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The Wool Debt, The Wool Stockpile and the National Interest: Did Garnaut Get it Right?

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Abstract

On 31 July 1993, the Wool Industry Review Committee (Garnaut Committee) presented its recommendations to the Minister for Primary Industries and Energy, Mr. Crean. The Committee made major recommendations on the approach to disposing of the wool stockpile, on wool marketing, and on organisational arrangements in the wool industry. The present paper provides an assessment of the Committee's report. The focus is on the report's treatment of three issues that are central to the future economic benefits to Australia from wool. These issues are: the approach to the industry's stockpile-related debt; the disposal of the stockpile; and achieving incentives for an efficient level of wool production and exports. It is concluded that there are strong grounds for thinking the approach recommended in the Garnaut Report — and accepted by the Government — is not the one that will best serve the economic interests of the wool industry or of Australia.

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Introduction

The Australian wool industry is in serious financial trouble. Woolgrowers have been making substantial losses in recent years (ABARE 1993a) due to the very low wool prices that followed the collapse of the Reserve Price Scheme for Wool (RPS) in mid-1991. The RPS was a buffer stock scheme designed to maintain minimum prices for wool sold at auction and was managed by the former Australian Wool Corporation (AWC). The RPS collapsed because of adverse market developments and a series of errors in managing the Scheme (Stoeckel, Borrell and Quirke 1990, Watson 1990, Haszler 1993).

To help ensure the RPS was self-financing, a tax on wool sales was paid into a Market Support Fund (MSF) established to meet any losses under the Scheme. By the end of 1986-87 the credit balance in the MSF had reached some $1.8 billion. When the RPS was finally abandoned it left in its wake a debt of some $2.7 billion and stocks of some 4.6 million bales of wool (811 kt greasy) - about a year's production. The Australian Wool Realisation Commission was established in mid-1991 to manage repayment of the "wool debt" - one of the outcomes of the recommendations of the Vines Wool Review Committee (Vines, Millar and Davis 1991). The AWRC took over the debt, the wool stocks and other assets that had been held by the AWC and was repaying the debt through a combination of stock sales and a tax on woolgrowers (AWRC 1992). By the end of 1992-93 the stockpile and debt had been reduced to just under 4 million bales and $2.3 billion respectively (AWRC 1993).

In response to the continuing difficulties in the wool industry, the Garnaut Committee (Garnaut, Bennett and Price 1993) was appointed in April 1993 to advise on future policies for the industry. The Committee's recommendations, involving the second restructuring of wool industry organisations in three years, were accepted almost totally and had become policy by the end of October 1993. Nevertheless the Committee's recommendations remain highly controversial.

The purpose of this paper is to review the Garnaut Committee's analysis of and recommendations for handling the centrepieces of the continuing wool crisis - the wool debt and the stockpile. A brief overview of the Committee's report is provided as the background to the discussion of the effectiveness of alternative mechanisms for repaying the debt. Particular issues addressed are the Committee's preference for a fixed quantity schedule for selling the stockpile, its analysis of the possibilities of "quarantining" the stockpile from the market and its analysis if the case for restricting exports of wool on a longer term basis.

The central arguments of this paper are that the Garnaut Committee failed to review the alternatives adequately and, therefore, it recommends a sub-optimal and risky policy that could impose unnecessary costs on the nation and on woolgrowers.

Overview

Stockpile Disposal and Debt Reduction

The Australian Wool Realisation Commission (AWRC) was required to manage the wool stockpile and repay the wool debt after the collapse of the Reserve Price Scheme. It was directed to perform these tasks in the best interests of the wool industry. It was also required "to seek to create conditions conducive to the development of an efficient private sector market for wool, including the creation of facilities for the management of price and inventory risks by buyers and sellers" (WIRC, p.86).

The Committee was critical of the way in which stock disposal and debt reduction had been undertaken. Its criticisms related to the general approach to these problems and to the regulatory environment created by the Government rather than to the operations of the AWRC — though it did say the AWRC had not played the role of creating conditions favourable to a private sector market for wool. The Committee noted that several changes were made to the debt reduction arrangements in the first two years of the AWRC's existence. In early 1992 there was a change from a debt reduction schedule involving minimum annual debt repayments to one based on a schedule for the cumulative debt reduction. Before the 1993-94 season commenced, the period for repaying the debt was extended from 30 June 1988 to 30 June 1989, and it was announced that the targets in the debt reduction schedule would only be

'indicative', with actual targets being determined by the Government at the start of each financial year.

The Committee criticised the failure to adhere to a constant set of rules in disposing of the stockpile and repaying the debt: "The repeated changes in arrangements have compounded the uncertainty about Government policy on stockpile management that was in any case acute in the aftermath of the collapse of the Reserve Price Scheme" (WIRC, p.87).

The approach to stockpile disposal recommended by the WIRC was a fixed quantity rule, involving the sale of 33 kt per quarter between 1 July 1994 and 30 June 1997.[1] For the purpose of the fixed quantity, wool sales in a period include sales through forward contracts, wool made available on the maturity of wool bonds and wool sold to the Government for use in foreign aid. If total sales in a period exceeded the fixed quantity Wool International would be required to buy wool so that *net* sales corresponded to the fixed quantity. The Committee's sales schedule would mean that wool stocks of around 240 kt greasy, around one-third of the stockpile at mid-1993, would remain at the end of the disposal period. It saw stocks of this magnitude as consistent with an efficiently functioning futures market. Some stocks would be held overseas on a commercial basis, and some would be held against wool bonds and options.

ABARE conducted simulations for the committee using its world wool model to compare the effects on woolgrowers' net returns of different approaches to disposing of the stockpile. The approaches considered were: flexible stockpile disposal; disposal to generate a fixed debt reduction per period; disposal of a fixed quantity per period; disposal according to a trigger price mechanism; and destruction — defined to include denaturing, making wool unsuitable for conventional uses and hence non-substitutable for new wool production. The Committee provided little information on the details or results of the simulations. The simulations appear to indicate a negligible difference in woolgrowers' net returns from a fixed quantity approach and destruction of the stockpile.

The Committee judged it probable that its recommended fixed quantity schedule would provide sufficient revenue to meet debt commitments over the period to June 1997. However, it supported retention of the $4^{1/2}$ per cent stockpile levy until 1996-97 to reduce to a very low level the likelihood of a financial call on the Government as guarantor of the stockpile

borrowings. The Committee did not consider the contribution that a grower levy for reducing the stockpile-related debt could make as a de facto export tax to reducing wool production and raising world prices.

