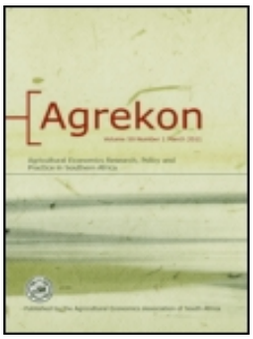

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Malcolm Abbott

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MARKET SUPPORT SCHEMES AND THEIR INTERACTION: THE CASE OF THE WOOL INDUSTRY

Malcolm Abbott*

ABSTRACT

The focus of this paper is on the conduct and collapse of the Australian, South African and New Zealand wool price stabilisation schemes and the manner in which they interrelated. In particular the degree to which the Australian Wool Corporation acted as a market leader in price determination is analysed and the manner in which the South African and New Zealand authorities acted as free riders to the Australian scheme.

JEL Classifications
Q13 - Agricultural Markets and Marketing; Cooperatives; Agribusiness.
Q18 - Agricultural Policy; Food Policy

Keywords: wool, price stabilisation, market leader

1 INTRODUCTION

During the second half of the twentieth century a number of governments around the world attempted to stabilise rural incomes through the operation of buffer stock and single desk acquisition schemes. A number of these collapsed disastrously, leaving governments and farmers with considerable debt burdens and commodity stockpiles (reasons for these failures can be found in Townsend, 1977; Newbery & Stiglitz, 1981; Salant, 1983; Gilbert, 1987; Maizels, 1987). One of the most spectacular collapses was the failure of the Australian wool buffer stock scheme, which was terminated in February 1991, leaving the Australian wool industry with a debt of A$2.7 billion and stocks of 4.6 million bales of wool (811 kilo tonnes greasy), about one year's supply (Australia, Department of Primary Industries and Energy, *Structuring for global realities*). The collapse of the Australian scheme, and subsequent dumping of stockpiled wool onto world markets, has meant that wool prices, with a few exceptional years such as 2002/03, 2010/11 and 2011/12 when prices peaked, tended to be low in the 1980s and 1990s (see Figure 6), and world production has declined from 3 370 kilo tonnes in 1990 to only 1 992 in

* Swinburne University of Technology, Melbourne, Australia. Email: mabbott@swin.edu.au

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2010 (International Wool Textile Organization, *Market Information*).[1]

Although a considerable amount has been written about the collapse of the Australian wool buffer stock scheme (see for instance Stoeckel, Borrell & Quirke, 1990; Watson, 1990; Gunnaskerra & Fisher, 1992; Bardsley, 1993; Haszler 1994; Haszler, Chisholm, Edwards and Hone, 1996; Massy, 2011) one important aspect that has been generally overlooked has been the impact of the Australian scheme on the wool industry in countries besides Australia. This is surprising as the impact of the operation and collapse of the Australian scheme on other wool growing countries was considerable, as Australia is the world's largest producer and exporter of wool, accounting for about one-third of the world's production. In addition the collapse of the Australian scheme and its interrelation with other price schemes can tell us much about the manner in which these schemes can interact. One interesting aspect of the collapse of the Australian scheme was that it helped to bring about the termination of similar, smaller scale reserve price schemes in a number of other countries. In particular two important schemes in New Zealand and South Africa were terminated in February 1991 and June 1993, respectively. These two marketing arrangements had operated for a number of years and even predated the Australian scheme by 18 years and 12 years, respectively, but in the wake of the collapse in international wool prices the New Zealand and South Africa wool authorities were left with considerable amounts of debt and large stockpiles of unsold wool.

The focus of this paper is, therefore, on the conduct and subsequent collapse of the South African and New Zealand wool price stabilisation schemes and the manner in which they were influenced by the operation and collapse of the Australian scheme. In particular the degree to which the Australian Wool Corporation acted as a market leader in price determination will be analysed as well as the reasons behind the creation of the New Zealand and South African stockpiles, which must have precluded the two countries simply acting as a "free rider" to the Australian scheme to the fullest extent possible. In undertaking this study it will be possible to get a better indication of manner in which price-fixing schemes in different countries for agricultural products interrelate with one another, an occurrence that has not received significant attention in the past.

The layout of the paper is as follows. In Section 2 a review of the background to the operation of the Australian, South African and New Zealand wool marketing schemes is provided. In Section 3 the relationship between the New Zealand and Australian schemes is analysed, followed in Section 4 on the similar analysis

1 Reductions in wool production were also encouraged by the expansion of other land uses such as dairy production in New Zealand, wheat production in Australia and game farming in South Africa.

of the South African and Australian schemes. In the next sections a summary and discussion of the main findings are undertaken. In the final section some conclusions are made.

2 BACKGROUND

In the New Zealand and Australian cases buffer stock schemes were used to stabilise prices through transaction in stocks. This was carried out by two government-owned statutory authorities: the Australian Wool Corporation and the New Zealand Wool Board. The basic aim of the Australian Wool Corporation and the New Zealand Wool Board during the 1970s and 1980s was to reduce price variability by buying wool when it was cheap, and then selling it when it is expensive. In New Zealand buffer stock purchases have been carried out by authorities virtually since the end of the Second World War.

