairy trade;[51] although this is a small percentage of world production.

4.3 The Political Reaction

In New Zealand, National is the party of farmers and Labour is the party of the urban working and middle classes. In the 1940s, the National party helped buy its future leader a farm in his constituency. Labour was never like that – it was

48 Tyler and Lattimore (1990).
49 Ron Sandrey "Deregulation: Selected Case Studies" in Sandrey and Reynolds (1990), 115.
50 Ibid., 123.
51 Fonterra Website: http://www.fonterra.com (accessed: November 2009).

and is disconnected from farmers, electorally and ideologically. Along with a number of other factors,[52] this meant Labour was in better position than National to remove assistance. When they did, farmers were utterly astonished; they hoped government would resile from the change, but it didn't. A number of factors helped seal the reform.

First, because it was well known that agricultural assistance was primarily intended as compensation for import protection, when the government simultaneously got rid of both, they were seen to be giving farmers a fair deal.[53] The government was taking away their subsidies but giving them lower input prices. Indeed, in the 1960s farmers had almost agreed such a deal, but had reneged and got compensatory assistance instead.

Second, the reforms were consistent with the farm community's economic liberalism and, as such, difficult for farmers to argue against.[54] Farmers had but to plead that other sectors of the economy be treated the same, so that the 'giving' part of the government's give-and-take deal would be genuinely implemented. Government had some credibility in this regard since the freeing of imports had been underway for some time (Figure 3). In particular, the government had just signed a free trade deal with Australia, which included all food and agricultural products. As Lattimore (2006) says, farmers "could be more confident this time that the economic reforms would go to the heart of the problem."[55]

Still, farmers were upset. The proximate cause of the 'assistance explosion' had been the collapse of the terms of trade, accompanied by low world agricultural commodity prices. Farmers were now completely exposed to this still-poor situation. In 1986 their anger culminated in a massive march on Parliament

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52 Briefly, these include: the global political shift to the right (e.g. Thatcher, Reagan) represented in New Zealand by a coterie of economic liberals in the parliamentary parties and the bureaucracy; the fact that non-liberals in Labour tended to consider the economy a 'technical problem' to be fixed as opposed to the 'real agenda' of identity politics, social spending and foreign policy independence (see Colin James "The Policy Revolution" in Miller, ed. (1997) *New Zealand Politics in Transition*); and the fact that the post-war approach appeared discredited by the last government. Those who opposed the veritable end of informal welfare couldn't yet readily answer the liberals' arguments. That came later with the rise of the 'Third Way' – of Clinton, Blair and, in New Zealand, Helen Clark – which regrouped the mainstream left in the 1990s after the collapse of old social-democracy and the rise of the New Right.

53 Lattimore (2006), 128.

54 J R Fairweather (1989) "Some Recent Changes in Rural Society in New Zealand", Lincoln College: Agribusiness and Economics Research Unit, Discussion Paper 124, 14.

55 Lattimore (2006), 128.

of about one third of the farming population.[56] This popular action didn't translate effectively into political action, though, since the community was divided. The farmers′ union, the Federated Farmers of New Zealand, officially supported the reforms, though it was internally divided on the issue and critical of its implementation.[57] The community was weaker on this issue than its past strength would suggest.

Popular, primarily non-ideological opposition would have worked better on National. Labour was immune to it because their support was urban, not rural. This suggests that it was the policy debate which was decisive and that, therefore, farmers were hamstrung in their opposition because some farmers and their own union agreed in essential terms with the government.

4.4 Hard Times and Immediate Adjustment

Farmers have a number of legitimate worries about farming without subsidies. The most basic is that it will lead to permanently lower incomes and the sector's decline. This has not been the case in New Zealand. Though prices and incomes fell initially, they eventually recovered and, in the case of dairy farmers, exceeded their old level.