Who owns the stockpile and the wool debt? The view has been expressed that the Government should be considered part-owner, because of its role in the setting of high reserve prices in the late 1980s. The Committee doubts there is "any straightforward answer to the questions raised in this debate" but says "the best practical solution is for all parties to accept that any residual value in the stockpile be owned by wool growers who contribute the levy from 1 July 1993, in proportion to their contributions" (p.91). It supports a policy of allowing growers to voluntarily pay a levy in excess of the mandatory levy. A limit equal to 10 per cent of gross (wool?) receipts is suggested for growers' contributions to the levy. Growers paying more than the mandatory $4\frac{1}{2}$ per cent levy would qualify for a larger allocation of shares upon the privatisation of Wool International set for 1 July 1997 when the fixed quantity disposal schedule ended. Wool International would be formed by the incorporation as a Government-owned company of the AWRC. The "reasonable prospect that rights to shares in Wool International will become valuable assets and will be able to be traded even prior to privatisation" (p.92) is noted.

Marketing

The Committee considered that the reserve price scheme resulted in several adverse consequences for wool marketing. It caused excessive reliance on the auction system, and the neglect of other approaches to wool marketing. With the reserve price scheme under the control of the Australian Wool Corporation, the role of the private sector in wool marketing was undesirably restricted, and innovation retarded. The price guarantees provided by the reserve price scheme meant that producers supplying wool were too little oriented in their decision-making to meeting the (constantly changing) market demand. Quality management was sacrificed. There was an efficiency-reducing centralisation of risk bearing.

The Committee noted with approval the recent interest of grower groups and others in alternatives to the traditional methods of selling wool. It also considered it appropriate that the

private sector take over many functions related to the auction system that had been carried out by the Australian Wool Corporation as operator of the reserve price scheme.

The WIRC attached great importance to establishing a range of new financial instruments "which will establish the basis for marketing and risk management in the wool trade into the next century" (p.106). An efficient wool futures market was seen as especially important in this context. Intervention in the wool market through the reserve price scheme and subsequently the regulatory uncertainty associated with stock disposal policies were both inconsistent with the existence of a deep, efficient wool futures market. Wool bonds, providing the right to specified amounts and qualities of the wool at specified future dates, and wool options, were also seen as forming part of a suite of 'sophisticated modern marketing mechanisms' for the wool industry. Wool International was viewed as having a key role in establishing and supervising a wool futures contract, and in implementing wool bonds and options.

Restricting Exports

The Committee expressed "doubts that the demand for wool is so inelastic that restrictions on supply would raise woolgrower incomes over the medium and long-term" (p.56). This was despite its presenting an estimate by Connolly (1992) of -1.01 for the long-run price elasticity of demand for Australia's exports of wool (p.100). The Committee saw problems in applying controls on exports, even if there were an economic argument for doing so.

Promotion

Promotion of wool has been undertaken mainly by the International Wool Secretariat (IWS) which is jointly funded by Australia, New Zealand, South Africa and Uruguay. Promotion has taken the form of generic advertising.

The Committee saw "a need for a more integrated approach to wool promotion by selectively combining both generic and specific branded promotion campaigns" (p.109). It viewed it as crucial "that the correct institutional structure is established to determine the optimal

split of promotional funding between traditional and new wool markets, and the most suitable allocations between the competing claims for generic, branded and Australian specific promotion programs" (p.117). The main institutional change recommended for achieving this objective was the merging of the AWC and the Wool Research and Development Corporation (WRDC) to form the Wool Research and Promotion Organisation (WRAP). WRAP, would have "specific and limited functions only: to allocate growers' and Government funds for R&D and generic promotion in the wool industry, including through the International Wool Secretariat where this is judged to be a cost-effective use of limited resources" (p.21).

The Committee favoured industry determination of whether to continue generic promotion, and the level of funding through ballots held each three years. It saw it as desirable that groups of growers be able to opt out of the compulsory promotion levy if they contributed to private promotion that was of equivalent generic promotion value.

Processing in Australia

While Australia is very efficient in woolgrowing, the Committee saw the highly protected and uncompetitive textile industry as an industrial museum by the 1980s. A consequence was that "Australia had become an expensively but poorly dressed country ..." (p.60).

Progress is being made in developing efficient early-stage wool processing and internationally competitive production of yarn, fabric and garments. The Committee considers that the biggest advantage for the wool industry of developing internationally competitive wool processing in Australia is that feedback from local processors will help growers to produce a more valuable product.

To encourage internationally competitive wool processing in Australia, the Committee recommended that national guidelines be developed for effluent disposal from wool processing plants. It recommended changes to the wool selling regulations to allow growers to supplement the standard information which they provide to potential buyers of their wool. A further recommendation was to streamline a scheme operated by the Textiles, Clothing and Footwear Development Authority under which selected Australian companies assembling

garments overseas using Australian-sourced materials do not pay customs duties on the Australian content when the garments are imported into Australia.

Trade Policy Issues

The Committee saw it as in Australia's interest "... to encourage the development of open and competitive wool textile policies" (p.157). It considered that reducing the widespread tariff and non-tariff barriers to trade in raw wool, and especially in processed wool, should be a major objective of Australia's international diplomacy.

Ending the Multifibre Arrangement (MFA), an international trade agreement that violates the rules and spirit of the GATT, but has operated within the GATT since 1974, was accorded high priority. As a result of the MFA approximately 75 per cent of textile and clothing exports from developing countries to developed countries are subject to 'voluntary' MFA quotas.

The Committee emphasised that "Australia's interests in the wool trade are global and not mainly regional" (p.172.) This had implications for Australia's policy on emerging trade blocs. For example, Australia should seek to ensure that Asia Pacific Economic Cooperation (APEC) was "... built around principles of 'open regionalism', avoiding elements of discrimination against third parties." (p.172.)

While Australia would gain from liberalisation of foreign policies that restricted trade in wool, the Committee also saw an interventionist role for Australia in the development of wool processing in developing countries. It recommended that developing countries with potential in wool processing, and having the open policies conducive to success, be offered Australian Trade and Investment Packages (ATIPs). ATIPs would comprise a package of components, including: stockpiles of greasy wool and tops held in the country by Wool International to reduce the capital and foreign exchange committed to the raw material pipeline; assistance in such forms as technical and market training and official development assistance; credit on commercial terms through the Export Finance and Insurance Corporation (EFIC) for buying greasy and semiprocessed wool from Australia; funds for promoting wool and wool products through WRAP and the IWS; assistance for joint ventures in Australia or developing countries

through Austrade and other Australian agencies. The Committee said that the Minister for Primary Industries and Energy should be responsible "... for ensuring that there are mechanisms for effective co-ordination of the inputs of the many Australian institutions and agencies involved in ATIP (p.158). It considered that the countries offering the best prospects for ATIPs, taking account of their potential as competitive exporters and their domestic markets for wool products, were China, India, Pakistan, Vietnam, the Asean countries, Turkey, Mexico and Brazil.

