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The deregulation of agricultural markets in South Africa and New Zealand: a comparison

R Sandrey¹ & N Vink²

Abstract

Reforms of agricultural marketing structures have been a major feature of agriculture in New Zealand and South Africa over the past two decades. The reforms in New Zealand varied, and were often measured and considered, with export control either officially or de facto existing in some sectors while others were cut adrift very quickly. Not surprisingly, the results have been mixed. In South Africa all controls were effectively cut adrift, and the jury is still out on the results. A feature of the New Zealand experience has been the adoption of new technologies and even new farming sectors. Productivity showed a distinctive break at 1984, the year of the reforms; up to that date an average of 1.5 percent, past that date an average of 2.5 percent. A similar analysis of productivity in South Africa shows that increases seem to be the result of labour shedding only. The results do not bode well for South African agriculture. The sector is hamstrung by poor physical resources; hardly benefited from the Agreement on Agriculture; seems to be hampered by a lack of innovativeness; and has to contend with the transformation of the sector. Reasons for optimism include the fact that the sector as a whole has benefited from deregulation of agricultural markets, and the prospect that new entrants will bring a new sense of innovation into the industry.

Keywords: Agricultural marketing; marketing reform; trade liberalisation

1. Introduction

South Africa and New Zealand, both members of the Cairns Group, have undergone comprehensive agricultural sector reforms over the last twenty years. While New Zealand's reforms predated South Africa's by perhaps a decade, there are striking similarities in processes and outcomes. However, there are also equally striking differences.

The purpose of this article is to review the reforms in the two countries respectively with a view to furthering understanding of how these processes work. To this end, the article starts with a brief description of the South African reforms, while the New Zealand reform process, which is less well

¹ Senior Associate at TRALAC, and Professor Extraordinaire in the Department of Agricultural Economics, University of Stellenbosch, Private Bag X1, Matieland, 7602. rons@tralac.org

² Professor and Chair: Department of Agricultural Economics, University of Stellenbosch, Private Bag X1, Matieland, 7602. nv@sun.ac.za

known here, is dealt with in somewhat more detail in section 3. The article concludes with an evaluation of the reforms in terms of their timing and sequencing, and their breadth and depth.

2. Deregulation of South African agriculture³

The process of reform in South African agriculture has been well-researched (see e.g. Van Zyl *et al.*, 2001; Vink, 2003; Vink and Schirmer, 2002). In summary, the period of the 1980s saw attempts to improve the efficiency and viability of the commercial farming sector, but within the existing framework of support, and largely in the interest of fiscal sustainability. This changed with the first democratic election of 1994, although in agriculture at least some direct policy changes had to wait until 1996, i.e. until after the withdrawal of the National Party from the Government of National Unity. The most important policy initiatives taken since include trade liberalisation, land reform, institutional restructuring in the public sector, the promulgation of the Marketing of Agricultural Products Act and the Water Act, and trade policy and labour market policy reforms. The purpose of these policy reforms was to correct the injustices of past policy, principally through land reform, to get the agricultural sector on a less capital-intensive growth path, and to enhance the international competitiveness of the sector.

The consequences of these comprehensive shifts in policy have been extensively reported (see Vink, 2003). However, there are three consequences that are particularly important for the purposes of this report: the change in the agricultural production portfolio of the country, the shift in trade patterns, and the productivity impact.

2.1 The composition of output

Over the period 1965-67 to 2001-03 animal production (40 per cent) maintained its relative share of total agricultural production, as can be expected, given the nature of South Africa's agricultural resources with only some 17 per cent of the available agricultural land suitable for cultivation. However, the relative share of different kinds of animal products has shifted over this period: the production and consumption of red meat has stagnated, while the production of poultry meat has increased considerably. Horticulture has increased its share of production by 10 percentage points to 27 per cent at the expense of field crops (33 per cent in the latter period from 43 per cent in the earlier one).

³ Data in this section are drawn from the Abstract of Agricultural Statistics unless otherwise specified.

As the production of virtually all agricultural commodities has increased over the past couple of decades, this means that the production of horticultural products has, on average, increased at a faster than average rate.

2.2 The trade portfolio

One of the main reasons for the relatively faster growth in the production of horticultural products is the increase in exports of these products. This, in turn, has influenced the agricultural trade balance of the country. A number of important shifts can be identified from trade data:

- While agricultural exports have grown rapidly, they have declined as a share of the total exports of goods and services from the country.
- At the same time the share of total agricultural output that is being exported has increased from a quarter in 1990 to almost a third in the 2000s.
- Exports of processed agricultural products have increased faster than exports of unprocessed agricultural products – the share of processed agricultural exports has increased from around half to around 60 per cent since the 1980s.
- Agricultural imports have grown faster than agricultural exports, more than doubling their share of total imports of goods and services into the country from 2.6 per cent to 5.4 per cent over the past two decades. During this period, imports increased from 6.2 per cent of total agricultural output to almost a fifth (19.3 per cent) of output.
- As a result, import cover (the ratio of agricultural exports to agricultural imports, a measure of the ability of the agricultural sector to pay for its own imports) has declined drastically from 5.6:1 to 1.7:1, although the latter remains a healthy ratio.
- The main reason for the relatively rapid increase in imports is the emergence of animal feeds, especially poultry feed, as South Africa's main agricultural import item (resulting in Argentina being the single largest source of agricultural imports).

At the end of the 19th century, South Africa's main agricultural exports were wool, fruit, and wine, and this is essentially still the case today (these contributed 58 per cent of total agricultural exports in 2004). However, this aggregation hides a number of underlying trends that show that the sector has been relatively dynamic. For example, within fruit, both avocados and table grapes have shown a substantial increase in their share of the total over the past decade, while wool, which once dominated the country's total (agricultural and non-agricultural) exports, has become relatively insignificant.

