Agri-food Case Study

Micro Reform — Impacts on Firms

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Forming the Productivity Commission

The Federal Government, as part of its broader microeconomic reform agenda, is merging the Bureau of Industry Economics, the Economic Planning Advisory Commission and the Industry Commission to form the Productivity Commission. The three agencies are now co-located in the Treasury portfolio and amalgamation has begun on an administrative basis.

While appropriate arrangements are being finalised, the work program of each of the agencies will continue. The relevant legislation will be introduced soon. This report has been produced by the Bureau of Industry Economics.

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Foreword

Since the early to mid 1980s microeconomic reform has been a priority for Australian governments. This process of reform has introduced substantial change in many sectors of our economy, with the aim of providing a sustainable improvement in our standard of living. A wide range of research using economy-wide modelling techniques supports this approach. However, we know surprisingly little about the actual direct impacts of microeconomic reform on many Australian industries and firms. To help overcome this information gap the previous government commissioned the BIE in 1994 to undertake a four year project to monitor the impact of microeconomic reform on firms and industries. This case study is the second report in the impact of micro reform series. Work is currently underway to finalise a case study on the automotive industry.

The BIE would like to acknowledge the assistance provided by a steering group, convened by the Agri-Food Council. The steering group comprised four council members, Mr Grant Latta (steering group chairman), Mr John Claringbould, Mr Don McGauchie, and Mr Garry Ringwood, as well as three Department of Industry, Science and Tourism representatives Mr Graeme Taylor, Ms Christine Maher and Mr Rod Whiteway.

The report was researched and written by Denise Ironfield, Diane Whiteford, Stephanie Watts, David Richardson, Jenny Luxmoore and Steven Bland. Denis Lawrence acted as internal referee and provided many helpful comments and suggestions. Ralph Lattimore and Rob Brooker were most helpful in advising on the econometric aspects of the report's analysis. The project was supervised by Ian Monday, Assistant Secretary of the BIE's Industry Development Branch.

Bob Hawkins
Director

May 1996

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Box 1: Agri-food and related industries case study — major findings

Increased competition leads to more productive firms

A substantial number of agri-food firms have become more productive and dynamic since 1989. Increased domestic competition has been an important catalyst. Australia's micro economic reform process has contributed to this outcome. Firms experiencing an increase in the level of domestic competition between 1989-90 and 1993-94 were, amongst other things, more likely to:

- seek out new export markets; and
- increase their productivity.

These positive outcomes were particularly apparent for firms in industries facing a substantial amount of international competition. Notwithstanding these findings, sizeable proportions of firms in the non-traded sector also achieved positive outcomes in the face of increased competition.

Despite the apparent benefits associated with implementing workplace reforms, their uptake was surprisingly low with less than half of the case study firms implementing at least one of these measures. Many firms that had not implemented an enterprise agreement indicated they were happy with their existing arrangements. Some of these firms considered the enterprise agreement process to be too complex or costly.

Micro reforms and firms' competitiveness

As well as promoting greater competition, micro reform also aims to improve the competitive position of firms. Reforms ranked by respondent firms as having the most positive direct impacts on their competitiveness between 1989-90 and 1993-94 were:

- Telecommunications;
- Industrial relations;
- Food standards and related regulations; and
- Road freight.

Firms ranked the following reforms as most important to their future competitiveness:

- Industrial relations;
- Input taxes and on-costs;
- Food standards and related regulations;
- Tariff reductions and statutory marketing arrangements;
- Infrastructure services reforms covering the waterfront and road freight; and
- Environmental regulations.

They saw the main challenge for Australian governments, in respect of these reforms, as being to accelerate the pace of reform and reduce/remove avoidable cost imposts on businesses.

Summary

A major conclusion emerging from many economy-wide studies of Australia's microeconomic reform process is that the estimated effects are significantly positive, widespread and on-going. However, the overall impact of microeconomic reform on particular industries and firms is often far from clear. In response to this, the BIE was commissioned by the previous government to undertake a four year project to monitor the impact of microeconomic reform at the firm/industry level.

This report is the second by the BIE in the project series. The first report, *Setting the Scene, Micro-Reform — Impacts on Firms* (BIE 1996a), provided a historical overview of some key elements of the reform process. The report also drew together insights provided by earlier studies of the reform process and foreshadowed the preparation of a series of industry case study reports. This report, covering the agri-food and three related industries, is the first of these case studies.

The objectives of this report are three fold. It aims to monitor the impact of micro reform on case study firms' competitiveness and identify firms' perceptions about areas in need of further reform. It also aims to identify changes in the level of domestic competition faced by case study firms and the significance of micro reforms relative to other influences shaping these changes. Finally, the study aims to identify actions firms have taken in response to changes in their operating environment and whether firms have become more productive.

The main findings to emerge from the study are summarised in box 1 opposite. The BIE has primarily used a survey methodology to obtain information on the impact of the micro reform process. Such an approach has a number of clear strengths for a study of this type but also some weaknesses (see box 2).

Why did the BIE select the agri-food industries?

In broad terms, Australia's microeconomic reform process has been directed at developing a more outward-looking, internationally competitive economy. This has involved exposing our industries to an increased level of competition from international and domestic competitors. The process has also focussed on lifting the performance of various 'non-traded' supplier industries. The competitiveness of firms facing competition from international competitors is, in part, dependent on the

price and quality performance of these supplier industries. The process has also involved reforming a variety of product and factor market based regulations with a view to improving the overall competitiveness of Australian industry.

The agri-food industries were selected as the first case study in recognition of their significance in the economy. These industries display differing degrees of participation in international trade. Other features of their operation suggested that they would have a relatively high exposure to many aspects of Australia's microeconomic reform program. Three 'related' industries were also included in the

Box 2: Why the BIE chose a survey methodology

The strength of a survey approach is that it has allowed the BIE to pitch its analysis at the level of the firm. Related to this, the approach permits detailed analysis of the extent and source of intra and inter industry variations in adjustment responses and performance. The BIE considered that alternative approaches using methodologies based on industry level aggregated data such as that available from Australian Bureau of Statistics collections would not capture any firm level differences in adjustment responses. Where possible, the survey findings were considered in the context of previous work undertaken by the BIE as well as some other reports of relevance to specific subject areas. The BIE believes that the findings presented in this report, at a minimum, draw together the views and experiences of agri-food survey respondents. The findings also provide many useful insights into broader industry level views and experiences.

Some weaknesses associated with the survey methodology include the possibility of response bias. If this was the case, results reported would not be representative of the general population of firms in the surveyed industries. For this reason the BIE undertook a response bias check (appendix 3). The results in most cases indicate that the sample is representative of the total population of surveyed firms. The results of the non-bias check do, however, suggest some bias. For example, the survey response rate may underestimate the proportion of firms experiencing an increase in productivity as well as the proportion of firms increasing their export share. Compared to the non-response bias check, the survey may also overstate the proportion of firms perceiving a positive impact from some reforms. For this reason some caution is needed when interpreting survey findings.

Survey bias can also be associated with firms misinterpreting or mis-construing the meaning of a question in the survey questionnaire. To counteract this the BIE, as part of its survey design, undertook extensive discussions with the Australian Bureau of Statistics and with a selection firms from the industries to be surveyed. The BIE also conducted a pilot survey to assess the appropriateness of survey questions and conducted some consistency checks on individual firm responses in the final survey. Nonetheless, reflecting the complexity of some micro reforms and the 'noise' created by market based changes, it is quite possible for broadly equivalent firms to differ in their assessments of particular micro reforms.

study — two of these industries provide important inputs to agri-food firms while the third is an important link in the fresh food distribution chain.

Box 3 presents a snapshot of the agri-food industries and presents details of the industries covered in the BIE survey. Much of the information drawn on in this case study was obtained from this detailed survey. In all, some 1500 firms were targeted and 460 of these responded. After adjusting the survey population to take account of firms which were no longer operating, this represents a response rate of 37 per cent.

Box 3: A snapshot of the agri-food industries and the case study

The agri-food industries represent a major industry group within Australia's manufacturing sector accounting for:

- 21 per cent of manufacturing sector turnover and 18 per cent of the sector's employment in 1992-93 (latest available data); and
- over 25 per cent of the manufacturing sector's exports in 1993-94.

The agri-food group includes industries with very different exposures to international trade:

- some industries have a strong export focus (eg Meat processing, Sugar manufacturing and Dairy products nec.);
- some industries have a strong import orientation (eg Fruit and vegetable processing and Confectionery manufacturing); and
- others have little exposure to international competition (eg Milk and cream processing and Flour mill product manufacturing).

The agri-food industries have strong linkages with some other parts of the economy including with the agricultural sector, infrastructure industries and various other input suppliers and service providers .

The case study industries

Agri-food industries

- Meat processing
- Milk and cream processing
- Dairy products manufacturing nec
- Fruit and vegetable processing
- Prepared animal and bird feed mfg
- Flour mill product manufacturing
- Cereal food and baking mix mfg
- Sugar manufacturing
- Confectionery manufacturing

Related industries

- Packaging (excluding glass)
- Food processing machinery mfg

- Fruit and vegetable wholesaling

Broad impacts of micro reforms on firms

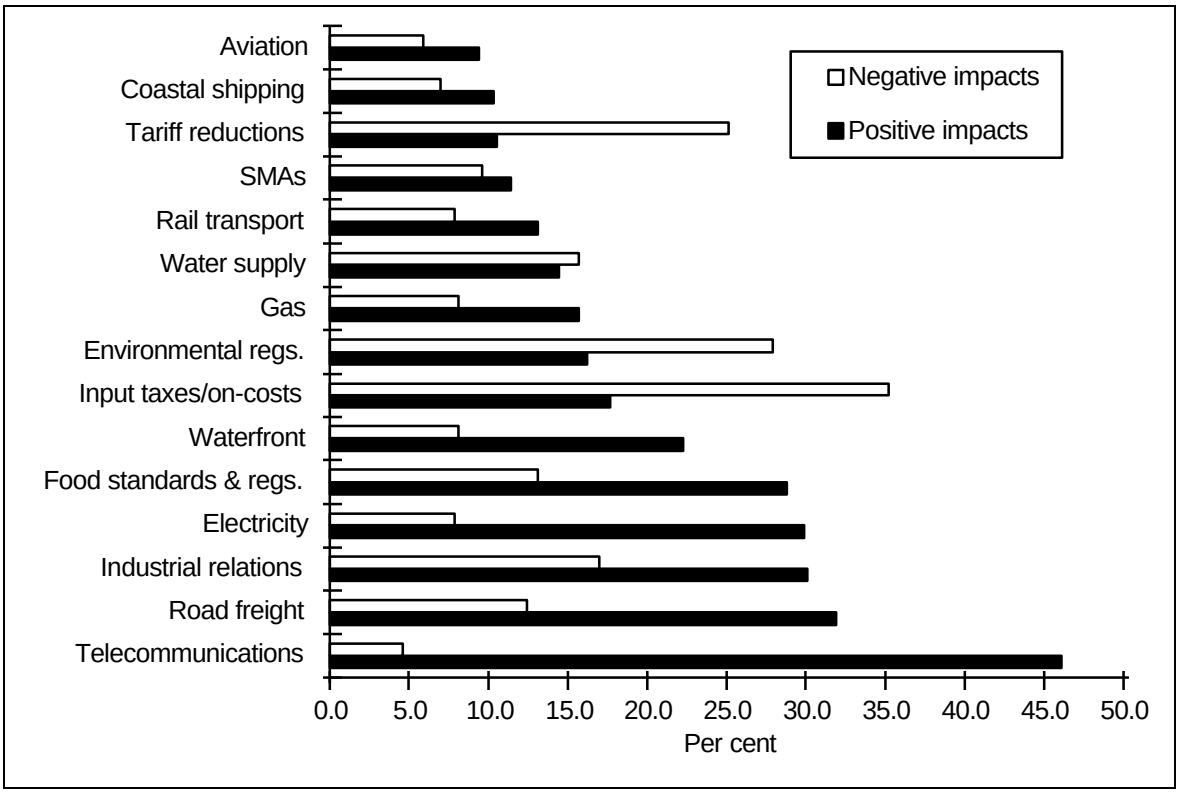
The BIE asked agri-food firms responding to the survey to assess seven broad areas of micro reform, namely:

- tariff reductions;
- reforms to statutory marketing arrangements;
- changes to environmental regulations;
- changes to food standards and related regulations;
- reforms to input taxes and on-costs;
- industrial relations and workplace reforms; and
- infrastructure related reforms (covering nine areas).

Firms responding to the survey were asked to indicate their perceptions about the impact of these reforms on their competitiveness between 1989-90 and 1993-94. Firms were also asked to rank the four leading positive reforms and the four leading negative reforms over this period. Firms' assessments of the impact of reforms differed for each broad area of reform. For any reform, some firms reported no impact or that they were unable to discern an impact, while many firms reported either a positive or negative impact. Across firms, differences in perceptions are likely to have been driven by a number of factors. For example, differences in the extent to which firms use particular inputs and/or produce outputs affected by particular reforms are likely to yield varying assessments of the impact of particular reforms. Firms may also differ in their assessments as a result of differing views about the influence of reforms relative to other factors. For example, the contribution of the reform process relative to the contribution of changes in technology to the changes in the prices paid for services such as telecommunications.

Across the 15 individual reforms, positive impacts ranged from a low of about 10 per cent for aviation to a high of 46 per cent for telecommunications (figure 1). In all, six reforms attracted positive responses from 20 per cent or more of respondents. These reforms included those affecting telecommunications, road freight, industrial relations, electricity, food standards and related regulations, and the waterfront. In contrast, only three reforms attracted negative responses from 20 per cent or more of respondents. These reforms included input taxes and on-costs, environmental regulations and tariff reductions.

Figure 1 Impacts of micro reforms on firms' competitiveness between 1989-90 and 1993-94[a]



a Percentage of 460 firms.
Data source: BIE Agri-food survey 1995.

Firms' overall rankings of the four most important positive and negative micro reforms, in terms of the impact on their competitiveness since 1989, highlighted the following:

Most positive reforms

- Telecommunications
- Industrial relations
- Food standards and regulations
- Road freight

Most negative reforms

- Changes to input taxes/on-costs
- Tariff reductions
- Environmental regulations
- Industrial relations

These rankings for the leading positive and negative micro reforms for the survey as a whole were largely reflected in the rankings provided by firms from each of the twelve survey industries. As the above rankings reveal, industrial relations emerged as an area of reform where firms' assessments were quite mixed — sizeable proportions of firms from each industry indicated positive or negative impacts on their competitiveness. Interestingly, many of the firms reporting negative impacts from tariff reductions met the challenge presented by the reform and by the end of

the survey period had achieved improved performance. Analysis of the survey responses revealed that there were no significant differences in firms' assessments of the impact of micro reforms between those firms experiencing increases in profitability relative to those experiencing decreases in profitability over the survey period. However, there were differences between small and medium to large sized firms. In general, a much smaller proportion of medium to large sized firms indicated that they were unable to assess the impact of micro reforms on their competitiveness or that reforms had no impact. Corresponding to this, a much larger proportion of these firms judged that micro reforms had a positive impact on their competitiveness.

The adequacy of the pace of micro reform

Firms responding to the survey were asked to indicate their views about the adequacy or otherwise of the pace of reform in the 15 areas detailed in figure 1. The aggregate results covering responses from all firms across all reforms indicate that:

- nearly 30 per cent of respondents, on average, judged the pace of reform to be satisfactory;
- another 28 per cent of respondents, on average, were dissatisfied with the pace of reform with;
  - more than half of these respondents indicating that the pace was too slow,
  - another 8 per cent indicated that it was going backwards,
  - while 4 per cent thought it was moving too fast (table 1).

On a value of sales basis, the average proportion of firms' responses indicating satisfaction with the pace of reform increased to 35 per cent, dissatisfaction with the pace of reform also increased, to nearly 45 per cent.

Those reforms with satisfactory ratings above the average for the group as a whole (ie 28.8 per cent) included — telecommunications, food standards and related regulations, electricity, environmental regulations, road freight, gas supply and industrial relations. In contrast, those with relatively high unsatisfactory ratings included — industrial relations, input taxes and on-costs, the waterfront and tariff reductions. With few exceptions, the dominant view where reforms were given a relatively high unsatisfactory rating was that reform was progressing too slowly.

Table 1 Firms' views on the adequacy of the pace of reform in May 1995[a]

	Based on number of firms[b]			
	Satisfactory	*Too slow*	*Going backwards*	*Too fast*
Telecommunications	54.2	7.0	1.8	1.1
Food standards	48.5	13.2	4.8	4.4
Electricity	40.7	15.6	3.7	1.3
Environmental	38.4	9.6	8.1	11.0
Road freight	33.3	21.1	4.6	0.4
Gas	29.8	12.5	2.4	0.9
Industrial relations	29.6	25.7	16.7	4.6
Water supply	28.3	15.1	5.9	4.4
SMAs	24.2	13.8	5.9	2.4
Aviation	23.7	12.1	3.9	0.0
Tariff reductions	22.4	10.5	11.2	15.8
Rail transport	18.9	20.2	5.3	0.2
Input taxes & on-costs	15.4	20.4	24.6	6.8
Waterfront	12.5	31.6	8.3	0.0
Coastal shipping	12.1	23.0	6.6	0.2
Average [c]	**28.8**	**16.8**	**7.6**	**3.6**

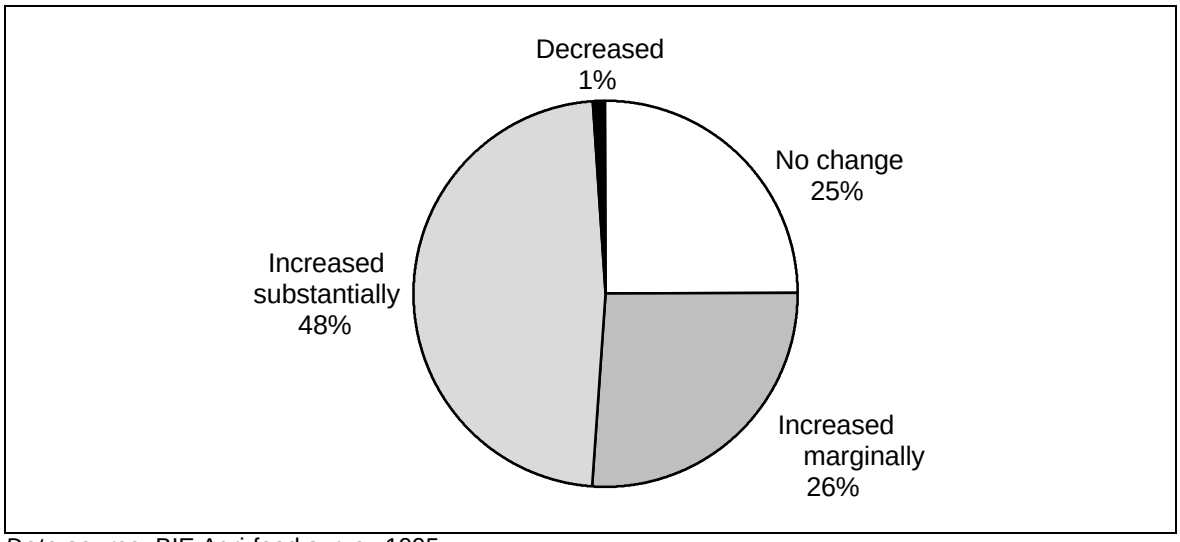
a Percentage of 460 firms' responses. Note that 'not applicable' and 'don't know' responses are not reported in this table, hence percentages for individual reforms do not add to 100. **b** If the value of firms' sales rather than the number of firms is used as a weighting device the results vary from those presented in this table (see chapter 3). **c** This average rate of firms responses was estimated by aggregating all survey responses on the pace of reform across all reforms and all industries. An equal weight was applied to all responses.
Source: BIE Agri-food survey 1995.

The changed competitive environment

Many micro reform initiatives have been directed at promoting a higher level of competition in the Australian economy. While increased competition may not be welcomed by individual firms it does, in general, promote better outcomes for consumers. Indeed the underlying aim of reforms has, in many cases, been to encourage firms (including their managers and workers) to become more productive. Given this, questions arise as to whether the level of domestic competition faced by agri-food firms has changed and, if so, the reasons for the change.

For the survey as a whole, almost 75 per cent of respondent firms indicated that the level of domestic competition they have faced since July 1989 had increased — most of these judged it increased substantially (see figure 2). In general, firms in each of the 12 surveyed industries reported a similar experience. With the exception of the Sugar manufacturing industry, more than 60 per cent of firms in each industry reported an increase in the level of competition.

Figure 2 Changes in the level of domestic competition faced by respondent firms since July 1989



Data source: BIE Agri-food survey 1995.

Across the survey as a whole and for each industry group, market based factors rather than micro reform factors were considered to be the main factors contributing to reported changes in competition. The leading market based factors were new entrants to the domestic industry, changes in technology, industry mergers or takeovers and changes in import competition. Nevertheless, in seven of the twelve survey industries one or more micro reforms were considered by firms as being amongst the leading three factors affecting changes in the level of competition. Changes to statutory marketing arrangements and tariff reductions were the leading micro reform based contributors to the increased level of competition.

While micro reform factors were generally not ranked as highly as market based factors as contributors to the change, they appear to have important indirect effects. For instance, the more open markets facilitated by micro reforms such as tariff reductions and changes to statutory marketing arrangements, increased the level of import competition faced by firms. In addition, an analysis of the survey results revealed a link between changes to statutory marketing arrangements and mergers and takeovers.

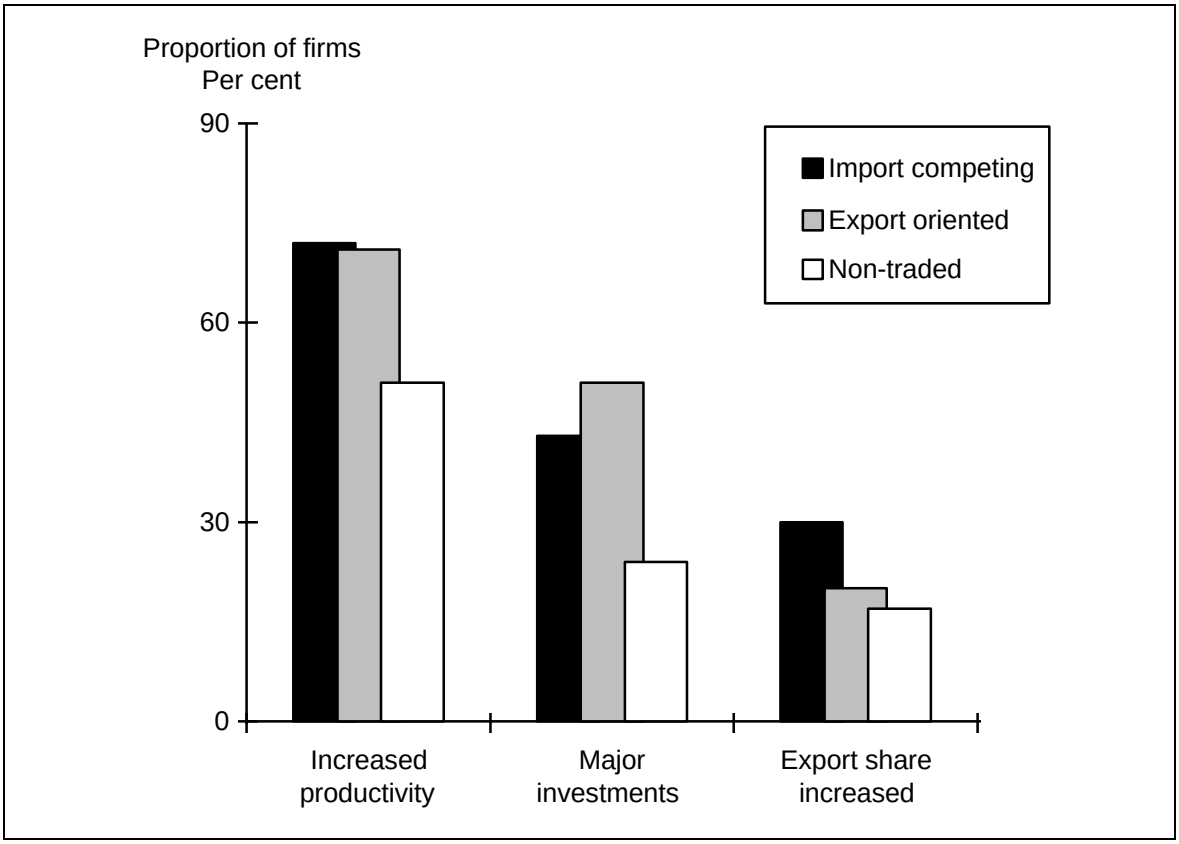
Firms' responses to increasing competition

Analysis of the survey results indicates that firms experiencing an increase in competition, regardless of its source, have responded across a wide front. Firms' responses generally encompassed three broad areas: efforts directed at maintaining/increasing their sales, efforts to change their cost structures and efforts to raise productivity.

Overall, respondent firms faced with increases in competition were more dynamic and productive than those reporting no change in the level of domestic competition. Firms reporting changes to their operating structure, major investments and substantial sales growth — often involving an emphasis on growing exports — were more likely to have reported an increase in the level of competition facing them in the domestic market. Firms experiencing increases in productivity were also more likely to have experienced increased competitive pressures.

These findings point to a wide range of positive outcomes associated with increases in competitive pressures. This point is particularly relevant for those industries which face a substantial amount of international competition. Firms in industries subject to international trade were more likely to report increases in their productivity and an increased export share. These firms were also more likely to indicate they had undertaken a major investment (figure 3).

Figure 3 Outcomes accompanying a change in the level of domestic competition since July 1989, by trade orientation



Data source: BIE Agri-food survey 1995.

While the proportion of firms responding to the increase in competition were often much greater in the two traded sectors, figure 3 shows that sizeable proportions of

firms in the non-traded sector also achieved positive outcomes in the face of increased competition.

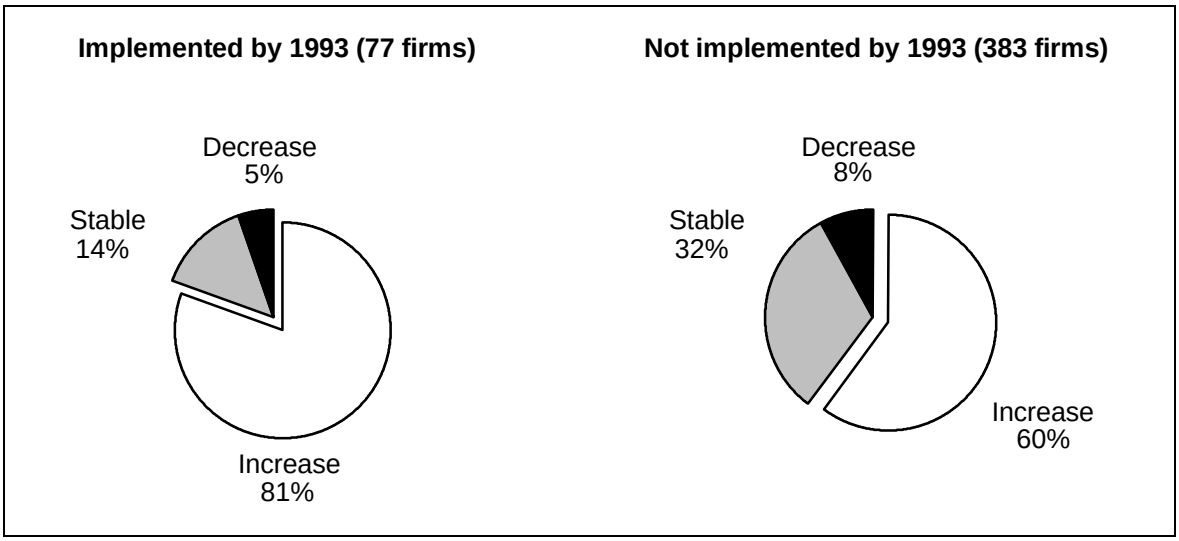
Building more productive workplaces

A majority of agri-food survey respondents indicated that their productivity increased over the period 1989-90 to 1993-94. Nearly 35 per cent reported a substantial increase with a further 30 per cent reporting a marginal increase and 30 per cent considered that their productivity remained stable. Less than 8 per cent reported a decline in productivity.

Firms reporting an increase in productivity identified a wide range of contributors. The leading contributors included changes in the level of production, changes to management practices, investments in new machinery and in labour saving technology. Changes in the level of innovation and improvements in employee relations were also frequently identified as playing an important role. In general, most firms considered industrial relations and workplace reforms — covering occupational health and safety, enterprise agreements and the application of best practice techniques — as less significant contributors to the productivity increase. The take-up of these reforms was relatively low with less than 50 per cent of firms indicating they had implemented these reforms.

Although the overall implementation rate for these reforms was relatively low, there is a link between their implementation and firms reporting an increase in productivity. This was particularly evident for firms implementing occupational health and safety changes, but less so for firms implementing enterprise agreements and best practice techniques. Notwithstanding this, the group of firms that indicated they had implemented an enterprise agreement were more likely to report increased productivity, relative to the group of firms that had not implemented this reform (figure 4). Many of these firms identified enterprise agreements as contributing to their productivity increase. However, econometric analysis undertaken by the BIE found little evidence of a strong direct relationship between productivity improvements and enterprise agreements. This analysis suggests that this link is indirect — through firms undertaking new major investments in response to the increased certainty associated with an enterprise agreement. Undertaking a major investment was commonly identified as an important driver of firms' productivity improvements.

Figure 4 Enterprise agreements and changes in productivity between 1989-90 and 1993-94[a]



a Enterprise agreements implemented in 1994 were not included in the implemented group because they may have been implemented in the later half of 1994, such agreements could not affect productivity during the period 1989-90 to 1993-94.
Data source: BIE Agri-food survey 1995.

Despite implementing an enterprise agreement just under 20 per cent of firms reported that their productivity either declined or remained stable over the period 1989-90 to 1993-94 (figure 4). One contributor to this result may be the overall quality of these firms' agreements.

Discussions with firms indicate that implementing an enterprise agreement presents significant challenges to managers and workers alike. Managers generally believed that successful agreements required changes in management and workplace culture and attitudes — often involving a time consuming learning process. Allied to this, firms indicated that substantial productivity gains were often not achieved until the second or third agreements.

The BIE conducted a follow up survey to identify why many firms had not implemented an enterprise agreement. The majority of respondents indicated that they were satisfied with existing arrangements. In some cases, existing arrangements involved informal agreements with individual staff. However, around a quarter of firms without an enterprise agreement thought that enterprise bargaining was too complex or costly.

Challenges for the future

Since the BIE commenced its analysis of the agri-food and related industries the new coalition government has announced the creation of the Productivity Commission. The Productivity Commission will combine the functions of the Industry Commission, the BIE and the Economic Planning Advisory Commission. The Government has requested that the new commission carry out a stocktake of progress on microeconomic reform and provide advice on specific areas for further reform. In undertaking this task the Productivity Commission will take an economy wide view of the reform process. The commission is to produce a report for the government by July this year.

The BIE in undertaking the *Micro Reform — Impact on Firms* project has specifically aimed its analysis at the firm and industry level. Of course, microeconomic reform is likely to have direct and indirect impacts on firms, some discernible and some indiscernible at the firm level (BIE 1996a). Hence, the findings presented below can be considered as drawing together the views of agri-food survey respondents which are based on their individual experiences and the discernible direct impacts of the reform process on their business'. As a consequence, the priorities for micro reform indicated by our survey respondents may not necessarily fully reflect the reform priorities outlined in the Productivity Commission's forthcoming stocktake report.

In aggregate, firms nominated industrial relations, input taxes and on-costs, food standards and related regulations and tariff reductions the four leading areas for future micro reform. At an industry level, industrial relations and input taxes and on-costs were consistently ranked amongst the leading areas of required reform. However, some other reforms — including statutory marketing arrangements, infrastructure service reforms (notably the waterfront and road freight), and environmental regulations — emerged as particularly important for some industries.

Dissatisfaction with the pace of these reforms primarily reflected the view that reform was progressing too slowly. The only areas reflecting a different view were tariff reductions and environmental regulations. In the case of tariffs, the dominant source of dissatisfaction reflected the view that reductions were proceeding too rapidly. For the environment, views were quite mixed with sizeable proportions of firms indicating that the pace of reform was proceeding too slowly. Others believed the pace was going backwards, while others considered it was proceeding too quickly.

These differences in viewpoint reflect the often diverse impacts of microeconomic reforms across firms and industries within the economy. Thus, in an environment in

which tariffs are being reduced, firms paying higher prices for their inputs as a result of tariffs are likely to indicate that the pace of reform is too slow. In contrast, firms benefiting from tariff protection are likely to indicate that the pace of reform is too fast. The agri-food industries include examples of firms falling into each of these groups. It is of interest to note that even those firms' reporting negative impacts from tariff reductions have responded to the increased competition by taking action to reduce costs and improve productivity. In the case of environmental regulations, views on the adequacy or otherwise of the pace of reform are likely to be shaped by differences in firms' exposures to such regulation as well as differing assessments of the effects of such regulation on their operations.

In general, these results highlight the desire of survey respondents for an acceleration of the pace of reform across a wide range of different areas. In most cases, the desired focus is on identifying and reducing unnecessary or avoidable cost imposts on industry. Beyond this, the details and implications for future policy directions are largely driven by the specific characteristics of the reform area itself. Broad comments covering these details and implications are spelt out in chapter 6 of the report.

1 Introduction

1.1 Background

Micro reform is about getting the incentives structure in the economy right at the grass roots level, so that Australians can achieve a high and sustainable standard of living. Whilst the overall benefits of micro reform are expected to be significantly greater than the costs, in the short term, some groups are disadvantaged.

At the firm level micro reform affects competitiveness, both directly and indirectly, through changes to unit revenues and costs. For example, lower tariffs may directly affect a firm's output prices as well as the prices paid for inputs. Reforms to infrastructure industries indirectly impact on firms by changing the prices paid for inputs, while changes to competition policy may result in new entrants or changes to relationships with existing competitors.

A considerable amount of work done has been on the expected economy-wide gains from the reform process. However, information currently available on the impacts of micro reform on individual firms and industries is limited. To redress this, the previous government in the May 1994 White Paper, Working Nation: Policies and Programs (Keating 1994) initiated a four year BIE project to monitor the impact of micro reform at the firm and industry level.

The BIE released its first report for this new area of work in January 1996 (BIE 1996a). The report examined the evolution of the micro reform agenda and discussed how reforms in various key areas of the economy are likely to have impacted on firms and industries. The BIE concluded that individual, firm specific, responses are likely to be an important feature of the microeconomic reform adjustment process. Consequently, the BIE judged a case study approach, pitched at the firm level for particular industries, was the most appropriate research vehicle for the project over the first two to three years.

This report covering the agri-food industries represents the first industry-based case study.

1.2 The reason for selecting the agri-food industries as a case study

Australia's agri-food industries are a major industry group within the manufacturing sector, accounting for 21 per cent of turnover and 18 per cent of employment in 1992-93 (latest available data). The agri-food industries include industry groups with different exposures to international markets — some with a strong export focus, some with an import-competing orientation and others with little exposure to international competition. Overall, the agri-food industries accounted for over 25 per cent of the manufacturing sector's exports in 1993-94 and for some 5 per cent of its imports. This diversity in exposure to international competition was expected to provide a broader view of the impact of micro reform at the industry level.

The agri-food industries also have strong inter-industry linkages with upstream industries (eg the agricultural sector) as well as downstream industries (eg Food processing machinery and Packaging.). This feature of the industries also acts to provide a potentially richer case study.

Beyond this, parts of the agri-food industry group have been perceived as inward-looking and in danger of losing market share to imports. For example, the Food Processing Reference Group (FPRG 1991) argued that the perishable nature of certain products and the low value/weight ratios of simply-processed products provides some agri-food industries/products with a degree of natural protection against imports. The FPRG maintained that this protection, coupled with strong domestic demand, has encouraged an entrenched resistance to achieving international competitiveness (FPRG 1991). The FPRG also identified a range of external impediments to the performance of these industries, such as 'corrupt' world markets, the high assistance provided to other Australian industries and high transport costs.

The Federal Government announced an Agri-Food Industries Strategy in July 1992 aimed at encouraging a more outward-looking and internationally-competitive sector. By addressing performance gaps and encouraging networking, the Strategy could also allow these industries to take better advantage of micro reforms. Recent studies of the performance of the agri-food industries have drawn attention to the importance of micro reform for these industries (DPM&C 1994 and AATS&E 1994).

In total, these attributes of the agri-food industries combined to suggest they were an ideal case study. Discussions with industry groups and various federal and state government agencies confirmed this assessment.

1.3 Key objectives of the study

In addressing the information gap relating to the impact of micro reform at the firm and industry level the main aims of the agri-food case study are to provide information covering:

- firms' assessments of the adequacy or otherwise of recent reform initiatives;
- firms' assessments of the relative importance of different reforms to their operations;
- firms' perceptions relating to the need, if any, for additional reforms;
- the significance of micro reforms relative to other influences shaping changes to their operations over time;
- the main impact of micro reform across the activities of firms and for their performance and key drivers of the differences in the experiences of firms; and
- the significance of the dynamic effects of micro reforms on firms.

1.4 Support for the study

The Agri-Food Industries Branch within the then Department of Industry, Science and Technology, together with a number of key firms within the agri-food sector provided the BIE with sponsorship to partially finance the cost of the study. This support enabled the BIE to undertake a more comprehensive analysis than otherwise would have been possible.

The BIE was also encouraged by the significant support and co-operation provided by the industry for the case-study. The Agri-Food Council agreed to form a Steering Group to advise the BIE on key aspects of the study. The membership of the Steering Committee is provided in appendix 1.

Endorsement of the agri-food survey, which formed a major part of the case study, was provided by the Agri-Food Council, the National Farmers' Federation, the Grocery Manufacturers of Australia and the Packaging Council of Australia.

1.5 Methodology

The principal data source for the case study was a mail-out survey of almost 1 500 firms in the agri-food sector and related industries, of which 460 responded.

Background information on the survey is provided in chapter 2 and the survey questionnaire is reproduced in appendix 2.

The BIE developed the survey questionnaire in consultation with the Steering Group and the Australian Bureau of Statistics (ABS). The ABS assisted in mailing out survey forms, processing the raw data and conducting a non-respondent bias survey. Results from the non-respondent bias survey were used to determine whether the responses from the main survey were representative of the wider population of firms (see appendix 3 for more information). The survey questions were pre-tested on a pilot group of 35 firms - 21 of which responded.

Additional information for the case study was obtained from a number of other sources including:

- 15 face-to-face interviews and 9 telephone interviews with firms across the selected industry groups;
- a follow-up telephone survey of 92 firms which responded to the main survey;
- canvassing of the views of key industry bodies and related interest groups; and
- drawing on a variety of other data sources and reports covering different aspects of the industries, including those compiled by the ABS.

1.6 Outline of the report

The following chapter presents background information relating to key characteristics of the agri-food sector and the BIE survey.

Chapter 3 reports firms' perceptions of the impact of key recent micro reforms on their competitiveness. The chapter also reports changes in the level of domestic competition faced by respondent firms since 1989-90 and discusses factors which have contributed to this change. Chapter 4 focuses on firms' responses to increased competition and identifies some outcomes accompanying the change. Chapter 5 examines the extent of productivity change experienced by survey respondents and considers the contribution made by industrial relations and workplace reforms.

Chapter 6 brings together the main findings about the micro reforms covered by the case study and reports respondent firms' perceptions about the most important micro reforms for the future competitiveness of their businesses. Finally, appendices 1 to 10 supplement the information presented in the main body of the report and provide more detail on survey results on an industry by industry basis.

2 The agri-food industries and the BIE survey

The BIE selected the agri-food industries for its first micro reform case study in recognition of their importance in the economy. In addition, the BIE considered that certain features of these industries suggested they would have a relatively high exposure to many aspects of Australia's microeconomic reform program. This chapter provides a snapshot of the agri-food sector and presents details of the survey methodology adopted for the case study. Section 2.1 discusses the importance of the agri-food sector in Australian manufacturing in terms of its contribution to turnover, employment, exports and imports. Section 2.2 outlines the main inputs used by agri-food manufacturers and the influence of government on the costs to make and sell products. Section 2.3 provides details of the agri-food survey and industry coverage. Broad descriptions of the industries included in the survey are presented in appendix 4.

2.1 The agri-food sector in perspective

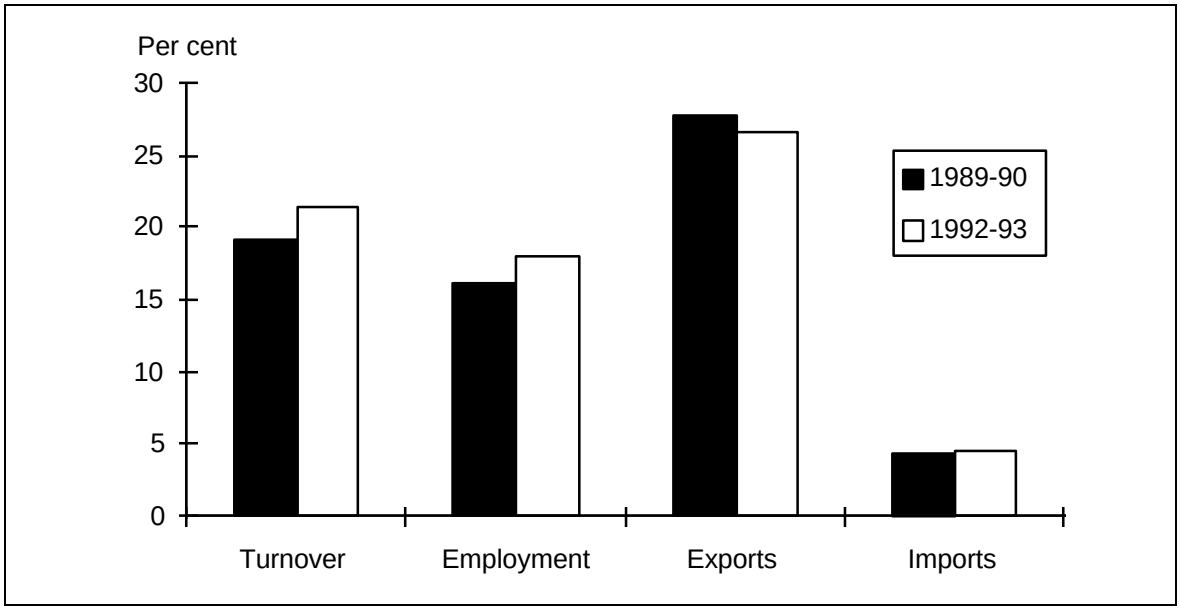
Between 1989-90 and 1993-94, the food, beverages and tobacco (FBT) industry group recorded the fastest growth in the manufacturing sector, with its gross product rising on average by 4.7 per cent (constant 1989-90 prices) each year. This was almost twice the average annual growth rate for total manufacturing gross product over the same period. The FBT industry is dominated by the agri-food sector, which comprises firms manufacturing food and beverages. For example, the agri-food sector accounted for over 90 per cent of the value-added by the FBT industry in 1992-93.

The relative importance of the agri-food sector to Australian manufacturing is also illustrated by its dominance of manufacturing turnover. In 1989-90, the agri-food sector accounted for just over 19 per cent of total manufacturing turnover, making it the largest sector within manufacturing. By 1992-93 (latest available data), its share had risen to over 21 per cent, with turnover valued at $36.2 billion (figure 2.1).

This strong growth in turnover was accompanied by a fall in employment within the sector (down about 6800 or 4.1 per cent). Despite this fall, the sector's share of total

manufacturing employment rose, reinforcing its position as the largest provider of manufacturing jobs (figure 2.1). The manufacturing sector as a whole experienced enormous job-shedding in the three years to 1992-93, the result of the recession as well as significant restructuring. However, job losses in the agri-food sector accounted for only 4.7 per cent of the fall in total manufacturing employment over the period, well below its share.

Figure 2.1 Agri-food sector as a share of total manufacturing, 1989-90 and 1992-93[a]



a The data for exports and imports relate to 1989-90 and 1993-94.
Data sources: ABS (1996a) and Department of Foreign Affairs and Trade STARS database (1996).

The combination of rising turnover and falling employment points to an improvement in labour productivity over the period. This improvement was accompanied by a rising share of total manufacturing investment. Between 1989-90 and 1992-93, the FBT industry's share of manufacturing capital expenditure (unfortunately data are not available for the agri-food sector alone) rose by 4.5 percentage points to 20.0 per cent, reflecting the relatively capital-intensive nature of food and beverage production.

The latest data also indicate that turnover per person by agri-food firms increased by 18.8 per cent (current prices) between 1989-90 and 1992-93. While this growth is slower than that recorded for the manufacturing sector as a whole (19.5 per cent, current prices), the level of turnover per person is higher for agri-food firms than for manufacturing firms in general ($230.50 and $192.10 respectively).

Agri-food products are our second-largest manufactured export earner, accounting for 26.7 per cent of total manufactured exports in 1993-94 and growing on average

by 8.9 per cent (current prices) each year since 1989-90. However, very strong growth in exports of elaborately transformed manufactures (ETMs) between 1989-90 and 1993-94 resulted in a slight decline in agri-food products' share of total manufactured exports. Over the same period, imports of agri-food products as a share of total manufactured imports increased slightly to 4.6 per cent.

Almost 90 per cent of FBT establishments are small, that is, they employ less than 100 people. Despite this dominance, small FBT establishments account for only 30.4 per cent of employment, 24.3 per cent of wages and salaries, 27.6 per cent of turnover and 24.5 per cent of value added by the FBT industry in 1992-93.

Compared with the manufacturing sector as a whole, the degree of industrial concentration for the FBT industry is high. In 1992-93, the twenty largest enterprise groups in the FBT industry accounted for 8 per cent of establishments, 38 per cent of employment, 44 per cent of wages and salaries, 45 per cent of turnover and 47 per cent of value added. By contrast, the top twenty manufacturing enterprise groups accounted for 3 per cent of establishments, 15 per cent of employment, 20 per cent of wages and salaries, 28 per cent of turnover and 23 per cent of value added.

2.2 Key inputs and the influence of government on costs to make and sell

2.2.1 Agri-food cost structures

A very simple application of the input-output tables produced by the Australian Bureau of Statistics is to estimate cost structures by calculating inputs as a percentage of the output of an industry (ABS 1994a). Because the input-output data relates to 1989-90, and relative prices change from year to year, it is useful to regard the cost structures as representing underlying quantities and technical relationships. The cost structures shown in table 2.1 are based on the direct input requirements for the industries shown. As such, they do not account for the indirect requirements embodied in inputs (eg wheat inputs embodied in flour used by the Bakery products industry or electricity inputs embodied in bags and containers). While the cost structures presented in table 2.1 understate the overall significance of particular inputs in the agri-food production process, they are more likely to represent the costs readily identifiable by the firms responding to the BIE's survey.

Table 2.1 Share of direct inputs in the cost of selected agri-food industries output, 1989-90 relative prices

Industry	*Meat and meat prods mfg*	*Dairy prods mfg*	*Fruit and vegetable processing*	*Oil and fat mfg*	*Flour mill and cereal food mfg*	*Bakery prod mfg*	*Confection-ery mfg*	*Other food mfg*	*Beverages and malt mfg*
Primary products	**56.03**	**40.73**	**9.16**	**8.13**	**30.15**	**0.95**	**1.95**	**28.86**	**10.89**
Mining	**0.07**	**0.20**	**0.15**	**0.13**	**0.06**	**0.04**	**0.03**	**0.08**	**0.07**
Agri-food products	**6.33**	**17.95**	**21.79**	**36.63**	**11.91**	**28.43**	**18.32**	**17.07**	**10.09**
Bags & containers	**0.77**	**0.46**	**2.96**	**2.60**	**1.80**	**1.31**	**2.47**	**0.99**	**2.30**
Manufacturing nec	**1.16**	**2.54**	**16.91**	**14.59**	**2.67**	**6.00**	**15.41**	**5.25**	**19.75**
Electricity	*0.79*	*1.00*	*1.01*	*0.93*	*0.99*	*1.17*	*0.97*	*0.58*	*0.83*
Gas	*0.15*	*0.18*	*0.23*	*0.42*	*0.21*	*0.49*	*0.27*	*0.23*	*0.35*
Water, sewerage & drainage	*0.03*	*0.01*	*0.00*	*0.53*	*0.01*	*0.20*	*0.05*	*0.12*	*0.14*
Road transport	*5.27*	*2.71*	*3.35*	*3.27*	*4.35*	*1.10*	*1.43*	*3.29*	*2.37*
Railway transport nec	*0.23*	*0.26*	*0.15*	*0.40*	*3.13*	*0.08*	*0.06*	*1.05*	*0.40*
Water transport	*0.00*	*0.00*	*0.04*	*0.04*	*0.06*	*0.02*	*0.03*	*0.09*	*0.04*
Services to transport	*0.05*	*0.04*	*0.07*	*0.68*	*0.30*	*0.24*	*0.20*	*0.29*	*0.19*
Air transport	*0.05*	*0.01*	*0.05*	*0.06*	*0.09*	*0.52*	*0.09*	*0.11*	*0.14*
Communication	*0.38*	*0.02*	*0.84*	*0.14*	*0.11*	*0.65*	*0.16*	*0.17*	*0.30*
Total infrastructure services	**6.96**	**4.24**	**5.73**	**6.47**	**9.25**	**4.46**	**3.26**	**5.92**	**4.76**
Other services	**5.51**	**8.13**	**11.12**	**12.80**	**13.68**	**10.89**	**20.07**	**10.37**	**11.21**
Wages, salaries & supplements	**11.71**	**8.90**	**15.11**	**10.41**	**12.11**	**26.88**	**18.26**	**11.49**	**11.72**
Gross operating surplus	**9.41**	**15.60**	**14.61**	**6.33**	**15.87**	**18.20**	**18.65**	**17.27**	**26.76**
Commodity taxes	**1.41**	**0.38**	**1.32**	**0.79**	**1.37**	**1.32**	**0.65**	**0.81**	**1.52**
Indirect taxes (net)	**0.43**	**0.68**	**0.86**	**0.86**	**0.91**	**1.34**	**0.93**	**0.57**	**0.76**
Complementary imports	**0.22**	**0.18**	**0.28**	**0.27**	**0.22**	**0.17**	**0.02**	**0.32**	**0.16**
Total	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**

Data sources: BIE estimates based on ABS 1994a and 1994b.

The cost structures of agri-food industries, based on their direct input requirements, vary significantly. For example, primary products account for $56 of every $100 of factory gate output for firms in the meat processing industry, compared with less than $1 for manufacturers of bakery products. In general however, primary products, agri-food products, and labour costs comprise the largest share of direct input costs for agri-food industries (table 2.1). Although not as significant, infrastructure costs are also an important factor in the cost structure of agri-food firms, especially those in the Flour mill, Cereal food manufacturing and Meat processing industries. By contrast, mining inputs, commodity taxes, indirect taxes and complementary imports make only small contributions to the direct costs of firms in the agri-food sector.

The relative contributions of some of the major direct inputs are discussed in more detail below.

Primary products

Not surprisingly, primary products are a major direct input for some agri-food industries, particularly those processing meat, dairy products, flour mill and cereal foods and other food products.[1] These industries concentrate on the initial processing of raw agricultural products into intermediate and final products. For example, wheat and other grains are transformed into flour mill products before being sold as final products or used in the production of cereal foods or bakery products.

For other agri-food industries, primary products account for a relatively small proportion of total direct input costs. For example, primary products account for $0.95 and $1.95 of every $100 of factory gate output for firms in the Bakery products and Confectionery manufacturing industries. These industries are more commonly associated with further processing of intermediate goods into final products.

Labour

The relative importance of labour varies between agri-food industries, ranging from $26.88 for every $100 of factory gate output for firms manufacturing bakery products, to $8.90 for firms in the Dairy products manufacturing industry, see table 2.1.

[1] Other food manufacturing consists of sugar manufacturing, confectionery manufacturing, seafood processing, prepared animal and bird feed manufacturing and food manufacturing nec.

In addition to wages and salaries, labour costs also include employer superannuation payments and workers' compensation insurance premiums. Payroll taxes, although not included in wages, salaries and supplements, is an additional cost for agri-food manufacturers. From the data presented in table 2.1, indirect taxes (which include payroll taxes) make a relatively small contribution to the direct input costs of agri-food firms. However, data on average costs per employee for the manufacturing sector (unfortunately data are not available for the agri-food sector) indicate these taxes and on-costs may be considerable (table 2.3).

Infrastructure

The relative importance of direct infrastructure costs to agri-food industries is outlined in table 2.1. Although the data are not available for the sector as a whole, there are some similarities among the agri-food industries. For example, electricity is the major source of energy for agri-food manufacturers, ranging from $0.58 to $1.17 for every $100 of factory gate output. By contrast, natural gas usage ranges from $0.15 to $0.49.

Road transport services are the main source of transport for agri-food firms, ranging from $1.10 to $5.27 for every $100 of factory gate output. Rail transport is also an important infrastructure input for firms manufacturing Flour mill and cereal food products. Combined road transport and rail transport account for over $7.00 of the direct input costs for every $100 of the Flour mill and cereal food products industry's factory gate output. A significant proportion of Australia's grain, one of the industry's major inputs, is transported by rail.

By contrast, air and water transport direct usage by agri-food industries is low, accounting for between $0.01 and $0.54 of every $100 of factory gate output. Similarly, communication, and water, sewerage and drainage services account for small proportions of total direct inputs used.

Services to transport, which includes waterfront services, are not a significant direct input cost to the agri-food manufacturers included in table 2.1. However, these services have a large indirect impact, affecting the final cost of shipping Australian agri-food products to overseas buyers.

2.2.2 Influence of government on costs to make and sell

Some of the major inputs to agri-food production are, or have been, subject to micro reforms, affecting the prices of inputs as well as outputs. For example, tariff reductions not only lower the prices of some inputs, but also the prices of outputs

previously protected. Similarly, reforms to the industrial relations system and the provision of government services affect the costs of labour and infrastructure respectively, indirectly impacting on the price of the final product. These changes, and their likely impact on agri-food manufacturers, are discussed below.

Tariffs and statutory marketing arrangements

Trade barriers and industry protection have played an important role in Australia's economic development. Since federation trade barriers, commonly in the form of tariffs and/or quotas have been important forms of industry assistance for many manufacturing industries. Commonwealth and state governments aiming to ensure orderly marketing and where possible protection against imports also introduced statutory marketing arrangements (SMAs) for agricultural products. SMAs are generally designed to increase returns to growers and, in so doing, raise prices paid by domestic consumers and producers who use the produce as an input. SMAs can operate in conjunction with tariffs or import quotas (BIE 1996a).

Many agri-food products have both benefited and been penalised by these industry assistance arrangements. For example, in July 1989, domestic production of sugar confectionery was assisted by an 18 per cent tariff on imports. At the same time, domestic production of orange juice enjoyed assistance from a 24 per cent tariff on imported frozen orange juice concentrate. However, the cost competitiveness of production for both of these products suffered through assistance afforded capital and intermediate inputs — such as tariffs on plant and machinery and packaging as well as the tariffs and SMAs applied to the sugar industry. The implicit costs associated with these arrangements was considerable. For example, the Industry Commission estimated that in 1989-90 the price of sugar on the domestic market was 23 per cent higher than the price that could be expected to have applied in the absence of sugar assistance arrangements (see table 2.2). Other agri-food industries, particularly those with a strong export orientation, were primarily penalised by the assistance arrangements afforded the agricultural and manufacturing sectors. Industries in this category included Meat processing and Flour mill products manufacturing. Appendix 4 presents more information on individual agri-food industries including estimates of their assistance levels.

To improve the competitiveness of the manufacturing sector as a whole, the Commonwealth government since May 1988 has introduced a program of progressive reductions in industry assistance. As a results of this program most tariffs will have declined to a maximum of 5 per cent by July 1996. Other Commonwealth assistance by way of bounties and Commonwealth supported SMAs have also experienced reductions — see chapter 3 of *Setting the Scene, Micro Reform — Impacts on Firms* (BIE 1996a) for details of these changes. State

governments have also put in place initiatives to reduce or remove the assistance afforded by SMAs within their control. Lower tariffs can increase the level of competition from imports faced by domestic producers. Lower tariffs can also have a positive impact by reducing the prices paid for inputs previously protected by tariffs, contributing to more competitive prices for final goods. Reforms to SMAs have reduced the prices of some primary produce inputs (table 2.2).

Table 2.2 Price distortions for agricultural commodities, 1989-90 to 1993-94[a]

Activity/commodity	*1989-90 %*	*1990-91 %*	*1991-92 %*	*1992-93 %*	*1993-94 %*
Manufacturing milk					
Cheese	13	15	15	12	9
Butter	17	23	21	16	14
Skim milk powder	19	24	22	14	13
Whole milk powder	16	21	22	15	13
Casein	19	29	26	15	16
Fresh milk	36	38	45	37	83
Eggs	9	9	8	3	2
Rice	11	14	14	13	6
Sugar	23	54	31	13	19
Sultanas	26	31	28	26	16

a The price distortion is the proportional difference between the assisted price of a commodity and the price that would be expected to prevail in a competitive market, or without assistance.
Source: IC (1995b).

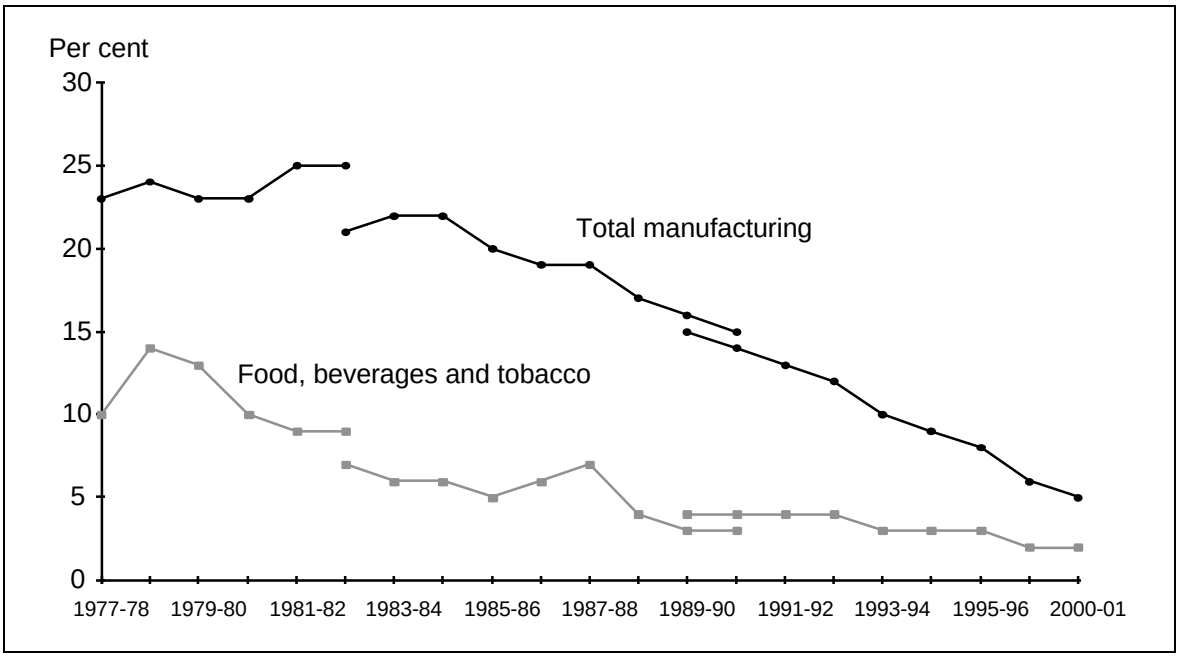
While the latest estimates from the Industry Commission indicate that generally price distortions declined between 1989-90 and 1993-94, (the period covered by the agri-food case study survey) for some products they increased or increased following initial declines. For example, price distortions for fresh milk more than doubled in 1993-94 relative to 1989-90. This reflects the maintenance of fresh milk prices by state milk authorities in the face of falling manufactured milk prices. Revised assistance arrangements for manufactured milk products at the Commonwealth level resulted in lower levels of assistance and hence milk prices. Similarly, price distortions for sugar rose in 1993-94 as the world price of sugar fell and the specific tariff rate on sugar imports remained at $55 per tonne.

Compared with total manufacturing, agri-food industries receive relatively low levels of government assistance (figure 2.2). For example, the average effective rate of assistance (ERA) for FBT was 3 per cent in 1993-94, compared with 10 per cent for total manufacturing.[2] However, there are also wide disparities in the ERAs

[2] The ERA takes into account the assistance provided to an activity's output as well as any assistance, positive or negative, provided to intermediate inputs, land, labour and capital. The ERA can be defined as the percentage increase in returns to an activity's value added per unit of output relative to the hypothetical situation of no assistance.

afforded industries within the agri-food group, ranging from -3 per cent for milk and cream processing to 20 per cent for butter in 1993-94 (IC 1995a). Wide disparities in ERAs indicate the potential for resources to be misallocated. That is, resources could be directed into activities which do not maximise the economy's gross domestic product. However, disparities in assistance across the manufacturing sector and within the FBT industry group are reducing in line with progressive reductions in industry assistance.

Figure 2.2 Effective rates of assistance for manufacturing and food, beverages and tobacco, 1977-78 to 2000-01[a]



a The data for 1992-93 to 2000-01 are Industry Commission (IC) estimates based on 1991-92 prices.
Data Source: IC (1995a).

Infrastructure services

The public sector dominates the provision of most infrastructure services. Australian governments by the late 1980s, were increasingly focusing on the need to better define the objectives of government business enterprises, improve their performance and, where possible, reduce the basic cost of infrastructure and services to industry (BIE 1996a). Although reforms were introduced to improve the performance of government enterprises providing infrastructure services, they have had different effects on firms' costs to make and sell.

Most Australian electricity distributors improved the reliability of services between 1991-92 and 1993-94 (BIE 1995a). Moreover, Australia's average electricity prices fell in real terms by 9 per cent between 1987-88 and 1993-94. Unfortunately, data

on Australia's average electricity prices for industrial users are not available (ESAA 1995). However, for those states where data is available reductions in average industrial prices exceeded the 9 per cent reduction reported across all user categories. It should be recognised, however, that the use of average prices to assess pricing performance can be misleading. Averages can not, for example, provide an indication of variability between particular demand/load factor categories (BIE 1995a).

Other positive impacts of infrastructure reform include:

- lower charges for domestic, international and mobile phone charges for business users, down 9, 28 and 26 per cent respectively between 1990 and 1994 (BIE 1995a);
- lower general and grain freight charges for most Australian rail systems (BIE 1995a); and
- lower air freight charges (BIE 1995a).

By contrast, reforms to the provision of water, sewerage and drainage services resulted in higher prices for industrial users. For example, water prices have risen since 1987-88, largely reflecting the introduction of a user-pays charging regime and the reduction of non-commercial cross-subsidies. For other infrastructure services the results of reform are mixed. For example, while Australia's waterfront charges for coal handling are at or near world best practice, the performance of Australian container and break bulk operations is poor by international standards (BIE 1995a). Moreover, early improvements in waterfront stevedoring and port charges were later offset as Australia's performance slipped behind ports in New Zealand, Europe and Asia.

Despite some improvements, there are still substantial differences between the performance of Australia's infrastructure industries and world best practice, both in terms of price and reliability. In particular, the largest price performance gaps are in waterfront container operations and telecommunications while the largest service quality performance gaps are in electricity and waterfront container operations (see chapter 4, *Setting the Scene*, *Micro Reform - Impacts on Firms* (BIE 1996a) and *Overview 1995 - International Benchmarking* (BIE 1995a)).

Industrial relations and workplace performance

Centralised institutional arrangements, within the jurisdiction of Commonwealth and state governments, have traditionally exerted a significant influence over how Australian firms manage the pay and conditions of their workforce. Since 1987, Australia's industrial relations process has been undergoing significant change.

Major changes to the Australian industrial relations system included the introduction of:

- award restructuring, involving modernising classification structures, introducing multi-skilling and adjusting pay relativities between awards;
- a system of enterprise agreements under-pinned by the award system;
- entitlements giving effect to conventions of the International Labour Organisation and the United Nations which Australia has signed[3]; and
- an increased focus on training and the development of best practice initiatives.

Chapter 5 in *Setting the Scene, Micro Reform - Impacts on Firms* (BIE 1996a) presents a detailed survey of these initiatives.

In addition to these wide ranging changes to industrial relations, there have been a number of changes with direct implications for the agri-food sector. These are briefly summarised below.

In 1991, a workplace reform/training issues group for the food processing industry was convened by the Department of Industry, Technology and Commerce to identify impediments to improving the performance of Australian agri-food manufacturers (DITAC 1991). The group identified industrial relations, management practices and labour productivity as major impediments to the growth of the sector. Since then, a number of initiatives have been introduced to change workplace attitudes and cultures.

For example, award restructuring within the industry resulted in the following outcomes; implementation of new classification structures, introduction of skill-related career paths, development of national competency standards and related training measures including the provision of vocational training (DITAC 1993). Moreover, the number of unions was rationalised from over 15 to 5 key unions (Kelty 1995). In addition, a Food Industry Language and Literacy Program (FILLIP) has been introduced to address literacy levels in the industry.

To encourage enterprise bargaining, the Agri-food Council developed the Memorandum of Understanding on Workplace Reform for the Australian Food Processing Industry in 1993. Rather than prescribing specific employment conditions, the Memorandum of Understanding provides a framework which enterprises and workplace negotiations may flexibly draw on. Some of the issues

[3] These entitlements cover minimum wages, parental leave, equal remuneration for work of equal value without discrimination based on sex and certain rights in cases of termination of employment.

addressed include: implementation of award restructuring outcomes; productivity agreements based on multi-factor performance indicators and appropriate reward systems; training agreements; occupational health and safety programs; and equal employment opportunities (DITAC 1993). The Memorandum of Understanding and FILLIP are both components of the previous Commonwealth Government's Agri-food Strategy. The BIE has been evaluating the strategy's programs and initiatives and the evaluation report is expected to be released in June 1996.