To Sell or Tax?

Given that the Committee accepted the Government's position that the wool industry should be held responsible for the "wool debt" (Garnaut *et al* 1993, p 90) a fundamental question is how the wool industry might repay the debt at least cost. There are basically three choices - a tax on wool production, sale of the stockpile, or some combination of these measures. The wool can be sold either normally in competition with new production or into end-uses in which the wool is "quarantined" from the normal market. The effectiveness of taxes and stockpile sales for repaying the debt depends largely on the responsiveness of Australian wool demand and supply to wool prices. Work in this area by ABARE (1992), Bardsley (1991, 1993a), Beare, Fisher and Sutcliff (1991) and Hertzler (1993) indicates that some combination of these measures may be necessary to be sure the debt is repaid within the time specified by the Government (for instance Minister for Primary Industries and Energy 1993).

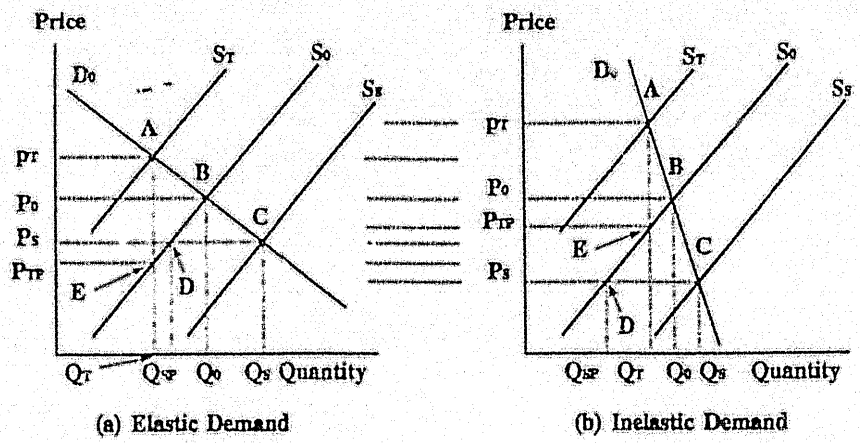

Figure 1 Demand Elasticities and the Policy Trade-off

This fundamental policy trade-off is illustrated in Figure 1 which describes a comparative statics full adjustment model. Given linear functions and identical wool supply relationships, S_0, Figure 1(a) and Figure 1(b) show demand, D_0, as being relatively price-elastic and price-inelastic respectively. The initial equilibria are at price P0 and quantity Q_0. Supply is then assumed to shift from S_0 to S_S - due to sales from the stockpile - or from S_0 to S_T - due to the imposition of a wool tax. In the absence of stock sales, the market price with the tax is P_T and the producer price net of the tax is P_{TP}. Stock sales are measured as the difference between total wool sales Q_S (total wool sales including sales of stocks) *less* Q_{SP} (farm production at the reduced prices, P_S, which result from the increase in market supply when stocks are sold).

If wool demand is elastic, stock sales and the wool tax would generate similar revenues, as shown by the areas $Q_{SP}Q_SCD$ and $P_{TP}P_TAE$ respectively. But if demand is inelastic, revenue from the wool tax ($P_{TP}P_TAE$ again) exceeds revenue from sales of wool stocks ($Q_{SP}Q_SCD$).

Moreover, if demand is inelastic woolgrowers will incur a relatively high cost for repaying debt by stock sales - area P_0P_SDB - rather than a wool tax - area $P_0P_{TP}EB$. The ranking of the policies remains unchanged when a wool tax and stock sales are used to generate identical amounts of revenue. Given that the bulk of Australian wool is exported, under conditions of inelastic demand Australia's national interest will be better served by a wool tax.

The reason is that when demand is inelastic, a wool tax shifts a relatively large part of the costs of repaying the debt onto foreign consumers.

Variations in the supply elasticities do not alter these trade-offs but they do influence the portion of costs borne by woolgrowers. In general, the lower the elasticity of supply, the larger the share of the costs that falls onto woolgrowers, the lower the rate of tax required to raise any given revenue and the smaller the revenue raised from any given stock sales.

The Garnaut Committee acknowledged the importance of the assumptions concerning the price responsiveness of the wool market (p 98-101) and commissioned ABARE to analyse a range of stockpile disposal and debt repayment options. The options analysed by ABARE included a "Destroy and Tax" option, a number of "Sell and Tax" policies, including sale by a fixed quantity schedule, and also a "Trigger Price" scheme.

The Committee opts for a "Sell and Tax" policy, recommending that the stockpile be sold under a fixed quantity schedule (see below), relying *inter alia* upon:

- the results of ABARE's policy simulations;
- the judgement that the price elasticity of demand is increasing and in the medium and long term is not low enough to warrant destruction of the stockpile;
- the view that lower prices due to stock sales will raise long-term wool demand; the view that there is a risk that a trigger price could be set "too high", resulting in problems similar to those which led to the collapse of the Reserve Price Scheme;

In making its case for a "Sell and Tax" policy the Garnaut Committee made an error of fact in reporting the results of ABARE's simulations (Hone and Haszler 1993). The error appears in the following statement (p 99)[1] .:

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[1] This error in the Garnaut report was first identified at a public meeting in Hamilton on 20 September 1993, it was subsequently drawn to the attention of the Minister and the Shadow Minister (Haszler, personal communication, 28 September 1993) and then more generally publicised on 7 October (Haszler and Hone 1993). Consequently, the existence of this error became well known as the package of wool bills was being considered by the House of Representatives between 30 September and 7 October. Unfortunately, the error was not acknowledged publicly until 22 October and not until the Victorian Farmers Federation had lobbied Victorian Senators for a Senate Inquiry, partly to clear up the issue of the error (Hawes 1993).

"The Committee asked ABARE to model options 1 to 5 to stockpile disposal, within its standard model of the world wool market based on *price elasticities estimated from historical experience* [emphasis added]. The present value of growers' net returns under an optimal sale strategy ..... was $66 million greater than with destruction, over a ten-year period."