During the Second World War the British Government purchased all the wool produced by Australia, New Zealand and South Africa, but with the wartime cutting-off demand by the German, French, Italian and Japanese woollen industries, this left Britain with a considerable stockpile by the end of the war (10.4 million bales in July 1945: McCarthy, 1967:110; Australian Wool Realization Commission, *United Kingdom*). After the war a "Joint Organization" of the United Kingdom, Australia, New Zealand and South Africa managed the disposal of the stockpile and intervened in auctions, buying up small quantities of wool in order to maintain a floor price. When the wartime stockpile was exhausted it was planned to create a similar organisation to continue the reserve price scheme, but Australian wool growers in a referendum held in 1951 voted decisively against being involved, leaving the New Zealanders and South Africans to make their own arrangements (Tsokhas, 1990; Abbott, 1997).[2]

In New Zealand their share of the funds raised by the sale of the wartime stockpile was used to finance a buffer stockpile scheme operated by the New Zealand Wool Commission founded in 1952. Each year a minimum price was set by the Commission, with the approval of the Minister for Agriculture, and purchases made in order to maintain the price at a floor.[3] As a warning to what happened in 1990–2001 a severe downturn in wool demand in 1966/67 saw 35 per cent of the

2 Australian, South Africa and New Zealand cooperation in the wool industry predated the Second World War in the creation of the International Wool Secretariat in 1936, which was responsible for the promotion of wool use and research into wool product developments (Abbott, 1998).

3 During the 1950s and 1960s the New Zealand Wool Commission operated separately from the New Zealand Wool Board, which had been established in 1944 to undertake wool promotion and research, financed by a levy on wool production.

New Zealand wool clip acquired by the Commission.[4] The schemes' rules were subsequently eased and in 1973 greater flexibility was introduced and a further intervention regime, strata price control, was introduced in 1976 by the Wool Commission's successor, the New Zealand Marketing Corporation (Greensmith, 1976). The Marketing Corporation itself was merged with the promotion and research orientated New Zealand Wool Board in 1977. The "new" Wool Board continued purchasing wool on a flexible basis, changing intervention prices from sale to sale if necessary, but also maintained a floor price. The intervention prices remained confidential and after the New Zealand currency was floated in 1985, they could reflect changes in the exchange rate. In 1988 the minimum price regime ceased to be statutory, but the Board continued to maintain it (Little, 1992).

After some delay the South Africans also began a similar scheme in March 1958 using their share of the war-time stockpile funds.[5] The South African Wool Commission administered the scheme from 1 July 1960 and operated in a similar fashion to that of the New Zealand Wool Commission up until the end of the 1971/72 season. The South African Wool Commission was then merged with the South African Wool Board and under the provisions of the *Marketing Act 1968* operated a full acquisition scheme (South Africa, Committee of Inquiry into Wool Marketing, *Report and Recommendations*).[6] The new South African Wool Board, as it was known, was empowered to acquire and to market all wool produced in South Africa, other wool sales being prohibited. Wool was purchased by the Board on the basis of a one channel pool system and all wool was then offered for auction. A flexible reserve price applied, the object being to minimise short-term price fluctuations by purchasing stocks on a declining market and then offering them later on a rising one. Should the bid price be lower than the reserve price then the lot would be declared not sold and stockpiled. The South African Wool Commission, like its New Zealand counterpart, had to get the approval of the Minister for Agricultural Economics and Marketing for any change to the reserve price. For the first twenty years of the life of the buffer stock schemes the New Zealanders operated, as did later the South Africans, with the knowledge that

4 In this case the New Zealand Wool Commission made the mistake of raising the reserve price under the pressure of farmer groups just when demand for wool and prices were falling. This meant that the downward fall in the price level hit the floor price and the Commission ended up purchasing 646 000 bales of wool, or about 35 per cent of wool offered for auction (Greensmith, 1976).

5 The South Africans were reluctant to proceed in the absence of the Australian industry but eventually decided to do so (Abbott, 1997).

6 The original South African Wool Board was established in 1946 and undertook the promotion of wool consumption and research into wool production, financed by a levy on wool production (Abbott 1997).

Australia, the world's biggest exporter of wool, could easily undermine their efforts to put a floor under the international wool price.

The most important of the wool price stabilisation schemes was that operated by the Australian Wool Corporation. Australia is the world's largest producer and exporter of wool and the Australian industry has the ability to influence world prices. Although the Australian industry had this market power the ostensible idea of a buffer stock and reserve price mechanism was not to take advantage of this power by restricting world supplies, but to stabilise prices by removing supplies from the market when prices were low and adding to them when the world price was high. Buffer stock schemes, however, are often initiated in response to the pressure brought by producers in response to falling prices and this was true in Australia in the late 1960s, when a severe reduction in wool prices saw the creation of an Australian Wool Commission in November 1970.

The Commission began purchasing wool during the 1970/71 season. The Australian Wool Commission was merged with the research and promotion orientated Australian Wool Board in 1973, and the flexible system with no fixed and published price was replaced and a reserve price was introduced on the 2 September 1974.[7] The Commission was originally financed through a government established credit facility where borrowings were charged at a concessional rate of interest. Through most of the 1970s and 1980s Australian wool growers also paid a tax levied on wool production to the Australian Wool Corporation, with the proceeds accumulating in a Market Support Scheme, which was used to finance buffer stock operations. Similar levies were also raised during the 1970s in South Africa and New Zealand. There was no direct government revenue, as is typical in many agricultural stabilisation schemes. Accumulated funds from the levy and wool sales (the Market Support Fund) were used to buy wool, meet losses, and support the market when prices were low. When the Market Support Fund was exhausted any further purchases were financed by borrowing (generally from commercial sources) against the collateral of the wool stockpile. If the Market Support Fund grew too large then funds were repaid to the growers. By the end of 1986/87 the credit balances of the Market Support Fund had reached $1.8 billion, about one-third of the value of a normal season's production (Australian Wool Corporation, *Annual Reports*).