Indirect taxes and on-costs

Responsibility for input taxes/on-costs is shared between the Commonwealth and state and territory governments. The Commonwealth raises revenue from excises, the wholesale sales tax and the fringe benefits tax. The states and territories raise revenue from payroll tax, business licence fees, financial and capital transactions taxes. The superannuation guarantee levy is a Commonwealth impost. Workers compensation arrangements and occupational health and safety (OH&S) are largely the responsibility of state and territory governments.

Clearly changes to payroll taxes, superannuation and workers' compensation arrangements can impact on the direct costs of agri-food manufacturers. For example, the federal government introduced compulsory superannuation arrangements in July 1992, requiring employers with annual payrolls above (below) $1 million to contribute 5 (4) per cent of their employee's earnings to superannuation. Superannuation payments for Australian manufacturers rose on average by 11.4 per cent (current prices) each year between 1989-90 and 1993-94. At the state level, the Australian Capital Territory recorded the highest growth in payments each year, while Tasmania recorded the lowest growth (table 2.3).

Reforms to workers' compensation schemes focussed on lowering the cost of claims by encouraging employers to introduce improved safety standards and rehabilitation programs. The effectiveness of these initiatives has varied between states. Overall, workers' compensation payments increased on average by 2.1 per cent (current prices) each year between 1989-90 and 1993-94 for Australian manufacturers. Firms in Tasmania experienced very strong growth of 22.4 per cent (current prices) each year over the period. By contrast, Victoria was the only state to record an overall fall in worker's compensation payments over the period (table 2.3).

Overall, the level of payroll tax paid by Australian manufacturers rose by 5.7 per cent between 1989-90 and 1993-94. However, for firms in Queensland, Western Australia, Tasmania and the Australian Capital Territory the increase was less than the national average. Reforms to payroll taxes have had positive and negative

impacts on firms. For example, increasing exemption levels in most states means more firms are not subject to payroll taxes. However, some states have changed the definition and base of payroll tax to include fringe benefits.

Table 2.3 On-costs for Australian manufacturers by state and territory, average costs per employee[a], 1989-90 to 1993-94[b]

	NSW	*Vic*	*Qld*	*SA*	*WA*	*Tas*	*NT*	*ACT*	*Aust*
Superannuation									
1989-90	1070	1138	942	868	992	1086	846	865	1049
1991-92	1375	1399	982	1171	1466	1361	1110	2126	1318
1993-94	1792	1590	1338	1539	1542	1426	1620	2224	1613
Growth[c] (%)	13.8	8.7	9.2	15.4	11.7	7.0	17.6	26.6	11.4
Payroll tax									
1989-90	1395	1405	1029	919	1285	1745	1291	1254	1300
1991-92	1751	1758	1111	1353	1111	1809	1329	847	1576
1993-94	1865	1737	1074	1304	1348	1852	1715	1337	1623
Growth[c] (%)	7.5	5.4	1.1	9.1	1.2	1.5	7.4	1.6	5.7
Workers' compensation									
1989-90	925	1215	626	1080	783	671	441	1053	983
1991-92	867	1299	673	1417	700	1034	372	1258	1030
1993-94	1091	1082	814	1321	892	1508	655	1322	1068
Growth[c] (%)	4.2	-2.9	6.8	5.2	3.3	22.4	10.4	5.9	2.1

a Current price dollars. **b** Selected periods. **c** Average annual growth from 1989-90 to 1993-94.
Source: ABS unpublished data.

Government regulations

Like other industries a wide range of government regulations impact on agri-food manufacturers. Two important areas cover food standards and related regulations and environmental regulation.

Agri-food firms are subject to regulations controlling national food standards, hygiene, packaging, food processing and handling, food premises, country of origin labelling and imported food inspection arrangements and standards. If agri-food firms are to be efficient and internationally competitive, these regulations need to be relatively simple and uniform where feasible. Australia's food regulations have been criticised for being highly prescriptive and imposing substantial burdens on producers and consumers. Not only did they vary, and sometimes conflict, between states, food regulations for domestic distribution differed from those for overseas distribution, causing additional costs to exporting firms.

To overcome some of these problems, the National Food Authority (NFA) was established in 1991 to develop national food standards. These are considered by the

National Foods Standards Council (comprising commonwealth, state and territory health ministers) and, if passed, are incorporated in state and territory legislation. The NFA is also developing uniform handling and hygiene regulations for Australian agri-food manufacturers.

In 1992-93, agri-food firms on average spent 0.3 per cent of their turnover on environmental protection. This compares favourably with expenditure by manufacturing firms in general, which on average spent 0.4 per cent of their turnover on environmental protection in the same year. At the industry level, firms in the Fruit and vegetable processing industry made the largest contribution, committing 1.0 per cent of their turnover. By contrast, firms in the Confectionery manufacturing industry spent the least on environmental protection (see figure A4.2 in appendix 4).

Reforms to environmental regulations are another important part of the micro reform process. By the late 1980s, Australia's environmental legislation (dealing with issues such as waste and recycling, ozone depletion, greenhouse gas emissions and ecologically-sustainable development) was excessively complex, non-uniform and overlapping. This was largely the result of the unplanned growth of legislation and involvement of all three tiers of government in environmental regulation.

To help alleviate these problems, each state reduced the number of bodies involved in environmental regulation, generally forming a single environmental protection authority. Moreover, state and territory governments signed mutual recognition arrangements in March 1993, agreeing to disregard many of the discrepancies between their regulatory regimes. At the federal level, the Environment Protection Agency (EPA) was established in 1992 to develop national pollution control goals, standards and guidelines. In addition, the Office of Regulation Review within the IC vets environmental impact statements to ensure new Commonwealth environmental regulations are necessary and are well designed.

2.3 The agri-food survey

The agri-food survey was designed to obtain information about the impact of micro reforms over the period 1989-90 to 1993-94. Firms were also asked to comment on the adequacy or otherwise of the current pace of reform and to nominate which areas of reform were most important to their future competitiveness.

A pilot survey was conducted with 35 firms in the agri-food industry. The main survey was then finalised and sent to approximately 1 500 firms. The survey constituted a full census of firms in the targeted industries, except for those in the

Packaging industry where the survey covered members of the Packaging Council of Australia.

The survey collected both qualitative and quantitative data. The survey sought firms' observations and insights into events which occurred over the study period, as well as their perceptions about the impacts of different micro reforms. In addition to this, firms were asked to supply some financial and employment data and details of changes in products and/or services produced.

From a broad perspective, the survey was designed to enable us to identify:

- the impact of micro reforms on the competitiveness of firms;
- whether firms have faced an increase in the level of domestic competition, and if so, the influence of micro reforms;
- what actions firms have taken in response to the reforms; and
- whether the firms have become more efficient or productive as an overall response to micro reform.

Firms responding to the survey were asked to assess seven broad groups of micro reforms as follows:

- tariff reductions;
- reforms to SMAs;
- changes to environmental regulations;
- changes to food standards and related regulations;
- reforms to input taxes and on-costs;
- industrial relations and workplace reforms;
- infrastructure related reforms (covering nine areas).

Some of these reforms are specific to agri-food industries (eg changes to SMAs and changes to food standards and related regulations), while others, to varying degrees, affect most industries. For some agri-food industries, some reforms will have positive effects while for others the effects will be negative (eg tariff reductions on competing imports).

To supplement the information obtained from the main survey, the BIE conducted a follow-up telephone survey of some 90 respondent firms to obtain additional insights about their responses. This survey focussed on reforms to environmental regulations, food standards and related regulations, enterprise agreements, input

taxes and on-costs and how these reforms impacted on the firms' growth strategies. The main survey and follow-up survey forms are presented in appendix 2.

The ABS also conducted a non-response bias survey to determine if the characteristics of the main survey respondents were similar to those of non-respondents. Due to financial constraints, this survey was limited to 100 telephone interviews. The results of this survey are reported in appendix 3. The results in most cases indicate that the sample is representative of the total population of surveyed firms. The results of the non-bias check do, however, suggest some bias. For example, the survey response rate may underestimate the proportion of firms experiencing an increase in productivity as well as the proportion of firms increasing their export share. Compared to the non-response bias check, the survey may also overstate the proportion of firms perceiving a positive impact from some reforms. For this reason some caution is needed when interpreting survey findings.

2.3.1 Industry coverage

Industry coverage for the main survey included nine agri-food industries and three related industries. The relevant industries were:

Agri-food industries

- Meat processing
- Milk and cream processing
- Dairy products manufacturing nec
- Fruit and vegetable processing
- Prepared animal and bird feed manufacturing
- Flour mill product manufacturing
- Cereal food and baking mix manufacturing
- Sugar manufacturing
- Confectionery manufacturing

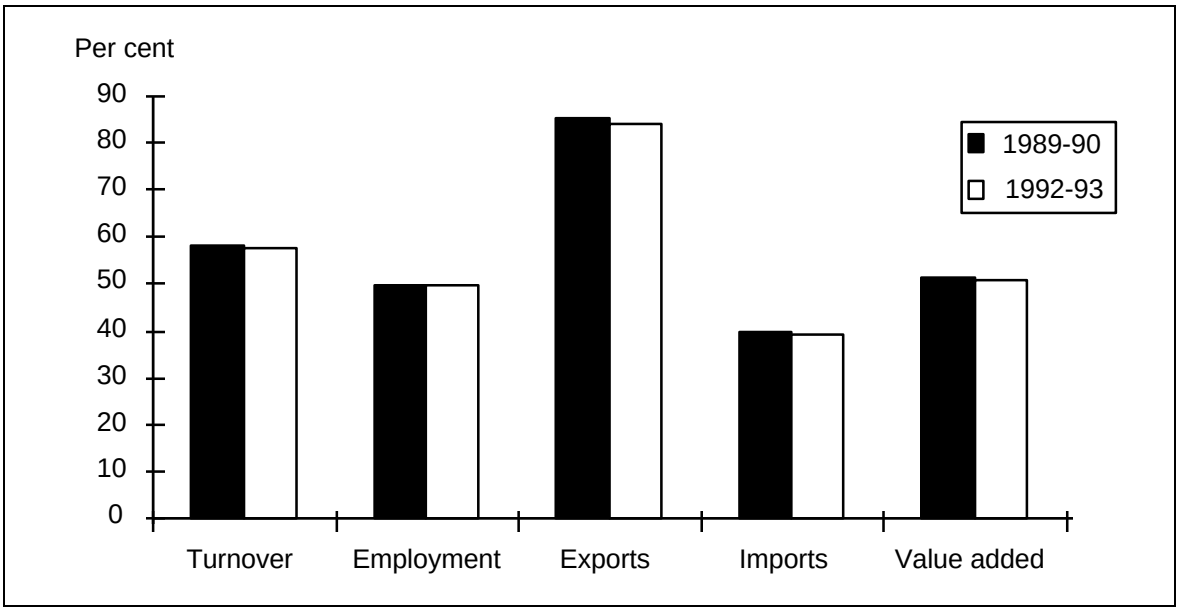
Related industries

- Packaging (excluding glass)
- Fruit and vegetable wholesaling
- Food processing machinery manufacturing

The selected agri-food industries cover export-oriented firms (such as those in the Meat processing industry), import-competing firms (in industries such as Confectionery manufacturing), as well as firms with limited or no involvement in international markets (for example, firms manufacturing flour mill products). They were selected to enable the study to capture the impact of microeconomic reforms on activities with different operating environments and different associated response pressures. For example, tariff reductions are likely to have a large impact on import-competing industries such as Confectionery manufacturing.

By contrast, tariff cuts are likely to have a limited effect on the export-oriented Meat processing industry as it receives little government assistance. However, regulation of the labour market was identified as a major issue for this industry. A number of industries have important linkages to others selected for the study. For example, Milk and cream processing and Dairy product nec (which includes butter and cheese) use many similar inputs, including milk. As evident from figure 2.3, the industries involved in the survey accounted for significant proportions of the overall turnover, employment, value-added, exports and imports of the agri-food sector.

Figure 2.3 Survey industries[a] as a share of total agri-food[b], 1989-90 and 1992-93[c]



a Cover the nine agri-food industries selected for the case study. **b** Those firms manufacturing food and beverage products. **c** The data for exports and imports relate to 1989-90 and 1993-94.
Data sources: ABS (1996a) and Department of Foreign Affairs and Trade STARS database (1996) .

2.3.2 Response rates

The number of responses and the response rates for the main and follow-up telephone surveys are summarised in table 2.4. For the main survey, the BIE was able to obtain information from almost 37 per cent of the surveyed firms, an excellent result for a voluntary survey of this type. The strike-rate for individual industries varied considerably, with the highest response rate coming from firms in Dairy products nec industry (over 56 per cent) and the lowest from firms in the Fruit and vegetable wholesale industry (some 29 per cent). Table 2.4 also indicates the number of firms contacted in the follow-up telephone survey.

Table 2.4 Response rates for the agri-food industry main survey and follow up telephone survey

Industry	*Main survey*		*Follow up telephone survey*[b]
	Number of responses	*Response rate*[a] *(%)*	*Number of firms*
Meat processing	67	32.8	14
Milk & cream processing	16	55.2	3
Dairy products mfg nec	27	56.3	5
Fruit & vegetable processing	47	44.2	9
Flour mill products mfg	14	51.9	4
Cereal food & baking mix mfg	29	54.7	6
Sugar manufacturing	11	47.8	2
Confectionery mfg	35	37.2	6
Prepared animal & bird feed mfg	34	34.0	8
Food processing machinery mfg	26	42.6	5
Packaging (excluding glass)	18	45.2	5
Fruit & vegetable wholesaling	136	28.6	25
Total	460	36.5	92

a Includes an adjustment to the population base to account for firms which are no longer operating.
b Selection of respondents from the main survey.
Source: BIE agri-food survey 1995.

To gauge the relative importance of the respondent firms in each industry, we compared the turnover and export data obtained from the main survey with the ABS manufacturing census data for the same industries for 1989-90 (table 2.5). Unfortunately, these data are not directly comparable. Our data were collected at the management unit level, while the ABS manufacturing census data were collected at the establishment level. Therefore, our survey may include turnover and sales of some secondary products and/or services. As a result, it is possible for our survey data to exceed 100 per cent coverage at the industry level. This is the case for turnover for the Dairy product nec and Confectionery industries.

Table 2.5 Survey sample turnover and exports compared with industry level data: 1989-90[a]

Industry	*Turnover*			*Exports*		
	Survey respondents ($ million)	*ABS ($million)*	*percentage*[b]	*Survey respondents ($million)*	*ABS ($million)*	*percentage*[b]
Meat processing	1142.6	5879.8	19.4	594.3	3680.7	16.1
Milk and cream processing	394.2	1987.9	19.8	14.4	21.3	67.6
Dairy product manufacturing nec	1933.5	2035.6	95.0	644.6	725.2	88.9
Fruit and vegetable processing	1407.4	2058.9	68.4	301.3	218.8	137.7
Flour mill product manufacturing	201.7	930.1	21.7	20.0	55.5	36.0
Cereal food and baking mix manufacturing	421.4	1189.4	35.4	14.3	174.8	8.2
Sugar manufacturing	308.9	1936.2	16.0	76.5	1058.9	7.2
Confectionery manufacturing	1565.1	1051.8	148.8	46.1	74.0	62.3
Prepared animal and bird feed manufacturing	512.3	1531.4	33.5	64.6	218.5	29.6
Food processing machinery manufacturing	236.6	308.8	76.6	37.9	47.2	80.3
Packaging (excluding glass)	1808.1	3563.6	50.7	102.6	138.4	74.1
Fruit and vegetable wholesaling	678.2	na	na	33.4	na	na

a Our survey data are not directly comparable with the manufacturing census data collected by the ABS. Our data were collected at the management unit level whereas the ABS data were collected at the establishment level. Therefore, our survey data may include turnover and sales of some secondary products and/or services. As a result, it is possible for our survey data to exceed 100 per cent coverage at the industry level. **b** Our survey data on turnover and exports is presented as a percentage of ABS manufacturing census data. **na** not available.

Sources: BIE agri-food survey 1995, ABS (1996a) and Department of Foreign Affairs and Trade STARS database (1996).

3 Broad impacts of micro reforms on firms

An important objective of this case study is to identify the impact of micro reforms on the competitiveness and operations of firms in selected agri-food and closely related industries. The main source of information for this exercise is the data provided by firms responding to the agri-food survey.

Firms' perceptions about the impact of micro reforms on their competitiveness since July 1989 are reported in section 3.1. The presentation focuses on firm perceptions in aggregate, distinguishing between reforms on the basis of whether they were seen by firms as having positive, negative or no impacts. A discussion about the adequacy or otherwise of the pace of micro reforms, as reported by firms, is presented in section 3.2. Again the focus is on broad aggregate effects based on a summary of individual firms perceptions. More detailed information covering the results for individual industries for both these areas is reported in appendices 5 and 6.

The nature and extent of changes in the domestic competitive environment faced by firms since July 1989 are examined in section 3.3. This section includes a discussion about the factors which have contributed to the change in the level of competition and a micro reform profile for firms reporting changes in the level of competition. More detailed results at the industry level are outlined in appendix 7. Concluding comments are provided in section 3.4.

3.1 Firms' perceptions of the impacts of reforms

The BIE asked firms to consider fifteen areas of micro reform in relation to their impacts on business competitiveness — refer to figure 3.2. The BIE believes results reported here can be construed as largely representing the direct or first round impacts of micro reforms on firms. For example, the first round impacts of tariff reductions relate to the effect of increased competition from imports and reduced gross returns from domestic sales for firms assisted by tariffs. Later round impacts of tariff reductions on firms relate, amongst other things, to their responses to the increased competition from imports — these are reported in chapters 4 and 5. Firms

are, in the main, unlikely to identify reform impacts associated with the interdependencies between industries adjusting to the overall reform process.

Many micro reforms have the potential to influence firms' costs of production and/or revenues. Reforms which lower the price of inputs or lead to an improvement in related services are likely to be assessed by firms as having positive impacts on their competitiveness. Conversely, reforms which lead to increased prices for inputs or result in lower prices for outputs are likely to be regarded by firms as having a negative impact on their competitiveness. Reforms which have not proceeded quickly enough to allow firms to keep pace with their international competitors are also likely to be regarded as having a negative impact on their competitiveness.

Overall, firms' responses are likely to reflect their perceptions about the effectiveness of reforms in bringing about changes to their operations as well as the extent to which they use inputs and/or market outputs affected by reforms. An indication of the relative importance of various inputs used by firms is provided in table 2.1 (chapter 2). Firms, in addition to changes in cost structures brought about by reforms, are also likely to take account of changes in the quality of infrastructure services (BIE 1996a).

Firms' perceptions about the broad impacts of micro reform on their competitiveness were obtained from the survey as follows:

- first, firms were asked to indicate their perceptions about the impact of various micro reforms on their competitiveness over the period 1989-90 to 1993-94; and
- second, firms were asked to rank the four reforms with the most positive impacts and the four reforms with the most negative impacts on their competitiveness since July 1989.

The subsequent discussion summarises the main responses prior to examining each of the areas mentioned above in detail.

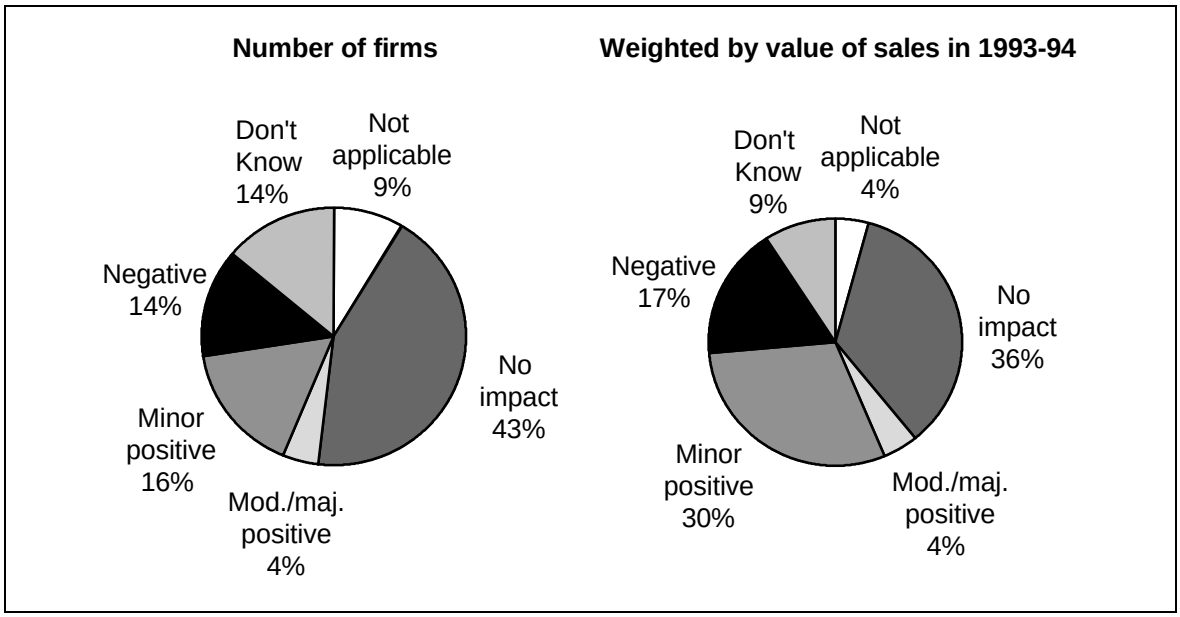
3.1.1 Overview

A snapshot view of firms' perceptions of the impact of the 15 micro reforms canvassed in the survey is presented in figure 3.1 This shapshot view reports an *average rate* for the impact of micro reforms. It is presented on both a *number of firms basis* and on a *sales value basis*.

Based on an aggregation of all survey responses across all reforms, one-third of firms' responses identified micro reforms as having an impact on their competitiveness — with around 20 per cent reporting positive impacts (mostly of a minor significance) and 14 per cent reporting negative impacts (figure 3.1). The impact of micro reforms was more widespread across firms' responses when based on firms value of sales in 1993-94. On this basis, their impacts covered more than half of the sales value of the responding firms — 35 per cent positive and 17 per cent negative. This result indicates that larger firms (as defined by sales value) were more likely to report that micro reforms, on average, impacted on their competitiveness.

Probably the most outstanding feature of the information in figure 3.1 is the degree to which firms reported that micro reforms have not had an impact on their competitiveness. Although all firms reported that one or more reforms impacted on their competitiveness, for each reform there was generally a large number of firms reporting that the respective reform did not impact on their competitiveness. Thus, across all reforms, 43 per cent of firms' responses were that particular micro reforms did not impact on their competitiveness. On a sales value basis, the 'no impact' response fell to 36 per cent (figure 3.1).

Figure 3.1 Average rate for firms' responses[a] about the impact of micro reforms on firm competitiveness between 1989-90 and 1993-94



a The *average rate* of firms' responses was estimated by aggregating all survey responses across all reforms and all industries.
Data source: BIE Agri-food survey 1995.

3.1.2 Impacts of micro reforms on competitiveness

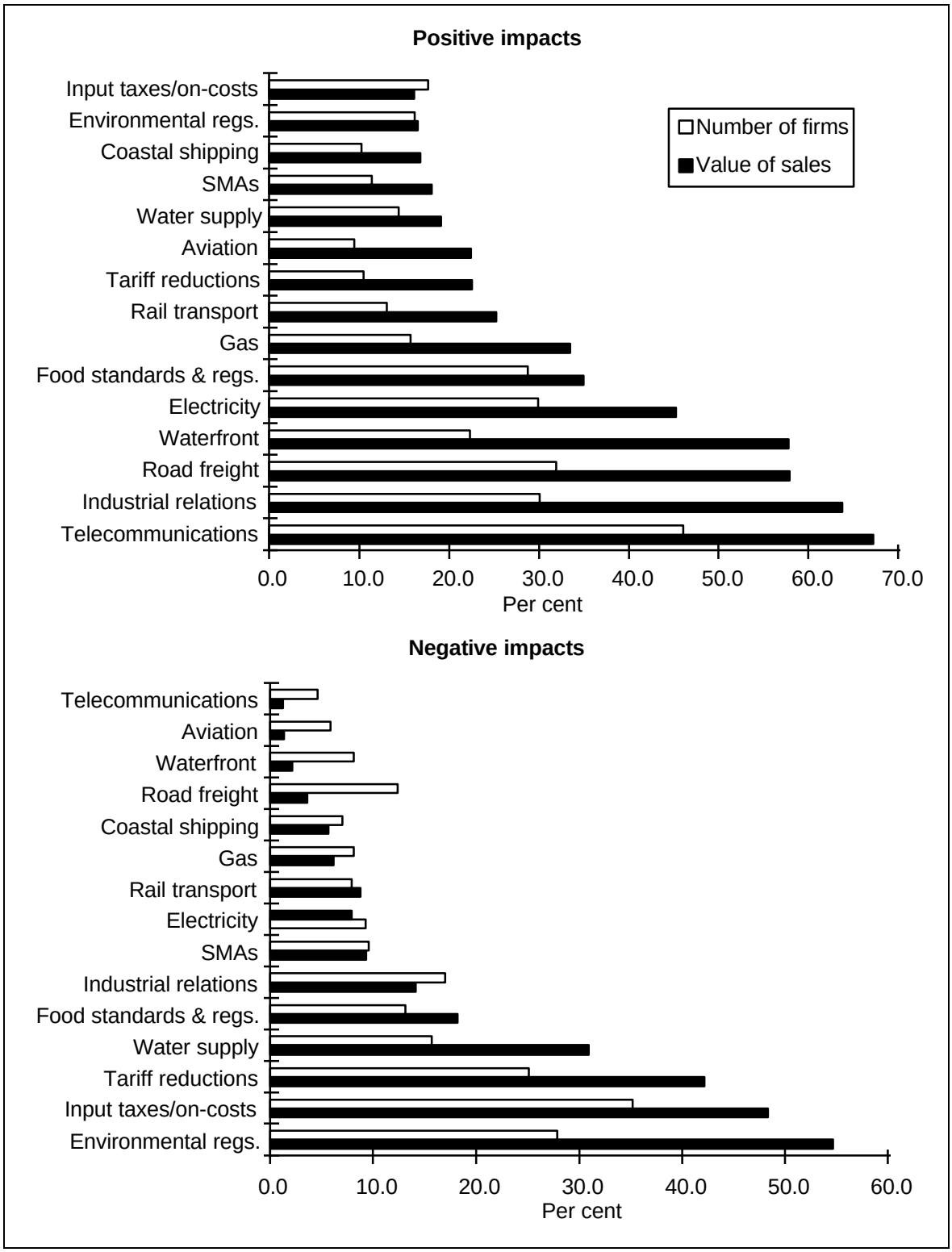
The degree of impact of micro reforms on individual firms varies considerably between individual reforms and firms at a broad industry level. The impacts reported below cover positive and negative responses for the survey as a whole.

Telecommunications reform had the most widespread positive impact of the micro reforms covered by the survey. Nearly half of the respondent firms, covering nearly 70 per cent of the sales value of the sample, reported that telecommunications reforms had positive impacts for their competitiveness (refer to figure 3.2). Telecommunications was the only area of reform to impact to a moderate/major positive degree on at least 10 per cent of the respondent firms, the majority of responses indicating impacts of a minor positive nature. These results indicate the extent to which substantial changes in the telecommunications industry have impacted on the competitiveness of respondent firms. The *Telecommunications Act 1991* separated the regulatory functions from the business functions with the introduction of AUSTEL and Telstra. Competition was introduced into a number of areas including: the mobile phone market, the subscriber trunk dial market (ie STD) and the international direct dial market (ie IDD). Telecommunications prices have fallen in real terms. Over the period 1990 to 1994, prices for a basket of national services for business users declined by 9 per cent, international call charges declined by 28 per cent and mobile call charges declined by 26 per cent (BIE 1995b).

After telecommunications, on a number of firms basis, the reforms perceived as having the next greatest positive impacts included infrastructure services reforms to the road freight and electricity industries, reforms to industrial relations and food standards and regulations. These reforms have each impacted positively on around 30 per cent of firms. When responses were weighted by sales, the impacts of the leading positive reforms increased, while the relative importance of some reforms changed. For example, the level of positive impacts of industrial relations reforms more than doubled to 65 per cent. The more widespread positive impacts on a sales value basis also covered reforms to road freight, waterfront and electricity — with waterfront reform having positive impacts on firms aligned with 60 per cent of the sales value of the survey sample (figure 3.2). Some of the major reforms in these areas are discussed below.

The importance of industrial relations reforms to survey respondents is not surprising given the significance of wages and salaries as a cost to agri-food and related industries and the opportunities for productivity improvements provided by the changes in the industrial relations system (refer to chapter 2). Over the period

Figure 3.2 Firms reporting positive and negative impacts on competitiveness from micro reforms, 1989-90 to 1993-94[a]



a Percentage of 460 firms responses.
Data source: BIE Agri-food survey 1995.

covered by the survey, the industrial relations system has progressively evolved from a centralised system, primarily concerned with wage indexation and the determination of award conditions, to a more decentralised system of workplace bargaining (BIE 1996a).

The positive impacts of electricity reform reported by survey respondents reflect the reduction in electricity prices and the relatively high level of usage of electricity as an energy input (see chapter 2). Average real electricity prices fell by an annual average of 9 per cent over the period 1987-88 to 1993-94, with the most significant fall occurring to commercial rates (ie by 12.5 per cent) in response to a reduction in cross-subsidies between different classes of users. However, as pockets of high electricity prices remained (see BIE 1995a and BIE 1996a), it is likely that agri-food firms in some locations have not gained substantially from micro reform to electricity.

BIE benchmarking studies have generally found that reforms to the waterfront have improved operating efficiency. Port authorities have become profitable and charges have fallen. However, productivity in the container terminals either stagnated or went backwards in 1994 (BIE 1995a). Road freight services are essentially provided by the private sector in an industry which is highly competitive (not withstanding some recent trade practices activity). However, governments have a significant influence on the road freight industry through the provision and pricing of roads, road use related taxes and charges and regulations.

The major change in the area of food standards and related regulations has been the introduction of the National Food Authority (NFA). The most important objective of the NFA, as far as the food industry is concerned, is the progress made in the area of establishing uniform national food standards.

The reforms perceived as having the most widespread negative impacts on firm competitiveness, on a number of firms basis, were taxes on inputs and on-costs (impacting on 35 per cent of respondent firms), environmental regulations (nearly 30 per cent) and tariff reductions (25 per cent). Industrial relations reform, which was one of the more widely reported positive reforms, also had negative impacts on just under 17 per cent of firms (figure 3.2). On a sales value basis, the negative impact results are quite different in two respects. First, the negative degree of impact is significantly greater for reforms to environmental regulations (nearly doubling to 55 per cent) as is the impact for input taxes and on-costs, tariff reductions and water supply reforms. Second, the ordering of the importance of the main negative reforms changed with environmental regulations having a greater negative impact than input taxes and on-costs (refer to figure 3.2).

The BIE's telephone follow up survey found that the input taxes/on-costs having the most negative impact on firms were workers' compensation, the superannuation guarantee levy and payroll tax. These taxes/on-costs increased, on average, over the period of the survey (chapter 2). As expected, tariff reductions impacted most on firms in import competing industries (appendix 5). Changes to environmental regulation and pricing arrangements for water have led to increased costs for many agri-food firms. Pricing reforms in the water industry have placed increasing reliance on the 'user pays' principle and increased cost recovery. As a result real water prices have increased, on average, by around 9 per cent per annum over the period since 1987-88 (BIE 1996a).

Overall, the impact of reforms on firm competitiveness, both negative and positive, were significantly greater (for the most positive and the most negative reforms) when measured on a by sales basis. This result indicates that the impacts of micro reforms tend to have greater impacts on the larger sized firms — certainly they are more often reported by the larger sized firms (see section 3.1.4).

Industry level impacts of reforms

The agri-food survey revealed some important differential impacts on competitiveness at an industry level. For example, as expected, the negative effects of tariff reductions have been more widely spread amongst firms in import competing industries such as Packaging, Sugar, Food processing machinery and Fruit and vegetable processing. The Milk and cream processing industry, a non-traded industry, had the largest proportion of firms reporting positive impacts from tariff reductions. The industries with the highest level of firms reporting that tariff reductions had no impact on their competitiveness tended to be in industries with a high proportion of their inputs sourced from primary products (eg Flour mill products and Meat processing).

Reforms to statutory marketing arrangements (SMAs) also had some industry specific impacts (refer to appendix 5). Firms in the Flour milling products industry reported the highest level of positive impacts from SMAs reform — 46 per cent of firms reporting positive impacts. The major national reform impacting on this industry was the removal of the Australian Wheat Board's monopoly powers over the marketing of wheat for the domestic market in 1989 (refer to IC 1991 for a discussion of significant changes to SMAs).

Firms in the Milk and cream processing industry and the Dairy products industry also reported impacts from reforms to SMAs. Overall, 44 per cent of milk and cream firms reported impacts on their competitiveness — 25 per cent reporting negative impacts and 19 per cent reporting positive impacts. In contrast, more dairy

products firms reported positive impacts (22 per cent) than negative impacts (15 per cent). The major reforms concerning firms in the Milk and cream and Dairy products industry are related to the state marketing arrangements for fresh milk and the Commonwealth arrangements for milk used in manufacturing dairy products (refer to chapter 2).

There has also been some rationalisation of the SMAs applying to the sugar industry. SMAs continue to enable the industry to take advantage of the tariff which applies to imports of sugar. The embargo on raw and refined sugar imports was removed in 1989 and replaced by a specific tariff which has phased down from $115 per tonne to $55 per tonne by 1992. Since 1993, there has been some rationalisation of the pooling arrangements and assignment system controlling sugar production in Queensland. However, Queensland sugar millers continue to be subject to the compulsory acquisition powers of the Queensland Sugar Corporation. There have been no changes to this requirement over the period (see appendix 4 for a fuller discussion). SMA reforms were reported to have impacted on the competitiveness of only 3 of the 10 respondent sugar industry firms, 2 positively and 1 negatively. It should be noted that the respondent firms were mostly raw sugar millers.

Only 3 per cent of Confectionery firms responding to the survey reported that they viewed reforms to SMAs as being positive for their operations — after sugar, the lowest level of positive impacts for reforms to SMAs. This result most likely reflects the high SMA supported prices paid by confectioners for sugar and dairy products which are both important inputs for confectionery production. As noted in chapter 2, while reforms to SMAs have generally reduced the SMA price wedge for primary produce inputs, for some primary products, this wedge increased following initial declines. For example, sugar price distortions (which measure the proportional difference between the assisted price of a commodity and the price that would be expected to prevail in a competitive market, or without assistance) were quite volatile over the survey period and ranged from a high of 54 per cent in 1990-91 to a low of 13 per cent in 1992-93. Sugar price distortions rose in 1993-94 as the world price of sugar fell and the specific tariff rate on sugar imports remained at $55 per tonne.

A more detailed industry level examination of firms' perceptions of the impact of micro reforms on their competitiveness is provided in appendix 5.

3.1.3 Reforms perceived as having the greatest impact

The agri-food survey also asked firms to rank the four reforms which they perceived as having the most important positive and the most important negative impacts on their competitiveness since July 1989. As expected, the four reforms ranked by firms as having the most important positive and negative impacts on business competitiveness were, in the main, also the reforms which impacted in a like manner on the competitiveness of the largest number of firms (table 3.1 and figure 3.2).

Firms nominated telecommunications reform as the most important positive reform. This reform is also reported as the reform impacting positively on the largest number of firms (nearly half of the respondent firms). Industrial relations reforms, reforms to food standards and related regulations and road freight reforms, which are ranked consecutively second to fourth in importance, all had positive impacts on the competitiveness of around 30 per cent of firms (table 3.1 and figure 3.2).

The four most important negative reforms over the period since 1989 are reported to be taxes on inputs/on-costs, tariff reductions, environmental regulations and industrial relations. Input taxes and on-costs impacted negatively on 35 per cent of respondent firms, while tariffs and environmental reforms impacted negatively on 25 and 28 per cent of firms respectively (table 3.1 and figure 3.2).

Table 3.1 Firms' rankings[a] of the four most important micro reforms since July 1989

*Important **positive** reforms*	*Important **negative** reforms*
1. Telecommunications	1. Changes to taxes on inputs/on-costs
2. Industrial relations	2. Tariff reductions
3. Food standards and regulations	3. Environmental regulations
4. Road freight	4. Industrial relations

a These rankings were calculated by giving each reform a weight based on its ranking by individual firms. Reforms ranked 1 were given a weighting equal to 1.0; 2 = 0.8; 3 = 0.4 and 4 = 0.2. Different weighting systems provided similar results.
Source: BIE Agri-food survey 1995.

The fourth most important negative reform — industrial relations — was also reported as the second most positive contributor to firm competitiveness. These reforms impacted positively on 30 per cent of firms, as well as negatively on 17 per cent of other firms.

The rankings of the most important micro reforms, as reported above, are largely reflected in the rankings on an industry basis (see table 3.2). Telecommunications was ranked as the most important positive reform by 7 of the 12 industries

(including equal first for 2 industries). Taxes on inputs and on-costs were reported as having the most important negative impacts by 7 of the 12 industries.

3.1.4 Micro reforms and firm characteristics

In case individual respondents' overall perceptions of the reform process were clouded by their recent experiences, the BIE sought to determine if firms with more positive outcomes were more likely to paint a rosier picture of the reform process. Our analysis shows that there were no significant differences in firms' responses about the impact of micro reforms on their competitiveness between those firms experiencing increases in profitability compared to those firms experiencing decreases in profitability between 1989-90 and 1993-94.

However, as noted earlier, there is a relationship between firm size and the level of firms reporting the impacts of micro reforms on their competitiveness. Medium and large size firms were more likely to comment on the impact of micro reform on their competitiveness. Medium and large size firms were also more likely to report that micro reforms had positive impacts on their competitiveness. These findings confirm the observations made by comparing impacts on a 'number of firms' basis with impacts on a 'sales value' basis (refer to figure 3.2).

Table 3.2 Firms' rankings[a] of the most important micro reforms since July 1989, by industry

Industry	*Leading **positive** reform*	*Leading **negative** reform*
Meat processing	Food standards and related regulations	Input taxes and on-costs
Milk & cream	Telecommunications	Input taxes and on-costs
Dairy products nec	Telecommunications	Input taxes and on-costs
Fruit and vegetable processing	Telecommunications & industrial relations	Tariff reductions
Flour mill products	Industrial relations	Environmental
Cereal food and baking mix	Telecommunications	Input taxes and on-costs
Sugar manufacturing	Industrial relations	Tariff reductions
Confectionery	Industrial relations	Input taxes and on-costs
Prepared animal and bird feed	Road freight & telecommunications	Input taxes and on-costs
Packaging	Industrial relations	Tariff reductions
Food processing machinery	Telecommunications	Tariff reductions
Fruit and vegetable wholesaling	Telecommunications	Input taxes and on-costs

a These rankings were calculated by giving each reform a weight based on its ranking by individual firms. Reforms ranked 1 were given a weighting equal to 1.0; 2 = 0.8; 3 = 0.4 and 4 = 0.2. Different weighting systems provided similar results.
Source: BIE Agri-food survey 1995.

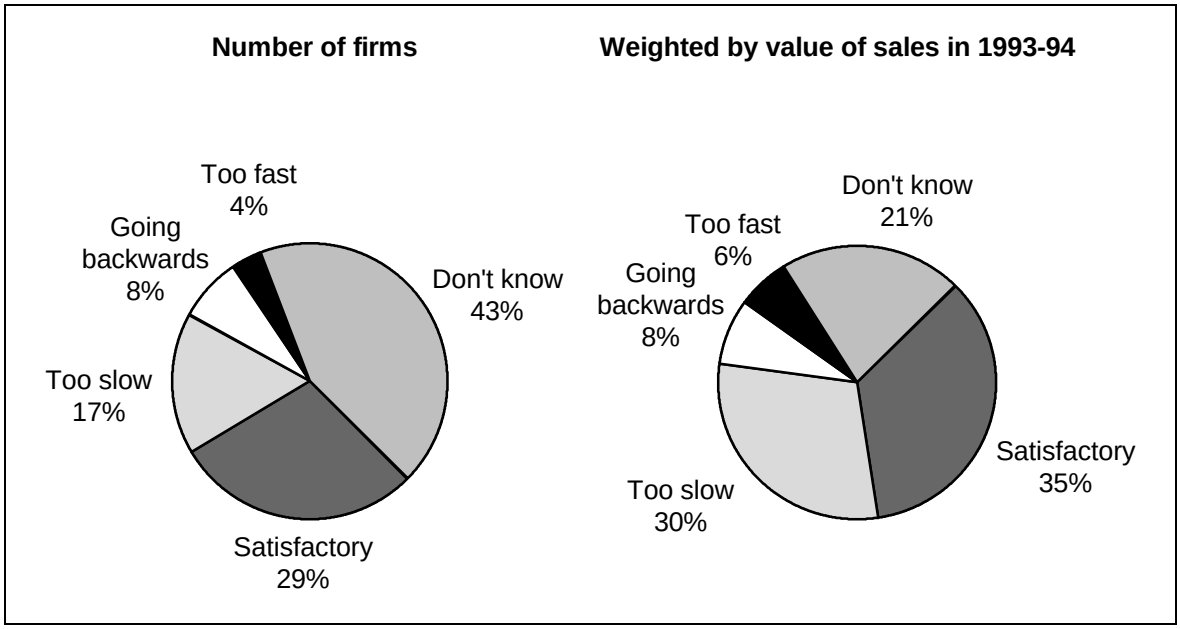
3.2 Firms' perceptions about the pace of reforms

As with their comments on the impact of micro reforms on their business competitiveness, firms also had a wide range of views about the adequacy of the pace of individual micro reforms. Firms' opinions about the pace of reform have been analysed on both a number of firms basis and a sales value basis.

3.2.1 Overview

A summary of firms' perceptions relating to the adequacy of the current pace of reform is presented in figure 3.3. This snapshot view shows that, on average, around 30 per cent of all firms' responses indicated satisfaction with the pace of reform. Another 30 per cent reported dissatisfaction with the pace of reform — more than half reporting that the pace of micro reform was too slow. The remaining responses (43 per cent) indicated that firms were unable to comment on the pace of reform.

Figure 3.3 Average rate for firms' responses[a] about the adequacy of the pace of micro reforms as at May 1995



a The *average rate* of firms' responses was estimated by aggregating all survey responses across all reforms and all industries.
Data source: BIE Agri-food survey 1995.

On a sales value basis, the average proportion of firms' responses indicating an inability to comment on the pace of reform more than halved to around 20 per cent. The proportion of responses indicating satisfaction with the pace of reform increased by 6 percentage points to 35 per cent. Dissatisfaction with the pace of

reform increased by 15 percentage points to nearly 45 per cent — largely accounted for by firms reporting that the pace of reform was too slow.

The relatively large proportion of firms reporting that micro reforms had no impact on their competitiveness (figure 3.1), also reported opinions about the pace of reform. The profile of this sub-group of the survey sample with respect to their opinions about the pace of reform, is largely the same as that for the sample of survey respondents as a whole. Around 44 per cent of firms' responses in this group were that they didn't know about the pace of reform and 30 per cent reported that the pace of reform was satisfactory.

3.2.2 Firms' assessments for particular reforms

Firms reported a wide range of views about the adequacy of the pace of reform for the various micro reforms. Aggregate results covering each micro reform initiative included in the survey are summarised in table 3.3.

Table 3.3 Firms' views on the adequacy of the pace of reform in May 1995 (percentage[a])

	Based on number of firms				*Based on sales value*			
	Satis-factory	*Too slow*	*Going back-wards*	*Too fast*	*Satis-factory*	*Too slow*	*Going back-wards*	*Too fast*
Telecommunications	54.2	7.0	1.8	1.1	72.1	6.3	0.1	0.6
Food standards	48.5	13.2	4.8	4.4	47.8	25.1	6.0	8.6
Electricity	40.7	15.6	3.7	1.3	39.5	33.9	1.8	10.6
Environmental	38.4	9.6	8.1	11.0	36.7	14.4	17.7	23.2
Road freight	33.3	21.1	4.6	0.4	45.2	25.6	1.7	0.0
Gas	29.8	12.5	2.4	0.9	45.7	23.6	1.5	0.1
Industrial relations	29.6	25.7	16.7	4.6	22.5	53.3	17.5	2.5
Water supply	28.3	15.1	5.9	4.4	43.7	14.3	12.2	8.7
SMAs	24.2	13.8	5.9	2.4	27.9	20.4	3.7	8.9
Aviation	23.7	12.1	3.9	0.0	45.3	17.2	1.1	0.0
Tariff reductions	22.4	10.5	11.2	15.8	42.6	17.6	2.4	26.0
Rail transport	18.9	20.2	5.3	0.2	21.8	40.7	7.2	0.0
Input taxes & on-costs	15.4	20.4	24.6	6.8	11.5	34.9	31.2	3.8
Waterfront	12.5	31.6	8.3	0.0	7.5	68.3	4.8	0.0
Coastal shipping	12.1	23.0	6.6	0.2	12.6	46.7	5.4	0.0
Survey average rate[b]	**28.8**	**16.8**	**7.6**	**3.6**	**34.8**	**29.5**	**7.6**	**6.2**

a The survey responses recorded in the categories 'not applicable' and 'don't know' are not reported in the above table. However, these responses are included in the calculation of the percentages shown above.
b The *average rate* of firms' responses was estimated by aggregating all survey responses across all reforms and all industries. An equal weight was applied to all responses.
Source: BIE Agri-food survey 1995.

Reforms in the area of telecommunications were regarded by survey respondents with the greatest degree of approval. More than half of the survey respondents reported satisfaction with the pace of telecommunications reform. These respondents accounted for more than 70 per cent of the sales value covered by the survey sample in 1993-94. A very small proportion of the survey respondents (about 10 per cent) reported dissatisfaction with the pace of reform in this area (table 3.3).

The second most highly regarded reform covered food standards and related regulations. Nearly 50 per cent of the survey respondents reported that the pace of reform in this area was satisfactory. These firms also accounted for nearly 50 per cent of the sales value of the sample. The bulk of those firms expressing dissatisfaction indicated that reforms were proceeding too slowly.

The signals from survey respondents about electricity reform are mixed. Electricity reform was ranked as the third most satisfactory reform on a number of firms basis — by over 40 per cent of the respondent firms covering around 40 per cent of the value of sales. However, 46 per cent of the sales value is aligned with firms reporting dissatisfaction with the pace of reform. More than one-third of the sales value is accounted for by firms reporting that the pace of electricity reform was too slow.

Although environmental regulation is another area of reform which has a significant proportion of firms reporting satisfaction with its pace, more than 55 per cent of the sales value is aligned with dissatisfied firms. Most of these firms reported that either the pace of reform was too fast or was going backwards.

Infrastructure service reforms covering road freight, gas, water supply and aviation were reported as proceeding satisfactorily by firms covering around 45 per cent of the sales value of the sample. Most of the firms expressing dissatisfaction with the pace of reform in these areas considered that it was progressing too slowly.

The highest level of disapproval was recorded for the pace of reforms in the areas of industrial relations, input taxes/on-costs and the waterfront. Around 70 per cent or more of the sales value of the survey sample was aligned with firms reporting dissatisfaction with the pace of each of these reforms. In each case, the dissatisfaction arose because firms considered that the pace of reform was occurring too slowly and/or it was going backwards (table 3.3).

Reform to coastal shipping attracted a high level of dissatisfaction on a sales value basis as reform was considered to be proceeding too slowly.

Industry level information about the pace of micro reforms is provided in appendix 5.

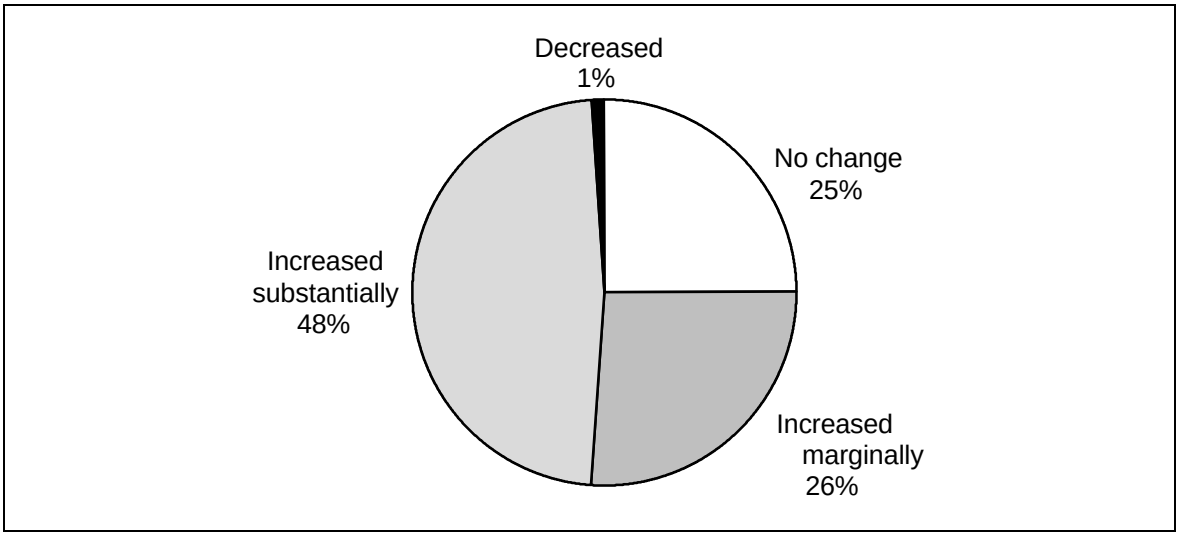
3.3 The changed competitive environment

Increasing the level of competition in the Australian economy has been an important objective of micro reform. The underlying aim has been to create an environment which stimulates business to become more productive and internationally competitive — government business enterprises have also been targeted in this reform process. In view of this, questions arise about the extent of change to the competitive environment faced by agri-food firms and the reasons for the change.

3.3.1 Overview

The agri-food survey sought to identify whether respondent firms had experienced a change in the level of domestic competition since July 1989. Almost 75 per cent of respondent firms indicated that the level of competition increased, most judging that it increased substantially. Around 25 per cent of firms indicated that the level of competition had not changed, while less than one per cent of respondent firms believed the level of competition had decreased (see figure 3.4).

Figure 3.4 Changes in the level of domestic competition faced by respondent firms since July 1989



Data source: BIE Agri-food survey 1995.

Large firms were significantly more likely than small or medium firms to report changes in the level of competition. Over 90 per cent of large firms compared to

around 75 per cent of small or medium firms reported an increase in the level of competition. Large firms were also less likely than small and medium firms to report that the level of competition had remained stable.

In the main, firms in each of the 12 surveyed industries reported a similar experience to the total grouping of respondent firms. More than 60 per cent of firms in each industry, with the exception of the Sugar manufacturing industry, reported that they faced an increase in the level of competition. A more detailed treatment of the results at the industry level is provided in appendix 7.

3.3.2 Factors contributing to the change in the level of competition

Nearly 80 per cent of firms reporting an increase in competition identified new domestic entrants as being an important contributor to the increase. However, in some instances this increase in the level of competition took place along with a decline in the number of competing firms. For example, a firm in the Meat processing industry indicated that a number of its competitors had closed down. However, the remaining firms are competing harder for customers. The firm noted that customers are less willing to share some proportion of any cost increase: 'Once when costs went up you could share it. Now customers go to another supplier'. A number of firms in the Fruit and Vegetable Wholesaling industry reported that competition in their industry had increased as the large supermarket chains took greater control over the supply of fresh product to their retail outlets.

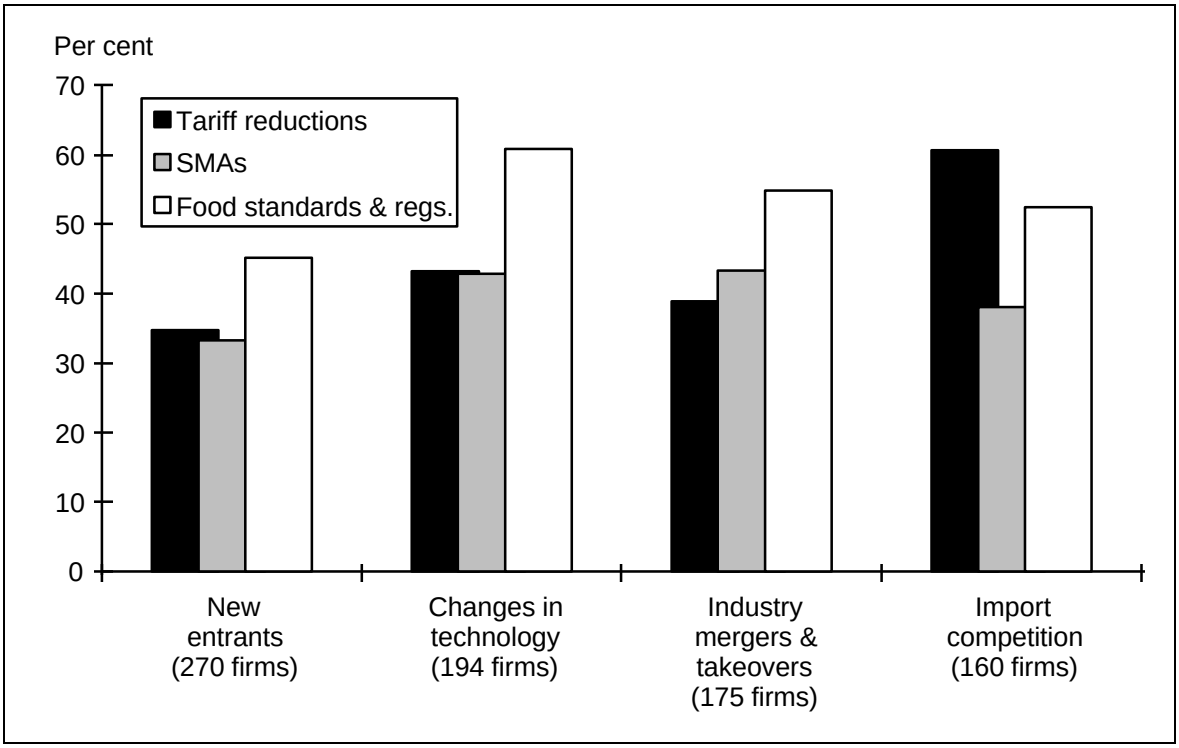
Only four firms reported marginal decreases in the level of competition they faced. These firms were in the Meat processing, Fruit and vegetable processing and Confectionery industries. The rationale behind their perception of a decrease varied from firm to firm. In one instance a firm indicated they believed domestic competition had declined because their management strategy to reduce costs had made them so cost competitive that imports were no longer a threat. Indeed importers had exited the domestic market. In another instance, the level of competition faced by a firm was perceived to have declined because it had diversified from growing an input for a processed vegetable manufacturer to adding value to its product by processing the vegetable itself. Another firm believed the level of competition it faced had declined because it had diversified into a new range of products which, compared to their established product lines, were subject to a high degree of product differentiation.

Firms more frequently identified market based factors rather than micro reform factors as contributing to the change in the level of domestic competition. This result is evident for the survey sample as a whole as well as across the respective industry groups. After new entrants to the domestic industry, the most commonly

cited factors leading to change in the competitive environment were changes in technology, industry mergers or takeovers and changes in import competition. These factors were nominated by more than 50 per cent of firms (refer to appendix 7).

Although some factors were nominated more frequently as contributing to the change in the level of competition, clearly a package of factors has worked to produce the change. Many firms which nominated market based factors also nominated micro reform factors as being significant. For example, for each of the main factors contributing to the change in the level of competition, one-third or more of the firms which nominated the factor also nominated a micro reform as a contributing factor. More than 60 per cent of the firms which nominated changes in technology as a factor also nominated food standards and related regulations as a contributing factor. Similarly, more than 60 per cent of the firms which nominated import competition as having contributed to a change in competition, also nominated tariff reductions as a contributing factor (refer to figure 3.5).

Figure 3.5 Association between the main factors contributing to a change in the level of domestic competition and micro reform factors since 1989



Data source: BIE Agri-food survey 1995.

Whilst appearing less important on an aggregate basis, micro reform factors were nominated by survey respondents as important to the changed environment in the

majority of industries surveyed. Seven out of the twelve industries surveyed mentioned one or more micro reforms, such as changes to SMAs and tariff reductions, amongst the leading three factors affecting the change in the level of competition they faced (see appendix 7).

Box 3.1: Merger and takeover activity in the fresh milk industry

Deregulation of the state based fresh milk industry has commonly involved removing controls over the sourcing, distribution and pricing of milk. Deregulation was completed in Victoria and South Australia in 1995. By 1999 the process of deregulation is scheduled to be completed in New South Wales and Queensland. The moves to deregulation have seen a number of firms repositioning themselves to either take advantage of changed marketing arrangements or to ensure they will survive in the post deregulation market. Some examples of mergers, takeovers and restructuring arising from the move to deregulation of the fresh milk industry are outlined below.

- QUF, previously a South-east Queensland and Darwin based dairy firm, has made significant investments which are largely in response to the deregulation initiatives in the fresh milk market (QUF 1994). These include: acquiring a number of Victorian milk operations (dairy farms and 4 manufacturing dairies) during 1992 and 1993. QUF subsequently integrated some of these operations to achieve economies of scale in processing and distribution. QUF's acquisitions were designed to allow it to gain strategic access to lower cost milk production in Victoria in anticipation of future export markets. The increased competition in the Victorian fresh milk market has reportedly led to increased discounting and reduced profits for QUF in the first half of the 1995-96 financial year (O'Meara 1996). QUF also purchased 58 of the fresh milk wholesale distribution leases available as a result of deregulation in Queensland in order to gain economies of scale and scope to lower average production costs and expand market activities.
- In 1989 three New South Wales milk co-operatives — Dairy Farmers, Shoalhaven Co-op and Hunter Valley Co-op merged to form Australian Co-operative Foods Ltd (A.C.F). The merger was designed to:

  > create a structure which can compete on a national and international stage. Suppliers to A.C.F can now face a deregulated future with confidence and market power (Todd 1994).

- In November 1995, members of the Queensco-unity Dairyfoods Co-operative, a Queensland based milk co-operative, and members of A.C.F agreed to merge. This is the first inter-state merger of milk co-operatives, a merger which is unlikely to have taken place in the pre-deregulation environment.
- In March 1995, South Australia's largest dairy co-operative Dairy Vale became a publicly listed investment trust. The new structure allows for an injection of capital to a firm which through deregulation was facing the threat of competition for the first time. The capital has led to the opening of a new plant and the upgrading of existing plants. These investments are expected to lead to export possibilities and an edge over interstate competitors (Fuller 1995).

Micro reforms often provide competitive pressures which influence market-based factors such as mergers and takeovers and new domestic entrants. For example, changes to SMAs in the fresh milk industry have encouraged mergers and takeovers in the Milk processing industry (see box 3.1).

3.3.3 Micro reforms — broad trade categories and competition

Trade liberalisation initiatives have been important elements of the micro economic reform program to increase competition in the domestic economy. These initiatives have included the progressive reduction of barriers to import competition and the rationalisation of SMAs.

In view of this, the categorisation of firms relative to their trade orientation provides a useful means for assessing the impact of micro reforms on the level of competition in the domestic environment — details of the trade characteristics of the survey industries are provided in box 3.2.

Box 3.2: Trade orientation of survey industries

Based on ABS data and our own survey data, we have been able to broadly classify the surveyed industries into three categories, namely export oriented, import competing and non-traded.

- *Export oriented* — Meat processing, Dairy products nec, Sugar manufacturing and the Prepared animal and bird feed industries. A substantial proportion of the production of these industries is exported.
- *Import competing* — Fruit and vegetable processing, Confectionery manufacturing, Cereal foods and baking mixes, Food processing machinery and Packaging industries. A substantial proportion of domestic demand for the output of these industries is supplied by imports.
- *Non-traded* — Milk and cream processing, Flour mill products and Fruit and vegetable wholesaling. These industries do not export or have only limited exports. They also supply all, or the overwhelming majority, of domestic demand.

Firms in the export oriented and import competing categories can be termed traded industries in the sense that they face a strong degree of competition through international trade. The firms within the non-traded category primarily compete against Australian based competitors.

The survey covered export oriented and import competing firms, as well as firms which are either not participating in the internationally traded sector of the economy, or are participating to only a limited degree (see chapter 2 and appendix 4 for a profile of the survey industries).

Overall, more than 80 per cent of firms in the import competing industries reported an increase in the level of domestic competition. By comparison around 70 per cent of firms in both the export oriented and non-traded categories reported an increase in competition.

Tariffs, by raising the price of competing imports, allow domestic producers to charge higher prices for their outputs. As tariffs are primarily used to provide assistance for import competing industries, they are unlikely to have direct effects on the level of competition faced by firms in non-traded industries. SMAs on the other hand are more generally used in agricultural based industries. These arrangements typically involve the compulsory acquisition of production by some central agency and/or the setting of prices which would exceed prices in an unregulated domestic market. In export oriented industries, SMAs often involve the payment of a pooled price to producers (IC 1995a). In some instances, SMAs are used in conjunction with a tariff or tariff quota (eg sugar and manufactured dairy products).

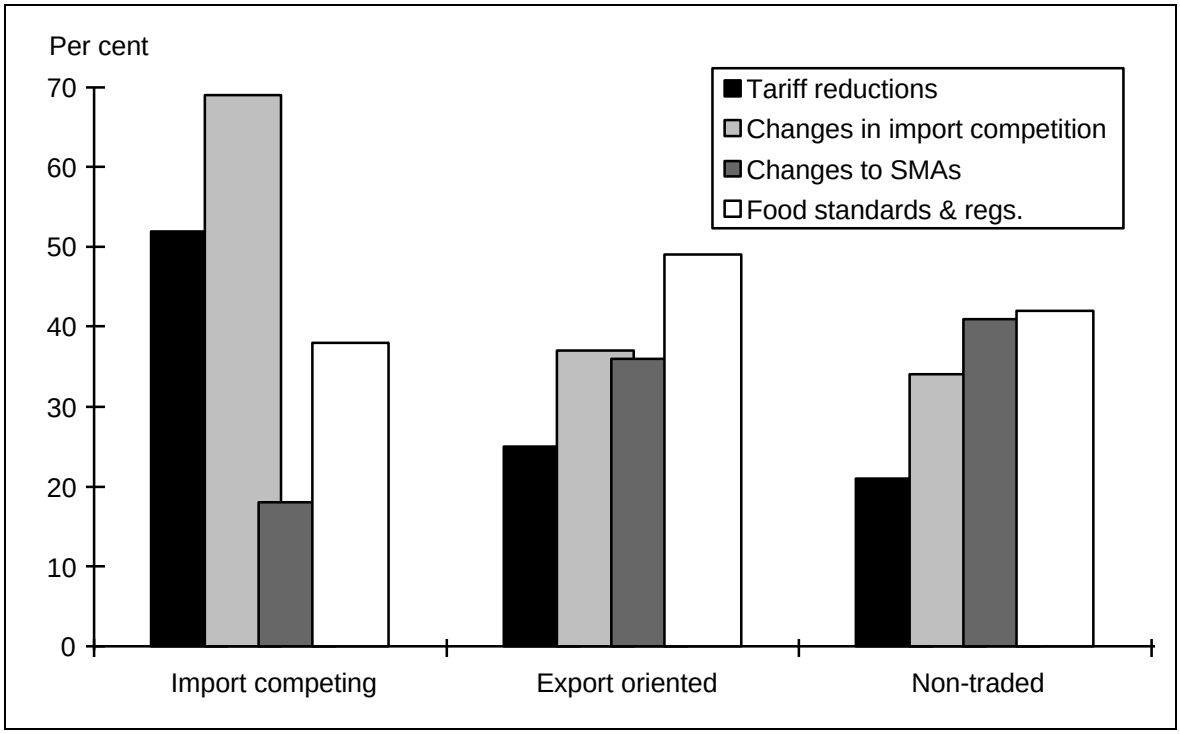
An analysis of the contribution which micro reform factors have made to changing the level of domestic competition shows that the degree of impact of the individual reforms is related to the change in assistance due to the reform and the trade orientation of the respondent firms.

Tariff reductions, which have lowered the prices of competing imports, have been a significant factor in increasing the level of competition for import competing firms. Over 50 per cent of import competing firms reported that tariff reductions were directly important to increasing competition. Changes in the level of import competition resulted in an increase in the level of domestic competition for nearly 70 per cent of import competing firms. As shown earlier, there is a strong association between import competition and tariff reductions as factors contributing to the change in domestic competition (figure 3.5). In comparison, significantly less firms in the export oriented and non-traded industry groups reported an increase in domestic competition due to tariff reductions and increased import competition. Instead, changes in SMAs and food standards and related regulations proved to be the more important micro reform factors leading to increased competition for firms in the non-traded sector — food standards and related regulations also being most important for export oriented firms (figure 3.6).

The relative intensity of the reductions in assistance experienced by each sector is likely to be related to the extent of reforms. The reforms to SMAs have been considerably less effective than tariff reductions. Price distortions, which measure the gap between the international price of commodities assisted by SMAs, while declining have not seen the reductions experienced by the import competing tariff

assisted industries (refer to chapter 2 and appendix 4). As SMAs are relatively more important to firms in the non-traded and the export orientated sectors and tariff reductions more important for the import competing sector, a larger proportion of firms in the import competing sector reported a change in the level of domestic competition.

Figure 3.6 Factors contributing to increases in the level of domestic competition by broad trade category



Data source: BIE Agri-food survey 1995.

The impact of tariff reductions on competition for import competing firms is likely to have been dampened by the depreciation of the exchange rate over the period since 1989. The depreciation of the exchange rate tends to have an offsetting effect to the downward pressure of tariff reductions on the landed duty paid prices of imports. This appears to be the case for the surveyed industries. The exchange rate (based on the trade weighted index) has depreciated over the survey period at about the same rate as the decline in the average duty paid for food, beverages and tobacco imports (refer to appendix 5, figure A5.3).

