REPORT

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An evaluation of domestic and US lamb marketing

Prepared for Meat & Livestock Australia

Centre for International Economics
Canberra & Sydney

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Glossary

ABARE	Australian Bureau of Agriculture and Resource Economics
AMLC	Australian Meat and Livestock Corporation
CIE	Centre for International Economics
DPI	Department of Primary Industries
FAPL	Fresh Australian Premium Lamb
FARL	Fresh Australian Range Lamb
FOB	Free on board
GVP	Gross value of production
ICA	Importer/Exporter Collaborative Agreements
IF	Integrated Framework
LISP	Lamb Industry Strategic Plan
MLA	Meat and Livestock Australia
MRC	Meat Research Corporation
QA	Quality Assurance
RD&E	Research, development and extension
TRQ	Tariff-rate quotas
USDA	US Department of Agriculture

Summary

- The transformation of the Australian lamb industry since the early 1990's has been the result of concerted action by:
  - Meat and Livestock Australia (MLA) and its predecessors;
  - State Departments of Primary Industries (DPIs); and
  - stakeholders from industry along the marketing chain.
- The evaluation of MLA domestic and US lamb marketing programs therefore had to be in the context not only of activities by the DPIs and industry but also:
  - the MLA on-farm and extension program — which is the subject of a separate but concurrent evaluation; and
  - other MLA programs impacting on lamb including eating quality, food safety and market access.
- The approach used to evaluate the MLA domestic and US marketing programs - given this high level of inter-connectedness — is a so-called 'tops-down' approach. This involves the development of a 'baseline'.
  - This baseline, developed in consultation with industry stakeholders, describes what the industry might have looked like without this integrated program outcomes.
  - Because of the 'tops-down' approach, an important ingredient is the attribution of each of the contributors to the aggregate outcome.
- By 2007-08, observed annual lamb industry gross value of production is $1.1 billion higher than the case without this integrated program outcomes.
  - Alternatively, without the transformation, industry GVP may be only 20 per cent of its current value.
  - For 2007-08, this benefit translates to around an additional $299 million of industry value-added.
- Table 1 summarises the headline payoffs to each of the contributors to the success of the Australia lamb industry.
  - MLA promotion programs in the domestic and US markets were assumed to contribute one-third to the total outcome from the baseline. This rises to 50 per cent when accounting for MLA's on-farm program.
  - Stakeholders indicated that the developments of the US market were a key driver of the transformation of the Australian lamb industry.

1 **MLA lamb program results summary — baseline[a]**

Contributor	*Attribution of benefits*	*Total benefits*	*Total costs*	*Benefit–cost ratio*	*Internal rate of return*
	%	$m	$m		%
MLA domestic promotion	**12**	**573**	**263**	**2.2**	**16**
MLA US promotion	**18**	**859**	**120**	**7.2**	**34**
MLA on-farm	20	955	256	3.7	29
DPI on-farm	16	764	225	3.4	26
Total MLA/DPI programs	66	3 151	864	3.6	26
Other industry	34	1 623	na	na	na
All stakeholders	100	4 775	na	na	na
MLA/DPI on-farm	36	1 719	481	3.6	28

a Net present values calculated over the period 1990 to 2015 with a discount rate of 5 per cent, 2007-08 dollar equivalents.
na Not applicable.
Source: Integrated Framework and CIE calculations.

- A key driver of the overall benefit-cost ratio in table 1 is the time profile of benefits and costs — the result of the lag between significant investments in the early 1990's and flow of payoffs largely after 2000.
  - The period 1990 to 2001, in present value terms, accounted for 70 per cent of MLA and DPI investments. While 20 per cent of the benefits were delivered during the corresponding period.
  - The logic presented in this report suggests that attribution of benefits makes little sense in the context of an integrated approach. However, to satisfy reporting requirements, judgements have been made where necessary.
  - Results from the analysis suggest that — once attribution has been made — the payoffs from on-farm programs and promotion in the US market may be higher than for promotion in domestic market. This largely reflects the greater expenditure on domestic marketing relative to the US program.
- Sensitivity analysis revealed that the headline results were robust and showed positive returns to funds invested when key parameters were varied.
  - When a more conservative baseline was adopted that implied that lamb slaughter would have continued to grow at levels experienced throughout the 1990's.
  - When the benefits of the programs, in present value terms, were restricted only to the period of the investments — 1990 to 2007.
- The attribution of the total benefit between contributors is also a very important part of the analysis. While this attribution does not impact significantly on the total benefit-cost ratio across all programs, it does impact on the payoffs to individual programs.

1 Introduction

The turnaround in the Australian lamb industry since 1990 has been remarkable. During the 1980s, the lamb industry was in decline. Domestic consumption was declining rapidly and market research indicated that consumers viewed lamb as a 'fatty' product, which was becoming increasingly more undesirable. In addition to this, Australia's performance on export markets was sluggish. During the 1980s, lamb exports increased only marginally and on international markets, Australian product was regarded as inferior to New Zealand lamb (MLA 2003).

Since 1990, the performance of Australia's lamb industry has improved dramatically. This turnaround is the result of a number of integrated factors that have effectively transformed the industry from one that was seen largely as a subset of the wool industry into a profitable, billion dollar industry. These factors include:

- the identification of a market (both domestically and internationally) for large, lean lambs with a lower fat content;
- a production focus on producing large lean lambs that has driven significant increases in carcass weights;
- investment in and restructure of the processing sector, including a move towards dedicated lamb processing plants;
- product transformation — leaner, more sophisticated cuts; and
- significant investment on the promotion of 'trim' lamb both domestically and in the United States.

At the same time, a number of external factors helped facilitate the transformation:

- the ongoing decline in the Australian wool industry since the early 1990s has contributed to the shift into prime lamb production, as it encouraged wool sheep producers to move into lamb production rather than into other activities; and
- the ongoing long-term decline in the US lamb industry in combination with favourable exchange rate during the period 1998 to 2003 were key factors in increasing returns to Australian producers.

Australia's exports to the United States have grown significantly to the point where they are now the largest destination for Australian lamb by a considerable margin. Whilst the Australian industry has undoubtedly been successful in identifying and developing the US market, the continued decline in the domestic lamb industry in the United States played a role in facilitating the growth observed there.

Meat and Livestock Australia (MLA) is currently engaging in a broad ranging evaluation process. A number of evaluations have already been completed as part of this process. This report presents an evaluation of lamb marketing undertaken by the Australian Meat and Livestock Corporation (AMLC) and the MLA in the domestic and US markets between 1990 and 2007.

An associated evaluation is also being undertaken on investments in supply side R&D over the same period. This report builds on a recently completed evaluation (Agtrans 2008) which examined lamb production RD&E between 1990-91 and 2007-08. It detailed investment both by MLA/MRC and also by the state government DPIs. It utilised a 'tops-down' approach to attributing overall on-farm productivity gains between MLA/MRC and other research providers (including the DPIs), but did not explicitly include a linkage between the demand and supply side outcomes.

This report

Due to the integrated nature of the outcomes across the supply and demand side, these evaluations will be directly linked using a 'tops-down' approach to estimating the impact of the programs. This approach is summarised in chapter 3.

The CIE's analysis will utilise the Global Meat Industries (GMI)/Integrated Framework (IF) model to quantify the benefits of the on-farm program through an integrated tops-down approach, acknowledging that the turnaround in the performance of the lamb industry has been a result of integrated supply and demand side outcomes.

Chapter 2 provides a summary timeline of the key outputs of the domestic and US promotion programs, while chapter 3 provides a broad description of the evaluation approach. Chapter 4 outlines an industry baseline (what would have happened without the integrated effort and turnaround in the lamb industry). This baseline will be common between this evaluation and the associated demand side evaluation. Chapter 5 estimates the impact of the domestic and US lamb programs.

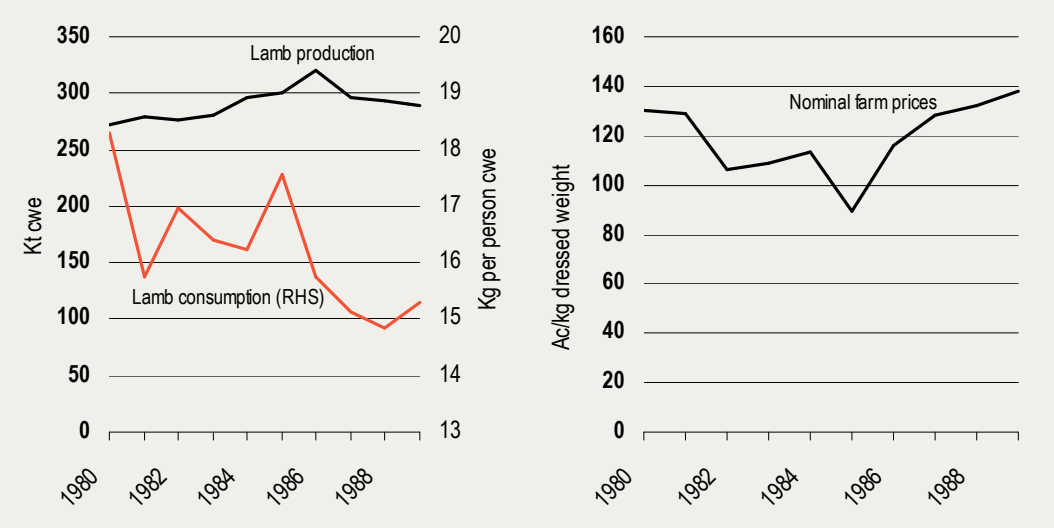
2 AMLC and MLA lamb marketing activities

Between 1990 and 1998, levy funded marketing programs were run by the AMLC. The Meat Research Corporation (MRC) was responsible for industry R&D programs. In 1998, these organisations merged to form the MLA. This evaluation is looking at AMLC and MLA domestic lamb marketing and US lamb marketing between 1990 and 2007.

Context

During the 1980s, the Australian lamb industry was in decline. Production was flat, prices were weak and consumption was declining (chart 2.1).

2.1 **Australian lamb industry in the 1980s**



Data source: GMI database.

Lamb was not seen as a highly specialist activity and it was largely viewed as a by-product of the wool industry. It was a relatively cheap 'commodity' type product with little value adding. Despite this, there was recognition within sections of the industry that there was an opportunity to turnaround the industry's performance. Research had identified that consumer perceptions and attitudes towards lamb were poor — it was regarded as old fashioned and fatty compared with chicken, new fashioned pork and lean beef. Within the industry, there had been efforts going on

throughout the 1980s aimed at moving the industry into heavier, leaner lambs on the supply side. However, these were not concerted efforts across the industry.

MLA/AMLC investment

Table 2.2 shows estimated expenditure by MLA/AMLC on domestic and US lamb marketing.

2.2 **MLA/AMLC expenditure on lamb marketing: domestic and US[a]**

	Domestic marketing	*US marketing*	*US marketing (US$ terms)*
	A$	A$	US$
1990-91	6.799	5.130	4.008
1991-92	6.760	5.170	4.039
1992-93	7.700	2.314	1.701
1993-94	7.000	2.682	1.824
1994-95	7.486	2.546	1.863
1995-96	6.594	2.183	1.619
1996-97	7.588	2.190	1.715
1997-98	7.807	2.220	1.652
1998-99	5.425	1.748	1.100
1999-00	6.046	1.855	1.197
2000-01	6.023	1.900	1.080
2001-02	7.419	3.600	1.863
2002-03	7.544	3.100	1.684
2003-04	7.291	3.060	1.986
2004-05	8.178	3.520	2.590
2005-06	9.396	3.685	2.808
2006-07	9.235	3.891	2.931
2007-08	7.697	3.356	2.808
Total	**131.988**	**54.150**	**38.468**

a All values in nominal terms.

Note: US$ marketing expenditure converted using average A$/US$ exchange rates.

Source: MLA, various sources.

These estimates were taken from a number of sources, including AMLC/MLA corporate documentation (annual operating plans, corporate plans, industry program plans), annual reports and other documentation where available. They represent a best estimate given the available information — in most cases they are budgeted expenditure, but in some instances, actual figures are used. In nominal terms, the total expenditure by AMLC/MLA was around $196 million. This was split between domestic marketing ($138 million) and US marketing ($58 million). The table above also highlights the value of US marketing expenditure in US dollars. This plays an important role, as the level of funds available in Australian dollars in any given year for the US program is not highly flexible. So a weak Australian dollar,

such as that experienced in the early 2000's has a big impact on the activities that are able to be undertaken in the United States.

To put this in context, nominal expenditure by MLA/MRC on the lamb on-farm program over the same period was just under $143 million, while for the DPIs the total expenditure on-farm is estimated at just over $118 million. Therefore the total on-farm investment was $261 million in nominal terms. Components of the on-farm programs for lamb are detailed in the separate on-farm evaluation.

Domestic lamb marketing

During the 1980s, Australia's lamb industry experienced a significant decline. Consumption declined markedly, and industry income growth was sluggish. Red meat consumption in general (lamb and beef) was declining in preference for pork and chicken. Lamb in particular was regarded as an inferior choice compared to products such as skinless chicken breast fillets and new fashioned pork. It was regarded as 'old fashioned' and 'fatty' by consumers and contradicted contemporary food trends. With over 80 per cent of lamb production being consumed within Australia, the industry's situation was clearly in poor shape.

In the late 1980s the AMLC began, with industry input and endorsement, a marketing program to improve consumer attitudes towards lamb and assist retailers (and food service operators) in delivering more attractive lamb products to consumers. The program comprised aggressive TV advertising, a merchandising field force working with butchers to improve retail handling and presentation, engagement with dieticians and dissemination of nutritional information, and encouragement of the development of new, convenient and attractive lamb products/cuts for consumers.

The following sections detail AMLC and MLA domestic lamb marketing activities between 1990 and 2007. These activities are effectively the 'outputs' of the marketing program over this period.

Convenience with traditional appeal

AMLC domestic lamb marketing from 1990-91 carried forward the campaigns begun in the 1980s. The 'Lamb Short Cuts' campaign, promoting quick and easy-to-prepare meals that are modern and nutritious continued, with television advertising being ramped up to nearly double the previous year. Two new TV commercials focused on new boneless cuts to demonstrate variety and versatility, part of the broader strategy to 'reposition' lamb in the minds of consumers.

To capture the emotional appeal of family sharing and togetherness, promotion of the family roast as a mid-week meal continued. Using the theme 'Nothing comes before a lamb roast', this advertising was a continuation of the late-1980s campaign

featuring Tom Cruise. One of the new commercials featuring an attractive girl inviting a young man to dinner, but him declining because his mum is cooking a lamb roast, was awarded a Silver Lion at the prestigious Cannes advertising Awards.

Butchers/supermarkets collaborated with point-of-sale material and other support, including recipe cards, provided by the AMLC field force. Retailers were encouraged to prepare and display a variety of lean lamb cuts, as participants in the Pick the Tick campaign, arranged under the AMLC's licensing arrangements with the National Heart Foundation.

Drought conditions through 1991-92 and flock liquidation prompted by lower wool prices contributed to a decline in lamb production of 4 per cent and a decline in consumption of around 8 per cent. This led to a renewed effort to rectify the problem of lamb's poor consumer image.

Trim Lamb

The 'Trim Lamb' campaign was launched in New South Wales and Victoria in March 1992 with the slogan 'Where's the fat, where's the bone?' It was a multi-media campaign consisting of a new television commercial, a press campaign in major women's magazines, a 16-page 'Trim Lamb' cooking guide inserted into 1 million copies of Women's Weekly, radio in Sydney and Melbourne and a message on nearly 300 bus sides in the two cities.

This campaign built on the previous years' 'Lamb Short Cuts' campaign and was designed to promote the newly developed boneless cuts and so contribute to a shift in consumer attitudes towards lamb. The new 'dog in the window' TV commercial emphasised the attributes that Trim Lamb cuts had no fat and no bone.

The 'Trim Lamb' campaign launch included several innovations.

- The use of satellite communication and the Sky Channel network to reach and motivate simultaneously all sectors of the prime lamb industry. The one-hour telecast launching the campaign was beamed to nearly 50 locations in metropolitan and country venues and was seen by an industry audience of almost 4 000 people (including 600 lamb producers).
- The use of contracted merchandisers to supplement the AMLC merchandisers to reach 3 000 retailers in NSW and Victoria in the three weeks before the start of the campaign.
- The distribution of a wide range of attractive multi-purpose point-of-sale materials, including cutting guides and cuts charts for butchers. This was accompanied by a kit containing information on market research, profitability calculations, promotional plans and the lamb identification and description system which provided for the ticketing of lamb carcasses.

Over the following year, the Trim Lamb campaign was extended to Queensland, South Australia, Western Australia and Tasmania. The launch of the campaign in these states was completed by February 1993.

A public relations campaign to support Trim Lamb was undertaken, distributing special media kits, publicising endorsements by key chefs and featuring Trim Lamb on the menus of fashionable restaurants. In addition, a comprehensive Trim Lamb mail-out was sent to approximately 13 000 food businesses in hard-to-reach regional areas (resulting in 1,600 specific requests for a Trim Lamb information kit). A letterbox drop of material on 'Trim Lamb' informing residents in individual butcher localities was a popular initiative with butchers.

The installation and operation of equipment for ticketing (with weight and 'fat score' data) of lamb carcases in plants supplying the domestic market became a priority activity for the AMLC's Lamb Program Coordinator.

The campaign did not realise its earlier expectations mainly because of resistence from butchers and difficulties in the supply chain delivering on a consistent basis enough of the type of lambs required for Trim Lamb lean cuts. Consumers were highly attracted to Trim Lamb but had difficulty in finding it.

Consequently, throughout 1993-94 spending on lamb advertising was cut back. Additional focus was put on working with butchers and encouraging them to stock Trim Lamb. The major thrust was the 'Trim Lamb Selected Butcher' campaign, which involved around 300 butchers. A new Trim Lamb commercial was launched in October 1993, and promotion in women's magazines continued, but the campaign failed to achieve sufficiently wide support amongst lamb processors/wholesalers and retailers.

