1-1-2012

Industry associations and non-competitive behaviour in Australian wool marketing: evidence from the Melbourne Woolbrokers' Association, 1890-1939

David Merrett
University of Melbourne

Simon Ville
University of Wollongong, sville@uow.edu.au

Industry associations and non-competitive behaviour in Australian wool marketing: evidence from the Melbourne Woolbrokers' Association, 1890-1939

Abstract

From the 1890s the sale of Australian wool was organised through a series of regionally based associations of wool selling brokers and wool buyers. They engaged in cartel-type behaviour by price fixing and exclusive dealing. We ask the question whether the wool selling brokers exploited their monopoly power to the full in setting fees and charges paid by the growers and buyers. Association records provide data on the pricing structure and rationale for changes. We surmise that the existence of the cartel lifted prices above competitive levels. However, the pricing behaviour was moderated to a strong form of limit pricing.

Keywords

era2015

Disciplines

Business | Social and Behavioral Sciences

Publication Details

Merrett, D., Ville, S. (2012). Industry associations and non-competitive behaviour in Australian wool marketing: evidence from the Melbourne Woolbrokers' Association, 1890-1939. Business History, 54 (4), 510-528.

Industry Associations and non-competitive behaviour in Australian Wool Marketing: Evidence from the Melbourne Woolbrokers' Association, 1890-1939

David Merrett and Simon Ville

University of Melbourne and University of Wollongong

Abstract

From the 1890s the sale of Australian wool was organized through a series of regionally based associations of wool selling brokers and wool buyers. They engaged in cartel-type behavior by price fixing and exclusive dealing. We ask the question whether the wool selling brokers exploited their monopoly power to the full in setting fees and charges paid by the growers and buyers. Association records provide data on the pricing structure and rationale for changes. We surmise that the existence of the cartel lifted prices above competitive levels. However, the pricing behavior was moderated to a strong form of limit pricing.

Keywords

Wool; trade associations; cartels; limit pricing

Introduction

As the volume of Australian wool entering world markets rose in the second half of the nineteenth century, the marketing channels connecting antipodean suppliers with northern hemisphere manufacturers altered dramatically. The bulk of Australian wool had been sent to the London market on consignment with a small amount being sold in local auctions. Local auctions quickly replaced the old consignment system from the 1890s (Ville, 2005). Thereafter most wool was sold in a small number of centralised markets located in the principal ports around Australia – Sydney, Melbourne, Brisbane, Adelaide, Hobart, Fremantle, Geelong, and Launceston. Each of these markets was organised by an industry association of wool selling brokers. These associations were formed from amongst the 50 or so firms operating in Australia, which provided services to the pastoral industry such as financing, wholesaling and retailing in providing station inputs and provisions, and as agents selling station properties, livestock and produce such as wool, hides, grains and other commodities., (Ville, 2000). Industry associations emerged in the produce markets only. Indeed, most of the woolbrokers associations began life as more general produce and livestock sales associations. The first association, the Adelaide Wool and Hide and Skin Salesman's Association, began in 1886, followed by similar bodies emerging in Sydney in 1889, Melbourne and Geelong in 1892, and Brisbane in 1893. By the end of the decade the changed names, for instance Adelaide adopted the title of the Adelaide Wool Brokers' Association in 1894, showed that the focus of the associations was firmly on the wool sales. The brokers' associations operated independently of one another to a large degree. However, their representatives met regularly in conferences under pressure from the powerful buyers associations, that formed around the same time, to find agreement on coordinating sales rosters between the geographically separated centres and standardizing the terms of sale. Despite several attempts in the 1890s, no federal body had been established to coordinate the behavior of the associations at a national level before World War I. That one emerged in 1918 owes more to the demands of the Commonwealth government to deal with a single body of brokers in its compulsory acquisition of the Australian wool clip from 1916 until 1920 and the subsequent disposal of that surplus wool than to any wish by the regional bodies to cede power. The existence of the Federated Wool Selling Brokers of Australia (1918-1920) and its successor the National Council of Wool Selling Brokers of Australia had little impact on the autonomy of the local associations to set their own terms and charges.

These selling broker associations bound their members to anti-competitive practices. Member firms engaged in price fixing. They offered wool broking services – accepting growers' wool into store and preparing it for sale, producing catalogues and conducting auctions, and delivering wool to buyers – at prices to both the growers and buyers determined by the associations. Firms found to be 'cheating' on this agreement could be fined or expelled. The latter was a credible threat because non-members were denied access to the Association controlled auction room. The associations also engaged in restraint of trade by committing to sell only through the auction rather than by private sales from growers or consignment to auctions in London. Further, brokers would only sell at auction to members of the wool buyers association who, in turn, bound their members to only buy through the association of selling brokers. There were also attempts to limit competitive advertising, published sales information, or poaching of customers (Melbourne Woolbrokers' Association, Constitution, rules, 1909, clause 29-34, 38; Victorian Wool Buyers' Association, Constitution and Rules, 1921, clauses 35-36). In short, the trade associations operated as cartels (Fear, 2008, pp. 271-74).

Did the associations behave like a cartel? Price cartels fall within the 'illegal hard core' cartel category in the 'spectrum of cooperation' discussed by Jeffrey Fear (2007, Fig 12.1, 272.) In one important respect, the woolbrokers' associations differed from other forms of cartels. As brokers they had no control over output of the product for which they provided an intermediary service. Their objective function was to maximize volume, from which they earned sales commission, at the highest possible price. The demand for broking services by the growers was inelastic with respect to price for two reasons. Growers had to sell their wool as they had no on-farm facilities to store it. Marketing costs were a minor part of production costs in the pastoral industry. By contrast, manufacturing and mining cartels could force up output prices by reducing production amongst member firms and using quotas to share out the increased profits (Levenstein & Suslow, 2006). Moreover, the broker associations made no attempt to limit the number of members nor did they ordinarily impose any 'quotas' on the volume of business handled by members.

Pressure for the creation of this cartel came from several quarters. The opportunity to develop a local wool auction market in competition with London coincided with a crisis in the wool industry from the late 1880s stemming from the extension of production into drier inland areas and falling wool prices. Cooperative wool selling therefore provided the opportunity to cut costs through shared infrastructure and marketing and the avoidance of small competing auctions.

From a similar perspective, the buyers wanted a centralised auction in each selling centre. This would save them time by having a pre-planned schedule of sales between and within the various selling centres, which provided a standardised set of procedures for viewing wool prior to auction, employed a standard contract of sale, and had common arbitration procedures to mediate disputes. The buyers associations had already formed by the early 1890s and were instrumental in persuading the brokers to associate.