At the same time, however, the origin of farm exports has not shifted much: most farm exports still come from the Western Cape, with recent significant increases seen only from the Northern Cape with table grapes.

2.3 Productivity

Later in the paper productivity in New Zealand's agriculture is discussed and the assessment made that reforms had stimulated productivity. For South Africa, perhaps the elapsed time since the mid-1990s is too short, but there is an historical time series of productivity data. Figure 1 is from Thirtle et al (1993)⁴, and shows inputs and outputs and the resultant productivity (total factor productivity - TFP) for South African agriculture from 1947/48 through to 1999/2000.

The trend in TFP (lower line) shows that before 1965, the index of outputs and inputs rose at roughly the same rate, so TFP did not grow, but from there the growth rate was 1.7 per cent per annum, mainly due to the continued growth of output but little change in inputs. From that period employment declined as combine harvesters were introduced in field crop production, favourable tax breaks encouraged greater capital intensity, and agriculture's share of GDP decreased. From 1984/85, when the first round of deregulation commenced, there was a marked decline in inputs. Outputs recovered after the severe drought of the early 1990s, and increased through to 2000. TFP continued to grow over this period despite an increase in the use of inputs.

However, TFP growth in South African agriculture seems to be mainly the result of the reduction in the number of farm workers, as is the case in the developed countries. Yet in the developed countries labour is scarce and hence expensive, whereas in South Africa it is abundant. Therefore productivity increases in agriculture are at odds with the policy of trying to decrease rural unemployment and thus poverty. How to increase productivity in agriculture in a way that does not contradict policies to redistribute income to the rural poor is a challenge facing the bimodal and dualistic nature of South African agriculture.

⁴ Updated to 2000 by Thirtle. The raw data are available from the authors

Figure 1: Output, Input and TFP Indices

3. Deregulation of New Zealand agriculture

3.1 Background

By the 1950s New Zealand had become one of the richest countries in the world on a per capita basis. The United Kingdom (UK) absorbed most its agricultural produce; in 1960 the UK was the destination of 53.0 per cent of all New Zealand's merchandise exports, and such was the dominance of pastoral agriculture that wool (33 per cent), meat (24.2 per cent) and dairy (23.9 per cent) comprised 81.1 per cent of total global exports. However, by the early 1980s New Zealand had become a highly regulated economy, especially in agriculture, where by 1984 assistance to the sector reached 30 -34 per cent of the final value of most pastoral farm output. Since then the economy in general has evolved to one of the most open in the world, and the agricultural sector is held up as the classical 'farming without subsidies'⁵ example.

By the late 1960s, faced with growing balance of payment problems, successive governments sought to maintain New Zealand's high standard of living and full employment rate with increased levels of overseas borrowing and

⁵ With reference to the seminal book (Sandrey and Reynolds, 1990) that describes in detail the background, the policy shifts and the consequences of New Zealand's agricultural reforms.

increasingly protective economic policies. The government introduced controls (quotas) for manufactured goods, increased tariffs, and undertook a huge capital works programme. The inevitable result was an inefficient manufacturing base, economic stagnation and increased government intervention. With export markets for agricultural produce guaranteed, increasing production became the name of the game. A turning point came around 1973 when the UK entered the Common Market and the first international oil crisis hit.

By 1984 there was wide acceptance that a change in direction was required, and a number of acute problems had to be addressed:

- The fiscal deficit, which reached nine percent of GDP;
- Government net debt as a proportion of GDP increased from 9 percent in 1976 to 41 percent;
- A persistent current external deficit, which was complicating overseas debt management and putting pressure on the exchange rate;
- Persistent inflationary pressures, with the consumer price index (CPI) reaching almost 20 percent before price controls were imposed in 1982;
- A lax monetary policy, which, because of the government's suppression of interest rates, had led to excessive monetary growth;
- A growing unemployment rate, which had reached 7 percent; and
- A real GDP per capita growth between 1976 and 1984 that averaged only 1.15 percent per annum.

A 'snap' election in 1984 brought to power the Labour Party, with a Finance Minister committed to a less interventionist approach and with strong support from his senior colleagues. For a traditionally left-wing democratic party this approach was inconsistent with their general policy stances, and this contradiction demonstrated how far the previous government had drifted into intervention, the general disenchantment with intervention and the need for radical reform.

The real feature of the reforms from that point was their dramatic nature; attention focussed on stabilisation of the inflation rate, government deficit and overseas debt, and deregulation through reforms of commercial policies, the taxation system and the financial sector, and government trading policies. Agriculture became a central part of these reforms, partly because of its importance to the economy and partly because it was such a visible target and its reform enjoyed political support from the Labour Party's traditional worker base. However, reform of the agricultural sector also had many supporters within the sector itself, as the situation was regarded as unsustainable and farmers expected compensation through reforms elsewhere in the economy. They also expected that the newly-floated exchange rate would closely follow

the agricultural terms of trade, given agriculture's importance in the economy. On the latter they were somewhat misled; the reforms to agriculture took place much faster than many reforms elsewhere, and, contrary to conventional wisdom, the nominal exchange rate (and consequently the real exchange rate) actually appreciated strongly. Both accentuated problems for the sector and delayed its eventual recovery.

3.2 The reforms

The New Zealand dollar was immediately devalued, and then a few months later floated. Export assistance was discontinued, import protection was lowered, the tax base was widened and made more indirect, government trading activities were privatised and the public sector was reformed.