A key lesson coming out of the initial Trim Lamb program was the necessity of an integrated effort across the lamb industry to effectively transform the product and produce a product that consumers wanted. It could not be achieved without integration along the supply chain back to producers.

Lamb— The Multicultural Meal

A new-look campaign was introduced in July 1994. In consultation with industry, the AMLC moved the emphasis from Trim Lamb to the promotion of lamb's flavour and ease of preparation. The major aim of the new campaign was to put lamb into a modern cuisine context, with increasingly popular multicultural dishes such as souvlaki or tandoori. Key elements of the campaign were as follows.

- 'Lamb — the multicultural meal', which involved three 15 second television commercials around three ethnic cuisines (Thai, Indian and Greek). These commercials were aired for nine weeks.

- A joint promotion with Masterfoods, who provided the flavour ingredients for making the multi-cultural meals. This was supported by in-store demonstrations and recipe cards, as well as some limited television advertising.
- 'Easy Carve Lamb Leg', which consisted of 30 and 15 second commercials in a similar style to the earlier Trim Lamb campaign and emphasising convenience and modernity.

Work with retailers continued. In addition to providing point of sale advertising linked to the television commercials, the marketing program comprised trade training activities. One particular training program included a series of trade nights around the country, attended by independent butchers and supermarket operators. These talked about the opportunities offered by a new range of lamb forequarter cuts. The result was many retailers stocking the new cuts and preparing value-added products for their customers. The 'Easy Carve Lamb Leg' was particularly attractive with both major supermarket chains beginning to stock the product in response to shopper demand

This mix of marketing activities was maintained, with some developments, for a further two years. The key elements were designed to:

- create a more modern image for lamb
- promote 'new' lamb cuts
- highlight lamb's versatile flavour and ease of preparation.

A mix of television and magazine advertising was used to encourage consumers to reconsider lamb by presenting it as offering a variety of modern meals and flavours. The partnership with Masterfoods continued.

Research indicated that the multicultural lamb campaign achieved strong awareness and had achieved some success in improving consumer perceptions of lamb as a versatile product. Consumer awareness of the 'Easy Carve' commercial was particularly strong.

Retailers, food service end-users and wholesalers continued to be encouraged to adopt a more diverse range of lamb cuts. The preparation and presentation of more 'value-added' products for retail customers was also promoted. Support in this endeavour included the development of promotional materials, involvement with training workshops and cooking demonstrations, advice on the packaging and handling of meat, and the supply of nutritional information.

In parallel a strong emphasis in AMLC communications with lamb producers, ramped up to deliver the Lamb Industry Strategic Plan (LISP), was the need to shift to producing larger leaner lambs which better suited consumer preferences.

For a third year, 'Lamb — The Multicultural Meal', was maintained as the cornerstone of lamb advertising in 1996-97. New developments included the

placement of meal pack stickers on supermarket meat packs — a first for lamb campaigns in Australia. The purpose was to tie the lamb products presented to shoppers to the three advertised meals. Consumer awareness of the Multicultural Meal campaign remained high with a strong interest generated in recipes.

Another development at this time was a range of health professional communication programs to reinforce the place of lamb in healthy eating. These comprised ongoing collaborative activities with the National Heart Foundation, and publication of various pamphlets and articles within certain newsletters that were distributed to general practitioners surgeries, cardiac rehabilitation centres, weight loss centres and dieticians. The AMLC website was completed in April 1997. It provided consumers with other promotional information, including recipes, cooking advice, food safety tips and industry issues.

New Trim Lamb

In the nearly five years since the original launch of Trim Lamb much had changed in the industry. Many lamb producers had recognised the imperative of shifting their enterprises to produce larger, leaner lambs and turning them off over longer periods of the year. A significant development within the lamb industry had been the formulation and implementation of the LISP.

In late 1996 'New Trim Lamb' was trialled in Melbourne, initially with 22 innovative butchers and supermarkets. The trial was an integrated lamb marketing program — from farm-gate to plate. Producer Groups identified suitable large lean lambs that were then sold from processors to wholesalers on a ticketed (described) basis. Over the following eight months 156 Victorian stores joined in. A year later, in mid 1998, the number of outlets selling New Trim Lamb in Melbourne alone had increased to 365.

Each participating store stocked 10–12 New Trim Lamb cuts and were supported with a range of print and point of sale materials. Consumer response was found to be 'extremely positive'. Market research showed that New Trim Lamb met the requirements of consumers by giving them food that was healthy, tasted good and was easy to cook.

New Trim Lamb continued to be expanded, in line with increasing supply, and with trade training and through-chain cooperation. The AMLC again worked with the whole lamb supply chain to improve supplies of suitable product, encourage alliances, increase the number of outlets stocking New Trim Lamb and expand the range of cuts sold. There was a gradual switch of New Trim Lamb advertising, from relatively low cost direct mail promotion, to TV and print media.

Support activities for Multicultural Lamb also continued with recipe development, public relations and training materials for TAFE and teaching institutions.

The AMLC also supported supply side elements of the LISP, by funding a Market Development Officer, encouraging centralized cut production and marketing, supporting the lamb component of the Product Innovation Awards and providing funding for the lamb industry convention in August 1997.

MLA maintains momentum of New Trim Lamb campaign

In July 1998 AMLC and the then Meat Research Corporation merged to form MLA. A result for domestic lamb marketing was the launch of the 'Lamb — like you've never tasted before' campaign in October 1998. This campaign comprised an 8-week national television, print and point-of sale promotion. This campaign was a continuation of the New Trim Lamb campaign under a different name — it was run as New Trim Lamb in Victoria.

MLA also joined forces with Woolworths to run a campaign promoting lamb. This campaign included strong point-of-sale material highlighting lamb as a quick meal option. According to retailers this campaign helped drive record sales.

Responding to US lamb import restrictions

In July 1999 the United States moved to restrict imports of lamb from Australia and New Zealand. Restrictions comprised a tariff-rate quota (TRQ) and were largely in response to lobbying by the US domestic sheep meat industry following the rapid growth in lamb imports during the 1990s.

This development, and the adversity it threatened for the Australian lamb industry was used to leverage media and community interest in lamb. Calls to Australian consumers to eat one more lamb meal a week in support of the producers hit by the US action prompted a national response from the Australian community. Sales of lamb soared. Evidence from consumption data at the height of this campaign suggests that average weekly serves of lamb were 33 per cent higher than the previous year.

'We Love our Lamb'

With the US restrictions as a backdrop, MLA leveraged further media interest by launching the 'We Love Our Lamb' campaign in spring 1999. The campaign was then broadened and extended to take advantage of key events on the Australian calendar and to springboard off these with a message promoting lamb. The first major event chosen was Australia Day 2000, and the campaign had an attention grabbing television commercial at its core. Other 'events' in the Australian calendar used to stage promotions included Valentine's Day, Mother's Day and the introduction of the GST. These promotions relied on newspaper advertising and/or butcher posters.

Domestic promotion continued in subsequent years to focus on re-establishing lamb's unique identity and appeal among the older family households (that are predisposed towards lamb) and then gradually broadening this down the family life cycle. This, 'We Love Our Lamb' campaign, continued with a new commercial, 'Veg Goth' aimed at mums with teenage children. Tactical promotional activities continued with the same creative theme and materials for Australia Day. New TV commercials were produced for footy finals time and Mother's Day. Newspaper and butcher's posters were produced for the Sydney Olympic Games, the break up of Tom and Nicole, and 'April Fool's Day'.

Along with consumer campaigns, there were also ongoing efforts working with the retail and foodservice sectors to improve the way lamb is presented and promoted. However, rising retail prices and supply shortages created additional challenges.

A new television commercial was produced for Australia Day 2002, this time changing the words to our national Anthem — 'Lamb's Australia's Fare'. This charged a national debate on whether it's un-Australian to poke fun at our National Anthem but raised the profile of lamb to the Australian public. The Footy Finals and Mother's Day ads were rerun. Other tactical opportunities were taken around the removal of US import restrictions, National BBQ day and April Fools Day.

Point-of-sale promotions continued to play an important role, with a 'Spring Daisy' campaign and an 'Order of Australia' promotion supported by television, press and publicity activities. New themed promotions were also introduced for particular events including Valentine's Day and Chinese New Year, some of which were also supported at the foodservice level. Continuing shortages of supply over this period remained a factor, but evidence suggested that demand remained strong.

New phase to 'We Love Our Lamb'

A new phase of the 'We Love Our Lamb' campaign was launched in 2003. Margaret Fulton lent her support to lamb on radio, promoting the high quality of the product, while comedian Austen Tayshus was employed to make a song for Australia Day about how 'we all love lamb on our barbeques'.

The 'We Love Our Lamb' strategy of MLA continued to be based on five stated principles.

- Lamb needs a distinctive voice — lamb activity must stand out and be noticed. Without the funds to force its way into consumer consciousness with strong media weights the program needs to do it with bold Australian larrikin personality.
- Lamb needs year round activity — it's essential that lamb communications are spread out across the year to maintain its place on the plates of Australian households all year round.

- The volume opportunity is with mainstream Australian families — families offer the potential to increase volume simply by the fact they have more mouths to feed and will buy more serves.
- The volume is with mainstream cuts — despite the growth of the new cuts of lamb, 66 per cent of all lamb purchased is chops and roasts. These mainstream cuts offer the best potential for volume growth.
- Integration of all activity is vital — lamb needs distinctive, eye catching point of sale material in butcher shops and supermarkets to support television messages.

There was a recovery from the severe shortage of lamb throughout 2004; a spring campaign was designed to take advantage of this. The 'We Love our Lamb' campaign featured a new television commercial with 'Stuart', the imaginary friend, designed to give lamb a broader appeal across all families.

This year also saw the first Australia day campaign featuring Sam Kekovich. The focus of this campaign was a light-hearted pitch to consumers to have lamb on the barbeque on Australia day, with the notion that it is 'un-Australian' not to. This approach achieved extensive media coverage and community awareness and assisted in positioning lamb on Australia day as an iconic Australian product. This campaign has been built on in subsequent years. Tactical opportunities were taken around the Election and the Athens Olympics.

The 'Stuart' commercial returned in spring 2005. A new Sam Kekovich Australia Day lamb commercial was produced for 2006. A third Sam Kekovich Australia Day Lamb campaign, this time featuring a 3 minute TV commercial, was run in January 2007. The theme for the Australia day campaign was 'Vote Lamb' for the 'Australia Day Party'.

In May 2006, Mother's Day saw the introduction of a new lamb television commercial, 'Lâmb'. It is a cheeky take on women's fragrance advertising and retailers report it lifted sales significantly on year ago levels. The 'Lâmb' commercial was run again in Spring 2006.

There was no Mothers' day campaign run in 2007 due to supply shortages brought about by the ongoing drought conditions. Instead, point-of-sale material, shopping centre advertisements, press advertising and PR activities continued to promote lamb as 'the perfect gift for Mothers' day'.

US lamb marketing

The United States is currently the largest export destination for Australian lamb. In 2007, it was worth A$335 million fob and accounted for around 40 per cent of Australia's total lamb exports in value terms.

Australia's lamb exports to the United States in 1989 amounted to around 7.5kt shipped weight at a value of A$23 million fob. In 2007, total lamb exports to the United States totalled 45kt at a value of A$335 million. Between 1989 and 2007, export quantities to the United States grew at an average rate of almost 14 per cent annually, while export values grew at an average of 22 per cent over the same period.

This growth was the product of a targeted and coordinated effort to build a substantial export market in the US. AMLC and then MLA were involved in developing, with producers and exporters, the initial strategy and have been involved in providing ongoing funding and on-ground personnel for a range of marketing activities in the US. These activities are discussed further below.

Market pre-conditions and developments influenced the identification of prospects for Australian lamb in the United States and shaped the development of the strategy to achieve strong export growth.

- The domestic lamb industry in the United States was in terminal decline partly because of production constraints but also its failure to meet customer preferences.
- Surging sheep numbers in Australia triggered concerns about market prospects for increased sheepmeat production.
- The New Zealand sheepmeat industry remained largely focused on the EU market, where it enjoyed preferential access; small carcass size and highly seasonal production restricted capacity to supply to US market opportunities.

These factors are discussed in more detail in chapter 4.

The strategy to expand sales of lamb to the United States was developed in the late 1980s and originally took the title of the logo designed for application to all lamb products meeting an agreed set of specifications. This logo was 'Fresh Australian Range Lamb' (FARL).

FARL program — overview and strategy

Market research conducted by AMLC in 1987 made the following conclusions.

- Traders (importers/distributors) did not perceive lamb as a product that was regularly available and of consistent quality. They also perceived that lamb was not a product that retailers were comfortable making serious sales commitments to.
- In general, US consumers were not familiar with how to prepare, cook and serve lamb — 80 per cent of first trial of lamb was at restaurants. In addition to lack of familiarity, lack of availability and high prices at retail limited demand through this channel.
- Sales of lamb could be increased, provided the product was of consistent quality. For retail, the product would have to be fresh chilled, not frozen. Trade and

consumer education and promotion (both media and point-of-sale) would be critical to increasing sales.

- The most significant problem with Australian lamb was inconsistent quality and supply. A strict quality assurance program and commitment from Australian producers and processors to supply more consistently were seen as a critical factor to the future success of a marketing strategy. Development of a trade name/logo was also recommended to support and identify the product.

Following this, AMLC in consultation with the Australian industry initiated the Fresh Australia Range Lamb program. The program sought to establish an optimum selling environment for fresh Australian lamb in North America to take advantage of the potential market opportunities. It was based on providing a premium quality lamb product, chilled and cut and trimmed to, at least, basic specifications and branded with a mark to be applied only by accredited Australian exporters.

Key elements of FARL

There were a number of elements to the FARL marketing activities in the start-up years from 1988-89 to 1991-92. A key element was the accreditation of FARL exporters, importers and retailers (via a contractual arrangement to use the FARL brand). Another important element was the setting of product specifications, which is discussed further below. Other elements of FARL included:

- generic advertising
- co-operative advertising
- merchandising
- point-of-sale promotion
- in-store demonstrations
- trade shows
- public relations
- supply chain coordination.

Generic advertising, comprising radio and TV advertising in test market regions, figured prominently in this period. Broadcast media campaigns informed consumers of the attributes of FARL lamb and identified retailers stocking it. These campaigns ceased after 1991-92 as distribution expanded and the cost of using broadcast media became prohibitive. Advertising shifted to cooperative (cost sharing) arrangements with individual retail chains stocking FARL products, using mainly print media.

Activity to increase favourable editorial coverage of FARL products, especially in consumer magazines and food trade media, was initiated in 1990-91. Merchandising contractors were employed by the FARL program from 1990-91 to work with retailers in improving handling and presentation of FARL product. Expenditure on

point of sale material to draw attention to FARL product and provide recipe advice and nutritional information was also substantial in this period but thereafter was reduced. In-store demonstrations/tastings remained a significant feature of the program.

Participation in trade shows was a feature of the program in the early period following which expenditure shifted to supporting accredited exporters and importers in trade promotions.

Throughout this initial period substantial activity (and expenditure) centred on the development, implementation and coordination of the various elements of the program. This involved AMLC personnel in the United States working with accredited exporters and importers to bring retailers into the program, and in Australia working with exporters to enable them to attain and maintain accreditation as FARL suppliers and consistently deliver increasing quantities of product.

The heavy investment in the program in its first three full years to 1991-92 was reduced by over 50 per cent the following year and maintained around (or below) this lower level for nearly a decade, until 2001/02. This reduction largely reflects the end to broadcast media advertising and initial development and establishment costs, particularly by AMLC personnel.

Changes were made to the program in line with circumstances, successes and failures. Frozen product, fabricated to FARL specification, but with a different brand mark, was included in the program from 1992. The Food Service sector was targeted with marketing activities from 1994-95 requiring the diversion of expenditure away from retail. In 2000 the brand was altered to 'Fresh Australian Prime Lamb' (FAPL). From 2004-05 the FAPL brand element was discontinued altogether although other elements were retained in the continuing lamb marketing program. These, and other evolutions of the program, are described later in the report.

FARL product specifications

The base specifications in the original FARL program were for product sourced from FARL accredited exporters producing fresh/chilled primals and sub-primals from carcasses meeting the following criteria:

- within the weight range 18–26 kilograms
- fat score 2–4
- animals that have been grown primarily on pasture conditions.

There were additional guidelines surrounding cuts, including a set of minimum basic cuts to be supplied under the program. However, there was scope for exporters to prepare and label other cuts under the FARL program providing approval was gained from AUS-MEAT to do so. Although the specifications called for product

from animals grown primarily on pasture, it did not exclude range lambs finished on grain, improved pasture or other supplementary feeding.

In addition to product specification, the FARL program also included a range of guidelines and requirements in other areas, including:

- stock handling
- slaughtering and sanitary dressing
- chilling
- packaging
- labelling
- transportation and distribution
- monitoring QA standards.

FARL implementation timeline

FARL was launched in November 1988 with a test market phase in four US cities: Washington D.C., Baltimore, Boston and Providence. There were some difficulties encountered with the trial phase, including:

- negative (for Australian exporters) currency movements at the time of launch;
- prevailing high saleyard prices for Australian lambs;
- drought in the United States resulting in high turn-off of US lambs and record low prices;
- structured plans by the domestic US industry to counter the FARL program;
- lack of available lambs of suitable fat score on an ongoing basis;
- contracted shipments short delivered and not delivered in some instances;
- low initial participation in the program by processors; and
- sales of non-branded Australian lamb undercutting prices of FARL product.

Participation in the program stagnated and exports failed to increase in line with earlier expectations. Further research was undertaken to identify the key constraints to participation in the FARL program, both for producers and processors.

Participation progressively expanded to include retailers in Northern Virginia, Southern Connecticut and Hawaii, who were persuaded to sign on to the program.

During the trial phase all product was transported from Australia to the United States by air on scheduled passenger flights, with some of it then road freighted from the west coast. Consignments were delivered directly to retailers' warehouses for immediate distribution to stores. No inventories were held by importers so that retail sales were largely supply driven with considerable lags in the supply chain. By the mid 1990's, with improvements in packaging and sea container technology and

increases in sales volumes, exporters switched to sea freight, shipping whole containers. Importers established inventories on the west and east coast to better cater for changes in volume and composition of deliveries to retail customers.