At the same time, a cartel operated by previously independent wool selling brokers offered the prospect of monopoly profits. Competition between local firms had eaten away at margins as each offered growers rebates to secure the contract to sell their wool. The 'cut rate policy' pursued by Sydney selling brokers after their Association broke down in 1900 rendered their trade 'practically unremunerative'. The Association was re-formed in May 1909 with the express purpose to 'alter commission charges to the grower, and to propose certain alterations in the charges to the buyers' (Joint executive committee, 21/5/1909).

The paper focuses on the pricing behavior of the wool selling associations from their inception in the 1890s until the outbreak of World War Two. Did the cartel-type behavior of the associations raise prices? We share an interest in this question with economists but do not follow them down the path of formal modeling (Levenstein & Suslow, 2006, pp. 79-82). Rather, we use data from the records of the Melbourne

Woolbrokers' Association (hereafter MWA) to observe their decision making. This Association was one of the earliest to have been established, in 1890, and its records are the most complete available for the period, which include a range of quantitative and qualitative evidence. It handled the second largest amount of wool after Sydney, about 20 per cent of the national total, and had a relatively stable membership of six or seven firms, mostly large national organisations with selling activities across most of the main centres. None was a particular leader of the group. Elsewhere, we have argued that member firms behaved in a largely cooperative fashion towards each other (Merrett, Morgan and Ville, 2008). By contrast, the Sydney Woolbrokers' Association had a larger and more diverse membership, which often descended into internal disagreements.

The paper proceeds in a number of sections. The first outlines the pricing model used by wool selling brokers. The second section compares the charges applied by Australian-based firms for auctioning wool prior to the formation of the cartel with those imposed shortly afterwards. The third section provides an overview of changes to charges over time. The fourth section explores the motivation for these changes. The fifth section deals with the commercial and political pressures which drove the associations to employ a strategy of limit rather than monopoly pricing. We conclude that the associations did not strenuously exploit the growers or buyers who used their services.

1. Broker charges.

The pricing model employed by the wool selling brokers participating in the central auction system reflected the two types of service provided (Sinclair, 1913). The greater part of the cost to the brokers occurred in the wool stores. Growers sent wool to the broker of their choice. Upon receipt at the store the bales were weighed, often re-classed, and a sample number of bales were made ready for inspections by buyers prior to the auction. For these services growers paid a ‘receiving’ charge based on the weight of wool handled. Buyers were charged for the work involved in preparing the wool they had purchased to leave the store. This entailed re-sewing and re-pressing those bales from which samples had been taken, and moving the wool to the door. The ‘delivery’ fee was also based on the weight of wool handled. The brokers also charged a sales commission to the growers. This fee was based on the service received from the auction process, the provision of a venue in which the auction was conducted, organizing the auction schedule and providing catalogues. The commission was a percentage of the sale price. Thus, there was a two-tiered pricing model: the physical handling of wool within the stores of the brokers was a specific charge out on the basis of weight; and the sale commission was an ad valorem based on the price realized at auction.

2. Auction charges before and after the formation of the association.

The conduct of wool sales in London was the reference point for buyers representing foreign top makers and textile manufacturers. In London the operations of the wool selling brokers and warehousemen were independent whereas in Australia they were combined. The charges levied on growers and buyers in London reflected the different underlying economics of those activities (Maughan, 1931, pp. 73-74; Rees, 1972, pp. 330-36). A small number of firms comprised the London Selling Brokers' Association whose commission rate remained steady at one per cent for decades. This was lower than the sales commission ruling in Australia before 1890 (Barnard, 1958, appendices XXIII-XXVI, pp. 226-29). By contrast, the fees of the firms running the warehouses, based on the volume of wool handled, were more changeable, driven by fluctuating labour costs and periodic threats of price cutting (Barnard, 1958, pp. 111, 115). Once again, these fees were lower than those ruling in Australian markets. However, selling wool in London incurred additional costs, particularly in trans-shipping and storage, which did not apply locally.

Were the charges imposed by the associations at the time of their formation higher than those prevailing locally when firms ran independent auctions? Alan Barnard's seminal study of the Australian wool market in the nineteenth century suggests possibly not (Barnard, 1958, pp. 104-16). The local market for consigning and auctioning services was never competitive. From the late 1850s the Melbourne Chamber of Commerce was the forum for negotiations between wool consignors and selling brokers about charges whose decisions were published in the Chamber's *Journal of Commerce of Victoria.* The coming of the associations meant 'the removal of the discussions from the dining-room to more formal settings' (Barnard, 1958, pp.113). Barnard's study highlights that there were similar collusive practices in other regional markets (Barnard, 1958, p. 189). For the 30 years prior to the formation of the MWA, selling commissions remained at 1½ per cent and the receiving and delivery charges at ⅛d a pound (Barnard, 1958, p. 115). When it was formed, the Association maintained those same charges.

3. Charges from 1890s to 1939

The charges set by the MWA rose considerably from the early 1890s until 1939. The rises took three forms. First, the receiving fee doubled from ⅛d per pound in 1893 to ¼d per pound in 1920. Thereafter, it remained steady until a reduction of ten per cent in 1931/32, later increased to 15 per cent in the 1933/34 season (MWA, *Constitution, rules,* various), to compensate growers for the fall in the price of wool and labour costs during the depression. The delivery fee paid by buyers remained at ⅛d per pound from 1893 until 1955 when it was increased to ¼d per lb. The stability of both the receiving and delivery charges in nominal terms reflects the British custom and practice in the wool trade. As prices rose, particularly during World War I and the 1920s, the real value of these fees fell. Brokers may well have looked more closely at opportunities to align other charges with the underlying cost of provision. Second, a wide range of supplementary charges were levied on growers for additional work done to their wool prior to auction. Examples of these charges are set out in Appendix 1. Brokers charged for these services on the basis of the weight of wool involved. Third, the sales commission was amended in 1893, following a precedent set in South Australia in 1879, from a single charge of 1½ per cent irrespective of the value realized for each grower's clip to a sliding scale which raised the rate of commission to clips of lower value and offered lower commission rates to the clips of highest value (Barnard, 1958, p.189). Thus, the MWA set its selling commission at 2½ per cent for a sale of less than £200 and 1½ for a sale of more than £200, a significant rebate to growers with larger flocks whose sales generated greater revenues and incurred lower average processing costs. The value of the clip at which the rate was altered was raised to £300 in 1896.

The scale of clip values was extended in 1901, offering a greater rebate to larger flocks, when a commission of 1¼ per cent was applied to sales of over £500. Clips with a value of between £200 and £500 paid 1½ per cent and those below £200 paid 2½ per cent. Commission rates were increased in 1913 to 3 per cent for sales under £200, to 2 per cent on sales between £200 and £500, and 1½ per cent for sales above £500. A similar tiered commission structure was adopted by all the trade associations in other selling centres, although Brisbane and Sydney did not lift their rates on smaller sales to 3 per cent (MWA, *Wool-selling regulations,* various; *Report of the Commonwealth Wool Inquiry Committee*, Appendix 8, pp. 83-84; and *Royal Commission into pastoral industry,* para 599).