It should be noted that although the loss of assistance was painful for New Zealand's farmers, this pain was not the market's fault. It was, rather, the fault of the state that had led them into error in the first place. It was the state that created an environment of unreal prices which had ensured farmers would act against their real interests by over-producing certain stock, developing marginal land and making imprudent investments. The loss of state aid was a return to reality: market prices indicated the real cost of their inputs and the real demands of their customers, not the price fakery of political interests.

We can get an idea of the effect of reform by looking at the PSE. In 1983 it was 35 percent. By 1987 it was 13, and by 1994 it was 2. On the face of it that's a cut of about a third of the value of farm output in 10 years. Yet, as Rae et al (2003) say:

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56 A.B. Walker and B. Bell (1993) "Aspects of New Zealand's Experience in Agricultural Reform Since 1984", MAF Technical Paper, Ch. 4.

57 Paul Cloke (1989) "State Deregulation and New Zealand's Agricultural Sector", *Sociologia Ruralis*, Vol. XXIX-1, 40.

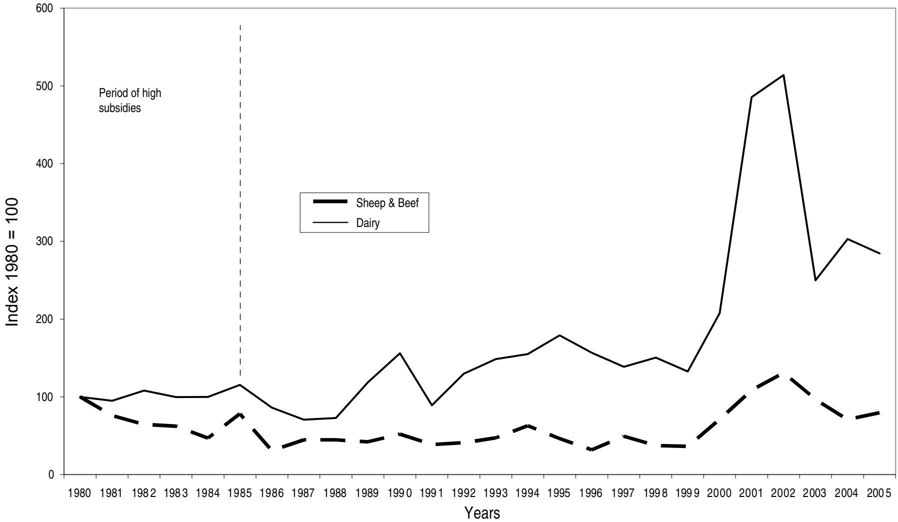
> [The] removal of assistance payments equivalent to 35 % of output of value might be expected to have an equivalent impact on farm profitability. However, in New Zealand's, *this has not been the case*. Such an interpretation of the PSE assumes other things do not change [...] farmers and others in the food system reacted rationally to the withdrawal of subsidies. (Original emphasis)

In the first year after the reforms, world commodity prices for wool, sheepmeat and dairy recovered. Unfortunately, a poor macro-economic environment undermined the boon. Once floated in 1985, the dollar surprised everyone by appreciating, decreasing returns. Price inflation remained high, exceeding 18 percent in 1986; coming down only after the Reserve Bank started targeting inflation in 1989. Servicing debt became far more expensive as interest rates stayed in the teens until 1990. All together, the effect was to depress real farm income to the lowest level in years (Figure 4). Sheep and beef farmers' income fell by 60 percent in 1986; dairy famers' by 25 percent.[58]

Farmland prices fell too. Measured from 1981, they declined to about 80 percent of their previous level in 1984. This was likely a world-wide phenomenon.[59] During the adjustment phase they fell further, by about 50 percent in sheep country – in Canterbury and Marlborough for example – which had got the most assistance, and by about 20 percent in dairying areas – as in Taranaki – which had got less (Figure 5). For many farmers the fall in land value was incidental, since they had not increased borrowing as land value rose in earlier years. It was more painful for new farmers and those who had wholly swallowed the government's investment bait.