In 1992, frozen product prepared to the FARL specification was included in the program, mainly to facilitate increased usage in food service where 'fine dining' was starting to respond to efforts promoting FARL product. Fresh (chilled) product, essential for retailing, was less critical to acceptance by food service operators. The logistics of transporting relatively small consignments of chilled product along an extended supply chain also remained a challenge for Australian lamb processors.

Program activity directed specifically at food service was tentative until 1994-95 but increased sharply thereafter and by 1996-97 program expenditure was equally divided between retail and food service sectors. This rebalancing reflected the assessed potential for growth of FARL sales in food service. It was also an effort to build demand for cuts which were harder to sell at retail, in order to maximise the value of the whole carcass processed to FARL specifications.

Retail sales of FARL lamb progressively expanded as new retail chains were brought on to the program through collaboration of AMLC on-ground staff with participating importers and exporters. US imports of FARL product surged when a large national chain, itself expanding rapidly across the US, began stocking the product on a continuing basis from the mid 1990s.

The FARL theme was maintained until 2000 when it was changed to the Fresh Australian Premium Lamb (FAPL) theme, which is discussed further below.

Fresh Australian Premium Lamb (FAPL)

After 1994-95 lamb exports to the United States increased rapidly. US lamb producers resented the growth in imports and pressed for protection, as they had done largely unsuccessfully for decades. In July 1999, the US government, using Section 201 of the US Trade Act imposed tariff-rate quotas (TRQs) on lamb imports from Australia and New Zealand. Over-quota imports were compelled to pay, in 1999, a tariff of 40 per cent, dropping to 32 per cent in 2000. Australia (with New Zealand) filed a complaint to the WTO and proceedings continued until the United States agreed to end its TRQ 'safeguard' on 15 November 2001.

Incidental to these proceedings, FARL exporters and their customers became sensitive to the US Department of Agriculture (USDA) authority for food labelling, especially 'truthfulness in labelling'. The program received advice that the description 'range' could be taken to imply that lambs in Australia were raised only on pasture. While grain finishing was not yet common, the Australian industry agreed that not all lambs for the US market were raised entirely on pasture. To avoid the risk of any USDA intervention and possible need for validation and certification, the decision was taken to change the wording on the brand mark from 'Fresh

Australian Range Lamb' to 'Fresh Australian Premium Lamb'. Apart from this change the mark remained the same.

In 2002 drought in Australia caused annual shipments to the United States to fall 7.5 per cent, interrupting the strong growth achieved every year since the mid 1990s. In 2003 the US industry launched a US$1 million promotion program in support of domestic lamb. In response to these developments, and consumer research undertaken in 2001, the Australian lamb program for 2003-04 was reinvigorated with new consumer print advertising in popular food and lifestyle magazines and point of sale materials. Increased emphasis was on promoting the ease and simplicity of preparing Australian lamb; efforts to expand usage in food service were increased. The budget was boosted 30 per cent to $3.7 million with provision for comprehensive market research to be undertaken both of consumers and food service.

Move from generic branding (FARL and FAPL) to private labels

By 2003, stakeholders in the program were questioning the contribution of the FAPL brand mark. One view was that the mark and description (especially the word 'premium') was positioning the product in the mind of customers as 'elite', demanding of special attention, only for special occasions and expensive.

The earlier TRQ, and the method of allocating quotas amongst exporters with a performance history in the trade, had contributed to the emergence of a mature structure for the supply chain. Processors in Australia, most with a decade or more of experience in marketing lamb to the US, had become aligned with one or other of the three importers who now managed most of the distribution to aligned retailers and food service. Product specification was becoming increasingly customised to the requirements of different market segments.

Application of the FAPL mark was becoming sporadic with exporters, importers and retailers shifting to greater emphasis on private labels. Some major retailers (particularly the largest stockist, by far, of Australian lamb) were not applying the mark at all, using only private corporate or importer labels. In any case, auditing of compliance with accreditation rules was an impractical task, given the volume of product now being shipped and its diverse distribution. Unsurprisingly, consumer recognition of the mark was now poor.

An original purpose of the mark, that of providing assurance as to 'quality' attributes, was being overtaken by the use of superior specifications/standards by the leading exporters for private brands. These exporters had been successfully growing their businesses (and reputations) for more than a decade and a national generic quality mark was increasingly seen as redundant, especially for the purposes of the major retailers and food service distributors sourcing most of Australian lamb imports. In 2004 stakeholders in the lamb marketing program committed to a basic review of the FAPL trade mark logo.

By 2005-06 the FAPL logo had been dropped from the mix of elements comprising the North American Lamb Marketing Program. In its place is a new 'Australian Lamb' logo that is applied to all promotional material produced by MLA, including consumer advertising, point of sale materials, nutritional information, product guides, recipe books, e-newsletters, foodservice advertising and the program web site. Retailers and food service operators are also encouraged to use the logo, although there is no obligation. In comparison with the FARL/FAPL logo, the 'Australian Lamb' logo serves more as a country-of-origin mark and to connect MLA promotional activities (that feature the logo) to the product at point of purchase.

Recent developments

The 2003 and 2004 market research led to some other modifications to the program. Program changes included a new advertising agency and marketing theme directed at consumers, and renewed efforts to develop distribution channels used by food service outlets to encourage trialling and use of Australian lamb. Upgrades of the program web site to improve linkages between retail and foodservice were also undertaken. This site is increasingly relied upon to provide information on nutritional content, recipes, retail outlets, food safety and other information.

The new 'Australian Lamb' logo with its tag, 'Fresh, Easy and Delicious', endeavours to position Australian lamb as an everyday meal option. The decision was taken, from 2004-05, to reduce print advertising by around 50 per cent from previous years because of the US industry's advertising campaign that was serving to lift the demand for lamb as a total category. This expenditure has since recovered, especially when expressed in terms of depreciating US dollar.

A feature of the program from 2004-05 has been the increased emphasis on cooperative funding of marketing activities. (Collaboratively funded promotions with the Australian exporter, US importer and AMLC each contributing 1/3 of the costs had been established in earlier years but were not central to the marketing program.) Costs are shared 50:50 by MLA with exporters and importers. So-called Importer/Exporter Collaborative Agreements (ICA) are now the dominant single element in the program accounting for 46 per cent of program expenditure in 2006-07. These agreements are designed to encourage exporters and their importers to work with collaborating US retailers in promoting, through targeted advertising, consumer awareness of their brands of Australian lamb. Generic consumer and food service trade print advertising, and product public relations make up most of the rest of the program.

The balance between the ICA and generic components of the program is a strategic one. Generally speaking the generic program is focused on recruiting new lamb consumers. It is about raising awareness through advertising, e-newsletters, search engine optimization and the website (to position lamb as an easy, any day option). In this endeavour the time required to deliver an outcome is lengthy compared to the

ICA program. Consumer research has revealed that consumers trying lamb for the first time are more likely to consume lamb in the foodservice channel. Further, because lamb is often the most expensive main meal on the menu, the foodservice campaign is focused on encouraging lower priced lamb items on the menu. The most recent campaign 'Hot Trends, Cool Chefs' aims to increase the presence of Australian lamb on appetizer, bar food and lunch menus — riding the trend of 'small plates'. These smaller portions are lower priced than a main meal and present a lower risk for a first-time lamb consumer. Hot Trends, Cool Chefs' also promotes the use of a wider range of cuts.

In contrast the ICA program is focused on growing sales through established channels. The benefit from this program is more immediate with promotions and in-store demonstrations driving sales. It promotes loyal supply chains and builds strong brands. While demonstrations also assist in raising awareness of Australian lamb, the major outcome of these activities is to encourage consumers that already like lamb to purchase greater quantities.

ICA participants are encouraged to use the Australian lamb logo as a co-brand (much like 'Intel inside'). The intent is to enable consumers who are exposed to an awareness raising activity to be able to recognize a brand at point of purchase. Hence the linking of the generic, food service and ICA components of the program.

3 *Evaluation approach*

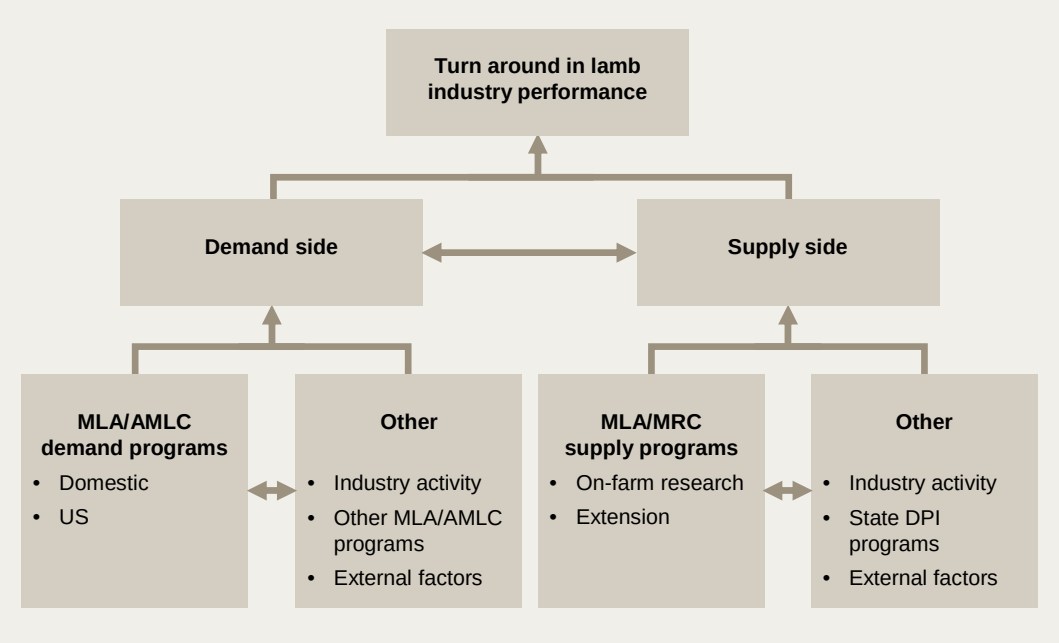
A recent evaluation of an MLA marketing program illustrated the difficulty in evaluating marketing programs using a 'bottoms-up' approach, where outcomes and impacts are directly linked to individual program activities. The problem with evaluating marketing programs in this way is that there are many factors contributing to changes in consumer demand. It is extremely difficult to separate these drivers (of which marketing is one) and quantify the impact of each. However, there is an additional complication to the lamb marketing evaluation: the outcomes observed in the lamb industry over the past 17 years are the product of a range of integrated factors encompassing both demand and supply side outcomes. As a result, the approach adopted in this evaluation is a so-called 'tops-down' approach. Rather than building up from program outputs, to outcomes and impacts as in the 'bottoms-up' approach, the tops-down approach works backwards from impacts and outcomes at the aggregate level.

As the tops-down approach defines aggregate impacts and outcomes, in order to estimate the impact resulting from MLA/AMLC programs, an exercise in attribution is then required. At a broad level, this involves determining the proportion of the benefits of a particular outcome or impact that is attributable to MLA/AMLC. Given that MLA generally works, in partnership, with a range of stakeholders on any given program, attribution is an important consideration. Where possible, attribution is generally determined on a share of cost basis. This can be difficult where the contribution of other stakeholders is not easy to value — attribution can also be determined through a consultation process.

There is an additional dimension to this evaluation due to the close integration between the demand and supply side activities. The fundamental issue is that the transformation of the lamb industry since 1990 was been the result of a shift in on-farm production away from light lambs and into large, lean lambs. This transformation was precipitated somewhat by external factors, such as the decline in the wool industry, but it was also driven by demand side developments. The identification of changing consumer demand trends towards leaner lamb was a significant driver of the shifts in the farm sector. The bottom line is that neither the demand or supply side developments on their own would have achieved the outcomes that have occurred. Promotion of lean lamb clearly would not have had any impact without the supply side changes that lead to a transformation in the product. But similarly, transformation of the supply side would not have made a significant impact without developments on the demand side. Therefore, the tops-

down 'aggregate' impacts will include the impact of both demand and supply side outcomes. Given that directly determining the attribution across the supply and demand side factors is very difficult were there are a number of inter-related factors at play, we need to make some assumptions to split the impacts. Chart 3.1 gives a broad illustration of the approach.

3.1 Evaluation approach



Source: TheCIE.

The approach taken in this evaluation is to establish a common baseline, or counterfactual, for the key outcomes across the lamb industry. The counterfactual is also known as the 'without' scenario. In a normal bottoms-up evaluation, this is simply what would have happened in the absence of a project/program. Inthis case, the counterfactual is a scenario of outcomes for the Australian lamb industry, where the 'without' scenario we are talking is not merely the absence of an MLA program. In this case, we are interested in what the lamb industry would have looked like without the integrated demand and supply outcomes that effectively transformed the industry.

While this report focuses on the demand side outcomes, it includes a discussion of supply side developments and their role in the industry transformation that occurred. The ultimate goal is to apportion the overall impacts between demand and supply side outcomes. This will be informed by a discussion around the key drivers of the changes observed since 1990, but will involve some assumptions and judgements.

The final step is to take the proportion of total benefits attributed to demand side outcomes and to agree on an appropriate basis for attributing these outcomes to AMLC/MLA activities against other related activities such as other programs and associated industry efforts that have contributed to the outcomes. In some cases, the impact of these factors has already been evaluated (sheepmeat eating quality for example) and in other cases, consultations with appropriate stakeholders will be required to agree on the appropriate attribution.

4 Establishing a baseline

Chapter 2 highlighted the relatively poor performance of the lamb industry during the 1980s (chart 2.1). It is clear that during the 1990s and 2000s, this performance improved markedly. In fact, the lamb industry is one of the real success stories in Australian agriculture over this period. A key task for this evaluation is to establish a baseline, or counterfactual, for the lamb industry performance. The aim is to determine what the value of the turnaround has been (relative to the baseline) and how much of that value can be attributed to MLA/AMLC marketing programs.

Overall industry performance

There are a number of ways that industry performance can be measured. A common measure is the farm gate value of the industry. This measure is also commonly referred to as the gross value of production (GVP) of the industry. It has the advantage of being relatively easy to measure, and a good representation of what is happening to farm profitability. One of the disadvantages is that it has a limited scope to capture increased value adding in the supply chain. Another measure is to look at industry value in total — this typically involves retail demand and exports. An analysis undertaken in 1996 examined progress towards the $2 billion benchmark outlined in the LISP (Lange 1996). It attempted to value the following segments to estimate the total value of the lamb industry:

- retail market
- food service
- export markets (including offal)
- live lamb exports
- lamb skins.

This analysis put the total value of the lamb industry in 1995 at around $1.5 billion. However, there are issues with attempting to replicate this analysis over time — mainly relating to data availability and consistency. To the extent that it could provide a snapshot of industry value, the Lange analysis could be replicated. But it would not assist a great deal in establishing a baseline, which is the main task. Clearly, industry value has increased significantly since the original analysis was done. A rough calculation of domestic sales (domestic disappearance multiplied by an indicative retail price) yields a value of around $2.9 billion in 2007. In addition to this, lamb exports (not including offal) in 2007 were valued at over $800 million.

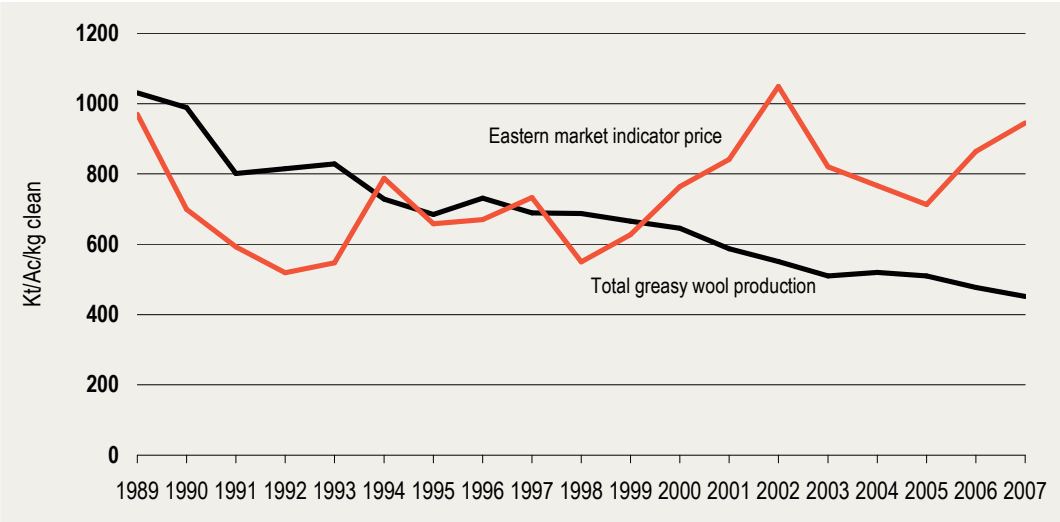
The approach taken in this chapter is to analyse overall industry performance around a few key parameters, namely:

- total lamb slaughter
- average carcass weight
- total lamb production
- farm prices received.

A detailed analysis of the performance in the US export market will also be presented. Using scenarios around these key parameters, a hypothetical baseline will be presented. As noted earlier, this will represent a picture of what the lamb industry might have looked like in the absence of the integrated demand and supply outcomes that drove the transformation in the industry.

One of the key developments that shaped the industry was the rapid increase in wool prices in the late 1980s and subsequent dramatic decrease in the early 1990s. Chart 4.1 shows historical wool prices and production in Australia.