4. Why did charges rise?

Is the answer simply that the existence of a series of cartels, which captured around 90 per cent of wool sold in Australia, permitted the selling brokers to squeeze the growers and buyers? That question cannot be answered directly as we have no evidence of how selling brokers would behave in the absence of a cartel. The emergence of a cartel in all the eastern states from the early 1890s prevents us observing a natural experiment. The records of the MWA show their deliberations about the composition and level of their charges. The three driving forces behind increasing charges were pressure from buyers for more work to be done on the wool coming into store, the growing capital intensity of the industry, and fluctuations in labour costs.

Appraising wool

Brokers' specific charges to growers, the receiving fee and supplementary services, reflected the increasing resources they were required to commit in preparing wool for auction. Brokers responded to pressure from the buyers that they be better placed to judge the quality of the wool being presented at auction. There was a trend towards smaller flocks from the late nineteenth century as larger estates were subdivided and as farmers combined sheep grazing with wheat farming.[1] One outcome was that the swelling numbers of smaller growers were less capable sheep men than those managing the larger stations. Buyers and brokers complained that their wool was more likely to have been poorly shorn, classed, pressed into bales, and inaccurately weighed. Another trend was the growing importance of cross breed sheep relative to merino sheep, particularly in Victoria and Tasmania where they formed a majority (*Statistical handbook,* tables 4-9, pp. 7-8). While the worsted trade preferred finer merino wool suited to the lighter fabrics used in clothing, the woollen trade produced tweeds and flannels using the coarser wool from merino crosses and the British breeds of sheep. The increase in cross breeds was also associated with the growth of small mixed farms.

While yielding fat lambs to meet the onset of refrigeration, the wool quality of crossbreeds was less consistent and predictable than for merinos. Buyers were therefore more demanding in their pre-auction inspection of small clips and crossbreed wools. Table 1 shows the proportion of flocks with less than 500 and more than 2,000 sheep by state. By 1919/20 more than two-thirds of Australian flocks had

[1] In New South Wales, the share of flocks smaller than 500 sheep rose from 43 per cent in 1892 to 60 per cent in 1919/20. *NSW Statistical Register* 1901, table 29; *Statistical handbook of the sheep and wool industry* table 21.

less than 500 sheep but these collectively accounted for only 11 per cent of all sheep. Victoria and Tasmania were the outliers having the highest proportion of ‘small’ flocks. Melbourne wool brokers thus faced the inverse of the “20:80 rule”, where the great majority of the growers accounted for the minority of all sales. The greater part of the brokers’ variable and fixed costs were thus associated with the handling of the wool of the clients who generated the smallest share of their revenue.

Table 1 around here

Buyers demanded to have the maximum opportunity to examine the wool for which they would bid to ascertain its quality and the potential yield from greasy to scoured. Transaction costs in wool markets were higher than for many other commodities because of the physical qualities of the product. Wool presented special problems because its quality could not be determined by an objective measure. There were as many types of wool as there were breeds of sheep, and large variations within breeds. Wool ranged from coarse to fine, and the length of staple varied. The system of classifying wool at the time, relying on physical examination of its ‘fineness, length, character, handle, appearance, colour, lustre, soundness, strength, elasticity, and felting capacity’ (Du Plessis, 1931, p. 68), was a highly subjective matter on which growers, brokers and buyers could disagree. Growers could opportunistically or unintentionally misrepresent their product as it was ‘classed’ in the shearing sheds. The needs of manufacturers for particular types of wool were very specific. However, they were unable to know whether it was of the particular quality they desired, if it had been contaminated by foreign matter, or whether the buyer’s estimate of the conversion from ‘grease’ to clean weight was correct, until it entered the works.

Information asymmetries between grower and buyer about quality depressed prices. Buyers expected many of the lots offered to be ‘lemons’ whose revealed characteristics would prove to be lower than they required (Akerlof, 1970). The poor standard of wool classing, particularly in sheds with small flocks, lowered buyer’s expectations about quality. Hawkesworth, a noted authority, suggested that no more than 30 per cent of classers were efficient (*Hawkesworth*, 1930, p. 493). Specialist dealers and wool sorters benefited from the opportunity to arbitrage by buying cheap wool which they then re-classed and repacked into consistent lines within wool types which they sold to manufacturers at higher prices. The wool selling brokers’ associations took steps to improve the information available to buyers prior to auction. Wool was weighed when it was received in store and the brokers’ wool classers examined each bale. Poorly packed or classed wool was re-classed and repacked prior to its offer at auction. Brokers also staked their reputations with the buyers by printing sales catalogues indicating the type of wool in each lot offered for sale and a reserve price. Buyers were given the opportunity to test the quality of wool by examining sample bales prior to auction and again after purchase. Any disputes about underweight bales and misrepresentation of quality were then dealt with by a pre-agreed arbitration process.

Consequently, the buyers’ associations pressed the selling brokers to improve their access to wool before the auction. The custom in London sales was that ‘on the morning of each sale the *whole* of the wool is inspected in the warehouses by prospective buyers’ (Maughan, 1931, p.74). The bulk of wool sold in London before the relocation of sales to Australia was merino. That wool had greater consistency than the cross breed wool that came to dominate the flocks of Victoria in the late nineteenth century. Consequently, buyers in the Melbourne market had greater difficulty in judging the quality of wool offered because far less was available to sample. For instance, the whole of only the smallest lots, 'farmers' lots of up to ten bales, were shown to buyers between 1893 and 1895. For larger lots of better wool, buyers were able to inspect only 15 per cent up to 50 bales and ten per cent of larger lots presented for sale. The buyers found these arrangements unsatisfactory and their association argued that greater proportions of wool needed to be placed on the show floor. By 1896 the selling brokers had given ground, agreeing to more than doubling the bales on show for 'station' clips and raising the rate to more than 50 per cent for bales which were badly pressed and/or classed. By 1901 a distinction had been drawn between crossbreed and merino wools which required fewer sample bales of the latter. In 1908 another imposition was placed on the selling brokers so that roughly 25 per cent of sample bales of cross breed wool and 20 per cent of sample merino bales from lots of 50 bales had to be shown with the top flap of the bale cut open or 'capped'. The increased inspection requirements imposed costs on the brokers in that more bales had to be moved within the store, bales had to be re-sewn and, in the case of capped bales, re-sewn and re-pressed (MWA, *Wool-selling regulations*, various).