The inference that can be drawn from the report (Table 5, p 100) is that the elasticities used are those reported by Connolly (1992). However, ABARE has now acknowledged that the Garnaut Committee's statement is wrong (Senate 1993) and that the $66 million estimate was generated by an optimal control solution of a dynamic model (ABARE 1992) based on the following elasticities:

	Demand Elasticity	Supply Elasticity
short-run	- 0.80	0.20
long-run	- 1.20	0.60

Except for the long-run supply elasticity, these values are well above those reported by Connolly. Based on first principles, it seems likely that if ABARE had indeed used Connolly's generally much lower elasticities as claimed, the result would be the reverse of that indicated. That is, using historical elasticities the present value of growers' net returns under a "Destroy and Tax" debt reduction strategy would probably be substantially higher than with the Garnaut Committee's preferred "Sell & Tax" strategy. Consequently, the $66 million figure probably represents the upper bound estimate of the possible benefits from a "Sell and Tax" policy - and not the lower bound as the Committee claimed (p 100)

Chisholm, Haszler, Edwards and Hone (1993) analysed the sensitivity of the policy choice to assumptions about the price responsiveness of the wool market. Using a comparative static model iterated over seven periods, to reflect the policy setting at the time, they considered three options:

- *Sell and Tax*": sell the wool stocks in the normal market and levy a wool tax to raise the extra revenue required to quit the debt within the Government's deadline.
- *"Destroy and Tax":* physically destroy the stockpile, so stockpile sales do not depress market prices, and use a wool tax as the sole means of repaying the debt.
- *"Quarantine and Tax":* quarantine the stockpile from the normal market, sell the stocks by tender into new end-uses and levy a wool tax to raise additional revenue.

Chisholm *et al* simulate the first two policy options using linear and Cobb-Douglas forms for equations based on nine sets of own-price elasticities for Australian wool and an assumed initial market equilibrium. Their assumed equilibrium is characterised by an auction price of 500c/kg clean and wool production of 850 kt greasy. The range of the elasticity sets chosen by Chisholm *et al is* shown in Table 1 which summarises their results. Their elasticity sets span a wide range of the reported values shown in Table 2.

Other researchers in the field - ABARE, Bardsley and Hertzler - have also provided analysis of the sensitivity of their results to assumptions about price responsiveness in the wool market. However, they assumed the wool market to be generally more price responsive than Chisholm *et al* and dealt with more tightly constrained elasticity sets. Bardsley and Hertzler set their parameters at the base values first chosen by ABARE (1990). The differences between the results reported by these authors and by Chisholm *et al* reflect the elasticity sets chosen for analysis.

The national policy trade-off matrix presented in Table 3 identifies the net costs to the nation of being wrong about the elasticities. The Government could form the view that, despite the evidence in Table 2, the wool market will become "elastic" and so adopt a "Sell and Tax" policy. This is the policy the Government adopted based on the Garnaut Committee's recommendations. If this view proved correct, the net Australian benefit arising from the "Sell and Tax" policy would be $381 million. But if the market remained inelastic, the "Sell and Tax" policy would generate a substantial national loss of $4581 million. Alternatively, the Government might consider that the wool market will remain inelastic and adopt a "Destroy and Tax" policy. In this case the nation would gain regardless of how price responsive the wool

Table 1: Potential Gains to Woolgrowers from Alternative Policies

Elasticity Set		Gains to Woolgrowers			
Demand	Supply	"Sell & Tax"		(Quarantine & Tax" (a)	
		$/farm (b)	$/sheep (c)	$/farm (b)	$/sheep (c)
		– Net Present Value 1992-93 –			
- 0.15	0.10	66,848	37	79,699	45
- 0 30	0.10	37,793	21	50,644	28
- 0.85	0.35	3,315	1.9	16,166	9.0
- 1.20	0.60	-2,416	-1.4	10,435	5.8

(a) Assumes sales of quarantined wool realise $1 billion. (b) Based on 77,818 "broadacre" farms (ABARE 1993a). (c) Based on flock of 139m at 31 March 1993 (ABARE 1993b). The data shown are for the Cobb-Douglas models which tend to be more favourable to the "Sell and Tax" option.

Source: Chisholm, Haszler, Edwards and Hone (1993).

market proved in the future. The national benefits would be even greater if the stocks were not destroyed but, instead, were sold into quarantined end-uses (see section below).

Given that the range of elasticities in Table 2 identifies the relevant boundary values, the policy choice reduces to two questions - how risk averse are the policy makers and what weight do they place on costs felt by woolgrowers. A policy maker who is risk-preferring and relatively unconcerned about imposing potentially large costs onto woolgrowers would choose the "Sell and Tax" policy.

Whilst these comparative statics results provide useful insights, the wool market is characterised by dynamic relationships. These arise from the biological constraints to expanding wool production and the fact that wool products are consumer durables. The policy trade-offs are more complicated in a dynamic system. Because of the dynamics in the wool

Table 2: Some Estimates of Wool Market Elasticities(a)

Demand Elasticities (b): Author/Details		Elasticity: Short term	Medium term	Long term
Homer: 1952	– UK USA demand	- 0.50	na	na
Emmery: 1967	– UK demand	- 0.26	na	na
IAC: 1976	– UK sweater demand	- 0.28	na	na
Campbell, Gardiner & Haszler: 1980	– 8 main OECD wool consumers (c)	- 0.12	na	na
AWC-BAE. 1987	– 8 main OECD wool users	- 0.23	- 0.80	na
	– apparel wool	- 0.16	- 0.61	na
Ball, Beare, Harris: 1989	– USA, Europe, Japan	- 0.10	- 0.37	- 0.70
Harris & Shaw: 1990	– all Australian wool	- 0.45	- 1.93	- 1.95
Connolly: 1992	– all Australian wool	- 0.33	- 0.91	- 1.01
	– France	- 0.17	- 0.42	- 0.43
	– Italy	- 0.38	- 0.85	- 0.92
	– United Kingdom	- 0.50	- 0.85	- 0.92
	– Japan	- 0.01	- 1.03	- 1.25
	– USA	- 0.59	- 1.34	- 1.58
	– USSR	- 0.35	- 0.54	- 0.58
	– China/Hong Kong	- 0.95	- 1.00	- 1.19
	– Rest of World (d)	- 0.23	- 0.75	- 0.87

Australian Supply Elasticities: Author/Details	Elasticity: Short term	Medium term	Long term
Powell & Gruen: 1967	0.07	0.33	na
Witherell: 1969	0.07	0.13	na
Wicks & Dillon: 1978	0.25	0.36	na
Vincent, Dixon & Powell: 1980	na	0.26	na
Meikle, Smith & Smith: 1981	0.09	na	na
Adams: 1984	na	0.46	na
Hall: 1985	na	0.35	na
Dewbre, Shaw, Corra & Harris: 1987	0.04	0.35	0.86
Harris & Shaw: 1990	0.00	0.22	0.79
Connolly: 1992	0.04	0.45	0.62
Kokic, Beare, Topp & Tulpule: 1993	na	0.45	na

(a) Short run elasticity shows instantaneous response or response after one year, medium-term elasticity shows medium-term response or response after five years, as reported by authors. (b) Total consumption of raw wool at mill/auction level unless indicated otherwise. (c) Quarterly elasticities, other elasticities based on annual data. (d) Other than China/Hong Kong, South Korea-Taiwan, Japan and USSR. na not available.
Sources: Authors cited or AWC-BAE (1987).