4.1 **Wool production and prices**

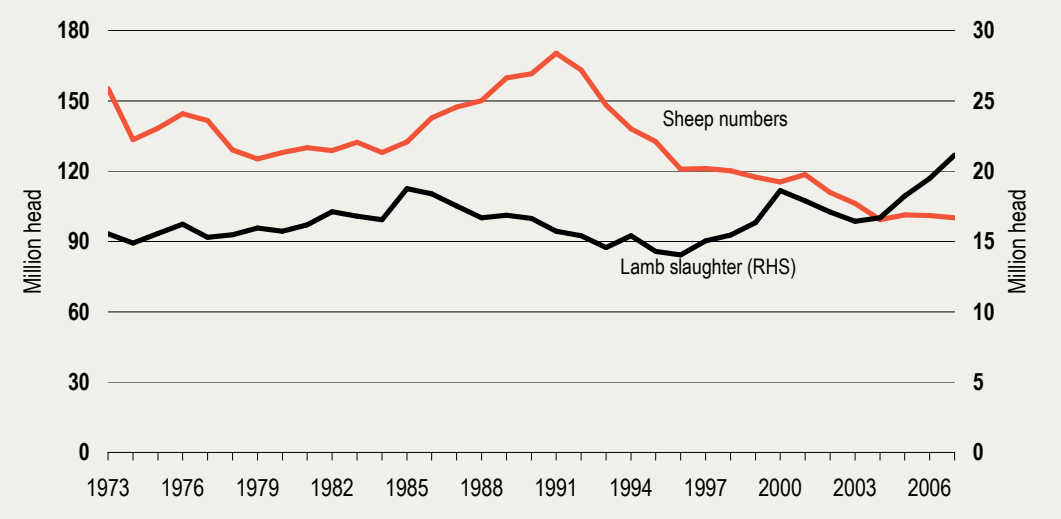


Data source: ABARE.

The wool price more than doubled between 1981 and 1987. This drove a substantial increase in wool production (over 60 per cent between 1982 and 1989). The subsequent decline of the wool industry has been dramatic and sustained. Since it peaked in 1989, Australian wool production has declined at an average rate of 4 per cent per year.

There are clearly linkages between the wool industry and the lamb industry. Chart 4.2 shows historical sheep numbers and lamb slaughter in Australia.

4.2 Australian lamb slaughter and sheep numbers

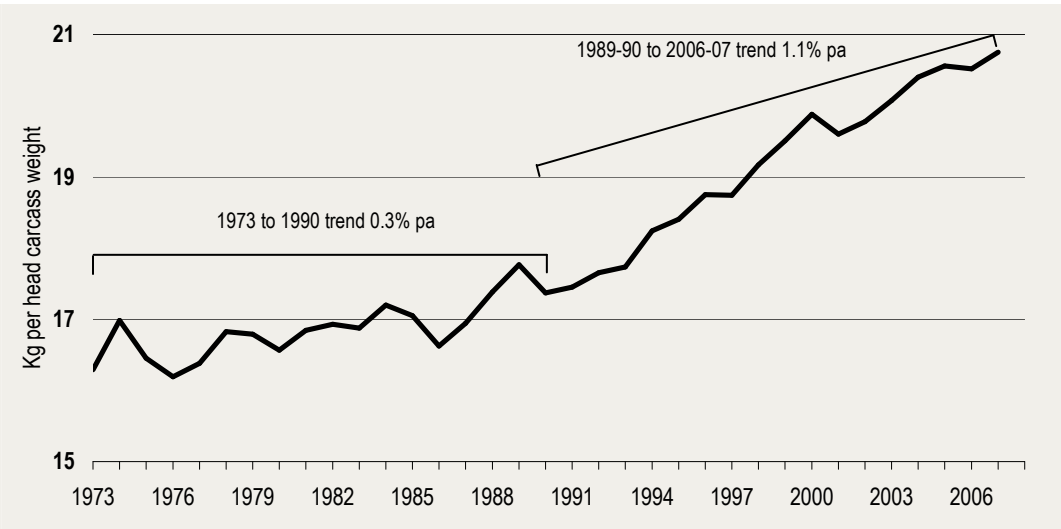


Data source: ABS, GMI database.

As the chart shows, there was a significant build up of the sheep flock during the 1980s. This was largely in response to increasing wool prices, and coincided with a relatively sharp fall in lamb slaughter. Sheep numbers reached a peak of over 170 million in 1990. This was an increase of over 30 per cent on 1980 levels. Lamb slaughter continued to decline until the mid-1990s; however it has increased significantly since then at a rate of almost 3 per cent per year.

Chart 4.3 shows average carcass weights between 1973 and 2007.

4.3 Australian lamb carcass weights



Data source: ABS, GMI database.

As the chart shows, growth in average carcass weights across Australia has accelerated significantly since 1990. The underlying historical trend prior to 1990 was

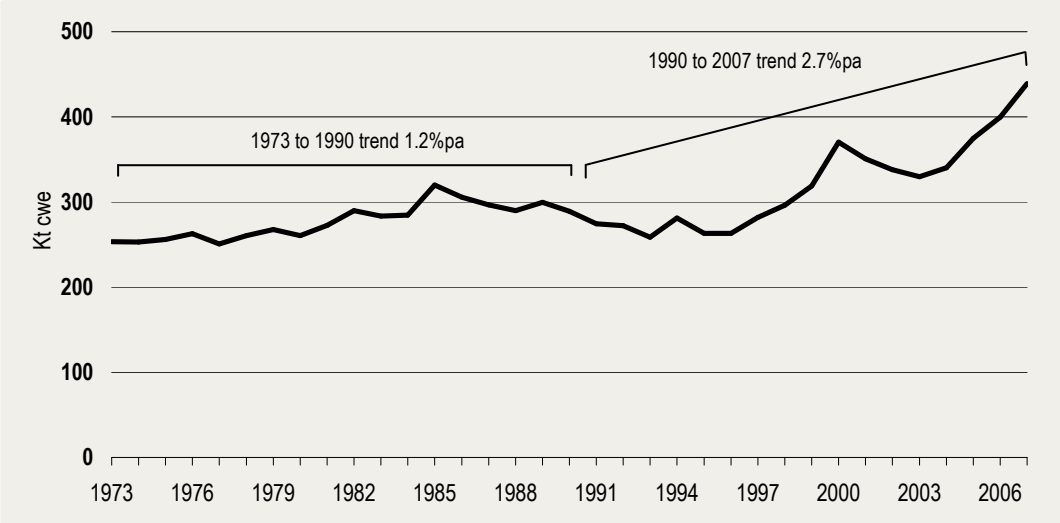
around 0.3 per cent per year, while since 1990 average growth of 1.1 per cent has been achieved. There are a number of drivers of this growth, namely:

- demand from the United States market for larger carcasses (through FARL, FAPL etc.);
- on-farm research, development and extension programs; and
- investment in and restructure of the processing sector, including a move towards dedicated lamb processing plants.

It is also likely that there has been a shift towards larger carcasses on the domestic market, but the main shift has clearly been towards *leaner* lambs not necessarily larger lambs. Supermarket and butcher trade is still focused on lighter lambs — particularly trade lambs in the 18-22kg weight range.

Chart 4.4 shows lamb production between 1973 and 2007.

4.4 **Australian lamb production**



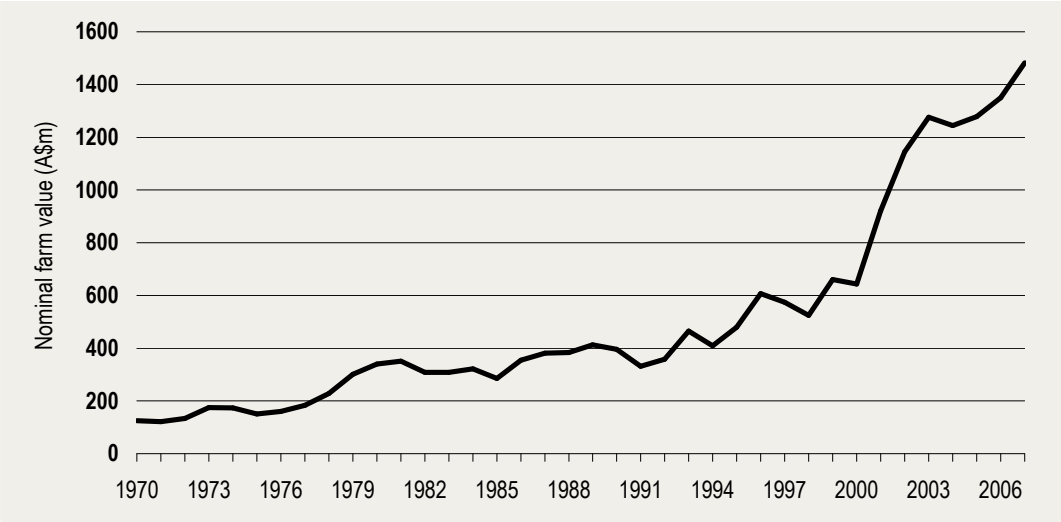
Data source: ABS, GMI database.

The combination of relatively steady lamb slaughter (increasing over the past 10-years) and increasing slaughter weights has led to strong lamb production growth since 1990. During the 1970s and 1980s, lamb production grew by just over 1 per cent annually. Between 1990 and 2007, the growth in lamb production increased to 2.7 per cent. This growth has been particularly marked since 1996, coinciding with strong growth in both lamb slaughter and average carcass weights.

The other aspect of the lamb industry performance is how industry value has increased. Chart 4.5 shows nominal farm value for lamb since 1970, while chart 4.6 shows real farm value over this period in 2007 dollars. A few points stand out:

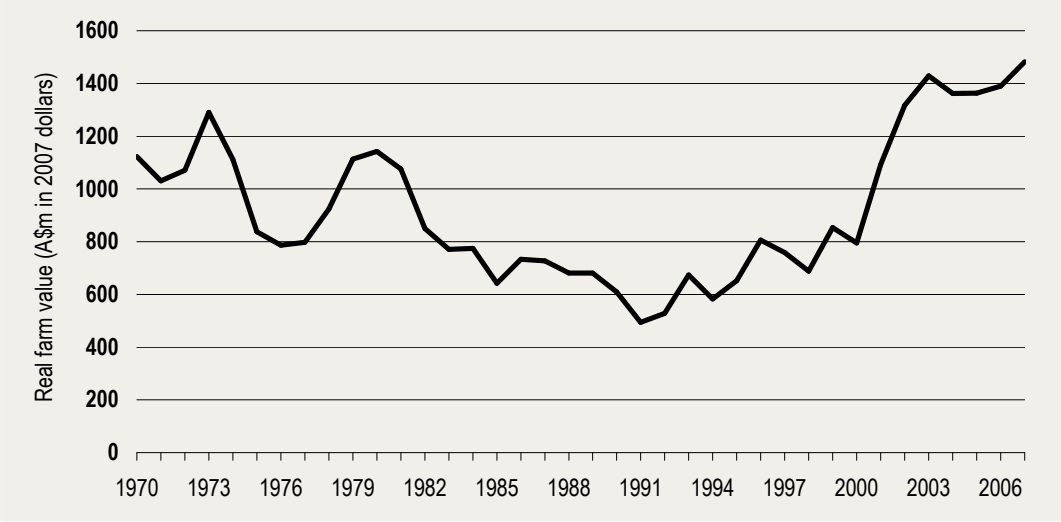
- Between 1970 and 2007, the nominal farm value of the Australian lamb industry has increased from around $125 million to almost $1.5 billion.

4.5 **Nominal farmgate value of lamb production**



Data source: GMI database, CIE calculations.

4.6 **Real farmgate value of lamb production**

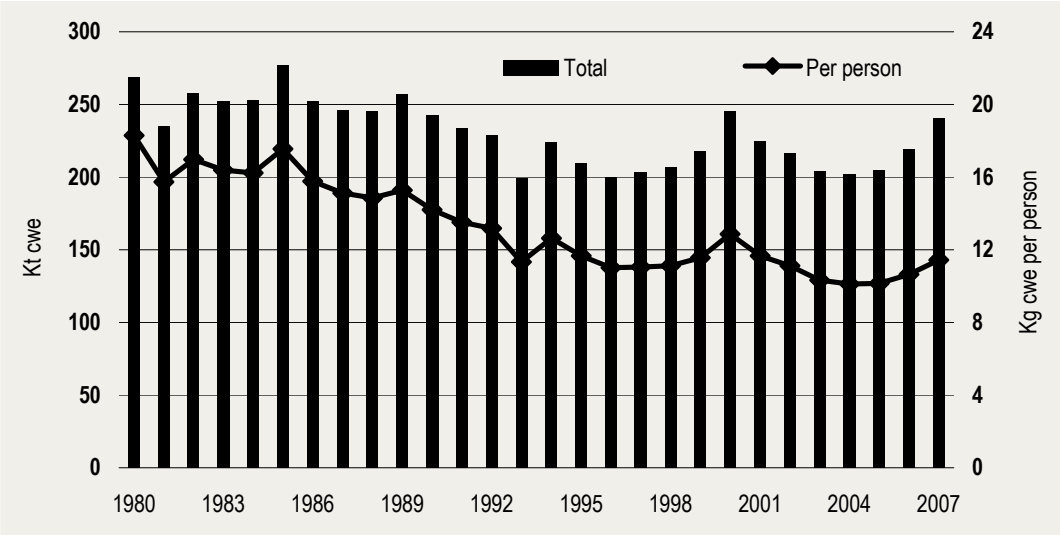


Data source: GMI database, CIE calculations.

- Between 1970 and 1990, nominal farm value increased at a relatively slow rate (around 6.5 per cent annually). Since 1990, this rate has accelerated rapidly to around 10 per cent per year.
- The real farmgate value of the lamb industry experienced a significant decline during the 1980s (over 5 per cent per year — chart 4.6).
- The recovery in real value since the early 1990s as been significant: between 1990 and 2007, the real farm value of the lamb industry increased at an average rate of around 7 per cent.

Chart 4.7 shows historical domestic consumption of lamb (measured as domestic disappearance. The key points include the following.

4.7 **Consumption of lamb in Australia**



Data source: GMI database.

- Overall, total consumption of lamb in Australia has been in a slight long term decline of around 0.8 per cent per year.
- In per person terms, this decline has averaged around 2 per cent per year since 1980. This decline has slowed marginally, averaging around 1.4 per cent since 1990 compared with 1.8 per cent between 1980 and 1990.

US export performance

Australian lamb exports to the United States have increased in carcass weight terms from around 6kt in 1990 to around 57kt in 2007 — an increase of 14 per cent per year on average. Over this time, the value of lamb exports to the United States has increased from around A$18 million to US$335 million, or an average of 22 per cent per year.

The United States is now the single largest export destination for Australian lamb, accounting for around 30 per cent of total exports compared with 15 per cent in 1990. Between 1990 and 2007, Australia's share of total US lamb imports grew from 53 per cent to over 72 per cent.

There has been a significant compositional shift in Australian lamb exports to the United States between 1990 and 2007:

- In 1990, chilled exports accounted for around 44 per cent of total exports to the US. In 2007, this figure was over 70 per cent.
- There has also been a move to boneless product — the share of boneless lamb has increased from 11 per cent in 1990 to 26 per cent in 2007.
- Consequently, average prices received have increased markedly.
  - From A$3.10 per kg in 1990 to $7.43 in 2007 in nominal terms.

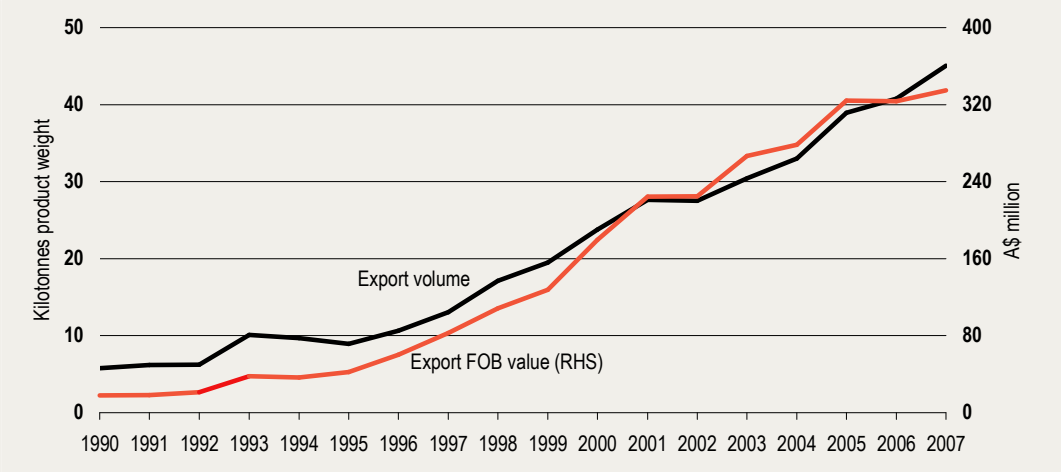
- Almost 7 per cent per year on average.
- Prices in recent times have been tempered by the appreciating Australian dollar.

A key driver for increased prices in the United States has been the shift to chilled product, along with a shift from a largely carcass based trade to one based around cuts:

- On average, prices for fresh are almost 80 per cent higher than for frozen.
- Given the increase in share of chilled product, this has driven an increase in average prices between 1990 and 2007.

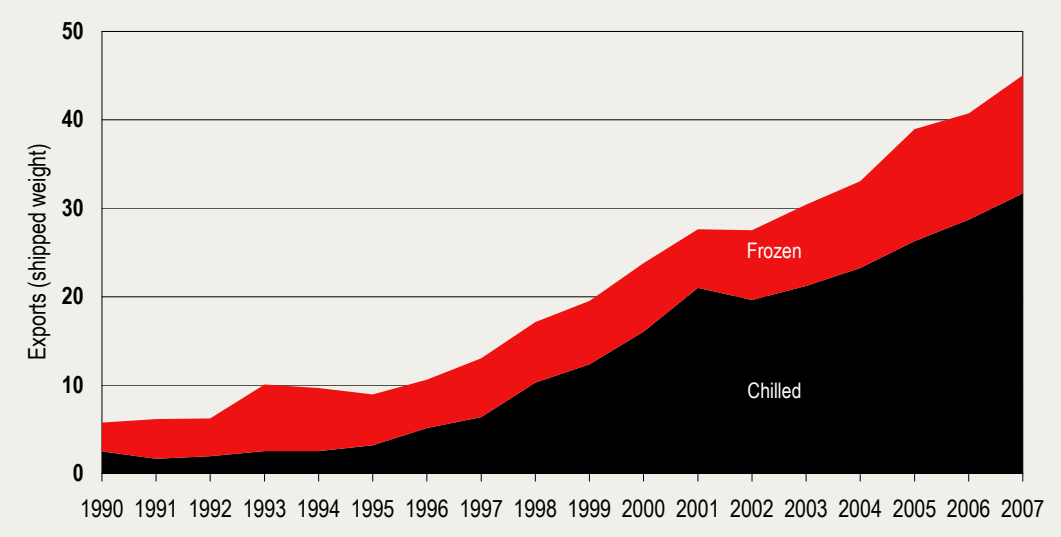
Charts 4.8 to 4.10 illustrate Australia's lamb export performance to the United States between 1990 and 2007.