Other 'costs' associated with overcoming informational asymmetries regarding wool prior to its sale also increased appreciably over time. For instance, the MWA agreed to display bales in their stores so 'as far as practicable…[to permit] the brands, numbers and weights can be readily seen by the buyers when examining the wool'; selling brokers provided labour on the show floor at 'all hours' to facilitate inspection by buyers; wool that had been 'packed', repacked' or 'reclassed' by the brokers was to have that shown in the catalogue; scoured wool would show the name of the firm having undertaken that process; and rams wool was to be catalogued separately (MWA, *Wool-selling regulations*, various). From the late 1920s brokers began to regularly use their own staff to re-class wool received from smaller growers, and to inter-lot this wool into larger parcels of the same type of wool.

These additional costs were passed on to the growers. The volume of work done in store, and the labour needed to perform it, was a function of the total number of bales handled through the selling season and, importantly, the average size of the clip being received from growers. There were marked economies of scale arising from having a high volume of wool through the store. There were also diseconomies associated with processing a large number of small clips offered for sale. For instance, the Australian Mercantile Land & Finance Company sold the same amount of wool in Sydney and Melbourne in 1910, but handled only 675 clips in Sydney compared to the 1,768 received at Melbourne. More than half of the Melbourne clips received into the stores were less than 10 bales which 'forced the Company to own a much larger floor space in Melbourne than in Sydney so as to show buyers a greater proportion of the wool offered for sale' (Bailey, 1966, pp. 183). A thorough investigation by Goldsbrough Mort of the differences in operating costs of its Melbourne and Sydney wool stores in 1934 reached a similar conclusion. Costs per bale were higher in Melbourne. Two smaller stores were less efficient than the single larger store in Sydney. Moreover, Melbourne had a preponderance of small, cross breed clips which resulted in higher costs associated with sampling and administration (Goldsbrough Mort, Memorandum, 1934).

Selling commissions

Brokers responded to the increased volume of work undertaken by them in store in two ways. First, growers were charged a fee for particular services (appendix 1) and, secondly, the brokers adopted a sliding scale selling commission which recognized that brokers enjoyed economies of scale when dealing with large clips, particularly of merino wool. The minority of growers whose large flocks produced the majority of the wool sold paid the lowest rate of commission. The various adjustments to the sales commission between the 1890s and 1939, described above in section three, favoured those with the largest flocks of sheep and penalized those with the smallest flocks.

We are able to calculate that in most states the majority of wool growers paid higher commissions on sales after the formation of the cartel than before their establishment. As shown in Table 1 above, growers in the northern states, New South Wales and Queensland, more often ran large flocks but even here most flocks were less than 500 sheep in 1919/20. The system of a sliding scale of commissions meant that the rate of commission growers paid was dependent on the amount of wool sold and the price it received. The brokers put a floor under their earnings per bale because any combination of low prices and/or poor seasons would push growers into a higher commission bracket. For instance, a grower with 500 sheep might cut 14 bales of fleece wool and a half that number of lower valued 'star lots' (Fegan, 1946, pp. 159-60; Sinclair, 1913, pp. 13-14). If the average price of wool was £15 a bale his wool cheque would be more than £200 and so he would pay the mid-range commission rate. Wool prices remained low from the late 1890s until the outbreak of World War One so that in 15 of the 16 years between 1898/99 and 1913/14 prices were below

£15. Therefore, we estimate that more than two-thirds of the growers paid the maximum rate.[2] However, the strong rise in wool prices from the compulsory acquisition of the clip in 1916 through 1920 at a considerable advance on the pre-war prices was continued through much of the 1920s. With prices well above £15, growers with both small and large flocks would have enjoyed a lower commission rate than before 1914. The collapse in wool prices during the depression reversed the position. Both smaller and larger growers faced higher commission charges in 1929/30 to 1932/33 and again in 1934/35 and 1938/39 when prices fell. The National Council of Wool Selling Brokers directed that sales commission be reduced from the 1931/32 to the 1937/38 seasons (National Council of Wool Selling Brokers, Presidential address, annual meeting, 1938).

Wool prices and output fluctuated in the short term as unpredictable changes in climate affected supply and shifts in demand for woollen textiles fed back into the raw wool market. The brokers' sliding scale shared market and production risks with growers. For instance, in years of high prices and/or high volumes many growers would pay a lower rate of commission as the value of their cheque rose above the trigger points of £200 and £500. What the brokers gave up in sales commission from a heavier weight of wool passing through their stores they recouped from higher revenues from the receiving and supplementary charges. However, there was less

[2] The calculation involves using an annual series of average price per bale and finding how many bales would need to be sold to reach the trigger points of £200 and £500. These numbers are compared to the number of bales of fleece wool produced by flocks of 500 and 2,000 sheep, 14 and 35 respectively, as shown in Fegan (1942), *Merino wool,* pp. 159-60, and Sinclair (1913), *A clip of wool, pp.*13-4. The average bale prices have been calculated from *Statistical handbook* (1949), tables 36, 45, pp. 37, 45. The distribution of flock sizes in each State and nationally are shown in Table 1 above.

equality of sacrifice in the bad seasons as the sliding scale operated to put a floor under brokers' revenues. In those years when a combination of low prices and/or smaller production depressed wool cheques, many growers compensated the brokers through paying higher sales commissions. At the margin, a fall in production and/or price meant that more growers, realizing lower total receipts, paid the highest rates of sales commission. Table 2 shows that over the period from 1899 to 1939 the number of years in which production rose compared to the previous year exceeded the number in which it fell and the number of years in which prices rose exceeded the number in which they fell. However, there were only 14 years in which both volumes and prices rose compared to seven in which both volumes and prices fell. In nearly half of the years the fate of the growers was determined by the offsetting effect of rise and fall in production and price.

There was also a secular trend evident in the interwar period with the average size of sheep flocks rising 24 per cent, a pattern most notable in the northern states of New South Wales and Queensland. This scaling up of flock sizes gradually pushed more farmers into the lower commission brackets established at the beginning of the century, with the proportion of flocks below 500 sheep falling from 68 to 52 per cent while those above 2000 rose from 9 to 14 per cent (*Statistical handbook*, 1949, tables 21 and 23, p. 19).