Table 3: Policy Trade-off Matrix: Net National Benefit (a)

True Situation	Assumed Situation		
	Elastic Market	Inelastic Market	
	=> "Sell & Tax"	=> "Destroy & Tax"	=> "Quarantine & Tax"
	– Net Present Value 1992-93 $ million –		
Elastic Market	381	117	1117
Inelastic Market	-4581	292	1292

(a) Net national benefit is defined as the sum of the debt repaid ($2306 million) *minus* storage and interest costs *plus* changes in producer and consumer surplus. Note the data shown are for Cobb-Douglas equations system and for the extremes of the elasticity sets identified in Table 1. The discount rate used is 5 per cent.

Source: Chisholm *et al* (1993).

market the estimates shown in Table 1 and Table 3 probably overstate the values that would have been obtained if Chisholm *et al* had used a dynamic model.

ABARE has defended its choice of parameters - and the applicability of its simulations to the current wool debt/stockpile issue - by saying its chosen elasticities fall in the middle of the reported range (Senate 1993, p 5). To support its argument, ABARE cites research by O'Donnell (1992) and Beare and Meshios (1990). These studies provide interesting and innovative contributions to the literature. But their acknowledged intrinsic merits in a broad context do not necessarily make them relevant to the current wool policy debate.

O'Donnell's analysis provides an interesting illustration of a simultaneous equation model of the wool market using pooled data for periods with and without the RPS and of using

an endogenous switching specification to model purchases and sales of stocks under the Scheme. O'Donnell demonstrates the potential of OLS to generate biased parameter estimates and reports an own-price elasticity of demand for Australian wool of - 0.97. However, this estimate may be subject to specification error resulting from O'Donnell's trade-off of using a simple specification to demonstrate a new technique. Exchange rates and income enter the model simply as the $A/$US rate and as US GDP. Relatively little Australian wool is sold directly to the USA. Thus O'Donnell's specification must imply a host of unspecified lead/lag relationships between these US variables and exchange rate and income related demand shifts in other countries. These relationships would confound interpretation of the estimated coefficients. And O'Donnell's implicit lead/lag structure is likely to prove unstable with changes in the geographic spread of Australia's markets.

Furthermore, O'Donnell's treatment of exchange rates may provide another source of specification error in the model. Chambers and Just (1979, p 253) are cited as supporting the use of a single exchange rate variable independent of price. The argument is that the general equilibrium effects of exchange rate changes mean that price and exchange rate movements can have differing impacts on wool demand (O'Donnell p 6). But Chambers and Just make it quite clear that the theoretical grounds for including separate exchange rate variables in trade models mean they should be *additional to - not substitutes for* - the standard specification in which prices are expressed in a single currency (p 255).

Beare and Meshios report demand elasticities as high as - 2.0 - for *individual micron categories of wool*. Such elasticities are not directly comparable with those in Table 1. Demand will be more elastic for component qualities - which are substitutes - than for their aggregate. Beare and Meshios themselves say " ... the demand for end-use types may be *considerably* [emphasis added] less price elastic than for individual micron classes" (p 65) and they also refer to the degree of competition between apparel and non-apparel wool types being "... very limited." (p 65). For analyses that treat wool as an homogeneous commodity - such as the work by ABARE and others cited before - it is the elasticity for the aggregate "homogeneous" commodity that is required. If there were a uniform percentage change in the prices for all wool grades - the implicit assumption underlying analyses for commodity aggregates - the

Beare/Meshios estimates themselves show there would be no changes in the demand for any category. That is the aggregate demand elasticity that can be derived from their estimates is effectively zero!

The Garnaut Committee's views about the values of and likely changes in the medium and long-term elasticities for wool have little relevance to decisions concerning disposal of wool over the short to medium-term - that is *starting now*. If recent parameter estimates are any guide, Australia would need - *right now* - to be selling most of its wool to China to justify the elasticities used in ABARE's simulations.

The Committee's asymmetric view about dynamic shifts in demand due to varying wool prices is surprising. If wool demand does indeed shift out significantly in response to a period of low wool prices, due partly to the sale of stocks, why would demand not shift back once the stockpile has disappeared and wool prices have recovered?

Finally, the Garnaut Committee's rejection of the trigger price option is more difficult to fault because it is based on guesses about future political possibilities. Nevertheless, it is interesting to note that ABARE (1992) has published an analysis of a trigger price scheme. ABARE found that the net present value of producer surplus is greater over nine years using an optimal approach to stock sales and debt reduction than with a trigger price of 750 c/kg clean. This result is based on ABARE's higher than historical elasticities and on a discount rate calculated to be 8 per cent. While this rate might be acceptable to the Government, financially pressured woolgrowers might well choose a relatively higher rate. A discount rate of 21 per cent would be enough to switch ABARE's results towards *just favouring* a trigger price policy that does not include a specified deadline for repayment of the "wool debt". And such a trigger price policy would probably be favoured at an even lower discount rate if the analysis were based on historical wool market elasticities.

Similarly, the choice of a discount rate more relevant to woolgrowers might well have reversed the results of some of ABARE's other simulations - even within their relatively responsive wool market model. The policy choice might then have come down to how eager the Government was to have the debt repaid, compared with the weight it placed on minimising the costs falling onto woolgrowers.

There is, of course, considerable uncertainty about the values of the elasticities that may apply in the future. No matter how stable and robust the historical estimates for established markets, they may not adequately describe a market in which wool is moving to new consumers and/or end-uses. Even when the average value of the elasticity remains stable, there may be systematic differences between elasticity values when, for example, an industry is expanding or contracting, or when demand is weak and when demand is strong. Nevertheless, it is clear from first principles that the assumptions regarding the levels of and relationships between the elasticities effectively predetermine the general character of the policy trade-off. Consequently it is impossible to remain agnostic on wool market elasticities and still expect to make a useful contribution to the current wool policy debate. That is, the choice of the elasticities used must be argued for and justified.

Quarantining the Stockpile and Selling by Tender

The submission to the Garnaut Inquiry by Chisholm *et.al.* (1993) argued that the effective isolation of the stockpile from the existing apparel market need not involve destruction of the wool. Effective quarantining of the stockpile from the market could be achieved by selling the wool into non-apparel uses. This would have two obvious advantages over destruction: the sale could generate revenue and still not depress auction prices; and policy makers would not have to confront the political consequences of destroying the stocks.