4.8 Australian lamb exports to the United States



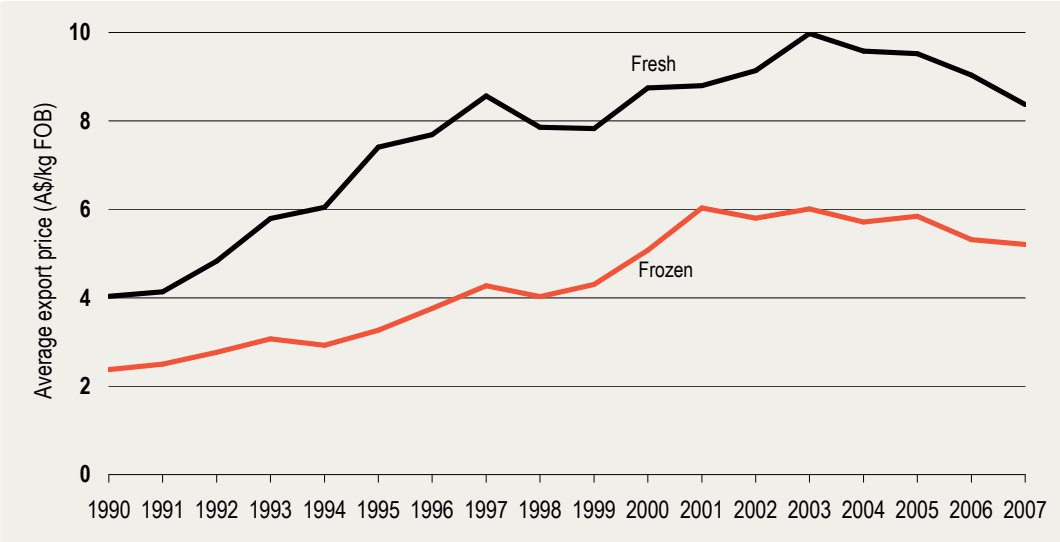
Data source: USDA.

4.9 Chilled lamb export share has increased significantly



Data source: USDA.

4.10 **Price premium for fresh Australian lamb in the United States**



Data source: USDA.

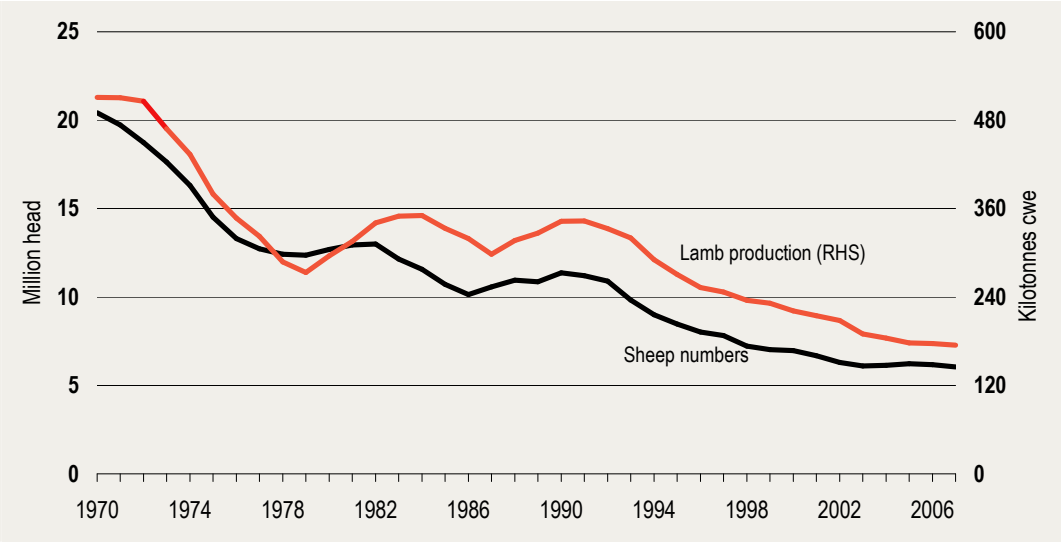
Decline in US lamb industry

One of the key external factors that have shaped Australia's export opportunities into the United States is the continuing long-term decline in their domestic sheepmeat industry. In particular:

- Sheep numbers declined from over 20 million in 1970 to just over 6 million in 2007.
- Over the same period, lamb production has declined from over 500kt to 175kt (chart 4.11).
- Rapid declines in both sheep numbers and lamb production occurred during the 1970s and again in the 1990s, while the rate of decline was slower in the 1980s and since 2000.
- Over the entire period, sheep numbers have declined at an average rate of 3 per cent per year, while lamb production has declined at an average rate of around 2.4 per cent per year.

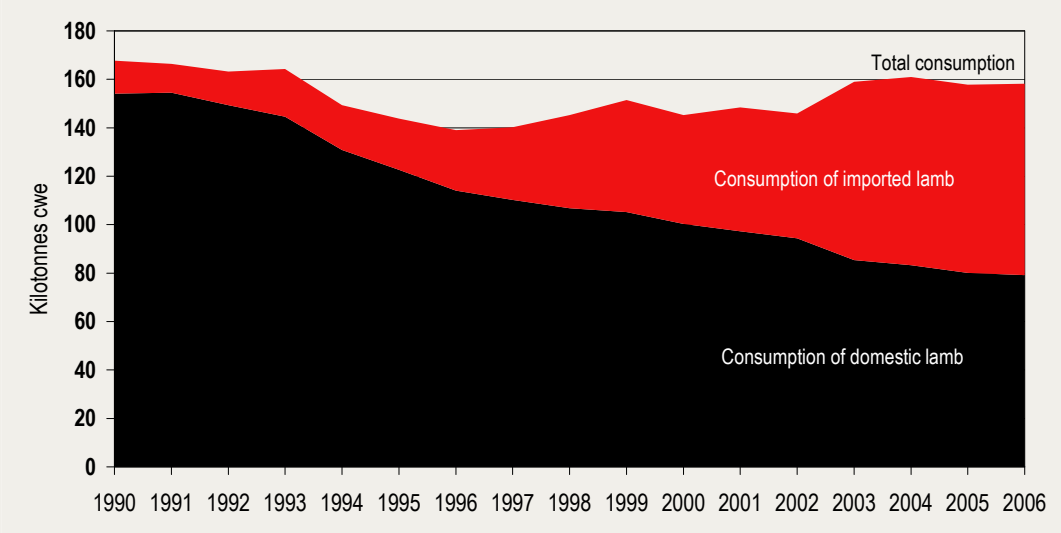
The ongoing decline in US lamb production has clearly provided the opportunity for much of the increased imports (chart 4.12). However, it should be noted that the consumers eating Australian and New Zealand lamb wouldn't necessarily be the same ones that stopped eating US lamb. That is, Australian lamb may have be purchased by 'new' US consumers.

4.11 **Long-term decline in US sheep industry**



Data source: GMI database.

4.12 **Imports replacing domestic product in the United States**



Data source: GMI database.

However, given the long term decline in per person lamb consumption observed in the US, it is likely that the decline in US lamb production has contributed significantly to the increased trade opportunities.

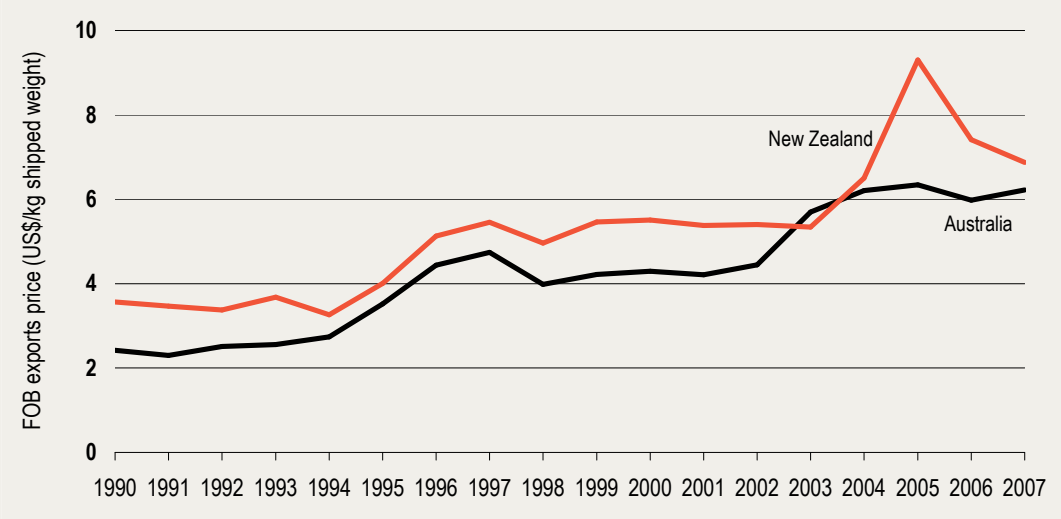
- Between 1990 and 2007, the trend in total apparent domestic consumption has been flat or slightly negative in total.
- The decline in the domestic component offset by a roughly commensurate increase in imports.
  - Per person (apparent) consumption over this period has declined from 0.7 kg per person to 0.5 kg. This level remains low in comparison to those observed in the European Union, Australia and New Zealand.

Comparison with New Zealand

One idea for looking at the baseline in the US market is to look to how New Zealand has performed. There are a number of key points that emerge:

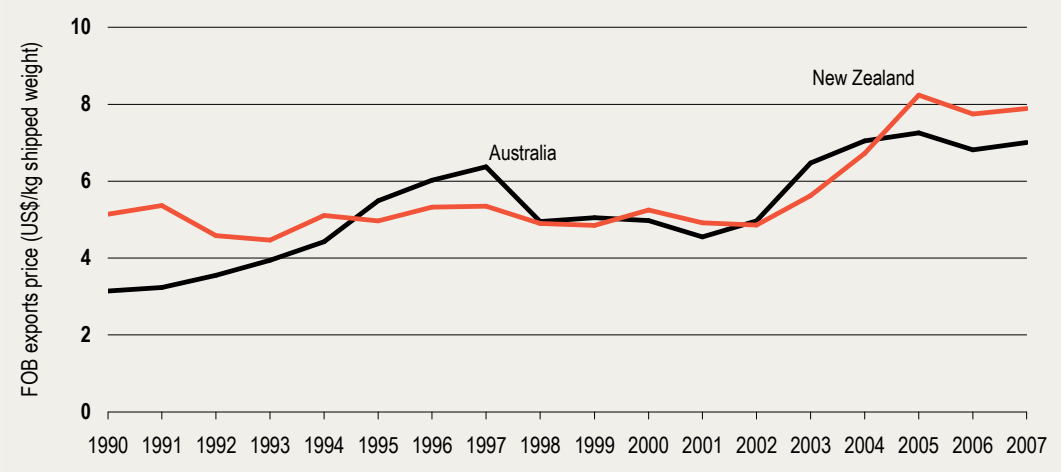
- New Zealand lamb exports to the United States have increased from 6kt in 1990 to 22kt in 1997 (carcass weight). This represents average annual growth of around 6 per cent per year.
- Over this period, the value of New Zealand lamb exports has increased from US$17 million to US$130 million — an increase of around 16 per cent per year on average.
- So in percentage terms, both the volume and value of New Zealand exports have grown at a slower rate than Australia.
- In compositional terms, the changes in New Zealand lamb exports to the United States have not been as significant as for Australia:
  - The share of boneless product has increased marginally from 14 per cent in 1990 to 19 per cent in 2007.
  - There has been an increase in the proportion of fresh lamb exports, from 17 per cent in 1990 to 33 per cent in 2007.
  - Overall, New Zealand exports to the United States remains dominated by bone-in frozen product. It accounted for around 60 per cent of total shipments in 2007, and this share has remained relatively steady since 1990.
- Comparing average prices for Australian and New Zealand prices, an interesting picture emerges (see charts 4.13 to 4.15):
  - Average export prices for New Zealand are higher on average than for Australia.
  - Average prices have grown more strongly on average for Australia, but not by a significant amount (6.4 per cent for Australia versus 5.2 per cent for New Zealand).
  - Prices for fresh product from New Zealand have grown less than for frozen.
  - On average, New Zealand export prices were 25 per cent higher than Australia's between 1990 and 2007. For fresh product the average was 10 per cent, whilst for frozen it was 73 per cent.
  - The premium for fresh exports over frozen is much more significant for Australia than New Zealand — 77 per cent against 15 per cent on average in US$ terms. In fact, the average frozen price for New Zealand is greater than the fresh price in some years.

4.13 **Average lamb export prices for Australia and New Zealand**



Data source: USDA.

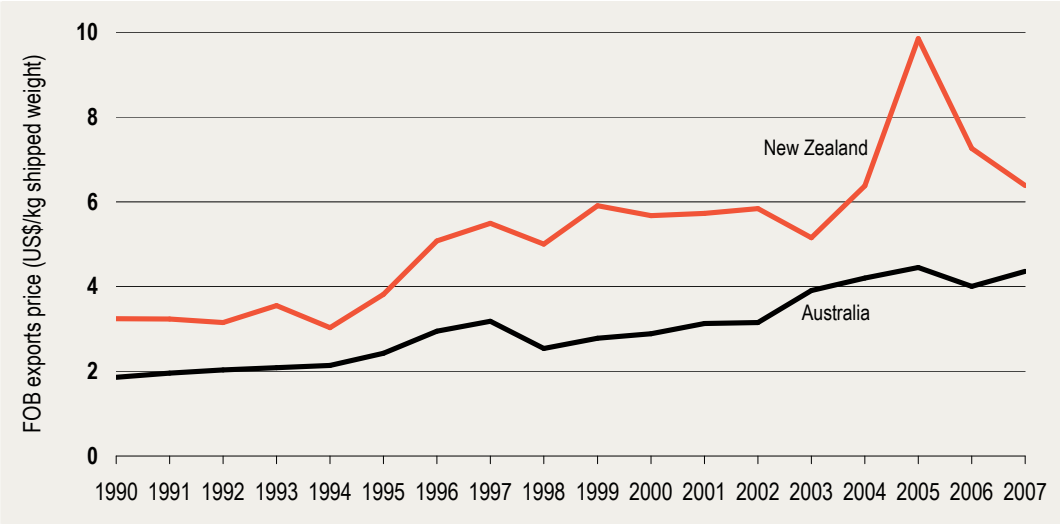
4.14 **Average price of fresh lamb exports**



Data source: USDA.

- These differences raise questions about the type of product New Zealand is sending to New Zealand and the channels through which they are selling them relative to Australia.
- The most likely scenario is that New Zealand exports are more focused on frozen exports through food service, whilst Australian exports are more focused on the retail channel.
- New Zealand exports also tend to be higher value cuts such as racks that aren't exported to the European Union, which is largely a market for legs and shoulders from New Zealand. Given this, it is not surprising that New Zealand product is exported at a high average price.

4.15 **Average price of frozen lamb exports**



Data source: USDA.

The baseline

The previous section outlined the overall performance of the Australian lamb industry over a lengthy period of time. This assists in setting the scene for establishing a baseline, or baseline, for the industry over the period covered by this evaluation (1990-2007). At the top level, we need to establish a baseline for the overall industry performance between 1990 and 2007. As noted earlier, this is to establish the dimensions of the overall outcome or 'impact' of the turnaround and transformation the industry has achieved over the past 17 years. At the next level, we also need to establish a baseline for the US market over the same period. The baseline serves two primary functions: firstly it provides information and input for the GMI/IF model and secondly it provides a basis for consultation with key stakeholders around the plausibility of the assumptions.

Industry baseline

The previous chapter outlined the key drivers of the performance of the Australian lamb industry between 1990 and 2007. The most straightforward way to construct a hypothetical baseline is to assume historic trends (pre-1990) were to continue. This approach has been used in previous analysis (MLA 2004). There is also the scope to use alternative assumptions where a case can be made.

Here, we look to the key drivers of the improved performance of the lamb industry and some reasonable scenarios around these to construct a baseline. These result in increases of:

- carcass weights
- lamb slaughter

- lamb prices.

The combination of these factors has driven the real growth in industry value highlighted in charts 4.5 and 4.6. To establish a baseline scenario, we need to construct assumptions around the growth path for each of the drivers. Table 4.16 shows a summary of the historical trends.