3.4 Concluding comments

This chapter has covered two very important aspects of micro reform. The first concerns the impact of micro reforms on firm competitiveness, while the second

relates to the contribution which those reforms have made to changing the level of domestic competition.

Firms' views about the impact of micro reforms on their competitiveness and the pace of these reforms varied considerably between reforms.

Telecommunications reform is clearly regarded as the most satisfactory reform for firms covered by the agri-food survey. It is most widely reported as making positive contributions to firm competitiveness (by firms accounting for nearly 70 per cent of the sales value of the survey sample). Further, the pace of telecommunications reform is considered to be the most satisfactory (by firms accounting for more than 70 per cent of the sales value of the sample).

Reforms in the area of industrial relations are reported as the second most effective reform so far — having positive impacts on firm competitiveness for firms covering 65 per cent of the sales value of the sample. Despite firms' recognition of the important positive impacts due to industrial relations reform, they have clearly pin-pointed industrial relations reform as currently progressing too slowly (by firms accounting for 55 per cent of the sales value of the sample).

The next most widely reported positive reforms, on a sales value basis, included road freight and waterfront reforms (both covering close to 60 per cent of the sales value of the sample). While the majority of firms considered that road freight reforms were proceeding satisfactorily, they were very dissatisfied with the pace of waterfront reform. Firms accounting for nearly 70 per cent of the sales value of the sample reported that the pace of waterfront reform was proceeding too slowly.

The reforms most widely reported as having negative impacts on firm competitiveness included environmental regulation, input taxes/on-costs and tariff reductions (covering in the order of 40 to 55 per cent of the sales value of the sample). Although the pace of environmental regulation reform was, in the main, considered to be satisfactory, a significant proportion of the firms considered that the pace of reform was too fast. Reforms covering input taxes/on-costs were considered to be proceeding too slowly or going backwards. Although the dominant response was that tariff reform was proceeding at a satisfactory pace (close to 45 per cent of the sale value), a significant proportion of firms (25 per cent) reported that this reform was proceeding too fast.

Overall, firms ranked, in order of importance, the four most important positive reforms as telecommunications, industrial relations, food standards and related regulations and road freight. They ranked input taxes/on-costs, tariff reductions environmental regulations and industrial relations as the four most important negative reforms.

There has been a significant increase in the level of competition faced by survey respondents in the domestic market over the period since July 1989 — 75 per cent of respondent firms reported an increase in competition. Although market based factors were more frequently identified by firms as directly contributing to the change in competition, micro reform factors appear to have had important indirect as well as direct effects.

The main market based factors leading to the change in domestic competition included new entrants to the domestic industry, changes in technology, industry mergers and takeovers and changes in import competition. However, tariff reductions and reforms to SMAs were associated factors for a large proportion of firms reporting market based factors. For example, merger and takeover activity in the milk and cream processing industry has been stimulated by changes in statutory marketing arrangements for milk.

An analysis of the impact of micro reform factors made on the basis of the trade orientation of firms more clearly indicates their importance in contributing to change in domestic competition. For example, significantly more firms in import competing industries, compared to the sample as a whole, reported that tariff reductions were a factor contributing to change in domestic competition.

While some firms believe that the micro reform agenda needs to be pushed further, and others believe the reform process has gone too far, it is clear that there have been some important gains from the reform process to date. Micro reforms and changes in competition have made an important contribution to changing the economic environment within which firms in agri-food and related industries operate. The agri-food survey has shown that the micro reform program has made a contribution to the improved competitiveness of many firms as well as changing the level of domestic competition faced by them. There is some evidence that increased competition can be a catalyst for change (BIE 1996a). Some responses of firms to the changed competitive environment are examined in chapters 4 and 5.

4 Positive outcomes from increased competition

Firms which are sheltered from competitive pressures are less likely to minimise their costs and put in place efficient production practices. By taking away any notions of an 'easy life', it is argued, that firms will be more likely to minimise costs, be more responsive to customers needs and more able to compete in international markets (BIE 1996a). An important rationale of the microeconomic reform process has been to increase the level of competition faced by firms.

Microeconomic reform can have direct and indirect influences on the competitive environment faced by firms and industries. Tariff reductions, changes to statutory marketing arrangements (SMAs), changes to food standards and related regulations (including the mutual recognition of Commonwealth and state regulations and relaxation of certain quarantine arrangements) can increase competition by reducing domestic and international barriers to entry. As discussed in the *Setting the Scene* report (BIE 1996a) and in earlier chapters of this report, reforms of this type could be expected, to varying degrees, to have increased the level of competition experienced by firms such as those in the surveyed industries. On the other hand, a range of other reforms such as infrastructure reform can, by reducing intermediate input costs and improving product or service quality, enhance the capacity of firms to compete in the face of an increase in the level of competition.

This chapter reports on firms' responses and some outcomes accompanying increases in the level of domestic competition within the agri-food and related industries. The chapter first considers differences in the responses of firms in the internationally traded and non-traded sectors of the agri-food and related industries surveyed (section 4.1). The chapter also considers how firms have responded to the increase in competition (section 4.2). The chapter then reports some positive outcomes accompanying the increase in domestic competition (section 4.3). The chapter concludes by drawing together some of its more important findings (section 4.4). A detailed break-down of the survey results concerning the changed competitive environment and firms' operations and performance can be found in appendices 7, 8 and 9.

4.1 Trade liberalisation and responses to increased competition

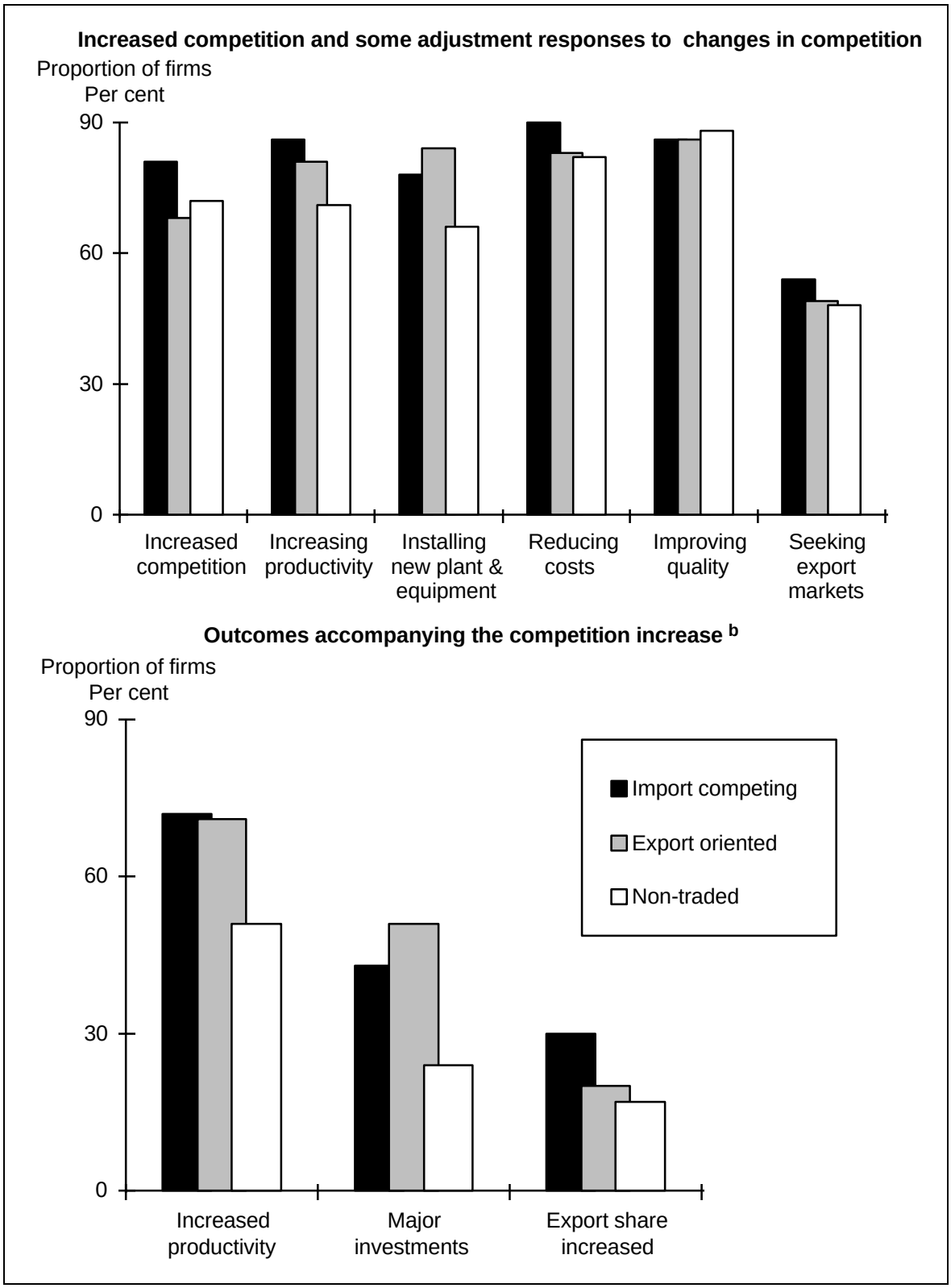
The agri-food survey covers industries in the internationally traded sector — export oriented and import competing industries — as well as industries where a dominant number of firms are either not participating in international trade or are participating to only a limited degree — the non-traded sector (see box 3.2).

Trade liberalisation has impacted differentially on the level of domestic competition faced by firms in these sectors (chapter 3). Large numbers of firms in all three sectors reported an increase in the level of domestic competition since July 1989. However, compared to the other two sectors, the import competing sector had a higher proportion of firms reporting the level of domestic competition had increased (figure 4.1). As discussed in chapter 3, one factor which may have contributed to this result was the greater intensity of tariff reductions compared to changes in SMAs.

As might be expected, tariff reductions on competing imports and changes in the level of competition from imports were important contributors to the overall increase in domestic competition experienced by the import competing sector. On the other hand, firms in export oriented industries and non-traded industries more often nominated changes in SMAs, rather than tariff reductions, as being important to the change in competition (chapter 3).

Our survey results indicate that, despite the different sources of the change in competition, the responses of firms in the internationally traded and non-traded industries were, in the main, not substantially different in their nature. Nevertheless, some differences were identified. These could, in part, be linked to changes in the nature and the level of competition experienced in these sectors. In particular, firms in industries subject to international trade were more likely to report an increase in their productivity than firms in the non-traded sector. Over 70 per cent of firms in the import competing and export oriented sectors reported an increase in their productivity compared with just over 50 per cent of firms in non-traded sector (figure 4.1, bottom panel). Certainly, firms in the traded sectors were more likely to respond to the increase in competition by taking measures to improve their productivity. Firms in the traded sector were also more likely to report they had installed new plant and equipment in response to the competition increase (figure 4.1 top panel). As shown in appendix 9, around 80 per cent of firms' reporting an increase in productivity identified investments in new machinery as being significant to the increase. Firms in these internationally traded sectors were also much more likely to have reported they had undertaken a major investment between 1989-90 and 1993-94 (figure 4.1).

Figure 4.1 Trade orientation and responses to the change in level of domestic competition since July 1989



a The adjustment responses reflect efforts taken to adjust to the increased level of domestic competition.
b These outcomes were reported by firms reporting increased levels of domestic competition.
Data source: BIE Agri-food survey 1995.

Interestingly, firms in the import competing industries were more likely to have reported an increase in export share in the value of production than firms in either the export oriented or the non-traded sectors. Thirty per cent of firms in tariff assisted industries reported an increase in export share compared to around 20 per cent of firms in other industries. Around 50 per cent of firms in each sector indicated they responded to the increase in the level of domestic competition by seeking out export markets. Improving product quality was put forward by over 80 per cent of firms as an important response to the increase in competition. Firms identified improved product quality as an important contributor to increases in their exports as a share of sales (see appendix 8 and figure 4.1). However, a large proportion of firms in all three sectors indicated they responded to the increased level of competition by seeking to improve product quality and/or reduce costs (figure 4.1).

These results suggest there have been positive benefits from increasing competition by reducing tariffs and removing or rationalising SMAs. However, while these reforms have significantly impacted on the change in the level of domestic competition faced by these sectors, the change cannot be solely linked to these reforms. As discussed in chapter 3, the survey results indicate that micro reform factors are not the only factors contributing to increases in the level of domestic competition.

Firms experiencing an increase in competition in all three sectors undertook responses to achieve performance improvements. However, this section shows that the proportion of firms responding to the increase in competition were often greater in the traded sector than in the non-traded sector. The following sections look at the overall responses undertaken by survey firms as well as some of the outcomes associated with increased competition in the domestic market.

4.2 Firms' responses to increasing competition

One of the most obvious direct effects of an increase in competition would be if firms exit an industry or close down entirely. A survey cannot by its nature cover firms in this later category. However, the number of agri-food survey questionnaires returned because firms no longer operate or alternatively could not be found at the address maintained on the Australian Bureau of Statistics business register provides a rough indication. The BIE agri-food questionnaire was sent to almost 1500 firms, 221 of these survey forms were ultimately returned with an indication from the former owner or their agent that the business no longer operated. Many factors could have contributed to these closures, including increases in the level of domestic competition.

Regardless of the source of the increase in competition, general improvements in firm performance have been achieved by many of the surviving firms. Ergas and Wright (1994) in their analysis of the Australian Manufacturing Council (AMC 1994) best practice survey data also find that competitive conditions play a significant role in determining firm performance across industries. However, they also found that the strongest links related superior performance to export orientated firms rather than to competition *per se*. In some respects, this finding is at odds with our analysis. However, Ergas and Wright (1994, p.75) point out that the AMC survey, which was the primary data source for their analysis:

> ...provides little indication of the competitive conditions in which firms operate. Firms were asked to report their market share — which even at the best of times is a poor indicator of market power ... As a result, indicators of competitive conditions had to be derived from other sources.

By contrast, the BIE's agri-food survey concentrated on the change in the level of domestic competition experienced between 1989-90 and 1993-94. Firms were specifically requested to indicate their views on the extent of the change in the level of competition as well as their responses to the change.

The impact on individual firms of changes to the level of competition relies on a range of variables. First, it relies on how each firm chooses to react to the immediate pressures arising from the process of reform — this initial response can be considered as being directly within the firm's control. It also, subsequently, depends on the second-round effects that emerge — these secondary effects or outcomes may arise through developments outside the firm's sphere of influence. Although some firms adversely affected by reforms may simply go out of business, others may make significant changes to their operations. Firms facing the same set of pressures may take very different restructuring paths. This point is highlighted by the different combination of responses between firms and across industries reported in appendix 8. For example, the most frequently reported responses to the increased competition in the Confectionery manufacturing industry were: reducing costs, improving product quality and changing the range of products produced. Whereas, for example, firms in the Fruit and vegetable processing industry most frequently reported: reducing costs, renegotiating price or quality arrangements with suppliers and increasing productivity.

The most common individual responses to the increase in domestic competition, within and across industries, were: improving product quality; reducing costs; increasing productivity; renegotiating price or quality arrangements with existing suppliers; and installing new plant and equipment (appendix 8). These responses by Australian firms were also identified as important by many New Zealand firms that faced increased competition from trade liberalisation and micro reforms in that

country — see for example, Campbell, Bollard and Savage, (1989) and Baird and Savage (1990).

Overall, increased effort directed at improving product quality was the most frequently nominated individual response to increases in competition. Over 85 per cent of firms experiencing an increase in competition indicated they sought to improve product quality — the majority identifying the response as of moderate or major significance. The BIE interviewed a number of respondents to obtain an understanding of how they sought to implement the quality improvement, box 4.1 summarises their responses.

Box 4.1: How firms sought to improve product quality

A need to keep ahead of the competition was a driving force in the decision to improve quality for most firms interviewed by the BIE. Increased customer demands required greater control of the production/distribution process. Some firms said that although it was a company policy to continue to upgrade machinery and product quality, increasing competition made this process all the more vital for their profitability and survival.

Many firms contacted by the BIE indicated they had achieved a quality accreditation of some kind, mostly the ISO 9000-9003 standard. These accreditations are awarded by Standards Australia and are a way of implementing industry best practice. Achieving this accreditation requires installing quality control programs such as process controls (eg the monitoring of waste, documenting procedures, improving employee training and instigating quality indicators). In the pear industry, for example, there has been an uptake of the ISO 9002 quality management system by packing sheds and large canneries (Halloran 1996).

Some firms aimed to improve the quality of their products by concentrating on improving the quality of inputs and improving production facilities. For example, one firm which grows and processes fruit indicated they had concentrated on improving the quality of their seedlings, adopted more rigorous insect control techniques and planted windbreaks to protect their fruit.

Many firms took action on a quality and cost basis. Reducing costs was the next most common response to the competition increase — 85 per cent of respondents reported they took action to reduce costs. The Industry Commission in its draft report on the Packaging industry has also noted a link between competition, price and quality. They found that ‘price and quality are worst, as perceived by customers, where there is least competition’ (IC 1995c, p. xiv).

Over 60 per cent of the firms taking some action to improve product quality also indicated they sought to reduce costs, increase productivity, renegotiate with existing suppliers and install new plant and equipment. The experiences of a small New South Wales manufacturing firm and a large Queensland fruit processing co-

operative reported in box 4.2 and 4.3 highlight how firms have implemented different response combinations in the face of a change in the level of competition.

Box 4.2: Increased competition -— a small manufacturing firm's experiences

A small NSW machinery company began production in 1982. The company initially focused on manufacturing food processing machinery. In November 1989, the company employed 5 full-time employees. By June 1994 the company employed 7 full-time staff.

Tariff reductions had a mixed effect on the company. The part of the business that manufactured machinery became less profitable. As a counterbalance, tariff reductions lowered the cost of importing machinery and components. However, the company said exchange rate movements to some extent ameliorated these effects. In the company's view one definite impact of the microeconomic reform process has been increased competition in the domestic market from new (foreign) entrants.

The company took a number of initiatives in the face of increased competition. These initiatives covered the three broad competition response categories reported in figure 4.2. The most important initiative was to change the range of products manufactured. The company has expanded its operations beyond producing juicing machinery to include the design, fabrication and installation of a range of equipment and parts, as well as importing equipment for installation. The company has pursued specialty areas in response to the more competitive environment. A new and growing part of the business is the design and installation of pure water plants, mainly used to produce pharmaceuticals. In 1989-90, pharmaceutical processing equipment accounted for around 20 per cent of the company's sales. This share increased to 60 per cent by 1993-94.

The adoption of best practice management through the ISO 9000 accreditation process and investment in new machinery have also been important factors in improving the firm's product quality, productivity and cost competitiveness. Increased use of outsourcing has complemented the small size of the firm and contributed to improved productivity.

Box 4.3: Increased competition — a large fruit processor's experiences

The Golden Circle company is one of the largest fruit and vegetable cannery operators in Australia. The company employed 662 full-time employees and 756 part-time or casual employees in November 1993. Prior to 1992, Golden Circle operated as a form of 'Quango' under Queensland statutory marketing arrangements. It now operates as a grower co-operative and is an unlisted public company.

The company has experienced a substantial increase in competition in the domestic market since 1989. Tariff reductions on competing imports and the subsequent increased import competition were the principal contributors. Imports of pineapples on a fresh fruit equivalent basis peaked in 1992. At that time supermarket retailers mainly used imported fruit for their generic labels. Prices have been held down to remain competitive. To maintain its market share, the company decreased its retail margins and it now supplies a substantial share of the generic brand market for pineapples.

In the face of substantial price based competition the company sought ways of reducing costs. A change in organisational structure, an investment program, the implementation of best practice benchmarking, quality assurance and work place reforms have been important adjustment responses for the company. Over the last five years Golden Circle invested approximately $50 million in modernising the plant — including a new cold storage and packing facility. Rapid changes in technology led Golden Circle to recently sell it's carton and can manufacturing operations and tie in long term price contracts with packaging suppliers. The company plans to reinvest these funds in modern food processing technology.

Endeavouring to reduce input costs, the company installed a sugar refinery in 1991. This investment resulted in considerable savings. However, the company now believes it could not justify making such an investment in 1996. This is due to new domestic entrants and lower sugar tariffs increasing competition in the sugar industry. Nevertheless it should be recognised that the assistance arrangements for sugar continue to drive a wedge between world prices and domestic sugar prices.

Golden Circle was the first Queensland firm to implement an enterprise agreement. The current agreement is their third. The company believes these agreements, along with changes in management practices, have contributed to productivity improvements. The company has introduced a number of workplace change programs. These include the development of self managed teams and increased emphasis on training to broaden employee skills and consultative management practices. In 1994, the company introduced a best practice scheme with the aim of becoming 'a world competitive processor and distributor'. The adoption of a best practice program was the cornerstone of the company's second enterprise agreement.

The company believes it must continue to reduce manufacturing costs and improve productivity to remain competitive. The introduction of advanced technology on farms and in its plants, as well as continued emphasis on workplace reform, are important means to achieving this end.

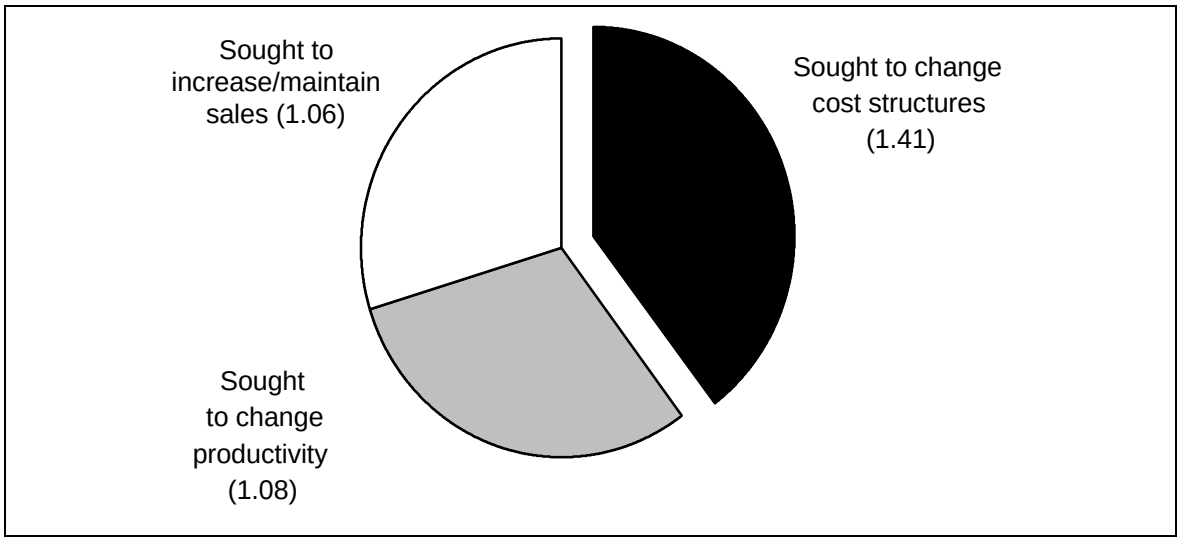
Respondent firms experiencing an increase in the level of domestic competition tended to react on a number of fronts but with differing degrees of intensity. While

the relative importance of some of these fronts varied, the majority of firms' responses can be summarised into three broad groups. Overall firms sought to:

- increase or maintain sales by increasing advertising, reducing prices, improving product quality, changing product lines, seeking out new export markets and investing offshore; and/or
- change their cost structures by changing production levels, reducing costs and renegotiating with suppliers, and changing input suppliers; and/or
- change their productivity by installing new plant or equipment, implementing improved work and management practices in response to benchmarking studies, increasing productivity and opening or closing plants.

Initiatives in the 'sought to change cost structures' group were more likely to be ranked as of moderate or major significance in firms' responses to the increased level of competition. Adjustment responses aimed at increasing or maintaining sales and changing productivity ranked relatively equally as responses to the change in competition (figure 4.2).

Figure 4.2 Average intensity of firms' responses to the changed level of domestic competition, since July 1989 [a]



a Adjustment responses to increased competition by individual firms were identified through question 14 of the survey (appendix 2). These responses were ranked, using the following scores: R = 0 for not relevant, R = 1 for minor significance, R = 2 for moderate significance, R = 3 for major significance. (Sensitivity analysis using different rankings produced similar results.) These responses were aggregated into the three broad response categories and divided by the number of firms experiencing an increase in competition to obtain an average intensity score — shown in brackets. Each category's maximum feasible score is 3. To achieve a score of 3, each firm would have to nominate 'major significance' for each potential adjustment response in the category.
Data source: BIE Agri-food survey 1995.

Of course responses in these three categories are by no means mutually exclusive. For example, responses directly aimed at increasing productivity can lead to cost

reductions and, similarly, responses designed to increase sales can lead to productivity improvements by achieving improved economies of scale or scope. The average response intensities reported in figure 4.2 indicate that, overall, firms placed a somewhat greater reliance on strategies aimed at reducing their costs.

4.3 Outcomes accompanying increased competition

Clearly firms in the surveyed agri-food and related industries have responded to the changed competitive environment. Opening up the Australian economy to increased competition has contributed to the emergence of more dynamic and productive Australian firms. This view is supported by a comparison of the differences between firms experiencing an increase in the level of domestic competition with those who reported no change. Firms reporting an increase in the level of domestic competition between 1989-90 and 1993-94 were more likely to have:

- changed their operational structure;
- undertaken major investments;
- maintained or increased their sales;
- sought out new export markets or increased their export share; and
- increased their productivity.

The survey results indicate that the change in the level of competition experienced by firms was a factor contributing to these changes — see sub-sections 4.3.1 to 4.3.5. Increased competition can also impact on returns to capital and labour. Changes in profitability and wages reported by firms experiencing an increase in competition relative to firms reporting no change in the level of competition is discussed in sub-section 4.3.6. A more detailed treatment of the aggregate survey results relating to these areas can be found in appendix 8 and 10.

4.3.1 Change in operational structure

Around 40 per cent of survey respondents changed the operational structure of their business during the period under review. Many of these firms made changes in several areas. For example, 29 of the 73 firms experiencing a change in ownership also diversified into new lines of business.

Firm's growth strategy was the most commonly identified factor contributing to changes in operational structure. However, changes in the level of competition and microeconomic reforms were also identified as being important contributors in their

own right — as well as encouraging modifications to the growth strategies of firms (see appendix 8).

The majority of firms reporting a change in operational structure also experienced a change in the level of domestic competition faced by their business. Only 11 per cent of firms undergoing a change in operational structure believed that the level of domestic competition had remained stable. The significance of many of the factors contributing to changes in operational structure varied by the extent of the change in the level of competition.

As might be expected, firms experiencing an increase in the level of domestic competition were more likely to nominate a change in the level of competition as being significant to the change in operational structure. (Firms were not requested to identify the market — domestic or international — experiencing the change in competition.) Firms experiencing a substantial increase in the level of domestic competition stood out in this regard.

Firms experiencing a substantial increase in domestic competition were more likely to indicate that changes in regulations, tariff reductions on competing imports and changes in the level of competition (from any source) were significant contributors than firms in the other two categories.

The changes in operational structure experienced by our respondent firms may not be unique. A survey of 300 large Australian organisations representing firms in the production and services sectors was conducted by Waldersee & Blackstock (1993). The survey found that between 1990 and 1993 many of these organisations had experienced major organisational change. Approximately one third of these firms reported significant downsizing and rationalisation in order to reduce costs. Other major changes reported by around one third of firms surveyed were: organisational restructuring; changes in the focus given to quality and customer service and changes in their industrial relations arrangements. Waldersee & Blackstock (1993, p. 10) conclude that:

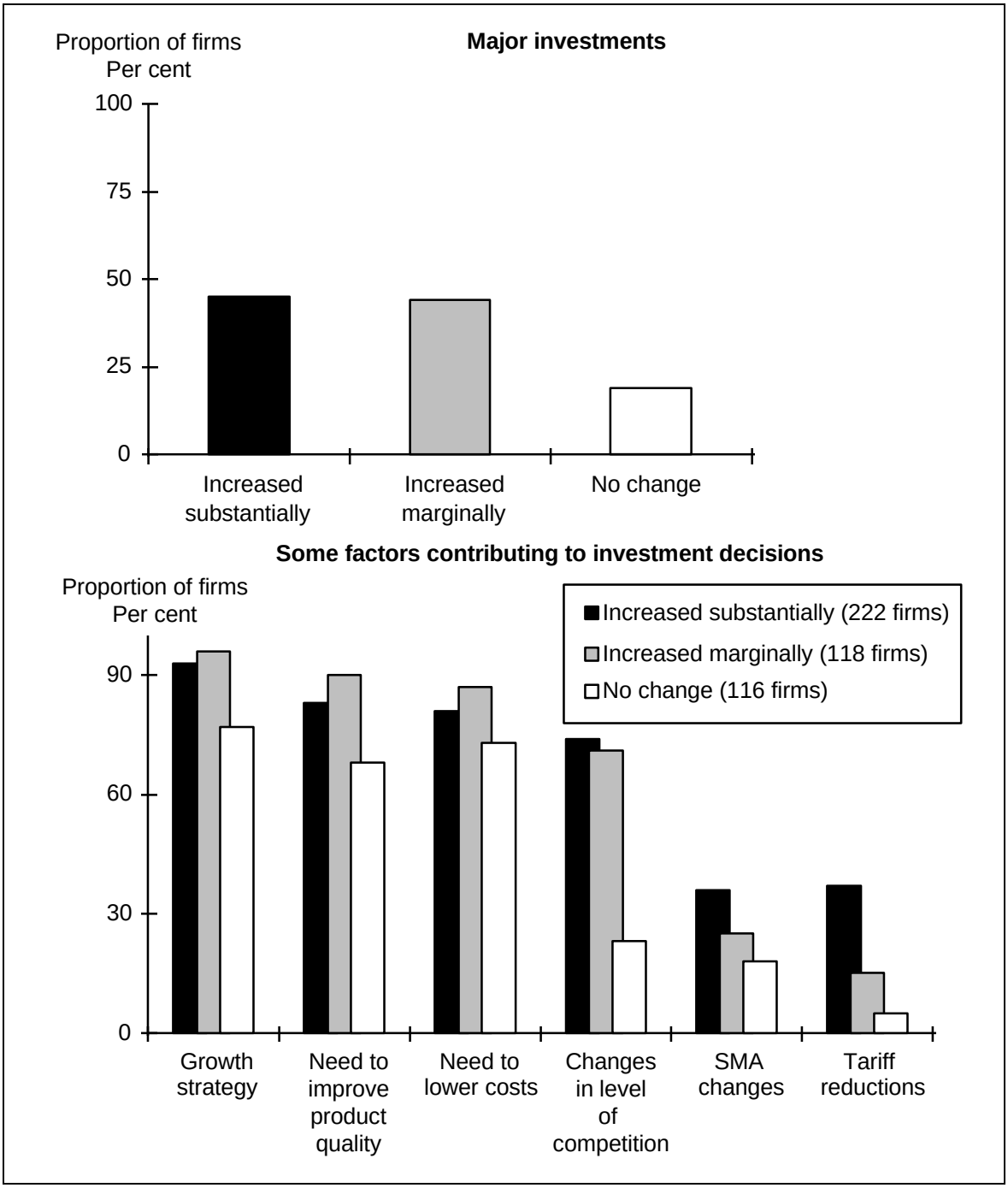
> ... these changes represent attempts to reduce costs and introduce efficiencies in the face of increasing competition brought about by the economic downturn and the breaking down of barriers between the Australian economy and global markets.

Unfortunately this study did not identify whether the changes experienced by these large firms produced improvements in productivity or competitiveness.

4.3.2 Major investments

Approximately 40 per cent of respondent firms undertook major investments between 1989-90 and 1993-94. The majority of these investing firms also experienced an increase in competition (figure 4.3).

Figure 4.3 Major investments and reasons for investment by change in level of domestic competition, since July 1989



Data source: BIE Agri-food survey 1995.

Growth strategy stands out as by far the most important factor contributing to firms' decisions to undertake a major investment. However, the need to improve product quality and lower costs were also important factors, regardless of the change in the level of competition faced by firms. An increase in the level of competition was also frequently nominated as a contributing factor (figure 4.3). As discussed earlier, many firms experiencing an increase in the level of competition indicated they responded to the increase by improving quality and lowering costs. Investments, for example in new technology, can play an important role in improving these aspects of firm performance.

Compared to market based factors, the direct impact of microeconomic reform factors (tariff reductions on competing imports, changes in regulations and changes to SMAs) on firms' decisions to invest was relatively small. Changes to regulations and SMAs were perceived as being marginally more significant to the decision to invest than tariff reductions on competing imports. However, such tariff reductions tended to be more significant to the investment decision for firms experiencing a substantial increase in the level of domestic competition (figure 4.3).

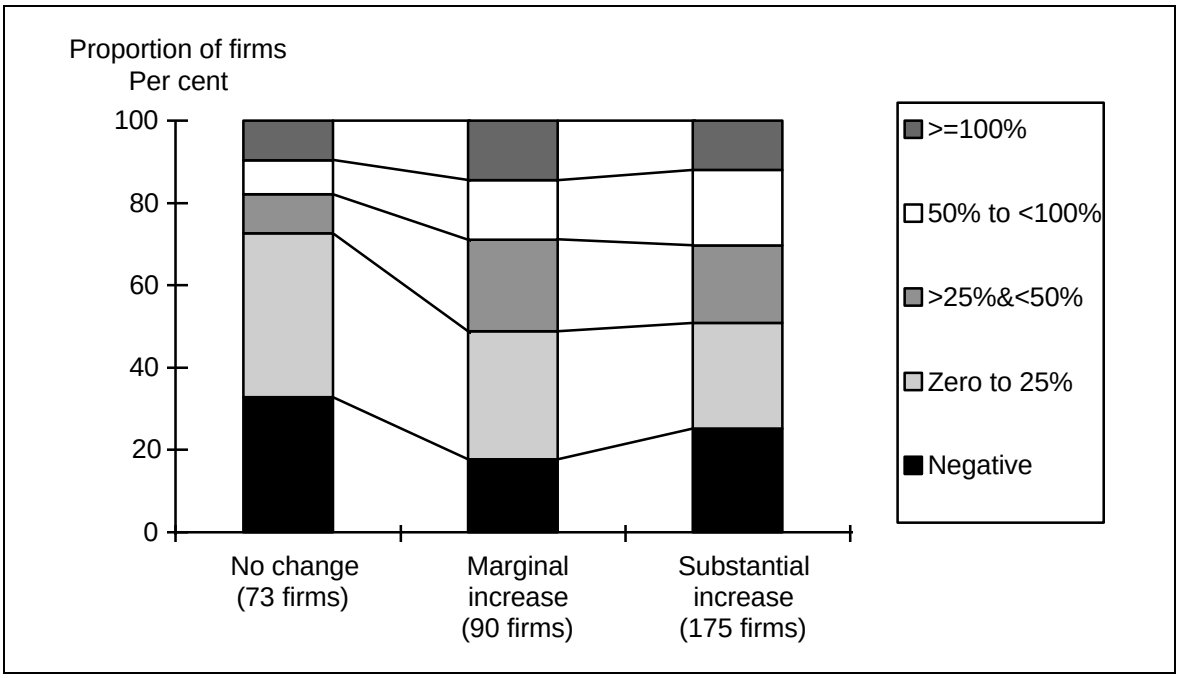
4.3.3 Sales growth

For many of the surveyed firms, their overall response to increased competition appears to have been successful in maintaining sales values between 1989-90 and 1993-94. Indeed, many of the firms experiencing an increase in domestic competition experienced substantial sales growth.

Overall, firms experiencing increased competition also experienced faster sales growth than firms in the 'no change in competition' category. This was particularly evident for sales growth greater than 25 per cent (figure 4.4).

A substantial number of firms reporting increased domestic competition reported a decline in their nominal sales value. However, these firms experiencing negative sales growth represented a smaller proportion of the two categories of firms reporting increased competition than firms in the category experiencing no change in the level of competition. The 'marginal increase in competition' category had the smallest proportion of firms experiencing negative sales growth. Only three of the four firms experiencing a decrease in the level of domestic competition provided sales data. All three firms experienced substantial sales growth.

Figure 4.4 Sales value growth by changes in the level of domestic competition, since July 1989[a]



a Some respondent firms did not provide sales data, hence, the numbers reported for each category vary from those reported in other places in this report.
Data source: BIE Agri-food survey 1995.

4.3.4 Export growth

Nearly 60 per cent of firms reporting an increase in the level of domestic competition indicated that one of their responses to the increase had been to seek out new export markets. In 1989-90, the beginning of the survey period, approximately 25 per cent of respondent firms reported earning some export revenue. By 1993-94, the last year of data collected, around 40 per cent of respondent firms reported earning some export revenue. Around half of the exporting respondent firms indicated their share of exports in the value of their business's production had increased over the survey period. Only ten per cent of exporting firms indicated their share of exports had decreased. Firms nominated a wide range of factors as contributing to this change in export share (appendix 8).

Firms with an increase in their export share ranked the development of new products for export as an important contributor to the increase. Improved product quality, the need to lower unit costs by increasing output, lower production costs and changes in overseas trade barriers also ranked highly. As discussed earlier, these factors were often nominated as direct responses to a change in the level of domestic competition faced by firms. Firms experiencing a decrease in their export share most frequently nominated a range of 'other' factors not specifically outlined

in the questionnaire. A change in local supply conditions for raw product due to factors such as a decline in crop/livestock quality and quantity, stood out as being an important contributor to the decrease. Firms also frequently ranked changes in the exchange rate, improved product quality and changes to overseas trade barriers as important contributors to the decrease in export share (appendix 8).

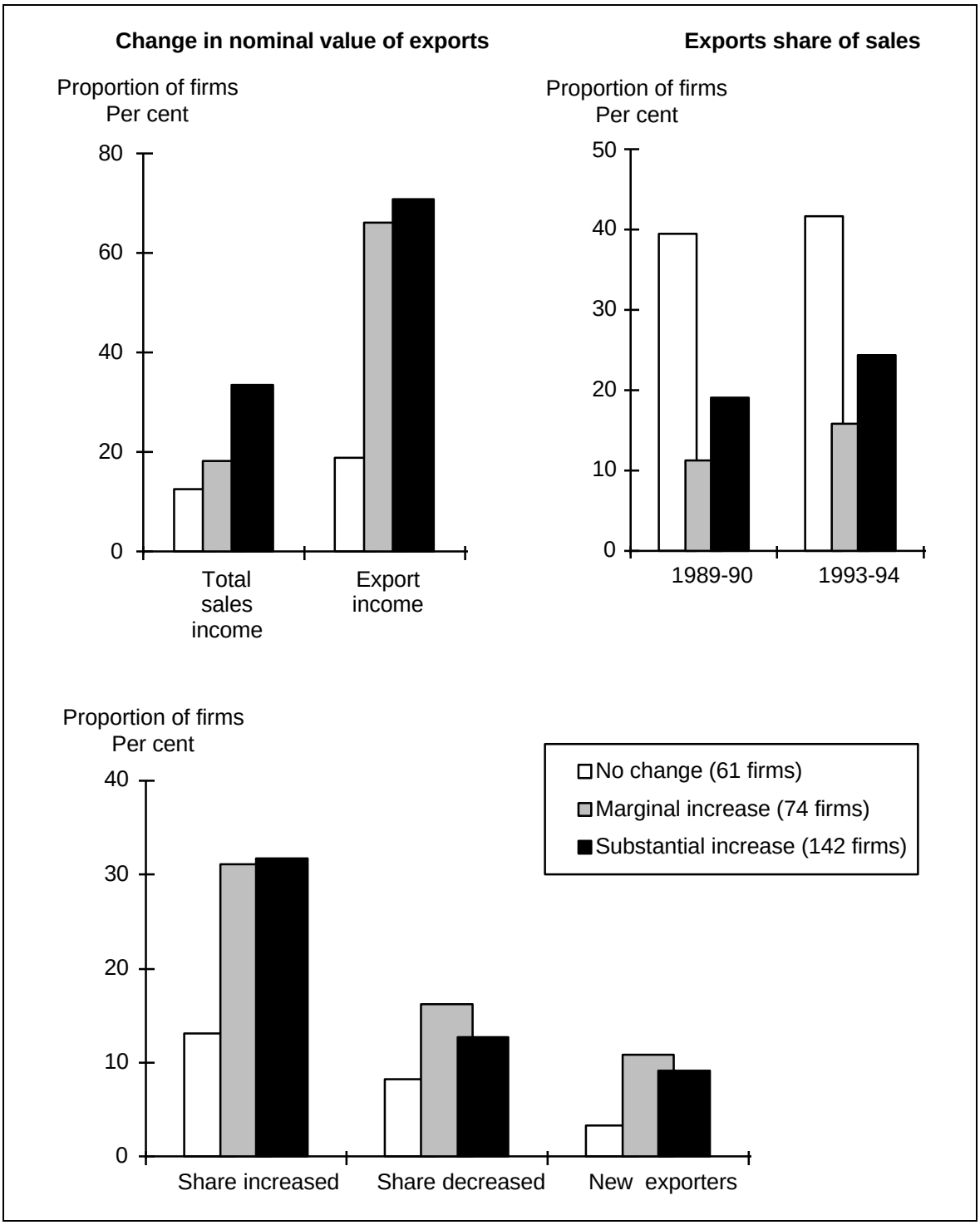
Although firms consider improved product quality was a contributor to the change in export share, a perception gap may exist between Australian producers and Asian buyers. A report by Frank Small & Associates (1995) suggests that, with the exception of grains and cereals industries, the Australian agri-food industry's belief that it offers value for money and quality of service is not always accepted by Asian buyers.

Firms experiencing either an increase or a decrease in their export share were much more likely to have experienced an increase in the level of domestic competition than firms that indicated they did not export or that their share of exports had remained stable. However, the survey questionnaire did not specifically ask firms to indicate whether the change in export share was associated with a change in the level of domestic competition. Notwithstanding this, a link between the change in export share and the change in the level of domestic competition can be identified.

Around 60 per cent of respondent firms provided comprehensive financial data on the value of sales income, export income, wages and salaries and profits for 1989-90 and 1993-94. Analysis of this group of firms show that their total exports as a share of total sales income increased over the survey period — from around 18 per cent to 22 per cent. Aggregating the financial data of these firms into three groups — no change in competition, competition increased marginally and competition increased substantially — shows that the firms reporting no change in competition had, in aggregate, a higher propensity to export (see figure 4.5). However, based on these aggregated data, the group of firms reporting an increase in the level of domestic competition registered sharper growth in exports as a share of their sales than firms in the group reporting no change in competition (see figure 4.5).

Firms reporting an increase in the level of domestic competition saw a substantially larger growth in the nominal value of their aggregate export income compared to the firms reporting no change in competition (figure 4.5). In addition, the proportion of new exporters (defined as those firms not reporting export income in 1989-90 but reporting export income in 1993-94) as well as the proportion of firms experiencing an increase in their export share were higher for the group of firms reporting increased competition (figure 4.5).

Figure 4.5 Change in export sales between 1989-90 and 1993-94 by changes in the level of domestic competition



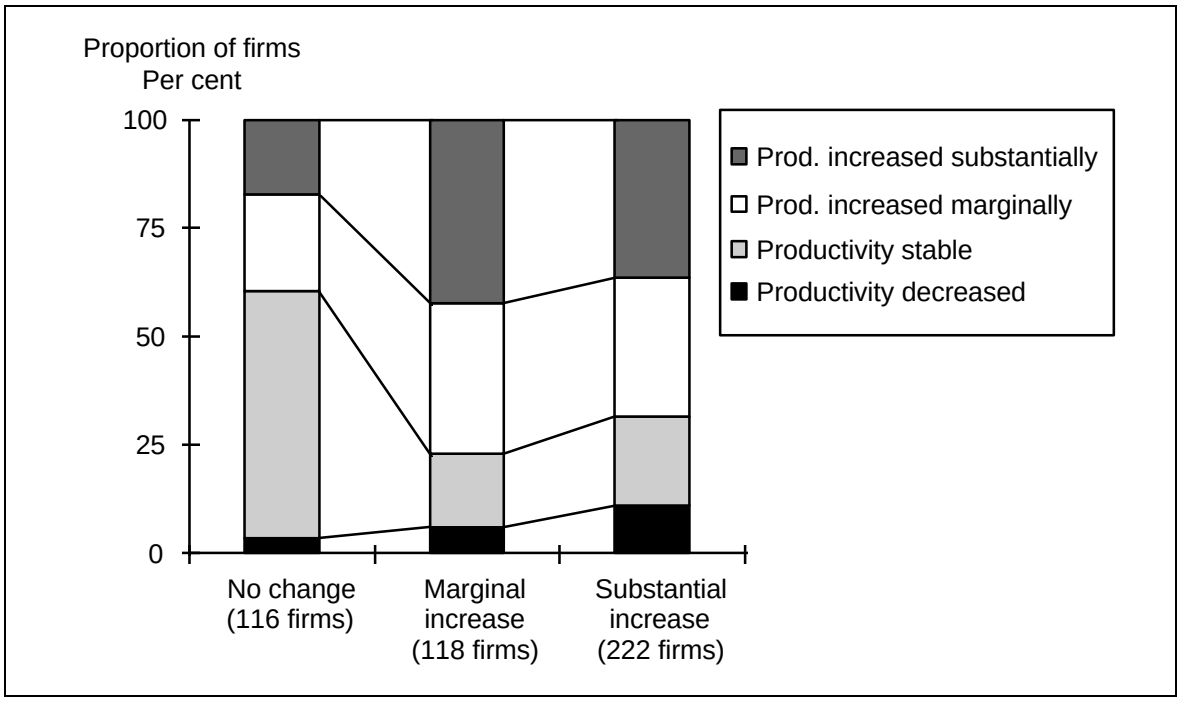
a Analysis presented in the top two charts is based on the aggregation of the sales and export data of the 277 respondents who provided comprehensive financial data **.**
Data source: BIE Agri-food survey 1995.

4.3.5 Increased productivity

Around 70 per cent of respondent firms reported a change in their productivity between 1989-90 and 1993-94. The majority of firms reporting an increase in the level of domestic competition indicated they responded by endeavouring to increase their productivity. This view is supported by analysis of the differences in productivity changes reported by firms experiencing an increase in the level of domestic competition and firms reporting no change in the level of competition (see figure 4.6).

Firms experiencing an increase in competition were much more likely to indicate that their productivity had changed than firms experiencing no change in the level of competition. Over 70 per cent of firms experiencing an increase in the level of domestic competition also increased their productivity with more than half of these firms experiencing a substantial increase in productivity. By comparison, only 40 per cent of firms with no change in competition reported an increase in their productivity. The measures implemented by firms to improve their productivity are discussed in chapter 5.

Figure 4.6 Productivity changes between 1989-90 and 1993-94 by changes in level of competition



Data source: BIE Agri-food survey 1995.

4.3.6 Change in profitability and wages

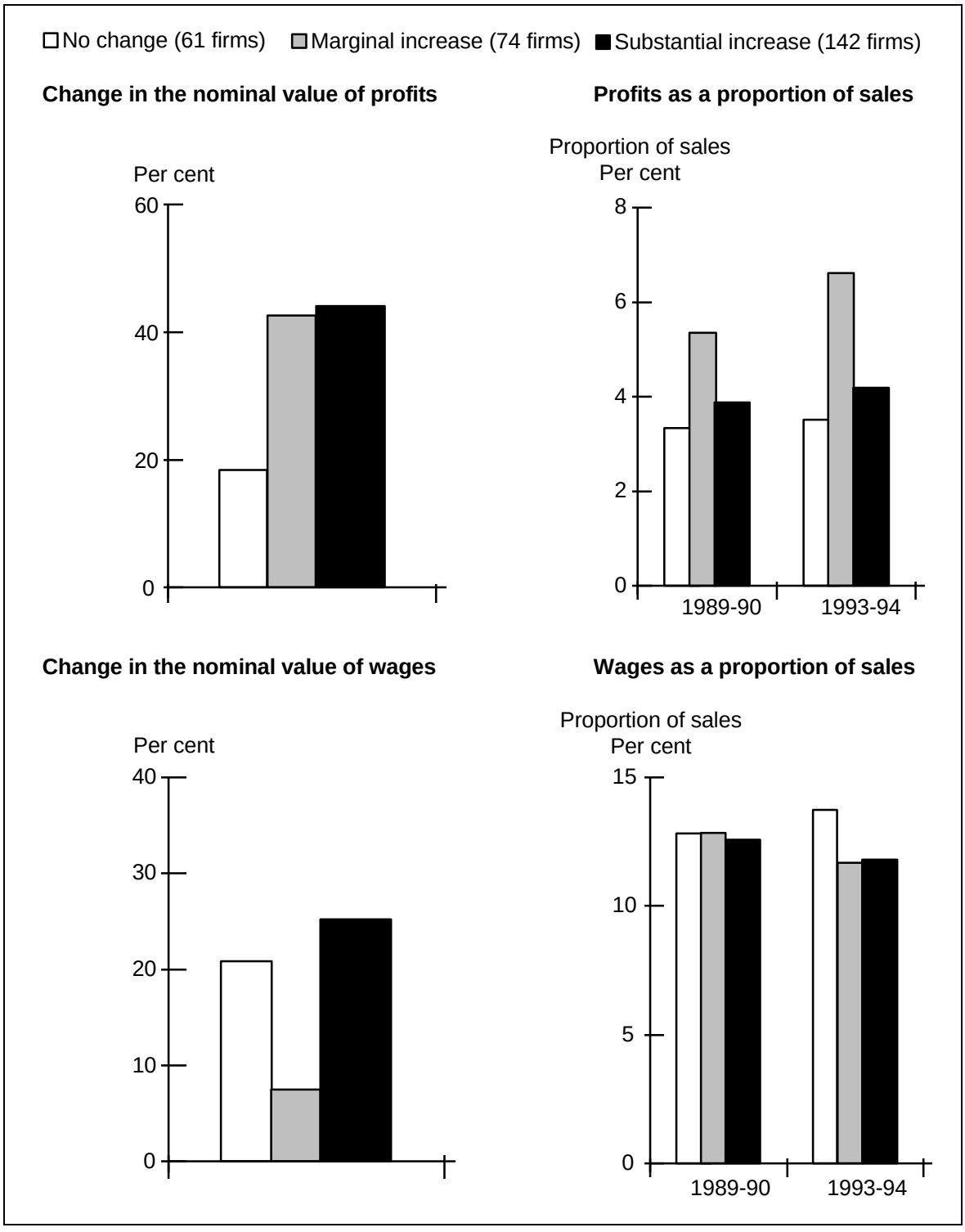
Increased competition can, amongst other things, put pressure on production volumes and costs as well as the prices firms charge for their outputs. Where prices are squeezed, firms could be expected to see a reduction in their profitability. However, the analysis presented above demonstrates that firms responded in a wide range of ways to increased competition.

An analysis of the aggregate change in profitability for the 277 firms that provided comprehensive financial data finds that increased competition was not reflected in a decline in their aggregate profitability. Firms in the groups reporting an increase in competition, in aggregate, reported higher levels of profitability than the firms in the 'no change' category. The 'no change in competition' category of firms experienced 18 per cent growth in the nominal value of profits compared to growth rates around 40 per cent for the group of firms reporting a marginal or a substantial increase in the level of competition. Similarly, firms reporting an increase in the level of competition saw the share of their total profits as a proportion of their total sales increase at a faster rate than the group of firms reporting no change in competition. This was particularly apparent for the group of firms reporting a marginal increase in competition (figure 4.7).

At first this appears to be a somewhat paradoxical result given that standard economic theory suggests that profits would be squeezed in industries where competition increases. However, as highlighted above, respondent firms faced with an increase in the level of competition have sought to increase productivity and reduce costs. In addition, it must be remembered that the analysis is only based on a sample of those firms who have survived the increase in competition. The least efficient firms may have closed down as a result of their low profitability and hence are not included amongst our respondents.

While aggregate profitability and profit shares have improved for the two categories of respondents experiencing an increase in the level of domestic competition, this improvement could have been made at the detriment of returns to labour. As shown in appendix 10, survey respondents' full-time employees fell by around 4 per cent between 1989-90 and 1993-94. However, the number of part-time workers employed by respondents increased by around 27 per cent.

Figure 4.7 Aggregate change in profitability and wages between 1989-90 and 1993-94 by change in domestic competition



a Analysis based on the aggregated sales, profits and wages data of the 277 respondents who provided comprehensive financial data.
Data source: BIE Agri-food survey 1995.

Changes in the nominal value of aggregated wages and aggregate wages as a share of aggregate sales for firms in each competition category are also presented in figure 4.7. Aggregated data for the category of firms reporting no change in competition suggests this increase was primarily absorbed as a higher wages share. However, for the two groups of firms reporting increased competition, wages as a proportion of sales declined.

The largest decline occurred for firms in the marginal increase in competition category. This group of firms had the lowest growth in the nominal value of wages and their aggregate wages as a share of aggregate sales declined from 12.8 per cent in 1989-90 to 11.7 per cent in 1993-94. Aggregate profits as a proportion of aggregate sales for this marginal increase in competition group rose from 5.6 per cent to 6.8 per cent.

As a group, firms reporting a substantial increase in competition had the largest increase in the nominal value of wages but experienced a marginal decline in wages as a proportion of sales — from 12.6 per cent to 11.8 per cent. This group of firms reported a small increase in profits as a proportion of sales — from 3.9 per cent in 1989-90 to 4.2 per cent in 1993-94.

As noted earlier, the data presented in figure 4.7 represents aggregate results rather than individual firm comparisons. Of course, firms in all three competition categories experienced profit growth above and below these aggregate results. The BIE used regression analysis to help gauge the role played by changes in the level of domestic competition in the change in reported profits. The equation regressed the dependent variable, change in profit share, against a range of independent variables such as sales growth, change in wages share, change in productivity and change in the level of domestic competition. The regression results did not confirm there was a positive relationship between individual firm's change in profit share and the change in the level of domestic competition. However, the regression, which had relatively weak explanatory powers, does suggest that reductions in wages as a share of sales had the greatest impact on changes in profitability. This result tends to support the findings on reduced wages shares for the 'increased competition' categories presented in figure 4.7. A more detailed discussion of the results of this regression can be found in appendix 3.

4.4 Concluding comments

Firms in agri-food and related industries facing a more competitive domestic environment over the period 1989-90 to 1993-94 have made substantial changes to the way they operate. The survey results indicate that tariff reductions and changes

to SMAs have contributed to these increases in domestic competition. However, the increased level of competition identified by survey respondents cannot be solely linked to these reforms. Market based factors have also played an important role (chapter 3). Our analysis shows that firms experiencing an increase in competition, regardless of its source, have responded across a wide front. Seeking to improve product quality was the most commonly nominated adjustment response to the increase in competition. However, when adjustment responses are considered as a whole, firms placed particular emphasis on the group of responses which could lead to changes in their cost structures.

Firms experiencing an increase in competition appear to be more dynamic and productive relative to firms reporting no change in the level of domestic competition. Firms experiencing an increase in the level of domestic competition are more likely to have affected a change in their operational structure, undertaken a major investment and experienced substantial sales growth. An increased emphasis on exports played an important role in the sales growth of firms reporting increased domestic competition. Firms subject to an increase in competition were also more likely to have reported an increase in their productivity.

The following chapter examines the measures put in place by firms in their endeavours to build more productive workplaces. It considers the role industrial relations and other work place reforms played in achieving this outcome.

5 Building productive workplaces

Increasing competition, a central focus of Australia's microeconomic reform program, is not an end in itself. Rather, it is a means to improve the efficiency with which the nation uses its resources. One rationale behind the introduction of increased competition is that the different environment arising from the change will trigger firms and industries to reassess their production and marketing strategies and find more productive and better ways of doing things. Evidence presented in chapter 4 suggests that this is occurring to varying degrees.

Chapter 4 identified that many survey respondents experiencing increased domestic competition have undertaken major investments and changed the operational structure of their businesses. Firms in response to the higher level of competition introduced strategies to export, improve product quality and reduce their costs. Many firms have also taken advantage of industrial relations and work place reforms. Overall, these changes suggest many agri-food firms have taken action to introduce or at least set the scene for productivity improvements.

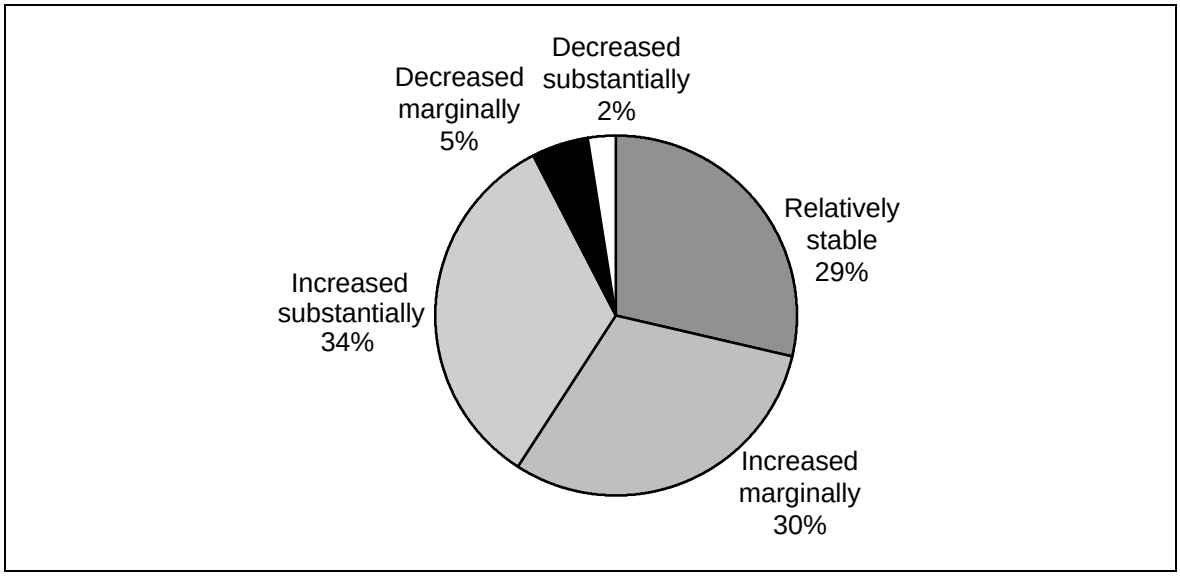
This chapter considers the extent of the productivity changes reported by the survey respondents (section 5.1). The chapter goes on to examine measures implemented by firms to increase their productivity and the relationship between these changes and the intensity of firms' adjustment response to the changed competitive environment (section 5.2). Industrial relations reforms and their role in the process are considered in more detail in section 5.3. The chapter concludes by drawing together some of the main findings (section 5.4). A detailed break-down of the survey results, covered in this chapter, can be found in appendixes 9 and 10.

5.1 Changes in productivity

The agri-food survey asked firms to indicate their perceptions of how their business' overall productivity had changed over the period 1989-90 to 1993-94. The majority of survey respondents indicated their productivity increased. Nearly 35 per cent of respondent firms believed the increase was substantial, while 30 per cent considered the increase was marginal. Just under 30 per cent of firms considered their productivity remained stable over the period. Less than 8 per cent of firms

perceived their firm's productivity had declined — most indicating that the decline was marginal (figure 5.1).

Figure 5.1 Change in productivity between 1989-90 and 1993-94[a]



a Based on the responses of 460 firms.
Data source: BIE Agri-food survey 1995.

At an industry level there were some substantial differences in the proportion of firms reporting an increase in productivity (refer to appendix 9). For example, over 80 per cent of respondent firms from the Packaging and Dairy product industries reported increased productivity. By comparison less than 60 per cent of firms in the Fruit and vegetable wholesaling industry reported a productivity increase. All bar two of the surveyed industries — Dairy products and Sugar manufacturing — included some respondents reporting a productivity decline (figure A9.1). The two industries with the largest proportion of firms reporting a productivity decline were Fruit and vegetable wholesaling (14 per cent of respondents) and Fruit and vegetable processing (11 per cent of respondents).

The reported change in productivity also varied with firm size. Large firms were more likely than small firms to report productivity had increased. Large firms where also more likely to report that the productivity increase was substantial.

5.1.1 Labour productivity

The productivity changes discussed above relate to respondents' perceptions of the overall change in productivity experienced by their firms over the survey period. This response could be construed as a gauge of the change in total factor productivity which takes into account all the inputs used by a firm. While total

factor productivity measures provide the most meaningful productivity estimates, partial measures of productivity are often calculated due to data constraints.

A recent study has compared labour productivity in the Australian food processing industry with international benchmarks (McKinsey 1995). The study found Australia's labour productivity performance to be significantly behind the United States and Denmark —the benchmark countries for food processing. The study also found that the Australian food processing industry increased its labour productivity at a compound growth rate of 3.3 per cent per annum between 1980-81 and 1992-93. However, despite this productivity growth, the labour productivity gap grew over this 15 year period — because labour productivity in the benchmark countries improved at the same rate but from a much higher base.

Labour productivity relative to world best practice was found to be particularly low in the cereals, bakery and other food sectors. 'Even Australia's higher performing sectors — meat, fruit and vegetables, and fats and oils — have not reached a productivity level equivalent to the average level achieved by the US industry' (McKinsey 1995, p.54).

The study identified the following six factors as contributing to the relatively poor performance of the industry:

- low capital investment;
- smaller scale;
- poor labour relations — which had admittedly improved over the last five to ten years;
- lack of innovation;
- lower export growth; and
- weak industry chain linkages.

The authors considered that these factors were largely within the control of individual firms and industries.

As identified in chapter 4, many agri-food firms have responded to the increased level of competition in the domestic market by undertaking major investments, seeking out export markets and undertaking changes in their operational structure.

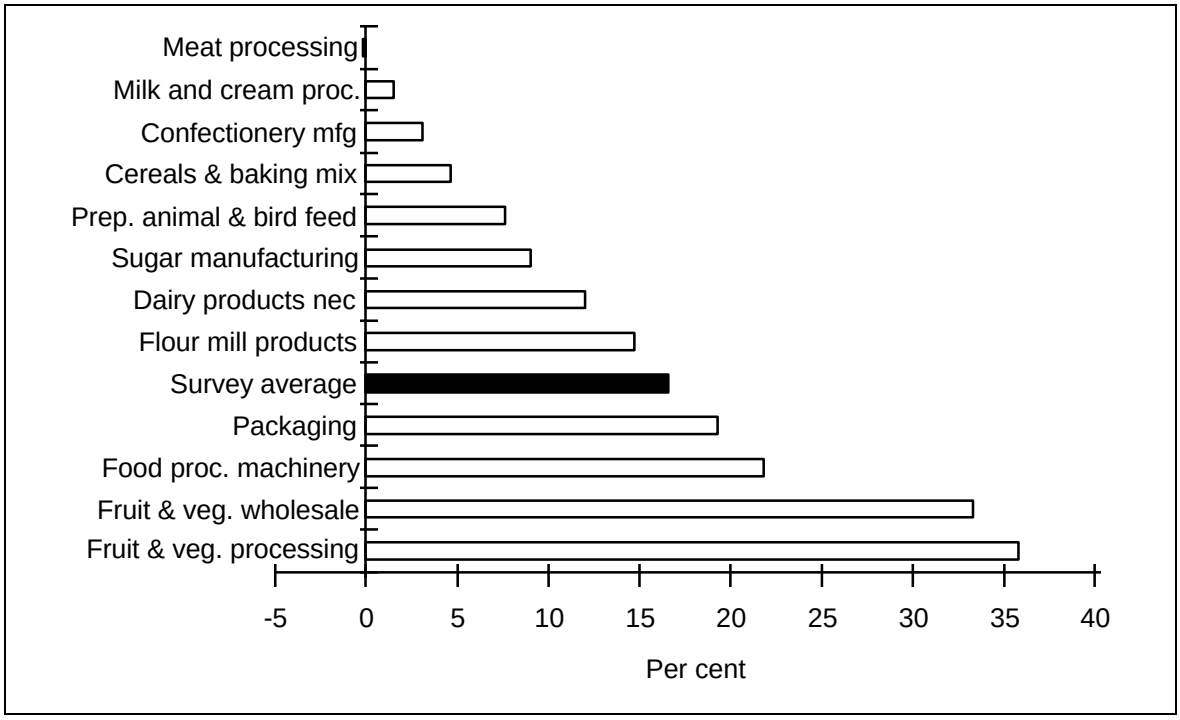
Financial data provided by around 300 of the Agri-food survey respondents allowed the BIE to derive estimates of the change in labour productivity between 1989-90 and 1993-94. The methodology adopted by the BIE used individual firm data on sales and wages and is discussed in appendix 9. The McKinsey methodology, on the

other hand, used industry level data on value added per hour worked to obtain a measure of labour productivity.

The BIE's labour productivity estimates showed some wide variations in productivity outcomes between firms within the same industry group and between industries (see appendix 9). For this reason individual firm level analysis of the results has not been reported. However, aggregation of individual firms' deflated sales and wages allowed the BIE to produce estimates for the survey as a whole and for each industry covered in the survey. The estimates show that the average labour productivity of survey respondents increased by 16.6 per cent between 1989-90 and 1993-94 (figure 5.2). Across the 12 industries surveyed, this equates to a compound annual growth rate of 3.9 per cent per annum. Excluding, the Packaging, Food processing machinery and Fruit and vegetable wholesaling industries from the analysis reduces the labour productivity growth rate to 3 per cent per annum.

At the industry level, respondents labour productivity growth between 1989-90 and 1993-94 was negative in only one industry — Meat processing. Labour productivity growth rates for respondents in other industries over the five year period varied from a high of 36 per cent for the Fruit and vegetable processing industry to less than 5 per cent for the Milk and cream processing and Confectionery industries.

Figure 5.2 Estimates of the change in labour productivity between 1989-90 to 1993-94, by respondents — industry and survey average[a]



a These estimates are based on data provided by 309 respondents and on the wages and salaries labour productivity methodology discussed in appendix 9.
Data source: BIE Agri-food survey 1995.