The initial wool stock purchased by the Australian Wool Commission was sold when world demand for wool recovered during 1972 and 1973. The scheme appears to have been reasonably successful between 1971 and 1987, having probably stabilised prices at relatively low cost to the industry (Campbell, Gardner

7 The Australian Wool Board was the first of the research and promotion orientated wool boards to be created and was established in 1936 (Abbott, 1998).

& Haszler, 1980).[8] Watson has pointed out that the scheme was fortuitous in these years as world demand for wool was reasonably stable and high world prices for cereals meant that cereal production was high, which reduced the production of wool (Watson, 1990).

In its final years the reserve price scheme in Australia was managed at arm's length from the Australian government, without any formal guarantee of the Corporation's debt, and with price setting powers devolved almost entirely to the industry. Before 1987 the reserve price was set by the Minister for Primary Industry, after taking advice from both economists and wool growing interests. In 1987 government control was delegated to Australian Wool Corporation and the Wool Council of Australia (the latter being a body of grower elected representatives). In the mid 1980s the Australian dollar fell in value sharply against major wool importuning countries, and the resulting increase in wool's price competitiveness helped stimulate demand for wool. The price of wool soared following a rundown of stocks in 1987. The reserve price was raised by 70 per cent over two years from a market indicator (weighted average price) of 508 cents per clean kilogram in 1986/87 to 645 cents in 1987/88 and 870 cents in 1988/89 (Australian Wool Corporation, *Annual Reports*). As in the case of so many failed buffer stock schemes, the Australian wool industry perceived the boom in higher prices in 1987 and 1988 as being a permanent change in the price of wool and not just another short-term fluctuation. In particular it was thought that the rise was a consequence of the industry's success at research and development and promotion (Australian Wool Corporation/Bureau of Agricultural Economics 1987).

The new price set off a boom in Australian wool production and a retreat by fibre users from wool to cotton and synthetic fibres. A large decline in the demand for wool by China and the Soviet Union (the latter politically breaking up at this time) also helped to reduce sales of wool. By mid 1989 Australian prices had fallen to the floor and were sustained only by substantial market intervention. Over the next eighteen months more than one half of all wool offered for sale was bought by the Corporation. Stocks rose from 9 000 bales in June 1988 to 4.6 million by the end of 1990. This was more than double the previous historical peaks in 1974/75 and 1983/84 of 1.8 million and 1.6 million, respectively (Australian Wool Corporation, *Annual Reports*). Accumulated funds were exhausted in trying to maintain the higher reserve price and the Australian Wool Corporation borrowed to the limit of its capacity against the security of the stockpile, as it had done in the past. Proposals that the floor price be lowered were rejected strongly by

8 It did, however, operate at a net loss between 974/75 and 1977/78; that is net operating costs (interest, storage) outweighed wool trading surpluses (selling prices minus purchase prices) (Campbell, Gardner & Haszler, 1980).

the industry. Eventually the Australian government agreed to guarantee the wool debt in May 1990, in return demanding that the reserve price be lowered from 870 Australian cents per kilogram to 700 cents. This took effect in June 1990 but proved insufficient to stimulate demand and the stockpile kept growing. Finally on the 11 February 1991 the Australian Government brought the wool stabilisation scheme to an end and the price of wool fell overnight from 700 Australian cents per kilogram to 430 cents. At the same time that the Australian Wool Corporation was purchasing Australian wool the South African and New Zealand wool boards were doing the same thing in their own countries, accumulating significant levels of debt in the process. The day after the Australian scheme ended the New Zealand Wool Board announced the suspension of that country's reserve price scheme. The South African acquisition scheme was initially continued,[9] with a greatly reduced guaranteed reserve price, but the South African Wool Board finally wound up its scheme in June 1993. The South African Wool Board discontinued its acquisition scheme at the end of the 1992/93 season. At a meeting in March 1993 the Board decided to recommend to the Minister of Agriculture the termination of the scheme. This took place on the 30 June 1993 with the wool growers' organisation ratifying this decision in May 1993.[10]

The collapse of the three wool marketing schemes was to lead to a substantial restructuring of the respective wool authorities in Australia, New Zealand and South Africa. In Australia the Wool Corporation was in 1991 broken up into three bodies: the Australian Wool Realisation Commission[11] (responsible for managing the stockpile), the Wool Research and Development Corporation (responsible for research and promotion)[12] and the Australian Wool Corporation (a shell company abolished in 1993). Further changes occurred in 1993 on the recommendations of the Garnaut Report (1993). In New Zealand the Wool Board continued in

9 The Kassier Report by the Committee of Inquiry into the Marketing Act was critical of the wool acquisition scheme, pointing out that by the early 1990s, the initial large reserves had been exhausted (South Africa, Committee of Inquiry, 1992:56).

10 South African Wool Board, *Annual Report*, 1993; Abbott, 1997:23.

11 This became the Australian Wool Research and Promotion Organisation in 1993 and in 1994 merged with the International Wool Secretariat in 1994 after the withdrawal of the New Zealanders from this body. In January 2001 it was corporatized as The Australian Wool Services Limited which oversees Australian Wool Innovation (which manages the levy on wool production and outsources research and development and manages intellectual property) and The Woolmark Company (engages in wool promotion).