58 Lattimore (2006), 130.
59 Rae et al (2003), 6.

Figure 4: New Zealand Farmers' Real Incomes

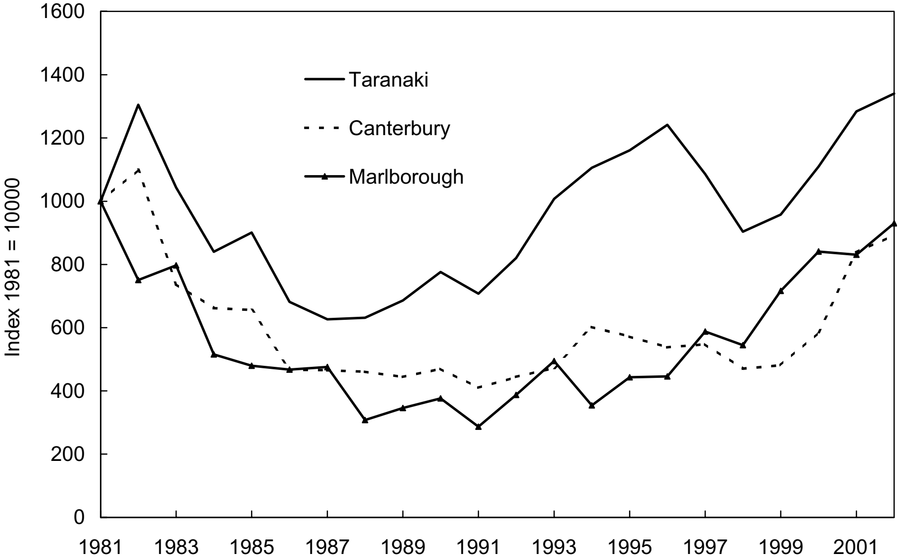


Source: Lattimore (2006)

Farmers coped by cutting costs, increasing revenue and restructuring debt.[60] Unpaid work increased as employees were laid off and the burden of farm work shifted to the family. Off-farm employment increased and farms were used for non-traditional sources of revenue, like tourism and accommodation ('farm-stays'). The use of fertiliser was cut in half, with no big fall in productivity; possible due to its residual effect. Repairs and maintenance were delayed, investment put off. Some land was sold off as 'lifestyle blocks', some was taken out of production, and some was leased to other businesses.

60 Lattimore (2006), 130.

Figure 5: New Zealand Real Farmland Prices
Deflated by urban residential prices



Source: Rae et al (2003)

4.5 Government Compensation

When it decided to cut assistance, the government estimated that about 20 percent of farmers would lose their farms. As it happened, only about 5 percent left the land between 1985 and 1989, not significantly more than the normal rate.[61] This happier outcome was partly due to the government's transition programmes, which were designed to keep viable farms in operation, rather than have them go bankrupt from the speed at which government cut assistance. The most significant action of this type was the government's decision to not deregulate the big marketing boards and to write-off much of their debt. The boards were well respected by farmers, and it was a canny move to retain them in a financially viable form so they could provide leadership in the adjustment period.[62]

For those individual farmers who found themselves in financial strife, the government offered help with debt and special social welfare payments. As no-

61 Ibid., 140.
62 Ibid., 128-129.

ted, farmland prices dived during the reforms while interest rates rose, making debt a particular problem. In 1986 the government introduced two schemes to address this.[63] For those farmers with the Rural Bank, the government offered to write off a part of their debt in return for their paying market interest rates on the rest. Applicants had to show that they were not in a position to meet their financial obligations and that their farms were commercially viable at post-assistance prices. Farmers whose main creditor was not the Rural Bank could apply for a subsidy of their operating expenses from the Bank on the same criteria.