The negative growth in labour productivity experienced by survey respondents from the Meat processing industry may reflect seasonal differences in volumes and product quality between 1989-90 and 1993-94 (ABARE 1994a). Notwithstanding this, a study undertaken by the Industry Commission (IC 1994) suggests there are labour productivity gains available of at least 8 to 10 per cent from further reform to the industry's industrial relations and workplace arrangements.

The labour productivity results presented in figure 5.2 should not, however, be construed as industry averages. While the survey response rate was relatively good for a non-compulsory survey, most industries surveyed had response rates below 50 per cent (chapter 2). In addition, around one third of respondents did not provide sufficient information to be included in the estimation process. Hence, these labour productivity measures should be treated with some caution.

Further, as noted in SCNPMGTE (1992), concentrating on the productivity of one particular input can give a misleading impression of a firm's overall performance. This can occur, for example, because the improvement (deterioration) in labour productivity was achieved by a deterioration (improvement) in the partial productivity of capital. For these reasons, the SCNPMGTE (1992) argues that a true picture of performance can only be obtained through a holistic measure such as total factor productivity. As noted above, respondents' views on their business productivity change were intended to capture such a holistic view. The following section reports important contributors to firms overall productivity change.

5.2 Factors contributing to productivity changes

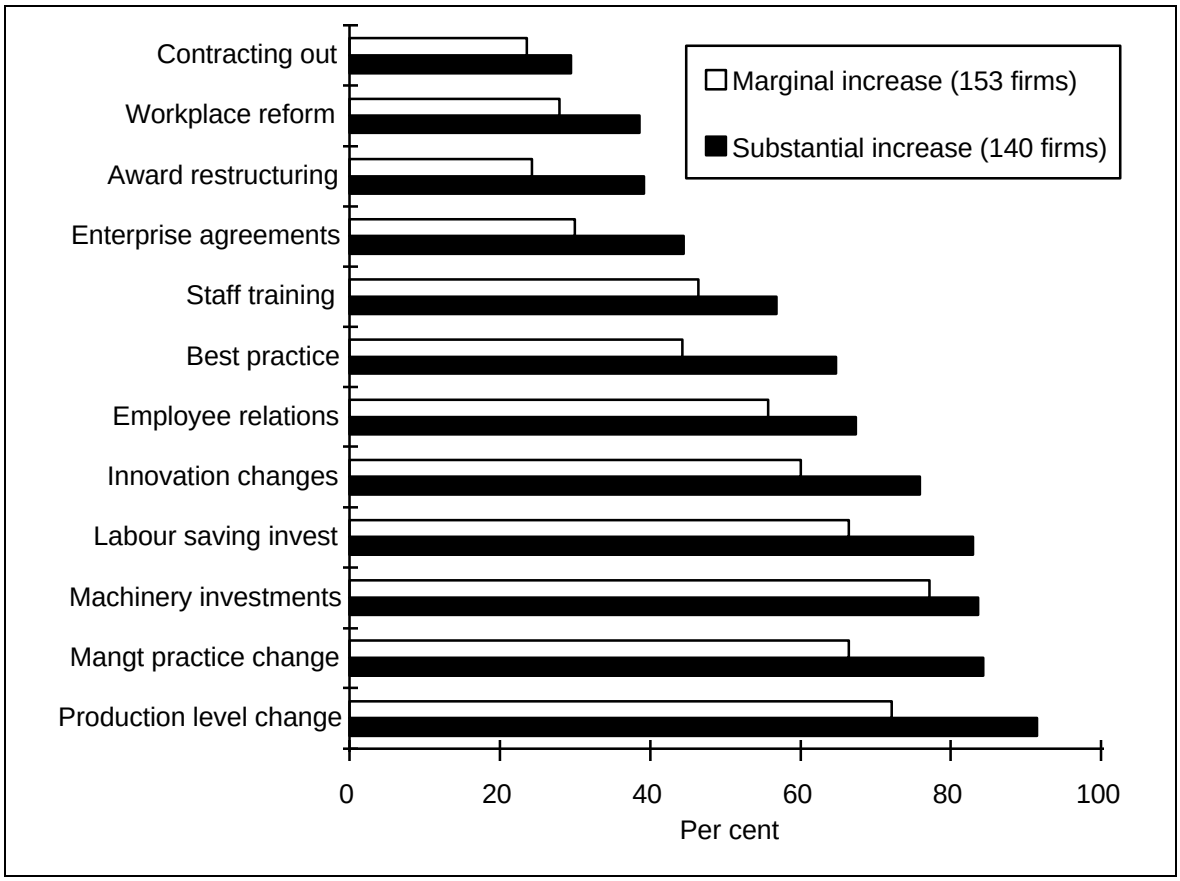
A wide range of factors contributed to the overall changes in productivity (appendix 9). This was particularly apparent for firms reporting a productivity increase. A change in the level of production was the most commonly identified contributor for firms reporting a substantial increase in productivity. It was also considered as being a significant contributor for firms reporting a marginal increase in productivity. Changes in management practices, investments in new machinery and in labour saving technology were also reported as important contributors to increases in productivity. Changes in the level of innovation and improvements in employee relations were also frequently identified as playing an important role (figure 5.3). As noted in chapter 4, changes in the level of production, along with major investments were also associated with a change in the level of domestic competition.

Discussions with firms indicate that a combination of factors working together generally contributed to their productivity increase. This point is highlighted by the

experiences of a Queensland meatworks. These experiences also draw attention to the potential for additional productivity increases if further rationalisations of work practices can be achieved (see box 5.1).

During the survey period, governments introduced substantial changes to industrial relations and training arrangements as well as providing incentives for firms to implement best practice techniques (BIE 1996a). An over-riding aim of these reforms was to increase the productivity and efficiency of Australian firms and industries. However, survey respondents were more likely to report initiatives other than industrial relations and workplace reforms as contributing to productivity increases (see figure 5.3).

Figure 5.3 Factors contributing to reported productivity increases between 1989-90 and 1993-94 by extent of productivity increase[a]



a The proportions reported in figure 5.3 for the marginal and substantial productivity increases were found to be statistically different for all the factors — except investments in new machinery, increased emphasis on contracting out, changes in staff training and other work place reforms. See appendix 3 for a discussion of significance testing.
Data source: BIE Agri-food survey 1995.

The survey results indicate that respondent firms considered that industrial relations and work place reform initiatives have made relatively small contributions to reported productivity increases. For example, only 44 per cent of firms reporting a substantial increase in productivity and 30 per cent of firms reporting a marginal increase in productivity indicated that an enterprise agreement had made a significant contribution to the increase.

Box 5.1: Past and potential future contributors to a productivity increase in a meat processing firm

South Burnett co-operative meat works, based in Queensland, has undergone a period of growth over the last 12 years expanding from 150 to 620 employees. The company exports about 85 per cent of its annual turnover.

In the last few years a second shift was introduced. This involved a considerable investment for the firm which has slowly led to increased output and productivity. Initially, it had the opposite effect due to the need to train new labour and the increased wage costs of employees who were working double shifts.

While productivity is increasing due to investments in new plant and machinery and the introduction of a second shift, it is also being constrained by industrial relations practices in the industry. The meat industry, through state and federal awards, operates under a tally system. The tally system applying under the federal award, for example, contains a unit system 'in which the slaughtering process is specified with numerous defined tasks. Each of these is weighted with specified units of labour per 100 head. A formula incorporating the sum of these components and the number of workers determines the "minimum tally". A per head premium is payable beyond the calculated minimum tally up to the maximum tally' (IC 1994). The tally system in the co-operative's mechanically assisted boning room, in effect, constrains the throughput of the plant. In the cooperative's case, investments in new technology to speed processing times increased the length of breaks available to the workforce, making it very difficult to realise the full extent of potential productivity increases.

The co-operative's management believes there is a need for a fundamental shift in the way business is conducted if productivity is to be improved. They believe it is important to improve communication between all stakeholders in the business — including employees. To this end, a staff survey was completed to identify issues to be addressed to form a supportive and effective relationship with their employees. Management noted that they were criticised for poor communication between senior management and their employees. Management believed that it was important to achieve a change in culture. As a result, work based teams of employees are being introduced and both management and employees sit down and talk a lot more. These initiatives are aimed at improving productivity.

The co-operative's management and employees at the time of interview were negotiating an enterprise agreement. Management believed negotiations were taking too long and involved considerable uncertainties. By April 1996, after 20 months of negotiation, the company now believes they have an agreement that is close to being ratified.

The low take up rate of industrial relations and workplace reforms by respondent firms goes some way to explaining the relatively low overall contribution of these measures to the productivity increases identified by respondents. Less than 50 per cent of respondents indicated they had implemented a range of industrial relations and work place reforms (see section 5.3 and appendix 10). While the overall implementation rate for these reforms is relatively low, the survey results suggest there is a link between their implementation and firms reporting an increase in productivity.

Firms indicating that they had implemented an enterprise agreement, or introduced best practice techniques or undertaken changes to occupational health and safety were more likely to report increased productivity, relative to firms that had not implemented these reforms. This relationship is particularly noticeable for firms that had implemented best practice techniques. Over 85 per cent of these firms reported increased productivity — a large proportion reporting the increase to be substantial. None of these firms reported a decline in productivity. A similar pattern emerges for those firms indicating they had implemented an enterprise agreement or had instigated changes to occupation health and safety. In both instances, the majority of firms that had implemented these reforms reported increased productivity. By contrast only 60 per cent of firms not implementing these reforms reported increased productivity (figure 5.4).

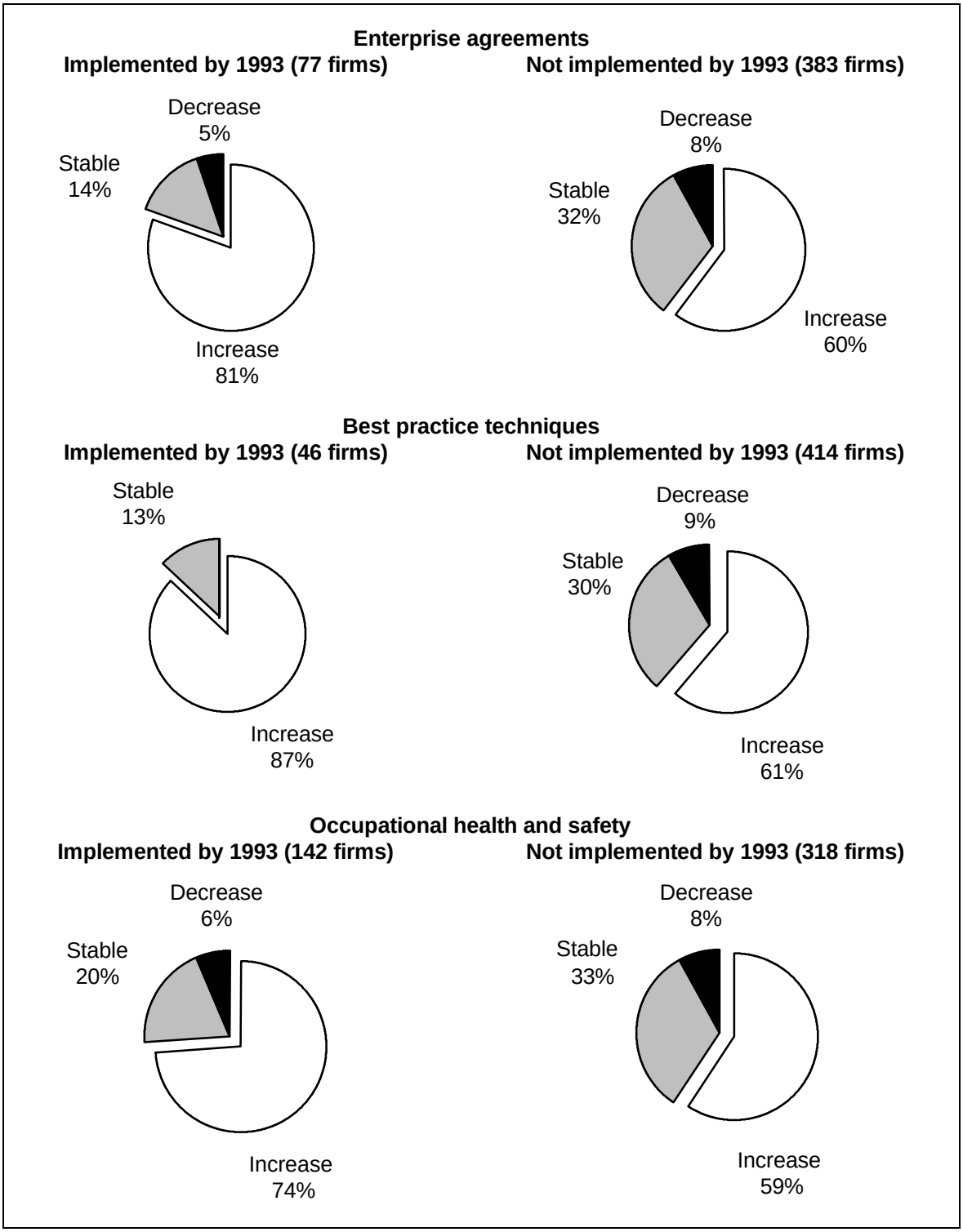
Analysis of the implementation of the three reforms presented in figure 5.4 shows that a firm may implement one or more of these reforms, thus the analysis of each reform is not mutually exclusive. Firms' switch in the analysis from the implemented set to the not implemented set, depending on their up take of these three reforms. However, there was a subset of 17 firms that had implemented all three reforms by 1993. Sixteen of these firms indicated their productivity had increased — the other firm reported productivity had remained stable. The effectiveness of implementing a system of complementary industrial relations and workplace reforms has recently been endorsed by research on steel finishing lines in 45 United States enterprises. (Ichniowski, Shaw and Prennushi 1995). The authors of this study found that introducing individual reforms to work practices provided little in the way of productivity improvements. They (Ichniowski, Shaw and Prennushi 1995. p. 25) also found that:

> When [steel finishing] lines add multiple practices and move to a new HRM [human resource management] System, their productivity increases .... But when lines change individual HRM practices without supporting changes in other related practices, productivity is unchanged.

This result confirms the view expressed by a senior manager in the food processing industry who commented to the BIE that a successful enterprise agreement covers,

amongst other things, occupation health and safety reform, workplace reform, best practice techniques, changes in management practices and staff training initiatives.

Figure 5.4 Industrial relations and workplace reforms and changes in productivity between 1989-90 and 1993-94[a]



a Reforms implemented in 1994 were not included in the implemented group as they may have been implemented in the later half of 1994, such agreements could not affect productivity during the period.
Source: BIE Agri-food survey 1995.

5.2.1 Increased competition — an important productivity driver

Of course many factors other than industrial relations and workplace reforms can contribute to the increase in productivity reported by firms. Clearly a large proportion of firms not implementing industrial relations or workplace reforms also achieved a productivity increase. Some of these other contributors are highlighted in figure 5.3. Although not reported in figure 5.3, increases in the level of competition may have played a role in firms' productivity improvements.

For these reasons, a deeper analysis of the survey results using econometric analysis seemed justified, the detailed results are presented in appendix 3. This analysis, in the main, supports the findings reported in figure 5.3. The variable with the largest explanatory power in the econometric analysis was increased competition. As might be expected, the analysis also suggests that a major investment undertaken between 1989-90 and 1993-94, is an important explanator of firms reporting a productivity increase. A change in the value of sales, which was used as a proxy for changes in the level of production, proved to be an important explanator for small firms. This may suggest that smaller firms had more opportunities to take advantage of existing scale economies than large firms. For medium and large firms, management restructuring appeared as an important explanator of productivity increases. The importance of this variable for medium to large firms rather than small firms may reflect flatter management structures in small firms and hence less opportunities to implement management restructuring.

The contribution of industrial relations and workplace reforms — in particular implementation of enterprise agreements, occupational health and safety (OH&S) and best practice techniques — were also considered in the econometric modelling presented in appendix 3. Of these three reforms the implementation of occupational health and safety reform was the only one of significance in explaining the productivity improvement. (However, in regard to this finding for enterprise agreements see the analysis reported below.) Box 5.2 illustrates the role changes to OH&S can play in improving productivity in the workplace.

The relative importance of investment and competition as explanators of the productivity change is not surprising. The results presented in chapter 4 also draw attention the important role played by increased competition in firms' decisions to undertake a major investment. Firms experiencing an increase in competition were also more likely to report an increase in productivity. The close relationship between these variables suggested a need to further examine the role played by

industrial relations and workplace reforms in the decision to undertake a major investment.

Box 5.2: Productivity improvements and changes to OH&S — a case study

Before embarking on a process of cultural change Herbert Adams Bakeries employees experienced a high injury rate in the workplace. 'OHS was managed reactively, with limited effectiveness and with enormous cost to the organisation. The lost time injuries at Herbert Adams were not analysed in any systematic manner, but were frequent and serious. The workers' compensation premium paid by Herbert Adams at this time was the equivalent of 9.5 per cent of the organisation's payroll.' (Worksafe Australia 1994, p.4) Gradually a phased process of change was introduced in the practice and approach to OH&S. The company experienced management changes which led to changes in attitudes and improved communication with the workforce. This process of change was assisted by a program initiated by the Food Unions OHS Centre and Worksafe Australia funding. The company saw a dramatic improvement in its injury record. In 1991-92 the company lost over 300 days per 100 employees, due to work related injuries. By 1992-93 days lost per 100 employees had declined to less that 100. The number of lost time injuries per 100 employees for the first six months of 1993-94 was less than half the rate for the previous year.

'All parties agree that this reduction represents a real improvement and not merely the results of under-reporting or workforce reduction. The biggest contributions to this improvement have come from machine guarding and job redesign to control manual handling risks. Serious risks from hazardous plant such as the ammonia plant, are also under control' (Worksafe Australia 1994, p.17).

Source: Worksafe Australia 1994.

The analysis presented in appendix 3 shows that once again increased competition and management restructuring were powerful explanators of firms' decisions to undertake a major investment. The analysis also showed a link between firms undertaking a major investment and firms implementing an enterprise agreement. This result suggests an indirect link between productivity improvements and enterprise agreements. This result may at first seem surprising, however on reflection it seems obvious that firms undertaking a major investment would prefer a high degree of certainty in the carriage of industrial relations issues at the workplace, prior to committing to a major investment. Enterprise agreements can help provide this certainty. This view is supported by commentary surrounding the recent dispute between Nestle and its blue-collar workforce. Nestle's General Manager of corporate services (Davis 1996, p.5) is reported as saying:

> Nestle had invested $20 million in improving the Campbellfield plant over recent years but there had been no real improvements in productivity. ...The company had earmarked a further $23 million which it was willing to invest in making the plant

internationally competitive but was not prepared to go ahead with this spending unless the workforce agreed to changes to work practices.

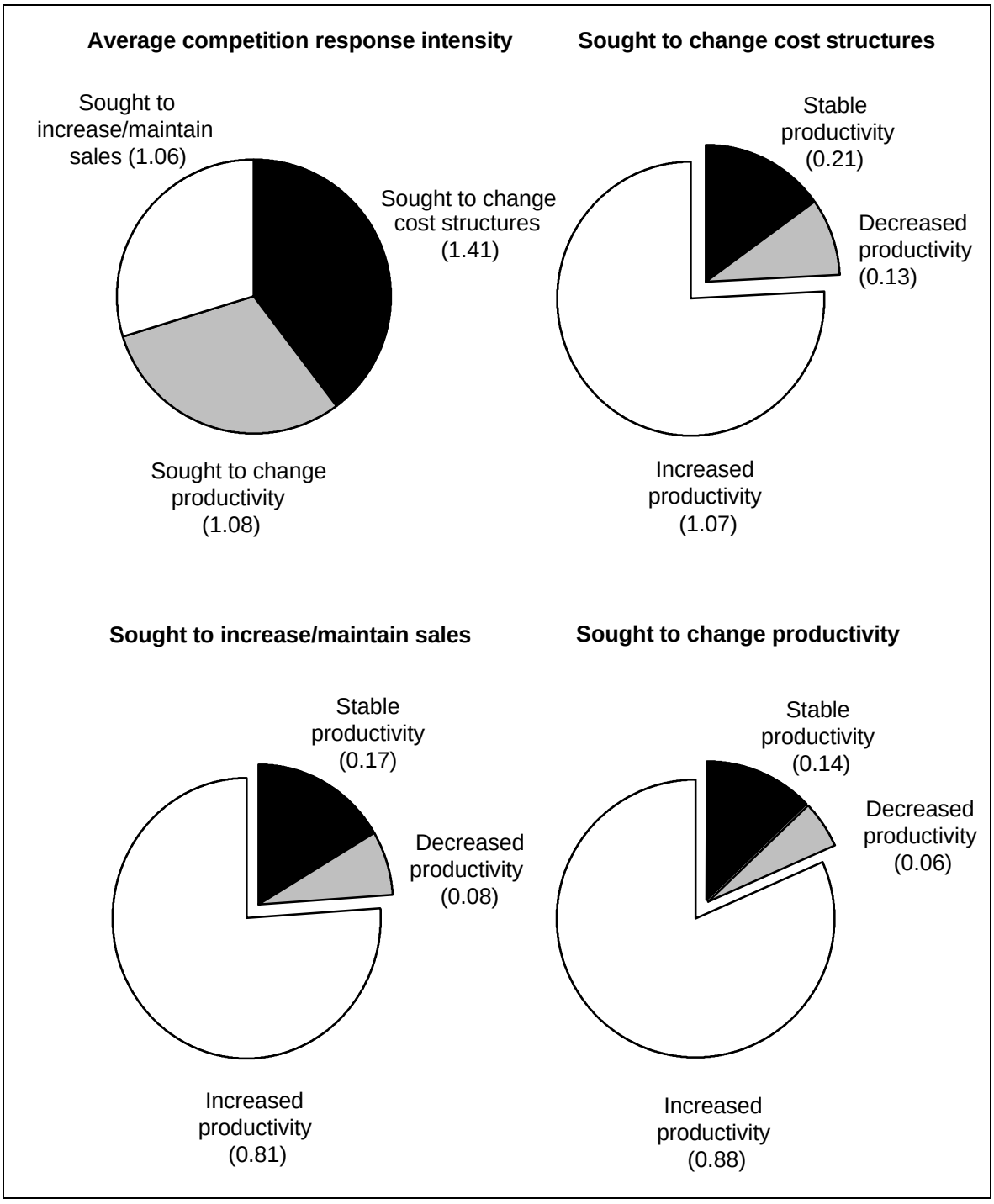
5.2.2 Productivity changes and firms' responses to increased competition

The analysis presented above suggests that the productivity improvements reported by firms were directly and indirectly affected by increases in the level of domestic competition. However, not all firms reporting increased competition reported a productivity improvement, indeed some firms experiencing increased competition reported their productivity declined. Nearly 90 per cent of firms reporting a decrease in their productivity reported an increase in competition in their domestic market. Around 50 per cent of the firms reporting stable productivity experienced a change in the level of domestic competition.

There were some important differences in the experiences of firms in the three broad productivity groups — remained relatively stable, increased and decreased. In particular, the adjustment response to changes in the competitive environment faced by firms in these three broad productivity groups differed. As noted in chapter 4, firms responded to increases in competition on a wide range of fronts which could be summarised into the following three broad response groups — sought to increase/maintain sales; sought to change cost structures; and sought to change productivity. For each of these response groups, firms reporting increased productivity showed, on average, a more intense response to the competition change (figure 5.5).

The average responses for firms reporting stable productivity and decreased productivity were always of a lesser intensity — that is, a smaller proportion of firms in these two groups were likely to indicate they undertook a particular response or, if a particular response was nominated, the significance of the response (minor, moderate or major) was at the lower end of the scale relative to firms reporting increased productivity. The difference in the intensity of the response was particularly notable for the sought to change productivity response group (figure 5.5). Firms reporting an increase in productivity were much more likely to indicate they responded to the competition increase by installing new plant and equipment, implementing benchmarking techniques and taking direct measures to increase productivity. Firms reporting a decrease in productivity were least likely to say they responded to the increase in competition through these avenues. Interestingly, opening or closing plants in response to the change in the level of competition was

Figure 5.5 Average intensity of firms' responses to the change in domestic competition by change in productivity[a]



a The first quadrant in the chart reproduces the results reported in figure 4.2, it shows the average intensity of firms responses to increased competition categorised into three broad response groups — sought to change cost structures, sought to change productivity and sought to increase/maintain sales. The remaining three quadrants break down these three response groups by firms reporting productivity outcomes and the average intensity of the competition response for each productivity group — the average intensity of the response is shown in brackets.
Data source: BIE Agri-food survey 1995.

identified with similar levels of intensity by firms reporting either a decrease or increase in productivity.

The sub-group of firms experiencing a substantial increase in competition in all three productivity groups responded relatively more intensely than the comparable sub-group experiencing a marginal increase in competition. Firms reporting an increase in productivity and a substantial increase in competition responded most intensely to the change in competition.

The following section examines the extent to which respondents have implemented industrial relations and workplace reforms and reports some respondents' views and concerns about these reforms.

5.3 Industrial relations, workplace reforms and productivity changes

Less than half of all survey respondents indicated their business had implemented changes commonly associated with industrial relations and workplace reform (appendix 10). Of the four industrial relations and workplace reforms canvassed in the survey (award restructuring, best practice techniques, changes in occupational health and safety and enterprise agreements) changes to occupational health and safety were the most frequently nominated as being implemented. Just under 48 per cent of firms indicated they had implemented these reforms. One third of respondent firms indicated their business had some form of enterprise agreement. A follow up survey indicates that approximately 40 per cent of these agreements were not ratified by an industrial tribunal. Of those ratified agreements, around 50 per cent were ratified in the Federal Industrial Relations Commission. Only 20 per cent of firms indicated their business had introduced best practice techniques, including benchmarking. Just over a quarter of respondents indicated their business had implemented award restructuring (appendix 10). The relatively low result for award restructuring most likely reflects the fact that most negotiations to restructure awards necessarily took place at the industry/union level rather than at the firm level.

The implementation of these reforms differed significantly at the industry level. As discussed in appendix 10 the Packaging industry stands out as taking the greatest advantage of all reforms canvassed. Over 60 per cent of packaging firms indicated they had implemented best practice techniques and award restructuring. More than 70 per cent indicated their business had implemented changes to occupational health and safety. Just over 80 per cent of packaging firms indicated their business had an enterprise agreement (appendix 10, table A10.1).

In relation to the up take of best practice techniques, changes to occupational health and safety and enterprise agreements, four other industries — Sugar manufacturing, Dairy products nec, Milk and cream processing and Flour mill products — had implementation rates above the survey average. Three industries — Fruit and vegetable wholesaling, Confectionery manufacturing and Cereal food and baking mixes — had a take up rate below the survey average for these three reforms.

In addition, large firms were more likely to report they had implemented enterprise agreements and best practice techniques than small and medium sized firms. Just over 80 per cent of large firms had implemented an enterprise agreement at the time they completed the agri-food survey (in May 1995). In comparison, only 24 per cent of small firms and 55 per cent of medium sized firms had implemented such an agreement. As noted above, the implementation of best practice techniques was very low. However, 65 per cent of large firms indicated they had introduced some form of best practice compared to only 14 per cent of small firms. The AMC (1994) study of best practice in the manufacturing sector also found that small sites, particularly small independent sites, were less likely to conduct benchmarking.

Firms with employees covered by a union were more likely to have implemented an enterprise agreement — formal or informal — at the time they responded to the survey in May 1995. About one quarter of enterprise agreements implemented by May 1995 were in firms with no union coverage. However, firms without union coverage accounted for around 40 per cent of the survey's respondents. Interestingly, unionised firms with an enterprise agreement implemented by 1993 were more likely to indicate that their productivity had increased, relative to non-unionised firms which had implemented an enterprise agreement over the same period.

Of the 77 firms indicating they had implemented an enterprise agreement by 1993, 4 firms reported a decrease in productivity. Another 11 firms with enterprise agreements indicated their productivity remained stable. Given that these reforms, and enterprise bargaining in particular, are intended to lead to improved productivity, the question arises — why did firms implementing one or more of these reforms not see a productivity improvement? One contributor to this result may be the overall quality of these firms' agreements.

The Department of Industrial Relations consulted a number of organisations regarding the quality of enterprise agreements in the process of undertaking its annual reporting function on developments in enterprise bargaining (DIR 1995). The department (DIR 1995, p.164) noted:

> ... there was a general impression that the quality of enterprise agreements had varied, with some very good examples of agreements which helped with the process of work-place reform, and other examples that had not been as successful.

For example, the Business Council of Australia told the department it believed quality varied — with some companies, particularly those with good industrial relations, making successful agreements. However, in other cases 'wage gains had not been offset by productivity improvements' (DIR 1995, p.164). Unions consulted by the department also supported the view of varying quality.

BIE discussions with a Food Industry Officer from the ACTU indicated that it can take up to two or three agreements at an enterprise before real change is put in place. A number of factors were considered to contribute to this relatively slow pace. The lack of experience in bargaining at the workplace was thought to be an important contributor. For example, many firms lack well established consultative mechanisms. Management, unions and employees often come to the bargaining process with different agendas and little experience in reaching a consensus. Firms interviewed by the BIE tend to support this view (see box 5.3).

Fellows Medlock and Associates (1995) also drew attention to the varying quality of enterprise agreements in the review of workplace reform progress in the export meat processing sector. They pointed out that:

> In the view of the Chief Executives of three of the companies which have signed these agreements, they were signed under industrial pressure and have achieved little. (Fellows Medlock 1995, p. 31).

One of the Chief Executives said:

> .....we agreed to an upfront payment for no benefit — the unions won't discuss productivity and efficiency — it is totally cosmetic (Fellows Medlock and Associates 1995, p. 31).

Fellows Medlock and Associates (1995, p.31) point out that the unions on the other hand believe that the companies entering these agreements have benefited through 'adherence to disputes procedures and co-operation in reducing absenteeism'.

While the Queensland agreements examined by Fellows Medlock appear to have provided at best only limited benefits, some agreements formed at meat processor plants in Victoria appear to have brought some more tangible benefits. However, even these agreements 'have not addressed any fundamental changes in operations' (Fellows Medlock 1995, p.32). The authors believe that broad cultural issues must be addressed and change implemented before substantial and effective agreements can be achieved. Clearly, these views relate to only one segment of one industry (ie the export sector of meat processing). However, few would dispute that any

potential for productivity improvements is enhanced by good relations between management and employees. In this regard, the United Trades and Labour Council of South Australia also drew the Department of Industrial Relations attention to the opportunity enterprise agreements provided to improve working relationships at the enterprise level (DIR 1995). Management and employee relations are discussed in section 5.3.2.

Box 5.3: The effectiveness of enterprise agreements

Most firms interviewed by the BIE felt that enterprise agreements had been helpful in achieving productivity improvements in their workplace. However, they also believed the latter agreements were more successful than the first. The first agreement mainly proved useful in laying the groundwork for a change in workplace culture.

The success of the enterprise agreements lay in the initiation of or improvement in communication between management and staff. Management also felt that it helped to focus staff attention on performance indicators. Some firms felt that agreed pay increases occurred regardless of whether the productivity improvements occurred. Perhaps with this in mind, some managers considered that particularly successful agreements were those that linked remuneration with achieving performance benchmarks.

Firms that had already initiated changes to work practices before implementing an enterprise agreement generally felt that their agreements were not as important in improving productivity. In these instances, the enterprise agreement was seen as an instrument to formalise processes that were already underway.

Many firms implemented best practice programs in conjunction with their enterprise agreements. Accreditation programs were the most common vehicles for implementing these programs. As part of these programs, or along side these programs, firms implemented strategies such as work based teams and multi-skilling.

Most firms felt that the actual process of ratification by an industrial tribunal had not restricted their agreement too much. However, one firm said that this was mainly because they were 'careful to do their homework and not include items that might prove unacceptable to the Industrial Relations Commission'. Some firms felt that the process took too long. One firm indicated that the bargaining process took 2½ years from the instigation of bargaining to the ratification of the agreement. The firm commented that the industrial tribunal 'wanted to look at everything in detail over and over again'.

Overall, comments from firms suggest mixed results. Some firms felt that their enterprise agreements had been very effective in achieving the change required while others were less enthusiastic. Most firms agreed that enterprise agreements were particularly useful for introducing cultural change into the workplace.

5.3.1 Why so few enterprise agreements?

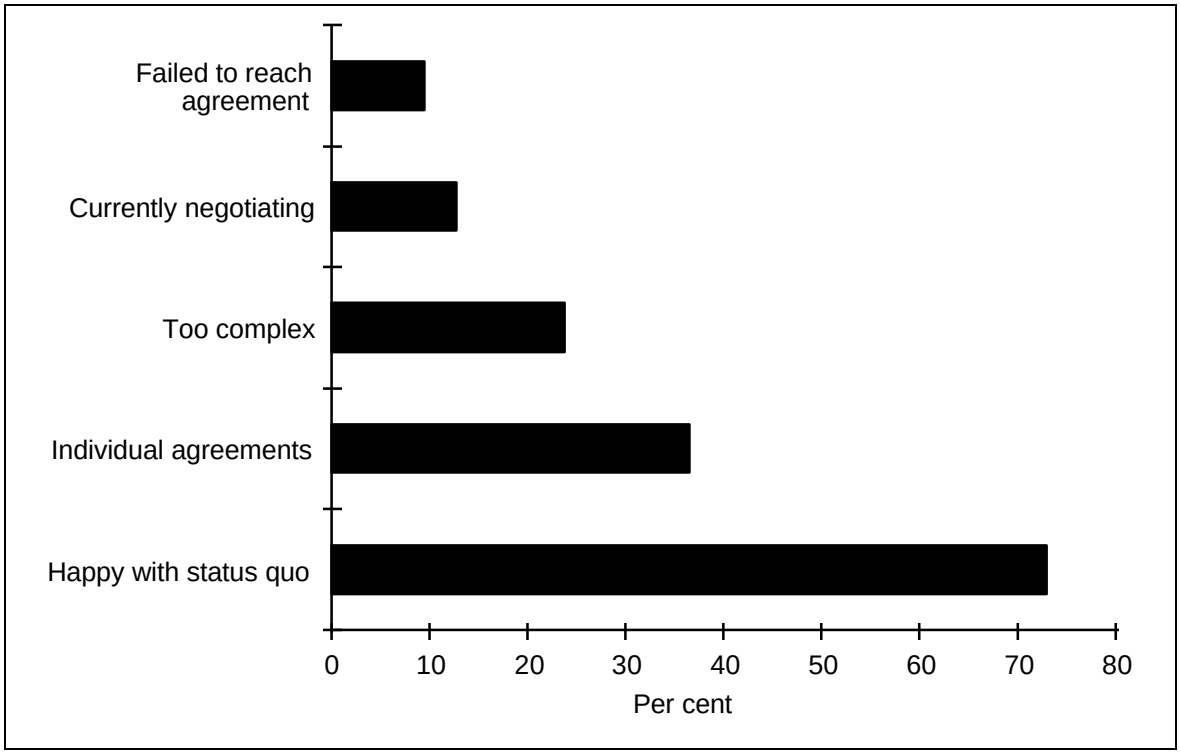
The BIE conducted a follow up phone survey of 92 respondent firms — about twenty per cent of the survey sample (appendix 2). Two thirds of firms in the follow

up survey had not implemented enterprise agreements, these firms were asked why this was the case. Figure 5.6 presents a summary of their views.

The follow up survey found that almost three quarters of the firms without an enterprise agreement were happy with their existing arrangements. In some cases existing arrangements involved informal agreements with individual staff. A number of firms that indicated they were happy with existing arrangements also stated they believed that the enterprise bargaining arrangements were too complex or too costly to implement.

Around 35 per cent of firms without an enterprise agreement indicated they made informal individual agreements with staff. These agreements often covered working times and above award rates of pay. Employers saw this as an important way to retain and encourage good staff.

Figure 5.6 Reasons why firms did not implement an enterprise agreement[a]



a Based on the responses of 63 firms in the follow up phone survey who did not have an enterprise agreement.
Data source: BIE Agri-food survey 1995.

About 10 per cent of firms without an enterprise agreement indicated they had only recently started the enterprise bargaining process. Some of these firms viewed enterprise bargaining as another government regulation to be complied with and would have preferred to continue with their past arrangements. Other firms had yet

to investigate the option or thought that it was too costly to undertake (firms with few employees especially noted this point).

Around a quarter of firms without an enterprise agreement thought that enterprise bargaining was too complex or costly. (A number of firms that had implemented an enterprise agreement also noted that the process had been costly and protracted.) Many firms expressed concerns that the process was not appropriate given their relatively small number of employees or the large proportion of casual staff employed. This latter point was particularly significant for firms in the Meat processing and Fruit and vegetable processing industries. They expressed concerns about the efficacy of entering into an enterprise agreement given the extensive use of casual labour and the transient nature of the workforce. Management believed that these situations made it more difficult to strike an agreement with staff.

Some firms also indicated they had not initiated agreements with their staff due to management and staff fears that unions may become involved in the process. Only 13 per cent of firms without an enterprise agreement indicated that an inability to come to an agreement with staff or unions was the prime reason.

Firms generally thought that enterprise agreements could, in principle, be beneficial. However, views about the cost of implementing an agreement under the 1995 industrial relations system were generally pessimistic. The majority of employers expressed a desire to build on arrangements they already had in place with staff.

5.3.2 Management and employee relations

From the perspective of over 60 per cent of respondents, their relations with staff remained relatively stable over the period 1989-90 to 1993-94. This result is, in some respects, surprising given the substantial change — ie the domestic recession, changes in assistance arrangements and changes in the level of competition — experienced over the period. Only 30 per cent of firms believed management and staff relations improved over the period, another 5 per cent believed relations deteriorated. The largest perceived improvements in relations with staff were seen in the Sugar manufacturing and Packaging industries. Over 70 per cent of respondent firms in these industries reported an improvement in management-staff relations (appendix 10).

Firms reporting a change in their productivity over the survey period were much more likely to report a change in their managements' relations with their employees. Firms reporting an increase in productivity were more likely to report an improvement in management employee relations than firms reporting a decrease.

Nearly half of the firms reporting a substantial increase in productivity indicated that relations between management and employees had improved. Only 20 per cent of firms reporting a decrease in productivity considered relations with employees had improved.

In most instances the reasons for the improvement in relations were similar for all firms reporting an improvement. One notable difference was that the firms reporting a decrease in productivity were more likely to identify the domestic recession and changes in the level of competition as factors contributing to improved employee relations. Although not statistically significant, firms nominating a substantial increase in productivity were more likely to identify the introduction of consultative arrangements as a contributor to improved employee relations.

Overall, management restructuring was considered as an important contributor to the improved relations (management restructuring was also frequently identified as a contributor to improved productivity). However, firms also identified changes in operational structure and changes in staff training arrangements as being important to the improvement. Industrial relations reforms were considered to have been an important contributor for firms reporting a deterioration in their managements' relations with their employees (appendix 10).

5.4 Concluding comments

The majority of survey respondents indicated that their productivity increased between 1989-90 and 1993-94. Less than 8 per cent perceived that their firm's productivity had declined. Further, BIE estimates of average labour productivity of survey respondents indicate an increase of 16.6 per cent over the survey period. At an industry level, there were substantial differences in the proportion of firms reporting increases in productivity and improved labour productivity outcomes.

Increases in the level of competition were a driving factor behind productivity improvements. Over 80 per cent of firms reporting an increase in productivity experienced an increase in the level of competition over the survey period. Firms reporting an increase in productivity were much more likely to respond to the competition increase by installing new plant and equipment, implementing benchmarking techniques and taking direct measures to improve productivity. Other important factors, apart from competition, that contributed to changes in productivity included changes in the level of production, investments in new machinery and in labour saving technology. Changes in management practices, changes in the level of innovation and improvements in employee relations were also frequently nominated as being important. Regression analysis undertaken by

the BIE generally supports firms' views. This analysis also identified the implementation of changes to occupational health and safety as being a contributor to the productivity increase.

Less than half of all survey respondents implemented changes to the industrial relations and work place area of their operations. For example, only one-third of firms indicated that they had implemented an enterprise agreement. Many of these agreements were informal — that is, they were not ratified by an industrial tribunal. The follow up survey found that the majority of firms not implementing an enterprise agreement were happy with their existing arrangements. In some cases, existing arrangements involved informal agreements with individual staff. Small firms were particularly concerned about the costs and complexity associated with developing an enterprise agreement.

Despite implementing an enterprise agreement, some firms did not experience an increase in productivity. This may reflect the quality of the agreement reached. It may also reflect an early stage in the enterprise agreement process. A number of firms contacted by the BIE found that it often took two or three agreements before real productivity gains were achieved. The first agreement was important because it often laid the groundwork for a change in workplace culture.

6 Agri-food and micro reform — challenges for the future

The previous chapters reported respondents' perceptions of the direct impact of microeconomic reform on their competitiveness and identified how firms have responded to the increased competition associated with the reform process. This chapter builds on this information and in doing so reports respondents' perceptions of areas which are in need of further reform. Hence, the following discussion brings together the main findings about the micro reforms covered by the study. Respondents' perceptions about key reforms for their future competitiveness are outlined in section 6.1. These reforms are discussed in more detail in sections 6.2 to 6.7. Concluding comments are presented in section 6.8.

6.1 Key reforms for future competitiveness

Since the BIE commenced its analysis of the agri-food and related industries the new coalition government has announced the creation of the Productivity Commission. The Productivity Commission will combine the functions of the Industry Commission, the BIE and the Economic Planning Advisory Commission. The Government has requested that the new commission carry out a stocktake of progress on microeconomic reform and provide advice on specific areas for further reform. In undertaking this task the Productivity Commission will take an economy wide view of the reform process. The commission is to produce a report for the government by July this year.

The BIE in undertaking the *Micro Reform — Impacts on Firms* project has specifically aimed its analysis at the firm and industry level. Of course, microeconomic reform is likely to have direct and indirect impacts on firms, some discernible and some indiscernible at the firm level (BIE 1996a). Hence, the findings presented below can be considered as drawing together the views of agri-food survey respondents which are based on their individual experiences and the discernible direct impacts of the reform process on their business. As a consequence, the priorities for micro reform indicated by our survey respondents

may not necessarily fully reflect the reform priorities outlined in the Productivity Commission's forthcoming stocktake report.

The agri-food case study identified key areas for future reform by melding together information from three key areas. First, in-depth survey analysis helped identify micro reform areas of particular relevance to the agri-food survey respondents. Respondents' views on the most important reforms for their future competitiveness provided the second information source. In this context, the survey questionnaire asked respondents to nominate and rank the four reforms they considered to be the most important for their business' future competitiveness. Finally, the overall survey findings were considered in the context of previous work undertaken by the BIE as well as some other reports of relevance to specific subject areas.

Respondent firms' aggregate rankings of the four most important reforms for future competitiveness, as well as rankings for each of the twelve survey industries are reported in table 6.1. In terms of their future competitiveness, survey respondents, in aggregate, reported that the most important reforms are:

1. industrial relations;
2. input taxes and on-costs;
3. food standards and related regulations; and
4. Australia's tariff reductions.

As noted in earlier chapters, the BIE deliberately chose a diverse mix of industries for this study. As a consequence of this diversity, the survey results for individual industries reveal some other areas of reform as being particularly important (that is, they were ranked amongst the top four reforms for some industries). These other areas of reform included statutory marketing arrangements (SMAs), infrastructure services reforms to the waterfront and road freight and environmental regulations (table 6.1).

While the results across individual industries reveal variability in the ranking of individual reforms, industrial relations and input taxes and on-costs consistently ranked highly as important future reforms. Industrial relations was ranked as the most important reform by the majority of firms in eight of the twelve survey industries. Industrial relations was ranked as the second most important reform by the other four industries (table 6.1).

Table 6.1 Firms' rankings[a] of the four most important micro reforms for future competitiveness, by industry

Industry	*Ranking 1*	*Ranking 2*	*Ranking 3*	*Ranking 4*
Meat processing	Industrial relations	Food standards and related regulations	Environmental regulation	Input taxes and on-costs
Milk and cream processing	SMAs	Industrial relations	Input taxes and on-costs	Food standards and related regulations
Dairy products nec	Industrial relations	Tariff reductions	Food standards and related regulations	SMAs
Fruit and vegetable processing	Industrial relations	Input taxes and on-costs	Food standards and related regulations	Waterfront
Flour mill products	Industrial relations	Input taxes and on-costs	Road freight	SMAs
Cereal foods and baking mixes	Industrial relations	Input taxes and on-costs	Tariff reductions	Food standards and related regulations
Sugar manufacturing	Industrial relations	SMAs	Tariff reductions	Input taxes and on-costs
Confectionery	Industrial relations	Input taxes and on-costs	Food standards and related regulations	Tariff reductions
Prepared animal and bird feed	Input taxes and on-costs	Industrial relations	Road freight	Environmental regulation
Packaging	Input taxes and on-costs	Industrial relations	Environmental regulation	Tariff reductions Road freight
Food processing machinery	Tariff reductions	Industrial relations	Input taxes and on-costs	Waterfront
Fruit and vegetable wholesaling	Industrial relations	Input taxes and on-costs	SMAs	Road freight
All firms responding	**Industrial relations**	**Input taxes and on-costs**	**Food standards and related regulations**	**Tariff reductions**

a These rankings were calculated by giving each reform a weight based on its ranking. Reforms ranked 1 were given a weighting equal to 1.0; 2 = 0.8; 3 = 0.4 and 4 = 0.2. Rankings from alternative weighting systems yielded broadly similar results.
Source: BIE Agri-food survey 1995.

Reforms to input taxes and on-costs were ranked as the most important future reform by the majority of firms in two industries (ie Prepared animal and bird feed and Packaging) and second to fourth by nine of the remaining industries. The Dairy products industry was the only industry which did not nominate input taxes and on-costs as one of the four most important reforms for future competitiveness. This result reflects the importance of both statutory marketing and tariff arrangements for milk and dairy products, food standards and related regulations and industrial relations (refer to table 6.1).

The importance of these reforms to the future competitiveness of agri-food firms is broadly consistent with the findings of two relatively recent reports on the Australian food industry.

The Australian Academy of Technological Sciences and Engineering report on the competitiveness of Australia's processed food industry (AATS&E 1994) called for an acceleration of the microeconomic reform agenda. AATS&E drew specific attention to the need to accelerate workplace reforms in the food industry, as well as the need to review aspects of the Australian Quarantine Inspection Service (AQIS) and the National Food Authority (NFA). The report also highlighted a number of issues within the government sector that the industry saw as impeding its export performance. These included the negative impact of indirect taxes and charges and the need for bi-lateral initiatives to improve access into some overseas markets.

The *Food Into Asia: The Next Steps* report (DPM&C 1994) also argued for microeconomic reform to be continued with renewed vigour, in order to reduce structural inefficiencies within the domestic economy. The report (DPM&C 1994, p.15) drew attention to the need to 'sustain Australia's position as a low-cost producer of agricultural commodities' and 'establish Australia's position as a cost-competitive exporter of branded and processed foods, food ingredients and food service products'. Achieving lower input costs — by pursuing infrastructure and SMA reforms through progressing the National Competition Policy — and improving labour market flexibility — by, amongst other things, rationalising the number of awards and the operation of enterprise agreements — were seen as important future reforms. In addition, the report also maintained that the government 'should give higher priority to improving market access for the Australian agri-food industry relative to other industries' (DPM&C 1994, p.19).

Important issues for the micro reform agenda highlighted by respondent firms are discussed in more detail in the following sections. These sections cover:

- industrial relations (section 6.2);
- input taxes and on-costs (section 6.3);

- food standards and related regulations (section 6.4);
- tariff reductions and statutory marketing arrangements (section 6.5);
- infrastructure services reforms covering road freight and the waterfront (section 6.6); and
- environmental regulation (section 6.7).

6.2 Industrial relations

Australia's industrial relations system has undergone significant change over the period since 1989 (BIE 1996a). It has progressively evolved from a highly centralised system, focused on wage indexation and the determination of industry wide award conditions, towards a more decentralised system with a growing emphasis on workplace bargaining. By the end of the period of the agri-food case study, the system for regulating wages and conditions was, at least in the Federal arena, a dual system. That is, enterprise bargaining was encouraged, but remained closely linked to the centralised system in terms of the award based safety net and the no disadvantage test provisions. For some, this system was viewed as permitting greater flexibility — provided management and workers were willing to utilise it. However, it could also be argued that the no disadvantage test only allowed enterprise agreements to be add-ons to awards, with the underpinning award system maintaining certain inflexibilities (see chapter 5 of *Setting the Scene* (BIE 1996a) for a more detailed discussion). Common to the previous centralised system and the emerging new enterprise bargaining system is a sub-system of informal arrangements. These informal arrangements involve employers and employees and, in some instances, unions negotiating over award pay and conditions without the assistance or intervention of any industrial tribunal.

The industrial relations and workplace reforms specifically covered by this study were:

- award restructuring;
- enterprise agreements;
- the introduction of best practice techniques; and
- changes in occupational health and safety (OH&S).

Analysis of the information in the agri-food survey and the follow-up interviews shows that, despite the regulatory constraints, many firms consider that these industrial relations and workplace reforms have yielded benefits. Across all industries covered in the survey, the proportion of firms reporting positive impacts on their competitiveness was greater than the proportion reporting negative impacts

from reforms in this area (appendix 5). Nevertheless, respondent firms, in aggregate, clearly ranked industrial relations as the most important area for future reform. On an industry basis, industrial relations was ranked as either the first or second most important future reform by each survey industry (table 6.1).

6.2.1 Benefits of industrial relations and workplace reforms

The benefits of industrial relations and workplace reforms, as ascertained from the agri-food survey and follow-up interviews, primarily relate to:

- improved business competitiveness; and
- improved firm productivity.

The survey revealed that these reforms had positive impacts on the competitiveness of around 30 per cent of respondent firms. As these firms accounted for nearly 65 per cent of the sales value of the sample, it is clear that larger firms have been able to make more extensive use of these reforms to improve their competitiveness. Certainly large firms were more likely to have implemented enterprise agreements than small and medium firms. Large firms were also more likely to indicate that they had implemented best practice techniques than small firms.

Survey findings also reveal that firms which introduced one or more of these industrial relations or workplace reforms were more likely to report productivity improvements than their counterparts (figure 5.4). Agri-food case study findings and research from the United States (Ichniowski, Shaw and Prennushi 1995), shows that the introduction of a set of industrial relations and workplace reforms is more effective than the introduction of individual reforms. A best practice enterprise agreement could be expected to cover a set of complementary reforms (refer to chapter 5).

Notwithstanding the association between the implementation of industrial relations and workplace reforms and increased productivity, survey analysis shows that new major investments and increased competition made a greater direct contribution to productivity improvements by respondent firms. However, survey analysis also revealed an indirect link with the implementation of enterprise agreements being an important investment determinant which in turn was an important determinant of increased productivity. Importantly, industrial relations and workplace reforms have enabled employers and employees to move towards a new and improved workplace culture (chapter 5).

6.2.2 Issues for future industrial relations reform

The main issues for future industrial relations reform relate to the low take-up rate of industrial relations and workplace reforms as well as the high level of dissatisfaction with the pace of reform (chapters 3 and 5). By May 1995, only 33 per cent of survey respondents had implemented an enterprise agreement. Many of these agreements were informal (ie they had not been ratified by an industrial tribunal). This low take up is despite enterprise agreements being a major plank in the industrial relations reform agenda. Overall, less than half of the survey respondents reported that they had implemented industrial relations and workplace reform measures. While nearly half of the survey respondents had implemented changes in OH&S, less than one quarter had implemented best practice techniques (refer to appendix 10).

Many of the firms implementing an enterprise agreement nominated industrial relations as one of the four most important areas of reform for their future competitiveness. This most likely reflects at least three factors. First, many survey respondents said that 'learning by doing' was an important aspect of the enterprise bargaining process and that they considered that it would take two or more enterprise agreements for real benefits to emerge. Second, many enterprise agreements may not have been of sufficient quality to achieve the necessary flexibility required to achieve significant change. In this context, one survey respondent noted the actual process of ratification had not restricted the agreement too much, but this was because the firm was 'careful to do their homework and not include items that might prove unacceptable' to the industrial relations tribunal. Thirdly, firms also expressed concern about the costly and protracted process associated with reaching a formal agreement (refer to chapter 5).

Across the survey sample, more firms seeing industrial relations as important for future competitiveness had *not* implemented an enterprise agreement. Many of these firms had no union representation at their workplace. Just under 200 of the survey respondents indicated their workplaces were not unionised. Only 38 of these firms indicated they had implemented some form of enterprise agreement.

In examining issues for future reform it is important to determine the reasons why firms have not implemented enterprise agreements and why firms with enterprise agreements consider that the reform process needs to go further.

The BIE's follow up telephone survey found that around 75 per cent of the firms without an enterprise agreement were happy with their existing arrangements. Many of these firms had negotiated individual arrangements with employees, often covering over award pay and conditions of service. However, one-third of these firms indicated that the complexity/cost of an enterprise agreement led them to stay

with existing arrangements. Small businesses often reported that they stayed with the award system in order to avoid additional costs. The anticipated difficulties related to negotiation with unions have also encouraged some firms to stay with the award system. A few managers in non-union workplaces indicated they were hesitant to ratify an agreement because unions may become involved in the process. However, the survey results indicate that the complexity of the system for enterprise bargaining is more of a problem for businesses than the difficulty of reaching agreement with employees and unions (refer to chapter 5).

In view of the above findings, it is likely that there are many small firms for which individual agreements underpinned by the award system will remain the most cost effective option — unless the costs related to enterprise bargaining and the complexity of the system can be reduced. It is also clear that many firms want industrial relations reforms to proceed at a faster pace. Reforms need to emphasise lessening complexity and provide more flexibility within the bargaining process. Lessening the institutional related costs of workplace bargaining is likely to increase the number of firms seeking out enterprise agreements. This is particularly important given the important role played by enterprise agreements in introducing cultural change into the workplace.

6.3 Input taxes/on-costs

Australian governments have a significant influence over a broad range of input taxes and on-costs faced by firms. Labour on-costs include workers compensation, the superannuation guarantee levy, payroll tax and the fringe benefits tax. In 1991-92, these labour on-costs were estimated to account for 11 per cent of total labour costs in Australia (SA Treasury 1993). The main input taxes and on-costs highlighted by agri-food firms included workers' compensation premiums, the superannuation levy and payroll tax. Depending on a range of circumstances, individual firms may construe OH&S requirements as producing net costs or benefits (see box 5.2).

6.3.1 The impacts of input taxes/on-costs

Of all the micro reforms covered by the survey, input taxes/on-costs were ranked by respondent firms as having the most important negative impacts on their competitiveness over the period since July 1989. The confectionery industry had the highest proportion of firms reporting negative impacts on firm competitiveness, while the sugar industry had the lowest proportion. With the exception of the sugar industry respondents, larger proportions of firms from each survey industry reported

negative impacts on their competitiveness. More than 50 per cent of survey firms, covering 70 per cent of the sales value of the sample reported dissatisfaction with the pace of reform in this area. A high level of dissatisfaction with the pace of reform was evident across all industries (refer to appendices 5 and 6).

Input taxes/on-costs were ranked by firms, in aggregate, as the second most important area for future reform. Indeed, reforms to input taxes/on-costs were ranked as one of the four most important future reforms by the majority of firms in eleven of the twelve survey industries.

In the follow up telephone survey, the BIE asked firms to indicate which input taxes and on-costs had a major impact on their competitiveness. The results are reported in figure 6.1. For each input tax and on-cost canvassed in the phone survey, some firms indicated positive impacts. However, the bulk of firms reported negative impacts. Of the eight taxes and on-costs canvassed, three — workers' compensation, the superannuation guarantee levy and payroll tax — attracted negative assessments from around 50 per cent or more firms (figure 6.1).

For each of these taxes and on-costs there have been some significant changes since 1989. For example:

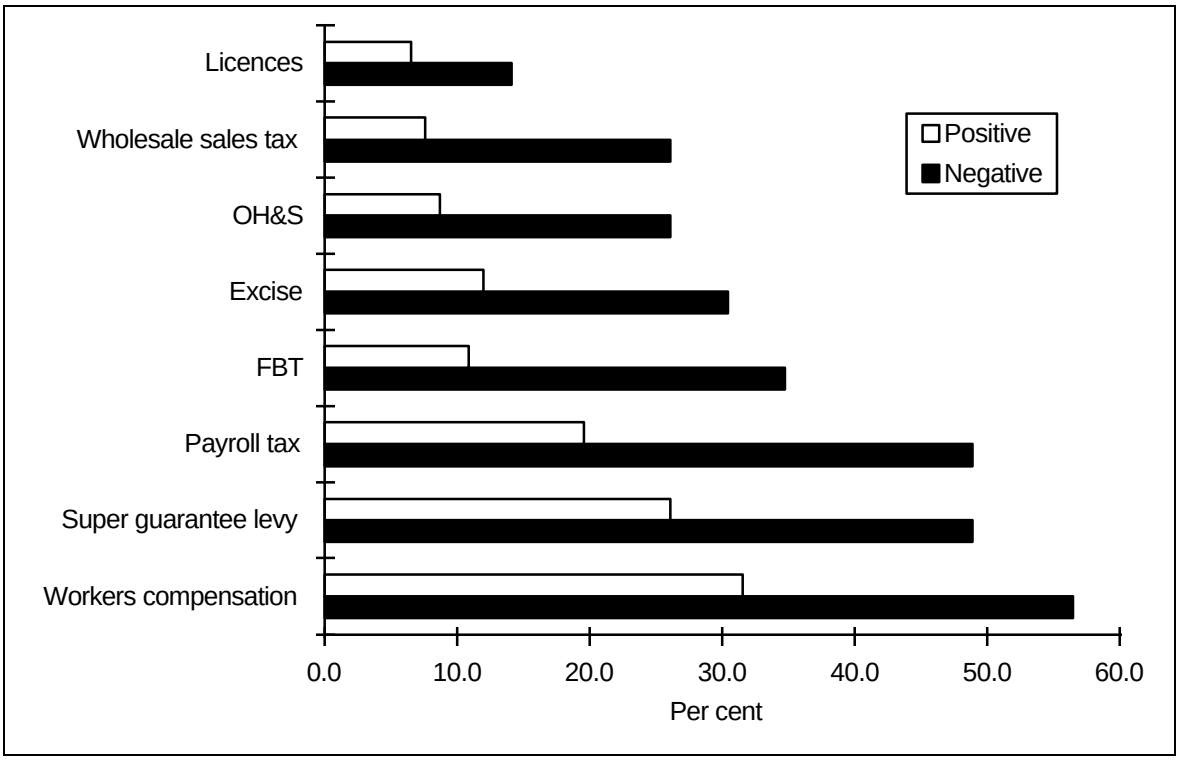
- workers' compensation reforms were directed towards lowering the cost of claims through the introduction of the user pays principle, improved OH&S measures and rehabilitation programs. These reforms have helped to achieve a relatively low annual average growth rate of 2 per cent for manufacturers workers' compensation payments over the period 1989-90 to 1993-94. However, as reported in table 2.3, the annual average rate of change varied markedly across states and territories ranging from a fall of almost 3 per cent for Victoria to an increase of nearly 23 per cent for Tasmania. The application of the user pays principle and the removal of cross-subsidies between different risk classes in some jurisdictions has resulted in an increase in premiums for some firms and declines for others;

- the compulsory superannuation guarantee levy was introduced in July 1992. This levy contributed to an 11 per cent annual average growth rate in superannuation payments by Australian manufacturers between 1989-90 and 1993-94. Again there have been significant differences in growth rates between jurisdictions, ranging from 7 per cent for Tasmania to an annual average growth rate of nearly 27 per cent for the ACT (refer table 2.3); and

- alterations to payroll tax arrangements including, increasing exemption levels in most states/territories have lessened the associated tax burden on some firms. Some states have also changed the definition and base of payroll tax to include

fringe benefits tax. Overall, manufacturers have faced an annual average growth rate of nearly 6 per cent for payroll tax between 1989-90 and 1993-94 (table 2.3).

Figure 6.1 Input taxes and on-costs having a major impact on the competitiveness of firms, 1989-90 to 1993-94[a]



a Percentage of the 92 firms participating in the telephone follow up survey.
Data source: BIE Agri-food survey 1995.

6.3.2 Issues for future reform

Some firms commented positively on the impact of these reforms on their competitiveness. These firms generally drew attention to reductions in their workers' compensation insurance premiums. Others noted that they had benefited from increases in payroll tax exemption thresholds. Some others indicated that their employees were satisfied with the new superannuation arrangements. However, the largest proportion of respondents were dissatisfied with this area of reform.

Firms in the BIE's follow up telephone survey highlighted the following three key reasons for the high level of dissatisfaction with reforms to input taxes/on-costs:

- the reforms didn't go far enough and input taxes/on-costs are still too high (93 per cent of firms);

- compliance costs are too high (82 per cent); and
- reforms assisted competitors more than this business (25 per cent).

In examining the implications of these areas of dissatisfaction, it is useful to focus on the three input taxes and on-costs which have attracted the greatest criticism — workers' compensation premiums, the superannuation guarantee levy and payroll tax.

Workers' compensation

Across Australia there is a high level of government involvement in workers' compensation arrangements (IC 1994b). This involvement covers the provision of workers' compensation insurance, the provision of benefits, the setting of premiums and the administration of rehabilitation arrangements. Many of the firms responding to the follow-up survey commented on the complexity of workers' compensation arrangements as well as the requirement to pay high or 'excessive' insurance premiums. Increases in insurance premiums in some jurisdictions in recent years have reflected a number of factors. These include the removal of cross-subsidies between firms with the introduction of the user pays principle (eg in New South Wales) or the application of experience rating where the premium is related to an employer's cost of claims (eg in Victoria). While reforms aimed at linking premiums more closely to risk conditions/claim costs have resulted in increased premiums for some firms others have benefited from premium reductions.

Since insurance premiums feed into the cost structures of firms, it is clearly important to ensure that arrangements for the delivery of workers' compensation insurance services are efficient. The same requirement extends to other areas of regulation impacting on business on-costs such as OH&S and business licensing. To the extent that some states or territories lag behind others in pursuing reforms in these areas, they are likely to impose higher costs on firms operating in their jurisdictions.

The Industry Commission called for a national focus on workers' compensation. They argue that such an approach would minimise scope for 'invidious competition' between states and limit the extent of cost shifting. The Commission argued that at the same their preferred approach would maximise 'beneficial competition' by 'encouraging greater competition in the provision of insurance (and other services aimed at prevention and rehabilitation)' (IC 1994b).

Superannuation guarantee levy

As a result of the superannuation guarantee legislation of 1992 and the flow on effects of national wage decisions, superannuation coverage of employees in the private sector has increased from around 55 per cent in 1989-90 to 85 per cent in 1993-94. In the absence of these compulsory superannuation payments by firms, take home returns to employees (ie wages) may, on average, have been higher. Reflecting this, the levy may not have, on average, increased firms total labour-related costs of doing business. Nevertheless, for some firms, particularly small firms, and some industries, the levy may well have increased the costs of employing labour. Indeed, some survey respondents indicated that the administration of the levy was a significant burden, especially for activities with a high proportion of part-time and casual employees. Such cost increases can reduce firms' competitiveness relative to their overseas competitors.

The potentially deleterious effects of this measure on the competitiveness of firms provides an example of the need for governments to weigh up the relative effectiveness of different approaches to the attainment of particular policy objectives. Indeed, whilst the context of the agri-food survey was centred on Australian micro reforms, a number of firms considered that input taxes/on-costs in Australia placed them at a competitive disadvantage compared with countries with lower imposts in this area.

Payroll tax

Many survey respondents acknowledged reforms to payroll tax arrangements over the survey period. However, many more firms were highly critical of this input tax/on-cost. Although their criticisms covered a number of areas, most criticism revolved around the view that changes had not gone far enough. Firms believed that the tax impost remained too high and/or disadvantaged their firm relative to its domestic/international competitors.

Over the last decade or so, competition between states and territories for the status of a 'low tax' jurisdiction has given rise to reductions in rates of payroll tax and increases in the tax free threshold. Nevertheless, criticism of the tax is long standing and on-going. A comparison of the tax revenue raised from payroll tax as a percentage of the total tax revenue for OECD countries indicates that, in broad terms, Australia has a relatively low payroll tax compared with other OECD countries (OECD 1994). Further, the estimated compliance costs associated with payroll taxes seem to be relatively favourable compared with other major Australian taxes (Pope 1992, Pope et al 1993).

In considering reform options for input taxes, including payroll tax, it is necessary to examine the relative merits of different taxes and seek to answer the question is there a better tax mix. Looked at in this context, it appears that the payroll tax performs relatively well compared with alternative tax measures. Notwithstanding this, we must recognise the costs associated with this tax, particularly for industries in the internationally traded sector — see BIE (1985) and IC (1994c).

A number of agri-food firms, mainly producers of dairy products, mentioned that imports from New Zealand were a particular problem as the goods and services tax (GST) system which applied there advantaged their New Zealand competitors. The GST was introduced in New Zealand on 1 October 1986 as part of a package of taxation reforms. The GST replaced indirect and wholesale sales taxes. As a result of the tax arrangements, New Zealand supplies intended for export have zero business input taxes. Payroll taxes, a significant input cost applying in Australia, are not applicable in New Zealand. At a macroeconomic level, the fundamental differences in the taxation systems between Australia and New Zealand will be reflected in the exchange rate between the two countries. Nevertheless, for some individual products, the exchange rate changes may not fully compensate for the differences in cost structures between Australia and New Zealand.

Opportunities for reform or lower tax rates for some input taxes/on-costs, including payroll tax, are influenced in part by current federal and state financial/revenue arrangements. Dependence on input taxes as sources of revenue, especially by state and territory governments which have a much narrower tax base, provides a disincentive for tax reductions (refer to BIE 1995c, *Issues in Infrastructure Pricing*). Offsetting this disincentive, to some degree at least, is interstate competition which acts to restrain tax increases and/or encourages concessions of various types in some cases.