12 The name of the agency was changed to Wool International in 1993 and was eventually privatized in 1999 as WoolStock Australia Limited.

operation, but with its operations eventually hived off into other organisations.[13] In South Africa the Wool Board was abolished as part of the general reform of agricultural organisations, which saw all compulsory marketing boards abolished after the passing of the *Marketing of Agricultural Products Act, 1996* (Groenewald 2000; Doyer, D'Haese, Kirsten and Van Rooyen 2007; Van Zyl, Vink, Kirsten & Poonyth 2001; Vink and Kirsten 2003).[14]

3 NEW ZEALAND AND AUSTRALIA

In terms of buffer stock acquisitions there does not seem to have been any close coordination between the New Zealand and Australian wool authorities. In fact from Figure 1 it is possible to identify years such as 1980/81 and 1981/82 where one authority purchased wool at the same time that the other was offloading its stocks. However, in the years 1988/89, 1989/90 and 1990/91 both the Australian Wool Corporation and the New Zealand Wool Board perceived the surge in wool prices between 1985 and 1989 as being permanent and so jacked up their respective reserve prices. In the New Zealand case the chairman of the New Zealand Wool Board expressed views similar to those of the Australian wool authorities that the increase in wool price was a permanent rise brought about by the "vigorous demand building activities of the International Wool Secretariat" (New Zealand Wool Board, *Annual Report,* 1988:3). In the Australian case the average minimum price was raised by 70 per cent from 508 Australian cents per kilogram in 1986/87 to 870 cents in 1989/90. The New Zealand Wool Board raised its average minimum over the same period from 443 New Zealand cents per kilogram to 525 cents (a rise of 18.5 per cent) (New Zealand Wool Board, *Annual Reports*).

In order to maintain these higher prices in the face of the collapse in demand in 1989 both authorities had to make substantial purchases of wool. In terms of the Australian currency the New Zealand reserve price began declining in 1988/89 because of the fall in the value of the New Zealand dollar relative to that of the Australian dollar. Overall the New Zealand Wool Board did not shift the reserve price as far upwards as the Australians did in response to the depreciation of the two currencies and the surge in wool prices, and was more ready to reduce the reserve price than the Australian Wool Corporation (which did not do so until forced by the Australian government). This meant that when demand for wool began to slump in 1989 and 1990 the New Zealand Wool Board was not required

13 Meat and Wool New Zealand (now known as Beef and Lamb New Zealand) took over the conduct of research and development and a new grower owned marketing and promotion organization was established known as Merino New Zealand.

14 Cape Wools was created in 1997 as a non-profit, farmer-owned company, which collects statistics and carries out limited research and development.

to purchase as large a proportion of that country's wool stock in order to maintain the reserve price. This is reflected in Figure 1 and Figure 2, which show that the New Zealand Wool Board was forced to purchase 41 per cent of wool offered for auction in 1989/90 compared with 52.0 per cent of the Australian wool stock by the Australian Wool Corporation in the same year and an additional 35 per cent in the following year. This meant that the New Zealand stockpile rose to 44 per cent of yearly production in 1990/91 compared with over 100 per cent in the Australian case.

One of the restraining influences on the New Zealand Wool Board was its financial position. Although it is true the New Zealand Wool Board in the late 1980s had considerable financial reserves at its disposal ($NZ409 million worth of investments in 1989) and had access to a syndicated bank loan of $NZ200 million in 1990/91, it could not borrow on the strength of a government guarantee as the Australian Wool Corporation did. Figure 3 shows the net debt of the Australia, New Zealand and South African wool authorities, adjusted by the scale of wool production in each country to create more comparable figures. From Figure 3 it can be seen that the accumulated assets of the New Zealand Wool Board were quickly expended during 1990 and in 1991 in order to purchase wool stocks. By the 30 June 1990 the Board had converted $NZ281 million of its liquid assets into a wool stockpile of 491 000 bales. These stocks were mainly confined to the coarser fibres. The borrowing and purchasing programme was constrained when $NZ260 million of the Board's funds were frozen by the banks to provide security of the Wool Board's loans (New Zealand Wool Board, *Annual Reports*). On the 12 February 1991 (the day after the Australian Wool Corporation suspended its scheme) the New Zealand Wool Board's scheme was suspended and subsequently terminated.

In the Australian case the commitment to sustain a much higher reserve price meant that not only was greater amounts of investments had to be liquidated but much greater funds had to be borrowed in order to finance buffer stock acquisitions. The Australian Wool Corporation's investments fell from A$1 787 million in 1989 to $183 million in 1990. Borrowings rose from $105 million in 1989 to A$1 430 million a year later and to A$4 593 million by June 1991. The effect was to turn the Corporation's balance sheet from a surplus of $1 815 million in 1989 to a debt of $2,444 million in 1991 (Australian Wool Corporation, *Annual Report*s).