Simulation results from Chisholm *et.al.* (1993) suggest that quarantining the stockpile would result in substantially greater benefits than either destroying the stockpile or selling it into existing markets (see Table 3). Sales of stockpile wool for insulation batts have occurred at prices of around $1.50/kg greasy (G. Robinson, personal communication, 18 October 1993). At such prices the world-wide sales of the stockpile would earn around $1 billion. And in that case the "Quarantine and Tax" policy would be the best option under all the cases considered, because it maximises the potential national gain and avoid losses. It also minimises the costs to woolgrowers of repaying the debt.

The viability of the option of selling wool into non-traditional uses depends on the feasibility of identifying non-traditional markets and keeping those markets separate from the

apparel wool market. It appears that the only way of ensuring effective quarantining of wool from the stockpile would be to make denaturing of the wool before delivery a condition of sale. The purpose of denaturing would be to prevent wool sold from the stockpile finding its way into conventional market uses, and hence lowering the demand and price for newly produced wool.

A possible marketing strategy would be to implement a sealed-bid tender system. Each tenderer would state a bid-price and the volume of denatured wool they wished to purchase. The characteristics of the denatured wool would need to be carefully described. Because no one is aware of all the uses of denatured wool which are potentially profitable at prices which are likely to be substantially below those paid recently for newly produced wool, it would be necessary to publicise the tenders widely overseas and in Australia and allow a sufficient period — perhaps a year — for prospective bidders to find and assess new end-uses for wool and to prepare the initial tenders.

This option is equivalent to a single-desk seller setting prices so as to attain perfect (first-degree) price discrimination. Perhaps the most attractive feature of a competitive sealed-bid tender system for wool from the stockpile is that it efficiently reveals the maximum willingness-to-pay (demand) for denatured wool. It would be prohibitively costly, and probably impossible, for a selling authority to identify all prospective buyers and accurately assess each buyer's willingness-to-pay for denatured wool by other means.

The tendering system could be administered by the new Wool International. It could reserve the right to accept no tenders, or alternatively, it could provide an assurance that an amount of wool, not less than a stated minimum, would be released from the stockpile provided that the highest tender-prices exceeded an announced reserve price. The initial round of tendering would generate information on demand for denatured wool and other information that should allow improvements to be made in the tender process. Wool International would use its judgement with respect to how much denatured wool it would sell and how much wool it would continue to stockpile for subsequent tender.

The Garnaut Committee indicated that they had "... doubts about demand for denatured wool." (Garnaut *et.al.* 1993 p.100.) Specifically, they argued that there was little wool that

was available in the current stockpile that was suitable in terms of price or diameter for non-traditional uses. This judgement would be valid if the denatured wool was to be offered at current auction prices and the alternative uses were restricted to insulation. There is no reason for these restrictions. The nature and extent of any such restrictions would be determined by the type of selling arrangements that are put in place and on the possible uses or bid prices, an appropriate sales structure would not impose these constraints.

Given that there is considerable uncertainty about the potential uses for denatured wool, and the consequent demand, there is a case, for being cautious about implementing a policy to destroy the wool stockpile. Even if the initial call for tenders for denatured wool turns out not to be particularly successful, caution should be exercised about immediately adopting a strategy to destroy the wool stockpile so long as there is still uncertainty about the likely demand for denatured wool over the short-to-medium term, say, the following seven years.

The reason is that the direct annual costs of maintaining a stockpile are fairly modest. The indirect costs will be negligible, provided a credible guarantee is given that the stockpiled wool will be either denatured so that whatever future uses it is put to, it will have no adverse effect on the market for newly produced wool, or, the stockpile will be eventually destroyed. By firmly stating such a policy, potential future users of wool are effectively given an incentive to continue searching for new and more efficient ways of using denatured wool. The option to use the denatured wool in ways which have not yet been thought of is kept open. On the other hand, if the wool stockpile is destroyed the option to use the wool at some future time when new uses may be found is lost forever.

Disposal Schedule for the Stockpile

Although there is a strong financial case for advocating quarantining of the stockpile through denaturing, it is an option which is likely to be the subject of considerable industry and general community debate concerning the ethics of "damaging" a valuable resource. If Government considers these concerns to be sufficiently important it may choose to sell the wool into existing markets and impose the consequent financial loss upon the industry. In this case the issue of an optimal stockpile disposal strategy becomes relevant.

In advocating a predetermined fixed schedule for the disposal of the bulk of the stockpile, the Garnaut Committee pointed to the problem of continuing uncertainty associated with a disposal strategy that largely left the timing of disposals to a single public or industry stockholder (referred to in this paper as the single agency option). The greater certainty stemming from a known disposal schedule was seen as central to the early establishment of efficient risk management and ownership transfer systems, including the rejuvenation of the wool futures market. Key groups within the wool policy community have however, been critical of the fixed schedule approach. (For example, see Hawes (1993), Senate (1993) and Watson (1993).)

Critics of the fixed schedule approach, who have included grower representatives, wool buyers and economists, have argued that in comparison to a flexible schedule, it will reduce the level of revenue that will be raised from stock sales and/or that it will result in a greater level of price instability in the short to medium term.

Value of Stockpile

The adoption of the Garnaut disposal strategy will result in the stockpile being translated into higher levels of processed wool and higher private wool stock levels in the short to medium term. In all likelihood a significant part of the sales of wool from the stockpile would represent a transfer from public to private commercial stocks of which a significant part may be speculative stocks. If these private stocks are held by a number of stockholders, each of whom cannot influence the market price for wool, the wool stocks will be managed in a competitive fashion. Under these circumstances, competitive pressures would ensure that stock management strategies maximise the value of the stockpile to the industry as a whole (including consumers) rather than its value to wool producers or the government.

Where a single agency has control of the stockpile the magnitude of the stockpile bestows potential market power upon that agency. If the agency opts to maximise the net value of the stockpile, as has been advocated by Garnaut's critics, it will equate the marginal cost of disposing of stocks (the expected net value of sale in some future period) with the marginal revenue from disposal, rather than market price. This means that in comparison with a

competitive stocks market, the agency would tend to sell stocks more slowly, resulting in a higher market price over the disposal period, a longer disposal period and a higher value for the stockpile. (See Wright and Williams (1991) for a detailed discussion of optimal stockholding strategies for competitive and monopoly stockholders.)

The extent of the premium created by the market power of a single stock management agency is open to conjecture. Studies of the optimal disposal of the wool stockpile have all shown that a predetermined schedule as proposed by Garnaut is highly unlikely to be optimal. Unfortunately most studies have been based on models which have excluded private speculative stockholding so they provide no evidence of the value of the market power of a single agency. The exception is Hertzler who reported that a single agency could potentially increase the value of the stockpile and returns to woolgrowers.

Hertzler's model results indicated that the return to the industry from an efficient monopolist stockholder when compared with a competitive stock disposal scenario could be $220 million: $100 million in a higher value of the stockpile and a further $120 million accruing directly to producers from higher wool prices during the disposal period. When viewed in the light of a stockpile which Hertzler valued at around $2,500 million these gains are not huge.