In the agricultural sector, subsidies were withdrawn and by 1991 their value had reduced to around 2 percent of output from the 1983 figure of 33 percent, and from then until the present time that level has prevailed, with the remaining minimal support concentrated upon research and extension, animal health and quarantine, and assistance in times of adverse events; concessionary farm loans were progressively brought into line with market rates for the government-owned Rural Bank (although some debt write-off was introduced, the only real compensation provided to the sector); user fees were introduced for most government services; and farm input subsidies were terminated. In addition, the reform of domestic marketing regulations resulted in complete deregulation of the wheat and egg sectors and a partial deregulation of the town (domestic) milk sector (the export milk sector deregulation proved to be a much harder nut to crack). All of this happened over a short two to three year period.

3.3 The consequences

3.3.1 General consequences

The brief euphoria of a devalued currency lasted for a year or so, and was followed by the pain of a sharply appreciating dollar for the next three or four years. As world commodity prices were volatile, the reforms immediately placed stress on onshore processing industries, which were forced to reduce their margins. And of course the subsidies were being removed.

Labour market reforms such as the abolition of compulsory union membership and greater flexibility in the labour negotiation process saw a transfer from traditional large and inflexible plants to newer more flexible ones that were able to adjust to seasonality and other changes much faster.

Freedom of exit, which had not been a feature in the past, took place concurrently with the new-found freedom of entry in the processing sector, although the consequences for farmers as shareholders in some of these plants was rather mixed as the adjustment process worked its way through.

Table 1 shows the effects over the decade of the 1980s to put the reforms in perspective, using the farm gate returns for lamb as an example⁶. The worst year for lamb was 1985/86, when all the contributions were negative and the farm gate price fell to under half of that of the previous year. The next year farmers were rescued by increasing international prices of meat and skins, as well as the end of the subsidy withdrawals. The patterns for mutton (older sheep meat) were somewhat similar, while dairy, not being as highly supported, did not suffer the same subsidy withdrawal symptoms. Both wool and beef were intermediate between the two extremes of sheep meat and dairy, although wool was more heavily supported and that support was withdrawn more quickly.

There are three main areas where it is useful to track the consequences for agriculture. These are farm incomes, land prices and the composition of farm production, although all three have complex and often lagged interrelationships. By 1987 nominal farm land values had reduced to below 1981-82 boom prices, and in real terms were only about 40 percent of their peak values. Prices increased in subsequent years, and by 1995 the price of most categories of farm land had recovered to around 86 percent of their 1982 value in real terms. The price of most categories of farm land is now higher than the pre-reform peak.

⁶ The skins prices are introduced as these (at the time valuable) by-products masked some of the changes. Note that the reference point is the actual 1979/80 farm gate price for lamb (86.0 NZc/kg), and also note the increase in onshore (slaughtering and processing) costs during the period, as the support to farmers was escalated in the early 1980s.

Table 1: The relative influence on farm gate returns for lamb, NZc/kg

June Year	1 +	2 +	3 +	4 +	5 =	6
	Net overseas price	Exchange rate effect	Onshore processing margin	Skins	Assistance	Final farm gate price
% change per year						
Annual change						
1981	28	5	-10	-17	0	6
1982	-13	6	15	10	23	41
1983	16	6	-87	0	67	3
1984	-4	1	-19	7	23	8
1985	17	10	-4	27	-35	15
1986	-20	-4	-19	-13	-27	-83
1987	67	5	-15	48	-49	57
1988	-30	-14	28	-19	-6	-41
1989	29	9	-10	-7	0	22
Averages						
1981-84	7	5	-25	0	28	15
1985-89	13	-1	-4	7	-23	-6

Source: Sandrey and Reynolds, 1990: 149.

These initial declines, coupled with higher interest rates and lower incomes, placed stress upon farmer equity and debt levels. Despite these adverse conditions, few farmers were forced to exit the land, as most confounded expectations and stayed on by a combination of tightening spending, drawing on reserves and seeking outside employment (along with spousal support on all three). Table 2 gives an indication of the relationship between farm incomes for sheep and beef farmers and dairy farmers, and farm land values. This shows clearly the split emerging between the heavily supported sheep and beef farmers and the lightly supported dairy farmers as the subsidies were withdrawn.

Table 2: Farm income/Land value index

Year	1983	1985	1987	1990
Land values (1982 = 1000)	908	702	462	445
Sheep and beef income (1976 = 1000)	663	832	475	506
Dairy income (1976 = 1000)	837	969	592	1308

Source: MAF, 2005

Initially the reforms had little effect on farm size. However, subsequent to the implementation of the reforms some of the most fertile farm land has been converted into horticulture and there has been a growth in the number of farms producing horticultural products. Additionally, areas of marginal land were converted to forestry and the most marginal of land was withdrawn from agriculture production and retired into native bush. Ballingall and Lattimore (2004) report that the distribution of farms became bimodal, with sheep and beef farms becoming fewer but larger, and a number of smaller, diversified farms emerging.

Perhaps the real story is in stock numbers. While a relative comparison between livestock numbers has become more complex as the productivity from a breeding ewe or dairy cow thirty years ago has changed through technology, it does appear that there has been a movement around herd and flock composition rather than a major reduction in overall livestock equivalents. The most striking feature of Table 3 is the reduction in sheep numbers as the move away from that highly subsidised sector took place. The beef sector in New Zealand is split between traditional beef cattle and cull dairy cows for the US market of manufacturing or hamburger beef. The deer sector is a fascinating case study, while the mohair goat industry came and largely went. Overall, agricultural production did not decline following the reforms, and indeed has steadily increased since then as dairy, deer and fruit production replaced the traditional sheep and beef sectors. Part of this was due to production lags and in particular the fruit sector that was stimulated by export incentives through the early 1980s.