It appears, therefore, that the New Zealanders were more cautious in raising their reserve price than the Australians and were only prepared to purchase a far less proportion of that country's wool production. In terms of the interrelation between the two countries' reserve price schemes it bears remembering that the two countries produce substantially different types of wool from substantially different markets. From Figure 5 it can be seen that the bulk of New Zealand's wool lies in

the micron range 32–41, which is the coarser crossbred type mainly used in the manufacture of carpets. Australian wool on the other hand is mainly merino wool in the micron range 19–26 and used predominantly in the manufacture of clothing apparel. Beare and Meshinos (1990) have shown that the direct substitution of wools of different diameter class takes place within a very narrow range of fibre diameters. This means that to a large degree Australian and New Zealand wool growers produce a substantially different product for separate markets. The New Zealand Wool Board and Australian Wool Corporation were to a large degree, therefore, trying to set reserve prices in substantially different markets (carpet versus apparel) and therefore their actions would not have seriously impacted on each other. There is, however, a significant overlap in the two countries' wool production profile. This is in the micron range 27 to 31, which is wool produced from cross-bred and half-bred sheep for the manufacture of woollen blankets and handknitting yarns. In this range the two countries produce approximately the same amounts (in 1989/90 Australia: 26 821 clean tonnes, and New Zealand: 31 963 tonnes (Australian Wool Corporation, *Annual Reports*. New Zealand Wool Board, *Annual Reports*)). Although this wool is insignificant to the Australian industry constituting only six per cent of total production it makes up over 20 per cent of New Zealand's production. In terms of the interrelation between the two schemes this overlapping region allows us to analyse the behaviour of the two authorities and the manner in which they reacted to each other. From the New Zealand point of view the actions of the Australian Wool Corporation would have had a strong impact on this large segment of the New Zealand industry and therefore the stock purchases and price setting in the micron range 27–31 would have to take into account the actions of the Australian Wool Corporation.

Taking the single micron (28) as a representative fibre category for the overlapping 27–31 micron ranges, it is possible to analyse the behaviour of the New Zealand Wool Board and its response to the actions of the Australian Wool Corporation. The first point that can be made is that the New Zealand Wool Board did not raise the minimum floor price for the 28 micron wool by as much as the average for all New Zealand wool. Between 1983/84 and 1989/90 the minimum floor price for 28 micron wool was raised from 434 New Zealand per kilo to 639 New Zealand cents, a rise of 47 per cent, compared with an average rise of 55 per cent for all wool. The average auction price of 28 micron wool rose from 505 New Zealand cents in 1983/84 to 767 cents in 1989/90 (a rise of 52 per cent). This meant that the gap between the average auction price of 28 micron wool and the floor price widened. In 1983/84 the auction price for 28 micron wool was at the same level as the New Zealand price, as you would expect, 365 Australian cents or 503 cents in the New Zealand currency. By 1989/90 the Australian reserve price for 28 micron wool had been raised to 583 Australian cents (772 New Zealand cents). By

1989/90 the New Zealand auction price was far above the New Zealand minimum but at approximately the same as the Australian price of 772 New Zealand cents (592 Australian cents).

Whether it was a conscious policy on the part of the New Zealand Wool Board it appears that the Australian minimum floor price was more important at holding up the New Zealand price of 28 micron wool rather than the New Zealand floor price. The New Zealanders instead concentrated on raising the floor price of coarser grades of wool for which they had some market power. Over the overlapping bank of wool it can therefore be said that the New Zealanders attempted to free ride the Australian reserve price scheme. The New Zealand average auction price for 28 micron wool rose by 51.2 per cent between 1983/84 and 1989/90 compared with only 46.4 per cent for the overall wool market indicator. The lower micron grades, which overlap with Australian wool production, seem to have risen at a greater rate than the average for coarser types. Of course it is possible that this was a result of demand factors, such as a stronger demand growth for hand-knitting yarns and blankets, but when demand in 1989 slumped it appears that the Australian floor price for 28 micron wool, which had been increased by a far greater degree that the New Zealand floor price, held up the price of the overlapping grades of wool.

With the 27–31 micron range prices being held up by the Australian floor price the relative prices of the different grades of New Zealand wool began to change. It would be expected that New Zealand's wool profile would have begun to slip down the micron range towards the overlapping range. This in fact occurred. In 1984/85 the 31 and less micron range made up 24 per cent of New Zealand's wool production. This rose to a peak of 29 per cent in 1990/91 at the height of the Australian Wool Corporation's wool stock acquisition scheme.[15] It would appear, therefore, that at least for some of New Zealand's wool growers there were some income effects that flowed from the Australian wool reserve prices scheme that the New Zealanders would have been able to capture.

The fact that Australia had a significant share of the international wool market convinced some that the Australian industry had the potential to exploit its market power in setting the price of wool. The stated intention of the Australian reserve price scheme was not to artificially raise the price of wool above its long-term average, but to stabilise prices around a long-term trend. Even in the years 1988 to 1990 it was argued that the wool price had moved to a permanently higher level, which justified raising the reserve price (Massy 2011; Haszler 1994). This proved not to be so and therefore the Australian Wool Corporation effectively tried to hold the international wool price above the market level. This meant that

15 By 1995/96 this figure had slipped back to 27 per cent (New Zealand Wool Board, *Statistical Handbook*).

the Australian wool authority acted in a similar fashion to a dominant firm in an oligopolistic market in setting prices as a market leader. In the overlapping Australia/New Zealand micron range the New Zealanders acted more as a small price taking firm, accepting the higher market price set by the Australian Wool Corporation. The New Zealand industry, therefore, would have benefited to some degree as a free rider by a flow of income from the Australian scheme to New Zealand wool growers.