6.4 Food standards and related regulations

Food standards and related regulations cover a wide area including: national food standards, hygiene, packaging, country of origin labelling, food processing and handling, food premises and food inspection arrangements. The NFA and AQIS both have responsibilities related to the health and safety aspects of food.

The most significant change in the area of Australian food standards and related regulations over the period of the survey was the establishment of the NFA in 1991. The primary objective of this organisation is to develop uniform national Australian food standards for food destined for the domestic market. Once food standards have been adopted by the National Food Standards Council (consisting of

Commonwealth, state and territory health ministers), they automatically become state and territory law.

Mutual recognition between the states has also contributed to increased competition and widened product ranges available to consumers as a result of increased opportunities for interstate trade. The *Mutual Recognition Act 1992* allows goods, including food, which meet the required standards in one jurisdiction, to be sold throughout Australia (IC 1995d).

AQIS either directly or indirectly affects Australian food standards and regulations by providing food and agricultural import and export inspection services. Over the period of the agri-food survey AQIS has undergone some significant changes. It has progressively moved to 100 per cent recovery of user-attributed costs and upgraded its quality assurance programs — such as those undertaken for the export meat industry (DPIE 1995). Around 80 per cent of AQIS inspection activity is concerned with the meat industry.

6.4.1 Survey results

Survey respondents, as a group, ranked reforms to food standards and related regulations as the third most important reform for their future competitiveness. Firms in the meat processing industry gave food standards and related regulations the highest ranking on an industry basis, nominating it as the second most important future reform after industrial relations. Food standards and related regulations were ranked either third or fourth by six of the other industries (refer to table 6.1).

Reforms to food standards and related regulations had positive impacts on the competitiveness of around 30 per cent of respondent firms over the period 1989-90 to 1993-94. Overall, some 13 per cent of firms reported negative impacts over this period. A relatively large number of firms considered changes to food standards and related regulations did not impact on their competitiveness. On an industry basis, the results were mixed, likely reflecting the varied operating circumstances of individual firms (refer to appendix 5).

The pace of reform to food standards and related regulations was considered to be satisfactory by half of the respondent firms. A similar result occurred when weighted by sales value — although firms accounting for one-quarter of the sales value reported that the pace of reform was too slow (see appendix 6).

6.4.2 Issues for future reform

Agri-food survey respondents have clearly indicated that reform in the area of food standards and related regulations remains on the agenda for future reform. The BIE's telephone follow up survey and firm visits revealed a number of important issues which need to be addressed:

- continued introduction of uniform national food standards;
- costs associated with meeting the requirements of food standards and related regulations; and
- the cost of meeting labelling requirements.

Uniform national standards

Survey respondents reported positive impacts from the introduction of uniform national food standards. Uniform standards have made it easier and less costly for firms to engage in interstate trade. However, some firms indicated that reform in this area needs to continue as state differences still remain and can create unnecessary cost burdens.

Costs associated with meeting regulatory requirements

Many firms reported that changes to food standards and related regulations have resulted in cost increases. These costs are related to both inspection services provided by AQIS as well as the costs related to investment in new plant and equipment in order to meet changes to regulations. A number of firms commented that they found the introduction of Quality Management Systems (QMS) costly.

QMS provides for the replacement of inspection of end-products through the introduction of quality assurance systems designed to meet hygiene standards. Hazard Analysis of Critical Control Points (HACCP) is the most common food hygiene version of a QMS. The National Food Standards Council has approved the introduction of uniform national hygiene standards based on HACCP. The International Organisation for Standards (ISO) has developed a set of uniform generic quality system standards for QMS. These are known as the ISO 9000 family of standards (BIE 1996b).

AQIS has applied QMS across its activities, thereby placing less reliance on inspection services to achieve food hygiene standards in the export meat industry (DPIE 1995). The intention behind the introduction of QMS/HACCP is to achieve

required standards and provide scope for cost reductions through having less prescriptive regulations. These new standards change the focus of regulation from directly auditing and inspecting activities towards auditing QMS.

While the move to QMS/HACCP appears to be laudable, small firms may have information problems related to ascertaining the most appropriate way of meeting target standards. The BIE (1996b) notes that one flexible way of dealing with the problem is to combine traditional technical standards with target standards.

AQIS has undertaken a number of initiatives designed to reduce costs to industry which have resulted in charging reductions and rebates to most industries (DPIE 1995). Measures have included separating the organisational structure along policy and operational lines, reviewing and rationalising staffing levels and distributing and improving accounting and other general administrative processes. Along with the introduction of cost recovery, AQIS has also introduced quality assurance programs — for example by June 1995, 115 such arrangements existed in the export meat industry (DPIE 1995). While some firms in the meat processing industry were critical of the costs of such arrangements many commented favourably on requirements which improved buyer perceptions about the quality of the product. Indeed, some firms considered that increases in their sales were related in part to improved quality assurance measures.

Australia's quarantine policies and programs are currently being reviewed by an independent committee which is due to report to the Minister for Primary Industries and Energy by 1 October 1996.

Food labelling

A number of survey respondents highlighted problems arising from food labelling requirements. For example, some firms indicated that it was costly to comply with labelling requirements, particularly those related to nutritional factors. On the other hand, others supported the notion of country of origin labelling. These firms believed it gave them an advantage in the domestic market against imports. In this context, a small number of firms commented that food labelling requirements assisted them to differentiate their products from those of competitors.

The NFA is responsible for setting food labelling standards. The NFA, which interprets its charter broadly, not only focuses on the protection of public health and safety in developing food standards, but is also concerned with providing information about food to consumers. ACIL Economics, in a review of the NFA and AQIS, was critical of the broad charter adopted by the NFA (ACIL 1993).

Stringent food labelling requirements have added an extra layer of regulation to the food industry and added to costs. They also have the potential to reduce competition from goods produced overseas through raising the cost of imports. This point was not overlooked by some respondents in import competing industries, who favourably view this aspect of labelling requirements.

6.5 Tariffs and statutory marketing arrangements

In the years since 1988, Australian governments have introduced a number of important reforms to assistance arrangements applying to domestic industries, including the agri-food industries. Reductions in tariffs and other assistance arrangements, including SMAs, have been directed at reducing cost imposts on other industries and encouraging assisted industries to become internationally competitive (BIE 1996a). By exposing firms to greater competition these reforms aim to induce firms to minimise costs and put in place efficient production practices. At the same time the reforms aim to yield benefits to industries which previously paid inflated prices for imported inputs and products from assisted industries.

Tariffs have provided industry assistance to a number of firms in agri-food and related industries. These include firms in the Fruit and vegetable processing, Confectionery, Sugar manufacturing, Food processing machinery and Packaging industries. However, in most instances, the level of assistance provided is relatively low compared to manufacturing industry assistance as a whole. Tariff reductions have been a significant factor in increasing the level of domestic competition faced by firms in import competing industries (chapter 3).

SMAs primarily provide assistance to a range of agricultural inputs used by agri-food industries. These inputs include milk, eggs, rice, sugar and sultanas. SMAs also provide assistance to outputs from the Dairy products industry, such as butter and cheese, as a means of providing assistance to farmers producing milk used in manufacturing. Generally, these assistance arrangements increase the price of these inputs used by agri-food industries. Changes to SMAs have reduced the notional tax imposts on some of these inputs. However, in the case of fresh milk and sugar, these notional imposts have increased following initial declines (refer to chapter 2, table 2.2 and appendix 4).

6.5.1 Impacts on firm competitiveness

Tariff reductions were ranked as the fourth most important future reform for firm competitiveness by survey respondents as whole. Firms in the Food processing machinery industry ranked tariff reductions as the most important future reform, while firms in the Dairy products industry ranked tariff reductions as the second most important area of future reform. Tariff reductions were also considered to be amongst the top four future reforms for the Cereal food and baking mix, Sugar, Confectionery and Packaging industries (refer to table 6.1).

Five industries included changes to SMAs amongst their top four future reforms. Changes to SMAs were ranked as the most important future reform by Milk and cream processing firms. These reforms were also ranked highly for the Sugar, Fruit and vegetable wholesaling, Dairy products and Flour mill products industries.

Overall, the number of survey respondents reporting that tariff reductions had negative impacts on their firms' competitiveness outweighed the number reporting positive impacts (25 per cent compared to 10 per cent). Taken as a whole, survey respondents ranked tariffs as the second most important negative reform impacting on their competitiveness over the period since July 1989. As might be expected, negative impacts were more widely spread amongst firms in import competing industries, particularly Packaging, Food processing machinery and Confectionery. Sugar industry firms also reported significant negative impacts from tariff reforms, reflecting the removal of the import embargo and the introduction of a phased tariff arrangement.

Firms reporting positive impacts, low levels of negative impacts or no impacts from tariff reductions tended to be in the non-import competing industries such as the Flour mill products industry and the Meat processing industry (refer to appendix 5).

These results relating to firms' perceptions about the impact of tariff reductions are not surprising given the industry assistance role played by tariffs. However, as noted by one respondent:

> Of course, at a micro level, tariff reductions have had a negative impact on aspects of my firm's competitiveness. However, when the overall macro environment for my firm is taken into consideration, the reductions have improved the competitive position of our entire organisation.

As SMAs are not directly relevant to many firms, relatively few respondent firms reported impacts on their competitiveness as a result in changes in SMAs. Around 11 per cent of firms reported positive impacts on their competitiveness while 10 per cent of firms reported negative impacts. Firms reporting the highest level of positive impacts were in the Flour mill products industry. The major national SMA reform

impacting on this industry was the deregulation of the domestic wheat market in 1989.

Impacts of reforms SMAs on the competitiveness of Milk and cream processing firms and Dairy products firms were reported as mixed. Although around 20 per cent of the firms in each of these industries reported positive impacts from reforms to SMAs, around 15 per cent of Dairy products firms and 25 per cent of Milk and cream processing firms reported negative impacts. Rationalisation of SMAs in order to reduce assistance to dairy farmers and lower the price of milk used in manufacturing could be expected to have positive impacts on the Dairy products and Milk and cream processing industries. However, the impacts of the rationalisation of SMAs on these two manufacturing industries is somewhat blurred due to the existence of ownership linkages between dairy farming and farmer owned cooperatives operating in the industries. At the recent ABARE Outlook Conference, Mr Bill Hill, Chairman of Bonlac Foods Limited, explained (ABARE 1996, p. 273):

> In the dairy industry, cooperatives exist to maximise the combined wealth created in farm and factory. They are different from companies in that they are funded by suppliers and that they seek to maximise this total or combined wealth, rather than simply the wealth created in the manufacturing firm.

Hence, the relatively high incidence of negative impacts reported by these industries most likely reflects that while SMA reforms would benefit manufacturing they would not benefit the farmers who own the manufacturing co-operatives.

Only 3 per cent of Confectionery firms reported positive impacts from reforms to SMAs. Sugar and milk products are two important inputs used by the confectionery industry. As noted in chapter 2, despite the reforms to SMAs Australia's manufacturers continue to pay prices for sugar and milk products substantially higher than those likely to apply in a deregulated market prices.

Firms' comments on the adequacy or otherwise of the pace of reform in the areas of tariffs and SMAs indicated that, relative to other areas of micro-reform, they attracted a lower level of satisfaction. For SMAs the dissatisfaction primarily reflected the view that the reform process had been too slow.

6.5.2 Issues for future reform

Tariff reductions and reforms to SMAs have made significant contributions to the change in the level of domestic competition faced by many respondents. In some instances, firms have identified a direct relationship between these reforms and the increase in competition. In other instances, firms have identified a market based

factor as the important contributor. However tariff reductions and changes to SMAs were often associated with the market based factors. Tariff reductions, not unexpectedly, contributed more significantly to the change in the level of competition for import competing firms than they did for firms in export oriented and non-traded industries (refer to chapter 3).

The agri-food survey shows that firms surviving an increase in the level of domestic competition appear to be more dynamic and productive than their counterparts. For example, respondent firms experiencing increased domestic competition between 1989-90 and 1993-94 were more likely to:

- change their operational structure;
- undertake a major investment;
- maintain or increase sales;
- seek out new export markets or increase their export share; and
- increase their productivity.

As noted above, changes to tariffs and changes to SMA's contributed to this increased level of domestic competition. These results suggest that despite the negative effect on many firms' competitiveness associated with tariff reductions and changes to SMAs, firms have responded positively to the changed incentives environment.

As a result of trade liberalisation related reforms, most tariffs will have declined to a maximum of 5 per cent and most other forms of industry assistance will have declined to minimal levels by July 1996. However, there will be some exceptions. Relatively high levels of assistance by way of tariffs and SMAs will continue to apply to some industries — notably passenger motor vehicles, textiles clothing and footwear and the sugar, and dairy industries. There is clearly further scope for rationalising and improving assistance arrangements in these areas which continue to receive preferential treatment at the cost of using industries and consumers alike. The coalition government has recently foreshadowed reviews of assistance arrangements for the passenger motor vehicle and textiles, clothing and footwear industries. The assistance arrangements for sugar are currently the subject of a review. A working party commissioned by the Commonwealth and Queensland Governments is expected to release an options paper in July and report by November 1996.

While most tariffs are now at minimal levels, even a low tariff can impose costs on industries using the tariff assisted good. In this regard, the Industry Commission recommended that the Commonwealth government should remove the tariff on tin

plate from July 1997 (IC 1995c). Tin plate is an important material input to packaging used by agri-food industries.

Although a sizeable proportion of firms reported negative impacts from tariff reductions and concern about the fast pace of reform, less than 10 per cent of survey respondents commented that they would like to see import competition reduced by increasing tariffs. However, some of these firms argued that 'subsidised' imports should be stopped and pushed for tighter anti-dumping procedures. It is important in assessing these claims to ensure that the benefits arising from trade liberalisation are not jeopardised by increased resort to non-tariff barriers to trade such as the use of anti-dumping duties as a substitute for tariffs[1]. Others expressed concern about the lack of a level playing field, noting that they do not have the same access to overseas markets as their overseas competitors have to the Australian market.

Overall, reforms to the tariff regime and SMAs has contributed to the value-adding activities of Australian agri-food industries through lowering the costs of intermediate inputs as well as contributing to a more dynamic competitive environment.

Given the importance of trade and investment links with our near neighbours and the potential for future growth, it is important for the Australian government to continue to pursue liberalisation of trade and investment with Asia. The Asia Pacific Economic Cooperation (APEC) forum, of which Australia is a member, is a potentially significant development in this regard. Indeed, the APEC forum has put forward a program of trade and investment liberalisation much broader than the GATT Uruguay Round of reforms. The positive results arising from Australia's removal of tariff and non-tariff barriers demonstrates the benefits which can be achieved by following such a program.

Australia's trade liberalisation reform agenda has now progressed to the point where, for most industries, reforms to other areas of government regulation are becoming much more important in shaping the international competitiveness of the economy. That said, we need to take care that these assistance measures are not replaced by less transparent forms of border assistance such as food labelling and unnecessarily tight anti-dumping measures. Access to overseas markets, particularly the removal of non-tariff barriers, should also continue to be a focus of international trade liberalisation discussions.

[1] A comprehensive discussion of Australia's anti-dumping system and recent anti-dumping activity is provided in the most recent annual report of the Industry Commission (IC 1995b).

6.6 Infrastructure services — road freight and waterfront reforms

All industries use infrastructure services as inputs in production, marketing and distribution. Infrastructure service industries comprise a number of key activities including the provision of energy, transport, communication and other services.

As outlined in chapter 2, agri-food firms purchase various amounts of these services. In direct terms, the leading services purchased by agri-food industries include road freight transport services, electricity and rail transport. Direct purchases of other inputs including gas, water, water transport, aviation, other transport services and communications generally involved much smaller outlays. Of course, the figures reported in table 2.1 understate the extent of dollars actually outlaid on infrastructure services. This occurs because, in addition to direct purchases of these services, each industry makes indirect purchases when it acquires other goods and services which have used these services in their production.

As Australia's traded industries have become more exposed to the pressures of international competition there is an increasing need for infrastructure services to be supplied to them on an internationally competitive basis. Reforms to Australia's government business enterprises have helped in this regard. The successful implementation of the main elements of competition policy will also apply pressure to supply infrastructure services at competitive prices.

Since 1991, the BIE has been actively involved in monitoring the performance of our infrastructure industries compared with international best practice. Two overview reports present summaries of the result of this work to date (BIE 1994, 1995a).

The BIE's international benchmarking reports found progress in many areas of infrastructure reform. However, they also identified significant gaps between world best practice and Australian best practice for a range of infrastructure services. For example, in 1995 the largest infrastructure price performance gaps between Australian best practice and world best practice occurred in waterfront charges for containers (BIE 1995a, p.xiv). Similarly, the BIE found that the Australian coastal shipping industry (in 1994) continued to be relatively high cost. A recent review by the Australian Competition and Consumer Commission (ACCC 1996) of coastal shipping freight rates suggests that the benefits of reform are being reflected in freight rates. However, the ACCC (1996, p.viii) noted:

> These reforms are being progressed while the industry remains protected from direct competition from foreign shipping through a policy of cabotage. Cabotage raises the costs of coastal shipping to users.

Four infrastructure service reforms covering telecommunications, road freight, waterfront and electricity were singled out by agri-food firms as having relatively high proportions of firms indicating positive impacts on their competitiveness since 1989. Those areas attracting the highest relative negative assessments were water supply and road freight. Firms' assessments of the adequacy or otherwise of the pace of micro-reforms in this area indicated that telecommunications, electricity and road freight in particular received above average satisfactory rankings. Those areas of infrastructure scoring the highest levels of dissatisfaction included coastal shipping, the waterfront, rail transport and aviation. For each of these areas the primary source of dissatisfaction was the slow pace of the reform process.

When firms were asked to indicate the four most important reforms for future competitiveness, road freight and the waterfront were included amongst the top four reforms by a majority of firms in a number of industries:

- the majority of firms in the Flour mill products, Prepared animal and bird feed, Fruit and vegetable wholesaling and Packaging industries ranked road freight as either the third or fourth most important future reform; and
- the majority of firms in the Fruit and vegetable processing, Sugar manufacturing and Food processing machinery industries ranked waterfront as the fourth most important future reform (refer to table 6.1).

6.6.1 Road transport issues for future reform

Road transport is an important area of reform for many firms in agri-food and related industries as road freight accounts for a significant proportion of direct input costs for many of them. Road transport is the major transport mode for most industries (refer to table 2.1). The agri-food survey revealed that although respondent firms were in the main satisfied with the pace of road freight reforms (45 per cent based on sales value), around one-quarter of the firms, on a sales value basis, reported that the pace of reform was too slow.

Road freight services in Australia are essentially provided by the private sector. The industry is highly competitive — notwithstanding some recent trade practices decisions.

BIE (1992) found that Australian businesses are generally well served by the road freight industry and that road freight rates were broadly similar to those applying overseas. Costs and the quality of service in the road freight industry are to some extent related to the provision and pricing of roads. Regulations impacting on the road transport industry and road related taxes and charges will also impact on costs

and quality. The application of user pays principles in the provision of roads and the revenue raising aspects of taxes and charges are particularly relevant.[2]

The industry currently operates under nine different sets of legislation and regulation operated by the Federal Government, six state governments and two territory governments. Under these arrangements, each state/territory independently sets charges, generally consisting of a registration fee and various fuel taxes, and has responsibility for technical operating standards and licensing arrangements.

There is widespread agreement within the road freight industry that the adoption of measures such as uniform standards and regulations and more-flexible vehicle operating arrangements could generate sizeable savings for service providers and users alike. In July 1991, the Heads of Government at the Special Premiers' Conference resolved to improve road safety and transport efficiency by adopting a nationally uniform or more consistent set of road transport legislation. The National Road Transport Commission was set up in 1992 as the main mechanism to introduce reforms in this area. While there has been progress in some areas much remains to be done in pursuing regulatory reform. Proposals covering changes to regulations, including driving hours and Australian road rules, together with bills on driver licensing and heavy vehicle registration, are expected to be submitted to the Ministerial Council for Road Transport later this year.

6.6.2 Waterfront issues for future reform

A much higher proportion of agri-food firms were dissatisfied with the pace of waterfront reform — some 70 per cent of the sales value of the sample was aligned with firms reporting that the pace of reform was too slow.

Waterfront reform has been a high priority for Commonwealth and state governments over the past decade (BIE 1995a). The reforms have covered two distinct areas: first, labour market reforms to reduce costs and improve terminal productivity; and second, commercialisation and corporatisation initiatives to lift the performance of government owned port authorities.

The reforms have had some success. Productivity in terminals, particularly container terminals, increased during the Waterfront Industry Reform Authority process from 1989 to 1992 and was reflected in reduced terminal charges. Port authorities became more profitable and reduced their charges. However, during

[2] The BIE is currently updating its earlier road freight international benchmarking report and expects to publish the results of the study around December this year. This study will include an assessment of the impact of regulatory reform on the industry, the application of the user pays principle in the provision of roads and the impact of road related taxes and charges on users.

1994, stevedoring crane rates fell back to around 1991-92 levels. This decline, combined with continuing improvements by overseas ports, means that Australian crane rates are no longer on par with similarly sized overseas ports. A BIE survey of ship operators indicated that timeliness and reliability for waterfront services in Australian ports lag well behind overseas ports. While turnaround times have fallen over the 1990s, the continuing unreliability of the waterfront makes it difficult for shipping lines to take advantage of the reforms and pass benefits onto exporters and importers (BIE 1995a).

Australia's experience with waterfront reform reveals that it is essential for reforms to provide in-built incentives for continuous improvement. Actions that do not tackle the causes of poor performance head-on are unlikely to lead to sustainable improvements. In this sense, Australia's micro-reform agenda for the waterfront is far from complete.

6.7 Environmental regulation

Within Australia no single government has full responsibility for the environment. Instead, environmental legislation is framed by six state governments, two territory governments and the Commonwealth government. Reflecting the wide diversity of environmental issues, regulatory arrangements relating to the environment are also diverse. For example, they cover areas such as waste and recycling, ozone depletion, green house gas emissions, ecologically sustainable development, impact assessments and emission controls.

This framework and diversity of issues has the potential to produce inconsistent approaches and create confusion and uncertainty. The Commonwealth has developed agreements with state/territory governments over time in an attempt to promote consistent outcomes and lessen complexity and confusion. For example, in May 1992 the Commonwealth and State/Territory governments signed an Inter-governmental Agreement on the Environment. The agreement provided for the establishment of a national environmental protection agency with responsibility for developing national environment protection measures. This agreement was also aimed at clarifying the roles and responsibilities of different levels of government in this area, reducing unnecessary discrepancies between state environmental standards and streamlining the decision making process.

The number of bodies involved in environmental regulation has been reduced, legislative provisions have been changed in a number of areas to permit a whole of governmental approach and a number of states have moved towards cost-reflective pricing arrangements in areas such as waste disposal. While there has been some

significant progress in improving Australia's environmental regulatory framework since the early 1990s, a number of outstanding issues need to be addressed.

6.7.1 Impacts on firm competitiveness

Three of the twelve industries included in the agri-food survey ranked environmental regulation as one of the four most important areas of reform for their future competitiveness. The Meat processing and Packaging industries ranked environmental regulation as their third most important area of future reform, while the Prepared animal and bird feed industry ranked environmental regulation as the fourth most important area of future reform (refer to table 6.1).

Only 16 per cent of firms reported positive impacts on their competitiveness from reforms to environmental regulation since 1989. Around 28 per cent of respondent firms covering 55 per cent of the sales value of the survey sample believed environmental regulation reforms had negative impacts on their competitiveness. The most widespread negative impacts were reported by firms in the Flour mill products, Packaging, Milk and cream processing and Sugar industries — more than 45 per cent of firms in each of these industries reported negative impacts (refer to appendix 5).

The pace of reform in the area of environmental regulation was considered by many firms to be proceeding too fast while others judged it to be going backwards — more than 55 per cent of the sales value of the sample is aligned with firms reporting that they were dissatisfied with the pace of reform in this area. The industries with the highest levels of dissatisfaction included the Sugar manufacturing industry and the Fruit and vegetable processing industry (refer to appendix 6).

6.7.2 Issues for future reform

The Agri-food case study's follow up telephone survey revealed that negative impacts were frequently related to the increased costs of complying with environmental regulations such as emission controls. Stricter emission standards and waste disposal rules from newer regulations have contributed to increased costs. Moves to cost reflective pricing arrangements for waste disposal and land fill were also raised in this context. Some firms indicated that environmental compliance costs were a burden, especially when their competitors were located in areas which did not have to comply with the same environmental requirements (eg firms located further away from urban areas or in different jurisdictions). Of course, it may be entirely appropriate for emission controls and waste disposal rules to vary across

jurisdictions reflecting differences in emission loads and related to this the absorbitive capacity of the environment. Uncertainty about future requirements was also mentioned as a problem by some firms.

Positive impacts were reported to include changes in technology induced by environmental controls. These changes resulted in flow on benefits covering cost reductions, increased productivity and improved product quality. In some cases, firms commented favourably on changes requiring competitors to meet the same environment standards as applied to themselves.

Many of the problems/issues raised by agri-food firms covering a future reform agenda for environmental regulation are common across Australian industries. These problems/issues have resulted as governments have responded to increased community demands for environmental protection. There is also recognition of the interdependency of the environment and the economy by the private sector (BCA 1990). However, there are advantages in using market based instruments to achieve desired environmental outcomes to improve economic efficiency. These advantages have been pointed out by industry, for example, see BCA (1990) and by policy makers, see IC (1993). Therefore, notwithstanding obvious progress in streamlining the regulatory framework within and across jurisdictions, future policy making in this area needs to give greater emphasis to approaches which:

- develop standard or control regimes for waste and emissions which are more sensitive to the associated pollutant loads;
- rely more directly on 'market based incentives' rather than prescribing what should and should not be done;
- rely more on pricing signals where practical in the management of waste disposal sites and recycling initiatives;
- recognise the value of non-uniform standards and regulations in circumstances where the costs and benefits of environmental protection measures differ between regions/states and nations; and
- require environmental regulatory proposals to be rigorously assessed within a framework which clearly identifies the relevant objectives and evaluates the relative merits of different measures/approaches.

6.8 Concluding comments

The main purpose of the Agri-food case study has been to assess the impact of micro reform on firms in agri-food and related industries. On the basis of information obtained from respondent firms, we can confidently say that micro

reform has helped create a more competitive and productive economic environment in Australia. This has been achieved through reductions in industry assistance which have increased firms' exposure to the disciplines of competition. Firms have also reported positive impacts from industrial relations and workplace reforms and changes in the operations of government business enterprises. However, the study has revealed that there are many ongoing micro reform issues which need to be addressed to enhance the future competitiveness of agri-food firms.

Across the twelve agri-food and related industries surveyed by the BIE, the aggregate responses highlight four areas of micro-reform as being vital to the future competitiveness of agri-food firms. The four key areas are industrial relations, input taxes and on-costs, food standards and related regulations and Australia's tariff reductions. For some individual industries other areas of micro-reform were nominated in the group of four leading reforms including, SMAs, infrastructure services reforms covering the road freight and waterfront industries and environmental regulation.

In aggregate, industrial relations reforms were ranked as the most important future reform. On an industry basis, industrial relations was ranked as either the first or second most important reform by each of the survey industries. Many firms considered that these reforms impacted positively on their competitiveness. Nevertheless, many firms highlighted the need for faster reform in this area, particularly in relation to the enterprise bargaining process. This process was seen by many respondent firms as having complex institutional arrangements with high associated costs as well as being inflexible.

Input taxes and on-costs were ranked by firms, in aggregate, as the second most important area for future reform. On an individual industry basis, the majority of firms in eleven of the twelve industries ranked this area as one of the four most important future reforms. Reforms in this area were the most widely reported as having negative impacts on the competitiveness of agri-food firms. The main reasons given by firms for this negative assessment were that reforms had not gone far enough in lessening tax imposts, compliance costs remained too high and that some reforms had tended to favour competitors. In considering reform options for input taxes, it is necessary to examine the relative merits of different taxes and seek to determine whether there is a better tax mix. If the current taxation base is taken as given, then the main challenges for reform in this area relate to actions directed at lessening compliance costs.

In aggregate, reforms to food standards and related regulations were identified as the third most important future reform. These regulations cover a wide area including national food standards, hygiene, packaging, food processing and

handling, food premises, country of origin labelling and inspection arrangements. The main area targeted by firms related to the need to contain compliance costs through the design of cost effective regulations.

Reforms to tariffs and SMAs were included amongst the four most important reforms for a number of industries. Not surprisingly, tariff reductions and rationalisation to SMAs were seen as having a negative impact on the competitiveness of directly affected industries. While some firms felt that reforms in this area had progressed too rapidly, others who were bearing the cost of assistance arrangements considered that reforms had progressed too slowly. As a result of trade liberalisation initiatives, most tariffs will decline to 5 per cent by July 1996, while most other industry assistance via other means will decline to negligible levels. One of the main areas for future reform is the need for further rationalisation of SMAs for some agricultural industries supplying inputs to agri-food firms — notably the dairy and sugar industries. That said, it should be recognised that even relatively low levels of tariff assistance impose costs on industries using tariff assisted inputs.

In common with other Australian industries, the agri-food industries utilise a wide range of infrastructure industry inputs in their production processes. Trade liberalisation initiatives since the late 1980s have exposed the agri-food and other trading industries to greater international competition. In consequence of this, it has become increasingly important for infrastructure services to be supplied to these traded industries on an internationally competitive basis. The BIE's international benchmarking work over the last five years or so has highlighted significant gaps in the performance of most of Australia's infrastructure service industries (BIE 1995a). While Australia has embarked on a widespread and increasingly focused reform agenda in this area, much remains to be done. Indeed, as international best practice is a moving target we must continually be striving to improve our performance simply to maintain our relative position. Now is certainly not the time for reform fatigue in this important area.

The 1990s have witnessed a number of significant initiatives directed at improving Australia's environmental regulatory framework. Some areas of reform include moves to better inter-governmental co-ordination, various streamlining initiatives, moves to cost reflective pricing and moves to replace prescriptive standards/controls with market-based incentive mechanisms. Comments from agri-food firms together with various policy initiatives in this area clearly demonstrate that the reform process is far from complete.

A1 Steering group membership and sponsors

A1.1 Steering group

Oversight of the agri-food case study was provided by a Steering Group convened by the Agri-Food Council, comprising the following members (excluding the BIE project team):

Chair:	Mr Grant Latta	Managing Director of Camerlin Australia Pty Ltd Director of Austrade Deputy Chairman of EFIC
Members:	Mr John Claringbould	Director Australasia and Asia Effem Foods
	Mr Donald McGauchie	President National Farmers' Federation
	Mr Garry Ringwood	Managing Director Amcor Fibre Packaging
	Mr Graham Taylor	Assistant Secretary Agri-Food Industries Branch Department of Industry, Science and Tourism
	Ms Christine Maher	Director Agri-Food Industries Branch Department of Industry, Science and Tourism

Mr Rod Whiteway	Assistant Director Agri-Food Industries Branch Department of Industry, Science and Tourism

A1.2 Sponsors

The BIE received sponsorship support covering some of the costs of this study from the Agri-Food Industries Branch of the Department of Industry, Science and Tourism ($40 000) and a number of agri-food firms. The following firms each contributed support of $5000 to the study:

Ardmona Foods Limited

Australian Co-operative Foods Ltd

Bonlac Foods Limited

CSR Sugar

Effem Foods

Golden Circle Limited

Goodman Fielder Limited

H J Heinz Company Australia Ltd

Kraft Foods Limited

National Foods Limited

Nestle Australia Limited

Pacific Brands Food Group

SPC Limited

A3 Technical aspects of the survey analysis

In reporting the findings of any survey care must be taken to ensure the results are meaningful. We have used statistical techniques to help ensure the results reported are robust. This appendix provides some details of these techniques. Section A3.1 explains what a significance test is and gives an illustrative example of how such a test is applied to our data. Section A3.2 reports the results of a response bias check. The section compares results from our main survey with those of a non-respondent bias survey. Section A3.3 provides details of regression analyses reported in chapters 4 and 5.

A3.1 Significance tests

Throughout the report we compare the responses of different industry groups and the characteristics of respondent firms to see if there are any statistically significant differences between them. For example, in chapter 4 we examine the number of firms reporting an increase in competition since July 1989 and find that 75 per cent of firms in import competing industries reported an increase in competition, compared to 60 per cent of firms in other industries.

But, given that these are survey results, the question arises: to what extent does this finding apply to firms in tariff assisted agri-food and related industries more generally? After all, this finding is based on the responses of 460 firms. How confident can we be about a result based on these 460 responses? If another survey was taken of a different group of firms in the agri-food and related industries would it too find that firms in import competing industries are more likely to have experienced an increase in competition? Beyond this, the question arises as to whether the difference in responses (ie 75 per cent compared with 60 per cent of firms) is statistically significant.

Testing the statistical significance of results provides a basis for answering these types of questions. It provides a measure of how sure we can be that firms in import competing industries are, in fact, more likely to have experienced increases in competition relative to firms in other industries.

Significance testing is particularly useful when apparently important differences are identified but these are based on fairly small samples. In these cases the chances that the result simply reflects sampling variation is relatively high.

The significance test used is based on the hypothesis that two observed proportions are, in reality, the same. A test statistic is calculated based on the difference between the two proportions and their standard errors. The larger the test statistic, the more confident we can be that this hypothesis is false - that is, the observed difference between the two proportions is a 'real' difference (see box A3.1).

Box A3.1: What is a significance test?

The probability of rejecting a hypothesis when it is not true is called the level of significance. The level of significance can be tested using a z test.

Specifically, the formula is : $Z = \frac{p_a - p_b}{\sqrt{\frac{p_a(100-p_a)}{n_a} + \frac{p_b(100-p_b)}{n_b}}}$

where p *a* is the observed proportion for group *a* and n *a* is the number of firms in group *a*, and p *b* is the observed proportion for group *b* and n *b* is the number of firms in group *b.*

The value for the test statistic (Z) is compared to the relevant figure from tables of values for the distribution of the standard normal curve to give the level of significance. For example, if we wish to be 95 per cent confident that the proportions are truly from different populations (that is, tariff assisted firms have experienced a greater increase in competition than other firms) then the z statistic would need to be 1.96 or greater. If on the other hand we are satisfied with a lower confidence interval the statistic would be lower. A z statistic of 1.65 represents a confidence level of 90 per cent. The level of significance is usually specified before a test is made. Otherwise the result obtained from the test may influence the decision concerning the hypothesis. In practice, the value of 5 per cent (corresponding to a confidence level of 95 per cent) is frequently used to set the level of significance, although other values may also be used.

In our tariff and competition example, the test statistic is calculated to be 3.18. This is a very high result, and we can be very confident that the observed difference between firms in import competing industries and firms in other industries is not simply the result of the sample. There is less than a 5 per cent probability that our confidence is misplaced and the two proportions are actually the same. That is, there is only a 5 per cent probability that firms in import competing industries are as likely to experience increased competition as other firms.

Of course, given that the difference in this example was so large (75 per cent compared to 60 per cent) this is perhaps not a surprising result. What about the case where differences are not so large? For example, 51 per cent of firms in import competing industries were found to have changed their operational structure,

compared to 40 per cent of firms in other industries. The test statistic in this case is calculated to be 1.99, which gives us a confidence limit of around 95 per cent. We can therefore be quite confident that firms in import competing industries are more likely to have changed their operational structure (with only a 5 per cent chance that firms in import competing industries are equally likely to change their operational structure as firms in the other surveyed industries).

On the basis of this statistical testing we would say that firms in import competing industries are more likely to have changed their operational structure and have experienced increased competition than firms in the other industries surveyed. In our examples, both test statistics exceeded 1.96 suggesting that there are differences between import competing industries and other industries with regards to operational structure and increased competition.

Similar tests have been applied to other proportions reported in the analysis. Significance testing was also applied to check for non-respondent bias in our results.

A3.2 Response bias check

As discussed in chapter 2, around 37 per cent of firms receiving our microeconomic reform survey form responded. Even with a relatively good response rate there is still a real possibility of bias in survey results. For example, a high proportion of firms who had been negatively affected by microeconomic reforms or who had experienced a change in the level of competition as a result of microeconomic reform may have answered our survey. If this was the case, the results we report would not be representative of the general population of firms in the surveyed industries.

To test for such bias we constructed a small telephone questionnaire summarising six of the questions from the survey. These questions covered topics such as competition, productivity, exports and the impact of some microeconomic reforms on a firms' competitiveness (see appendix 2).

The ABS, on the BIEs behalf, conducted approximately 100 interviews with randomly selected non-respondent firms. These interviews were spread across firms from each of the industries covered by the original survey, although for some industries their representation in the non-respondent bias survey varied from the main survey. The results for the follow-up survey indicate that, in most cases, the responses from the sample can be considered representative of the total population

of firms (refer to table A3.1). However, the results suggest that non-response bias may exist for some questions.

Statistically significant differences in the results across the two samples occurred for the amount of change in productivity and export share, and for some of the factors contributing to changes in competition.

The results for the non-respondent bias sample suggests that the main survey results may *underestimate* the amount of change in productivity occurring in the surveyed industries and the extent of firms experiencing an increase in productivity or an increase in the share of exports in production.

While there were no statistically significant differences in the two surveys relating to the change in competition, there were some differences in factors perceived as contributing to changes in competition. Firms in the non-response bias survey were less likely to say that tariff reductions, changes to statutory marketing arrangements or changes to food standards and related regulations were a significant factor. There was also a statistically significant difference in the proportion of firms indicating the importance of a change in the level of import competition - 37 per cent in the non-respondent survey, compared to 46 per cent in the main survey.

Firms' perceptions of the impact of certain reforms also differed between the two samples. Compared to the non-bias survey sample, it seems that for some of the reforms (eg transport reform, telecommunications reform, food standards and related regulations, and reforms to taxes on inputs) the survey sample overstates the *positive* impact of reforms. In the non-respondent bias survey a higher proportion of firms gave a *no impact* response for the impact of these reforms. This survey also indicated a higher *negative* perception of the impact of industrial relations reforms than the main survey.

These different results may, in part, be explained by the different industry weightings in the two surveys. The variations across industries identified in the analysis of the main survey results support this view. However, the differences may also be an indication of non-respondent bias.

Provided the degree of bias was known it would be possible to adjust the results in this report. However, it should be recognised that the non-respondent bias sample is only one, relatively small, sample from the survey population. To obtain a robust estimate of the true degree of bias it would be necessary to conduct a much larger non-respondent bias survey to adequately cover each of the twelve industries, including variations in the size of firms and their geographic location. As the scale of such a survey is prohibitively large and we cannot be sure that the non-respondent bias survey is representative of all non-respondents we have decided to

report unadjusted data. Nevertheless, the non-respondent bias results do show that some of the results of the main survey need to be interpreted with some caution.

Table A3.1 Comparison of main survey and non-respondent bias survey results

	Non-respondent bias survey	*Main survey*	*Z statistic*	*Statistically significant differences*
No. of observations	*108*	*462*		
	Proportion (%)			
Level of Competition:				
No change	25	25	0.00	no
Change	75	75	0.00	no
Increase	75	73	0.42	no
Decrease	6	2	1.31	no
Significance to change in competition:				
Tariff reductions or changes to SMAs	22	32	2.15	yes
Changes to food standards/regulations	19	43	5.10	yes
New entrants/mergers and takeovers	63	64	0.44	no
Changes in level of import competition	37	46	2.18	yes
Proportion with a change in productivity/efficiency:				
Increase	84	64	4.41	yes
Decrease	1	8	-3.77	yes
Significance of factors contributing to change in productivity/efficiency				
Labour saving/new machinery	67	72	1.14	no
Changes in level of innovation	64	64	0.72	no
Changes in level of production	77	78	0.51	no
Management practices/employee relations	73	67	-0.68	no
Best practice techniques/contracting out	39	38	0.10	no
Enterprise agreements/workplace reforms	45	38	-0.85	no
Change in exports as a share of production				
Firm doesn't export	47	55	-1.54	no
Increase	45	22	2.94	yes
Decrease	2	4	-0.87	no
Negative perception of impact of reforms				
Tariff reductions	19	25	-1.50	no
SMA reform	6	10	-1.11	no
Industrial relations reform	28	17	2.34	yes
Input taxes/on-costs	39	35	0.78	no
Transport reforms	8	8	0.05	no

Table A3.1 Comparison of main survey and non-respondent bias survey results (continued)

	Non-respondent bias survey	*Main survey*	*Z statistic*	*Statistically significant differences*
No. of observations	*108*	*462*		
	Proportion %	*responding %*		
Changes to food standards and regulations	20	13	1.77	no
Telecommunications reform	2	5	-1.66	no
Electricity and gas reforms	7	8	-0.18	no
Environmental regulation	33	28	1.08	no
No impact perception of reforms				
Tariff reductions	72	64	1.92	no
SMA reform	86	79	2.68	yes
Industrial relations reform	54	53	0.23	no
Taxes to inputs/on-costs	57	47	2.01	yes
Transport reforms	81	74	2.55	yes
Changes to food standards and regulations	65	58	1.73	no
Telecommunications reform	70	69	0.54	no
Electricity and gas reforms	70	69	0.54	no
Environmental regulation	56	55	0.02	no
Positive perception of impact reforms				
Tariff reductions	9	11	-0.31	no
SMA reform	7	11	-1.40	no
Industrial relations reform	19	30	-2.49	yes
Taxes to inputs/on-costs	4	18	-2.70	yes
Transport reforms	10	17	-2.43	yes
Changes to food standards and regulations	15	29	-3.40	yes
Telecommunications reform	43	46	-2.17	yes
Electricity and gas reforms	22	23	-0.21	no
Environmental regulation	11	16	-1.02	no

Source: BIE Agri-food survey 1995.

A3.3 Outline of regression analysis results

This section reports the results of regression analyses discussed in chapters 4 and 5. Chapter 4 found that aggregated financial data for firms reporting an increase in the level of competition between 1989-90 and 1993-94 suggest they maintained their profitability over the period. Section A3.3.1 reports the results of regressions analysing the impact of changes in the level of competition on firms' profits as a proportion of sales.

Chapter 5 reports firms' perceptions of changes in their productivity between 1989-90 and 1993-94. During this period a small proportion of respondents implemented a range of industrial relations and workplace reforms. However, firms were most likely to identify other factors such as changes in production levels and investments in new machinery or technology as being the most significant contributors to increased productivity (refer to figure 5.4). Section A3.3.2 reports the results of regressions analysing the contributions of a range of variables to the productivity outcomes reported by respondents.

A3.3.1 Profitability regression analysis

Data used

The sample size is 277 of the 460 respondent firms. These 277 firms provided data on profits, sales and wages for both 1989-90 and 1993-94. The change in profits as a proportion of sales is the dependent variable in the regression representing the change in profitability. It was calculated by subtracting 1989-90 profit share. (1989-90 accounting profits divided by 1989-90 sales) from the 1993-94 profit share (1993-94 accounting profits divided by 1993-94 sales).

The first independent variable considered was the log of total sales growth, which incorporates both domestic and export sales. Sales growth could be expected to have some positive relationship with profit growth at least in the short run. This variable was calculated by subtracting 1989-90 total sales from 1993-94 total sales in nominal terms and then dividing by 1989-90 nominal sales. Initially we included variables for domestic sales, export sales and domestic sales intensity. However, these variables were found to be insignificant and were subsequently excluded from the regression.

A change in the wage share was also included in the equation. The log of the change in wage share variable was calculated by subtracting 1989-90 wages and

salaries divided by 1989-90 sales from 1993-94 wages and salaries divided by 1993-94 sales. The change in the wage share could be expected to have a negative relationship with profitability as found in figure 4.7.

The analysis presented in chapter 4 indicated a positive relationship between competition change and profit growth, particularly for firms reporting a marginal increase in competition. This is a somewhat paradoxical result given standard economic theory which suggests that above normal profits earned in less competitive industries are squeezed by increased competition. However, an increase in competition may drive firms to increase their efficiency. For example, by reducing managerial slack and finding less costly methods of production. Such action could lead to increased profitability in the short run at least. Further, increased competitive pressures may have also eliminated the least efficient firms from the market and thus from the survey.

We were therefore particularly interested in including a competition dummy as an independent variable to see if the aggregate result would be replicated when we took into account firm level data and counted the impact of other variables. We set up a dummy variable for competition that took the value of 1 if a firm faced an increase in competition and a value of 0 if it experienced no change in competition.

Improvements in productivity can also be expected to have an impact on firms' profitability. A productivity dummy took the value of 1 if a firm experienced an increase in productivity and a value of 0 if it did not.

In earlier tests of the regression analysis we included other variables that may have helped to explain firm's change in profit shares. These included changes in unit costs, major investments and exports. However, we found that the estimated coefficients on these variables were not significantly different from zero and in the case of investment we identified collinearity between this variable and productivity. Thus, we removed all irrelevant variables in our analysis.

Dummy variables capturing firm size for sales growth, wages share and changes in competition by firm size were also included to identify any differences associated with size. However as no significant differences were found between small and medium/large sized firms and these variables were omitted.

All twelve industries were represented in the sample of 277 firms. Initially a dummy variable was estimated for each of the twelve industries. However, most of the industry dummy variables were found to be not significant. We then grouped the industries into three categories: export orientated, import competing and non-traded, and three dummy variables were generated for each of these categories.

Results

The resulting regression equation is reported below in Table A3.2. Overall, the equation has a very low explanatory power with an R^2 of 0.052.[1] It appears that other variables explaining firms change in profitability may have been omitted. Unfortunately the survey did not collect these variables such as prices and quantities. While the regression has a low explanatory power we can reject the hypothesis that increased competition has had a positive effect on profitability.

The T-ratios reported in Table A3.2 below are calculated as the estimated coefficients divided by the standard errors. These T-ratios are equivalent to the z-statistics, for large samples, described in box A3.1.

Table A3.2 Regression results for change in profits as a proportion of sales[a]

Variable	*Estimated coefficient*	*Standard error*	*T-ratio*
Log of total sales growth	0.037	0.018	2.10
Log of change in wages share	-0.254	0.129	-1.97
Productivity dummy	0.028	0.019	1.45
Competition dummy	-0.003	0.022	-0.14
Export orientated dummy	0.040	0.022	1.85
Import competing dummy	0.037	0.020	1.86
Constant	-0.045	0.021	-2.13

a Adjusted R^2 = 0.052. Durbin-Watson = 2.066.
Source: BIE Agri-food survey 1995.

Our results above indicate that competition has *not* had a significant effect on the changes in profitability. The estimated coefficient on the competition dummy variable is -0.003, and we cannot reject the hypothesis that the estimated coefficient is significantly different from zero. Removing the competition dummy variable does not significantly change the estimated coefficients on other variables. However, the competition dummy variable was retained in the equation to illustrate its lack of significance.

The lack of significance of this competition dummy variable suggests that the increase in competition had neither a positive or a negative effect on the change in profit share. There are two main counteracting effects of increased competition on

[1] The theoretical literature on regression analysis of this type draws attention to two features which tend to depress R^2 or similar measures of goodness of fit in cross-sectional data work. First, there may be no underlying trends as in some parameterisation of dependent variables in time series. Second, because the data is based on unit record observations (ie at the firm level) the noise to signal ratio can be high. For a discussion of these points see Gujarati (1988), Intriligator (1978), Judge et al (1982).

profitability that may explain this result. First, if competition in a market increases then firms have to 'fight' harder to make a sale and a profit. In a competitive market, such as in the agri-food and related industries, this implies a reduction in firms' above normal profits. Second, we have noted earlier that respondent firms have reduced their costs and increased their productivity in response to increased competition. These improvements in efficiency can be directly fed into increased profits. Overall, our results, showing that competition is not significantly different from zero, may indicate that these two effects have more or less cancelled each other out.

The estimated coefficient on the productivity dummy variable was found to be positive, but small (0.028). This coefficient is not as robust as the other results and is only significantly different from zero at the 15 per cent significance level. However, this variable shares a causal relationship with competition and investment which may explain some of the 'noise' in these data. The relationship between productivity, investment and competition is explored further in section A3.3.2 below.

There were two variables that were significantly different from zero: the log of the change in wages share and the log of total sales growth. The estimated coefficient on the log of the change in wage share variable is -0.254. This implies a negative relationship between profitability and a change in wage share. This negative relationship between profitability and wages is intuitively correct. Value added, an accounting concept, is a residual measure equal to the revenue from sales once costs not associated with factors of production — land, labour or capital — are deducted. If returns to labour increase then returns to these other factors, which are largely collected through profits, can fall.

The estimated coefficient on the log of the change in sales variable is much smaller than the wage share coefficient and positive at 0.037. This implies that there is a small but positive relationship between the change in sales and the change in profits as a proportion of sales. This may imply that some firms in our sample have been able to take advantage of scale or scope economies associated with increased sales. The following regression reported in section A3.3.2 supports this view.

The positive estimated coefficients on the export orientated dummy (0.040) and import competing dummy (0.037) variables indicate that firms in these industries are more likely to have a larger change in profit shares than firms in non-traded industries. These estimated coefficients for export orientated and import competing firms are significantly different from firms in non-traded industries at the 10 per cent significance level. Supporting this result, Ergas and Wright (1994) found a strong relationship between firms with superior performance and an export

orientation. They could not, however, find strong support for the notion that intense competition from any source generates increases in productive efficiency — as noted in chapter 4, to some extent this may reflect the measure of competition used in their analysis (see section 4.2).

A3.3.2 Productivity regression analysis

The model

Chapter 5 reports firms' perceptions of changes in their productivity between 1989-90 and 1993-94. During this period a small proportion of respondents implemented a range of industrial relations and workplace reforms. However, firms were most likely to identify other factors such as changes in production levels and investments in new machinery or technology as being the most significant contributors to the increased productivity (refer to figure 5.3).

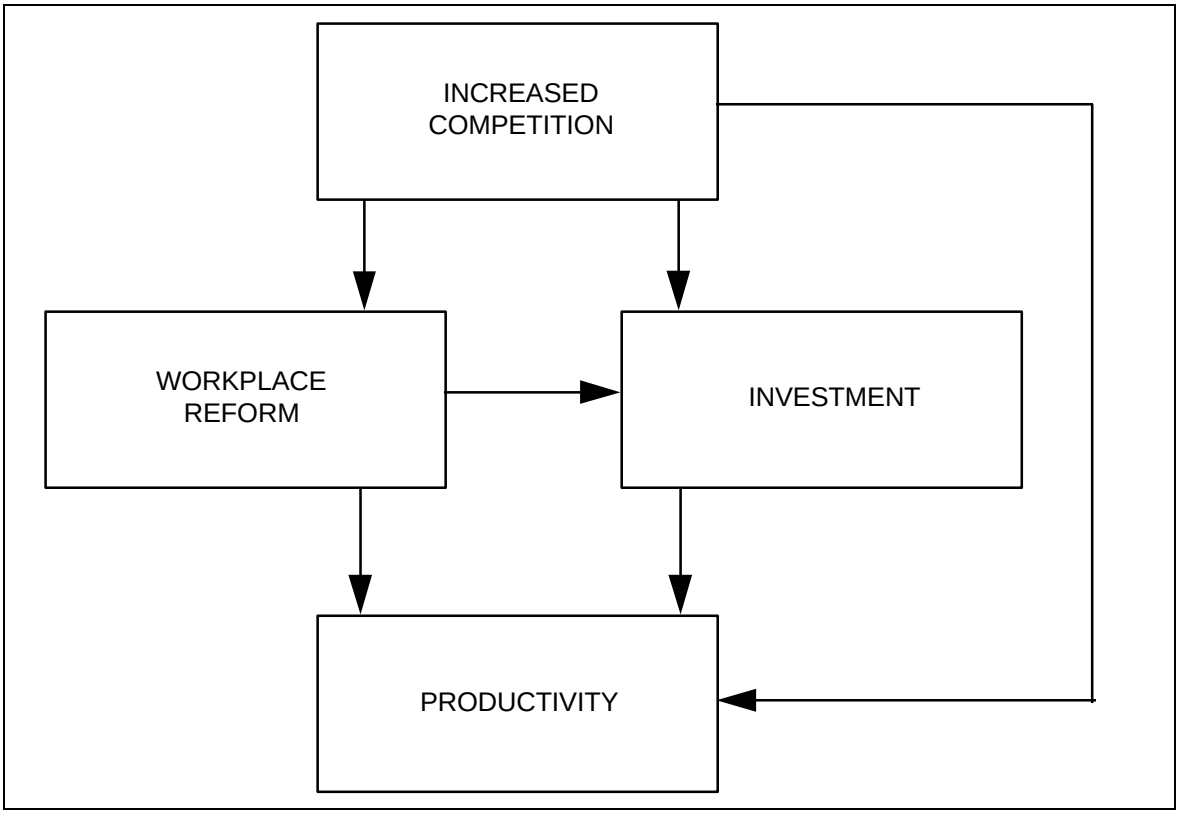
As shown in chapter 4, a large number of firms reported that their competition had increased between 1989-90 and 1993-94. These firms were found to have substantial increases in both productivity and major investments. Further, many firms in response to increased competition, indicated they sought to reduce costs and/or increase productivity. Introducing workplace reforms is one approach to achieving a productivity increase. Hence a change in the level of competition can impact on investment levels, which in turn can influence productivity. This suggests that there are a variety of channels through which competition, investment and workplace reforms could effect productivity (see figure A3.1).

In modelling productivity we have used a two step regression procedure. The first regression models the impact of investment, competition and workplace reforms on productivity. The second regression then looks at the impact of competition and workplace reforms on investment.

Both regression equations use a probit model. The probit model is a non-linear binary choice model used in situations where a dependent dummy variable has only two possible outcomes. In our first regression this refers to the firm either experiencing an increase in productivity or not experiencing an increase in productivity. And in the second regression, it refers to whether a firm has undertaken a major investment or not. Probit analysis allows the estimation of the probability of a firm with a given set of attributes having one outcome, rather than the alternative. Hence the model can show the strength of the relationship between the explanatory variables and the dependent variable. For a more detailed

explanation of the probit model see Greene (1991), Gujarati (1988) and Madalla (1992).

Figure A3.1 The influences on productivity



Data source: BIE chart.

Data used

The sample size for the analysis is 319 of the 460 respondent firms. These 319 firms provided data on sales and wages for both 1989-90 and 1993-94. Firms' perceptions of an increase in productivity experienced between 1989-90 and 1993-94 was used as the dependent variable in the first regression.

We grouped these firms into those that perceived that productivity had increased and those that perceived productivity had remained stable or decreased. This enabled us to set up a dummy variable for productivity that took the value of 1 for an increase in productivity and a value of 0 for a non-increase in productivity.

Investments in new machinery and labour saving technology were found to be two of the most significant factors for firms reporting increased productivity between 1989-90 and 1993-94 (see figure 5.3). We set up a dummy variable for investment that took the value of 1 for those firms that undertook a major domestic investment

and a value of 0 for firms with no major change in investment between 1989-90 and 1993-94. A major investment was defined in the survey questionnaire as being equal to or greater than 20 per cent of a firm's turnover or greater than $500 000.

As highlighted above, increased competition can impact on productivity directly and indirectly. A dummy variable for competition takes the value of 1 for an increase in competition and a value of 0 for no change in competition. Further, another dummy variable split competition responses between small firms and medium/large firms. A medium to large sized firm was defined as one with 1989-90 sales in excess of $10 million.

Firms reported changes in the level of production as another major factor in explaining productivity (see figure 5.3). We have used a proxy measure to estimate production level changes by estimating the log of the percentage change in sales over the survey period. Another dummy variable was constructed from the percentage change in sales to see if the variable differed between small and medium/large firms.

As reported in chapter 5 many firms also identified changes in management practices as another main influence on their productivity increases. A dummy variable for management restructuring takes the value of 1 if the firm implemented management restructuring and a value of 0 if not. Again, a dummy variable was constructed to see if there were differences between small and medium/large sized firms.

Although, firms did not generally report industrial relations and workplace reforms as frequently as the above variables, many firms consider that these reforms had some influence on improved productivity. Consequently dummy variables were constructed for enterprise agreements and changes in occupational health and safety, taking on values of 1 if they were implemented and 0 if they were not.

As discussed briefly in chapter 5, larger firms reported increases in productivity more often than other firms. The log of the 1989-90 sales variable is a proxy for the size of the firm.

In earlier tests of the regression analysis we included other variables that we thought may have helped to explain firms' perceptions of productivity and investment. These variables, which were found to be insignificant, included award restructuring, best practice techniques, and the coverage of unions in the workplace.

Further, we tried to examine the impact of workplace reforms and competition on our estimates of labour productivity. Econometric analysis of the change in labour productivity proved to be inconclusive. This is due in part to the 'noise' associated

with the labour productivity data. There exists a wide variation in our labour productivity estimates especially for smaller firms (see appendix 9). The problems associated with measuring the impact of enterprise agreements on labour productivity growth have also been highlighted by the Department of Industrial Relations. The department drew attention to a 'myriad of factors which affect these data' (DIR 1995, p. 165).

First regression results

The results of the regression for the productivity equation is reported below in Table A3.3. Overall, the equation is a good explanator of productivity based on the likelihood ratio test (significant at the 1 per cent level).

A pseudo measure of goodness of fit is the McFadden $R^2 = 0.224$ (this R^2 figure is not the same as the one calculated for an ordinary least squares regression in the previous section). As noted in the previous section, our R^2 measure can be expected to be low. Further, because the probit model is constrained between 0 and 1 the computed R^2 is likely to be much lower than 1 for dichotomous response models (Gujarati, 1988).

Table A3.3 Regression results for firms perceptions on productivity[a]

Variable name	*Estimated coefficient*	*Standard error*	*T-ratio*
Investment dummy	0.650	0.186	3.494
Competition dummy	1.047	0.212	4.936
Changes in occupational health and safety	0.331	0.183	1.804
Management restructuring in medium and large firms	0.662	0.314	2.105
Competition in small firms	0.499	0.296	1.681
Log of 1989-90 sales	0.157	0.069	2.283
Log of change in sales in small firms	0.919	0.189	4.873
Constant	-2.714	0.810	-3.347

a Adjusted McFadden $R^2 = 0.224$. Likelihood ratio test = 101.092 with 7 degrees of freedom.
Source: BIE Agri-food survey 1995.

The results indicate that both competition and investment are important explanators of increased productivity. The natural logarithm of 1989-90 sales suggest that large firms were more likely to report a productivity change.

Management restructuring contributed to the productivity increase reported by a number of medium and large firms. Productivity changes reported by small firms however were often associated with a change in sales. All these variables were statistically different from zero at the 5 per cent significance level. Changes in

occupational health and safety and competition for small firms were significant at the 10 per cent level.

In analysing the results it is important to point out that the interpretation of these results differ to the previous regression in section A3.3.1. Further, the estimated coefficients of the model, like those of any non-linear regression model, are *not* the marginal effects we are accustomed to analysing such as the regression in section A3.3.1. This is because the probit model constrains the explanatory variables of the regression to take on values between zero and one. To calculate the marginal effects we need to transform the estimated coefficients found in table A3.3 into the functional form shown in equation A3.1 below.

$$Z_i = F^{-1}(P_i) = a + b X_i \qquad \text{(A3.1)}$$

Where Z_i represents the inverse of the cumulative normal distribution function; the probability P is an estimate of the conditional probability that a firm will increase productivity or investment given some variable X_i; *a* is the constant coefficient; *b* refers to the estimated coefficients; and X_i are the explanatory variables. For a more detailed explanation see Aldrich and Nelson (1984), Greene (1991), Gujarati (1988), Madalla (1992), and Pindyck and Rubinfeld (1981).

To gauge the effect of changing values of variables, probabilities were calculated for a base scenario for the productivity equation (see table A3.4). The value of one variable was then altered, with all other variables remaining at the base values, and the probabilities were recalculated for the productivity equation.

The base scenario is calculated as the mean value of the natural logarithm of 1989-90 sales. In other words, the estimated coefficient on the log of 1989-90 sales reported in table A3.3 is transformed (using equation A3.1) into a calculated probability at it's average value. This base scenario was chosen because the log of 1989-90 sales represents the size of firms indicating that a large firm is more likely to have an increase in productivity. Further, this variable was common to both the first and second regression.

While calculating these probabilities (listed in table A3.4) does not allow us to identify the marginal effects of the parameters, it does illustrate the change in the base scenario probabilities in relation to changes in firms' characteristics. For example, a firm's probability of increasing productivity increases by about 29 per cent if it experienced increased competition compared to the base scenario. Increased competition had the highest probability of increasing productivity followed by management restructuring in medium and large firms (15.1 per cent) and major investments (14.4 per cent).

Table A3.4 Calculated probabilities and differences between the base scenario and calculated probabilities for the productivity equation[a]

Base and explanatory variables	*Calculated probabilities*	*Difference from base scenario*
Base	0.081	
Major investment	0.225	0.144
Competition	0.371	0.290
Changes in occupational health and safety	0.148	0.068
Management restructuring in medium and large firms	0.232	0.151
Competition in small firms	0.179	0.098
Log of changes in sales at the mean in small firms	0.115	0.034

a The base scenario is the log of sales at the mean value.
Source: BIE Agri-food survey 1995.

One can imagine that there are a large number of possible alternatives to the base scenario listed above. For example, what would be the impact on productivity for a firm experiencing both increased competition and changes in occupational health and safety? By transforming the estimated coefficients to a calculated probability, a firm's probability of increasing productivity increases by nearly 50 per cent if it experienced increased competition and changes to occupational health and safety.

Second regression results

The second stage of the probit analysis on productivity refers to investment. Figure A3.1 illustrates that workplace reform and the effects of increased competition can potentially influence investment, which in turn can impact on productivity.

Table A3.5 reports the results of regression analysis identifying determinants of major investment undertaken by survey respondents. The results indicate that the equation is significant (based on the likelihood ratio test) and the explanatory power is acceptable (McFadden $R^2 = 0.23$).

Table A3.5 Determinants of major investments by respondents[a]

Variable name	*Estimated coefficient*	*Standard error*	*T-ratio*
Competition dummy	0.666	0.211	3.156
Enterprise agreements	0.435	0.219	1.980
Management restructuring	0.757	0.184	4.123
Log of 1989-90 sales	0.275	0.049	5.526
Log of the change in sales	0.551	0.155	3.553
Constant	-3.546	0.482	-7.360

a Adjusted McFadden $R^2 = 0.228$. Likelihood ratio test = 103.216 with 5 degrees of freedom.
Source: BIE Agri-food survey 1995.

Enterprise agreements were not found to be a significant explantator of firms reported productivity increase and were therefore excluded from the BIE's first regression examining productivity. The Department of Industrial Relations suggests that at this stage in the reform process an assessment of the impact of enterprise agreements on productivity is clouded by 'the fact that a system centred around workplace bargaining has only been in place for a part of the business cycle' (DIR 1995, p.165). While this view has merit, the BIE found an indirect link between productivity improvements and enterprise agreements through respondent firms undertaking major investments.

As in the productivity equation, increased competition is a significant driver of investment. Further, management restructuring, firm size (log of 1989-90 sales), changes in production levels (log of the change in sales) and enterprise agreements are all significantly different from zero at the 5 per cent significance level. However, the T-ratio for enterprise agreements was substantially lower than the other significant variables.

As in the first regression, the marginal effects are not readily available. Table A3.6 reports the calculated probabilities and differences between the base and case probabilities for investment. Again, the base scenario is calculated as being at the mean value of the natural logarithm of 1989-90 sales.

Table A3.6 Calculated probabilities and differences between the base scenario and calculated probabilities for the investment equation[a]

Base and explanatory variables	*Calculated probabilities*	*Difference from base scenario*
Base	0.109	
Competition	0.288	0.179
Management restructuring	0.311	0.202
Enterprise agreements	0.212	0.103
Log of change in sales	0.136	0.027

a The base scenario is the mean value of the log of 1989-90 sales.
Source: BIE Agri-food survey 1995.

While table A3.6 does not allow us to identify the marginal effects of the parameters, it does illustrate the change in the base scenario probabilities in relation to changes in firms' characteristics. For example, a firm's probability of undertaking a major investment increases by about 18 per cent if it experienced increased competition compared to the base scenario. However, management restructuring had the highest probability of increasing productivity (20.2 per cent) followed by increased competition and enterprise agreements (10.3 per cent).

A4 Industry profiles for the surveyed industries

This appendix presents information relating to the performance and characteristics of the industries included in the agri-food case study. Broad information covering the size of the agri-food sector and the industries selected for the BIE survey was set out in chapter 2. The information reported here focuses on industry performance over the period 1989-90 to 1992-93 (latest available). The industries profiled in this appendix are:

- Meat processing;
- Milk and cream processing;
- Dairy product manufacturing nec;
- Fruit and vegetable processing;
- Flour mill product manufacturing;
- Cereal food and baking mix manufacturing;
- Sugar manufacturing;
- Confectionery manufacturing;
- Prepared animal and bird feed manufacturing;
- Food processing machinery manufacturing;
- Packaging; and
- Fruit and vegetable wholesaling.

The relative sizes of these industries in terms of turnover, employment, exports and imports are summarised in table A4.1. Where possible, we have also included information on government assistance for the industries (table A4.2), their cost structures (table A4.3) and the proportion of turnover spent on environmental protection (figure A4.2).

A4.1 Meat processing

The largest of the agri-food industries selected for the survey is the Meat processing industry, accounting for 16.7 per cent of agri-food turnover and 18.6 per cent of employment in 1992-93 (table A4.1). The industry also made the largest contribution to agri-food exports (45.6 per cent), with almost three-quarters of the industry's turnover coming from sales to overseas customers (table A4.2). By contrast, very few meat products are imported, with imports contributing only 2.2 per cent of total domestic sales (that is, turnover less exports plus imports).

Despite its importance, the Meat processing industry lost ground relative to the other agri-food industries in the three years to 1992-93. For example, the level of turnover generated by the industry fell in the three years to 1992-93, despite the rising level for the sector as a whole. The result was a fall in the industry's share of total agri-food turnover. Similarly, slower-than-average growth resulted in declining shares of employment, exports and imports. Moreover, growth in turnover per employee was slower than that for the agri-food sector and total manufacturing (figure A4.1). Between 1989-90 and 1992-93, turnover per employee for firms in the Meat processing industry grew by 13.5 per cent (current prices) to $208.60.