Table 3: New Zealand's stock numbers

Year	Sheep	Dairy cows	Beef cattle	Deer	Goats
	million			Actual	
1950	33.8	2.9	2.1		
1960	47.1	3.0	3.0		
1970	60.3	3.7	5.0	200	
1980	68.8	3.0	5.2	104,359	52,000
1985	67.9	3.3	4.6	319,908	426,887
1990	57.9	3.4	4.6	1.03m	1.06m
1995	48.8	4.1	5.2	1.22m	336,812
2000	42.8	4.6	4.7	1.49m	173,400
2005	39.5	5.3	4.4	1.61m	154,500

Source: MAF 2005 and earlier editions

Production since the reforms has been driven by market prices, although the role of production lags and the inter-linkages between dairy and beef output that comes from around half of the beef output being cull dairy cows cannot be ignored. Figure 2 shows the real price changes since 1987 for dairy, beef (represented as manufacturing cull cows from the dairy herd) and lamb through to 2005. The data are presented in real terms, anchored to 1987 for comparative purposes.

Source: MAF, 2005

Figure 2: The relative price of milk, beef and lamb

The commodity boom of the early years of this decade can be seen for all three products. Dairy has consistently been above the reference point, while lamb recovered from its 1998 lows and beef has struggled. Not shown is that dairy and lamb (and both wool and apples, shown later) are consistently below their levels of the 1960s and 1970s. To complete the picture, Figure 3 shows the same analysis for wool, venison and wheat prices.

Source: MAF, 2005

Figure 3: The relative price of venison, wool and wheat

Wheat has been the most consistent performer, and largely at or above the 1987 reference point. Venison reacted to the increasing supplies coming onto the market, and fell to around half of the reference price before recovering in that same boom of the early 2000s. Wool has continued to perform poorly, and by 2005 was at a level of only around 15 percent of that in 1956 (and 1953 rather than 1956 was the real boom year).

3.3.2 Productivity

The productivity story is interesting, as the reforms seemed to force enhanced productivity changes in the sector. Hall and Scobie (2006) report examples that show spectacular gains in productivity in sheep breeding, with the export revenues generated from around 40 million sheep in 2002 exceeding that generated from 70 million sheep in the 1980s. This is largely because of increased farm productivity in the sector and more processing and value adding taking place in New Zealand. In 1986/87, around 72 per cent of lamb was exported as carcasses. Today, around 95 percent is exported as processed (higher value-added) products. They also found that lambing percentages have increased by over 20 per cent since 1990, that the amount of lamb sold per ewe has increased by over 60 per cent in the same period, and that the dairy industry has seen very strong productivity growth, with milk solids per cow increasing by over 30 per cent since 1990.

Figure 4⁷ shows the estimated productivity changes in New Zealand agriculture from 1972 through to 2003. There appear to be three periods that are consistent with the hypothesis that the reforms induced these productivity changes:

- 1) Modest but uneven growth from 1972 to 1985;
- 2) An almost linear increase from 1985 to 1995, except for the 1993 year; and
- 3) An evening out or even a decline since then.

Source: Harrington (2005): 13

Figure 4: Total Factor Productivity in New Zealand agriculture

3.3.3 The role of marketing changes⁸

Until the reforms the essential link between farm gate and the final marketplace for the major agricultural products were largely controlled by producer marketing boards. For dairy products, apples and kiwifruit these boards had exclusive export powers, while for meat exporters were licensed and their activities regulated by the Meat Board (from October 1982 to December 1985 the Meat Producers Board took exclusive control of meat exporting). The only real exception was wool exports, as most of the product

⁷ Lattimore (2006) shows a similar pattern through to around 2000, but from there to 2004 he shows TFP increasing dramatically over the four years through to 2004. Lattimore's breakdown shows an average from 1972 through to 1984 ('with subsidies') of 1.5 per cent per annum but a significantly higher average from 1984 through to 2004 ('no subsidies') of 2.5 per cent.

⁸ This section draws heavily from Sandrey and Reynolds (1990), Harrington (2005), and Evans and Meade (2005)

was auctioned. In addition, town milk (the domestic fresh milk market) and eggs were subject to supply controls under the umbrella of their respective boards. These sectors, along with wheat in the arable sector, will be examined separately. In most sectors the marketing boards either directly or indirectly operated price smoothing mechanisms for farmer returns as well. The crucial question is the extent to which these marketing arrangements were reformed and their consequential impact upon the sector's performance.

Given the large percentage of agricultural produce that is exported, this relationship is pivotal, and arguments ranged freely on the extent that the marketing boards were able to enhance returns through single desk selling or market coordination on the one hand versus adding a burden through bureaucratic inefficiencies on the other. Interestingly, some members of the WTO have targeted the New Zealand Dairy Board (and its successor, Fonterra), as State Trading Enterprises (STEs) that must have their powers reduced under any WTO settlement, thus suggesting that at least some believe the former is true and market power does exist.

The **dairy** sector has faced the fewest adjustments; partly because fewer subsidies were directed to this sector and partly because the vexing question of the control of and economic rents associated with international quota markets has been difficult to resolve. The processing industry has been almost exclusively a cooperative-based one, with a steady process of mergers and amalgamations from the 168 dairy companies in 1961 through to 42 in 1981, 9 in 1998 and only 4 in 2001. At this latter date the two major companies and the Dairy Board merged into Fonterra, a cooperative company that processes around 95 percent of New Zealand's milk supply and controls at least one third of the world trade in dairy products. The statutory powers of export monopoly were removed, although a mechanism for allocating quota to the lucrative EU and other markets remains, and the almost-complete dominance of cooperatives in the New Zealand dairy sector remains a feature of the market, along with the strong international processing and marketing linkages of Fonterra. Another feature is that an analysis of exports of New Zealand's dairy produce shows that 24 separate individual countries were the destination of at least one percent each of these total exports during 2005, demonstrating both the wide global connectiveness and marketing of the industry and, although not specifically proven but alluded to, product innovation through an extremely diversified product mix that comprises over 1,000 different products.