4 SOUTH AFRICA AND AUSTRALIA

The South African wool industry has declined in importance to the South African economy since the 1950s when wool generated about ten per cent of that country's agricultural export income. South African wool production peaked in 1961/62 at 153 million kg greasy and declined at a fairly steady rate ever since, reaching 49 million in 2011 (Commonwealth Secretariat, *Wool Statistics*; International Wool Textile Organisation, *Market Information*). Today South Africa produces around two per cent of world output and accounts for around three per cent of exports. The long-term decline in South African wool production was temporarily turned around during the mid to late 1980s. Between 1986/87 and 1990/91 production rose from 86 million kg greasy to 102 million. This rise in production took place in the face of economic sanctions by a number of countries on the import of South African wool because of that country's apartheid policy and can be attributed to the higher international prices for wool. After the suspension of the Australian scheme in February 1991 and subsequent slump in wool prices South Africa's wool production fell to only 65 million kilograms in 1993/94 (South African Wool Board, *Statistical Review of the Wool Season*).

Compared with the Australian wool industry the South African wool industry, because of its relatively small size, was a price taker in international markets. This meant that the South African Wool Board in the operation of its single channel pool system was always conscious of the price set by the Australian Wool Corporation. Although South African wool production is far less than Australia's it does cover a similar fibre range. In 1991 Liebenberg, Vivier and Groenewald were able to show that South African wool prices were fundamentally determined by Australian prices (Liebenberg, Vivier & Groenewald 1992:95–96). In the late 1980s approximately 70 per cent of South African wool was merino wool and distributed in the 18–26 micron range. The European Union was the biggest market for South African wool, taking 87 per cent in 1994/95 (South African Wool Board, *Annual Reports*). The practice of the South African Wool Board in conducting its single channel scheme was to purchase all South African wool at a guaranteed price and then auction it to wool buyers. The purchase price of the Board was set in consultation with the Minister for Agriculture who had to sanction price rises,

and after observing the level set by the Australian Wool Corporation. The practice of the Board was to set the guaranteed price below that of the Australian Wool Board. The South African Wool Board was encouraged to raise its guaranteed price as it believed that the new, higher price was being raised to a new plateau rather than just some short-term fluctuation. It was encouraged in this belief by its view that the Australian Wool Corporation would defend the new price with wool stock purchases.

From Figure 3 it can be seen that the South African guaranteed price in Australian dollars lagged behind the Australian Wool Corporation increases through the 1980s. This means that the South African Wool Board was able to sell nearly all the South African production, leaving no stockpile. In 1990/91 with the reduction in the Australian reserve price and the suspension of the scheme the Board found that its guaranteed price was too high to clear all wool. Auction bids did not reach the guaranteed price and so the wool was declared unsold and stockpiled. In 1990/91 46 per cent of South Africa's wool production was left unsold. Like the Australians and New Zealanders the South African Wool Board liquidated its investments in order to pay for its acquisitions at the high price. After peaking in 1985/86 net assets were entirely liquidated by 1990. In order to continue acquisitions a R200 million loan was negotiated on the Eurodollar market and smaller loans raised with the government owned Land Bank (South African Wool Board, *Annual Reports)*.

The accumulation of assets during the late 1980s indicates that the Board was receiving a much higher price for its sales of wool than it was paying wool growers for its acquisitions. Nonetheless when wool prices collapsed the guaranteed price was not reduced far enough to clear stocks, leaving the board with a considerable stockpile. South African wool growers were therefore able to free ride on the Australian reserve price during the years 1989–1990, when the world price was held up fundamentally by the Australian Wool Corporation. The only weakness of the South African scheme was that the guaranteed price was jacked up to a level that was unsustainable and so in the year 1990–1991 the South Africans ended up attempting to assist the Australians in maintaining the high price through stockpiling. Of course the prudent approach on the part of the South Africans would have been to have maintained their guaranteed price at around 400 Australian cents per kilogram, purchased South African wool at this price and then sold it on at the higher world prices. The difference could have been banked or remitted to wool growers. Then when prices reverted to 430–440 cents the Board could have sustained the guaranteed price, and effectively free rided the Australian scheme to the fullest extent possible. Instead the Board was saddled with a crippling level of debt, which in the end brought about the demise of the South African acquisition scheme.

Despite reducing the guaranteed price from its peak in 1989/90 of 1 328 South African cents (650 Australian) to 832 South African cents (400 Australian) in 1992–1993, the Board was left with a stockpile of 144 000 bales (around 60 per cent of a year's output) and a net debt of R190 million. The Board was therefore unable to continue its acquisition scheme and it was discontinued at the end of the 1992–1993 season. Wool growers' dissatisfaction, the low price of wool, and a general movement in agriculture toward freer markets all helped to encourage the board to wrap up the scheme. This took place on the 30 June 1993.

5 DISCUSSION

In light of the previous sections' description and analysis of the performance of the three wool marketing agencies it is possible to come to some conclusions about the interrelation between the three agencies.

First of it appears that the collapse of the Australian wool marketing scheme come about for the traditional reason that commodity price stabilization generally come unstuck. That is the agency responsible mistook a temporary price rise for a permanent rise in prices, which it then tried to maintain when market conditions worsened (Salant 1983; Sumner, Alston and Glauber 2010). Not only did the Australian agency make this mistake but there is also evidence that both the New Zealand and South African agencies came to that view as well.