Of the 77,000 farms in New Zealand at the time, 8100 were involved in the schemes. Some were declined for being too well off, while others were declined because they couldn't prove their future viability. It's estimated that in total $289 million was written off, representing about 33 percent of the original debt to the Rural Bank.[64]

During the adjustment phase, it became apparent that farmers with marginal farms were not being adequately protected by the state's existing social welfare provisions. To correct this government offered grants for those in financial jeopardy that would cover a minimum cost of living. This operated from 1986 to 1989.[65] In 1988 an 'exit package' was introduced to help those who would have to leave farming altogether. They were offered $45,000 to leave their farm with all their possessions and a car. Across the whole country, about 350 families left farming during this period.[66]

4.6 Policy Today

The reform period changed the way government approached the economy. Broadly speaking, its aim was to 'level the playing field' among the industries of the economy: the state would no longer 'pick winners' with its favours; the market would instead determine where resources went. This was mostly achieved in agriculture. The attitude of governments now is largely 'hands off' compared to the assistance other farmers get in the OECD (Figure 6).

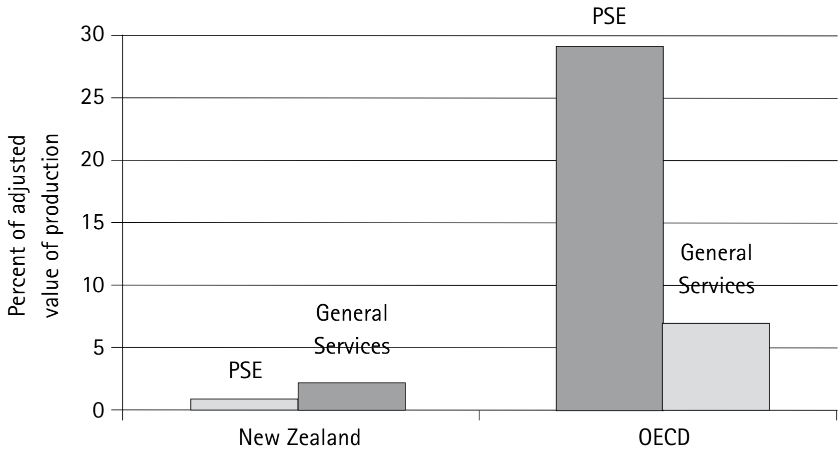
63 Gouin (2006), 26.

64 R.W.M. Johnson, W.R. Schroder and N.W. Taylor (1989) "Deregulation and the New Zealand Agricultural Sector: A Review". *Review of Marketing and Agricultural Economics*, Vol. 57: 47-71.

65 Rae et al (2003), 9.

66 Gouin (2006), 27.

Figure 6: Producer Subsidy Equivalent and General Services in Agriculture in New Zealand and the OECD, Average of 2004-04



Source: Agriculture and Agri-food Canada, "New Zealand Agriculture Policy Review"

State action in agriculture is now limited to the following areas: the provision of public goods like research, education, advice, and animal inspection (with recovered costs where possible); the continued support of a number of marketing boards, for example in the wool industry; international market support and advocacy; and the provision of emergency aid in the event of disasters like droughts, floods and earthquakes.

5. Long Term Changes

New Zealand farmers were plunged into a free-market quench in the 1980s: political influence over prices was greatly reduced and the sector exposed to unobscured profit and loss signals. The main effect of this was to make farmers more responsive – and more capable of *being* responsive – to the market. This means resources have flowed out of the relatively less profitable sheep farming industry and into dairy, deer, forestry, horticulture and viticulture. It also means that the lower trade barriers have greatly reduced the implicit tax agriculture used to labour under, and that as a result of this and an enhanced profit motive, innovation, productivity and incomes have all improved. Overall, the sector has grown so much that it actually increased its total share of GDP, from 5.7 percent in 1987 to 7.6 in 2002 (Figure 8). This indicates just how suppressed the sector was under the old political economy.