The **meat** sector went through dramatic changes. At the time of the reforms it had complete control of the beef and sheepmeat (but not venison) export market (but not processing), and the changing profitability of the sector that

led to declining sheep numbers also led to a significant industry restructuring that had considerable animal and corporate 'blood on the floor' as this restructuring worked through in the face of considerable overcapacity and newer technologies. Cooperatives were relatively new to this sector, a sector traditionally dominated by overseas interests, but Evans and Meade (2005) report that cooperatives now account for around half or more of the current processing. It was interesting that during the 'procurement wars' of the late 1980s and perhaps early 1990s in response to declining stock numbers many farmers showed little loyalty to their own processing cooperatives but rather sold to the highest bidder, thus suggesting that the farm gate to final market chain of cooperatives may not be that strong in many cases – a sharp contrast to the dairy sector. The once-mighty Meat Board now operates as two shells; one the Meat Industry Association to allocate and monitor the lamb supply for the EU quota, the other the combined Meat and Wool New Zealand body to coordinate the industry (but without any powers of enforcement) and collect and disburse the compulsory industry levies for functions that include research and development. Otherwise, the market where New Zealand holds a 50 percent and 8 percent global share of the sheepmeat and beef trade respectively remains an open and competitive one. It must be reported also that around two-thirds of both New Zealand's lamb and beef are exported under quota to the EU and the US respectively, and that these quota rents are, especially in the case of EU sheepmeats, substantial. Any change either in market access for competitors or to the administrative mechanisms through a WTO settlement, and consequently the loss of economic rents from the EU, would be costly to New Zealand.

Since accounting for one third of total exports in 1960, the importance of **wool** has steadily declined in tandem with its relative prices to become largely a by-product to the meat sector. Marketing has traditionally been through the auction floor, and this has remained important as around 80 percent of the clip is sent overseas with limited further processing. Recent developments have included the setting up of a grower-controlled private company to market the premium fine merino wool and the rise of wool brokers operating as commissioned agents between growers and final buyers. In effect, little has changes since the reforms except the continual decline in prices and perhaps the slow emerging of some more sophistication in the marketing of the product.

No analysis of New Zealand's recent farming performance is complete without looking at the **deer** industry. An early history of this sector and the associated projected time-path for its development is contained in Sandrey and Zwart (1986). Deer were introduced into New Zealand by the white settlers, and by the early to mid part of the 20th century they had become both

a recreational hunting facility but more importantly a pest in the bushlands. In the late 1960s commercial hunters started harvesting the feral animals for venison to supply the European market and velvet for the lucrative Asian market. In the 1970s this evolved into capturing the feral breeding stock for commercial farm production as the animals were domesticated, and by the early 1980s the industry was generating economic rents to owners of female animals, who were able to take advantage of disequilibrium prices that fuelled the industry as new entrants clamoured to get in. At this stage the by-product velvet was supplying returns to owners of stock, as few animals were being slaughtered for venison. Around the end of the 1980s the high prices for female animals collapsed and reverted to breeding rather than speculative values as the herd began an orderly transition to a new domestic livestock industry. This saw the end of feral capture and the start of the marketing of venison globally as a premium meat. Breeding numbers have stabilized at around 1.5 million head in recent years as the industry has matured (Table 3).

Technological innovation has been a feature of this industry at all stages of its progression; from the helicopter harvesting techniques through to innovative farming practices and marketing developments. Government assistance was limited to some tax advantages in the early stages of the sector's growth and the usual research and development contributions (although most of the practitioners were ahead of the scientists in the early days).

Why New Zealand and not South Africa? New Zealand had excellent access to the European Red deer and this animal may be more conducive to commercial farming than its African counterparts. Perhaps the industry, like the kiwifruit industry, could conceivably have been developed in South Africa as well as or instead of New Zealand. In both cases entrepreneurial skills and innovation were the keys, as South Africa lacks neither deer (antelope) to commercialize nor the climate to grow kiwifruit, although South Africa's lack of good quality land and assured summer rainfall may be a constraint. Furthermore, the role of small antelope such as impala as vital cogs in the chain for big game hunting and viewing in South Africa must be acknowledged, with the latter probably the dominant attraction of the South African tourism industry. Also, South Africa does have a strong ostrich industry.

Exports of apples and kiwifruit dominate the **horticulture** sector, with New Zealand holding a global trade share of around 5 and 25 percent respectively, and around 55 and 95 percent of the domestic production respectively being exported. Wine should also be included in this category, a horticultural product that is both riding and creating the so-called new world wine industry wave along with, inter alia, South Africa. Figure 5 below shows their respective price indices relative to the same the common base of 1987

used before. Kiwifruit has fared the worst, with apples little better while wine has boomed despite dramatically increased supplies, both domestically and on the world market.

Source: MAF 2005

Figure 5: The relative prices of apples, kiwifruit and wine in New Zealand

Production of the two fruit sectors has followed different time-paths; apples are a traditional but declining export crop, while kiwifruit was the darling industry of the early 1980s that has matured. Wine production (and quality) increased significantly from the mid 1970s, and this export market has been based around the Sauvignon Blanc flagship. These time-paths are shown in Table 4, and they raise interesting questions as to 'why New Zealand' and 'did the reforms play a part' for the kiwifruit and wine sectors in particular.