The second point that can be made is that the Australian agency can be seen as a price leader in that it tied to set prices in the market, which in turn influenced the price setting behavior of the two other agencies. That said, it bears noting that the degree of market power possessed by the Australian agency was terribly exaggerated, a view again held by all three agencies.

Thirdly there does appear to have been some instances where the South African and New Zealand schemes were able to fee ride off the Australian schemes. The New Zealanders deliberately raised their reserve prices in the micron range that overlapped that of the Australians to a lesser degree than in the coarser range. The South Africans also raised their reserve price at a slower rate than that of the Australians, allowing the latter to raise market prices to their advantage. That said both of these agencies did not free ride to the fullest degree possible to them but instead got caught attempting to assist the Australian agency prop up world prices.

The analysis which has been conducted indicates that between 1997 and 2008, the capital city with the greatest average annual productivity improvement

in the water and wastewater services sector was Sydney, followed by Brisbane and Melbourne. In contrast, there were moderate declines over the period in both Adelaide and Perth. This does not mean that the system in Sydney was in an absolutely better position in terms of productivity over the period compared to the others, only that it improved the most over the period.

Finally in more general terms it is important to note that the operation of marketing agencies can have a profound influence on the operation of agencies in other countries. This does not necessarily make it easier to stabilise prices in markets, but indeed can lead to a creation of over confidence on the part of the marketing agencies, which in turn can make their failure more likely. The South African and New Zealand wool marketing agencies, for instance, appear to have operated with greater degrees of caution before the creation of the Australian body.

6 CONCLUSION

Overall the three countries' wool authorities operated in a broadly similar fashion throughout the years 1984 to 1992. In each case those operating the purchase schemes came to believe that the increase in wool prices during the years 1984 to 1988 represented a permanent change in the international price of wool and so therefore adjusted their reserve prices upwards. The three authorities were so confident that the new higher price was the long-term price that they were prepared to support the new price level by purchasing wool stocks, first by liquidating long-term assets and then borrowing money in order to do so.

The major difference is that the New Zealanders and South Africans were a little more cautious about raising their reserve prices, probably a result partially of their having a smaller access to borrowed funds, and their belief that they could to some degree free ride on the Australian reserve price scheme.

The Australians on the other hand seemed to have been very confident that they could stop the slide in international wool prices that set in during 1989 and 1990. This position of the Australians, and the more cautious nature of the Australians and New Zealanders, meant that the latter two countries did benefit to some degree by the price setting activity of the Australian Wool Corporation during the years 1989–1990. However, this ability to free ride the Australian scheme was not exploited to its full potential as the New Zealanders and South Africans did incur some debt serving commitments in the process of purchasing and stockpiling some of their own wool.

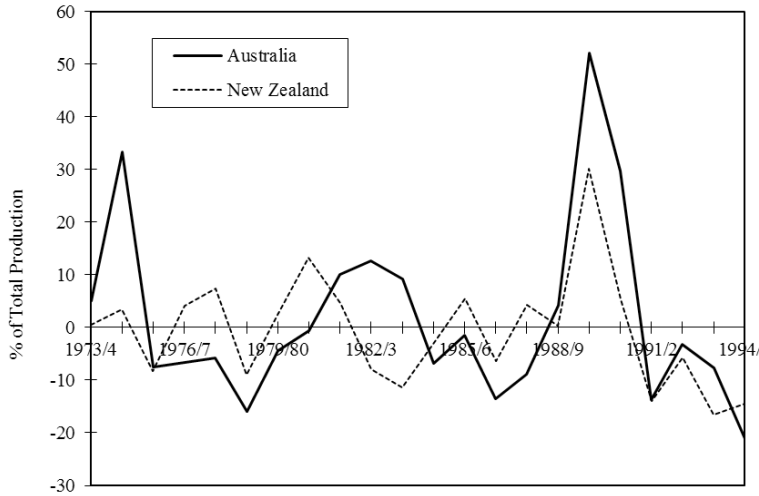

Figure 1: Market Support, Australia and New Zealand. Buffer Stock Net Acquisitions, 1973/74 – 1994/95

Source: Commonwealth Secretariat, *Wool Statistics*. International Wool Textile Organisation, *Market Information*

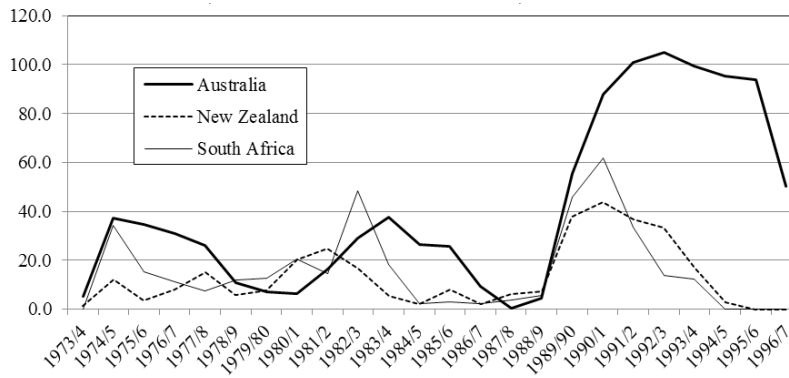

Figure 2: Wool Stockpiles as a Percentage of Total Annual Sales, Australia, New Zealand and South Africa, 1973/74 – 1996/67

Source: Commonwealth Secretariat, *Wool Statistics*. International Wool Textile Organisation, *Market Information*