The impact of micro reforms on the industry are likely to vary. A report by the Industry Commission (IC 1994) identified labour issues as a major area in need of reform within the industry. After primary products, labour costs are the single largest direct input for meat processing firms, accounting for 11.17 per cent of all direct input costs in 1989-90.

The IC inquiry found the award system to be an impediment to increasing the competitiveness of the industry. For example, employment in the industry relied on a daily hire system, with advancement based on seniority, which provided little incentive for workers to upgrade their skills, thereby increasing productivity. Similarly, the complexity of the tally system, which included high penalties for exceeding daily processing minimums, also lowered incentives to improve work practices and productivity. The IC concluded that the introduction of enterprise bargaining agreements could bring about significant productivity gains, with benefits for workers, producers, processors and consumers. A recent report by Fellows Medlock and Associates on workplace reform in the export meat processing sector shows that little progress has been made to date in addressing these problems (Fellows Medlock and Associates 1995).

Unlike labour reform, amendments to tariffs and statutory marketing arrangements (SMAs) are expected to have limited effect as the industry's outputs and inputs receive little government assistance (table A4.2). However, infrastructure reform

could impact on the industry's cost structure, especially in the area of road transport where road freight inputs represent 5.27 per cent of direct input costs and infrastructure services account for 6.96 per cent of total direct input costs. Compared with agri-food firms and manufacturers in general, firms processing meat products spend relatively little on environmental protection, less than 0.2 per cent of turnover in 1992-93 (figure A4.2).

A4.2 Milk and cream processing

The Milk and cream processing industry was one of the fastest growing in the agri-food sector between 1989-90 and 1992-93. For example, the industry's share of agri-food turnover rose almost one percentage point to 7.0 per cent while its share of value added rose from 4.5 to 5.4 per cent. At the same time, the industry's share of employment remained relatively unchanged, suggesting an improvement in labour productivity (table A4.1). Indeed, turnover per employee increased by 30.6 per cent (current prices) over the period, well above the average for agri-food firms and manufacturers in general (figure A4.1).

All states have announced programs for the phased reduction of the control of retail pricing, distribution and sourcing of liquid milk. For example, Victoria and South Australia removed post-processor price controls in January 1995, bringing them into line with Western Australia and Tasmania. Similar changes in Queensland and New South Wales will not take place until the end of 1998.

This deregulation has encouraged the rationalisation of the Australian dairy industry, with National Foods, Australian Co-operative Foods Limited and Q.U.F. Industries Limited emerging as three of the major players. The result is a national rather than a state focus in marketing branded milk products, promoting a more efficient industry and significant growth in the volume and value of milk production (Gleeson and Abdulla, 1996).

Despite these improvements, it is unclear what impact deregulation has had on the price of processed milk and cream products. Data on price distortions show that between 1989-90 and 1993-94, the price distortion for market milk more than doubled (table A4.2), reflecting the maintenance of fresh milk prices relative to falling manufactured milk prices. Data from some state dairy authorities show that although market milk prices have risen since deregulation, the return to dairy farmers has not changed. The exception is Victoria. In February 1993, 44 per cent of the price of a litre of white milk went to dairy farmers. By May 1995, this share had fallen to 39 per cent (VDIA 1995).

Data on cost structure refer to the dairy industry generally and therefore include those firms in the Dairy product manufacturing nec industry (discussed below). After primary products, the industry's major direct inputs include labour and other services ($8.90 and $8.13 respectively for every $100 of factory gate output). By contrast, infrastructure services account for a relatively small proportion of direct costs (4.24 per cent), although over half of this is spent on road transport services ($2.71). Environmental protection costs are relatively important for milk and cream processors, accounting for 0.37 per cent of turnover in 1992-93 (figure A4.2).

A4.3 Dairy product manufacturing nec

This industry experienced very little change in the three years to 1992-93 in terms of its share of agri-food turnover, employment and imports (table A4.1). These shares remained stable at 6.5, 4.1 and 6.0 per cent respectively. Similarly, growth in turnover per employee was close to the agri-food average (figure A4.1).

Unlike the Milk and cream processing industry which has a very low level of participation in international trade (that is, it is essentially a non-traded industry), the Dairy product nec industry is export-oriented, with 46.9 per cent of its turnover coming from sales to overseas customers (table A4.2). The industry also accounted for 12.2 per cent of total agri-food exports in 1993-94, up from 10.0 per cent in 1989-90.

Falling prices for manufactured milk resulted in lower price distortions for manufactured dairy products such as butter, cheese and milk powders (table A4.2). However, the nominal assistance provided to the industry's inputs and outputs remains high relative to FBT as a whole, particularly for butter.

In July 1995, a new system of export rebates was introduced for dairy products. Previously, a tax was levied on all milk received from farmers for processing. These funds were then used to subsidise exports of manufactured dairy products. Under the new system, taxes are levied on individual dairy products. To encourage exports, a rebate is provided if these products are sold on overseas markets.

The cost structure for firms in the Dairy products nec industry are similar to those in the Milk and cream processing industry. However, compared with milk and cream processors, firms manufacturing other dairy products spend comparatively less on environmental protection, (figure A4.2).

A4.4 Fruit and vegetable processing

The Fruit and vegetable processing industry accounted for less than 7 per cent of agri-food turnover, employment and exports in 1992-93 (table A4.1). Moreover, there was little change in these shares since 1989-90. Despite this, turnover per employee by firms in the industry rose by 27.1 per cent (current prices) over the period, above the average for both the agri-food sector and total manufacturing (figure A4.1).

Almost 20 per cent of agri-food imports in 1993-94 were processed fruit and vegetable products, such as canned fruit and vegetables, jams and fruit juices. This is not surprising given the trade orientation of firms in the industry. Compared with most agri-food industries, this industry is characterised by a high degree of import penetration and a low export propensity (table A4.2). In other words, it is an import-competing industry.

Overall, the industry has enjoyed relatively high levels of protection compared with agri-food industries generally, mainly in the form of tariffs (table A4.2). However, this masks the differing levels of protection afforded products within the industry. For example, processed fruit enjoyed nominal assistance of 13 per cent in 1989-90, compared with only 7 per cent for processed vegetables. Tariff reductions made the largest impact on assistance levels for processed fruit (such as fruit juices, preserved fruit and tomato products), down three percentage points to 10 per cent by 1993-94. By contrast, the level of assistance for processed vegetables did not change.

Over $15 of every $100 of factory gate output is spent on wages, salaries and supplements, suggesting workplace reforms may also have a significant impact on the industry's costs. Primary products are another substantial input undergoing change during 1989-90 and 1993-94, with reforms to SMAs for products such as citrus fruit and dried vine fruit. Moreover, other food products account for 3.71 per cent of total direct input costs, reflecting the relative importance of sugar in fruit and vegetable processing (table A4.3). Therefore, changes to sugar regulation and prices (discussed below) may be important. Environmental protection is also an important consideration for firms in this industry. In 1992-93, fruit and vegetable processors committed almost 1.0 per cent of their turnover to environmental protection, more than three times the average for agri-food firms and manufacturers in general (figure A4.2).

A4.5 Flour mill product manufacturing

Like the Milk and cream processing industry, the Flour mill product industry has very low volumes of exports and imports and is therefore, for this study, classified as a non-traded activity. In 1993-94, the industry accounted for less than 1 per cent of total agri-food exports and imports. As evident from table A4.1, the industry also made only small contributions to agri-food turnover, employment and value added (less than 4 per cent).

Despite its relatively small size, the industry contributed to growth in agri-food employment, turnover and value added over between 1989-90 and 1992-93. Over this period, the Flour mill product industry was one of few agri-food industries to increase employment, up 5.9 per cent (or 167 persons). Similarly, better-than-average growth in turnover and value added means the industry accounted for 9.2 and 11.7 per cent respectively of total growth for the agri-food sector, well above its shares of turnover and value added. It was also one of four agri-food firms whose turnover per employee recorded stronger growth than the agri-food and total manufacturing averages (up 22.9 per cent to $414.90, figure A4.1).

The inclusion of this industry in the case study facilitates analysis of a chain of related industries. For example, the industry's output is an important input to the Cereal food and baking mix industry. Moreover, there have been significant changes to the SMAs for wheat, the industry's major primary input. For example, trading on the domestic market has been largely deregulated in all states except Western Australia where the Grain Pool has sole domestic and export marketing rights. Prior to July 1989, the Australian Wheat Board (AWB) had sole responsibility for marketing Australia's domestic and export wheat. Growers now have the option of selling to the AWB (which controls Australian wheat exports) or selling it to a domestic marketer (including the AWB) for consumption in the domestic market.

Prior to 1989-90, the Flour mill product industry was penalised by the assistance arrangements for wheat and other inputs. The 5 per cent nominal assistance afforded to the industry's outputs was more than offset by the 'taxing' effect of assistance provided to other industries supplying it with inputs. However by 1989-90, the nominal assistance for the industry's inputs was almost zero. Similarly, the nominal assistance on outputs fell over the period. Since 1989-90, the level of assistance received by the industry has been negligible.

Compared with most agri-food industries, rail transport is an important component of the cost structure of firms in the industry. Much of the grain used by the industry is transported by rail, which accounts for $3.13 of every $100 of factory gate

output. Between 1991-92 and 1993-94, grain freight charges fell by 1.3 per cent (in real terms), lowering the input costs of firms in the industry. In 1992-93, firms in the industry spent 0.3 per cent of their turnover (or $3.4 million) on environmental protection, which is consistent with the industry average.

A4.6 Cereal food and baking mix manufacturing

Between 1989-90 and 1993-94, the Cereal food and baking mix manufacturing industry doubled its share of total agri-food exports. Between 1989-90 and 1992-93, the industry also experienced a rise in its share of agri-food value added. Despite this better-than-average performance, the industry's share of turnover, employment and imports did not change, remaining below 5 per cent (table A4.1). Similarly, growth in turnover per employee for the industry was five percentage points slower than that for agri-food firms in general, although the level remains relatively high at $263.10 in 1992-93.

One explanation for the rapid export growth was the change in government assistance arrangement affecting the industry over the late 1980s. The nominal rate of assistance applying to inputs for the Cereal food and baking mix industry fell dramatically, down from 26 per cent in 1983-84 to 11 per cent in 1989-90. Over the same period, the nominal rate of assistance for outputs also fell, although by a lesser amount. The lower levels of assistance on the industry's inputs may have helped to increase the competitiveness of Australian cereal foods and baking mixes in international markets. Since 1989-90, there has been no change in the levels of assistance provided to the industry.

As evident from table A4.3, the industry uses a range of primary sector inputs which have SMAs which have been, or are currently, the subject of review. In addition to the changes to wheat (outlined above), the market arrangements for sugar (discussed below), other grains, and eggs have also been rationalised. For example the egg industry was deregulated (to varying degrees) in all states. Compared with most agri-food firms, the industry spends very little on environmental protection which accounted for less than 0.1 per cent of the industry's turnover in 1992-93 (figure A4.2).

A4.7 Sugar manufacturing

This industry covers the manufacture of raw and refined sugar, which are important inputs to other agri-food industries, for example, Cereal food and baking mix and Confectionery. Although 80 per cent of Australia's raw sugar is exported, most

refined sugar is used for domestic purposes. Overall, 12.1 per cent of all agri-food exports in 1993-94 were manufactured sugar products (table A4.1). However, this is down from almost 15 per cent in 1989-90. Similarly, this industry's shares of agri-food turnover, employment and value added fell in the three years to 1992-93. Following this trend, the Sugar manufacturing industry recorded relatively slow growth in turnover per employee over the period, up 7.4 per cent (current prices) to $309.60 (figure A4.1). Over the same period, the industry's share of imports remained stable.

Compared with some other agri-food industries, the sugar industry is highly regulated, with the Queensland Sugar Corporation (QSC) controlling the acquisition and distribution of most of Australia's sugar crop. According to an IC report on the sugar industry (IC, 1992), SMAs applied to sugar restrict competition and reduce incentives for businesses to be innovative.

In July 1989, the sugar industry was partially deregulated. The main changes were:

- the embargo on sugar imports was replaced with a tariff on raw and refined sugar;[1]
- toll refining arrangements ceased. Prior to this, the Sugar Board contracted domestic refineries to process raw sugar on a toll basis; and
- CSR was reappointed as the sole export marketing agent for a period of three years.

Further changes were made in July 1991 when the Queensland government introduced the Sugar Industry Act 1991. Under the Act, the marketing and production responsibilities were brought together under the control of the QSC. Its powers include setting prices, assigning land for sugar production and compulsory acquisition of all raw sugar produced in Queensland (comprising about 95 per cent of total Australian production).

Following the 1992 review of the industry by the Industry Commission, the Federal and Queensland governments announced the 'Agreed Sugar Package' in February 1993. Key elements of the package included:

- the retention of the sugar tariff at the current level ($55 per tonne) for a minimum of three seasons, with a review of the tariff commencing 1995-96;

[1] The tariff was initially set at $115 per tonne, reduced to $76 per tonne in 1991 and to the current level of $55 per tonne in 1992. It will remain at this level until July 1997.

- continuation of the single desk selling arrangements for the domestic and export markets, with a review to take place in 1996;
- provision for changes to the quantity of land assigned to sugar production. Expansion decisions to be channelled through of the QSC, the Sugar Industry Policy Council and the Queensland Minister of Primary Industries; and
- changes to the two pool pricing arrangements to improve market signals. (However, as a differential continues to exist between pools, industry expansion may be impeded.)

Despite these changes, there are still considerable price distortions for raw and refined sugar sold on the domestic market. That is, Australian manufacturers using sugar as an input are still paying higher than world prices. Between 1989-90 and 1992-93, the level of the distortion fell from 23 per cent to 13 per cent. However, in 1993-94, the price distortion rose again, the result of a fall in the world price for sugar. To partially offset the relatively high prices for Australian refined sugar, manufactured exports which contain a high proportion of sugar are given a rebate. This is given by the refiner who then applies to the QSC for reimbursement.

The assistance arrangements for the sugar industry are currently the subject of review by a working party jointly convened by the Commonwealth and Queensland governments.

A4.8 Confectionery manufacturing

Like the Flour mill product industry, employment in the Confectionery manufacturing industry rose between 1989-90 and 1992-93 (averaging 0.4 per cent each year). The industry also experienced modest increases in turnover and value added over the period, although its shares of turnover and value added did not change. As a result, growth in the industry's turnover per employee was slow compared with agri-food firms in general, rising by 12.1 per cent (current prices) to $167.50 (figure A4.1).

Although growing from a very small base, exports of confectionery products recorded average growth of 36.3 per cent each year (current prices) between 1989-90 and 1993-94. As a result, the industry's share of agri-food exports rose from 1.0 to 1.8 per cent over the period. The Confectionery industry, historically protected by high tariffs, is an import-competing agri-food industry subject to phased reductions in its level of assistance. Between 1989-90 and 1993-94, the nominal rate of assistance afforded to outputs of the industry fell by five percentage points, while its effective rate of assistance fell 7 percentage points. The fall in tariff

protection was accompanied by a rise in imports (up 6.9 per cent). However, the industry's share of total agri-food imports actually fell over the period, indicating the industry competes well with imports relative to other import-competing agri-food industries.

The data in table A4.3 indicate that dairy products and other food products make important contributions to the costs of confectionery manufacturers. Therefore, any changes to prices of these inputs may have a significant impact on firms manufacturing confectionery products.

Labour is an important input into the confectionery manufacturing process, accounting for $18.26 for every $100 of factory gate output. By contrast, infrastructure services play only a small role in the direct costs of firms, accounting for only 3.26 per cent of total input costs. This is the smallest contribution made by infrastructure services to agri-food production. Of these infrastructure services, road transport plays the largest role. Firms in the industry also made the smallest contribution to environmental protection. In 1992-93, expenditure on environmental protection accounted for only 0.05 per cent of turnover (figure A4.2).

A4.9 Prepared animal and bird feed manufacturing

This industry has recorded some positive growth over the three years to 1992-93, increasing its share of agri-food turnover from 4.8 per cent to 5.2 per cent over the period. At the same time, its share of employment remained stable, suggesting an improvement in labour productivity over the period. Indeed, the industry's turnover per employee recorded very strong growth over the period, second only to that achieved by the Milk and cream processing industry (figure A4.1).

Like many in the agri-food sector, the industry is export-oriented, with exports comprising 20.9 per cent of industry turnover. Exports of prepared animal and bird feed products recorded strong growth between 1989-90 and 1993-94, increasing the industry's share of agri-food exports from 3.0 per cent to 4.3 per cent. By contrast, imports remained unchanged (at 1.9 per cent) over the period, while the industry's share of value added actually fell.

Like manufacturers of milk and cream, the Prepared animal and bird feed industry is somewhat penalised by the assistance regime. In 1993-94, the effective rate of assistance for the industry was -2 per cent, down from -4 per cent in 1989-90. The industry's outputs receive little Commonwealth government assistance, while the nominal rate of assistance applying to inputs was 1 per cent in both 1989-90 and 1993-94.

Reforms to environmental regulations may not have a large impact on firms in this industry. In 1992-93, firms in industry committed only 0.1 per cent of their turnover to expenditure on environmental regulation, less than half that for agri-food firms generally (figure A4.2).

A4.10 Food processing machinery manufacturing

The Food processing machinery manufacturing industry provides an important input for agri-food manufacturers. Products made or assembled by the industry range from highly-specialised, purpose-built or purpose-modified machinery (used in large production line processes) to standardised machinery such as the ovens used by retail bakery and pizza shops and the machinery used by meat processors. Machinery assembled by industry is often sourced from imported components.

Given the specialised nature of the machinery, it is not surprising that the fortunes of the industry are tied to activity in the agri-food sector. That is, the demand for food determines the demand for food processing machinery. Between 1989-90 and 1992-93, turnover in the industry fell on average by 15.5 per cent (current prices) each year, the result of little new capital expenditure by FBT manufacturers. Over the same period, employment in the industry fell on average by 13.7 per cent each year. Not surprisingly, turnover per employee fell over the period, down 5.8 per cent (current prices) to $118.60 (figure A4.1).

Imports rose by 5.3 per cent (current prices) each year between 1989-90 and 1993-94, as the tariffs protecting the industry continued falling. Between 1983-84 and 1989-90, the industry was subject to a period of considerable adjustment. For example, the effective rate of assistance for the industry fell from 22 to 17 per cent. The effective rate of assistance fell a further 5 percentage points between 1989-90 and 1993-94, increasingly exposing the industry to international competition. Declining assistance to the industry's outputs was partially offset by a reduction in the tariffs on the industry's inputs.

The industry has been able to increase its exports, up 15.0 per cent each year (current prices) between 1989-90 and 1993-94, although from a small base. Much of this export growth has benefited from strong demand growth from expanding South East Asian countries. Data on the trade orientation of the industry indicate that although the industry is generally referred to as import-competing (imports account for almost 80 per cent of domestic sales), exports comprise almost half of industry turnover (table A4.2).

Compared with manufacturing establishments in general, firms manufacturing food processing machinery spend very little on environmental protection. In 1992-93, expenditure on environmental protection accounted for 0.1 per cent of turnover for firms in the Food processing machinery industry, compared with 0.4 per cent for manufacturers in general.

A4.11 Packaging

A major component of most agri-food products is packaging. The Packaging industry is extremely diverse and comprises many different forms of packaging activities. For our survey, we have included those firms involved in manufacturing plastic, paper and metal packaging products.

The products in the industry are exposed to differing levels of international competition, influenced by the nature of the product, the competitive position of Australian industry and the extent of protection provided by government to local industry. The bulky nature and low unit value of most packaging products means trade in these products is relatively low. The data in table A4.2 show that exports accounted for only 3.2 per cent of turnover in 1992-93, while imports accounted for 13.1 per cent of domestic sales. Flexible packaging and abrasive paper products had a nominal rate of assistance of 14 per cent in 1989-90, compared with 16 per cent for paper bags and solid fibreboard containers. By 1993-94, these levels of assistance had fallen to 10 and 11 per cent respectively.

Turnover by firms in the industry rose on average by 6.6 per cent (current prices) each year over the period 1989-90 to 1992-93. Packaging companies have increased their share of packaging output. Packaging manufacturing is capital intensive, involving considerable fixed costs and state of the art technology. The growth in the packing industry's turnover was accompanied by a fall in employment, suggesting improved labour productivity. Perhaps reflecting this, growth in turnover per employee was above the total manufacturing average, rising by 22.2 per cent (current prices) to $214.30 (figure A4.1).

A4.12 Fruit and vegetable wholesaling

In 1992-93, turnover by fruit and vegetable wholesalers (which includes firms that wholesale, wash and pack fresh fruit and vegetables) was valued at $2.9 billion, and employed 8700 people. In terms of turnover, the Fruit and vegetable wholesaling industry is roughly the same size as the Milk and cream processing industry.

According to IBIS (IBIS 1996), the industry has been growing strongly over the past decade for a number of reasons. Firstly, there has been an increase in fruit and vegetable consumption associated with population growth. Secondly, there has been an increase in the range and availability of fruit and vegetables. Thirdly, there has been increased concern about nutrition and diet culminating in higher per capita consumption of fresh fruit and vegetables. Partially offsetting this growth is the move by major supermarkets and grocery chains to deal directly with growers, bypassing fruit and vegetable wholesalers.

Table A4.1 The relative importance of the agri-food survey industries in the food and beverages sector: 1992-93

Industry	*Turnover*		*Employment*		*Exports*[a]		*Imports*[a]	
	$ million	*percentage*	*employees*	*percentage*	*$ million*	*percentage*	*$ million*	*percentage*
Meat processing	6037.7	16.7	29071	18.6	4681.5	45.6	57.8	2.1
Milk and cream processing	2519.4	7.0	6386	4.1	45.0	0.4	8.0	0.3
Dairy product manufacturing nec	2336.0	6.5	6422	4.1	1254.6	12.2	155.2	5.5
Fruit and vegetable processing	2451.8	6.8	10295	6.6	415.6	4.1	530.7	18.9
Flour mill product manufacturing	1209.7	3.3	2967	1.9	30.8	0.3	0.5	0.0
Cereal food and baking mix manufacturing	1425.0	3.9	5496	3.5	491.7	4.8	75.1	2.7
Sugar manufacturing	1891.4	5.2	5903	3.8	1241.4	12.1	9.3	0.3
Confectionery manufacturing	1162.2	3.2	6892	4.4	187.2	1.8	213.9	7.6
Prepared animal and bird feed product mfg	1879.4	5.2	4422	2.8	308.0	3.0	54.3	1.9
Total food and beverages	**36189.6**	**100.0**	**156483**	**100.0**	**10261.7**	**100.0**	**2803.0**	**100.0**
Food processing machinery manufacturing[b]	308.8	0.2	1545	0.2	82.5	0.2	319.5	0.5
Packaging[b]	4686.7	2.8	25684	2.5	220.0	0.6	888.5	1.5
Fruit and vegetable wholesaling	2897.0	na	8714	na	na	na	na	na

a These data relate to 1993-94. **b** Percentage shares for these industries relate to total manufacturing in 1992-93. **na** Not available.
Sources: ABS (1996a), IBIS Business Information (1996) and DFAT STARS database (1996).

Table A4.2 Broad trade classification, price distortions and nominal rates of assistance for agri-food survey industries

Industry	*Export propensity*[a]	*Import penetration*[b]	*Price distortions for agricultural products*[c]		*Nominal rate of assistance on outputs*[d]		*Nominal rate of assistance on inputs*[d]	
			1989-90	*1993-94*	*1989-90*	*1993-94*	*1989-90*	*1993-94*
Meat processing	72.5	2.2	na	na	..	..	..	..
Milk & cream processing	1.3	0.2	36	83	10	10	16	16
Dairy product mfg nec	46.9	11.2						
Butter			17	14	18	21	19	21
Cheese			13	9	13	13	14	16
Milk products nec			na	na	10	11	18	11
Fruit & vegetable processing	14.9	18.7	na	na	10	8	8	5
Flour mill product manufacturing	2.6	0.0						
Flour mill products			na	na	..	..	..	..
Starch, gluten & starch sugars			na	na	3	2	1	1
Cereal food & baking mix mfg	24.8	6.6	na	na	9	9	11	10
Sugar manufacturing	53.3	0.9	23	19	5	6	15	10
Confectionery manufacturing	10.4	16.1	na	na	16	11	10	8
Prepared animal & bird feed mfg	20.9	2.6	na	na	..	..	1	1
Food processing machinery	49.5	77.9	na	na	12	8	10	5
Food packaging	3.2	13.1						
Paper bags			na	na	16	11	10	7
Solid fibreboard containers			na	na	16	11	7	5
Corrugated fibreboard containers			na	na	15	10	10	6
Metal containers			na	na	14	10	10	5
Flexible packaging & abrasive papers			na	na	14	10	12	7
Total survey coverage	**30.1**	**10.4**	**na**	**na**	**5**[e]	**5**[e]	**6**[e]	**5**[e]

a Industry exports as a share of industry turnover. **b** Industry imports as a share of domestic turnover (that is, turnover less exports plus imports). **c** The price distortion is the proportional difference between the assisted price of a commodity and the price that would prevail without assistance. **d** The nominal rates of assistance for 1989-90 and 1993-94 are based on 1989-90 production patterns and materials to output ratios. **e** Estimates relate to FBT industry. **..**Estimates between -0.5 and 0.5 per cent. **na** Not available.

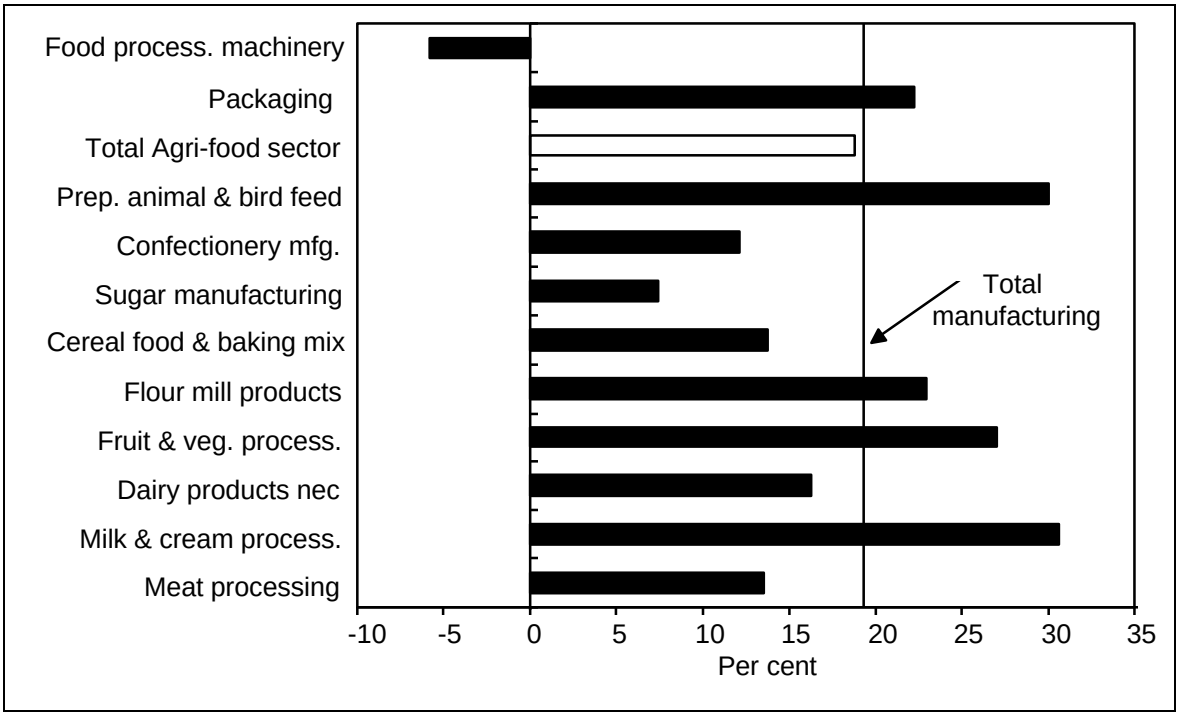
Sources: ABS (1996a) DFAT STARS database (1996), IC (1995a) and IC (1995b).

Table A4.3 Total share of direct agri-food input costs in the cost of agri-food industries' output, 1989-90

Industry	*Meat and meat prods mfg*	*Dairy prods mfg*	*Fruit and vegetable processing*	*Oil and fat mfg*	*Flour mill and cereal food mfg*	*Bakery prod mfg*	*Confection-ery mfg*	*Other food mfg*	*Beverages and malt mfg*
Meat products	5.74	0.01	1.75	3.91	0.02	2.34	0.01	3.42	0.01
Dairy products	0.10	16.93	0.59	1.13	0.15	2.87	4.03	0.16	0.13
Fruit & vegetable products	0.00	0.07	10.59	0.02	0.25	0.56	0.63	0.05	1.09
Oil & fat manufacturing	0.00	0.00	0.29	27.93	0.12	0.70	0.18	0.69	0.00
Flour mill & cereal food manufacturing	0.12	0.09	1.91	0.18	7.44	13.52	3.07	0.71	0.28
Bakery products	0.00	0.01	0.04	0.01	0.11	0.45	0.25	0.01	0.02
Confectionery mfg	0.00	0.22	0.00	0.01	2.18	3.38	5.62	0.09	0.00
Other food products	0.33	0.59	3.71	3.25	1.39	4.57	4.08	11.76	4.02
Beverages & malt	0.04	0.02	2.90	0.19	0.25	0.04	0.44	0.18	4.54
Total Agri-food	**6.33**	**17.95**	**21.79**	**36.63**	**11.91**	**28.43**	**18.32**	**17.07**	**10.09**

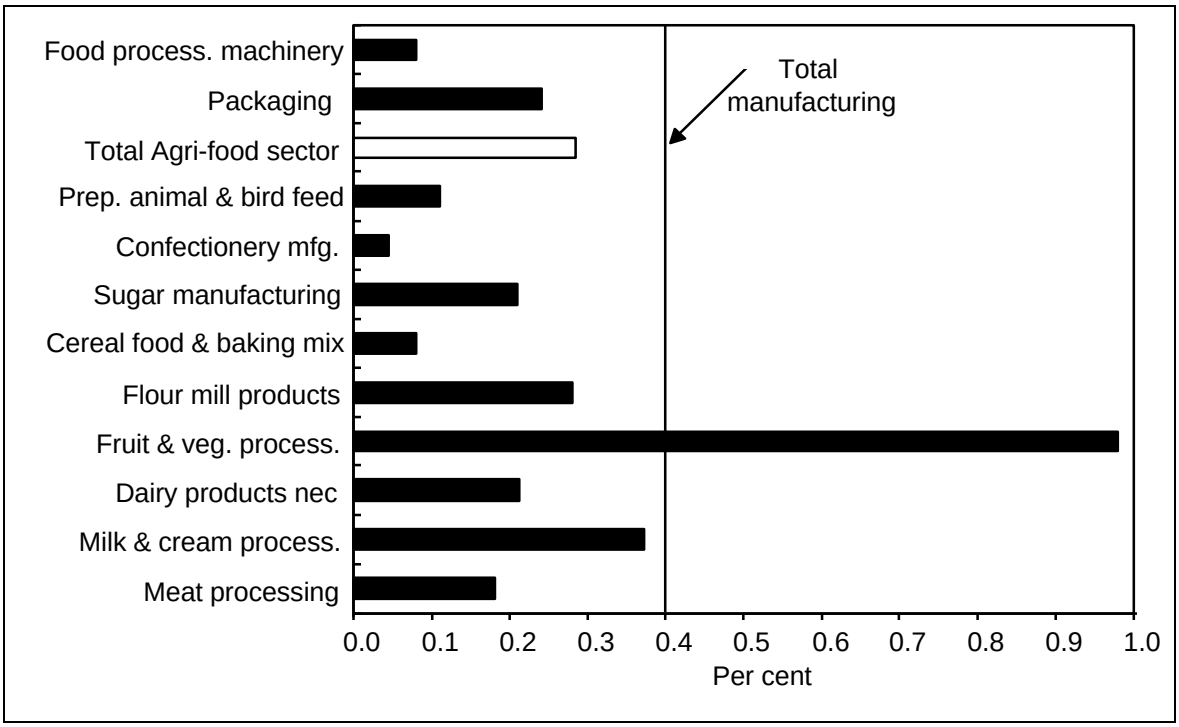
Source: BIE estimates based on ABS (1994a, b).

Figure A4.1 Growth in turnover per employee, 1989-90 to 1992-93



Data source: ABS (1996a).

Figure A4.2 Proportion of turnover spent on environmental protection



Data source: ABS (1996a).

A5 Impacts of micro reform at the industry level

The agri-food survey asked firms to indicate the impact of a number of microeconomic reforms on the competitiveness of their businesses over the period 1989-90 to 1993-94. A broad summary of the results for the surveyed industries as a whole was outlined in chapter 3.

This appendix provides a summary of the firm level perceptions covering key microeconomic reforms for the twelve industries included in the survey. Firms' perceptions largely represent their views about the direct, or first round impacts of micro reforms. Later round impacts may not be as readily discernible by firms. Industry level results are presented for five broad categories of reform:

- Tariffs and statutory marketing arrangements (section A5.1);
- Selected infrastructure service reforms (section A5.2);
- Industrial relations reforms (section A5.3);
- Regulatory reforms (section A5.4); and
- Input taxes and on-costs (section A5.5).

A5.1 Tariffs and statutory marketing arrangements

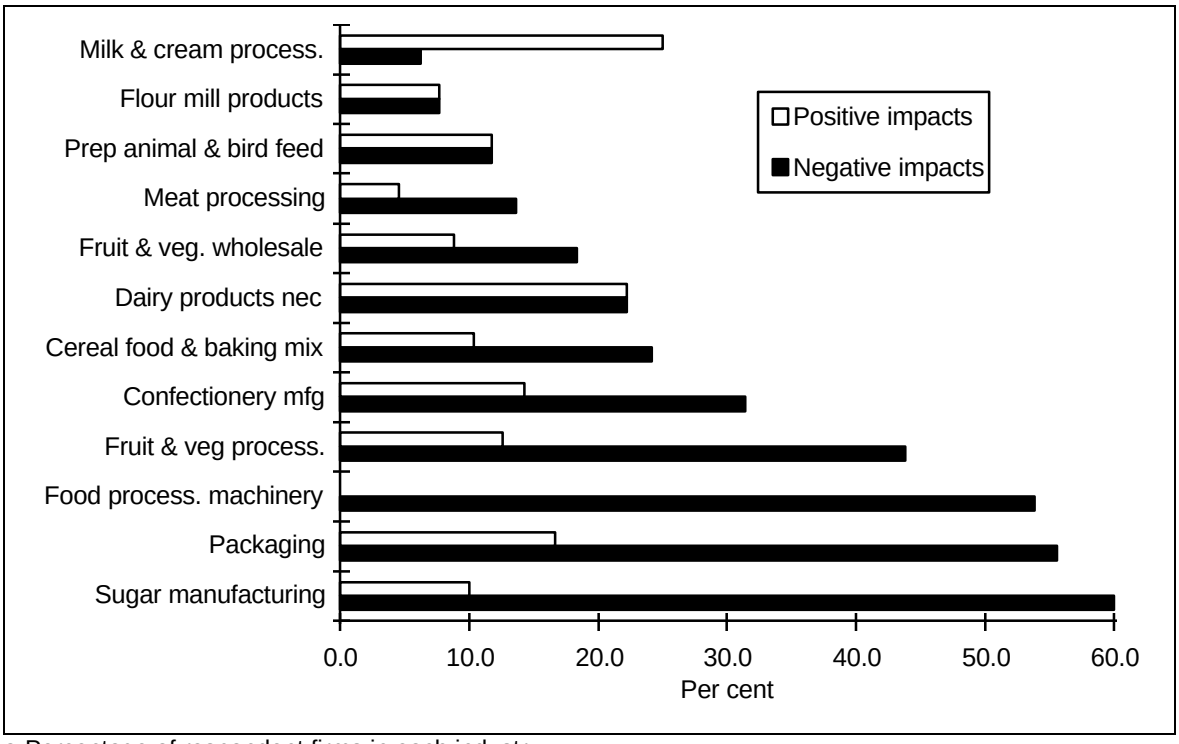
Reforms to tariffs have been designed to reduce the level of assistance provided to import competing industries, including those in the agri-food group of industries. To an extent, the reduced tariffs will have a positive effect on the prices paid for intermediate inputs. Reforms to statutory marketing arrangements (SMAs) have tended to improve access to and prices paid for primary inputs used by agri-food industries (refer to chapter 2 and appendix 4).

Tariff reductions

More firms reported that tariff reductions had negative impacts (25 per cent of all respondent firms) on competitiveness than positive impacts (10 per cent). Thus, the negative impact of reduced prices on outputs were judged by more firms to outweigh the positive impacts of reducing the implicit tax on inputs used by firms (refer to figure A5.1). When fruit and vegetable wholesale firms are removed from the survey aggregate, the overall negative impact of tariff reform is greater by 3 per cent.

As expected, the negative effects of tariff reductions have been more widely spread amongst firms in import competing industries such as Packaging, Food processing machinery, Fruit and vegetable processing, and Confectionery — and also Sugar manufacturing given the tariff associated with the domestic marketing arrangements (figure A5.1). Negative impacts ranged across firms in the order of 30 to 60 per cent for these industries. In comparison, less than 10 per cent of firms in the largely non-traded industries such as Milk and cream processing and Flour mill products reported that tariffs had a negative impact on their competitiveness.

Figure A5.1 Tariff reform impacts on the competitiveness of business—positive and negative, 1989-90 to 1993-94[a]



a Percentage of respondent firms in each industry.
Data source: BIE Agri-food survey 1995.

Firms in the Milk and cream processing and the Dairy products industries reported the most widespread positive impacts from tariff reductions (25 per cent and 22 per cent of firms respectively). For these firms, the reduction of tariff assistance on material inputs outweighed the loss in the competitiveness of outputs against competing imports. However, an equal number of dairy products firms reported that the converse situation applied with negative impacts outweighing positive impacts of tariff reductions.

The industries with the largest number of respondent firms reporting that tariff reductions had no impact on competitiveness were industries which tended to have a high proportion of input costs for materials from primary sources and were also non-import competing. For example, 77 per cent of respondent firms in the Flour milling industry reported no impact from tariff reforms. Primary products account for nearly 30 per cent of the cost of direct inputs for flour milling (BIE estimate based on ABS 1994a and 1994b). Similarly, primary products account for more than 56 per cent of the direct costs for the Meat processing industry where nearly 58 per cent of respondent firms reported no impact from tariff reductions. This also applies for Fruit and vegetable wholesaling, Prepared animal and bird food and Milk and cream processing — where more than 40 per cent of firms reported no impacts from tariff reductions.

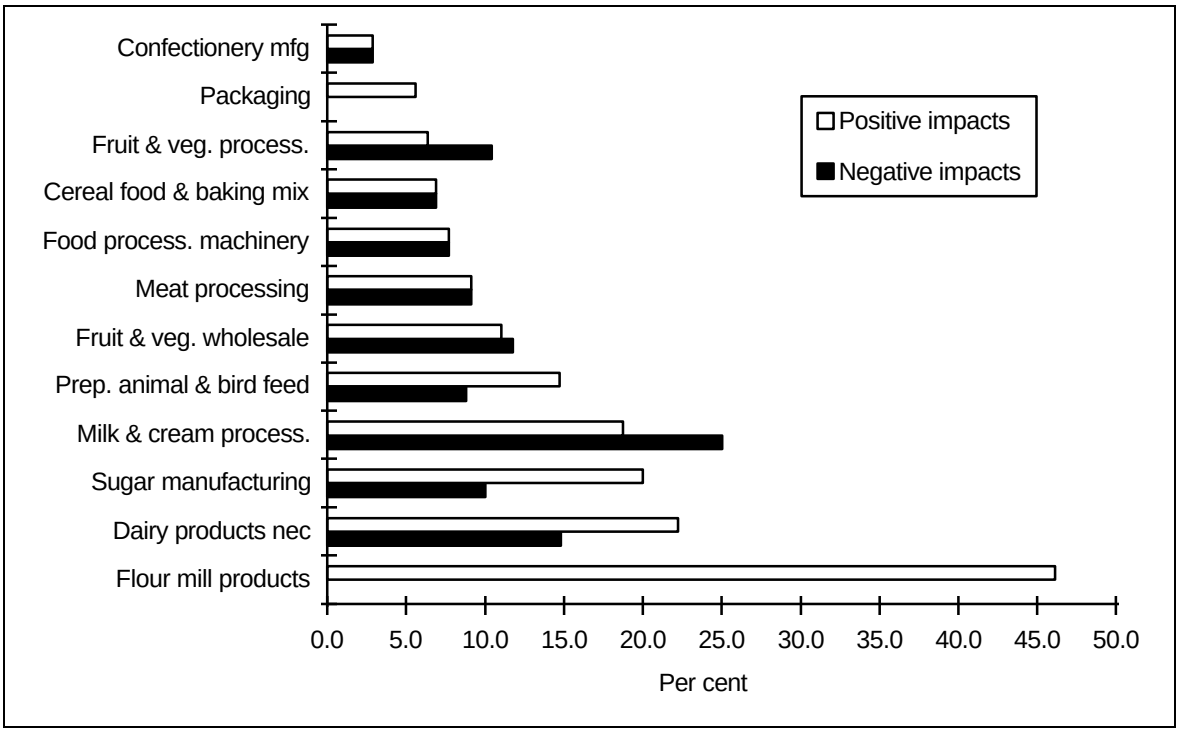
Reforms to statutory marketing arrangements

Reforms to SMAs primarily impact on the raw material inputs used by a select group of agri-food industries. These materials include milk, eggs, rice, sugar and sultanas. However, SMAs also apply to outputs of dairy products such as butter and cheese (refer to chapter 2 and appendix 4).

As might be expected, these reforms had impacts on a relatively small number of the total firms responding to the survey. Around 11 per cent of respondent firms reported positive impacts while 10 per cent of respondent firms reported negative impacts.

Firms in the Flour milling products industry reported the highest level of positive impacts from SMAs reform — 46 per cent of firms reporting positive impacts (refer to figure A5.2). The major national reform impacting on this industry was the removal of the Australian Wheat Board's monopoly powers over the marketing of wheat for the domestic market in 1989. Most current SMAs affecting this industry are local state arrangements (refer to chapter 2 and appendix 4).

Figure A5.2 SMAs reform impacts on the competitiveness of business — positive and negative, 1989-90 to 1993-94[a]



a Percentage of respondent firms in each industry.
Data Source: BIE Agri-food survey 1995.

Firms in the Milk and cream processing industry and the Dairy products industry also reported impacts from reforms to SMAs. Overall, 44 per cent of milk and cream firms reported impacts on their competitiveness — 25 per cent reporting negative impacts and 19 per cent reporting positive impacts. In contrast, more firms in the dairy products industry reported positive impacts (22 per cent) than negative impacts (15 per cent).

The major reforms concerning firms in the Milk and cream and Dairy products industry are related to the state marketing arrangements for fresh milk and the Commonwealth arrangements for milk used in manufacturing dairy products (refer to chapter 2). Rationalisation of SMAs in order to reduce assistance to dairy farmers and lower the price of milk used in manufacturing would be expected to have positive impacts on the Dairy products and Milk and cream processing industries. However, the impacts of the rationalisation of SMAs on these two manufacturing industries is probably less clear than might be expected due to the ownership linkages between dairy farming and farmer owned cooperatives operating in the Dairy products and Milk and cream processing industries (refer to chapter 6). It is likely that the survey results reported above, to some extent at least, reflect this situation.

In sharp contrast to their responses to the impact of tariff reform on their competitiveness, only 3 of the 10 respondents from the sugar industry could identify a impact from changes to SMAs. Two of these firms considered the impact to be positive, the third firm perceived the impact to be negative. Reform to SMAs and related production controls include changes to the price differential between sugar pools, changes to the assignment system and removal of the tolling arrangements for refined sugar (refer to chapter 2 & appendix 4).

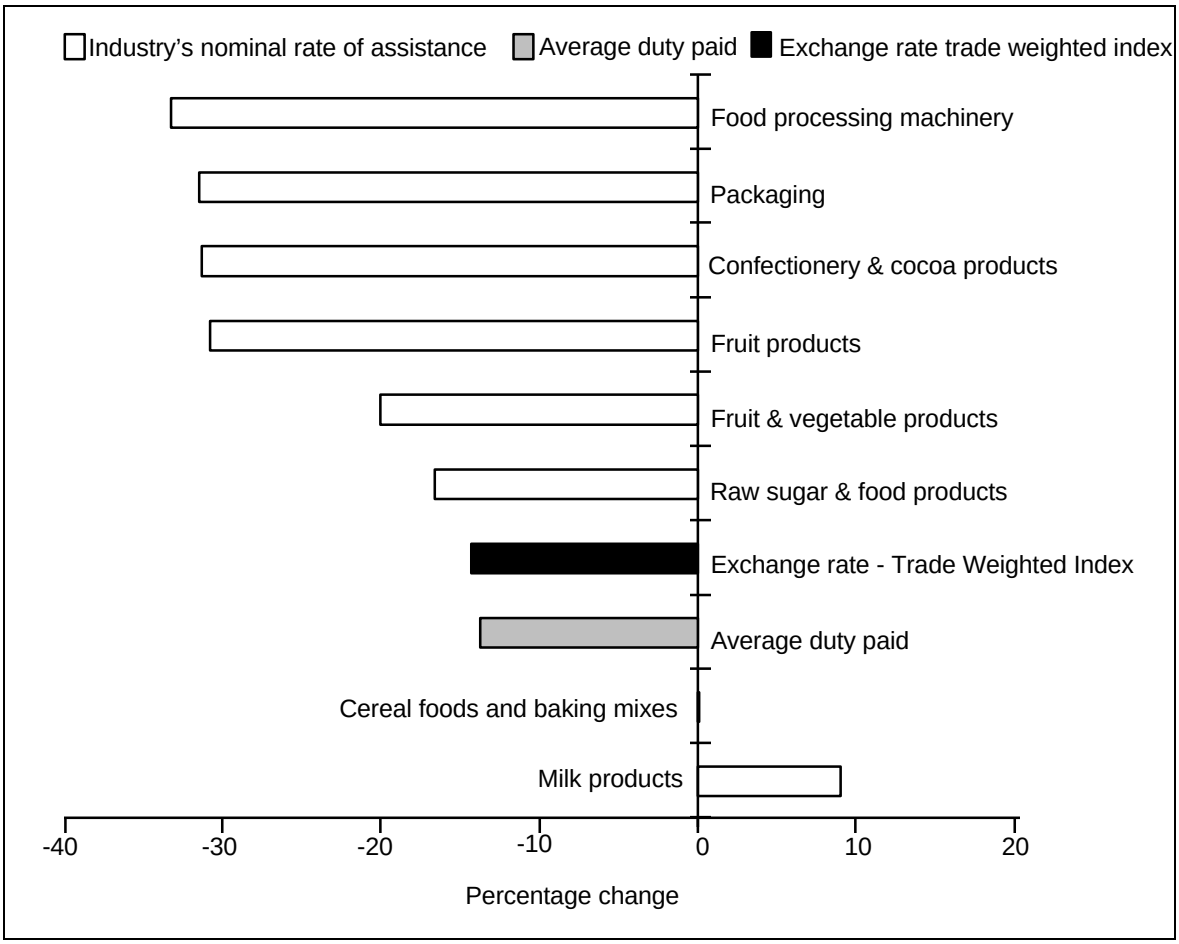
Only 3 per cent of Confectionery firms responding to the survey reported that they viewed reforms to SMAs as being positive for their operations — the lowest level of positive impacts for reforms to SMAs. This result reflects the higher than world market price paid by confectioners for sugar, an important input for confectionery production. A specific tariff rather than the more common ad valorum tariff applies to sugar imports (ie dollars per tonne rather than a percentage of the import price). The assistance afforded by a specific rate tariff moves inversely with changes in commodity prices. Therefore, as the world price for sugar has fallen, the disparity between the world sugar price and the price paid by Australian industries using sugar inputs has increased.

Offsetting impacts of changes in exchange rates and industry assistance

A depreciation of the exchange rate can reduce the pressure associated with tariff reductions by offsetting the downward pressure on the landed duty paid price of an import (BIE 1996a). There is some evidence to suggest that exchange rate movements may have had this dampening effect over the period 1989-90 to 1993-94. The extent of any dampening will largely depend on the relative magnitude of the tariff reduction and the depreciation. It is possible that in some industries or product groups the depreciation completely offsets the price effect associated with a tariff reduction, in other industries the dampening may only be partial.

The exchange rate (based on the trade weighted index) has depreciated over the survey period at about the same rate as the average duty paid for food, beverages and tobacco imports (see figure A5.3 below). However, because the nominal rates of assistance on output in the industries surveyed vary substantially we have found the dampening effect of the devaluation varied.

Figure A5.3 Changes in the exchange rate, duty paid and assistance on output, 1989-90 to 1993-94[a]



a Industries that have an insignificant rate of assistance (between 0 and 0.5 per cent) are not included. Packaging assistance represents a single average of the change in nominal rates of assistance for ASIC industries 2633, 2634, 3151 and 3471.
Data sources: IC (1995a), RBA (various issues).

Figure A5.3 compares the percentage change in nominal rates of assistance for industries with positive assistance on outputs between 1989-90 and 1993-94. We find that assistance reductions (as measured by the nominal rate of assistance on output) have decreased further than the fall in exchange rates for the Fruit and vegetable processing, Confectionery, Food processing machinery and Packaging industries. This suggests that the decline in assistance through tariffs is likely to have affected these industries more than Milk products and Cereal foods and Baking mixes industries. This largely reflects industry responses to our survey (with the exception of the Confectionery industry). For example, 72 per cent of packaging firms nominated tariff reductions as being important to a change in competition, compared to 38 per cent of firms in the Cereal foods and baking mixes industry. A much higher proportion of firms in these industries nominated tariff reductions on

competing imports as being a significant contributor to the change in the level of competition compared to other industries. Further, a substantially high proportion of firms in these tariff effected industries nominated changes in the level of import competition as being significant to the change in domestic competition. The more recent appreciation of the exchange rate will tend to enhance the price effects of tariff reductions.

A5.2 Selected infrastructure service reforms

As reported in chapter 2 and BIE 1996a, there have been many reforms to infrastructure service industries. The impact of these reforms vary across industries. Undoubtedly, the degree of impact reported is closely related to the extent to which firms directly use particular infrastructure service inputs.

As discussed in chapter 3, four infrastructure service reforms, including telecommunications, road freight, waterfront and electricity, were reported by firms responding to the survey as being amongst the five micro reforms with the largest positive impacts on their business.

Firms, in the main, reported that the other infrastructure reforms have had much smaller positive impacts on their competitiveness. Reforms in the areas of aviation, coastal shipping, rail transport, water supply and gas figured prominently as reforms reported as having no impact on the competitiveness of a large group of respondent firms — individually covering around 50 to 55 per cent of firms. Other firms recorded high levels of ‘not applicable’ and ‘don't know’ for these reforms.

However, even where a high proportion of firms reported that particular reforms had a positive impact on their competitiveness, there were also significant proportions of ‘no impact’ responses. For example, the infrastructure services reforms with the greatest positive impacts — telecommunications, road freight and electricity supply — were reported to have had no impact for more than 30 per cent of firms.

Telecommunications reform

Substantial reform of the telecommunications industry (referred to in chapter 2) has resulted in changes which have impacted broadly across firms in the agri-food and related industries. Telecommunications reform was viewed as the most effective reform overall with a positive impact reported by 46 per cent of firms, including a moderate to major positive impact for 10 per cent of firms. Despite the success of

telecommunications reforms, just under 5 per cent of firms reported negative impacts for these reforms.

An examination of results for the individual agri-food industries shows that telecommunications reforms had positive impacts across all industries surveyed, albeit primarily of a minor nature. Telecommunications reforms were reported across all industries except the Meat processing industry as being the most effective reform. For all industries included in the agri-food survey except the Meat industry, these reforms impacted on at least 40 per cent of firms, with more than half of the industries having the reforms impact positively on more than 50 per cent of firms. For the Meat industry, telecommunications reforms were reported as being positive for 30 per cent of firms, with only electricity having a more widespread positive impact (refer to table A5.1).

Table A5.1 Two most effective infrastructure services reforms by industry: 1989-90 to 1993-94[a]

Industry	*Most effective reform*	*%*	*2nd most effective reform*	*%*
Milk and cream processing	Telecommunications	56	Electricity	31
Dairy products nec	Telecommunications	59	Road freight	48
Fruit and vegetable processing	Telecommunications	48	Electricity	40
Flour mill products	Telecommunications	54	Waterfront	42
Cereal foods & baking mix	Telecommunications	52	Electricity	31
Sugar manufacturing	Telecommunications	50	Electricity & road freight	30
Confectionery manufacturing	Telecommunications	49	Electricity & waterfront	29
Prepared animal & bird feed	Telecommunications	41	Road freight	38
Packaging	Telecommunications	72	Waterfront	56
Food processing machinery	Telecommunications	42	Waterfront	27
Fruit and vegetable wholesaling	Telecommunications	45	Road freight	35
Meat processing	Electricity	33	Telecommunications	29

a Percentage of respondent firms in each industry.
Data source: BIE Agri-food survey 1995.

The Packaging industry had the largest number of firms reporting positive impacts from telecommunications reforms. Half of the firms in each of the industries did not report any negative impacts from telecommunications reforms. The other half of the industries recorded negative impacts by between 5 and 10 per cent of firms.

Road freight

Road freight was viewed as the second most widespread positive reform across firms — 32 per cent of survey respondents reporting positive impacts. On an industry basis, these reforms were assessed as having the greatest positive impacts for the Dairy products and Packaging industries. Just under 50 per cent of dairy

products firms reported positive impacts from road freight reform (11 per cent of a moderate to major degree). Around 45 per cent of Packaging industry firms also benefited.

The Sugar industry sample contained the largest number of firms reporting a negative impact from road freight reforms (30 per cent of the 10 firms responding to the survey). However, around 30 per cent of sugar firms reported positive impacts from road freight reforms.

Electricity

Electricity reforms were reported as impacting positively on 30 per cent of firms responding to the survey — the third most effective infrastructure service reform (on a number of firms basis). However, in contrast to telecommunications and road freight reforms, more firms reported that electricity reforms had no impact on their competitiveness. Although electricity is an important input for many firms in agri-food and related industries, these results are likely to reflect both the patchy nature of reforms to the electricity industry and the low level of direct usage by many firms (refer to chapter 2).

Electricity reforms were reported to have impacted positively on between 20 to 45 per cent of firms in each industry. The industries reporting the most widespread positive impacts were Packaging (around 45 per cent of firms) and Fruit and vegetable processing (around 42 per cent of firms).

Although negative impacts from electricity reforms were reported relatively infrequently (ie by around 5 to 15 per cent of firms across the individual industries), nearly 62 per cent of the firms in the Flour milling and the Food processing machinery industries reported that electricity reforms did not impact on their competitiveness.

Waterfront reforms

Waterfront reform was reported as being the fourth most important positive area of reform on a number of firms basis, with 22 per cent of firms reporting positive impacts. However, on a sales value basis, the impact of waterfront reform has been far more significant, covering just under 60 per cent of respondent firms' sales value.

The Packaging and Flour mill products industries reported the most positive impacts from waterfront reform (56 per cent and 42 per cent of firms respectively).

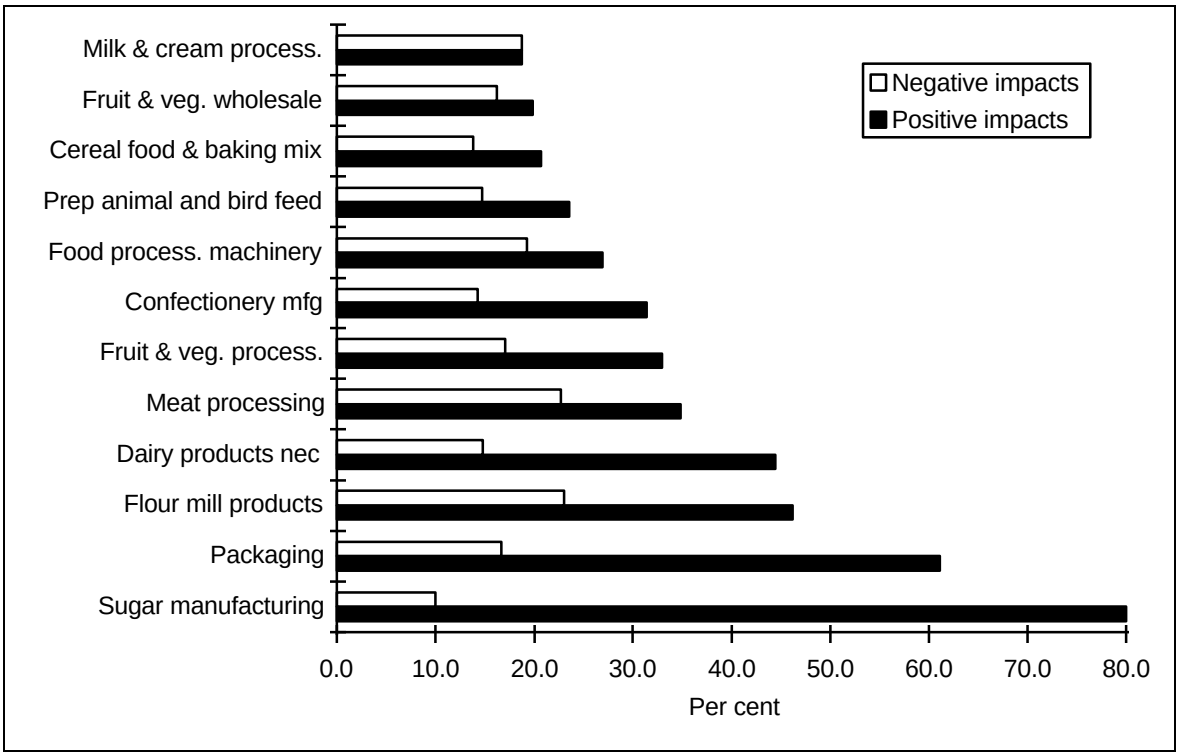
Less than 10 per cent of firms in all other industries reported negative impacts from waterfront reform.

A5.3 Industrial relations reforms

The industrial relations system has undergone significant change over the period since 1989, as outlined in chapter 2 and BIE (1996a).

Nearly half the firms responding to the survey reported that reforms in this area had impacted on their competitiveness. Around 30 per cent of respondent firms reported that the impacts had been positive while, 17 per cent of firms reported that the impacts had been negative. Only telecommunications and road freight reforms were reported to have impacted positively on a larger number of firms. On a sales value basis, as with the most other micro reforms having widespread impacts, the positive impact of industrial relations reform was much greater, with 64 per cent of the value of sales of respondent firms covered by industrial relations reform. On a sales value basis, industrial relations reform was reported as the second most important positive reform (refer to figure 3.2).

Figure A5.4 The perceived impact of industrial relations reforms on the competitiveness of business, 1989-90 to 1993-94[a]



a Percentage of respondent firms in each industry.
Data source: BIE Agri-food survey 1995.

Industrial relations reforms become more positive by around 4 percentage points when the Fruit and vegetable wholesaling industry is excluded from the overall results. This industry has a relatively high incidence of small family businesses which could be expected to have had limited exposure to the influence of industrial relations reforms.

On an industry basis, a higher proportion of firms in all industries bar Milk and cream processing reported positive impacts from industrial relations reforms. The Meat processing and Flour milling industries had the highest negative responses with approximately 25 per cent of respondents reporting negative impacts. Industrial relations reforms were reported as more effective for firms in the Sugar and Packaging industries. Eighty per cent of Sugar firms and 61 per cent of packaging firms reported that these reforms had been positive. Firms in the Flour milling and Dairy products industries also reported relatively high levels of positive impacts on their competitiveness as a result of industrial relations reforms (refer to figure A5.4). Interestingly these four industries had a much higher number of respondents reporting their firms had implemented an enterprise agreement (appendix 10 table A10.1)

A5.4 Regulatory reforms

The survey covered two areas of regulatory reform seen as being highly relevant to the agri-food industries - environmental regulations and food standards and related regulations.

Environmental regulations

Reforms in this area since 1989-90 have included setting up state and Commonwealth bodies to centralise most functions involved with environmental regulation. National standards which restrict emissions that affect certain aspects of the environment are now operating. In general, there has been an increase in regulations controlling emissions into the environment. New regulations and ordinances at state and local level are, in general, moving away from being overly prescriptive in order to encourage firms to adopt new environmental technologies. At the same time more attention is being paid to standards and enforcement. Although changes in environmental regulations have added to firm cost structures, they are generally considered as being in the best interests of the wider community.

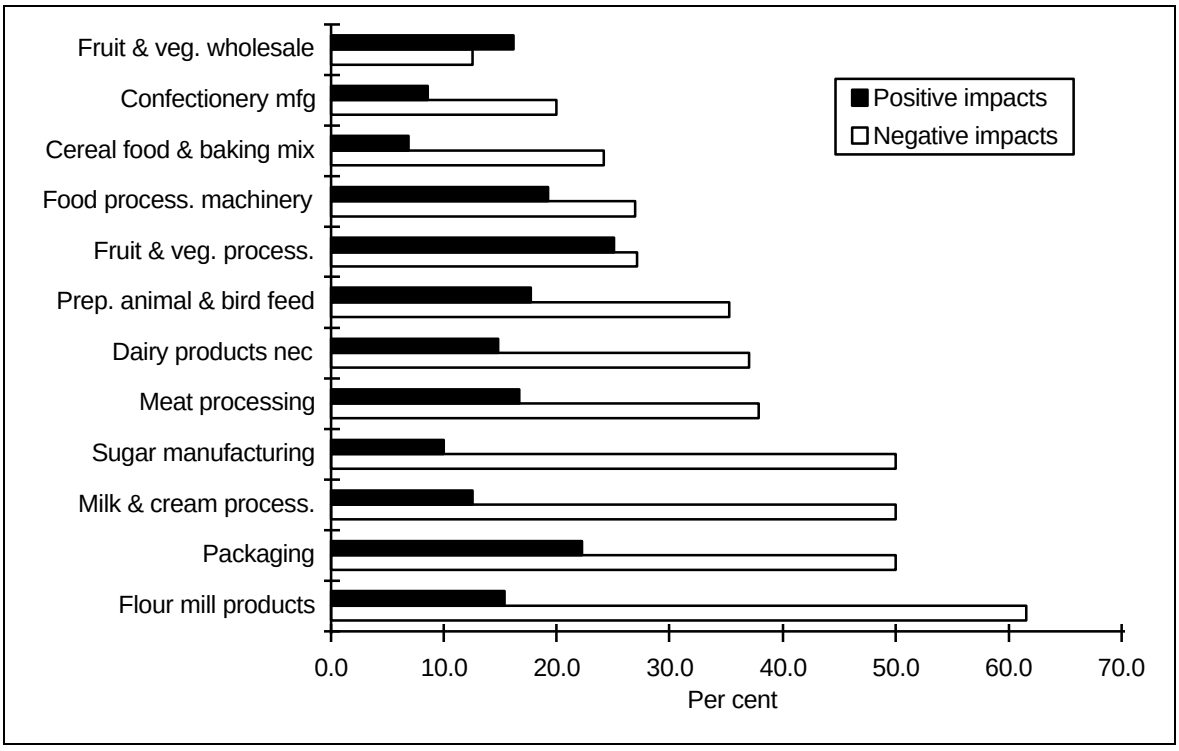
Environmental regulation reforms have had differing impacts across agri-food firms. Nearly 45 per cent of firms reported some level of impacts. On a number of firms basis, these reforms were reported as the second most negative reform,

impacting adversely on the competitiveness of around 28 per cent of firms. Some 16 per cent of firms reported these reforms had positive impacts on their competitiveness. On a sales value basis, environmental regulation was reported as the most negative reform, impacting on 55 per cent of the sales value of the survey sample.

Environmental regulation reforms were reported to have had widespread negative impacts across firms in the Flour milling industry (62 per cent of firms), the Packaging industry and the Milk and cream industry (both 50 per cent). Around three-quarters of the industries had a greater percentage of firms reporting negative impacts than the overall survey average of 28 per cent (refer to figure A5.5).

Only 13 per cent of firms in the Fruit and vegetable wholesaling industry reported negative impacts related to environmental regulation reforms. As this industry accounted for 30 per cent of the total of respondent firms, the average negative impact reported has been dampened by 7 percentage points.

Figure A5.5 The perceived impact of environmental regulation reform on the competitiveness of business, 1989-90 to 1993-94[a]



a Percentage of respondent firms in each industry.
Data source: BIE Agri-food survey 1995.

The follow up telephone survey revealed that the majority of negative responses were related to the increased costs of complying with environmental regulations. These increased costs included, for example: containment and/or transportation

arrangements for waste products; the cost of replacing non-environmentally friendly machinery; on-going costs due to running less efficient operations; and costs involved with new monitoring requirements.

Many firms reported that the costs of environmental regulation were a substantial burden on them and negatively impacted on their competitiveness. This was especially the case when their competition included firms which did not have to comply with the same environmental requirements (eg those located further away from urban areas and competitors from interstate or overseas). Uncertainty about the nature of future regulations was also mentioned as a negative aspect of the reform process.

The reasons behind the positive responses were just as varied. In many cases, firms reported that positive impacts of environmental regulation were an indirect benefit of conforming with regulations. A number of firms said that changing production processes, often employing new technology, led to cost reductions and increased productivity; and/or an improvement in product quality resulting in a more marketable product, both domestically and overseas.

A number of firms already operating at high environmental standards commented that the new regulations were a good thing as it made their competitors raise their standards.

Although much of the reform process in the environmental area has focussed on setting up centralised agencies and improving planning and approval processes incorporating standards of environmental sustainability, stricter emission standards and waste disposal rules from newer regulations are the main factors negatively impacting on agri-food firms' competitiveness. That said, many of the regulations introduced since 1989-90 may in the longer term contribute to the competitiveness of Australian industry.