The kiwifruit sector benefited from marketing and input subsidies, and particularly taxation subsidies, during the 1978-82 period that fostered the growing boom and led to high returns to early entrants, while, except for a grape pull-out scheme in the mid 1980s, wine has 'gone it alone'. The marketing structures for these three sectors have varied, and the comment must be made that in the case of both wine and kiwifruit product differentiation and astute marketing in the face of increased global supplies has been a major factor in the success of these two sectors.

Table 4: The export of New Zealand horticulture, NZ \$m

Product/Year	1975	1985	1995	2000	2005
Apples	19.3	108.2	343.6	404.5	387.0
Kiwifruit	2.9	171.9	320.8	462.0	720.2
Wine	0.1	3.0	42.0	169.8	432.7
Other*	11.2	198.1	595.6	662.4	763
Total	33.5	481.2	1,302.0	1,698.7	2,302.9

Source: New Zealand Hort Research, 2005. Where "other" in 2005 included fresh vegetables (\$200m), processed vegetables (\$264m), and processed fruit (\$100m).

The restructuring of the Apple Board was completed in the early 2000s. Earlier, an independent regulatory board had been stripped out, and this was abolished, and the merger of the marketing arm with a private company signalled the end of monopoly exporting. This has led to a situation where almost 100 exporters currently operate, and whether the current poor returns are a function of too much competition in the market place or not is a moot point. In either case these reforms lagged the 'big bang' of the mid 1980s, and the heterogeneity of the different varieties and the associated price differences between 'old' and 'new' varieties has always been a feature of apple marketing, with the oversupply of the 'old' varieties contributing to industry woes.

Kiwifruit was marketed by companies operating under the New Zealand Kiwifruit Authority, and New Zealand enjoyed a dominant global market share. In 1989 the Authority became the Board with single-desk selling powers. Contrary to the trend in other sectors, growers were happy with this arrangement, and despite some changes the restructured Board (now a grower controlled company called Zespri) still has monopoly powers to non-Australian markets that purchases product from a variety of packhouses and coolstore facilities.

The wine industry benefited from a subsidised vine pull scheme to reduce the wine glut in New Zealand and replace the older, unwanted varieties with the more commercially viable ones. This scheme was regarded with askance by economic purists, but it possibly was a big catalyst in setting the industry on its modern path. Concurrently with this supply-side activity were the deregulation and liberalisation of imports of wine into New Zealand, through both the trade agreement with Australia and more generally unilateral border protection liberalisation. This gave a major incentive for the New Zealand sector to enhance quality, and until relatively recently imports and exports of wine were somewhat in balance. A few large firms dominate the sector by value, but they operate alongside the medium to smaller ones, and the industry has become an excellent case study of brand naming and niche

marketing undertaken within a relatively cooperative manner that has had little or no government involvement. In a sector where New Zealand enjoys outstanding success on world markets with a price to match but produces only 0.3 percent of global wine output, marketing must have played a major role.

In summary there is a large diversity in the marketing structures and their evolution in response to deregulation. The successful evolvers have been the dairy and kiwifruit sectors, the disasters have been the meat and apple sectors, while the wool and wine sectors have really stood on the sidelines. Is it a coincidence that the evolvers have been the successful industries following deregulation? Perhaps, but then wine has been very successful as well, and, conversely, the sheepmeat industry went through the largest structural changes at both the farm and off-farm levels. Overall, Zwart and Moore (1990) considered (in 1989) that despite New Zealand's reputation for sophistication in its marketing structures, the value of its major commodity exports was not higher than that of comparable countries.

3.4 The New Zealand experience: overall conclusions

Table 5 shows how New Zealand's export profile has changed since 1960. How much of this can be attributed to the reforms of the mid 1980s is of course a moot point, as many of the changes were already in movement at that time. Noticeable is that dairy has not even regained ground overall since the 1960s, but of course this is partly due to the increase in non-traditional exports. Wool has been on a steady decline to obscurity as the world price has declined, but otherwise there has been little change from 1992 in the meat, fruit and vegetables, fish, forestry and aluminium export shares. This reaffirms that much of the response to the reforms had been competed by 1992, and more recent changes (not withstanding lag responses) have been from global market returns as agriculture has actually maintained its overall share in New Zealand's exports.

Table 5: Main exports from New Zealand, % share

	1960	1970	1980	1992	2005
Wool	33	18.8	18.1	6	2.7
Meat	24.2	33.5	23	16.8	15.8
Dairy	23.9	19.7	15.9	15.7	20.5
Fruit & Vegetables	1.2	2	2.5	6.5	5.2
Agriculture	79.3	74.0	59.5	45.0	44.2
Fish	0.2	1.4	2.5	6.5	3.8
Forest	1.3	5.8	8.5	10	9.6
Aluminium	0	0	3.2	3.7	3.7
Non-Commodity Man.	1.2	5.7	12.8	17.0	

Source: Author calculations

In many ways Sandrey and Reynolds (1990) were too close to the 'action' to give a final report mark. Others have done so later, with more hindsight benefits. We would agree with the New Zealand Institute of Economic Research (NZIER, 2004) in that a number of lessons can be concluded from the New Zealand experience. Crucially, farmers have the scope and ability to make changes in reaction to the reduction in assistance, therefore raising business profitability above what it would have been had such a reaction not occurred. Importantly, they do not bear all the adjustment costs, as they do not face perfectly inelastic supply or demand curves and as a result the burden of adjustment is shared across the markets. Given time, profits recover from the initial shock as asset prices adjust to lower product prices, outputs change and demand grows: resources will be redirected towards those products with comparative advantage. Macroeconomic stability plays an important role in re-establishing agricultural profitability, but adoption and innovation in the sector are by far the most important factors in re-invigorating the sector post-reform.