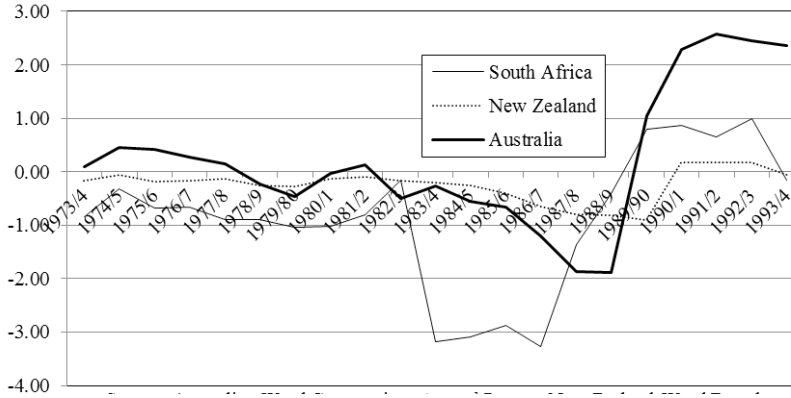

Figure 3: Net Debt of the Australian, New Zealand and South Africa Wool Authorities. $A per Kilogram of Wool Production

Source: Australian Wool Corporation. *Annual Reports* New Zealand Wool Board *Annual Reports*. New Zealand Wool Marketing Corporation, *Annual Reports*. South African Wool Board, *Annual Reports*.

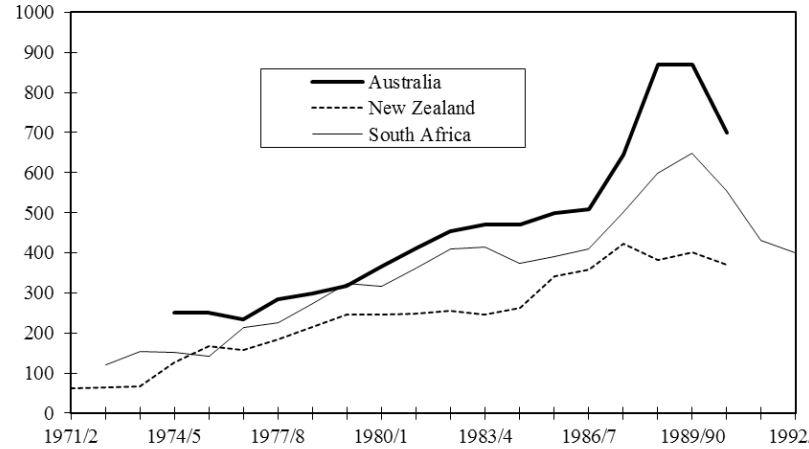

Figure 4: Reserve Price, Australia, New Zealand and South Africa in Australian cents per Kilogram (clean), 1971/72 – 1992/93

Source: Australian Wool Corporation. *Annual Reports* New Zealand Wool Board *Annual Reports*. South African Wool Board, *Annual Reports*.

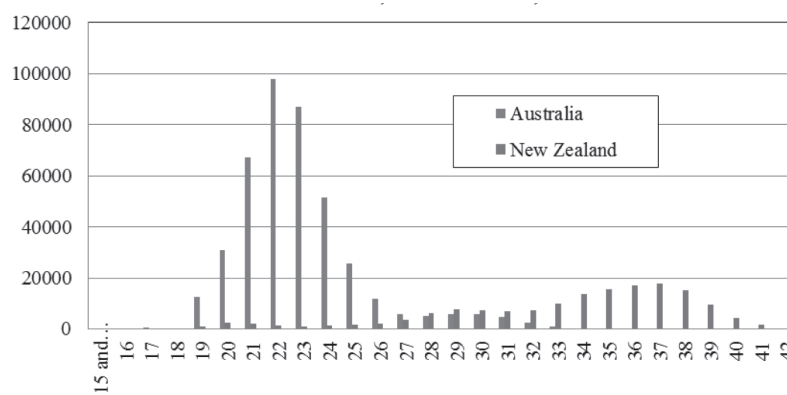

Figure 5: Fibre Diameter of Wool Sold at Auction, Australia and New Zealand, Clean Tonnes, 1989/90

Source: Australian Wool Corporation, *Analysis of Fibre Diameter*. New Zealand Wool Board, *Statistical Handbook*.

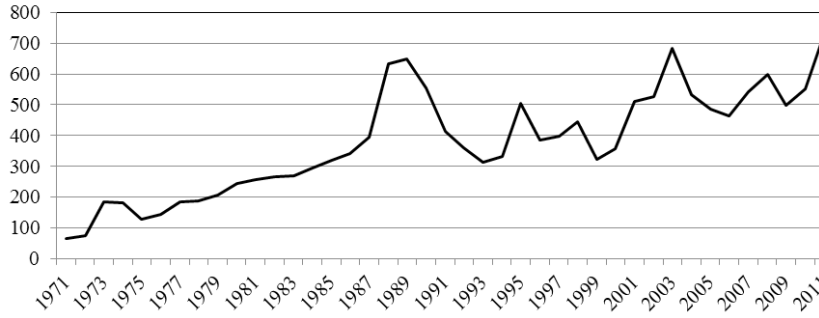

Figure 6: Average Price of Australian Wool (greasey), cents/kg

Source: ABARE, *Agricultural Commodity Statistics*

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