The conditions during adjustment were less than ideal. As we've seen, in the 1980s government engendered high rates of interest, exchange and price inflation. Although agriculture was promised the elimination of the import substitution regime, protection was reduced much more slowly than agriculture's assistance. However, by the 1990s things were improving: interest rates and price inflation and trade barriers declined, and farmers benefited from labour market liberalisation. The sector's innovations and improved productivity started have an effect.

5.1 Farms and Labour[67]

Farming as such has not been radically changed by reform – it remains a family-centred industry, with over half of the labour force made up of worker-owners. The total number of farms has decreased, from around 77,000 in 1984 to 66,000 in 2006, partly due to the amalgamation of farms. There are now fewer but larger dairy and sheep farms, and more but smaller farms in horticulture, viticulture and deer farming.

The farm labour force has declined in size but greatly increased in productivity. In the 1970s it stood at 109,000 Full Time Equivalents, in 1983, at the height of assistance, it was 127,000, and in 2004 it was 102,000. From 1984 to 2003, labour productivity improved 84 percent.

5.2 Land and Production[68]

The biggest change since the reforms has been the move from sheep to dairy, and the growth of the deer, forestry, horticulture and the wine industries. Total pastoral land has declined from 14 million hectares in 1983 – when assistance was designed to make farmers develop marginal land into pasture – to 12 million in 2004. Part of this would have been converted into other agricultural land, such as forestry, which has grown by 350,000 hectares since 1984, and horticulture, which has grown from 87,000 to 121,000 hectares.

67 Drawn from Lattimore (2006) and Vitalis (2008).
68 Drawn from Lattimore (2006), Vitalis (2008), Rae et al (2003) and Gouin (2006).

Sheep and Beef

Assistance obscured the relative unprofitability of sheep farming. Since the reforms sheep numbers have fallen from 70 million to 40 million in 2004, while productivity has increased. Lambing percentages and average carcase weights, for example, have both increased 25 percent in the period. Due to value improvements like this, export revenues from the smaller flock exceed those of the old. The number of beef cows seems to have been relatively unaffected by the end of assistance, remaining steady since the 1980s. Their productivity has increased, however.

Dairy

For dairy, reform revealed its relative profitability. The national herd of dairy cows has grown from 2.3 million to 5.3 million in the twenty years since reform and there has been a 75 percent increase in dairy production. Dairy farms have declined in number but grown in size. Again, their stock is more productive; the quality of milk solids produced per dairy cow has increased 20 percent.

Deer farming

The deer industry has grown from virtually nothing in 1984 to having 2 million deer of annual production worth $100 million. Deer farming is a remarkable success story for New Zealand, which was the first country to really farm deer. In the 1970s there was little idea of how to do it; the commercial industry was based on hunting (for which New Zealanders invented the method of capturing wild deer by helicopter). People had to work out how to handle deer, to reproduce them and design facilities appropriate to their nature. New Zealand now has the largest deer farm industry in the world.

Horticulture and Viticulture

In 1984 the fruit, vegetable and wine industries were small and domestically focused; prime examples of how assistance starved the smaller, less established industries of resources. As said, horticulture has since increased its use of land. Its exports have grown from (USD) $140 million in 1984 to $827 million in 2004.

The New Zealand wine industry has been transformed since the assistance years. Protected from foreign competition, it used to produce fortified wine for uninterested New Zealanders. After a number of industry-specific reforms, including a removal of its protection, the industry has changed into a producer of quality export wines to 74 countries, targeting particularly the high-end British market. Its exports have gone from being worth under (USD) $10 million in 1984 to approximately $730 million in 2009.

5.3 Innovation and Productivity

Because farmers are typically so exposed to foreign competition, they have to keep up with the latest agricultural technologies and techniques. It increases farm productivity, thence output and income. This is why assistance targeted investment. When farmers lost that aid, investment duly fell – machinery imports, for example, declined. Reform introduced its own incentive, however: profit. By the 1990s machinery imports had picked up. Since then the sector has hungrily absorbed foreign technology and new techniques in animal processing, genetics, software, machinery, agri-tourism and the biochemical business.[69] This is the great benefit of the international agricultural industry: farmers do not have to invent everything themselves; they can adopt the 'secrets' of other famers' success.