4.16 **Average trend growth rates for key lamb industry drivers** per cent per year

	Slaughter	*Carcass weight*	*Production*	*Nominal farm price*	*Nominal farm value*	*Real farm value*
1980-1990	0.50	0.35	0.96	1.40	2.38	-5.14
1990-2007[a]	1.53	1.12	2.66	6.88	9.72	7.00

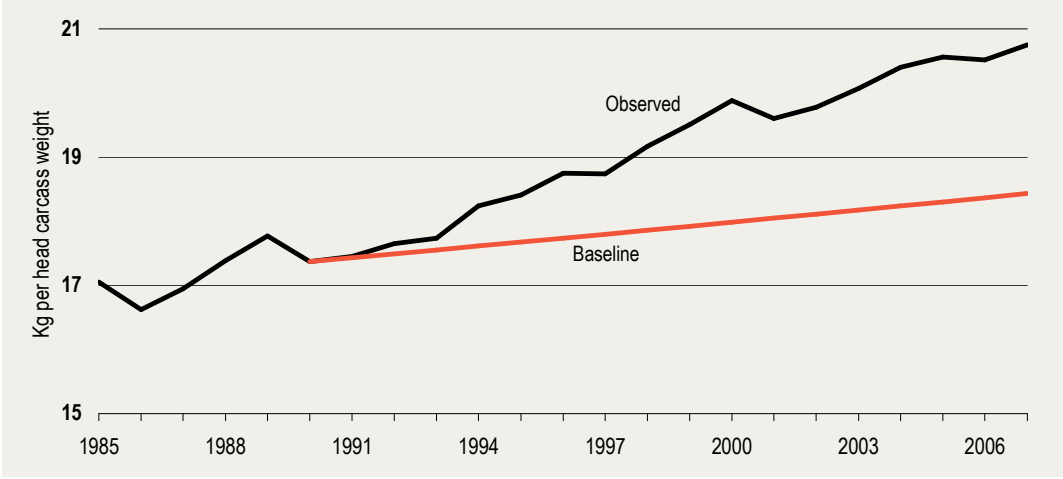
[a] Actual.

Source: GMI database, CIE calculations.

Carcass weight

Change in carcass weights is a convenient proxy for a range of complex and inter-related developments on the supply-side. Chart 4.3 illustrated lamb carcass weights over time. There is a strong argument that developments that occurred after 1990, particularly the demand from the United States for larger cuts and carcass weights drove much of the observed increase in average carcass weights. A reasonable baseline assumption would appear to be that the underlying pre-1990 growth rate in carcasses would have continued (0.35 per cent). Chart 4.17 shows the baseline scenario for carcass weights compared with the actual scenario.

4.17 **Baseline scenario for carcass weights**



Data source: GMI database, ABS, CIE calculations.

External factors, particularly drought, clearly have an impact on carcass weights. Availability of supplementary feed and quality of pasture fall during a drought and producers are more likely to turnoff lambs at a lower weight.

In chart 4.17, we haven't adjusted the trend for drought or any other external factors — such as the run of good seasons in the late 1980's but simply extended out a flat genetic rate during the 1980s. That is, we use a constant trend to construct the baseline scenario. It is possible to do otherwise, however it would not make a substantial difference to the overall results.

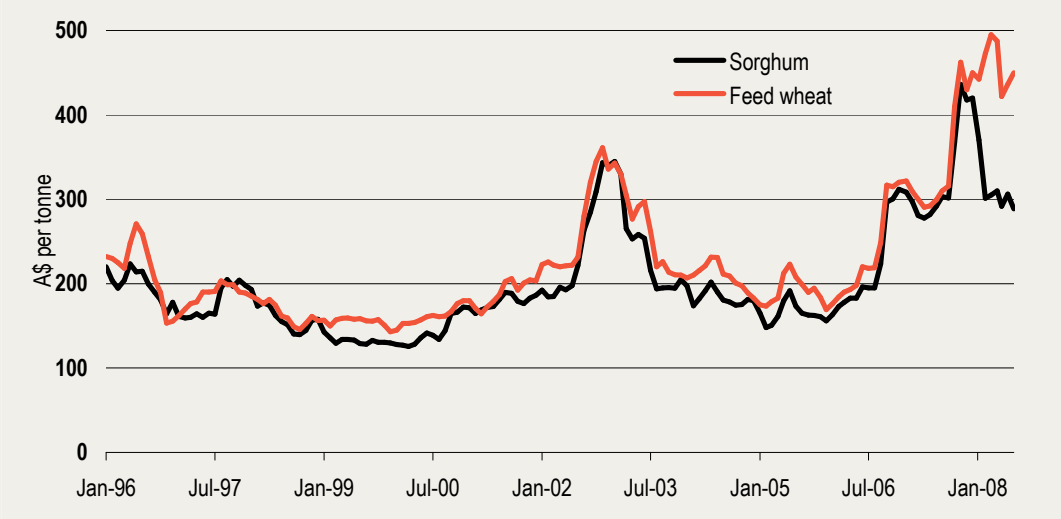
Lamb slaughter

Growth in lamb slaughter has increased since 1990. Chart 4.2 illustrated lamb slaughter over time. There was a long period of decline in lamb slaughter, from the mid-1980s to the mid-1990s. This was closely linked to the spike in wool prices and build up in sheep flock that happened in the late 1980s. The decline in the sheep flock in early 1990s was significant. It is difficult to say what a reasonable baseline assumption is for lamb slaughter, particularly during the period where developments in the wool industry were playing such a large role.

It is likely that in the event that lamb continued to be largely a by-product of the wool industry and the absence of a dedicated prime lamb industry, lamb slaughter would have been lower than what was observed. But how much lower is difficult to say. The decline in the wool industry meant that many wool producers had to look towards other activities. The options available to producers varied by region, but for a proportion, there were limited options other than lamb or cattle. Given that the decline in the wool industry is assumed to happen regardless, we need to make an assumption on how it affects lamb slaughter in the baseline.

Another factor to consider is grain prices and how they interact with lamb and wool production in a mixed farming environment. For sheep and lamb producers in the sheep-cereal zone, the profitability of their enterprise is closely linked to market conditions for grain. Holmes Sackett & Associates (2003) estimate that 55 per cent of the Australian sheep flock is run in the sheep-cereal zone and the remaining 45 per cent in specialist grazing areas. Clearly producers in the sheep-cereal zone have more scope to adjust the mix between sheep/wool, sheepmeat (mutton and lamb) and grains in response to relative prices. Chart 4.18 illustrates grain price movements (feed wheat and sorghum) over the past 12 years. The obvious point to be made is that drought has a significant impact on grain prices, with the 2002-03 drought corresponding to a significant spike in prices and the current drought resulting in an even bigger increase in price. The complication here is that although these price increases are significant, they are largely supply driven and as such the ability to switch into additional land to grain is limited.

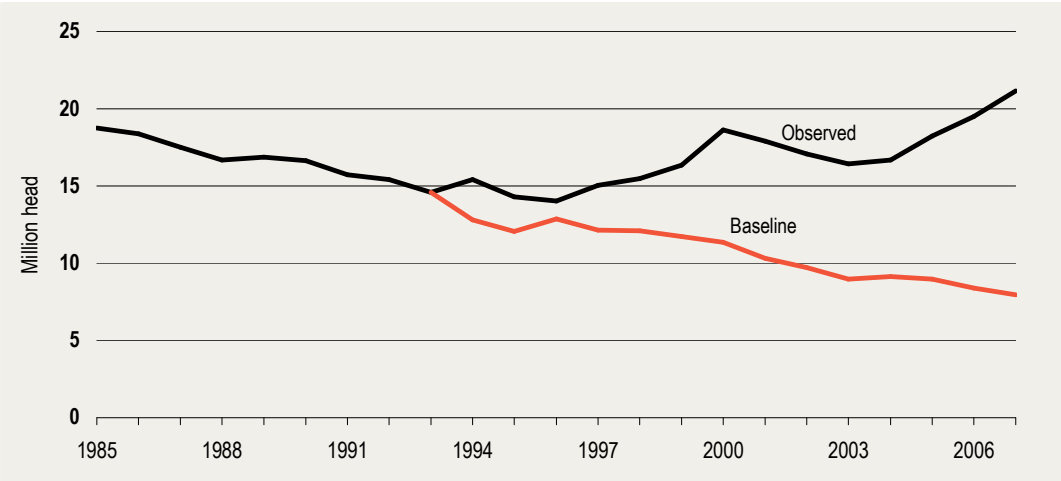
4.18 **Grain price movements**



Data source: ABARE.

In the mid-1990s, lamb slaughter picked-up slightly from a declining trend. In the baseline, we assume that lamb slaughter would have declined between 1994 and 1997 relative to the observed case at a rate equivalent to the trend that occurred from the mid 1980s to 1993 (2.7 per cent per year). From 1998 onwards, lamb slaughter has grown at an increasing rate. Reflecting that the fact that up to the 1990's, lamb production was largely driven by wool production — we have assumed that without concerted action, lamb slaughter would have followed the same trajectory as wool production over the same period. Chart 4.19 shows the baseline scenario for lamb slaughter.

4.19 **Baseline for lamb slaughter**

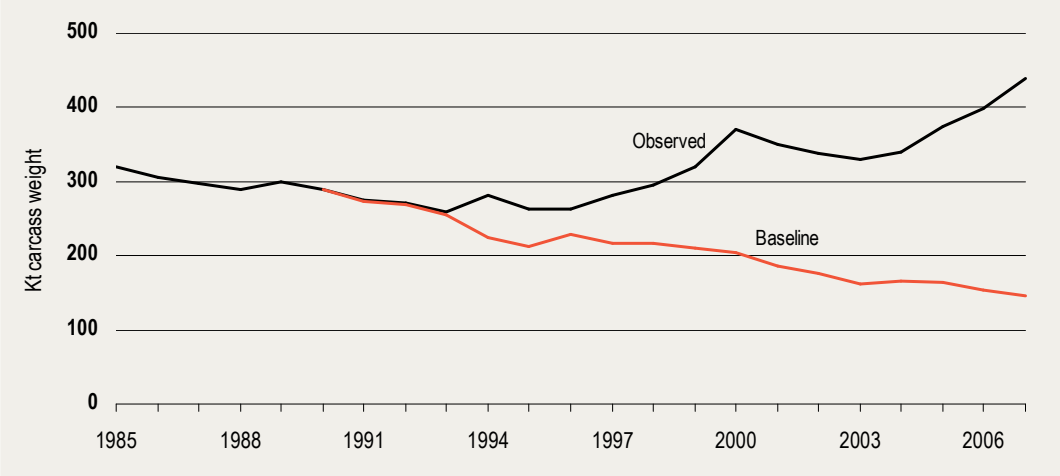


Data source: GMI database, ABS, CIE calculations.

Lamb production

Using the assumptions for carcass weights and lamb slaughter outlined above, chart 4.20 shows the baseline scenario for lamb production.

4.20 **Baseline for lamb production**



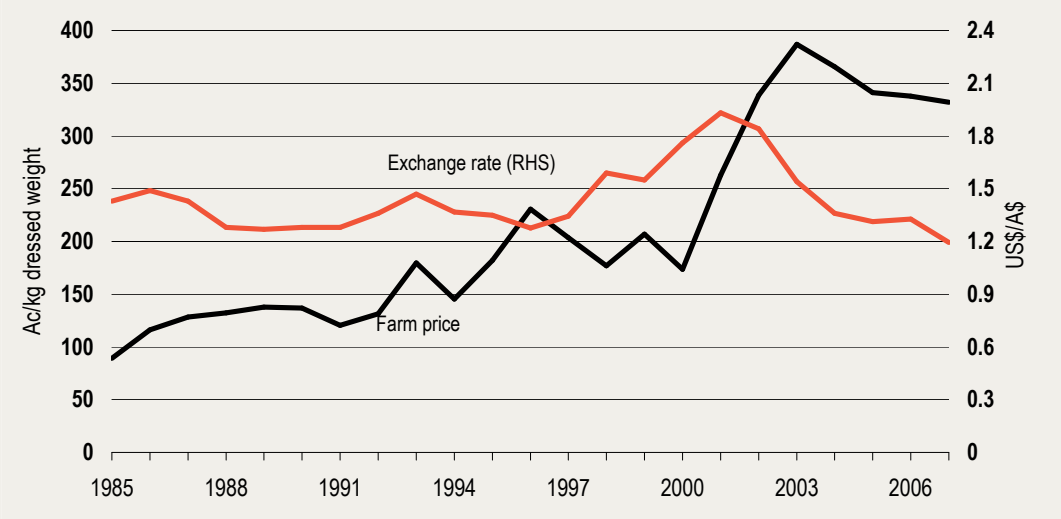
Data source: GMI database, ABS, CIE calculations.

Lamb prices

The third key parameter that we need to define a baseline scenario for is lamb farm prices. Growth in nominal farm prices has been significantly higher since 1990 than that experienced in the 1980s (6.8 per cent against 1.4 per cent). The key question for this analysis is: what is a reasonable assumption for price growth in the baseline? This is difficult to answer — it is likely that price growth would have been significantly lower in the absence of the turnaround in the industry that has been achieved. The underlying growth observed in the 1980s implies a long term decline in real prices.

The growth in prices experienced since 1990 is reflective of strong demand growth in key markets — especially the United States and domestic markets. Two additional factors in the early 2000's that impacted on price growth were supply shortages and the sharp decline in the exchange rate. The exchange rate movement and average farm price are shown in chart 4.21. It is difficult to say how these would have affected prices under an alternate scenario for the industry. Given that in the next section we assume some export growth to the United States in the baseline, it is likely that the exchange rate would have had an impact on prices.

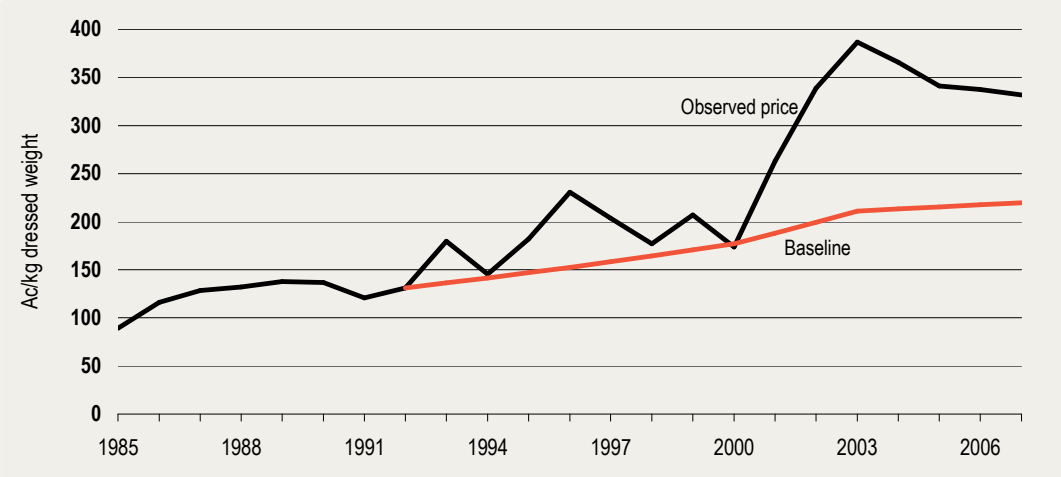
4.21 **Historical lamb price and exchange rate movements**



Data source: GMI database.

In the baseline, we assume that from 1993 onwards, average price growth observed in the late 1980s and early 1990s prevails (3.8 per cent per year). From 2000, we increase this growth to 6 per cent, taking account of the external factors that influenced price over this period, whilst from 2004 onwards we assume this growth moderates to just 1 per cent per year. Chart 4.22 illustrates the price baseline.

4.22 **Baseline scenario for farm prices**

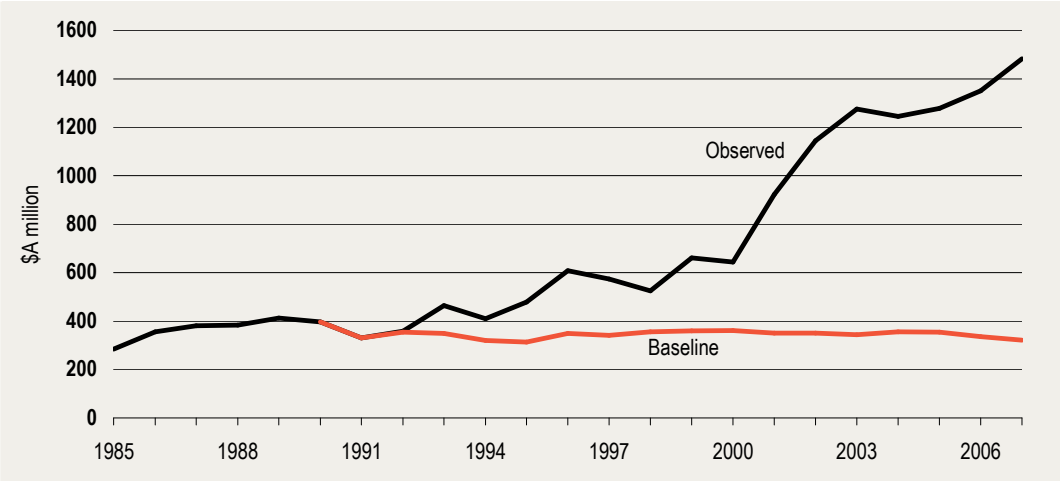


Data source: GMI database, CIE calculations.

A component of the assumptions behind the baseline scenario for lamb was the price path of competing meats especially chicken — which where declining or flat in nominal terms up until the drought of 2003-04. The price path for lamb in the baseline represents an average trend growth rate similar to that observed for these competing meats.

Given the three scenarios outlined in the above charts, the overall scenario for nominal farm GVP is shown in chart 4.23.

4.23 **Baseline farm GVP scenario**



Data source: CIE calculations.

US export baseline

Chapter 2 outlined the market developments in the United States and Australia's export performance since 1990. The next step is to estimate a baseline (or baseline) for that market. In the context of this evaluation, the baseline is a picture of what Australia's export performance to the United States might have looked like in the absence of the identification and concerted push towards developing a market for high value, chilled lamb products. This concerted effort was a made both by AMLC/MLA through the FARL and associated programs, but also through actions by the wider industry, including producers, processors and exporters. It is impossible to know with certainty what the baseline looks like. The point of this exercise is to establish a hypothetical that is explicit and defensible that can then be used as a basis for consultations.

Australia's performance in the US market over the past 17 years has improved markedly. The key external factor that has played a role in this has been the ongoing decline in the domestic US sheep industry. The decline has been significant and long-term — sheep numbers have declined by 70 per cent since 1970 while lamb production has decreased by over 65 per cent (chart 4.11).

Clearly this decline has played a role in increasing imports (chart 4.12). The significant increase in imports that precipitated the TRQ safeguards probably increased pressure on the domestic industry. However, the long-term nature of the decline suggests that in all likelihood it would have happened to a large extent regardless of anything else that happened. Given this, the baseline assumes that the decline in the US industry is ongoing.