Food standards and regulation

Food standards and related regulations cover a wide area of associated rules and ordinances (chapter 2). Areas of concern to agri-food firms include national food standards, hygiene, packaging, food processing and handling, food premises, country-of-origin labelling and imported food inspection arrangements and standards.

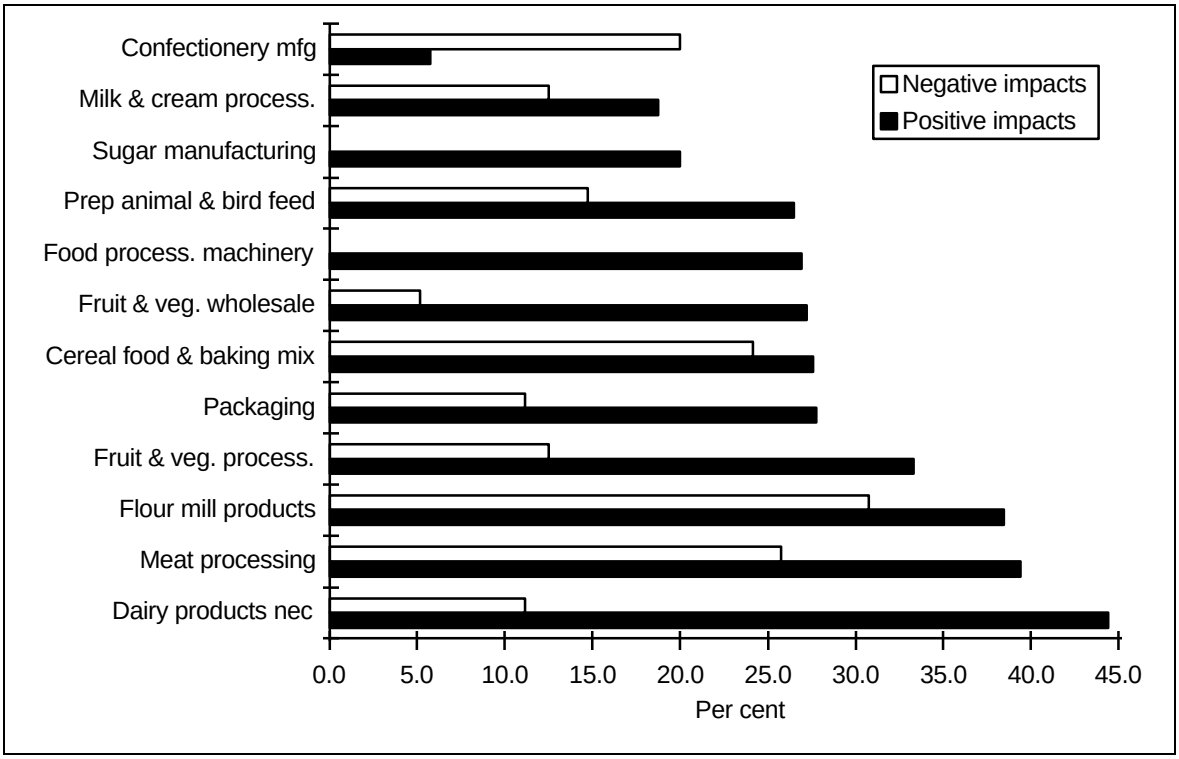
Reforms to food standards and regulations had positive impacts on just under 30 per cent of all respondent firms. In comparison, only 13 per cent of firms reported that reforms to food standards and regulations had a negative impact on their

competitiveness. A relatively high proportion of firms (around 42 per cent) reported that reforms in this area had no impact on their competitiveness.

On an individual industry basis, changes to food standards and regulations impacted positively on 40 to 45 per cent of firms in the Dairy products, Meat processing and Flour milling industries. The Confectionery industry had the smallest number of firms reporting positive impacts (refer to figure A5.6).

While firms in the Meat processing and Flour milling industries reported a relatively high proportion of positive impacts from food standards and regulations reforms, they also reported the highest incidence of negative impacts.

Figure A5.6 The perceived impact of food standards and regulation reform on the competitiveness of business, 1989-90 to 1993-94[a]



a Percentage of respondent firms in each industry.
Data source: BIE Agri-food survey 1995.

Reasons given by firms in the follow up survey as to why they felt reforms had impacted positively on their firm included:

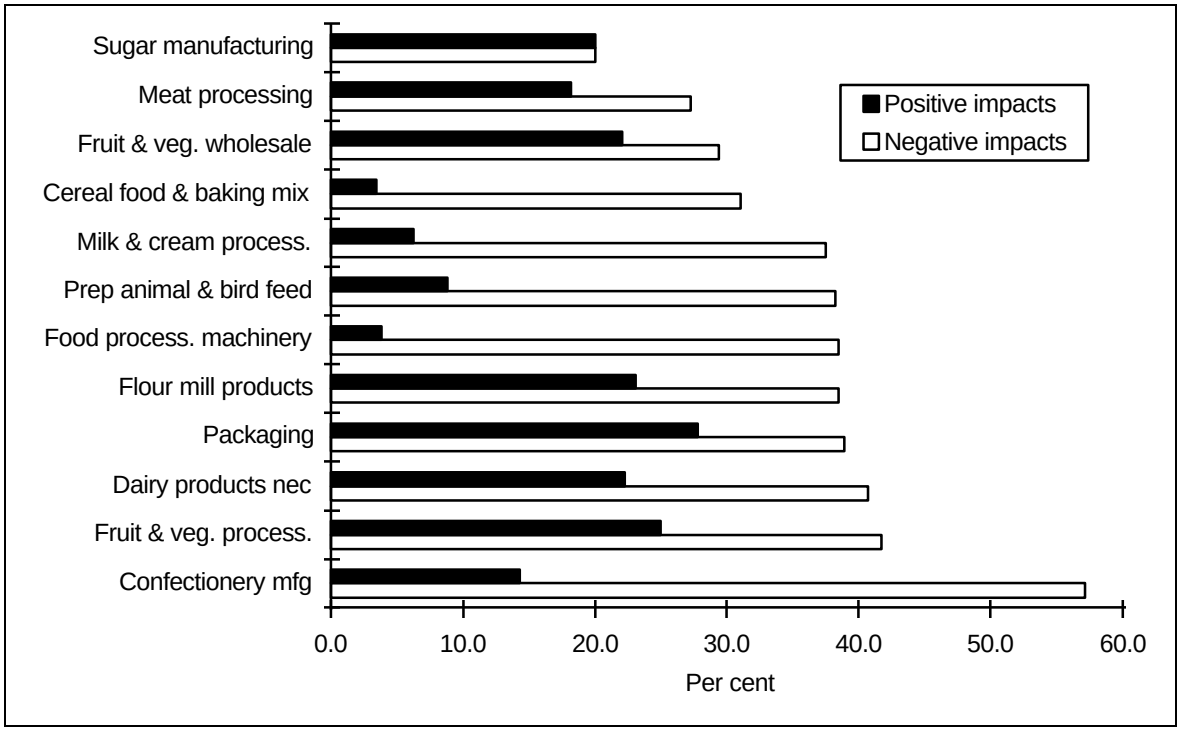
- suppliers were providing better quality agricultural goods;
- 'backyard operators' were being forced out of business or were now having to raise their standards, thus putting them on an equal footing;

- improved product quality has resulted in more marketable products, especially in the export market;
- country of origin labelling requirements gave Australian produced goods an advantage against imports in the domestic market; and
- one firm responded that new labelling requirements facilitated differentiation of its product by listing sought after ingredients which other producers could not list.

A5.5 Input taxes and on-costs

Changes to input taxes and on-costs are another important area of microeconomic reform as these imposts can impact quite significantly on a firm's costs. In the main survey, firms were asked to indicate their overall perceptions about the impact of reforms in this broad area on their competitiveness. The BIE's follow up telephone survey included questions on specific inputs taxes and on-costs. These included the wholesale sales tax, payroll tax, fringe benefits tax, fuel excises, business licenses, the superannuation guarantee levy, workers' compensation and occupational health and safety.

Figure A5.7 The perceived impact of input taxes and on-costs reform on the competitiveness of business, 1989-90 to 1993-94[a]



a Percentage of respondent firms in each industry.
Data source: BIE Agri-food survey 1995.

Of all reforms canvassed in the Agri-food survey, input taxes and on-costs was most frequently reported by firms as having negative impacts on their competitiveness. Around 35 per cent of respondent firms reported negative impacts from reforms in this area over the period since 1989-90. On a sales value basis, the degree of negative impacts increased to 48 per cent of firms. The negative impacts of these reforms across firms outweighed the positive impacts for other firms — just under 18 per cent of firms, or 16 per cent by sales value were subject to positive impacts.

On an industry basis, a relatively high percentage of respondent firms in each industry reported negative impacts from reforms in this area. Negative impacts were reported by 57 per cent of firms in the Confectionery industry. Around 38 to 43 per cent of firms in two-thirds of the other industry groupings reported that they experienced negative impacts.

The Packaging industry had the highest number of firms reporting positive impacts on competitiveness from reforms to input taxes and on-costs. The Sugar industry was the only industry with at least an equal number of firms reporting positive and negative impacts (figure A5.7).

Firms in the follow up survey offered the following reasons for the negative responses which they reported in the main survey:

- the reforms didn't go far enough and input taxes are still high (93 per cent of firms);
- compliance costs are too high (82 per cent); and
- reforms assisted competitors more than this business (25 per cent).

Only a small number of firms in the follow up survey provided positive feedback about reforms in this area. They indicated the following reasons for their positive responses in the main survey:

- rises in payroll exemption thresholds;
- reductions in workers' compensation insurance premiums; and
- increased employee satisfaction from new superannuation arrangements.

A6 The adequacy of the pace of micro reform — an industry level perspective

This appendix summaries firms responses relating to the adequacy or otherwise of the pace of microeconomic reforms. Results covering the responses of all agri-food firms were reported in chapter 3. The presentation set out below provides a broad picture of differences in the proportion of firms indicating satisfactory compared with unsatisfactory progress (section A6.1). The discussion in subsequent sections examines the responses of firms from the 12 surveyed industries for each area of micro reform.

A6.1 Assessments relating to the pace of reform

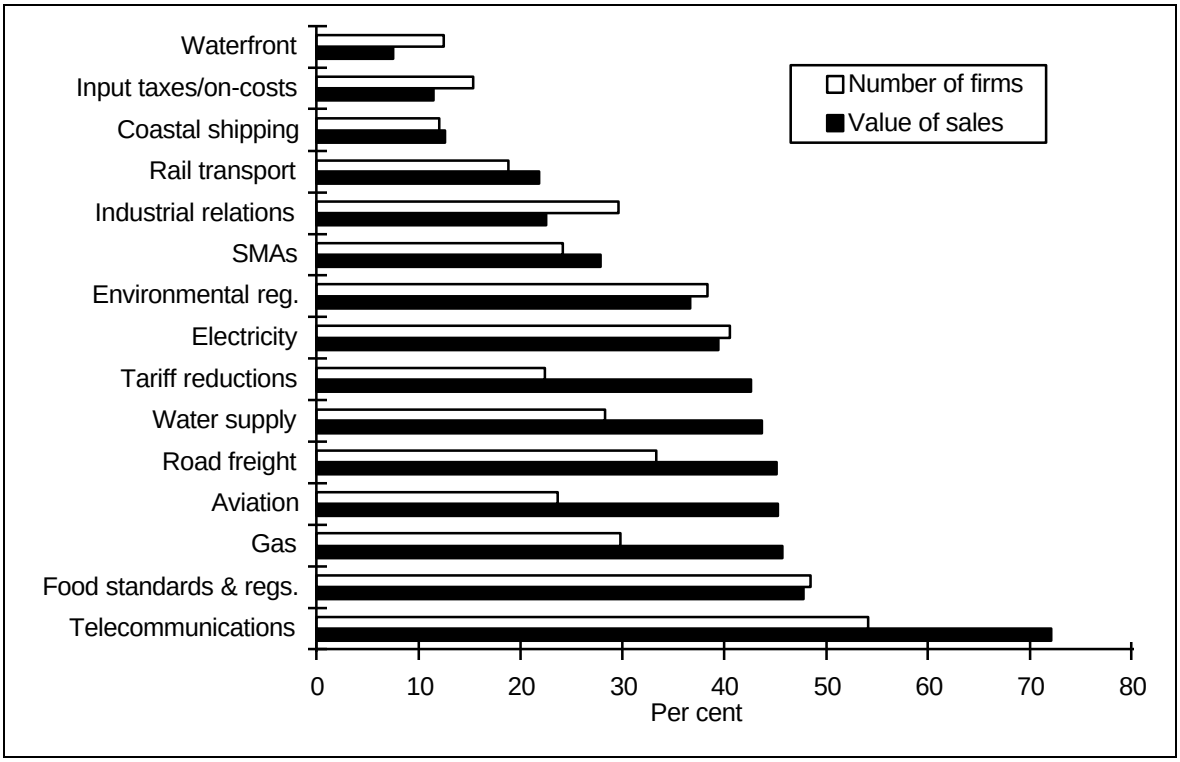
The agri-food survey asked firms to indicate their views about the pace of various microeconomic reforms at the time of the survey (ie in May 1995). Firms were asked to indicate whether they perceived that the pace of reform for different reforms was satisfactory, too fast, too slow, going backwards or whether they didn't know.

A significant number of respondent firms did not comment on, or indicated that they were unable to comment on the adequacy or otherwise of the pace of a number of the reforms. For example, more than 50 per cent of respondent firms did not comment on the pace of reforms concerning aviation, coastal shipping, rail transport and statutory marketing arrangements (SMAs). With the exception of industrial relations reforms, between 30 to 50 per cent of firms did not provide comments on the pace of the other reforms — just under 25 per cent of firms did not comment on the pace of industrial relations reforms. This result is to be expected as some reforms are not directly relevant to the operating environment of many firms and/or the firms have a low level of usage of the inputs subject to particular reforms (refer to chapter 2, table 2.1 for industry level cost structures).

Figure A6.1 summarises the responses of firms indicating that the pace of reform was satisfactory. The information in this figure is presented on both a number of

firm and sales value basis. This distinction indicates whether large firms tended to provide rankings different from smaller to medium sized firms.

Figure A6.1 Firms reporting that the pace of micro reform was satisfactory[a]

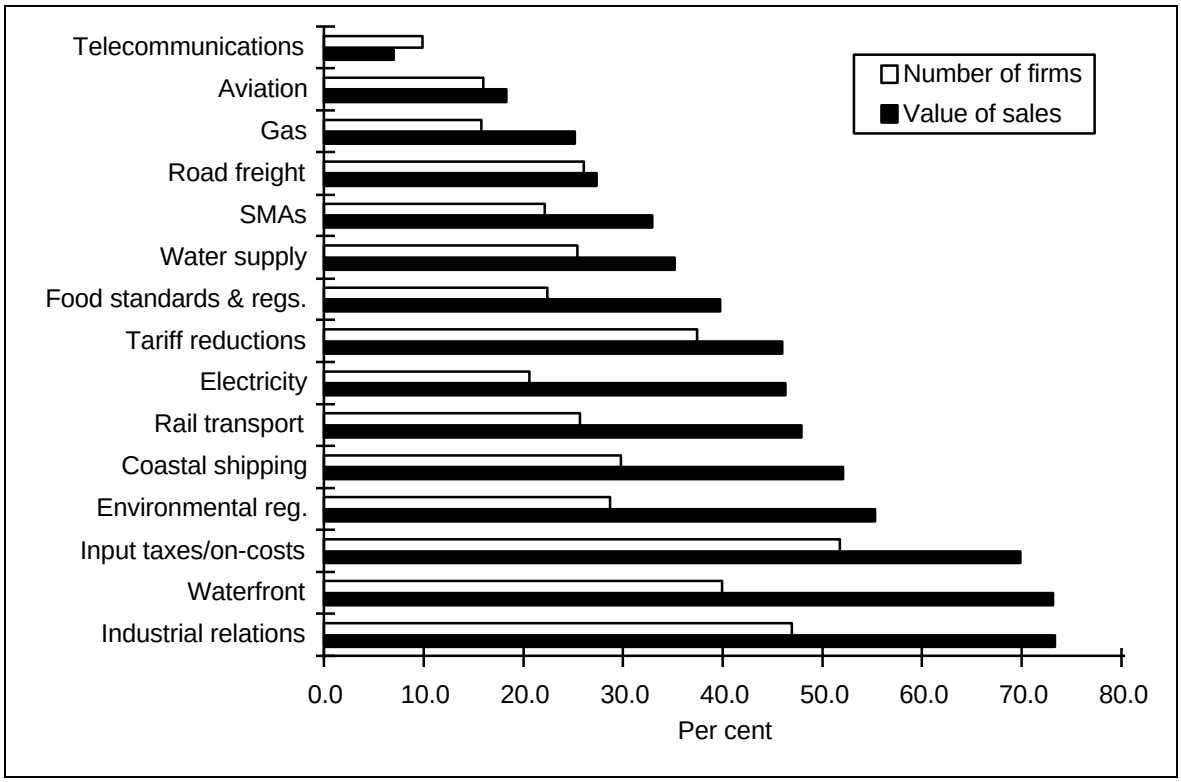


a Percentage of 460 respondent firms.
Data source: BIE Agri-food survey 1995.

On a number of firms basis, those reforms attracting the highest proportions of satisfactory rankings included telecommunications, food standards and related regulations, electricity and environmental regulations. On a sales value basis the four most satisfactory reforms were telecommunications, food standards and related regulations, gas and aviation.

Figure A6.2 summarises the response of firms indicating that the pace of reform was unsatisfactory in the sense of being too slow, going backwards or being too fast. Again a distinction is drawn between responses on a number of firms and value of sales basis. On a number of firms basis the four reforms attracting the highest unsatisfactory ratings were input taxes and on-costs, industrial relations, the waterfront and tariff reductions. When the rankings are examined on a value of sales basis, the four leading unsatisfactory reforms are industrial relations, the waterfront, input taxes and on-costs and environmental regulations.

Figure A6.2 Firms reporting that the pace of micro reform was unsatisfactory[a]



a Percentage of 460 respondent firms.
Data source: BIE Agri-food survey 1995.

A6.2 Telecommunications

The pace of telecommunications reforms is clearly regarded as having the highest level of approval amongst survey respondents. Fifty-four per cent of firms reported that they considered the pace of telecommunications reform was satisfactory — these firms accounted for 72 per cent of the sales value of all survey respondents (refer to figure A6.1).

The majority of firms in all industries, except Meat processing and Prepared animal and bird feed reported satisfaction with the pace of telecommunications reforms (table A6.1). The three industries with the most firms reporting that the pace of reform was satisfactory were Flour milling (85 per cent of firms), Sugar manufacturing (80 per cent) and Packaging (78 per cent). At least 40 per cent of firms in the other industries reported satisfaction with the pace of telecommunications reform.

A6.3 Food standards and related regulations

The pace of reforms in this area also received a relatively high level of approval by respondent firms. Around 50 per cent of firms, who also accounted for around half of the sales value of the sample, reported satisfactory progress. More than 20 per cent of firms reported dissatisfaction with the pace of reform — more than half of these indicated that the pace of reform was too slow.

The majority of firms in all survey industries reported that the pace of reform for food standards and related regulations was satisfactory (table A6.1). Around 70 per cent of Sugar manufacturing and Flour milling firms considered the pace of reform to be satisfactory. Between 38 to 60 per cent of firms in the other industries reported that they were satisfied with the pace of reform.

A6.4 Electricity

On a number of firms basis, the pace of electricity reforms was rated as the third most satisfactory — 40 per cent of all respondent firms reported that electricity industry reforms were proceeding at a satisfactory pace. Just over 20 per cent of firms reported dissatisfaction with the pace of reform. However, satisfaction with the pace of the reform was much lower when assessed on a sales value basis. Firms accounting for some 47 per cent of the sales value reported dissatisfaction with the pace of reform — the bulk of those reporting that the pace of reform was too slow.

An examination on an industry basis shows that more than 40 per cent of firms in half the industries perceived that the pace of electricity reform was proceeding at a satisfactory pace at the time of the survey. Sugar industry firms (60 per cent of firms) and the Food processing machinery industry (54 per cent) reported the highest degree of satisfaction. Over 30 per cent of firms in all of the other industries, reported satisfaction with the pace of reform (table A6.1)

Table A6.1 Pace of micro reforms, most frequent response by industry group (percentage)[a]

	Industry Group											
	Cereal food & baking	*Meat proces s- ing*	*F&V whole-sale*	*Food process-ing mach-inery*	*Prepare d animal & bird feed*	*Milk & cream*	*Confec t-ionery*	*Flour mill products*	*F&V proces s-ing*	*Dairy products nec*	*Packag-ing*	*Sugar*
Telecommunications	S (55)	S (41)	S (53)	S (67)	S (44)	S (56)	S (54)	S (85)	S (54)	S (52)	S (78)	S (80)
Food standards	S (48)	S (53)	S (44)	S (46)	S (38)	S (44)	S (49)	S (69)	S (60)	S (41)	S (44)	S (70)
Electricity	S (45)	S (33)	S (43)	S (54)	S (32)	S (44)	S (37)	S (39)	S (48)	Ts (37)	S (44)	S (60)
Environmental	S (38)	S (44)	S (31)	S (46)	S (29)	S (31)	S (37)	S (46)	S (52)	S (30)	S (44)	S (70)
Road freight	S (24)	S (20)	S (35)	S (42)	S/Ts (29)	S/Ts (13)	S (34)	Ts (39)	S (46)	S (33)	S (44)	S (80)
Gas	S (28)	S (32)	S (23)	S (46)	S (29)	S (13)	S (40)	S/Ts (23)	S (37)	Ts (33)	S (50)	S (40)
Industrial relations	Ts (28)	S (29)	S (32)	S/B (29)	S (38)	B (25)	Ts (49)	Ts (54)	S (40)	Ts (37)	Ts (44)	S (40)
Water supply	S (27)	S (23)	S (23)	S (42)	S (29)	S (25)	S (37)	Ts (46)	S (33)	S/Ts (26)	S (56)	S (40)
SMAs	Ts (14)	S (18)	S (26)	S (21)	S (29)	S (31)	S (23)	S (39)	S (25)	S (33)	Ts (11)	S (60)
Aviation	S/Ts (14)	S (12)	S (21)	S (33)	S (18)	S (13)	S (31)	S (54)	S (33)	S (37)	Ts (28)	S (40)
Tariff reductions	B (21)	S (14)	S/Tf (16)	B (33)	S (21)	S (25)	S (29)	S/Tf (31)	S (33)	S (33)	S (44)	S (60)
Rail transport	S/Ts (17)	S (12)	S (21)	Ts (29)	Ts (27)	Ts (13)	Ts (26)	Ts (46)	S (31)	Ts (26)	Ts (50)	S (50)
Input taxes/on-costs	B (21)	B (26)	B (24)	Ts (25)	B (24)	Ts (25)	B (31)	B (31)	B (31)	Ts (37)	Ts/B (33)	S (40)
Waterfront	Ts (24)	Ts (23)	Ts (28)	Ts (38)	Ts (32)	Ts (19)	Ts (31)	Ts (69)	Ts (40)	Ts (33)	Ts (61)	S (40)
Coastal shipping	Ts (17)	S (12)	Ts (21)	Ts (29)	B/Ts (15)	Ts (6)	Ts (29)	Ts (54)	Ts (33)	Ts (30)	Ts (44)	S (40)

Legend: S = Satisfactory Ts = Too slow Tf = Too fast B = Going backwards

a The survey responses recorded in the categories 'not applicable' and 'don't know' are not reported in the above table. However, these responses are included in the calculation of the percentages shown in brackets above.

Source: BIE Agri-food survey 1995.

A6.5 Environmental regulation

Larger firms were more likely to report dissatisfaction with the pace of environmental regulation reforms. Although only 29 per cent of firms were dissatisfied with the pace of electricity reform, these firms accounted for over 50 per cent of the sales value of the sample. Around 40 per cent of respondent firms, covering nearly 40 per cent of the sales value, reported satisfaction with the pace of reform.

The Sugar manufacturing industry and the Fruit and vegetable processing industry — with rates of 70 per cent and 52 per cent respectively — had the largest proportion of firms indicating satisfaction with the pace of environmental reforms (table A6.1). This high satisfaction rate for Fruit and vegetable processing is particularly interesting as the industry has the highest proportion of turnover outlayed on environmental protection (figure A4.2). The most frequent response across all industries was that the progress of reform was satisfactory. However, a large number of firms in the Packaging and Dairy products industry groups (33 per cent and 22 per cent of firms respectively) reported that the pace of reform was too fast. Nearly one-quarter of the Flour mill products firms reported that the pace of reform was too fast.

A6.6 Road freight

Road freight reforms were reported to be satisfactory by around one-third of firms responding to the survey. However, just over one-quarter of the firms were dissatisfied with the pace of reform, most reporting that reform in the area was too slow. On a sales value basis, the level of satisfaction increased by 12 percentage points.

The industry most satisfied with the pace of road freight reform was the Sugar industry with 80 per cent of firms reporting satisfaction. Between 40 and 46 per cent of firms in the Fruit and vegetable processing, Food processing machinery and the Packaging industry also reported satisfaction with the pace of reform. The Flour milling industry was the only industry where the majority response was clearly that the pace of road freight reform was too slow (table A6.1).

A6.7 Gas

A comparatively low 30 per cent of surveyed firms reported that the pace of reform to the gas industry was satisfactory. Around 16 per cent of firms reported dissatisfaction with gas reform — the remainder did not comment, or didn't know whether the pace of gas reform was satisfactory. However, on a sales value basis, more firms commented on the pace of reform. On this basis, the level of satisfaction was much higher at 46 per cent of the sales value, although the level of dissatisfaction also increased to 25 per cent.

Across industries, between 40 to 50 per cent of firms in four industries (ie Packaging, Food processing machinery, Sugar manufacturing and Confectionery) reported that the pace of reform to the gas industry was satisfactory (table A6.1). The majority of firms in the Flour mill products and the Dairy products industries reported that the pace of reform was too slow — although Flour mill products included an equal number of firms which reported that gas reforms were satisfactory.

A6.8 Industrial relations

Almost 50 per cent of firms reported dissatisfaction with the pace of reform, with just over half of these reporting that the pace of reform was too slow. On a sales value basis, the level of dissatisfaction increased to over 73 per cent — 53 per cent of the sales value being aligned with firms reporting that the pace of reform was too slow. Only 30 per cent of firms regarded the pace of industrial relations reform as being satisfactory.

Across the survey industries, the most frequent response reported by firms in seven of the industries was that the pace of reform was either going backwards or was too slow (refer to table A6.1). Four industries stand out as expressing concern that the process of industrial relations reform was occurring too slowly. These are the Flour mill industry (54 per cent of firms), the Confectionery industry (49 per cent), the Packaging industry (44 per cent) and the Dairy products industry (37 per cent). However, four industries had a satisfactory rating higher than the survey average — including Fruit and vegetable wholesaling (32 per cent of firms), Prepared animal and bird feed (38 per cent), Fruit and vegetable processing (40 per cent) and Sugar manufacturing (46 per cent).

A6.9 Water supply

The pace of water supply reforms were considered to be satisfactory by around 28 per cent of responding firms. Another 25 per cent reported dissatisfaction with the pace of reform — most indicating that the pace was too slow. On a sales value basis, the level of satisfaction with water supply reform was greater (44 per cent of sales value) as was the level of dissatisfaction (35 per cent). Thus, the larger firms (as defined by sales value) were more subject to impacts of water supply reforms than smaller firms.

Packaging firms reported the highest level of satisfaction with water supply reform (56 per cent of respondents). Broadly, around 20 to 40 per cent of firms in all other industries, except the Flour milling industry, reported that the pace of water supply reform was satisfactory. Some 46 per cent of Flour milling firms reported that the pace of water supply reform was too slow (table A6.1).

A6.10 Statutory marketing arrangements

More than 50 per cent of the firms responding to the survey could not or did not comment on the pace of reforms to statutory marketing arrangements. This result is not surprising, given that SMAs are not directly relevant to the business operations of many respondent firms (eg the Packaging and Food processing machinery industries). Around 24 per cent of respondent firms reported that the pace of reform was satisfactory (covering 28 per cent of the survey's sales value). Overall, 22 per cent of firms (covering 33 per cent of sales value) reported that they were dissatisfied with the pace of SMA reform — most reporting that the pace was too slow.

At the industry level, the Sugar manufacturing industry had the largest proportion of respondents (55 per cent) indicating they considered the pace of SMA reform was satisfactory (table A6.1). The majority of firms who responded from this industry were from the sugar milling sector — the turnover of the 10 responding firms represents about 12 per cent of the value of Australia’s raw and refined sugar production.

Around 30 per cent or more of the responding firms from four industries — the Flour mill industry, the Dairy products industry, the Milk and cream processing industry and the Prepared animal and bird feed industry — considered the pace of SMA reform was satisfactory. However, a substantial number of respondents from the Flour mill industry (23 per cent), the Fruit and vegetable wholesaling industry

(20 per cent) and the Dairy products industry (15 per cent) considered reforms in this area are progressing too slowly (table A6.1).

Notwithstanding the importance of reforms to SMAs to the Dairy products and the Milk and cream processing industries, around 44 per cent of survey respondents in each of these industries could not, or did not comment on, the pace of SMA reform. Rationalisation of SMAs in order to reduce assistance to dairy farmers and lower the price of milk used in manufacturing would be expected to have positive impacts on the Dairy products and Milk and cream processing industries. However, the impacts of the rationalisation of SMAs on these two manufacturing industries is somewhat blurred due to the ownership linkages between dairy farming and farmer owned cooperatives operating in the Dairy products and Milk and cream processing industries (refer to chapter 6). It is likely that the survey results reported above, to some extent at least, reflect this situation.

A6.11 Aviation

The majority of firms (60 per cent) did not comment on the pace of aviation reforms. This result is likely to be related to the low level of usage of aviation inputs by many agri-food firms. Air transport accounts for between 0.01 per cent (for dairy products) and 0.52 per cent (for bakery products) of the direct input cost for the agri-food industries included in table 2.1, chapter 2.

Nearly a quarter of the firms reported satisfaction with the pace of aviation reform. The level of satisfaction with the pace of this reform increased markedly to 45 per cent when assessed on a sales value basis. Overall, 16 per cent of firms indicated dissatisfaction with the pace of reform, including 12 per cent which reported that the pace of reform was too slow.

At the industry level, flour milling firms have the highest level of satisfaction (54 per cent of responding firms). Packaging and Food processing machinery firms reported the highest level of dissatisfaction, with 25 to 28 per cent of firms reporting that the pace of reform was too slow — although one-third of Food processing machinery firms reported that they found reforms to aviation satisfactory (table A6.1).

A6.12 Tariff reductions

As might be expected, the respondents' views on the pace of tariff reform differed considerably between industries. Tariff reductions can be a two edged sword for those industries which, in the recent past have been assisted by high tariffs. While

providing assistance to enhance the gross value of business' output, they can also impose additional costs on tariff assisted inputs and capital goods. The mixed responses from firms in a number of tariff assisted industries may reflect this situation.

Although only 22 per cent of firms reported that the pace of tariff reform was satisfactory, the level of satisfaction increased to nearly 43 per cent when assessed on a sales value basis. Just under 40 per cent of firms reported that the pace of tariff reform was unsatisfactory and another 40 per cent of firms could not or did not comment on the pace of tariff reform.

In the main, the industries with the largest proportion of respondents not commenting on the pace of tariff reform were either industries with a substantial export orientation — for example, Meat processing and Prepared animal and bird feed, or industries with little direct international competition via imports or exports — for example, Fruit and vegetable wholesaling and Milk and cream processing.

Six of the ten responding firms from the export oriented Sugar manufacturing industry group considered the pace of tariff reform was satisfactory (table A6.1). This level of satisfaction can in part be explained by the export orientation of this group. However, domestic sales of raw and refined sugar are supported by a specific tariff, currently set at $55 per tonne (in conjunction with SMA arrangements). Thus, any fall in the world price of sugar results in an increase in the implicit ad valorem tariff rate.

The most frequent response of firms in the Packaging industry was that firms were satisfied with the pace of tariff reform (44 per cent of firms). However, a larger proportion (50 per cent of firms) were in some way dissatisfied with the pace of reform. Nearly 40 per cent of Packaging firms reported that the pace of reform was too fast. This result most likely reflects the varying degrees to which parts of the industry compete against imports.

The responses from firms in the Fruit and vegetable processing and the confectionery industries were not unlike those of the Packaging industry. Although 33 per cent of firms in the Fruit and vegetable processing industry considered the pace of reform satisfactory (the most frequent response), another 31 per cent considered the pace of reform was too fast or going backwards and 17 per cent considered that the pace of reform was too slow.

While 29 per cent of Confectionery firms indicated that the pace of tariff reform was satisfactory, another 29 per cent of firms assessed it as being too fast. Around 14 per cent of responding firms from this industry indicated that the tariff reform was too slow.

A6.13 Rail transport

More than 55 per cent of respondent firms did not comment on the pace of rail transport reform. As with aviation, rail transport accounts for a relatively small proportion of direct inputs for most agri-food firms. The level of direct usage ranges from 0.06 per cent for Confectionery manufacturers to 1.0 per cent for Other food nec — with a somewhat higher level of 3.13 per cent for flour milling and cereal food (chapter 2).

Around 20 per cent of respondent firms reported satisfaction with the pace of reform. A further 20 per cent reported that the pace of reform was too slow. However, on a sales value basis, over 40 per cent of respondent firms reported that the pace of rail reform was too slow.

The average view of the pace of rail transport reform as discerned from the whole survey sample differs quite markedly from the view presented by firms in some industries. For example, firms in the Sugar manufacturing industry (50 per cent of firms) and the Fruit and vegetable processing industry (31 per cent) reported relatively high levels of satisfaction.

Overall, dissatisfaction with the pace of rail transport reform was relatively widespread. Firms in the Packaging industry (50 per cent of firms) and the Flour milling industry (46 per cent) most frequently reported that the pace of reform was too slow. Other industries for which the majority of firms thought that the pace of reform was too slow included Food processing machinery, Prepared animal and bird feed, Dairy products and Confectionery (table A6.1).

A6.14 Input taxes and on-costs

Very few firms responding to the survey indicated satisfaction with the pace of reforms to input taxes and on-costs. Over 50 per cent of firms indicated dissatisfaction with the pace of reform in this area — these firms accounted for 70 per cent of the survey sample's sales value. The majority of firms reported that the pace of reform was too slow or going backwards. Just over 30 per cent of all firms did not comment on the pace of reform in this area.

Most firms which provided information about input taxes and on-costs in the BIE's follow up telephone survey reported that they considered that reforms had not gone far enough and that the taxes remained too high (93 per cent of these firms). Around 82 per cent of these firms reported that compliance costs were too high and 25 per cent of firms reported that reforms favoured their competitors.

The most frequent response reported by firms in seven of the industries was that the pace of reform was going backwards (ranging between 21 to 31 per cent of firms across the industries). The majority of firms in another three industries reported that the pace of reform was occurring too slowly (Milk and cream processing and Food processing machinery manufacturing (both 25 per cent of firms) and Dairy products (37 per cent of firms)). Around one-third of firms in the Packaging industry reported that the pace of reform was too slow and another third reported that the pace of reform was going backwards (table A6.1).

A6.15 Waterfront and coastal shipping

As with rail and aviation transport, a large proportion of survey respondents did not comment on the pace of waterfront reform (48 per cent of firms) and coastal shipping reform (58 per cent of firms). It is likely that these services have a low level of direct impact on the operations of many firms (refer to table 2.1 in chapter 2).

Nevertheless, around 40 per cent of respondent firms reported that they were dissatisfied with waterfront reforms — on a sales value basis this percentage increased to more than 70 per cent. Similarly, 30 per cent of respondent firms reported dissatisfaction with coastal shipping reforms — covering more than 50 per cent on a sale value basis. Only 12 per cent of firms reported that they were satisfied with the pace of these reforms.

An examination on an industry basis shows that the Sugar manufacturing industry was the only industry where firms most frequently reported that they were satisfied with the pace of reform for waterfront and coastal shipping (40 per cent of firms). With the exception of firms in the Meat processing industry, firms in the other industries most frequently reported that coastal shipping and waterfront reforms were occurring too slowly (table A6.1).

A7 The changed competitive environment

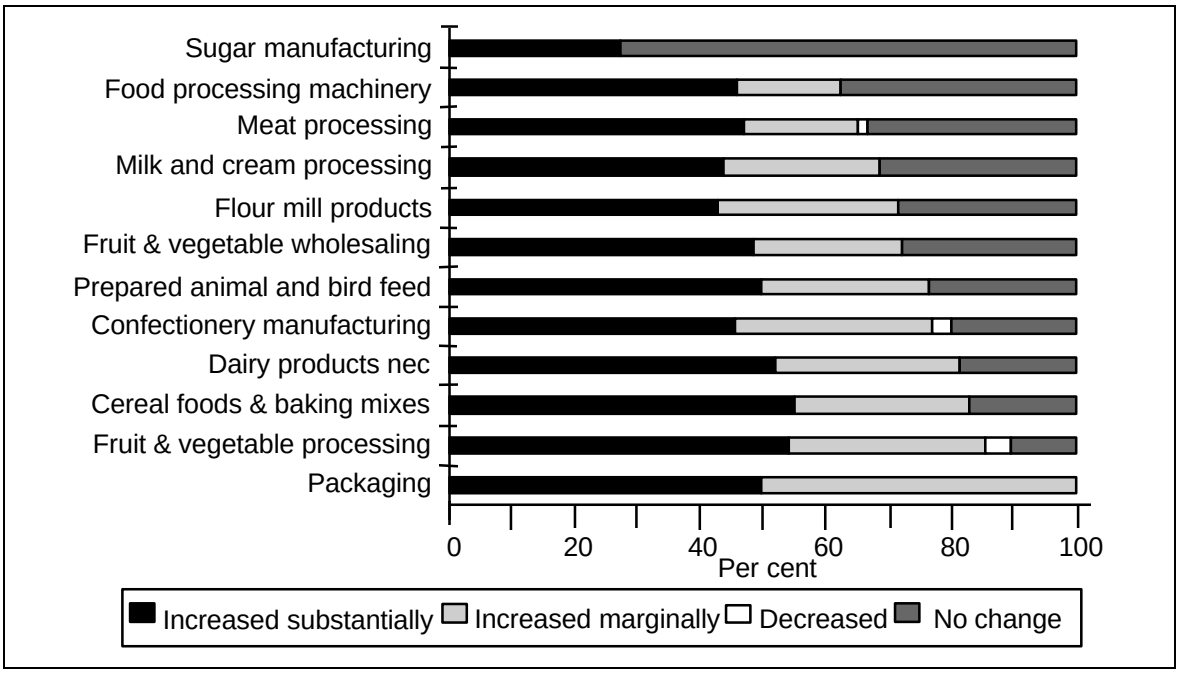
An important aim of the agri-food case study is to determine whether microeconomic reforms have been significant enough to change the competitive environment in which firms operate. This appendix examines changes in the competitive environment faced by respondent firms since 1989-90. The extent of change in the level of competition in the domestic market is examined in section A7.1. The main factors contributing to change are discussed in section A7.2. Firms can respond in many different ways to changes in their competitive environment. Their responses are reviewed in section A7.3. The discussion in each of these sections includes an examination at the aggregate level for the surveyed industries as a whole as well as an examination of the differences between individual industries. A summary is presented in section A7.4.

A7.1 The extent of the change

The agri-food survey asked firms to indicate whether the level of competition they face in the domestic market had changed since July 1989. Firms were also asked to indicate the extent of any change. As outlined in chapter 3, the majority of responding firms reported that the level of domestic competition they faced had changed since July 1989. Only a quarter of firms reported no change in the level of competition they encountered. The change experienced by many firms was substantial. Forty eight per cent of firms experienced a substantial increase in competition. In total just under 75 per cent of responding firms reported an increase in competition. About one per cent of firms reported a marginal decrease in competition.

Firms surveyed from the twelve industry groups comprising the agri-food and related industries sector reported a similar experience. More than 60 per cent of firms in all industries, except the sugar industry, reported that they faced an increased level of competition in the domestic market (figure A7.1). In most industries, more than 50 per cent of responding firms indicated that there was a substantial increase in competition.

Figure A7.1 Changes in the level of domestic competition since 1989 by industry [a]



a Percentage of respondent firms in each industry.
Data source: BIE Agri-food survey 1995.

The majority of respondents from the Sugar manufacturing industry (8 of the 10 respondents) reported no change in the level of domestic competition. At first this result seems surprising because there has been a substantial amount of reform in the sugar industry. For example, the embargo on raw and refined sugar imports was removed in 1989 and replaced by a specific tariff which has phased down from $115 per tonne to $55 per tonne by 1992. There has also been some rationalisation of the statutory marketing arrangements applying to the industry (see appendix 4 for a fuller discussion). Despite these reforms, raw Queensland sugar millers continue to be subject to the compulsory acquisition powers of the Queensland Sugar Corporation. There have been no changes to this requirement over the period.

In four industries (Packaging, Fruit and vegetable processing, Cereal foods and baking mixes and Dairy products nec) over 80 per cent of firms reported an increase in the level of domestic competition - 100 per cent of respondent firms from the packaging industry believed that competition had increased.

A7.2 Factors contributing to changes in competition

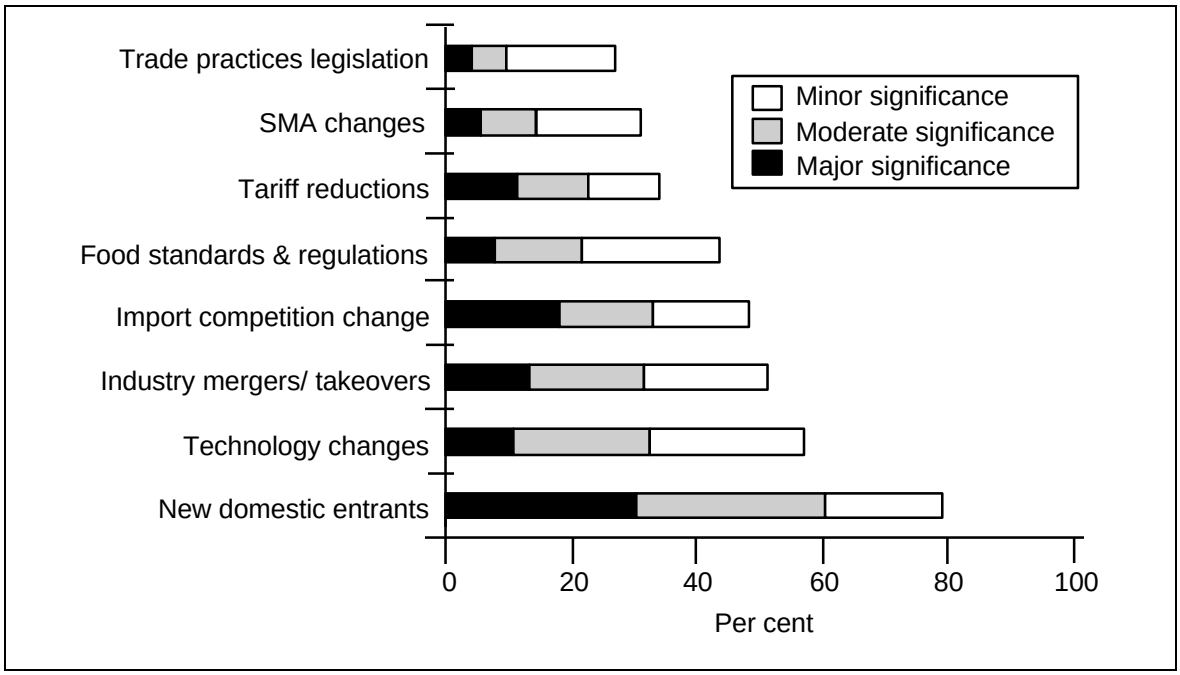
Respondent firms were asked to nominate the significance of a number of factors which may have contributed to changes in the level of domestic competition. Potential contributory factors were of two broad types — market based and

microeconomic reform factors. Market based factors covered new entrants to the domestic industry, changes in the level of import competition, industry mergers or takeovers, and changes in technology. Microeconomic reform factors covered changes in food standards and related regulations, changes to statutory marketing arrangements, changes to trade practices legislation and tariff reductions on competing imports. Firms' responses are summarised in figure A7.2.

Generally, market factors were the most commonly nominated factors by firms. New entrants to domestic industry was the predominant factor contributing to a change in the level of competition. Around 80 per cent of firms nominated it as being a significant contributory factor.

Changes in technology, industry mergers or takeovers and changes in the level of import competition also emerged as significant contributory factors. They were of significance to 50 per cent or more of the firms reporting a change in the level of domestic competition. Changes to statutory marketing arrangements and trade practices legislation were nominated as being the least significant sources of change in the level of domestic competition.

Figure A7.2 Factors contributing to changes in level of domestic competition since 1989[a]



a Percentage of 341 firms.
Data source: BIE Agri-food survey 1995.

In aggregate, factors linked directly to microeconomic reforms were perceived to be less important than market based factors in generating changes in the level of competition firms face in the domestic market. Although microeconomic reform

factors were not perceived to be the most important factors directly contributing to changes in competition, they were judged to have a significant direct impact on the environment of some firms. However, microeconomic reforms appear to have had important indirect effects.

For instance, the more open markets facilitated by micro reforms, such as tariff reductions and changes to statutory marketing arrangements, could be expected to have increased the level of import competition faced by firms. Exchange rate movements, however, appear to have dampened the impact of tariff reductions and some changes to statutory marketing arrangements for some industries over the period covered by the survey (see appendix 5). A number of firms interviewed by the BIE during the course of the project indicated that this had occurred and could have influenced their assessments of the relative importance of micro reform compared with market based factors. For a number of industries surveyed, exchange rate movements were larger than the changes to industry assistance arrangements. From the perspective of particular firms, it is quite likely that they would view tariff reductions as exerting only a small or no influence on the level of import competition.

According to some firms we interviewed, changes in statutory marketing arrangements and changes to food standards and related regulations stimulated mergers and takeovers and, in the case of statutory marketing arrangements, new entrants. For example, firms in the Milk processing and Dairy industries indicated that deregulation in Victoria had allowed new entrants into the Victorian market. Mergers and acquisitions were also common in this industry (see chapter 3).

Closer examination of the survey results confirmed a link between statutory marketing arrangements and merger and takeovers. For example, of firms who indicated that statutory marketing arrangements had been significant in contributing to changes in their competitive environment, 72 per cent also reported merger and takeover activity as a contributing factor. Only 42 per cent of the firms who indicated that statutory marketing arrangements were not significant reported that mergers and takeovers were a significant factor.

Not all of the industries surveyed have been directly influenced by microeconomic reform factors. Indeed the surveyed industries were deliberately chosen as a mix of tariff assisted import competing industries, export oriented industries and non-traded industries. Hence it should be expected that many of the microeconomic reform factors had a greater influence for particular industries and a lesser influence for others. This expectation is confirmed by table A7.1 where the three most significant factors contributing to changes in competition are shown for the survey industries.

Table A7.1 Key factors contributing to changes in the level of domestic competition, by industry [a]

Industry	Most significant factor	*%*	2nd most significant factor	*%*	3rd most significant factor	*%*
Meat processing	New domestic entrants	84	**Food standards**	64	Technology	64
Milk & cream process.	Merger/takeover	82	Technology	64	**SMAs**	55
Dairy products nec.	Technology	78	Merger/takeover	78	New domestic entrants	65
Fruit & veg. processing	New domestic entrants	81	Changed import competition	71	**Tariff reductions**	60
Flour mill products	New domestic entrants	70	Technology	60	Merger/takeover	60
Cereal foods & baking mixes	New domestic entrants	79	Changed import competition	58	Merger/takeover& **food standards**	50
Sugar manufacturing	Changed import competition	100	**Tariff reductions**	67		
Confectionery mfg	New domestic entrants	89	Changed import competition	61	Merger/takeover	39
Prep. animal & birdfeed	New domestic entrants	88	Technology	58	Merger/takeover	42
Packaging	Technology	89	Merger/takeover	78	New domestic entrants & **tariff reductions**	72
Food proces. machinery	Changed import competition	88	**Tariff reductions**	63	Technology	56
Fruit & veg. wholesaling	Changed import competition	82	Technology	50	Merger/takeover	48

a Some of the factors reported above have an equal percentage of firms indicating a factor was significant to changes in the level of competition. One factor however may be ranked ahead of another as in the Meat processing industry, in these circumstances more firms in the industry thought that this factor was of major/moderate significance compared to the other factor. Where factors are ranked as being of exactly the same significance (that is, equal numbers of minor, moderate and major significance) they are ranked together, this was the case for the Cereal foods and baking mixes industry.
Data source: BIE Agri-food survey 1995.

Microeconomic reform factors (highlighted in bold in the table above) feature in the top three contributing factors for seven of the twelve industries surveyed. Over 60 per cent of firms experiencing a change in the level of domestic competition in the Sugar manufacturing, Fruit and vegetable processing, Packaging and Food processing machinery industries cited tariff reductions as directly significant to a change.

Over half of respondent firms in the Milk and cream processing industry considered changes to statutory marketing arrangements as directly significant to a change in the level of competition. The Meat processing and Cereal foods and baking mixes industries both had a majority of firms who felt that reforms to food standards and

related regulations had impacted significantly on the level of competition they faced.

Overall, the results reported in table A7.1 highlight the importance of new domestic entrants as a factor influencing changes in the level of competition faced by firms. Mergers and takeovers, changes in import competition and changes in technology were also significant factors. These factors were nominated by over 50 per cent of firms in each industry.

Mergers and takeovers were ranked as important by 82 per cent of firms in the Milk and cream processing industry and 78 per cent of firms in the Dairy products nec. industry group. This supports the anecdotal evidence supplied by firms interviewed by the BIE.

Anecdotal evidence collected at interviews suggests that changes in technology were important to some industries because they supported productivity increases (eg packaging) while in other industries they allowed the development of new products which led to increased competition and exporting (eg dairy products). One firm also indicated that changes in food standards and related regulations had stimulated the introduction of new technology to aid the firm in meeting modified standards.

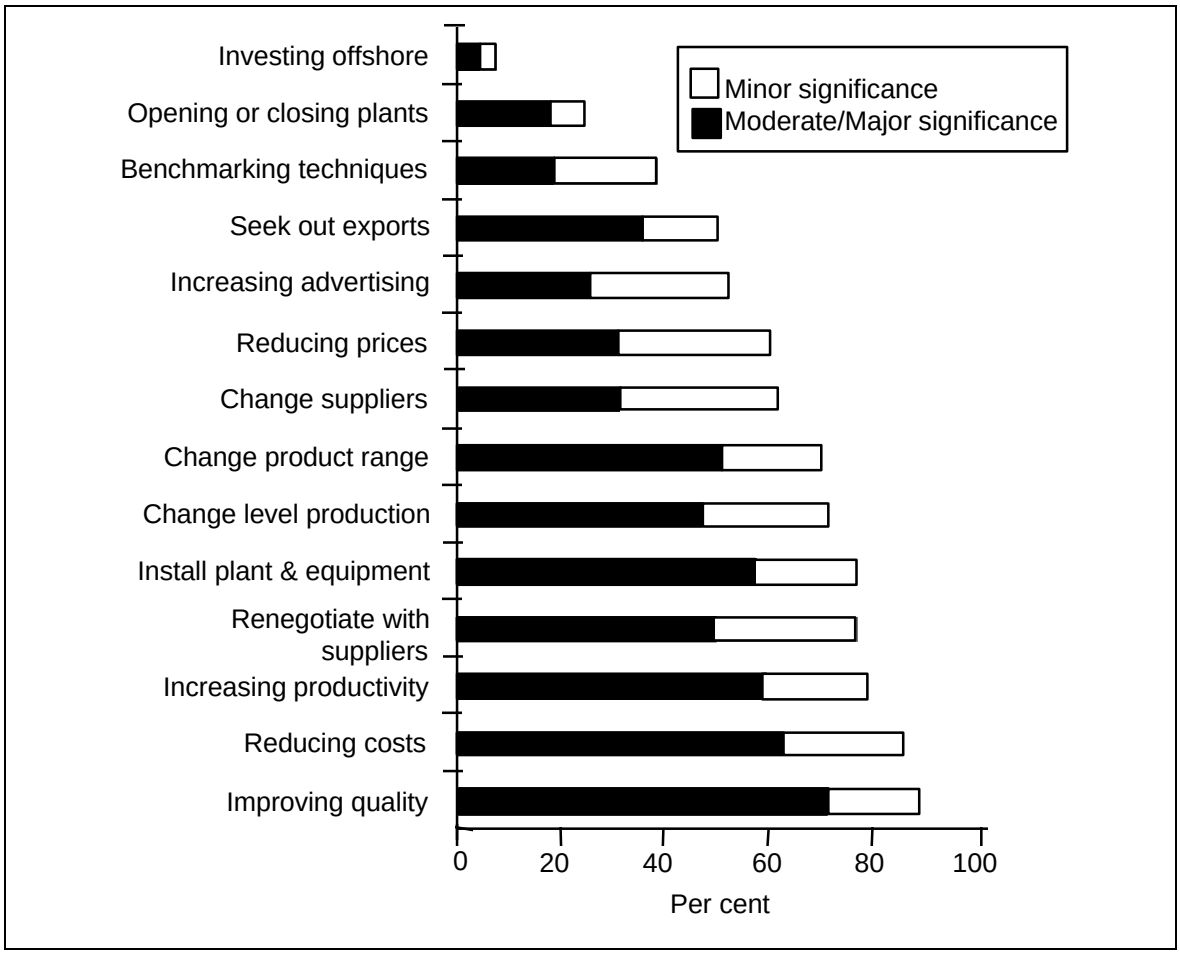
A7.3 Firms' responses to the changed environment

Overwhelmingly firms experiencing a change in the level of domestic competition reported an increase in competition. Firms indicated they introduced a number of changes in response to increases in competition. The majority of firms' responses were in one or all of four categories. Firms either sought to:

- increase or maintain sales - such as by increasing advertising, reducing prices; and seeking out new markets; and/or
- change their cost structures - for example by changing production levels, reducing costs, changing the suppliers of their inputs and renegotiating price or quality arrangements with existing suppliers; and/or
- change their productivity - for example by installing new plant or equipment and implementing improved work and management practices in response to benchmarking studies.

Figure A7.3 shows the responses commonly taken by respondent firms in the agri-food and related industries and the relative significance of these responses.

Figure A7.3 Firms' responses to a change in the level of domestic competition[a]



a Percentage of 343 firms.
Data source: BIE Agri-food survey 1995.

Of the 14 adjustment responses canvassed in the survey questionnaire, all but three - investing offshore, opening or closing plants, implementing benchmarking techniques - were undertaken by the majority of firms. The three most commonly reported responses - improving product quality, reducing costs and increasing productivity - were undertaken by at least 80 per cent of firms. Over 60 per cent of firms indicated they had changed production levels, renegotiated arrangements with suppliers and changed the range of products they produced. Industry based analysis also highlights the importance of these responses (see table A7.2).

Table A7.2 Most frequent responses to a change in the level of domestic competition, by industry[a]

Industry	*Most frequent response*	*%*	*2nd most frequent response*	*%*	*3rd most frequent response*	*%*
Meat processing	Improve product quality	86	Install new plant & equipment	86	Reduce costs	84
Milk & cream proces.	Improve product quality	91	Install new plant & equipment	91	Reduce costs	91
Dairy products nec.	Improve product quality	96	Increase productivity	91	Reduce costs	91
Fruit & veg processing	Reduce costs	90	Renegotiate price or quality	83	Increase productivity	81
Flour mill products	Change range of products	90	Renegotiate price or quality	80	Reduce costs/ Install new plant	80
Cereal foods & baking mixes	Reduce costs	96	Improve product quality	88	Increase productivity & Install new plant	88
Sugar manufacturing	Improve product quality	100	Reduce costs	100		
Confectionery mfg	Reduce costs	93	Improve product quality	93	Change range of products	89
Prep. animal & birdfeed	Increase productivity	92	Improve product quality	88	Reduce costs	85
Packaging	Improve product quality	94	Reduce costs and prices	94	Renegotiate price or quality	94
Food proces. machinery	Improve product quality	94	Increase productivity	75	Reduce costs	69
Fruit & veg wholesaling	Improve product quality	90	Reduce costs	81	Renegotiate price or quality	79

a Where responses are ranked as being of exactly the same significance (that is, equal numbers of minor, moderate and major significance) they are ranked together. This was the case for the Flour mill products and Cereal foods and baking mixes industries.
Data source: BIE Agri-food survey 1995.

Reducing costs ranked in the top three responses for all 12 surveyed industries. Improving product quality, the most commonly reported response in aggregate, also ranked highly. Over 85 per cent of firms in ten of the twelve survey industries included improving product quality as part of their overall adjustment response.

Increasing productivity and renegotiating price or quality arrangements with existing suppliers and installing new plant and equipment were identified in the top three responses in about a quarter of the industries surveyed.

A8 Firms' operations in a changed competitive environment

This appendix examines how respondent firms have changed their ways of operating in the more competitive environment they have experienced since July 1989. The following indicators have been used to gauge the responses of firms to this new competitive environment and assess the significance of microeconomic reform to any change in:

- operational structure (section A8.1);
- investment levels (section A8.2);
- product mix (section A8.3); and
- exports (section A8.4).

Each section analyses the survey results at an aggregate level. The analysis also compares industries and reports on specific industry results where they differ from those presented at the aggregate level. Section A8.5 summarises the most important responses and assesses the overall impact of the microeconomic reform process on the outcomes.

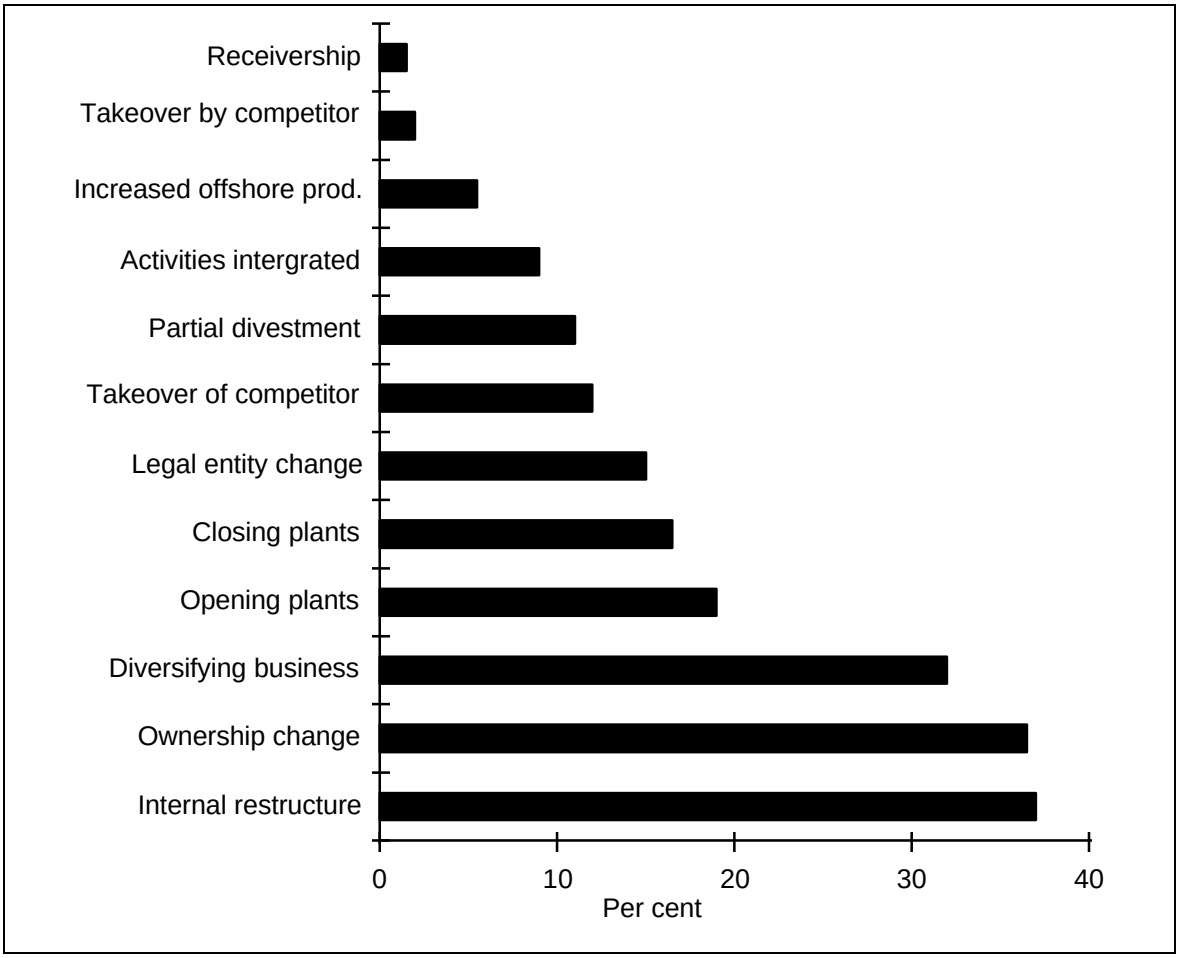
A8.1 Changing operational structure

A change in the operational structure of a business is one response a firm can make to adjust to a changing competitive environment. For example, increased competition may mean firms need to reorganise their internal structure to meet new circumstances. Firms may merge or acquire other firms to improve their competitive position.

Around 40 per cent of respondents indicated their businesses changed their operational structure between 1989-90 and 1993-94. Internal restructuring and changes in ownership were the most common types of change in operational structure. Just under 40 per cent of firms undertook these changes. Diversifying into new lines of business was another major response, with 32 per cent of firms

undergoing such a change (see figure A8.1). Around 80 per cent of the firms experienced more than one type of change in structure.

Figure A8.1 Nature of changes in operational structure since July 1989



a Percentage of 200 firms.
Data source: BIE Agri-food survey 1995.

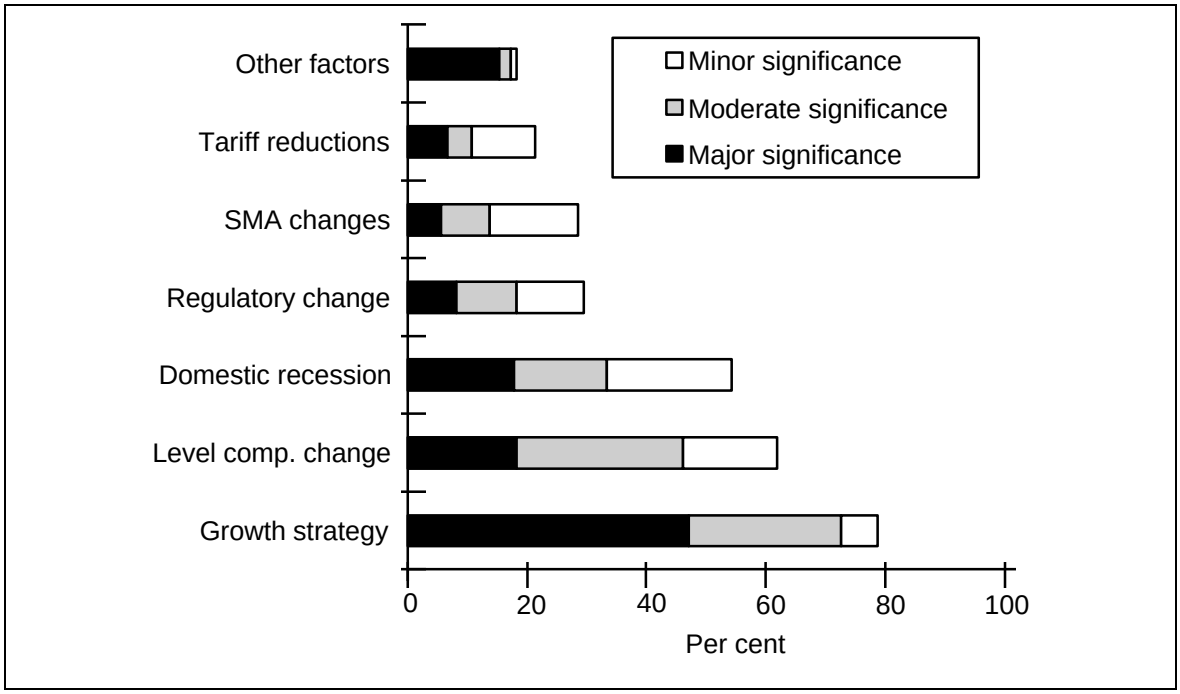
Firms in different industries experienced differences in the level and type of operating structural change. The Packaging industry stands out as having experienced the most substantial change in it's operational structure. Nearly 90 per cent of respondent firms indicated a change had occurred. Firms in the Dairy products industry also reported substantial change; 70 per cent of firms in this industry experienced a change. Half or more of the firms in the Milk and cream processing and Flour mill products industry also experienced a change in structure. The least amount of change was in the Sugar manufacturing industry where less than 30 per cent of firms changed their operational structure.

The types of change occurring in each industry were broadly similar to the aggregate result. However, Milk and cream processing showed a major difference

to the other industries. Divestment and the merger or takeover of a competitor were the most commonly reported changes. Sugar manufacturing firms indicated that opening plants had been an important change. Opening and closing plants was important to firms in the Packaging and Flour mill products industries. Legal entity changes were important to firms in the Cereal foods and baking mix industry.

Firms identified a range of factors as contributing to the change in the business' operational structure (see figure A8.2). Around three quarters of firms nominated their growth strategy as being of significance. Discussions with approximately 100 respondent firms indicate that a range of factors, including microeconomic reforms and changes in the level of competition affected the growth strategies of firms. However, market based factors appear to be the major driver of changes in a firm's growth strategy (see box A8.1).

Figure A8.2 Factors leading to operational structure changes since July 1989



a Percentage of 197 firms.
Source: BIE Agri-food survey 1995.