This $220 million premium represents the difference between two theoretical optima: one relates to a competitive market and the other to an efficient single agency. The extent of the actual gains that would flow from a single agency is not clear. The real premium that stems from using a single agency to dispose of the stocks depends on the relative efficiency of the single agency when compared with the competitive market. In particular, it depends critically on the comparative abilities of a single agency and competitive market to form accurate views on future movements in wool prices.

In the case of a single stockholding agency the information requirements of an optimal disposal path are onerous. This means that one small group of administrators must be able to develop precise estimates of future wool price movements.

With a competitive market each individual stockholder may have a very imprecise view of the future market, yet the market could still perform efficiently in terms of establishing a path

for the movement of stocks into production. The market provides a self-correcting mechanism for the pooling and processing of the information held by each individual participant. The efficiency of this process rests more on the presence of appropriate market structures and price formation facilities such as futures markets than the information available to any one market participant.

The extent of a single agency premium could also be dependent on the nature and extent of pressure imposed upon the agency by industry groups. For example, the presence of a single agency with the flexibility to change the timing of stock sales may encourage some sections of industry to pressure the agency to reduce the rate of stock sales. While this would tend to reduce the value of the stockpile there would be offsetting gains to the industry in terms of higher wool prices and higher producer surplus levels. Another possibility is that, in a bid to maximise the value of the stockpile, a single agency seller with a flexible schedule might choose to sell more when the level of demand, and price, were high. A necessary condition for this strategy to maximise industry producer surplus is that demand be more price elastic when demand is high than when it is low (see Chisholm *et.al.* 1993, p.10).

When the information requirements of the efficient operation of a single seller are coupled with the political pressures that the industry would impose upon the agency's policy making process, it is reasonable to conclude that the increase in the value of the stockpile due to operations of a single agency may not be substantial.

Stability of Wool Prices

The objectives of stabilising price and maximising the value of the stockpile are not completely consistent. An efficient single agency concerned with maximising the value of the stockpile will not aim to achieve the same price stability that could be expected from a competitive market (Wright and Williams 1991). For example, a single agency, by equating marginal disposal costs with marginal revenue rather than market price, will dispose of less wool in high priced periods than would be the case in a competitive market. Therefore, suggestions that a single agency would establish a more stable price regime than Garnaut's

fixed disposal strategy amount to a judgement that a competitive wool stockholding market will not develop.

Furthermore, the problem is not necessarily price stability itself, but the costs that the instability imposes upon the industry. These costs can be alleviated by reducing the instability or by developing risk management facilities to deal with the problem, such as futures markets. Garnaut argues that a fixed disposal schedule would facilitate the growth of a futures market. To the extent that this is correct, the establishment of a single agency charged with maximising the value of the stockpile would hinder the development of risk management structures as well as achieving less basic price stability than a competitive market.

Ultimately, one's position on whether the sell-off should be based on a fixed schedule, as advocated by Garnaut, or whether the critics are correct in arguing for a single agency charged with the responsibility of maximising the value of the stockpile depends on judgements on the relative efficiency of the market versus a single agency. In this regard the past management of the reserve price scheme should lead policy makers to be prudent in advocating a central planning solution to a wool problem. Regardless of the obvious theoretical attractiveness of using potential market power to maximise income, experience shows that the premium from market power can easily be eroded in an environment characterised by conflicting objectives and formidable information problems.

The Longer Term — A Case for Restricting Wool Exports?

The Committee highlighted estimates by Connolly (1992) of the price elasticity of demand for Australia's exports of wool (p.100) suggesting large potential economic gains from restricting wool exports. However, it advanced reasons for thinking that the current price elasticity of demand for wool exports would be higher than estimates made in past studies. One reason — which the Committee acknowledge was an hypothesis for which there was no proof (sic) — was that econometric estimates failed to capture the complete long-term responses of wool consumption to changes in prices. A second reason was that the share of wool consumption accounted for by countries such as China in which demand is very responsive to price had risen recently compared with the share going to countries such as

France where demand was less price elastic. A third reason was that competing fibres had become closer substitutes for wool in recent years because of the enhancement of wool-simulating properties of those fibres.

The reasons noted above are apparently the basis for the Committee's doubts whether the demand for wool is sufficiently inelastic for restrictions on supply to raise woolgrower incomes in the medium and long-term (p.56). Given that the case for restricting exports exists as long as the price elasticity of demand is less than infinite, the Committee's examination of the economic case for restricting wool exports is inadequate. Elsewhere the Committee appears to contradict its effective dismissal of the economic argument for restricting wool exports when it notes that cost reductions in *other* rural industries will attract resources to those industries from wool production and "will be helpful in applying upward pressure on the wool market" (p.29).

The Committee went a step beyond its cursory rejection of the case for restricting wool exports. It declared itself "of the view that there would be powerful arguments against controls on production or exports, even if the 'optimal restriction' argument had merit" (p.56). One argument was the difficulty of determining the 'optimal level' of wool production, and another the impeding of adjustment to changing markets that would result from any system of supply control. These arguments are unconvincing. While determination of the optimal level of export restrictions *would* be difficult, acceptance of the case for restricting exports means that existing exports are too large: *any* marginal reduction in exports would increase economic efficiency. There is no reason why adjustment in the wool industry would be impeded by a policy of restricting exports if the policy took the form of an *ad valorem* export tax.

Other arguments against restricting wool exports may have more substance. One of these, not considered by the Committee, is difficulties in making lump-sum type payments to wool producers out of the proceeds of an export tax. Payments of this type would be necessary if wool producers were to share in the national benefit from restricting wool exports by means of a tax; the judgement that they should so share would be widely accepted. This being so, the feasibility of implementing satisfactory lump-sum compensation would need to be examined carefully before introducing any export tax on wool. The Committee's argument that

"an environment of Australian restrictions on wool production or export is unlikely to be conducive to effective diplomacy focused on reducing other countries' barriers to wool exports" (p.56) also merits serious consideration. A comprehensive assessment of restricting wool exports would also need to consider the point that an export tax on wool — like a tax on pollution — potentially not only increases economic efficiency directly, but also provides scope for reducing other taxes which give rose to efficiency costs.

In summary, the economics of restricting Australia's exports of wool warrants further consideration.

Conclusions

The following points could feature in the conclusions:

(1) "In any event, reading the ABARE result in its correct light merely strengthens the case for the "Quarantine & Tax" policy. The gain of $66 million over ten years from the "Sell & Tax" policy over the "Destroy & Tax" estimated with ABARE's *elastic and dynamic* model is quite small. If this is the best that an "*optimal*" policy can do under assumed conditions which would favour the "Sell & Tax" alternative over the "Destroy & Tax" policy, those gains should easily be swamped by revenue from quarantined wool sales."