Table 2 around here

Fixed costs

Wool production rose from an annual average of nearly 600 million pounds in the 1890s to over one billion pounds weight in the 1930s (*Statistical handbook*, 1949, table 3, p.21). Brokers scrambled to keep up by investing in wool store capacity. For instance, Younghusband Limited greatly extended its Kensington store in 1915, adding four electric lifts, before making further extensions in 1934. It also built a new store in Albury, New South Wales, in 1928 (J. B. Were & Son, Younghusband). The Commonwealth Wool and Produce Company entered the Melbourne market in 1934. Its newly constructed three storey wool store in North Melbourne covered two and a half acres 'with a total floor space of 8 acres' (J. B. Were & Son, Commonwealth Wool and Produce Company). These large structures occupied expensive inner city sites within reach of rail lines, ports and the auction room. The great weight of the wool to be stored and the saw tooth roof on the top floor to provide light to buyers inspecting sample bales drove up the construction cost per square foot (Sinclair, 1913, pp. 27-8)

Labour and variable costs

Brokers' principal variable costs were labour inputs. The growing volume of work being done for every bale entering in the wool stores had important implications for the brokers and their workforce. More labour was needed in the stores as an increasing proportion of bales were moved up and down to the show floors, 'the most expensive part of the brokers business' (MWA, Minutes of trade committee, 29 July 1930). Increasingly, wool was re-classed in store and similar lines of wool from small lots were combined together by inter-lotting. Wages paid to workers in wool stores rose sharply between 1916 and 1924 as a result of the operations of Australia's central wage fixing system, which tied wages more closely to the social justice principle of family need than to labour productivity. Wool store workers received a 'margin' for skill over and above the 'basic wage'. War-time inflation pushed up the basic wage, but not enough to match prices despite the receipt of a war 'bonus' of 2/- per week from 1916 to 1918. There was a further one off increase to compensate for the fall in real earnings, known as Powers 3/-, in 1921 (Anderson, 1929). The Federated Storemen and Packers Union achieved a major breakthrough with an award made by Sir John Quick, Deputy president of the Arbitration Court, in 1923 which greatly expanded the range of 'skills' being applied by workers in wool stores and increased the skill margin paid by between 30 and 40 per cent. The amount paid to wool classers rose by more than two-thirds (Commonwealth Arbitration Reports, no. 180, 1923).

Wage increases were an important motivation to increase charges. The doubling of the receiving charge by the MWA in late 1920 was justified by 'the great increase in store and over-head charges with the certainty of further increase in wages next month' (MWA, Minutes of general committee, 17 September 1920). Higher costs flowing from the 1923 award were absorbed by the brokers for reasons which will be discussed in Section 5 below. Wage reductions in the depression, the basic wage fell faster than prices, worked in the opposite direction. Goldsbrough Mort's records confirm that the reduction in award wages more than offset the relief it offered growers through the 10 per cent rebate on sales commission (Goldsbrough Mort, Matters to be dealt with, undated). The brokers remained tight lipped in light of criticism by the Commonwealth Wool Inquiry Committee in 1932 that a combination of productivity increases and wage reductions had 'reduce[d] their costs of handling wool much more than they have reduced their charges to growers, and that they are now using the difference to make up some of the revenue lost in selling commissions' (*Commonwealth wool inquiry*, 1932, paras. 172-3).

5. Limit pricing

The prices charged for broking services increased in the years after the formation of the cartel. However, discussion in the previous section shows that charges rose when brokers undertook more work per bale handled in store and when their fixed and variable costs increased. Such a temporal connection does not prove that associations were not attempting to exploit its market power. We will argue that the selling associations did possess market power that permitted them to charge higher prices to growers and buyers than would have would have existed in a competitive market. But any impulse to charge prices that reflected the full extent of that monopoly position was moderated by a number of factors. These included the contestable nature of the wool broking market, the presence of viable alternative marketing arrangements such as consignment to London and a government sponsored system of marketing, and the symbiotic nature of the sellers' relationships with both the growers and the buyers. Each influence will be considered in turn.

Contestable markets

The wool broking market was contestable despite barriers to entry such as high capital requirements, access to specialized wool experts, strong brand identity and the existence of economies of scale in wool store operations. Moreover, newcomers would struggle to overcome what Ville (2009) has described as the form of relationship marketing practiced by the incumbent firms to forge enduring relationships with individual growers.

These hurdles did not stop new firms commencing in the various selling centres. *Dalgety Annual Wool Review* (various) shows that 25 firms entered six regional markets between 1906 and 1939: 13 between 1906 and 1918; nine over the next decade and three after 1929. The entrants were a mix of established firms who diversified into a second, third or fourth selling centre, and some new firms, of whom the most important were farmer co-operatives. The co-operatives represented small farmers who ran modest flocks of crossbreed sheep on their wheat farms. Co-operatives gave a rebate on sales commission to their members which undercut the fees set by the associations. The shading of the association price lost its members custom. Moreover, the co-operatives enjoyed powerful political patronage at both state and federal level, which moderated the ability of the associations to retaliate. While some cooperatives were modest affairs, several developed into powerful organizations that attained a significant market share, for example Victorian Producers Cooperative rapidly achieved 10 per cent share after its Melbourne debut in 1917 a figure barely shy of that held by the long established brokers (*Dalgety Annual Wool Review*). They were the major factor in the declining market concentration in the markets of Brisbane, Sydney and Melbourne The market share of the top four firms remained below 50 per cent in Sydney from 1906 to 1939, and fell from 90 to 66 per cent in Brisbane and from 78 to 60 per cent in Melbourne (*Dalgety annual wool review*, various).

Entry necessarily eroded any monopoly profits. Given that the amount of wool coming onto the market after shearing each season was fixed, an increase in the number of competing brokers reduced the volume handled by of each of them, making a lower contribution to covering their fixed costs. The number of firms entering the industry suggests that wool broking was seen as an ‘attractive’ industry (Porter, 1980). It was the practice of wool broking associations to admit any company that sought to join provided they paid the small entry fee and annual subscription, and agreed to abide by the rules. If the associations set fees and charges that would maximize their members’ profits from wool broking they risked attracting even more entrants to compete them away.

Breaches of agreements by association members were rare. Sydney was the market in which firms were most likely to ‘cheat’ by offering rebates to attract wool from growers (Bailey, 1966, pp. 182-4; Tsokhas, 1990, pp. 147-54). Such behaviour was moderated because members of the association were closely monitored and heavy penalties, including expulsion, were imposed for breach of the rules. The gains of remaining within the associations were so high that few firms risked expulsion and, other than in Sydney between 1889 and 1909, voluntary exit was extremely rare. To have done so would have incurred high costs because any firm selling outside the centre auction room and its sales roster would be a less attractive option to both growers and buyers. The volume of wool on offer from an independent broker would be smaller than that available from the cartel and the sale dates would probably clash. Buyers would boycott the sale as their association’s rules bound their members to dealing only with members of the selling brokers’ associations.

While there was effectively no price competition within the associations, the co-operatives who remained outside the brokers' associations offered a lower rate of sales commission, a rebate of 20 per cent. Why did the associations not match this lower price at any time before 1934? Even then the response was confined to Sydney and Melbourne, where the threat from the Commonwealth Wool & Produce Co-operative was greatest (Tsokhas, 1990, pp. 153-4; MWA, Minutes general committee, 20 April 1934). It may have been that the co-operatives members produced the type of wool which the association's brokers found the most expensive and troublesome to handle. Moreover, the brokers were protected by high switching costs facing any clients likely to decamp. Many clients were tied to their agents through provision of bundled services and, in the case of members of co-operatives wishing to use the services of an association broker, a contractual requirement for exclusive dealing (Millar Smith, 1936, pp. 57-65). Wool growers who wished to join a co-operative to enjoy the rebate would have to buy shares to become a member. Perhaps it is not surprising that relations between the co-operatives and the associations were cordial. A bargain was reached in Melbourne whereby the co-operatives had their wool sold through the central auction room and agreed to abide by the terms and conditions of sale set by the Association, with the exception of the rebate (MWA, Minutes of trade committee, 7 October 1920 and 1 & 2 October 1934).