The result can be seen in the increase in labour productivity already mentioned. The best indication is the increase in Total Factor Productivity (TFP), which measures the growth of output not accounted for by growth of inputs – viz. the 'value added' to the production process by better technology and techniques. In Figure 7 we can see how the TFP was low and stagnant during the period of high assistance, and picked up afterwards in the face of stronger profit incentives. This is the main source of the income and farm price recoveries seen in Figures 4 and 5.

5.4 Agricultural GDP and Exports

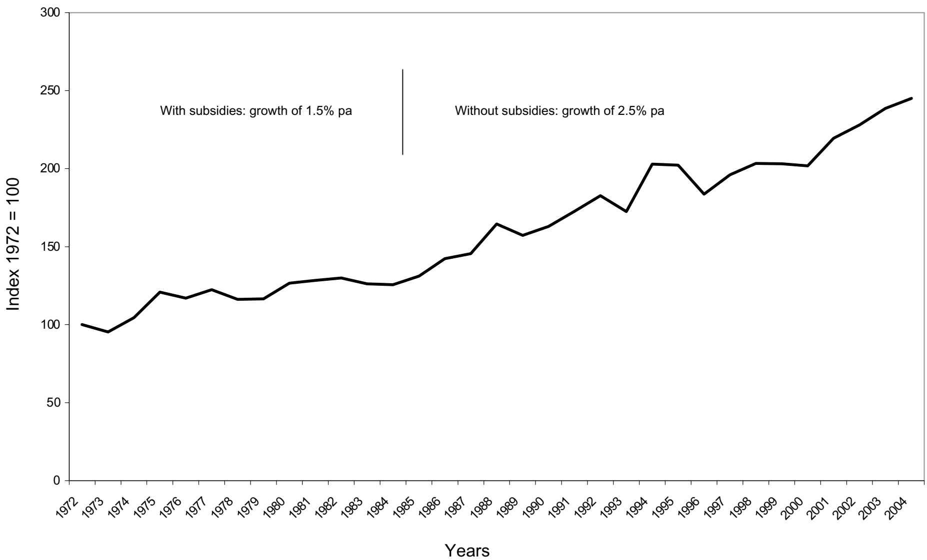
In the late 1960s the farming sector alone comprised 14 percent of total GDP. That share fell, as it should have, as the economy grew, so that by 1987 it was 5.7 percent.[70] One of the remarkable results of reform was that the sector grew so much in the 1990s that its share of GDP held steady, and briefly increased in the early 2000s (Figure 8). Note in Figure 8 that there has been a large increase in the 'value added' category. This refers to secondary food processing, one of the big winners of reform. It's the nature of farming that adding value to the raw material is difficult; processing is one of the few ways it can be

69 Vitalis (2008), 203.
70 Lattimore (2006), 132.

done. Its increase represents industry developments such as specialised milk products and the evolution of sheepmeat from exporting plain sheep carcasses to exporting finer packaged cuts.[71]

A similar story can be told with exports. In the 1960s agriculture still represented over 90 percent of total exports, falling to 60 percent in 1986.[72] The reforms have, again, halted the declining trend – they held steady at 55 percent in 2005.