Similar conclusions were stated closer to the reform period by Sandrey (1991), who wrote that the important lesson emerging from New Zealand's experience is that changes in broad economic policies can adversely effect the agricultural sector, and especially so if it is export dependent. He also considered that whether or not the overall impact could have been reduced by a different sequencing of policies was unclear, as (a) a longer reform period may have lacked the credibility to sustain those reforms and (b) such a statement begs the question of what is the optimal sequencing. Overall, the main feature of the reforms was their comprehensiveness and speed, and in this situation sequencing becomes somewhat of a sterile debate.

In a speech to Federated Farmers Alan Bollard, the Governor of the Reserve Bank of New Zealand (Bollard: 2006), examined the new relationships

between agriculture, monetary policy and the New Zealand economy. Against expectations, the role of the agricultural sector has increased in recent years, with much of this being due to the enhanced technological change (as discussed in this paper) that a market approach has brought to the sector and global 'shocks' in recent years that have been benign to New Zealand. These shocks have included the foot and mouth outbreak in Europe increasing sheep meat prices and North American mad cow outbreaks increasing demand for Australasian beef in Japan at a time when Australian droughts reduced beef exports from that country. In particular, farmers have learned to become more sophisticated in handling volatility, and this has in turn increased the demand for farmland to the extent that agricultural lending now represents around one third of all registered bank lending to the corporate sector in New Zealand. In a true central banker fashion the Governor warns against the downside of this exposure for both bankers and their clients, but he does temper this by concluding that the sector is in a much better position to handle the looming 'rebalancing' than it was 'in the turbulent 1980s'.

Support that the liberalisation programme has enabled New Zealand to increase its prosperity since 1980 is given by Borkin (2006), who examined developments in New Zealand's terms of trade. Volatility in the terms of trade had a negative effect upon New Zealand's economic growth from 1950 through to 2005, but rather than the level of the terms of trade it has been the export prices that had a significant positive effect upon this growth. In particular, the terms of trade have shown an increasing trend since 1974, and given that the country is largely an exporter of primary commodities this is a surprising find and runs counter to the usual hypothesis that commodity exporters will face terms of trade that trend downwards over time. This increase in export prices exceeded the terms of trade relative to world commodity prices, and he finds that the change in the composition of New Zealand's export basket and the recent 'de-commodification' of these exports through new value-added approaches and global marketing has contributed to this. He also points out that the liberalisation in New Zealand's border protection has enabled import sources to move towards the low cost manufacturing countries in East Asia, and this has been a factor in enhancing terms of trade as well, although this effect seems to be minor.

A question posed at the beginning of this paper was 'did New Zealand re-gear itself, or was it just lucky', and Borkin (2006) attempts to answer this analytically. He finds that it is difficult to test empirically how the compositional change in exports have contributed, as there are complex feedbacks and endogeneity effects, but concludes that an economy that is more dynamic is able to adjust faster and the reforms of the mid 1980s certainly enabled just that. However, he also finds that holding the bundle of export

goods constant at their 1980 share would have resulted in a slightly lower terms of trade index value over the 2003-2005 period than they actually were, thus posing some doubts on the reforms as assessed from this perspective, but this results because both dairy and meats were enjoying a boom over the last three years and their overall rather than agricultural share of exports was higher in 1980. This analysis is also dependent upon the choice of base year, as using 1960 gives a result that is significantly better currently for New Zealand. But perhaps the final word should go to farmers themselves. Federated Farmers of New Zealand (2005) report on 'Life after Subsidies'⁹ in a glowing testament to an agricultural sector operating in the absence of subsidies and urges international reform with a missionary zeal. They glorify the better life after subsidies, stress the productivity growth that exposure to market forces has dictated and relish being 'more in charge of their own destiny'.

4. The gathering of the threads

There are both similarities and differences between the New Zealand and South African agricultural sectors that have to be taken into account in any comparison of the impact of policy shifts between the two countries:

- Both share a relatively recent white colonialist past that was superimposed upon indigenous peoples; however, in New Zealand the minority indigenous peoples have largely been integrated into agriculture, while this is not the case for the majority in South Africa as that country emerges from the troubled years and seeks to address the injustices of the past.
- Both share a generally similar southern hemisphere climate and potentially can and do compete in some products internationally, although New Zealand is blessed with more reliable rainfall and better soil conditions overall. However, New Zealand, with its smaller domestic population is more export-oriented.
- Both underwent dramatic reforms of both their economies and their agricultural sectors; New Zealand in the mid 1980s and South Africa a decade later, and in both of these cases economic reason either partially or wholly drove these reforms although the political motivation in the case of South Africa may have been equally or even more important.
- Both now are Cairns Group members that lead the world in having an unsubsidised agricultural sector, although the New Zealand sector has adjusted to this regime better than the South African sector has to date. That last 'to date' qualification is important, as the New Zealand experience shows that times lags can be longer than expected.

⁹ This short note is not to be confused with Sandrey and Reynolds's 'Farming Without Subsidies'.

As a result, the impact of marketing deregulation in South Africa and New Zealand is difficult to assess, as the discussion in Sections 2 and 3 above also shows that marketing reform was, in both cases, part of a broader package of agricultural-sector reforms that included:

- A reduction in general budgetary support to agriculture in South Africa, but not in New Zealand;
- A reduction in commodity specific subsidies in both countries;
- Deregulation of agricultural markets in both countries; and
- Trade liberalisation as a result of the Agreement on Agriculture in 1994.

There are some similarities in the process of deregulation of agricultural markets between the two countries. Marketing reform was triggered by external macroeconomic factors in both. In New Zealand, unsatisfactory macroeconomic performance and economic stagnation resulted in a change in government in 1984, and a subsequent drive to liberalise the economy. For various reasons (see p10), agriculture became a central part of these reforms.