Alternative marketing channels

The commitment of the selling associations to practice limit pricing would have been increased by the threats posed by alternative marketing channels. There were leakages at the edges of the auction system. A significant consignment of wool continued to London up to World War Two with some of the major Australian and British banks (including Bank of Australasia, the Union Bank of Australia and the English, Scottish and Australian bank, and the locals, particularly the Bank of New South Wales) providing trade finance (Holder, 1970, 527; Ville, 2000, table 6.2, pp.126; Wood, 1990, 248). Some private sales, known as 'country buying', took place directly between buyers and growers. The greatest challenge was posed by the risk of a government scheme of compulsory purchase and payment of fixed prices as had occurred during World War I and the subsequent grower-owned BAWRA organization to liquidate the accumulated wartime stocks.

The associations had a limited role during the period of compulsory purchase as the auction was replaced by a system of appraisal whereby wool was graded into more than 800 categories and valued above or below the average price of 15½d per pound. The brokers provided many but not all of the appraisers, so suffering a leakage of revenues from what would have been sales commissions. However, the broking firms still handled wool through their stores and charged accordingly. Thus, the involvement of the government weakened the power of the associations directly by limiting their participation and revenues, and indirectly by raising the spectre of a guaranteed price outside the auction system.

Wool brokers had strong incentives not to antagonize authorities by price gouging those same wool growers who were being urged to abandon traditional marketing practices after World War One (Bailey, 1966, pp. 219-24; Keneley, 2001). The smaller growers, most of whom were mixed farmers, saw the benefits that accrued from the introduction of a plethora of State and co-operative marketing boards for other products in the 1920s (Millar Smith, 1936). The growers' representatives pushed hard for a continuation of a BAWRA-style system of marketing involving compulsory acquisition and the operation of a buffer stock scheme to dampen price variation. The plebiscite of BAWRA shareholders held in 1922 failed to endorse such a scheme by the narrowest of margins. At the urgings of some grower organizations, Sir John Higgins, a man feared by the brokers, presented a similar proposal again in 1925 and again at the Imperial Wool Conference in 1931 (Bailey, 1966, pp.219-24; Graham, 1966, pp. 147-51; Hitchens, 1954, pp. 26-35). The Imperial purchase of the Australian wool clip and the apparatus designed to deal with the surplus stocks both empowered growers vis-a-vis the brokers. The auction system was replaced by a system of appraisal in 1916. A federal central wool committee, chaired by Sir John Higgins, and six state committees had oversight of the appraisal, storage and payment for wool. The brokers were in a minority on all committees, giving ground to growers, scourers and manufacturers (Commonwealth of Australia Gazette, 22 and 29 December 1916).

The Melbourne brokers were extremely sensitive to the reaction of the growers to any increase in fees and charges or the imposition of new fees. Having doubled the receiving charge in 1920, brokers were reluctant to increase charges across the board for some years afterwards but in 1924 felt they could do so selectively 'in view of the high price of wool' (MWA, Minutes of trade committee, 7 July 1924). At this meeting, one of the Geelong brokers commented that 'interlotting was a most trouble-some thing, and he agreed that it should be paid for, but seeing what they [the brokers] made out of it he doubted whether it was worthwhile risking a disturbance…'. These private discussions amongst the brokers suggest that charges were linked to the cost of provision. For example, Melbourne brokers explained that there was 'very little [profit] in it at ¾d per lb' in their charge for bulk classing, the direct labour cost was .41d and a contribution to overheads was required (MWA, Minutes of trade committee, 7 July 1924). Falling wool prices in the depression prompted the brokers to reduce a series of charges for handling wool. A sub-committee was established to determine 'what would be a fair charge to make' (MWA, Minutes of trade committee, 29 July 1930).

Symbiotic relationships with growers and buyers

Wool selling brokers might have been expected to show forbearance in their dealings with growers because of the nature of the commercial ties between them. The broking companies' fortunes waxed and waned with those of the farm sector. A prosperous farming community, one which foresaw opportunities that necessitated borrowing, acquiring grazing land and livestock, having produce and stock to sell, offered far better prospects to the stock and station agents than one with low incomes and farmers leaving the land. Price gouging on this service would harm their valuable reputation with clients (Ville, 2009). Squeezing wool growers might mean higher marketing margins but it might also mean the loss of a much larger connection if the client went to the wall. Stock and station agents offered many clients relief on outstanding debts during hard times in the 1890s and again in the 1930s rather than foreclose on a property whose market value was less than the book value of the outstanding loan and interest.

The wool buyers exercised considerable power in the marketing relationship. The contingent of foreign buyers acted on behalf of principals whose operations spanned a number of wool-producing countries (*Skinner's* 1952, 'wool merchants and brokers (overseas)'). Many were multinational enterprises who could switch to markets in other countries if they were being gouged in Australia. The state-based buyer associations were well organized and used the threat of boycotts of sales in one centre while attending sales in another to force concessions from the brokers on many issues, including the length of time wool could be kept in store after purchase before payment was required and the discount received for prompt payment. The presence of buyers' associations in all selling centres enabled a convergence in terms of the service offered by the selling associations and their fees. For instance, having negotiated a more favourable deal with the disorganized Sydney brokers during the 1907/8 season on the question of the 'prompt', the buyers demanded a similar concession from the Melbourne brokers. When the brokers stood firm, the buyers boycotted the opening sales of the new season. The brokers gave ground, offering significant concessions, and the sales commenced eleven days later. A commentator noted it was 'a matter of common knowledge that the discount, which comes entirely out of the pockets of the selling brokers, imposes upon them a very serious burden' (*Australasian Insurance and Banking Record*, 20 October 1908 & 20 November 1908). In 1914 Sydney brokers accused buyers of abusing their 'privilege of examining the bulk of any lot, and the expense incurred in consequence of the frequent requests to place the whole of a lot on the top floor for examination, and that frequently the wool so placed was never examined by the buyer' (MWA, Minutes of trade committee, 29 July 1914).