There are two key parameters around which a baseline could be established:

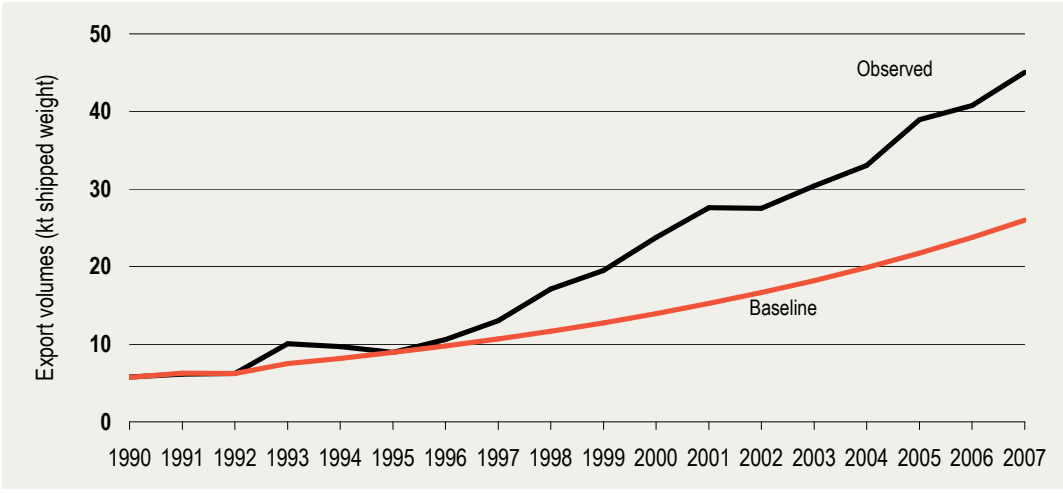
- Volume growth for Australian lamb — this depends on:

  - the total size of the lamb import market in the United States
  - Australia's market share (relative to New Zealand).
- Price growth for Australian lamb, which can be a function of a number of factors:
  - the split between fresh and frozen product
  - Underlying price/demand growth in the United States.

Charts 4.24 and 4.25 show a hypothetical 'baseline' scenario for Australian lamb exports to the United States for export volume and value. These are based on a number of assumptions.

- Total US lamb imports increase at a slower rate than actually occurred (75 per cent of actual — 9.3 per cent per year against 12.4 per cent).
- Australia's share of these imports remains at 1990 levels (approximately 54 per cent) over the period.
- The total share of fresh lamb exports to the United States grows more slowly than actually occurred, reaching 52 per cent in 2007 (up from 44 per cent in 1990 and compared with 70 per cent observed in 2007). This is based on the fact that the share of fresh exports to other destinations also increased over the period 1990-2007.
- Export prices for frozen lamb are the same as those observed between 1990 and 2007 for Australian lamb. Prices for fresh lamb are assumed to increase at half the rate that actually occurred (2.4 per cent annually against 4.8 per cent).
- This means that effectively the baseline is measuring the effect of the three major changes over the period: the increase in import share for Australian lamb, the increase in the share of fresh lamb exports and the associated increase in price premium for fresh lamb.

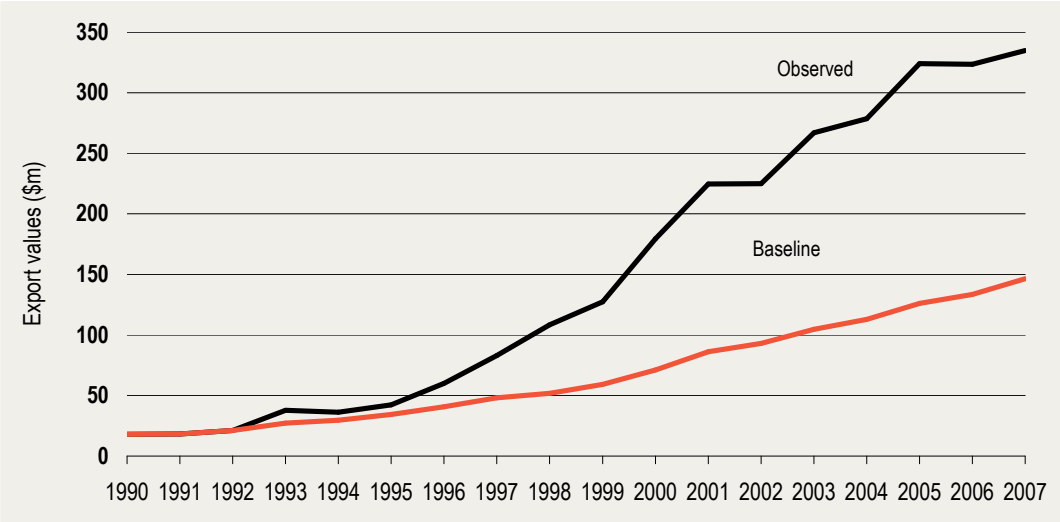
4.24 **Observed US export volumes and baseline**



Data source: USDA, CIE calculations.

Under the baseline scenario in chart 4.24, cumulative export volumes are around 130kt or 35 per cent lower than the observed case. In value terms (chart 4.25), the cumulative difference in export values is around $1.5 billion or 55 per cent.

4.25 **Observed US export values and baseline**



Data source: USDA, CIE calculations.

5 Estimating the impact of lamb marketing

Chapter 4 summarises what the Australian lamb industry may have looked like if it had been unable to *transform* itself into what the industry looks like now. As already identified, it is very difficult to identify the relative contribution of each of industry stakeholders groups to this overall outcome.

The objective of this chapter is to estimate the benefits to lamb industry as a result of these outcomes that can be attributed back to MLA. To estimate the impact of MLA's programs for domestic and US lamb marketing, a series of assumptions must be made in-line with the 'tops-down' approach set out in chapter 3.

Evaluation approach

A starting point is to re-iterate what is included and what is not considered as part of this evaluation. The program evaluation framework developed by the CIE (2005) identifies three types of benefits - as part of a triple-bottom-line approach:

- economic
- environmental
- social.

The MLA domestic and the US lamb marketing programs are targeted at improving demand. This means that the benefits generated by the programs would be almost exclusively economic. We make no attempt to identify or quantify any environmental or social flow-on from these programs.

As part of the MLA's evaluation process, other programs that have contributed to overall lamb industry performance should be accounted for. To avoid double-counting this evaluation should exclude the impacts of the following MLA programs:

- eating quality
- food safety
- market access.

As already identified, the contribution of MLA on-farm programs relating to RD&E, in concert with ongoing programs conducted by the state DPIs has also been substantial.

MLA's program for on-farm and extension for lamb is the subject of a separate but concurrent evaluation. The attribution of benefits from this program will also have to be accounted for in this evaluation.

Other factors

In relation to evaluation of other MLA programs that use a 'bottoms-up' approach, two key factors in the calculation of program benefits would be:

- any program outcomes that are omitted from the analysis because they cannot be quantified or the inability of the evaluation framework to accommodate them because of lack of detail or coverage; and
- adoption rate of program outputs.

Because of the 'tops-down' approach and the high-degree of inter-connectedness between MLA programs and the actions of other industry:

- all economic outcomes impacting on Australian lamb producers have been (implicitly) summarised in the development of the baseline; and
- the baseline also makes an implicit judgement about adoption rates. This applies both to consumers' response to promotional activities and producer's take-up of research and extension in addition to their response to market signals from the chain about larger-leaner lambs.

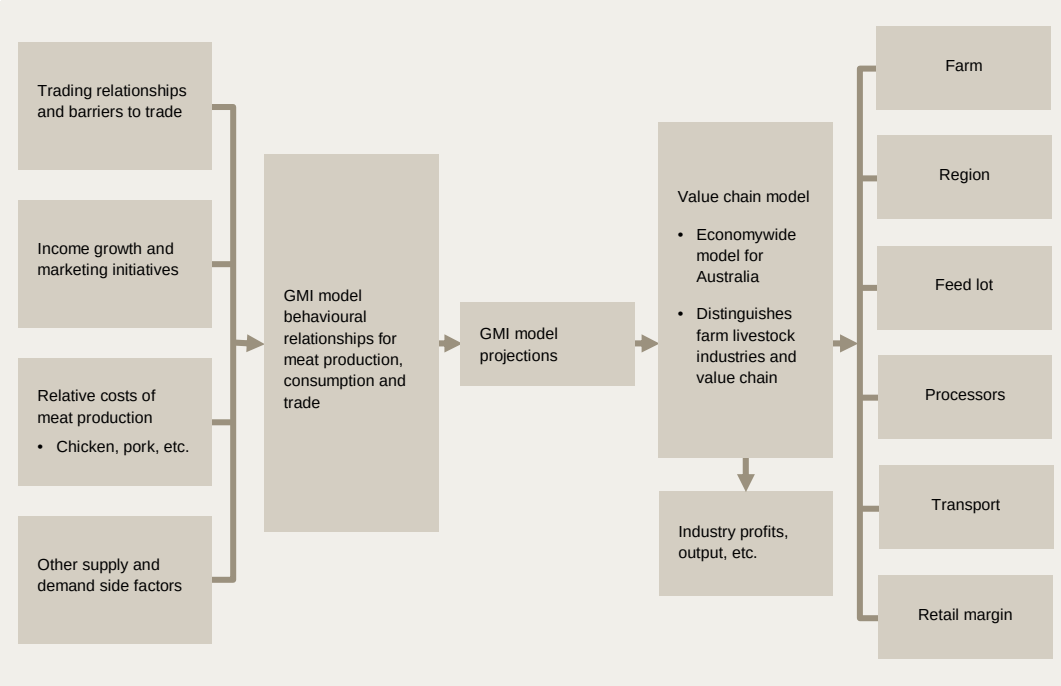
Integrated Framework

The results presented in this chapter are generated according to the guidelines provided in economic module of the evaluation framework. This module provides a framework for estimating industry benefits arising from changes in demand and supply. This framework, which is comprised of two components, is illustrated in chart 5.1.

The GMI model provides a global representation of production, consumption, trade and prices at the bilateral level for meat (beef, sheepmeat, pigmeat and poultry) and live animals (cattle and sheep). It identifies Australian exports of lamb to the United States but it does not distinguish between trade in fresh or frozen product — as noted earlier - a major determinant of average export value. In the GMI model, lamb exports to the United States are strong substitutes with product sold in other markets and so can be diverted to other countries and the domestic market in response to changes in relative prices.

The GMI model measures payoffs to Australian beef and sheepmeat producers in terms of changes in prices, production and gross value of production at an aggregate industry level. But the GMI model is purely a meat industry model and as such, it does not measure effects on the meat industries value chain (between farm level and

5.1 Linked GMI and Integrated Framework



Data source: TheCIE.

processing activities), on other industries or the economy as a whole. Because of this, the GMI model is linked with the IF to estimate the benefits to the industry.

The IF is a model of the Australian economy. It captures interactions between the red meat value chain and other sectors of the economy. These interactions include purchased input use at the farm level and value adding factors such as capital and labour. In terms of red meat sector coverage, the IF includes farm production, feedlots, processing, wholesaling, retailing, domestic consumption and exports. The IF measures the effect of changes on each industry (in terms of output, prices, net income etc.) and the economy as a whole (in terms of GDP, employment, consumption, trade balance etc.). The linked GMI/IF system as shown in chart 5.1 then links the outcomes in specific global markets with details at the domestic industry level and broader economy.

The use if the linked GMI/IF framework is more suited to a 'bottoms-up' approach were the outcomes of a program have been translated into a corresponding set of changes or 'shocks' to demand and supply. For example, in the recent evaluation of the MLA market access program, MLA outcomes were defined by changes in trade barriers to key export markets. For this evaluation, the 'tops-down' approach and the development of a baseline in chapter 4 largely dictates the total benefits to producers. We used the linked GMI/IF model in two ways:

- translate differences between baseline and observed GVP to changes in farm level value-added for lamb producers; and

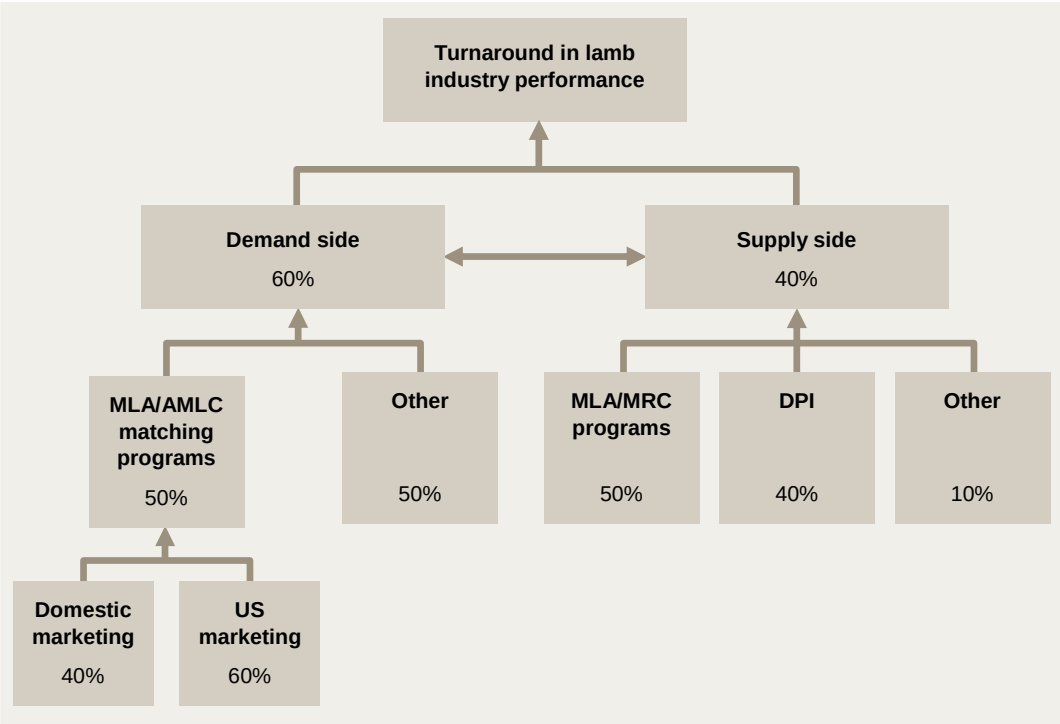
- in addition to the consultation process, provide input into the attribution of this overall outcome in each market and so back to key stakeholders.

Attribution

Attribution is the extent to which MLA activities have contributed to the overall outcome. As noted, the outcomes and impacts we see today generally represent a concerted effort by a range of stakeholders. The intertwining nature of many issues means that it is difficult to logically separate the contribution of each stakeholder in many cases, a point that was noted during consultations. This was the underlying logic behind the approach in this report.

However, it is not possible to do a meaningful evaluation of MLA's programs without attribution. Chart 5.2 illustrates the broad assumptions used in attributing the total benefits.

5.2 **Key assumption around attribution of total benefits**



Data source: The CIE.

One guide would have been to allocate the attribution of benefits on the basis of program costs:

- the implicit assumption being that the benefit-cost ratio for each of the contributors would be the same; and
- expenditure on relevant MLA programs are known as well as contributions by some other sources — principally DPIs.

The constraints with such an approach are that it doesn't recognise the contribution:

- by industry such as processors and traders in the development of these markets, including the requisite investment in infrastructure and development of supporting products and brands; or
- of in-kind services provided by stakeholders in the industry to the overall outcome.

Table 5.3 sets out the assumed attribution percentages used in the 'tops-down' analysis over the period 1990 to 2007. These are derived from the figures in the chart above and reflect a subjective assessment of the relative contribution of each of stakeholder groups towards to aggregate outcome.

5.3 Attribution of total benefits to the lamb industry

Contributor	*Attribution of benefits*
	%
Off-farm	
MLA Domestic promotion	12.0
MLA US promotion	18.0
Other contributors[a]	30.0
On-farm	
MLA on-farm research and extension	20.0
DPI on-farm research and extension	16.0
Other contributors[a]	4.0
Total	100.0

[a] Other contributors include MLA programs (Eating quality, Food Safety and Market Access) and a range of activities by industry.

Source: CIE assumptions.

Timeframe and attribution

The attribution used over the evaluation period 1990 to 2007 in chart 5.2 and table 5.3 is a simplification that is required to make this evaluation practical using the 'tops-down' approach.

Over time, the attribution of benefits back to contributing programs would realistically change with:

- each phase of the integrated approach (as described by this report)
- different rates of decay for program and sub-program outcomes.

The timeframe of program benefits depends on the characteristic of the output of each program and sub-program. To illustrate this, table 5.4 makes an assessment of the rate of decay of benefits of each program and sub-program under the assumption that funding ceased at the end of the formal evaluation period.

5.4 **Assessment of rate of decay of Lamb industry programs**

Contributing program	*Program sub-component*	*Rate of decay and rationale*[a]
Domestic promotion	▪ Brand or image building	▪ Moderate. Consumer awareness of industry images may persist.
	▪ Consumer promotion - media and point-of-sale	▪ Fast. Impact of standalone campaigns is short term.
US promotion	▪ Creation of marketing infrastructure and strategic alliances	▪ Slow. Once established, stakeholders maintain relationships if profitable.
	▪ Brand or image building	▪ Moderate. Consumer awareness of industry images may persist.
	▪ Consumer promotion - media and point-of-sale	▪ Fast. Impact of standalone campaigns is short term.
On-farm	▪ Research and Development	▪ Slow. Once research is successful program output does not degrade.
	▪ Extension	▪ Slow. Once adoption is has taken place benefits will persist.

[a] Subjective assessment by CIE.

Source: The CIE.

This assessment raises a range of issues that are not easily condensed down into a simple assessment of attribution back to contributing programs – a point that was raised during the consultation process. This is especially the case where a program itself is comprised different sub-programs or outputs whose outcomes have different time profiles and inter-dependencies. For example, the US promotion program contains elements with both slow and fast decay rates.