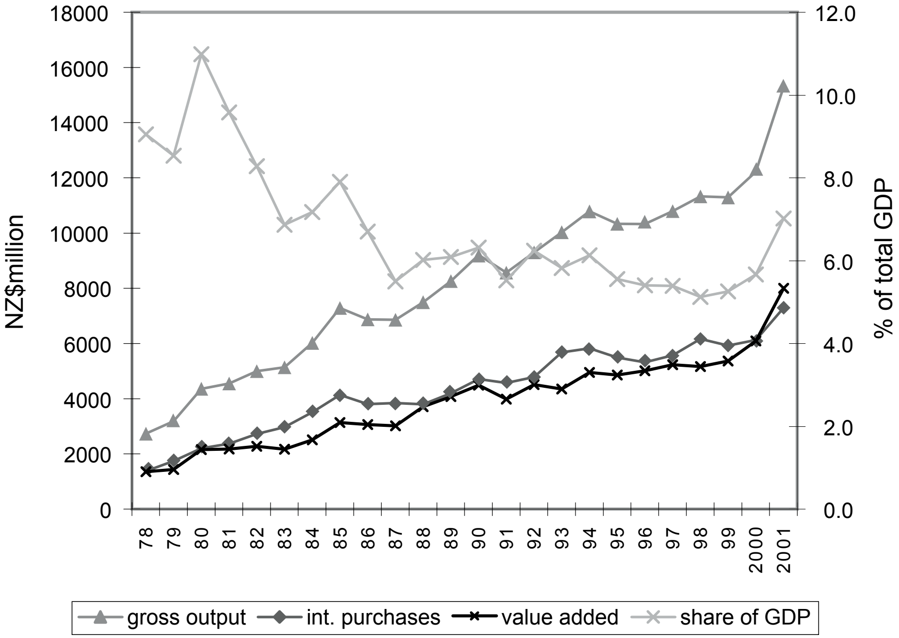
Figure 7: New Zealand Agriculture Total Factor Productivity



Source: Lattimore (2006)

71 Vitalis (2008), 206.
72 Lattimore (2006), 134.

Figure 8: New Zealand Agricultural Sector GDP



Source: Rae et al (2003)

6. Lessons

New Zealand's agricultural reforms offer a number of lessons for other countries. Perhaps the most obvious is that *farmers can prosper without substantial state assistance.* Indeed, this is not so much a lesson of the reforms as it is of the entire history of New Zealand agriculture, for which substantive assistance was historically extra-ordinary. Not only were farmers usually unassisted, they were implicitly taxed by the non-tradables sector. And yet agriculture had such a strong comparative advantage that it grew despite this carrying this yoke. As Lattimore (1985) relates, it created "the impression in the minds of New Zealand's policymakers that no matter what you did to the agricultural sector, or the extent it was exploited to promote so-called 'development', the industry would keep on growing." The final indignity of this political exploitation was that the state's compensation for it – considering the misallocations and stagnant productivity it caused – did more harm than good.

More specifically, New Zealand's experience suggests the following points.

1. Farmers and the rest of the agricultural sector have the ability to change in reaction to the loss of assistance.[73] In the short term they can cut costs and make extra money; in the long term they can diversify production and adopt technology and techniques to improve productivity. Although the adjustment phase is painful, it's transitory. Over time, profits will recover and asset prices will change to reflect future returns. Macroeconomic stability helps, but ultimately it is not the primary factor that will improve incomes. Long term, that role can only be filled by profit-driven increases of farm productivity.

2. Farmers do not bear all the costs of adjustment – to a certain extent costs are spread through the markets farmers participate in.[74] For instance, one reason there were fewer mortgagee sales among farmers than expected was because the sector-wide fall in land prices meant that it was more profitable for the banks to ease farmers through the crisis than bankrupt them.

3. It helps if other areas of the economy are reformed too. For New Zealand farmers the most important other reform was the end of import-substitution, because it lowered input costs in the face of falling revenue.[75] The government was thus seen to be treating farmers fairly and equally. Other reforms, such as labour market reform, helped as well. Without them farmers could not have responded as flexibly as they did.

4. Government can smooth the transition to post-assistance farming by offering compensation.[76] In New Zealand this mainly took the form of debt write-offs, granted to farmers who could show their farms were viable in the post-assistance environment.

73 Rae et al (2003), 11.
74 R.W.M. Johnson (2001), 37.
75 Anderson et al (2007), 21.
76 Rae et al (2003), 11.

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