Brokers had passed on higher charges to growers more readily than they did to the buyers. While the receiving charge was doubled in 1920, the delivery fee was still unchanged in the early 1950s. The brokers gently raised the issue with the buyers in the early 1950s who eventually relented and agreed to its being increased from one-eighth of a penny to a farthing (quarter of a penny) per pound. The brokers' argument was twofold: the charge had remained fixed for over 50 years, and the fee no longer covered costs, calculated at 16.9d per bale. The buyers magnanimously accepted to increase, after having tried to negotiate an offset elsewhere, saying 'they did not want brokers to be working at a loss..' (Joint executive committee meeting, National Council of Wool Selling Brokers of Australia, 12 August 1955). The implication is that the buyers would accept charges which gave the brokers a normal rate of profit.

6: Conclusion

Many contemporary observers believed that selling brokers' cartels exploited their market power. Alexander Sinclair begins his defence of the charges levied by the Sydney wool brokers with reference to a popular jibe from growers that 'I shear the sheep, and my agents shear me' (Sinclair, 1913, pp. 13). Growers, frustrated by years of falling prices, depredations from rabbits and drought, vented their resentment about marketing costs at industry forums (Kerr, 1990, pp. 64-71). Government inquiries into the industry in the 1930s took evidence from growers who complained of ill treatment at the hands of brokers' associations. Commissioners lamented that the accounts of the brokers' parent companies provided no clues about the profitability of this part of their business (*Commonwealth wool inquiry*, paras 172-3; *Royal Commission into pastoral industry*, paras 582-609). After World War Two agricultural economists deduced that the brokers possessed market power from a study of the structural characteristics of the industry - high levels of seller concentration, clients tied to broking firms as debtors, and collusive behaviour amongst firms with respect to price. Ross Parish commented that ‘it would be *surprising* if wool selling charges did not contain a component attributable to the brokers’ monopoly power’(Parish, 1970, p. 288, emphasis added).

Since their establishment in the 1890s the cartels increased the charges levied on growers and buyers. An examination of the MWA records show a clear link between many of the changes in pricing behaviour and the higher levels of service provided and increases in the price of inputs. Conversely, there is little evidence to support the view that they exploited market power. We suggest that the cartels could not have done so even if that was their intention. Selling brokers lacked the ability to limit, let alone reduce, the number of brokers joining any association. New entrants nibbled away at the profits flowing from price agreements by lowering everybody’s market share. The existence of alternative marketing channels, consignment and private buying, and the potent threat of a government or grower controlled marketing scheme constituted a powerful incentive for the brokers to engage in limit rather than monopoly pricing. Moreover, three-quarters of the revenues of the parent firms came from providing other services to their farmer clients (Bailey, 1966, p 218; Barnard, 1971, note 6, p. 4). Gouging on broking fees could hurt the wider business if clients were driven to the wall or were pushed to embrace the political associations which promised an Australian version of agrarian socialism (Graham, 1966; Hitchins, 1954).

While the brokers may not have gouged their customers, they did discriminate between them when setting fees. Our discussion shows that all of the increased charges were passed on to the growers. That group possessed less countervailing power than the buyers. The latter were well organized into associations that engaged in ongoing negotiations with the brokers about all aspects of wool selling. They also possessed a credible threat in boycotting local sales to strengthen their hand in bargaining. They could turn to sources of supply beyond Australia.

By contrast, growers were divided on the question of wool marketing: the large graziers favoured the continuation of the auction system which would find a price to sell all of the clip, and the farmers with smaller flocks who favoured a scheme of 'orderly marketing' with regulated prices. The conservative view favouring the status quo held sway in the national peak body, the Wool Growers' Council. This organization was broad church, drawing on representatives from 12 associations, including multiple associations from within individual states. Those advocating a Higgins-type of marketing scheme, particularly the Primary Producers Association of Western Australia, continued to wage war within the organization throughout the 1920s and 1930s (Hitchens, 154, pp. 15-65).

The profits earned by the companies which participated in the woolselling associations provide an indirect measure of whether they earned 'monopoly' rents. Contemporary observers were frustrated by the difficulty of untangling their earnings from wool broking from their other wide ranging activities (*Royal commission into the pastoral industry*, paras 586-87). Bailey's study of Australian Mercantile Land & Finance Company shows that this leading firm earned a lower return on its capital from wool selling from the early 1900s until 1939 than it did from operating its own stations and from lending money to pastoralists (Bailey, 1966, pp. 197-99, 217-19 & 234-42).

Our analysis centered on the question of whether brokers' charges contained an element of monopoly power. We did not consider whether the marketing system operated by the cartel generated positive externalities. The literature on the operation of commodity markets suggests that it did. A centralized auction system under the control of an association whose rules imposed 'private ordering' increased market efficiency by reducing transaction costs to buyers and sellers (Baer & Saxon, 1949; Lurie, 1979). The standard contract of sale and arbitration process minimized haggling and disputes. More wool was sold at auction in Australia than in its rivals, New Zealand, South Africa and Latin America, where multiple small auction markets or sales by private treaty were the norm. Contemporary observers believed that the superiority of the Australian system, *ceteris paribus,* increased the sale price received by growers (Du Plessis, 1931, pp. 178-85). Where the balance lay between higher costs and higher prices resulting from the operation of the cartels is a moot point.

Table 1: Proportion of flocks of less than 500 and more than 2,000 sheep by States, 1919-20 to 1939-45

		NSW	Victoria	Qld	SA	WA	Tas	Aust.	% Aust. sheep
1919/20	<500	60	72	50	78	62	87	68	11
1939/45	<500	37	64	24	63	49	82	51	9
1919/20	>2000	12	5	32	4	9	4	9	65
1939/45	>2000	22	5	54	6	7	2	14	63

Source: *Statistical handbook* tables 21 and 23, p. 19.

Table 2: Combination of price and volume changes for seasons 1898/9 to 1938/9

	Volume rise	Volume fall
Price rise	14	10
Price fall	9	7

Notes: the data are derived by comparison with the preceding season.
Source: *Statistical handbook*. tables 36, 45, pp. 37, 45.

Appendix 1: Selected supplementary wool selling charges, 1893-1939

Repack sample bale	From 1893 3/6@ bale
Repacking after sale	From 1893 ¼d@lb
Wool not offered/withdrawn/sent out to be scoured	From 1913 ¼d@lb
Interlotting	From 1927 4/6@ bale; reduced to 1/6@ bale in 1931
Classing & packing	From 1931 ⅜d@ lb
Bulk classing	From 1931 ⅝d@ lb
Tipping low grade wool	From 1931 ¼d@ lb
Reconditioning wet wool	From 1931 2/6@ bale
Dividing & repacking fleeces	From 1931 2/6@ bale

Source: MWA, *Wool-selling regulations,* various.

Acknowledgements

We would like to acknowledge the invaluable research assistance provided by Andrew Parnell. We are grateful for funding from the Australian Research Council under project DP1095758.