(2) Need to note that, while we may be agnostic on the fixed schedule, we should note the logical inconsistency of Garnaut's specific proposal. The idea is to create certainty but the specific proposal is that some 240 kt of stocks will still be around when Wool International is privatised in 1997., This is a carryover to a new and legally not yet fully specified "firm" of a volume of wool equivalent to more than ***twice*** the average carryover under the RPS over 1970-71 to 1977-78. In other words, do we have a new RPS in waiting with Wool International to again do by the backdoor what the Wool Industry Conference, the AWC, a series of marketing reports and finally a market crisis did by stealth last time? How can Garnaut seriously argue there will be any serious reduction of uncertainty with that much sovereign risk hanging around and such a potentially large competitor hanging about to take business from established firms?

(3) Unsatisfactory nature of the Garnaut inquiry process

- 3 months inadequate
- no opportunities for responses to submissions or a draft report.

(4) In Watson's view, "The implication is that Wool International will engage in fully-fledged merchanting activity in competition with private firms" (Watson 1993, p.13).

Concluding Comments

The most important lesson from a long history of buffer stock/reserve price schemes is that they eventually fail unless they are extremely conservative schemes. The Australian RPS was no exception when it collapsed in mid-1991 leaving in its wake a debt of $2.7 billion and stocks of around 4.6 million bales, equivalent to almost a whole year's wool production.

The logical inevitability of eventual failure of 'self-financing' buffer stock schemes is now well known among economists. It has been, for instance, carefully analysed and exposited by Williams and Wright (1991).

In April 1993, in response to the depressed economic conditions in the wool industry and the remaining large wool stockpile, the Minister for Primary Industries and Energy appointed the Garnaut Committee to advise on future policies for the wool industry. This was the second wool committee of inquiry in three years. The Vines Committee presented its review of recommendations for the future of the Australian wool industry in 1991.

In our view, the nature of the inquiry process for the Garnaut Committee Report was unsatisfactory. In particular, a period of only three months was allowed for completion of the report. This short time period precluded any opportunities for responses to submissions or a draft report. In these circumstances, it is perhaps not surprising that the Garnaut Report is marred by errors of fact and in parts by unpersuasive argument and unsatisfactory analysis.

The major focus in these concluding comments will be on the issue of stockpile disposal and debt reduction. Essentially, there are three alternative policies: sell and tax; destroy and tax; and quarantine (denature) and tax. The relative attractiveness of the policies depends crucially upon the assumptions made about elasticities of demand and supply for Australian wool.

The Garnaut Committee proposed a "Sell and Tax" policy because they adopted an estimate showing the present value of growers' net returns was $66 million greater over ten years than with the destroy and tax option. The Garnaut Committee stated that this result was based on ABARE modelling utilizing price elasticities estimated from historical experience. In fact, the estimate was based on an optimal control solution of a dynamic model (ABARE 1992) using considerably higher elasticities which favoured the "Sell and Tax" option. Consequently, the relatively small $66 million estimate likely represents the upper bound of possible benefits from a sell and tax policy not the lower bound as claimed by the Committee (p.100). The erroneous statement made in the Garnaut Report has been acknowledged, albeit belatedly, by ABARE (Senate 1993).

Importantly, even if the upper level of $66 million was achieved with a sell and tax policy it would be dominated by the quarantine and tax policy option recommended by Chisholm *et.al.* 1993).

The lack of sensitivity analysis using a range of assumptions about the supply and demand elasticities for Australian wool is a major weakness of the Garnaut Committee Report. The results from our sensitivity analysis indicate that the Garnaut Committee sell and tax policy is a high-risk-low (probably negative) expected net return strategy. Modest net returns would be achieved if the market was considerably more elastic than historical experience indicates whilst very large losses would be incurred by the Australian wool industry if market demand is inelastic. In contrast, the quarantine and tax option offers substantial gains to Australia and the wool industry regardless of whether the market is elastic or inelastic.

The Garnaut Committee argued that there was little wool that was available in the current stockpile that was suitable in terms of price or diameter for non-traditional uses. This judgement implies that the denatured wool would be offered at current auction prices for purposes of insulation. There is no need for these restrictions. An appropriate quarantine sales strategy would provide an incentive for potential users of denatured wool to continue searching for new and more efficient ways of using denatured wool at prices significantly below auction prices for traditional wool uses. By not destroying the wool stockpile the option to use denatured wool in ways not yet thought of is kept open.

Whilst there is an overwhelming economic argument for quarantining the stockpile through denaturing, the community, the wool industry and government may be loath to follow this option, partly because it starkly shows the magnitude of past policy mistakes, and partly because it may be perceived to be unethical to reduce the potential end uses of a 'valuable' resource by denaturing it. If the government places sufficient weight on these concerns it may choose the high-risk-low expected returns strategy of selling stockpiled wool to traditional markets, particularly if it believes that the price-depressing effect of stockpile sales is a 'hidden' effect in the eyes of the public.

In these circumstances, the issue of an optimal stockpile disposal strategy becomes relevant. The Garnaut Committee advocated a predetermined fixed schedule for the bulk of the stockpile. The Committee believed that the greater certainty stemming from a pre-determined and known disposal schedule would reduce uncertainty and help foster the early establishment of efficient risk management and ownership transfer systems, including the rejuvenation of the wool futures market. We believe this goal has merit.

Critics of the fixed schedule approach have included wool buyers, economists and grower representatives. Their concern is that a fixed schedule in comparison with a flexible selling schedule will reduce the level of revenue that will be raised from stock sales and/or that it will result in a greater level of price instability in the short to medium term. However, the critics appear to overlook the role of a competitive private wool storage market. The evolution of such a private storage market and an associated futures market probably would be best served by a predetermined fixed schedule for reasonably rapid disposal of the stockpile.

The Garnaut Committee's specific proposal for a predetermined disposal schedule appears, however, to be logically flawed. The central idea is to adopt a disposal strategy that creates as much certainty as possible to foster efficient private storage and marketing activities. But the specific Garnaut proposal points to there being 240 kt of wool stocks remaining when Wool International is privatized in about 1997. This carryover stockpile represents around 30 per cent of a year's wool production which is more than double the average carryover under the RPS over the period 1970-71 to 1977-78. This large carryover will be the responsibility of Wool International – a new firm which has yet to be fully legalized and specified. With such a

large potential competitor, possibly operating an old style RPS, the sovereign risk confronting potential private firms would be large. Hence, it is difficult to take seriously the Committee's argument that the proposed disposal stratgegy will substantially reduce uncertainty and facilitate the formation of an active and efficient private market.

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