Overall the assessment contained in table 5.4 indicates that over the long term – on-farm programs may be more important because of the slow decay in program outputs and outcomes. However, one factor that is not easily accounted for in this assessment is the contribution of the development of the US market in changing the culture and focus of the Australian lamb industry.

This difficulty arises because time-dependent attribution in a 'tops-down' approach remains a proxy for a detailed 'bottoms-up' approach which would look at the impact and benefit profiles of individual programs and sub-programs separately. Indeed, the unwillingness of stakeholders to nominate total attribution of the integrated program outcomes would suggest getting them to do this across the evaluation period would be extremely difficult.

This would indicate again the need to build-in to the design of a program or sub-program the capture of data to enable evaluation from the 'bottoms-up'.

Logic for attribution

Chapter 2 detailed the program phases of the development of Australian lamb market since 1990. Indeed, some of payoffs identified by this report could be easily

attributed back to actions taken before the timeframe of this evaluation (such as supply-side programs before 1990).

A characteristic of the evolution of the industry was the feed-back feed-forward interaction of each phase of the supply and demand side programs in response to changing market circumstances. An example of these inter-relationships was the promotion of product in both the US and domestic markets during the early to mid 1990's. While promotion was successful at building demand, shortfalls in product availability left many consumers disappointed. This forced industry to re-focus attention back to the supply side and — after a period of consolidation — justified further expansion of marketing effort.

For these reasons, many stakeholders consulted during this evaluation were reluctant to commit to attribution back to contributors. But overall, a key message was the importance of the emergence of the US market as a trigger for the transformation of the Australian lamb industry. The development of the US market was assisted by a number of external factors such as:

- favourable exchange rates in the early 2000s
- concerted action against the imposition of quotas on Australian lamb by the US
- the decline of the US lamb industry.

But many consulted acknowledged that the US market provided the incentives for the Australian industry to transform itself by providing the growth potential and more importantly the premiums for better-specified high-quality lamb products. This largely resulted in the significant behavioural changes observed, particularly the:

- shift away from a trade based on frozen carcasses to one more-focused on high-quality fresh or chilled cuts; and
- recognition by the farm and processing sectors for the need to supply lamb to specification throughout the year.

The influence of the US market program that has resulted in enduring cultural change in the Australian lamb industry explains the logic of chart 5.2 and table 5.3:

- 60 and 40 per cent attribution between the demand and the supply side;
- 40 and 60 per cent attribution shares between the MLA matching programs on the domestic and the US markets.

On the supply side, consultation with stakeholders on the relative contribution between MLA and the DPIs indicated that each contributed to the overall supply side result in proportion to their respective funding contribution. In addition, there was also a provision for other contributors — primarily other MLA program activities — of 10 per cent. Over the period 1990 to 2007, in real terms, MLA contributed around 55 per cent of total expenditure towards on-farm programs. Therefore, we have assumed no additional leverage from the MLA expenditures.

Supporting evidence of attribution

The evaluation of the Sheep Co-operative Research Centre by Vere et al (2005) provides an independent perspective on the attribution between the demand and supply side programs used in this report. As part of their evaluation, Vere et al (2005) asked program managers and project leaders for their views about the expected initial percentage impacts on either the supply or demand sides of the wool and sheep meat industries - on a program by program basis - elicted in a workshop situation.

For the meat science program the expected split was 50:50, for either the 'with-CRC' scenario or the 'without-CRC' scenario. This meant equal initial attribution on both supply and demand sides for this particular program. The same R&D lags, adoption lags and adoption levels were also applied across both supply and demand sides. The results are summarised in table 5.5.

Given equal inputs, the demand side was found to deliver benefits in the ratio of 64:36 in the 'with CRC' case and 68:32 in the 'without CRC' case. This finding is not inconsistent with the attribution that has been used in this report.

5.5 Benefit–cost outcomes for Sheep CRC research in Programs 1 and 2[a]

	With Sheep CRC				*Without Sheep CRC*			
Program area	*Present value benefits*	*PV costs*	*NPV*	*BCR*	*PV benefits*	*PV costs*	*NPV*	*BCR*
	$m	$m	$m		$m	$m	$m	
Meat science								
Meat supply	20.985	5.780	15.205	3.6	7.263	2.839	4.424	2.6
Meat demand	37.336	5.870	31.556	6.5	15.641	2.839	12.801	5.5

[a] Benefits and costs are discounted at 5 per cent real over 20 years using the DREAM model.

Source: Vere et al. (2005).

Timeframe of program benefits

This analysis has considered the transformation of the lamb industry over the period 1990 to 2007. During this time, considerable investments were made with the benefits — as represented by the baseline in chapter 4 — confined to that same period.

To explore the impact of total investment we need to make another series of assumptions regarding the time profile of those benefits. That is, we ask the question: what would the benefits look like beyond 2007 if the funding of these programs were stopped now. This profile depends on the rate of decay of the benefits of each contributing sub-component to the overall lamb approach. Here we explore two scenarios:

- that some benefits from the program persist out to 2015 (without further funding)
  - realistically, the decay period depends on the type of sub-program:
    - programs involving infrastructure activities in market development such as development of new products, strategic alliances or underlying R&D are examples where decay would be expected to be slow, and
    - programs involving promotion through media and at point-of-sale would be expected to have a higher decay rate; and
- where all benefits are evaluated against expenditures over the period 1990 to 2007:
  - that is, the decay of programs is assumed to be immediate - there are no flow-on benefits into the years following 2007.

Payoffs to MLA programs and other contributors

To put this evaluation in context, table 5.6 compares the total investments made by MLA and the DPIs relative to industry GVP. It shows that the total investment was very high - especially during the early 1990s - compared to the size of the industry. That is, the total investment represented around 5 per cent of GVP.

5.6 **Total investment, GVP and payoff to industry farm value-added**[a]

		MLA and DPI investment		*Payoffs from MLA and other contributors*[b]	
	Observed GVP	*Total*	*Share of GVP*	*GVP*	*Farm value-added*
	$m	$m	%	$m	$m
1990-91	396	21.1	5.3	0	0
1991-92	331	21.5	6.5	0	0
1992-93	358	20.7	5.8	3	1
1993-94	465	20.6	4.4	116	30
1994-95	409	22.7	5.5	90	24
1995-96	479	19.0	4.0	166	44
1996-97	607	18.4	3.0	259	69
1997-98	574	20.3	3.5	232	62
1998-99	525	17.6	3.4	169	45
1999-00	660	18.4	2.8	302	81
2000-01	643	20.2	3.1	281	76
2001-02	922	32.5	3.5	571	154
2002-03	1 145	37.8	3.3	795	216
2003-04	1 276	31.7	2.5	932	254
2004-05	1 244	33.6	2.7	889	243
2005-06	1 279	34.2	2.7	925	254
2006-07	1 350	29.5	2.2	1 015	280
2007-08	1 482	27.7	1.9	1 160	299

[a] In nominal terms. [b] Difference between observed and baseline GVP and value-added from MLA and DPI program and industry actions.

Source: MLA and State DPIs and CIE calculations.

This is consistent with that calculated by Mullen (2007) who showed that R&D expenditure average around 2 per cent of GVP across all Australian agriculture after 2000. It should be noted that the figures in the table do not include any estimates of off-farm expenditure by other industry stakeholders.

Table 5.6 also summarises the flow of benefits implied by the difference between observed industry GVP and the baseline identified in chapter 4. By 2007-08, annual industry GVP could be $1.1 billion higher than was the case without all MLA and DPI programs and actions by industry. Put another way, industry GVP would have been around 20 per cent of its 2007-08 value.

This increased GVP translates to industry value-added that is $299 million higher than otherwise the case (box 5.7 outlines key assumptions). Table 5.6 shows that in terms of value-added, there was a significant lag period from the initial investments until substantial benefits were realised after 2001.

5.7 GVP translation to farm value-added

An important variable in table 5.6 and the following benefit–cost calculations is lamb industry value-added. One consistent source of information on farm value-added is from the MLA/ABARE Farm Survey which spans the period since 1990. From this source, farm value-added is defined as the difference between total receipts and total cash costs but including wages to hired labour.

- This data recognises the fact that lamb is produced on farms with multiple enterprises that share common or fixed costs. However, it is not known with certainty if the 'profitability' of the average lamb enterprise is higher or lower relative to all other farm enterprises.
- Therefore, to be conservative, we have used the average share of value-added across all enterprises as representative of the typical lamb enterprise.
- Over the period 1990 to 2007, the MLA/ABARE farm surveys reported that farm value-added represented between 25 and 28 per cent of total farm receipts on average.

We have used this number to translate estimated changes in lamb industry GVP back to changes in value-added — from which program benefits are calculated. Given that the farm-level industry has changed significantly, it may be reasonable to expect that the share of value-added may have increased over time (and so with it program benefits). But many of the on-farm improvements that facilitated the transformation of the industry — such as improved feeding — represent additional costs that offset higher farm-gate return. Overall, this measure of farm value-added is an adequate representation of the benefits from the industry programs in this evaluation.

Table 5.8 shows the summary results of the lamb evaluation — using the flow of total benefits from table 5.6 and using an assessment of the attribution of these benefits to each of the contributing groups. The time period used to calculate the benefits for the evaluation was 25 years between 1990 and 2015.

A key influence on these results is the significant investments that were made throughout the 1990s, while many of the benefits were realised after 2000. This time profile of benefits and costs affects the calculation of net present values. In present value terms, 70 per cent of MLA and DPI investments were made up to 2000-01. While the corresponding period delivered 20 per cent of the benefits in terms of farm value-added. This profile reflects the time lags from the research and the implementation of those outputs made by the marketing chain that were required to deliver the stream of benefits.

5.8 **MLA lamb program results summary — baseline[a]**

Contributor	*Attribution of benefits*	*Total benefits*	*Total costs*	*Benefit–cost ratio*	*Internal rate of return*
	%	$m	$m		%
MLA domestic promotion	**12**	**573**	**263**	**2.2**	**16**
MLA US promotion	**18**	**859**	**120**	**7.2**	**34**
MLA on-farm	20	955	256	3.7	29
DPI on-farm	16	764	225	3.4	26
Total MLA/DPI programs	66	3 151	864	3.6	26
Other industry	34	1 623	na	na	na
All stakeholders	100	4 775	na	na	na
MLA/DPI on-farm	36	1 719	481	3.6	28

[a] Net present values calculated over the period 1990 to 2015 with a discount rate of 5 per cent, 2007-08 dollar equivalents.
na Not applicable.
Source: Integrated Framework and CIE calculations.

Overall, the benefit-cost ratio for MLA lamb programs varies between 2.2:1 for domestic promotion to 7.2:1 for US promotion. These results indicate the attribution of total benefits to the MLA US program from chart 5.2, relative to other programs and contributors, to transformation of the Australian lamb industry.

Sensitivity analysis

In this section we undertake a sensitivity analysis on the basis of the key assumptions made above. The objective is to determine how robust or otherwise the results are to changes in uncertain variables and assumptions.

A key feature of chapter 4 was the baseline that would have happened without the involvement of MLA and industry partners. The chapter identified that there was a significant amount of uncertainty about the response of producers in the baseline and

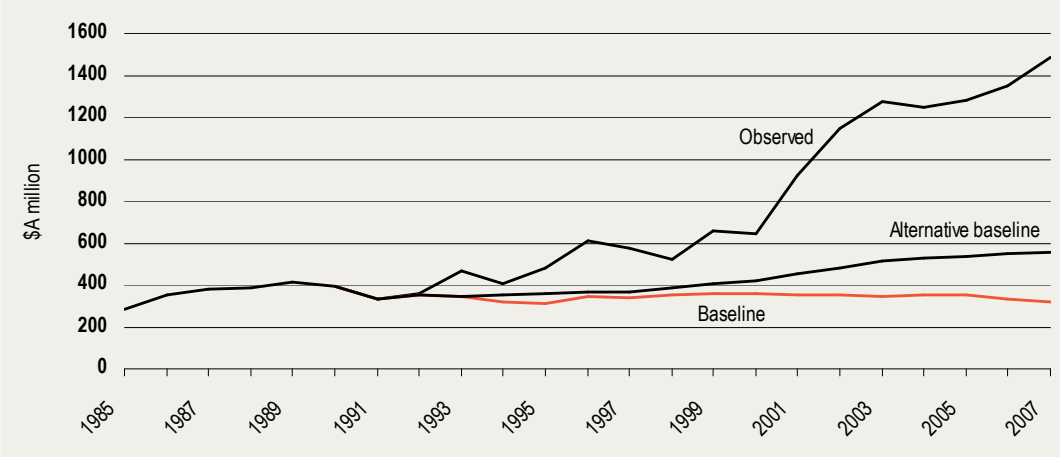
so the supply of lamb. A key unknown was how producers would respond to low lamb profitability in the context of complex multi-product enterprises:

- on average, lamb represents only 15 per cent of total receipts in the current industry;
- lamb is relatively labour intensive compared particularly to cropping activities; but
- given each individual farm's resource mix — particularly suitable land.

As a sensitivity test, we identify an alternative trajectory for farm level lamb production and GVP which is higher than for the baseline. This alternative baseline is based on the assumption that lamb production would have continued-on at levels observed in the early 1990's in absence of MLA or DPI programs. The logic behind this assessment depends on the capacity of farms to switch into other enterprises in response to relative prices. As identified in chapter 4, a proportion of lamb producers have limited options to change their enterprise mix.

Chart 5.9 compares observed GVP with baseline scenario and an alternative baseline, where we have assumed a marginal growth rate (0.5 per cent per year) in the slaughter numbers, which is equivalent to the average observed during the 1980s. By 2007, under this alternative baseline annual lamb industry GVP may have been $230 million or 72 per cent higher than the baseline.

5.9 **Alternative baseline for lamb GVP**



Data source: CIE estimates.

The results summary, based on the same attribution as used for the headline analysis is shown in table 5.10. This sensitivity test shows that the headline result remains robust delivering positive but reduced benefit-cost ratios across all program components.

5.10 **MLA lamb program results summary — alternative baseline**[a]

Contributor	*Attribution of benefits*	*Total benefits*	*Total costs*	*Benefit–cost ratio*	*Internal rate of return*
	%	$m	$m		%
MLA domestic promotion	**12**	**466**	**263**	**1.8**	**13**
MLA US promotion	**18**	**699**	**120**	**5.8**	**30**
MLA on-farm	20	777	256	3.0	25
DPI on-farm	16	622	225	2.8	22
Total MLA/DPI programs	66	2 564	864	3.0	22
Other industry	34	1 321	na	na	na
All stakeholders	100	3 885	na	na	na
MLA/DPI on-farm	36	1 398	481	2.9	24

[a] Net present values calculated over the period 1990 to 2015 with a discount rate of 5 per cent, 2007-08 dollar equivalents.
na Not applicable.
Source: Integrated Framework and CIE calculations.

As already noted, the timing or flow of benefits from the investments made over the period 1990 to 2007 has a significant impact on the bottom-line payoffs. As a check on the headline results, program payoffs were also calculated by considering only benefits from the period corresponding to the investment. This asks the question: what would be the payoff if the MLA and other investments had to pay for themselves over the period from 1990 to 2007?

Table 5.11 shows that under this scenario — based on the same attribution as the headline analysis — the payoff to MLA expenditures remains positive, but significantly reduced relative to the headline analysis. Overall, these results show that the headline results are robust — demonstrating clearly that the MLA programs have delivered net benefits to levy payers.

Breakeven analysis

Another test to highlight the robustness of the results presented earlier is to examine the 'breakeven' point at which the MLA marketing programs pay for themselves. In practice, this point can be expressed in terms of any of the key variables involved in an evaluation. In the case of this evaluation, due to the tops-down approach that has been adopted, the most sensible breakeven analysis is around the attribution. The complication is that as chart 5.2 shows, there are a number of levels of attribution. At the top level, there is the split between total (MLA and non-MLA) demand and supply outcomes. On the demand side there is also the split between MLA marketing programs and other activities and finally the split within MLA activities between domestic marketing and US marketing.

5.11 **Benefits confined to period 1990 to 2007 — baseline[a]**

Contributor	*Attribution of benefits*	*Total benefits*	*Total costs*	*Benefit–cost ratio*	*Internal rate of return*
	%	$m	$m		%
MLA domestic promotion	**12**	**365**	**263**	**1.4**	**12**
MLA US promotion	**18**	**547**	**120**	**4.6**	**33**
MLA on-farm	20	608	256	2.4	27
DPI on-farm	16	486	225	2.2	24
Total MLA/DPI programs	66	2 007	864	2.3	24
Other industry	34	1 034	na	na	na
All stakeholders	100	3 040	na	na	na
MLA/DPI on-farm	36	1 095	481	2.3	26

[a] Net present values calculated over the period1990 to 2015 with a discount rate of 5 per cent, 2007-08 dollar equivalents.
na Not applicable.
Source: Integrated Framework and CIE calculations.

The simplest way to determine the breakeven attribution for each of the MLA domestic and US marketing programs is at the most detailed level. That is, what share of the total benefits outlined in table 5.6 does each of the programs need to have contributed to pay for the total investment in net present value terms?

Based on total discounted benefits of $4.775 billion between 1990 and 2015 (table 5.8), table 5.10 shows the estimated breakeven total attribution for MLA domestic and US lamb marketing programs.

5.12 **Breakeven share of total benefits for domestic and US lamb marketing**

Program	*Discounted costs*	*Baseline attribution of total benefits*	*Breakeven share of benefits required*
	$m	%	%
Domestic marketing	263	12	5.5
US marketing	120	18	2.5

Source: Integrated Framework and CIE calculations.

In terms of a comparison with the attribution used in the baseline results, the breakeven analysis suggests that the MLA attribution for the domestic marketing program could be as low as 5.5 per cent lower and still generate a positive return. This is less than half of the MLA contribution of 12 per cent which was used in the baseline results. For the US marketing program, the attribution required for the MLA program to breakeven is only 2.5 per cent (compared to 18 per cent used in the baseline results).

These results also suggest that assuming the top level split of 60 per cent for demand side outcomes, MLA would only have had to contribute around 13 per cent to the total demand side benefits in terms of its domestic and US marketing programs for them to generate a positive return.

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