References

Akerlof, G. A. (1970). The market for 'lemons': Quality uncertainty and the market mechanism. *Quarterly Journal of Economics.* 84 (3), 488-500.

Anderson, G. (1929). *Fixation of wages in Australia.* Melbourne: Macmillan & Co. in association with Melbourne University Press.

Australasian Insurance and Banking Record. Various years. Sydney: McCarron, Bird & Co.

Baer. J. B. & Saxon, O. G. (1949). *Commodity exchanges and futures trading: Principles and operating methods.* No place: Harper & Brothers.

Bailey, J. D. (1966). *A hundred years of pastoral banking: A history of the Australian Mercantile Land and Finance Company.* Oxford: Clarendon Press.

Barnard, A. (1958). *The Australian wool market, 1840-1900.* Melbourne: Melbourne University Press.

Barnard, A. (1971). Wool brokers and the marketing pattern, 1914-20. *Australian Economic History Review.* 11 (1), 1-20.

Commonwealth Arbitration Reports. (1923). Federated Storemen and Packers' Union of Australia and Australian Mercantile Land and Finance Company Limited and others. No. 180.

Commonwealth of Australia gazette. Canberra: Government Printer

Dalgety annual wool review. Sydney: Dalgety & Co.

Du Plessis, A. F. (1931). *Marketing of wool.* London: Pitman.

Fear, J. (2008). Cartels. In Jones, G. G. & Zietlin, J. (Eds.) *The Oxford handbook of business history* (pp. 268-92). Oxford: New York: Oxford University Press

Fegan, J. M. (1946). *Merino wool: its characteristics and classing.* Sydney: Grahame Book Company.

Goldsbrough Mort. (1934). Memorandum Re: Store handling costs. 26 March. Noel Butlin Archives Centre, ANU.

Goldsbrough Mort. (no date). Matters to be dealt with Re. Storemen & Packers Union case before Arbitration Court. Noel Butlin Archives Centre, ANU.

Graham, B. D. (1966). *The formation of the Australian country parties.* Canberra: A.N.U. Press.

Hawkesworth, A. (1930). *Australian sheep and wool: A practical and theoretical treatise* (6th ed.). Sydney: William Brooks.

Hitchins, F. E. (1954). *Tangled skeins: a historic survey of Australian wool marketing.* Melbourne: Robertson & Mullens.

Holder, R. F. (1970). *Bank of New South Wales: A history.* (2 vols.). Sydney: Angus and Robertson.,

J. B. Were & Son. (1934). *Younghusband Limited*. Were's Statistical Service, 12 June.

J. B. Were & Son. (1935). *Commonwealth Wool and Produce Company.* Were's Statistical Service. 31 May.

Joint executive committee of wool buyers association and selling brokers, National Council of Wool Selling Brokers of Australia, University of Melbourne Archives. Accession number 106/121.

Keneley, M. J. (2001). Woolgrowers, brokers and the debate over the sale of the Australian wool clip, 1920-1925. *Australian Economic History Review.* 41 (1), 35-55.

Kerr, R. S. (1990). *Freedom of contract: A history of the United Graziers' Association of Queensland.* Brisbane: United Graziers' Association of Queensland.

Levenstein, M. C. & Suslow, V. Y. (2006). What determines cartel success?. *Journal of Economic Literature.* 44 (1), 43-95.

Lurie, J. (1979). *The Chicago Board of Trade 1859-1905: The Dynamics of Self-Regulation*. Urbana, Ill.: University of Illinois Press

Maughan, C. (1931). *Markets of London.* London: Sir Isaac Pitman & Sons.

Melbourne Woolbrokers' Association. *Constitution, rules and regulations of Melbourne Woolbrokers' Association.* University of Melbourne Archives. Accession number 79/178 & 106/121.

Melbourne Woolbrokers' Association. *Wool-selling regulations and condition of sale of wool of the Melbourne Woolbrokers' Association.* University of Melbourne Archives. Accession number 79/178 & 106/121.

Melbourne Woolbrokers' Association. Minutes of general committee. University of Melbourne Archives. Accession number 79/178 & 106/121.

Melbourne Woolbrokers' Association. Minutes of trade committee. University of Melbourne Archives. Accession number 79/178 & 106/121.

Merrett, D. T., Morgan, S. L. & Ville, S. (2008). Industry associations as facilitators of social capital: The establishment and early operations of the Melbourne Woolbrokers' Association. *Business History,* 50 (6), 73-95.

Millar Smith, W. (1936). *The marketing of Australian and New Zealand primary products.* London: Sir Isaac Pitman & Sons.

National Council of Wool Selling Brokers of Australia.. Minutes of Committee and General Meetings, 1938-50. University of Melbourne Archives. Accession number 106/121.

New South Wales Statistical Register 1901 (1903). T A Coghlan, Sydney: Government Printer.

Parish, R. M. (1970). Marketing agricultural products. In D. B. Williams (Ed.), *Agriculture in the Australian economy* (pp. 278-98). Sydney: Sydney University Press.

Porter, M. E. (1980). *Competitive strategy: Techniques for analysing industries and competitors.* New York: Free Press & London: Collier Macmillan Publishers.

Rees, G. L. (1972), *Britain's commodity markets.* London: Paul Elek Books.

Report of the Commonwealth wool inquiry committee. (1932). Commonwealth Parliamentary Papers. 1932/34, IV, pp. 769-870.

Report of the Royal Commission appointed to inquire into and report upon the financial and economic position of the pastoral industry in leasehold areas in Western Australia. (1940). Perth: Government Printer.

Sinclair, A. (1913). *A clip of wool from shearing shed to ship* (2nd ed.). Sydney: privately published.

Skinner's wool trade directory of the world. (1952). Bradford: Thomas Skinner & Co (Publishers) Ltd.

Statistical handbook of the sheep and wool industry. (1949). Canberra: Bureau of Agriculture Economics.

Stevens, S. P. (1952). *The importance of wool in Australia's national income.* Canberra: Bureau of Agricultural Economics.

Tsokhas, K. (1990). *Markets, money and empire: The political economy of the Australian wool industry.* Melbourne: Melbourne University Press.

Victorian Wool Buyers' Association, Constitution and rules. 1921. University of Melbourne Archives. Accession number 106/121.

Ville, S. (2000). *Rural entrepreneurs: A history of the stock and station agents in Australia and New Zealand.* Melbourne: Cambridge University Press.

Ville, S. (2005). The relocation of the international market for Australian wool. *Australian Economic History Review.* 45 (1), 73-95.

Ville, S. (2009). ‘Making connections’: Insights into relationship marketing from the Australasian stock and station agent industry. *Enterprise & Society,* 10 (3), 423-48.

Wood, R. J. (1990), *The Commercial Bank of Australia Limited: History of an Australian institution 1866-1981.* North Melbourne: Hargreen Publishing Company.