In South Africa, the trigger also had macroeconomic precedents, as attempts to stabilise the economy, starting in the late 1970s, resulted in a rapid increase in interest rates to farmers, which had an immediate and strong impact on agriculture, triggering a long period of piecemeal deregulation in agricultural markets throughout the 1980s.

Thus, both countries embarked on the reform of agricultural marketing at about the same time. However, the process from that time onwards was markedly different. To understand these differences, and their consequences, it is necessary to compare the reforms in terms of their timing, sequencing, breadth, and depth.

4.1 Timing of the reforms

Most of the New Zealand agricultural policy reforms, including the reduction in subsidies, the removal of 'soft' interest rates, and the introduction of user fees for government services, were implemented within three years of the 1984 elections, i.e. by 1988. The result was that New Zealand's PSE declined to below 5 per cent after 1988 (Helm, 1994), and has since declined to below 1 per cent (OECD, 2006).

In South Africa, the reduction in general expenditure on agriculture and the reduction in commodity specific subsidies took place over a longer period (from the early 1980s to the mid-1990s). However, marketing reforms were accomplished in a 'big bang' process that lasted for the statutorily-defined 12

months starting in January 1997. Hence, the New Zealand reforms preceded the South African reforms by a decade. As a result of the South African reforms, the country's PSE remained at above 10 per cent until 1995 (Helm, 1994; Kirsten *et al.* 2000) after which it declined to below 5 per cent, a level which it has maintained since (OECD, 2006).

4.2 Sequencing of the reforms

The deregulation process in New Zealand had two distinguishing features with respect to the sequencing of the reforms:

- The domestic part of the reforms was accomplished over a very short period of three years, with no apparent pattern in terms of the sequencing;
- These domestic reforms preceded international trade liberalisation as sanctioned under the Agreement on Agriculture.

In South Africa, on the other hand, the sequencing was a bit more complex, as the piecemeal reforms of the 1980s and early 1990s preceded trade liberalisation after the Agreement on Agriculture. This in turn preceded the radical 'big bang' deregulation of agricultural markets that took place during 1997. Furthermore, new policy initiatives with respect to labour, land and water were introduced between the time of the implementation of the Agreement on Agriculture and 1997.

However, there is no evidence that policy makers followed any deliberate sequence of reforms. In the case of New Zealand the reforms were so rapid that the issue of sequencing seems less relevant. In South Africa, on the other hand, external (political and/or macroeconomic) factors seem to have had a stronger influence on the agenda of reform, and there is little evidence that any prior thought was given to their sequencing.

4.3 The breadth of the reforms

Virtually the entire New Zealand agricultural production was subject to statutory intervention before deregulation. This included sheep meat, dairy, wool, beef, apples and kiwifruit, as described in this report. Commodities that were excluded from control included deer and wine. As in the case of South Africa, there is much evidence that such industries have, in the long run, been the most successful. New Zealand also implemented labour market reforms, which resulted in more flexible labour markets.

In 1995/96, the year before deregulation, some 80 per cent of agricultural

products in South Africa were marketed through 'controlled' markets, as measured by the gross value of agricultural production. This included those commodities that fell under marketing schemes promulgated under the Marketing Act, as well as commodities that were controlled under their own legislation (e.g. sugar, wine) or under the Cooperative Societies Act (ostriches, wattle bark). Uncontrolled products included poultry meat (13.4 per cent of gross value of production) and vegetables (4.1 per cent) as well as smaller commodities such as tea, nuts and flowers and commodities that had already abolished their control schemes (bananas). By the end of the 'big bang' period, the only commodity where there was still a measure of control was sugar (6.4 per cent of the gross value of agricultural production in 1998/99). Therefore, deregulation covered virtually the entire range of agricultural products in South Africa.

4.4 The depth of the reforms

The most fundamental difference between the processes of marketing reforms in South Africa and New Zealand are to be found in the depth of the reforms. In the case of South Africa, all statutory powers were removed, with two exceptions:

- The protection that is still afforded the sugar industry;
- The powers that exist under the Marketing of Agricultural Products Act that allow industry bodies that qualify to implement statutory levies in order to raise funds to finance the provision of information, industry-relevant research, generic product promotion, and 'transformation' initiatives.

In the case of New Zealand, the end result of deregulation was more nuanced. This report has highlighted the following results for the more important commodities:

- **Dairy.** While the industry lost the monopoly powers as sole exporter, it still controls the quota allocation into the EU and USA markets, giving it a 95 per cent export market share.
- **Meat.** The industry body allocates and monitors the supply of New Zealand lamb for the quota allocation into the EU and USA markets, and is able to collect compulsory levies.
- **Kiwifruit.** The industry is currently able to operate a single desk, with monopoly export powers to all markets other than Australia.

Nevertheless, all other industries (including apples, wheat and eggs) were completely deregulated, while industries that had never been regulated (wine,

deer) remained so. Yet in these three key export-oriented industries, characterised in the case of meat and dairy by preferential access to the EU and US markets, the state allowed some measure of market control. It is interesting to note that this did not result in a higher PSE for New Zealand, largely because import controls are not necessary to maintain such control, hence domestic prices and the price gap between domestic and world prices, the key to the measurement of PSE, is unaffected.

Experience shows that the ability to coordinate exports confers economic rents on those who have access to the market, and hence is favoured by such producers. However, this comes at a cost: to individual producers who do not have access to the market and who do not have the freedom to sell what they want in the markets they wish to serve; and to society as a whole in the form of 'rent-seeking activities', attempts to control supply and a general lack of innovativeness in the long run. These latter factors were taken into account in the Kassier Report (1992), but in South Africa the main problem lies with the former: the barriers to access for new producers.

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