Another important contributor to firms' changed operational structure was the changing level of competition. Just over 60 per cent of firms nominated this factor. A large proportion of the firms nominated both growth strategy and a change in the level of competition as being significant. The recent recession was the third most commonly cited. Changes to SMAs, changes to regulations and tariff reductions were only identified as significant contributors by a small number of firms.

Box A8.1 What affects a firm's strategy for growth?

A firm's growth strategy is central to the way it operates. It usually involves measures to create a more sustainable competitive position for a business.

Our survey respondents indicated that growth strategy was the most important factor affecting changes in their operational structure and their decision to undertake a major investment. In order to find out more about our respondent firms' growth strategies, we conducted a telephone survey of approximately 20 per cent of respondents. We were particularly interested in the effect microeconomic reforms may have had on their growth strategy. Firms were asked whether any of three factors had been significant to changes in their growth strategy. These factors were:

- Changes in the level of competition;

- Changes to SMAs; and

- Reduced tariffs on competing imports.

Of these factors, changes in the level of competition was the most significant to firms. Around 72 per cent of firms indicated that it had been significant. About 40 per cent of firms thought that changes to SMAs had been significant and just over 30 per cent of responding firms felt that tariff reductions had been significant in influencing their growth strategy.

Respondents also had an opportunity to discuss other factors that may have been important to their growth strategy. The most commonly mentioned was availability of inputs. The supply of agricultural commodities (for example) can vary due to weather conditions etc. As firms are not sure of the amount of agricultural produce they will be able to purchase from year to year, they need to consider their ability to meet market demand or to develop new markets when planning their growth strategy. The liberalisation of world trade was important as it has allowed new markets to open up to exports from our firms. Capital availability was also mentioned as critical to firms who need finance to invest and expand their activities.

On the basis of these follow up discussions we conclude that firms generally considered that market factors had a more significant effect on their growth strategy than micro reforms. However, micro reforms were considered significant by a small number of firms.

Changes to SMAs, changes to regulations and tariff reductions were shown to be more important to the change in operational structure for some industries than others in the survey (see table A8.1). For example changes to SMAs were the third most frequently nominated factor leading to change for the Milk and cream processing industry and the second most nominated factor for the Sugar manufacturing industry. Changes in regulations were the third most frequently nominated factor for the Sugar manufacturing and the Prepared animal and bird feed industries.

Table A8.1 Leading factors influencing changes in industry operational structure by industry since July 1989

Industry	*Most commonly reported factor*	*%*	*2nd most reported factor*	*%*	*3rd most reported factor*	*%*
Meat processing	Growth strategy	67	Change in level of competition	48	Recession	38
Milk and cream processing	Change in level of competition	88	Growth strategy	88	**SMAs**	63
Dairy products	Growth strategy	84	Change in level of competition	63	Recession	47
Fruit & vegetable processing	Growth strategy	81	Change in level of competition	52	Recession	45
Flour mill products	Growth strategy	100	Change in level of competition	67	Recession	44
Cereal foods & baking mixes	Growth strategy	55	Other	36	Change in level of competition	36
Sugar manufacturing	Growth strategy	100	**SMAs**	67	(Change in level of competition (**Changes in regulations**	33
Confectionery mfg	Growth strategy	71	Recession	59	Change in level of competition	52
Prepared animal & bird feed	Growth strategy	87	Change in level of competition	73	**Changes in regulations**	46
Packaging	Growth strategy	100	Recession	81	Change in level of competition	75
Food processing machinery	Recession	90	Change in level of competition	88	Growth strategy	70
Fruit and vegetable wholesaling	Growth strategy	73	Change in level of competition	65	Recession	63

a Some of the factors reported above have an equal percentage of firms indicating a factor was significant to changes in competition. One factor however may be ranked ahead of another as in the Milk and cream processing industry. In these circumstances, more firms in the industry thought that this factor was of moderate/major significance compared to the other factor. Where factors are ranked as being of exactly the same significance (that is, equal numbers of minor, moderate and major significance) they are ranked together, this was the case for the Sugar manufacturing industry.
Source: BIE Agri-food survey 1995.

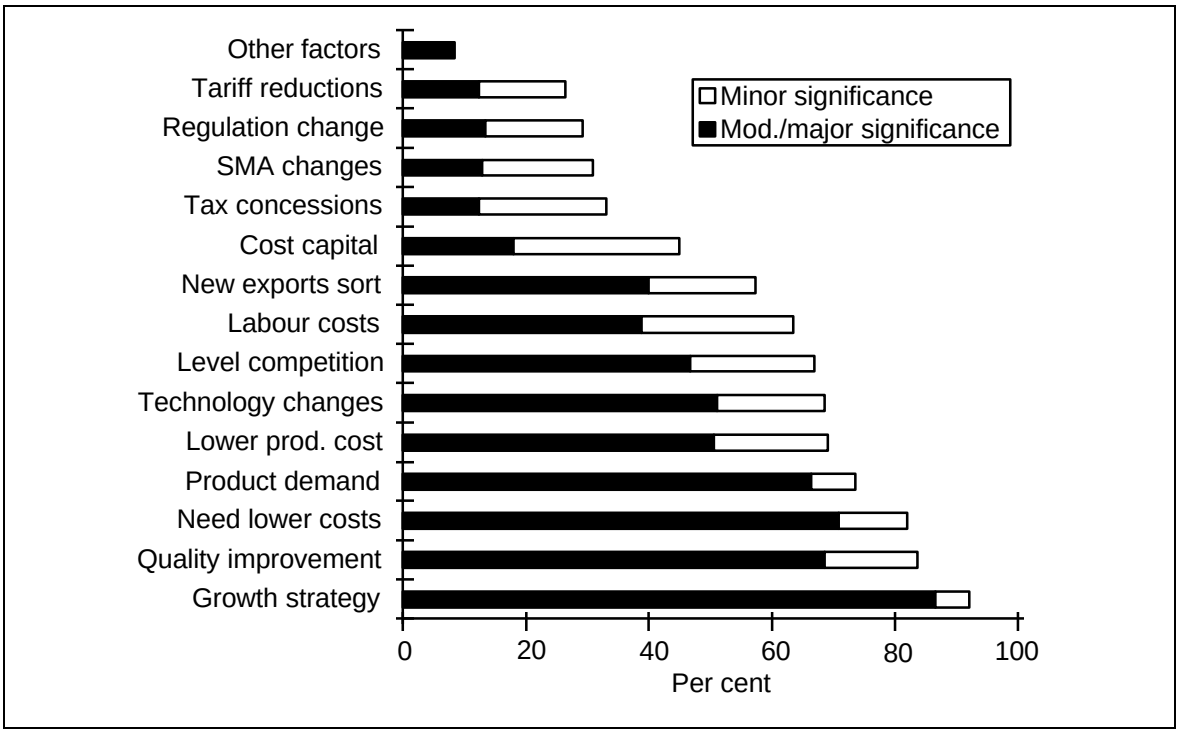
At the industry level respondents generally followed the aggregate survey trend, with growth strategy and changes in the level of competition nominated as the most important influences on operational changes. A notable exception to this is the Food processing machinery industry where the recent recession was nominated by 90 per cent of firms, making it the most commonly reported factor. The recession was identified in the top three factors by eight of the twelve industry groups. It appeared to be particularly important for the Packaging and Confectionery industry groups, being the second most commonly reported influence on operational structure.

A8.2 Changing investment levels

Firms facing a change in their competitive environment may implement a number of strategies to meet the new challenges presented. Investments can play a part in improving aspects of firm performance. Around 40 per cent of survey respondents undertook a major domestic investment between 1989 and 1995.[1]

Growth strategy again stands out as one of the most significant factors influencing major investment (see figure A8.3 and box A8.1). Nearly 90 per cent of the firms who undertook major investments nominated this factor.

Figure A8.3 Factors contributing to the decision to undertake a major domestic investment since July 1989[a]



a Percentage of 179 firms.
Data source: BIE Agri-food survey 1995.

The need to improve product quality, the need to lower costs and to respond to changes in product demand were also significant contributors to the decision to invest. These factors were also important responses to a changing level of competition and there was a strong link between these factors and the need to improve productivity. To a lesser extent major investments were also identified as being directly related to changes in SMAs, changes in regulations and tariff

[1] A major investment for the purpose of our survey was defined as an investment equal to or greater than 20 per cent of the business' turnover or greater than $500 000.

reductions. However, as noted in chapter 3 and appendix 7, respondents appear to have put greater emphasis on the ultimate effect of changes in these measures. That is, the change in the level of competition and the resultant need to improve product quality and lower costs than the change in the measure itself. Tax concessions (a government policy designed to induce investment) were less important than the majority of the factors mentioned above. Only 33 per cent of investing firms indicated that tax concessions were a factor influencing changes in investment.

There were differences between industries for the number of major investments undertaken (table A8.2).

Table A8.2 Why firms in each industry undertook major domestic investments since July 1989

Industry	% of firms	Most commonly reported factor	%	2nd most commonly reported factor	%
Meat processing	40	Growth strategy	85	Need to improve quality	78
Milk & cream process.	44	Growth strategy	100	Need to improve quality	100
Dairy products	67	(Growth strategy (Need to lower costs	89	Need to improve quality	83
Fruit & veg. process.	45	Growth strategy	100	(Need to lower costs (Need to improve quality	90
Flour mill products	43	Growth strategy	100	Change in product demand	100
Cereal foods & baking mixes	38	Growth strategy	100	(Need to lower costs (Change in technology	91
Sugar manufacturing	73	Growth strategy	100	Lower production costs	88
Confectionery mfg	40	Need to lower costs	86	Growth strategy	86
Prep. animal & birdfeed	53	Growth strategy	89	Need to lower costs	83
Packaging	83	Growth strategy	100	Need to improve quality	100
Food process. mach	23	Growth strategy	100	(Need to lower costs (Improve quality	83
Fruit & veg. wholesale	20	Need to improve quality	93	Growth strategy	85

a Some of the factors reported above have an equal percentage of firms indicating a factor was significant to changes in competition. One factor however may be ranked ahead of another as in the Flour mill products industry. In these circumstances, more firms in the industry thought that this factor was of moderate/major significance compared to the other factor. Where factors are ranked as being of exactly the same significance (that is, equal numbers of minor, moderate and major significance) they are ranked together, this was the case for the Food processing machinery industry.
Data source: BIE Agri-food survey 1995.

A majority of firms in the Packaging industry, the Sugar manufacturing industry and the Dairy products industry undertook major investments. In contrast, only a small percentage of firms in the Fruit and vegetable wholesaling industry and in the Food processing machinery industry undertook such investments.

The factors behind the decision to undertake major investments displayed little variation between industries (refer to table A8.2). However, some major differences stand out. In the Flour mill products industry, for example, 100 per cent of firms nominated change in product demand as being as important as growth strategy. The majority of firms in the Cereal foods and baking mixes industry identified changes in technology as a significant factor.

A8.3 Changing product mix

One response of firms to increasing competition is to diversify or change the mix of products/services they produce. Firms can endeavour to differentiate their products from their competitor's by focussing on quality, flexible marketing arrangements, advertising or better after sales service. Firms may also chose to produce a narrower range of products in order to be more cost competitive.

Firms responding to the survey have introduced changes in their product mix. Nearly 70 per cent of firms indicated that changing the range of products produced was a significant response to increased competition. Firms have also diversified into new lines of business (see figure A8.1).

There is also evidence that firms facing increased competition have aimed to differentiate their products from those of competitors (Appendix 7). Improving quality and increasing advertising were also responses to increased competition.

A8.4 Changes in the level of exports

As firms become more competitive through implementing strategies to reduce costs, increase productivity and improve quality they may look to enlarging their shares of existing markets and/or exploring opportunities in new markets to enhance their growth potential. Firms may also seek out new markets for their products in an attempt to achieve scale economies to reduce costs in the face of increased competition. In both cases, export markets can be one method of achieving these goals.

A number of survey respondents indicated they had increased their emphasis on export markets over the period 1989-90 to 1993-94. This increased emphasis was cited by around 20 per cent of survey respondents as a factor contributing to the decision to undertake domestic investments. Around 50 per cent of the exporting respondent firms indicated this share had increased, 40 per cent reported it had remained relatively stable and less than 10 per cent reported a decrease.

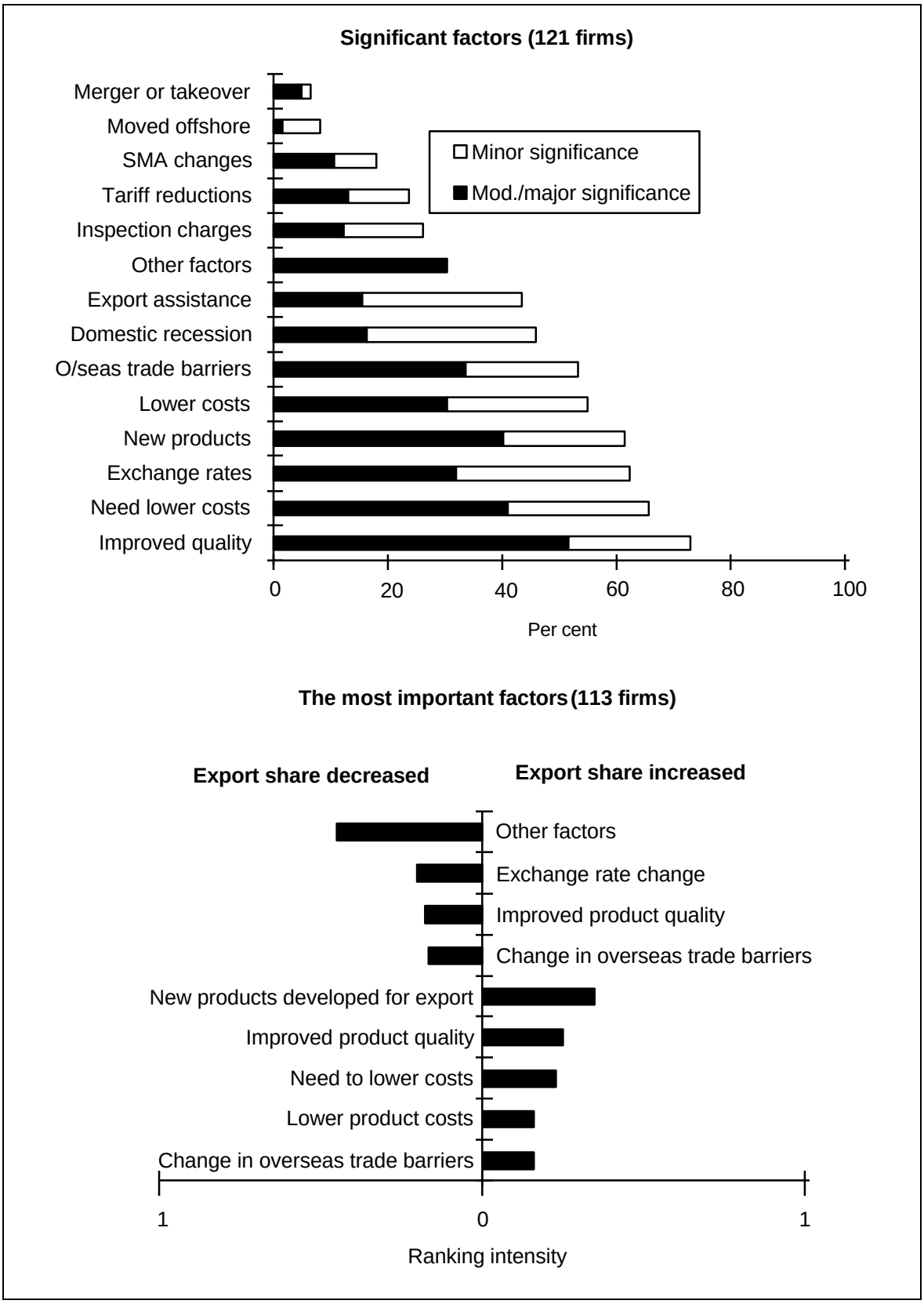
Improved product quality, a need to lower unit costs by increasing output and changes in the exchange rate and the development of new products for the export market stand out as important contributors to the change in export share identified by respondents. Over 60 per cent of firms nominated these factors as significant to the export share change. Micro reform factors — changes in SMAs and tariff reductions on competing imports and changes to export inspection charges — were relatively less important contributors (figure A8.4).

Firms were requested to rank the most important contributors to the export share change. Five factors were prominent in the rankings (figure A8.4). The development of new products for the export market received the highest overall ranking for increased export share firms. Improved product quality, the need to lower unit costs by increasing output, lower product costs and changes in overseas trade barriers also received high rankings. Firms also nominated a range of other factors as ranking in the top four contributors to the increased export share. Firms seeking out or developing exports as part of their growth strategy was the most frequently nominated factor in this 'other' category.

As might be expected firms experiencing a decrease in their export share ranked a different group of factors as being most significant to the change in export share. Factors in the 'other' category were frequently ranked as the most important drivers for the decrease, the most commonly nominated 'other' factor was a change in local supply conditions for raw product due to factors such as a decline in crop/livestock quality and quantity. Firms also frequently ranked improved product quality, changes to overseas trade barriers and changes in the exchange rate as leading contributors to the decrease in export share (figure A8.4).

These factors were also important on an industry basis (see table A8.3). Trade barriers and exchange rates were raised by a number of respondents to the agri-food follow up phone survey undertaken by the BIE. Some firms commented that the reduction of trade barriers had opened up new markets with potential for firm growth. Others noted that the reduction of trade barriers in Australian and in many other countries had led to increased competition on a worldwide basis. Some firms drew attention to how the exchange rate depreciation allowed them to compete with imports and helped ameliorate the effects of Australia's tariff reductions.

Figure A8.4 Factors leading to a change in export share between 1989-90 and 1993-94



Data source: BIE Agri-food survey 1995.

The domestic recession appears to have been important to the change in export share experienced in the Confectionery industry. It was nominated by 75 per cent of firms as a factor contributing to the change. However, the exchange rate was the most commonly reported factor affecting export share in this industry.

Table A8.3 Leading factors contributing to the change in export share in each industry since July 1989

Industry	*Most commonly reported factor*	*%*	*2nd most commonly reported factor*	*%*	*3rd most commonly reported factor*	*%*
Meat processing	(Trade barriers (Improve quality	85	New products	77	Lower unit costs	77
Milk and cream processing	New products	60	Lower production costs	60	Trade barriers	60
Dairy products nec	Lower production costs	100	Lower unit costs	89	(Trade barriers (Improve quality	89
Fruit & vegetable processing	Improve quality	88	Exchange rate	82	Trade barriers	76
Flour mill products	(Lower unit costs (Improve quality	100	Lower production costs	100	New products	100
Cereal foods & baking mixes	Lower unit costs	100	New products	67	Lower production costs	50
Confectionery mfg	Exchange rate	75	Recession	75	New products	67
Prepared animal & bird feed	Improve quality	78	(Lower unit costs (New products	67	Exchange rate	55
Packaging	Improve quality	71	Exchange rate	71	New products	57
Food processing machinery	New products	90	Improve quality	80	Lower unit costs	70
Fruit & vegetable wholesaling	Improve quality	73	Exchange rate	60	Trade barriers	50

a Some of the factors reported above have an equal percentage of firms indicating a factor was significant to changes in competition. One factor however may be ranked ahead of another as in the Meat processing industry. In these circumstances, more firms in the industry thought that this factor was of moderate/major significance compared to the other factor. Where factors are ranked as being of exactly the same significance (that is, equal numbers of minor, moderate and major significance) they are ranked together, this was the case for the Flour mill products industry.
Data source: BIE Agri-food survey.

A9 Overall firm performance

A change in the level or intensity of the competition in an industry can influence the way firms utilise their resources. Firms in reassessing their use of resources may change their production and marketing strategies as well as their management and workplace arrangements. All these factors can improve the productivity and profitability of firms and industries. This appendix analyses the performance of respondent firms. Changes in firms' productivity as well as some of the direct influences on these changes are discussed in section A9.1. Changes in production costs per unit and associated contributors to these changes are examined in section A9.2. Changes in profitability are addressed in section A9.3. Finally, some concluding comments are presented in section A9.4.

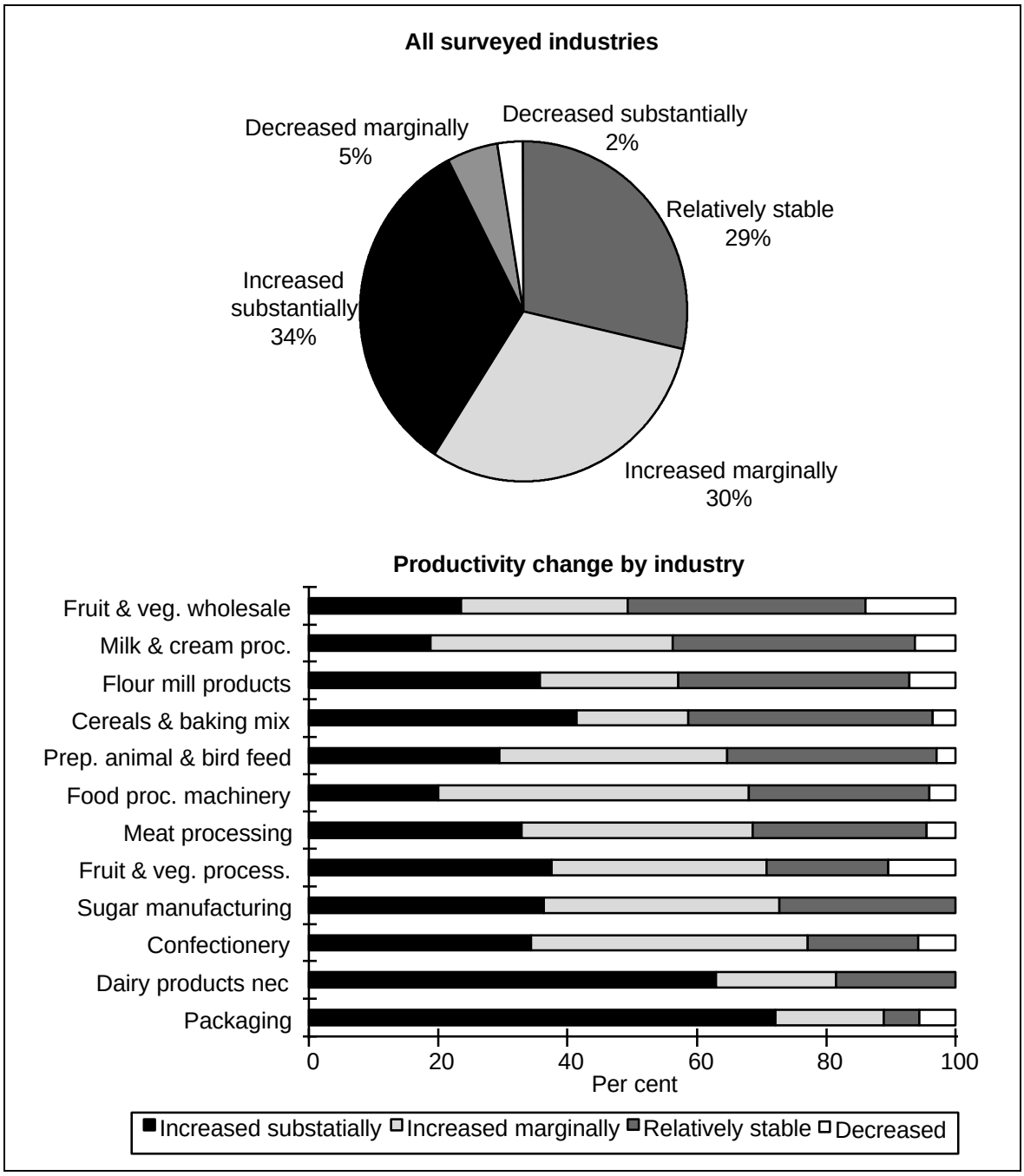
A9.1 Changes in productivity

Various measures can be used to ascertain whether the productivity of the surveyed firms has increased. The most rigorous productivity measure is total factor productivity (TFP). TFP takes into account *all* inputs and *all* outputs. Unfortunately, TFP analysis is extremely data intensive and is consequently out of the scope of this study. Although it has not been possible to measure TFP, the Agri-food survey asked firms to indicate their perceptions of how their business' overall productivity/efficiency had changed over the period 1989-90 to 1993-94. Firms were also asked to provide data on income from sales of goods and services, wages and salaries and employment. This enabled us to make a quantitative estimate of changes in labour productivity (a partial measure of productivity).

Firms' perceptions of changes in their productivity

Almost two-thirds of survey respondents perceived that their productivity/efficiency increased between 1989-90 and 1993-94. Just over half of these nominated a substantial increase. Less than 8 per cent of respondents perceived a reduction in their firm's productivity (figure A9.1).

Figure A9.1 Change in business' productivity between 1989-90 and 1993-94



Data source: BIE Agri-food survey 1995.

For all industries surveyed the number of firms indicating an increase in productivity outweighed the number of firms who said productivity had remained stable or decreased. However, industries differed substantially in the proportion of firms reporting an increase in productivity. For example, nearly 90 per cent of firms in the Packaging industry nominated an increase in productivity — with 72 per cent of responding firms nominating a significant increase. Similarly, 82 per cent of responding firms from the Dairy products nec industry and 77 per cent of

responding firms from the Confectionery manufacturing industry reported increases in productivity. For the Dairy products nec industry the majority of firms responding considered the increase in productivity to be substantial (figure A9.1).

All industries surveyed, except dairy and sugar, included some responding firms who believed that their productivity had declined (see figure A9.1). The industries showing the largest proportion of firms reporting a decline were Fruit and vegetable wholesaling — with 14 per cent of firms reporting a decline in productivity — and Fruit and vegetable processing — with 11 per cent of firms reporting a decline in productivity.

The survey questionnaire asked firms to identify significant factors contributing to the perceived change in productivity. Around 80 per cent of firms reporting increased productivity indicated changes in the level of production as a significant contributing factor. The other three main factors nominated by these firms were investments in new machinery, changes in management practices and investments in labour saving technology. Other factors commonly identified as contributing to productivity improvements included: changes in the level of innovation (nominated by 71 per cent of firms); and changes in management and employee relations (with 65 per cent of firms nominating this factor as significant) (figure A9.2).

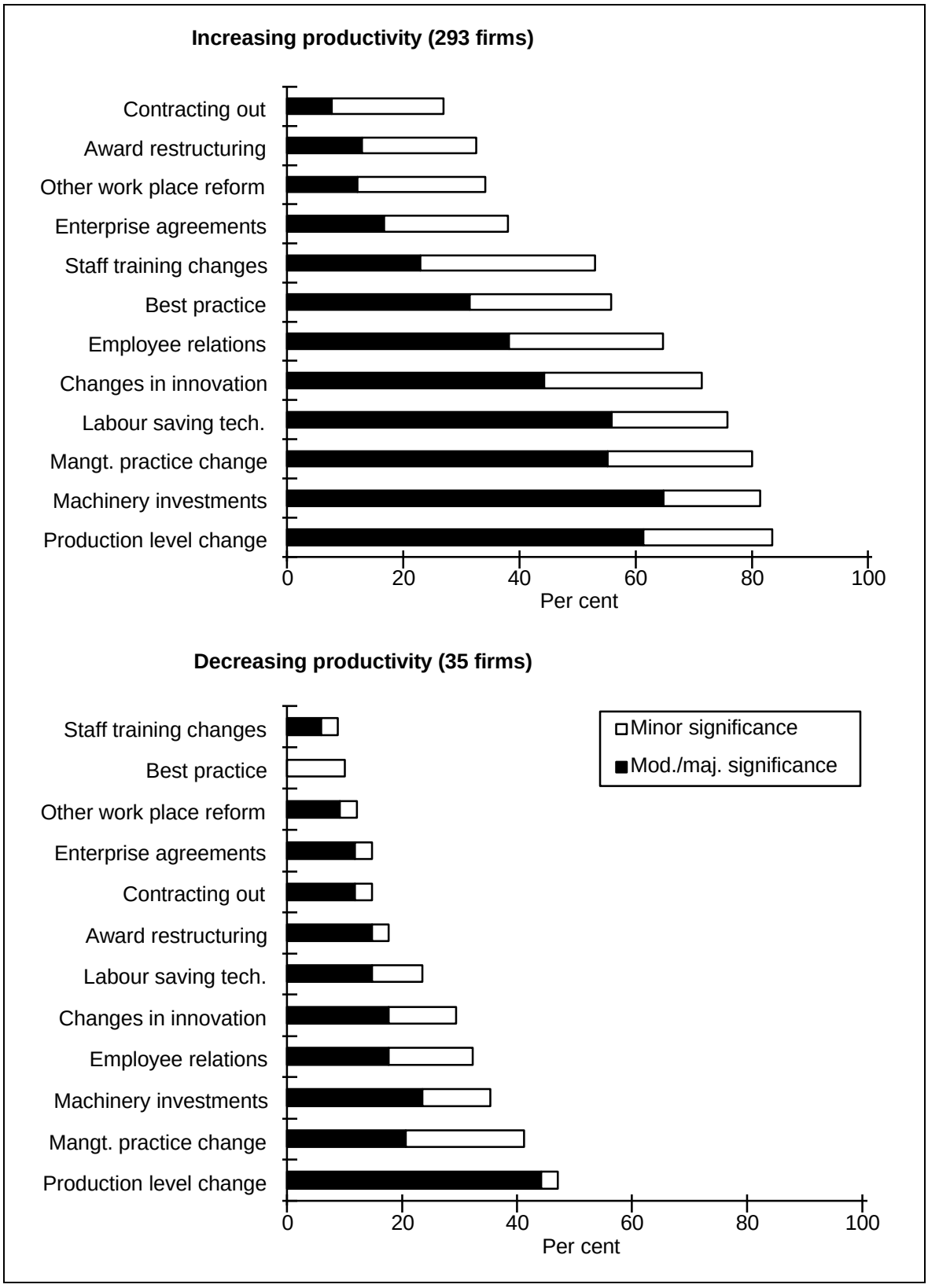
Changes in the level of production were also significant contributors for firms nominating a decrease in productivity. However, 'other' factors not specifically nominated in the survey questionnaire also tended to be important contributors to the decrease for some firms. Eight of these firms took the opportunity to specify these other contributing factors. Around half of these other factors could be broadly categorised as being related to cyclical or physical changes in the Australian economy, such as the recession and drought.

Little variation in the contributing factors could be identified at the industry level.

The survey also asked respondents to rank up to four of the most important contributors to their business' change in productivity over the survey period. The top four contributing factors remained the same as reported above, but the order changed.

Investments in new machinery was most commonly ranked as the most important contributor, changes in the level of production was most commonly ranked second. Investments in labour saving technology ranked third and changes in management practices ranked fourth. In a few industries changes in the business' level of innovation ranked higher than some of the factors mentioned above. For example, firms in the Flour mill products industry ranked changes in innovation as the equal most important factor contributing to their change in productivity. Similarly, firms in the Prepared animal and bird feed, Cereal food and baking mixes, Food processing machinery and Fruit and vegetable wholesaling industries ranked changes in the level of innovation as the fourth most important contributing factor.

Figure A9.2 Factors contributing to the change in productivity between 1989-90 and 1993-94



Data source: BIE Agri-food survey 1995.

Changes in labour productivity

Labour is a critical input into the production process and industrial relations reforms have, as a primary aim, focused on improving the productivity of labour. In order to develop a quantitative picture of how labour productivity has changed we calculated a measure of labour productivity from information supplied to us by agri-food firms.

Labour productivity can be measured in two ways with the data at hand from the survey — sales compared with number of employees and sales compared with outlays on wages and salaries (see box A9.1). While both measures were estimated by the BIE, for this study, the industry level estimates reported in this appendix were derived with reference to the volume of sales and the wages and salaries paid to employees at the industry level. Overall, this measure was judged to yield more meaningful estimates given that employment tends to be seasonal in a number of surveyed industries.

Box A9.1: Two alternative methods for measuring labour productivity

The first method utilises sales data and the number of person employed. Technically it yields a productivity measure by dividing an estimate of sales volumes (sales value deflated by an appropriate price index) by the number of employees. This basically estimates how much output each employee is producing. Of course firms' employees work for different time periods some full-time, some part-time and some casuals. In addition, some employees will work overtime from time to time. Hence the number of persons employed cannot always be seen to reflect their output. To reduce respondent burden our survey did not ask firms to report the full-time equivalent of their employees on an annual basis. Rather it requested data for two periods each financial year on the number of full-time and part-time/casual employees. The BIE made estimates of labour productivity using these data.

The second method utilises sales data and the wages and salaries paid to employees. Technically it also estimates sales volumes (sales value deflated by an appropriate price index) but unlike the first method it estimates the input of employees (wages and salaries are deflated by an appropriate industry award wage rate deflator). This method gives a better indication of the amount of hours employees are working.

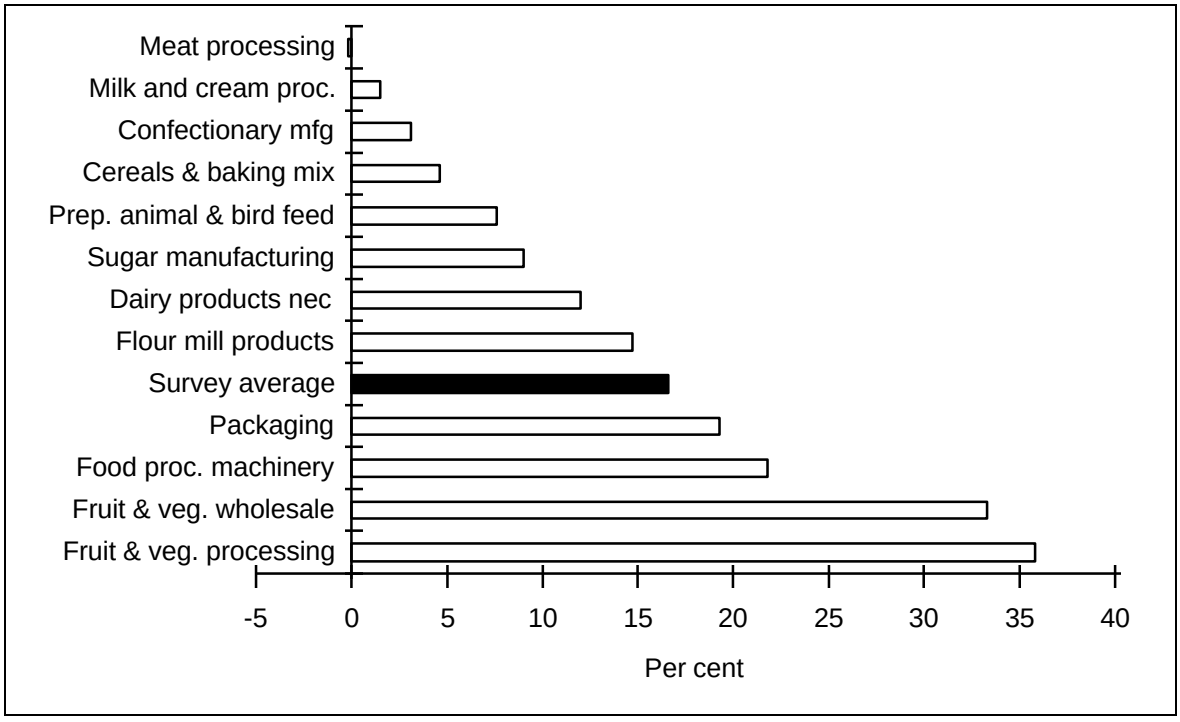
In aggregate, that is for the survey as a whole as well as on an industry by industry basis, the direction of the labour productivity change was the same using both methods. However, in one industry, one firm's data altered the labour productivity estimates significantly depending on the method used. This was largely due to the size of the respondent firm relative to other responding firms in that industry. Hence, we omitted this firm from the industry average on the basis that it was an outlier in the data set.

Our results show that on an industry basis labour productivity of respondents increased on average by 16.6 per cent between 1989-90 and 1993-94. However,

there were wide variations in labour productivity outcomes between industries (figure A9.3).

In aggregate, all but one of the surveyed industries experienced an increase in labour productivity, the exception being the Meat processing industry. Four industries experienced increases in productivity above the survey average, namely: Fruit and vegetable processing (an increase in labour productivity of 35.8 per cent); Fruit and vegetable wholesaling (an increase of 33.3 per cent); Food processing machinery (an increase of 21.8 per cent); and Packaging (an increase of 19.3 per cent).

Figure A9.3 Percentage change in labour productivity between 1989-90 to 1993-94, by industry and survey average[a]



a These estimates are based on the wages and salaries methodology and data from 309 respondents.
Data source: BIE Agri-food survey.

Among our respondent firms who provided sufficient data to calculate labour productivity estimates we found wide intra-industry differences in labour productivity outcomes. The standard deviation of labour productivity - which measures the dispersion of individual firm results around the mean - was relatively high for some industries. For example, the standard deviation for respondent firms in the Fruit and vegetable wholesale industry was 50.3 per cent compared to a standard deviation of 21.4 per cent in the Cereal foods and baking mixes industry. (Similar differences were also identifed in the analysis of labour productivity based on number of employees as well as in an analysis of nominal productivity changes

based on the nominal value of sales and the nominal value of salaries and wages provided by firms.)

A9.2 Changes in production costs per unit

Microeconomic reform can directly and indirectly lead to change in the costs of production. Direct effects can stem from a number of factors. These include lower infrastructure costs and improved infrastructure quality associated with the extensive program of infrastructure reform and lower input costs associated with tariff reductions and increased competition (see chapter 3). Indirect effects can also flow from firms responding to an increase in the level of competition in their industry by pursuing cost minimisation and continuous improvement strategies.

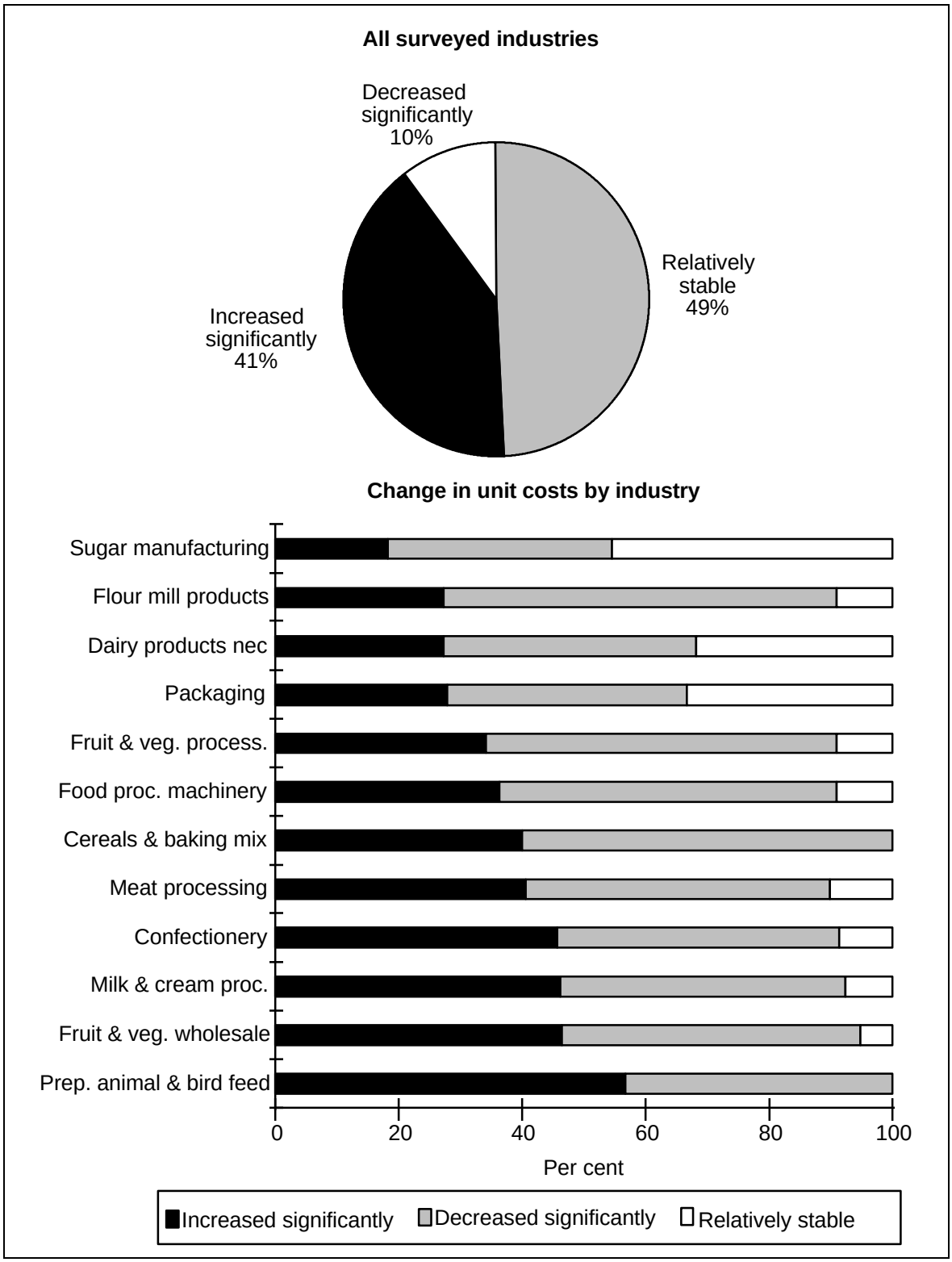
The survey questionnaire directly asked firms to indicate whether their production costs per unit, for goods produced in both 1989-90 and 1993-94, had changed significantly over the survey period. Responses were obtained from 387 firms. Around half of these firms reported relatively stable production costs per unit between 1989-90 and 1993-94 (refer to figure A9.4). About 40 per cent of firms nominated unit costs as increasing significantly. The remaining 10 per cent indicated that unit costs had decreased significantly.

Changes in production costs per unit varied between industries. For example, a relatively high proportion of firms in the Sugar manufacturing (45 per cent of firms), Packaging (33 per cent of firms) and Dairy products nec (26 per cent) industries nominated that costs had decreased significantly. In contrast, a relatively high proportion of firms in the Prepared animal and bird feed (50 per cent of firms) and Confectionery (47 per cent) industries indicated that their costs had increased significantly.

The main factors contributing to changes in the cost per unit of production were inflation (nominated by 85 per cent of firms), changes in utility charges (84 per cent of firms) and changes in the level of production (83 per cent of firms). Other important factors included: drought/recession (nominated by 81 per cent of firms); changes in level of competition between suppliers (80 per cent of firms); and changes to taxes on inputs and on-costs (77 per cent of firms).

More than 60 per cent of responding firms considered tariff reductions on inputs and changes to statutory marketing arrangements had an effect on their unit costs of production. However, the majority of these firms considered these changes had only been of minor significance. Few firms nominated them as being moderate or major factors.

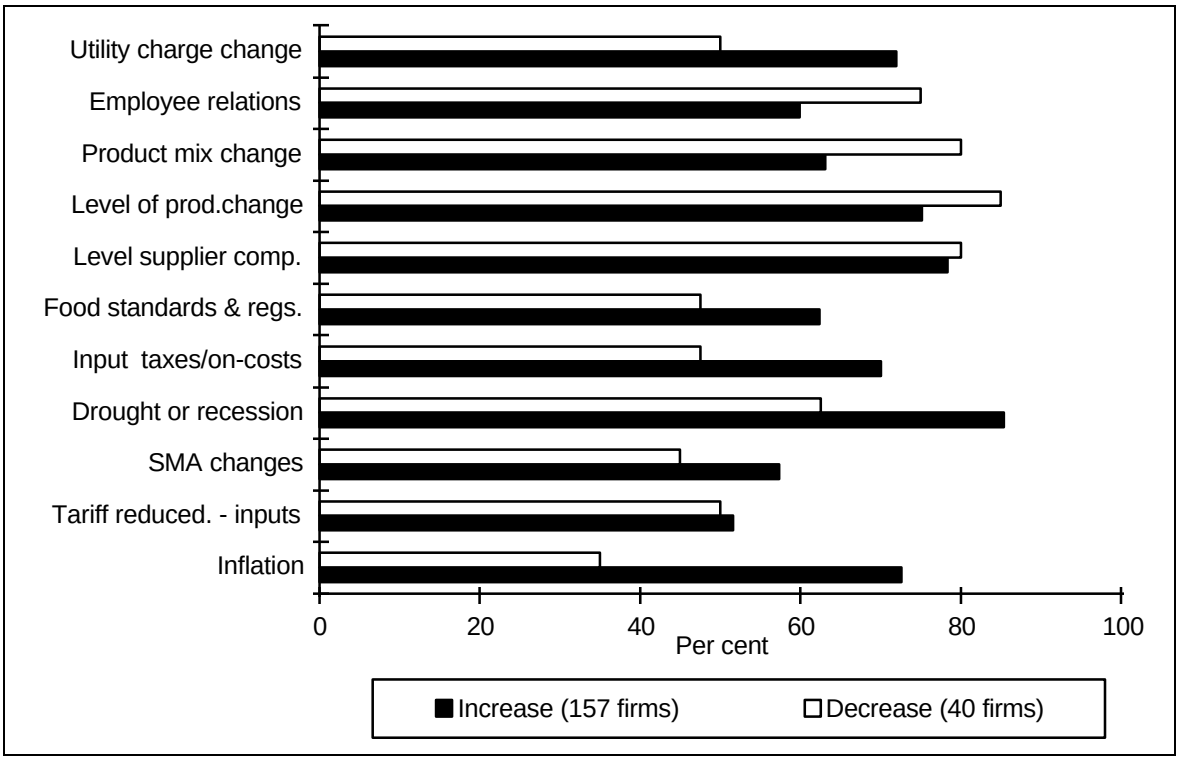
Figure A9.4 Change in per unit production costs between 1989-90 and 1993-94



Data source: BIE Agri-food survey 1995.

The ranking of factors changes somewhat when we analyse reasons given by firms who said costs increased relative to firms who said costs decreased (refer to figure A9.5). The drought and/or recession were the most commonly reported factors for firms reporting an increase in their units costs. Changes in the level of production was the most frequently nominated contributing factor for firms reporting a significant decrease in unit costs. Changes in the level of competition between suppliers was nominated as the second most important factor by firms experiencing either an increase or a decrease in unit costs. Changes in the level of production and inflation were the third and fourth most important factors nominated by firms experiencing an increase in costs. Changes in utility charges and changes in input taxes and on-costs were more important contributors for firms experiencing an increase in unit costs. Changes in employee relations were relatively more important for firms experiencing a decrease in unit costs.

Figure A9.5 Factors contributing to a change in the unit cost of production between 1989-90 and 1993-94[a]



a Percentage of firms reporting an increase or a decrease in the unit cost of production.
Data source: BIE Agri-food survey 1995.

At the industry level, inflation, changes to utility charges, changes in the level of production, taxes on inputs, drought/recession and competition between suppliers were all dominant factors (see table A9.1).

Table A9.1 Factors contributing to changes in unit costs of production in both 1989-90 and 1993-94 for each industry

Industry	*Most commonly reported factor*	*%*	*2nd most reported factor*	*%*
Meat processing	(Inflation (Drought/recession	85 85	Changes in the level of production	80
Milk and cream processing	(Inflation (Taxes on inputs (Changes in food standards (Changes in the level of production	71 71 71 71		
Dairy products	(Inflation (Changes in utility charges	85 85	Changes in the level of production	77
Fruit and vegetable processing	(Inflation (Taxes on inputs	84 84	Drought/recession	79
Flour mill products	(Taxes on inputs (Changes in utility charges	100 100		
Cereal foods and baking mixes	Competition between suppliers	90	(Drought/ recession (Inflation (Changes in utility charges	80 80 80
Sugar manufacturing	Changes in the level of production	100	(Drought/ recession (Taxes on inputs (Changes in relations with employees	86 86 86
Confectionery	(Competition between suppliers (Inflation (Changes in relations with employees	84 84 84		
Prepared animal and bird feed	(Drought/recession (Inflation	94 94	Competition between suppliers	88
Packaging	Changes in utility charges	91	Changes in the level of production	82
Food processing machinery	(Tariff reductions on inputs (Inflation	90 90	Changes in utility charges	80
Fruit and vegetable wholesaling	(Changes in the level of production (Changes in utility charges	92 92	Competition between suppliers	90

Data source: BIE Agri-food survey 1995.

One exception was the Food processing machinery industry with 90 per cent of firms nominating tariff reductions on inputs as contributing to their change in

production costs per unit. This reflects the fact that this industry imports a substantial proportion of its final product for assembly.

A9.3 Changes in profitability

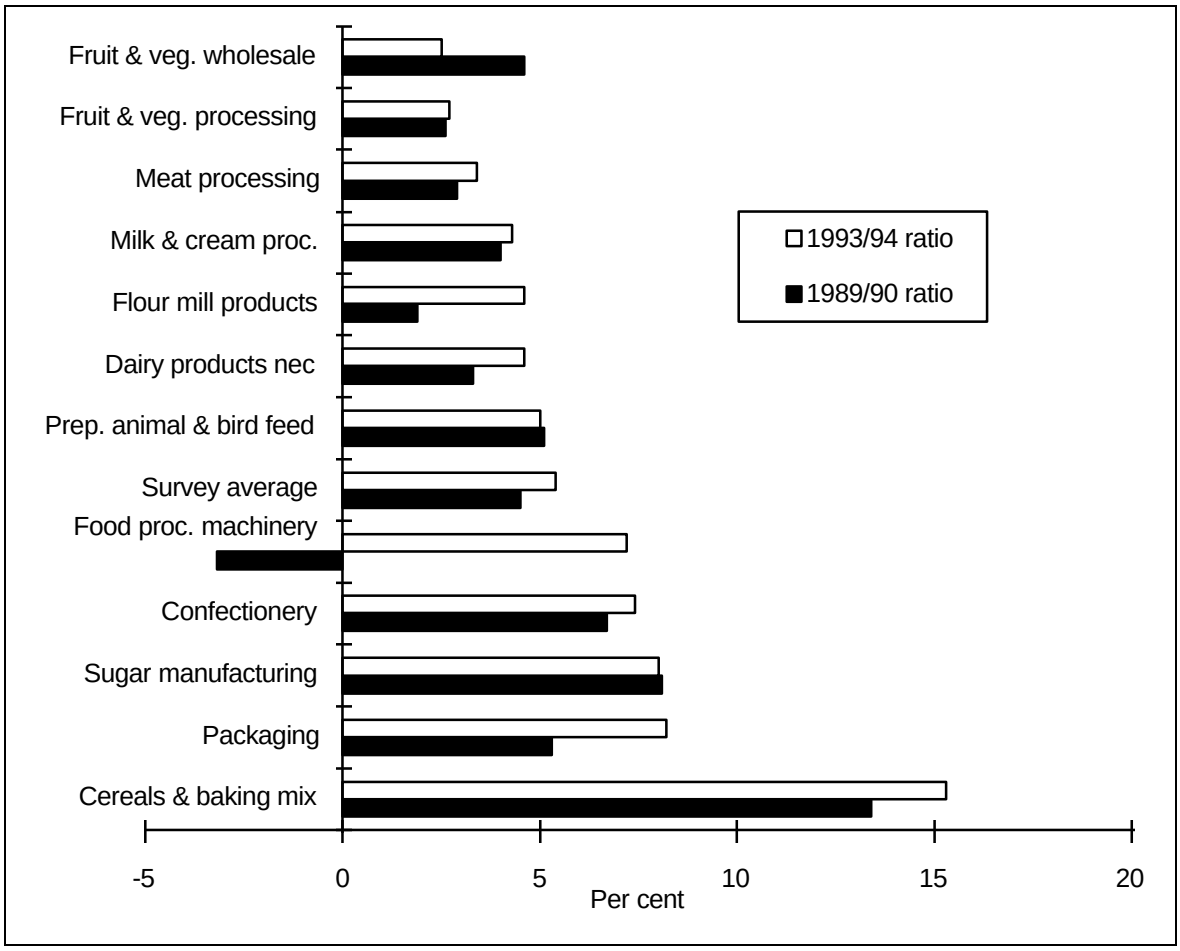
The survey's analysis of profitability has been based on data provided by 277 firms who reported comprehensive financial data. Based on these data we see substantial growth in the nominal value of profitability. The nominal value of profits grew by 52.6 per cent over the survey period. However, changes in profitability can be affected by a range of variables including mergers and divestments and changes in investment levels and efficiency improvements.

To gauge the real change in firms' profitability we calculated the level of profits as a proportion of sales of goods and services in 1989-90 and 1993-94. Profitability — profits as a proportion of sales — changed significantly for the 277 firms reporting comprehensive financial data. For these firms, profits as a proportion of sales increased by around 29 per cent over the survey period.

Aggregating respondents data to an industry level shows that most of the surveyed industries experienced an increase in their profitability (ie nominal profits as a proportion of nominal sales values) between 1989-90 and 1993-94. In some cases the increase was substantial. For example, the change in the profit share between 1989-90 and 1993-94 for the Food processing machinery industry was significantly above the survey average. A contributing factor behind this is that two relatively large firms reported substantial losses in 1989-90, but then recorded profits in 1993-94. Figure A9.6 reports profitability for the surveyed industries.

Three industries experienced a decrease in their profit share. These industries were Fruit and vegetable wholesaling, Prepared animal and bird feed and Sugar manufacturing. Of interest are firms in the Sugar manufacturing industry where relatively few respondents reported an increase in competition. Sugar is, however, a commodity which experiences substantial swings in its output price. Changes in the world price of sugar as well as reductions in tariffs for raw and refined sugar may have also impacted on the sugar industry respondent firms profitability. The world indicator price for sugar declined from USc/lb 14 to USc/lb 11 a decrease of 21 percent (ABARE 1994b). Over the same period the tariff on imports of raw and refined sugar declined from $115 per tonne in 1990 to $55 per tonne in 1994.

Figure A9.6 Profits as a proportion of sales by industry, 1989-90 and 1993-94[a]



a Percentage of the respondents in each industry which provided comprehensive financial data.
*D*ata *source*: BIE Agri-food survey 1995.

A9.4 Concluding comments

The majority of firms reported an increase in their overall productivity in the survey period. Less than ten per cent of responding firms considered their productivity had declined. There were, however, inter-industry differences in the change in productivity.

The major factors contributing to increases in productivity were investments in machinery and labour saving technology, changes in the level of production and changes in management practices. Many respondents indicated that a change in the level of competition has driven them to undertake investments and change management practices.

In aggregate, all but one of the surveyed industries experienced an increase in labour productivity, the exception being the Meat processing industry. However there were some significant inter-industry and intra-industry differences.

Production costs remained stable for around 50 per cent of respondent firms. The majority of firms experiencing a change in unit costs of production reported they increased. For these firms the major contributing factors were the drought and/or recession, change in competition between suppliers, changes in the production levels, inflation and utility charges. For firms experiencing a decrease in costs, the main factors nominated were changes in the level of production, changes in product mix, competition between suppliers and changes in employee relations.

On average, the level of profits increased substantially for the firms surveyed. However, profits varied substantially across industries (see figure A9.6).

A10 Human resources

The period covered by the agri-food survey has seen substantial changes in the rules and regulations governing how human resources are utilised in the work place. These include the progressive move away from the centralised determination of wages and conditions as well as changes to the regulations governing the structure of unions, workplace training and work practices (see chapter 2 and BIE 1996a).

This appendix examines whether there has been any change in the way human resources are utilised in the agri-food sector since July 1989. The following four key areas of human resources are considered:

- number of employees and wages (section A10.1);
- number of unions (section A10.2);
- implementation of industrial relations and work place reforms (section A10.3); and
- management's relationship with its employees (section A10.4).

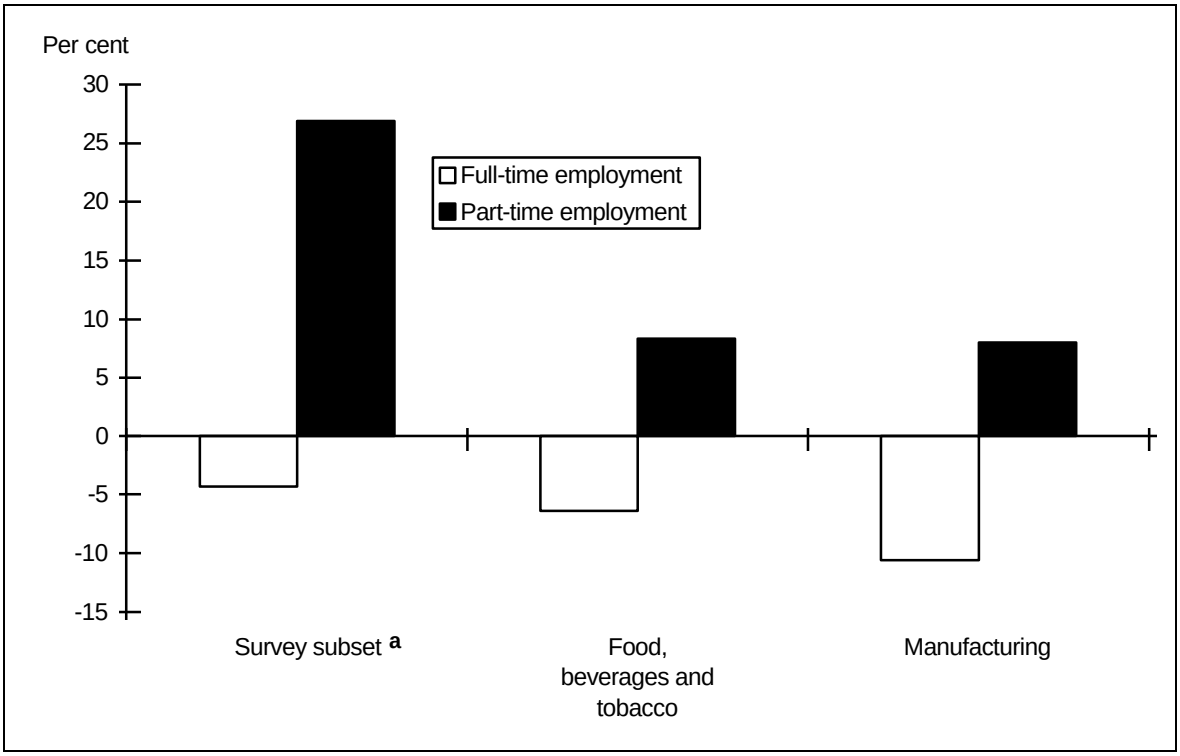
When considering the analysis presented in this section, it is important to note that our survey is the the primary source of information. Therefore, all perceptions on industrial relations issues come from a management perspective. It is quite possible we might obtain a different perspective on the success of these reforms from the trade union movement.

A10.1 Employees and wages

In 1993-94, respondent firms employed just over 61 000 full-time and part-time employees, up 15.7 per cent on the number for 1989-90. However, this very strong growth in total employment may be misleading as not all respondents provided comprehensive employment data for the period in question. For example, firms which commenced operations after 1989-90 supplied data for 1993-94 but not 1989 -90. Moreover, some firms did not supply complete data on wages paid to their employees over the same period. For these reasons, we have restricted the following analysis of employment and wages to a subset of 267 respondent firms who supplied comprehensive financial and employment data.

Between 1989-90 and 1993-94, full-time employment for these 267 firms (which cover all 12 survey industries) fell by 4.3 per cent (figure A10.1). Seven of the twelve case-study industries recorded falls in full-time employment, with the largest contributions coming from firms in the Packaging, Dairy product nec and Confectionery industries. By contrast, full-time employment levels rose in the Milk and cream processing, Flour mill product, Sugar, Prepared animal and bird feed and the Fruit and vegetable wholesaling industries.

Figure A10.1 Growth in full and part-time employment, 1989-90 to 1993-94



a Based on analysis of 267 firms who provided comprehensive employment and financial data.
Data sources: BIE Agri-food survey 1995 and ABS (1996b).

The number of part-time workers employed by respondent firms rose over the survey period, up 26.9 per cent or 1116 persons. This growth was broad-based, with eleven of the twelve survey industries contributing, especially the Fruit and vegetable wholesaling and Fruit and vegetable processing industries. Only firms in the Meat processing industry recorded a fall in part-time employment over the survey period.

Overall, total (full-time plus part-time) employment by respondents fell by 0.3 per cent or 109 persons. That is, to a large extent the rise in part-time employment offset the fall in full-time employment. A similar, but less dramatic offset, also occurred more generally for the Food, beverages and tobacco (FBT) industry and the manufacturing sector (figure A10.1). Australian Bureau of Statistics data (ABS

1996b) show FBT full-time employment fell by 6.4 per cent between 1989-90 and 1993-94, while part-time employment rose by 8.3 per cent. The manufacturing sector as a whole saw a similar growth in part-time employees and a larger reduction in full-time employment.

Despite the fall in total employment, the level of wages paid by these 267 respondent firms rose by 13.5 per cent (current prices). However, data for the manufacturing sector as a whole indicate that real wages rose by 3.8 per cent between 1989-90 and 1993-94. Moreover, data for FBT and Wholesaling indicates real wages in these industries rose by 10.2 and 11.9 per cent respectively. Therefore, is it likely that real wages also rose over the period for the firms included in the survey.

A10.2 Union coverage

Australian unions have traditionally been based on crafts rather than enterprises or industries. This led to a large number of unions and often a large number of unions at any work place. In the early 1980s Australian unionised employees were represented by over 320 unions registered at either the state or federal level.

The proliferation of unions has been attributed with contributing to high levels of demarcation disputes and low productivity. Large numbers of unions at an enterprise may also hamper enterprise bargaining. In 1990, the Commonwealth Government implemented legislative change to reduce the number of federally registered unions through amalgamation. To assess the effect of this reform, the survey asked respondents to indicate how many trade unions covered the business' employees in June 1990, June 1994 and at the time of responding to the questionnaire (May 1995).

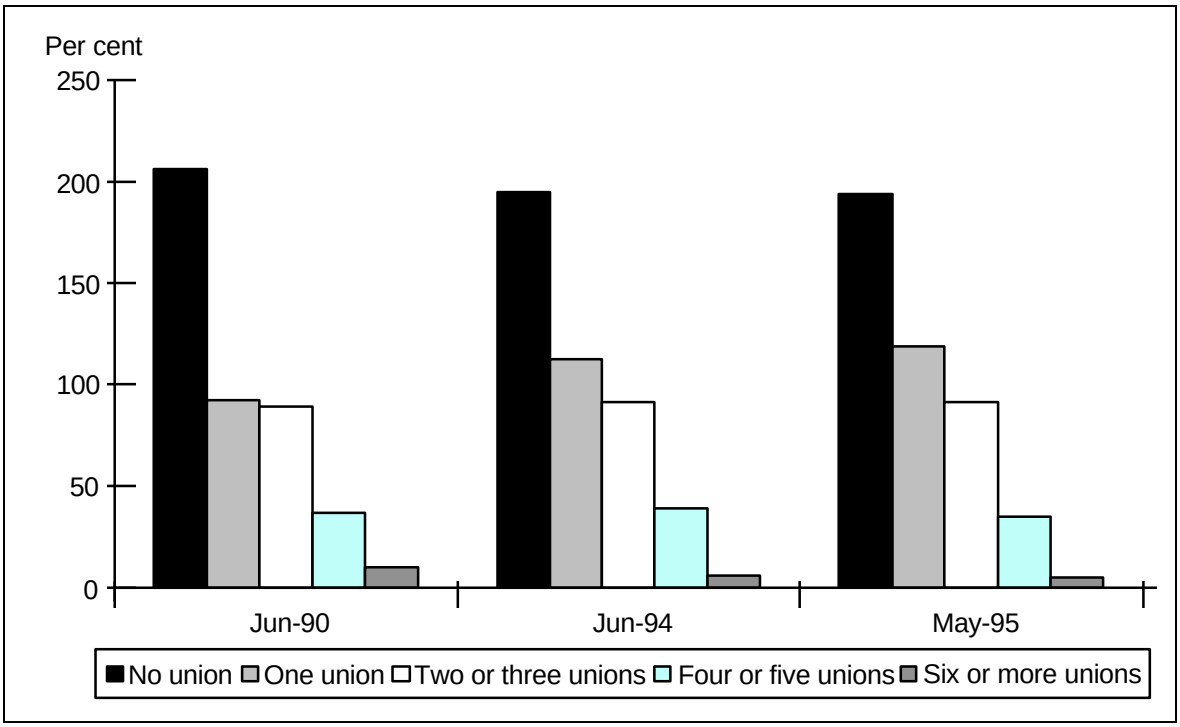
By far the largest number of the 460 respondents indicated that their employees were not covered by a union (figure A10.2). Although still dominant, the number of firms in this category fell over the survey period (from 206 to 194). Over the same period, the number of firms covered by 6 or more unions halved (from 10 to 5), while the number covered by four or five unions fell from 37 to 35. By contrast, there was a large increase (30 per cent) in the number of firms covered by only one union.

While this analysis points to a decrease in the number of firms whose employees are represented by more than one union (down from 136 to 131), it masks the movements within the categories. For example, the largest contribution to the increase in the number of firms represented by one union came from firms

previously unrepresented by unions. Of the 10 firms whose employees were covered by more than six unions in June 1990, only three were still in this category in May 1995. The other seven firms were now covered by only 4 or five unions. Similarly, the number of respondents originally covered by four or five unions fell from 37 to 25.

Union coverage differed across the survey industries. For example, all respondent firms in the Packaging and Sugar manufacturing industries were covered by at least one union. By contrast, 60 per cent of the firms in the Fruit and vegetable wholesaling industry were not covered by a union. This may reflect the large number of small, family-owned businesses in this industry.

Figure A10.2 Trade union coverage for respondent firms, various years



Data source: BIE Agri-food survey 1995.

A10.3 Industrial relations and workplace reforms

A number of survey respondents identified industrial relations and workplace reforms as being significant contributors to changes in firms' productivity (see chapter 5 and appendix 9). However the proportion of firms identifying these reforms as contributors was relatively low. Of the 460 respondent firms, less than half had implemented industrial relations and workplace reforms (figure A10.3). For example, 154 firms (33 per cent) indicated they had implemented some form of

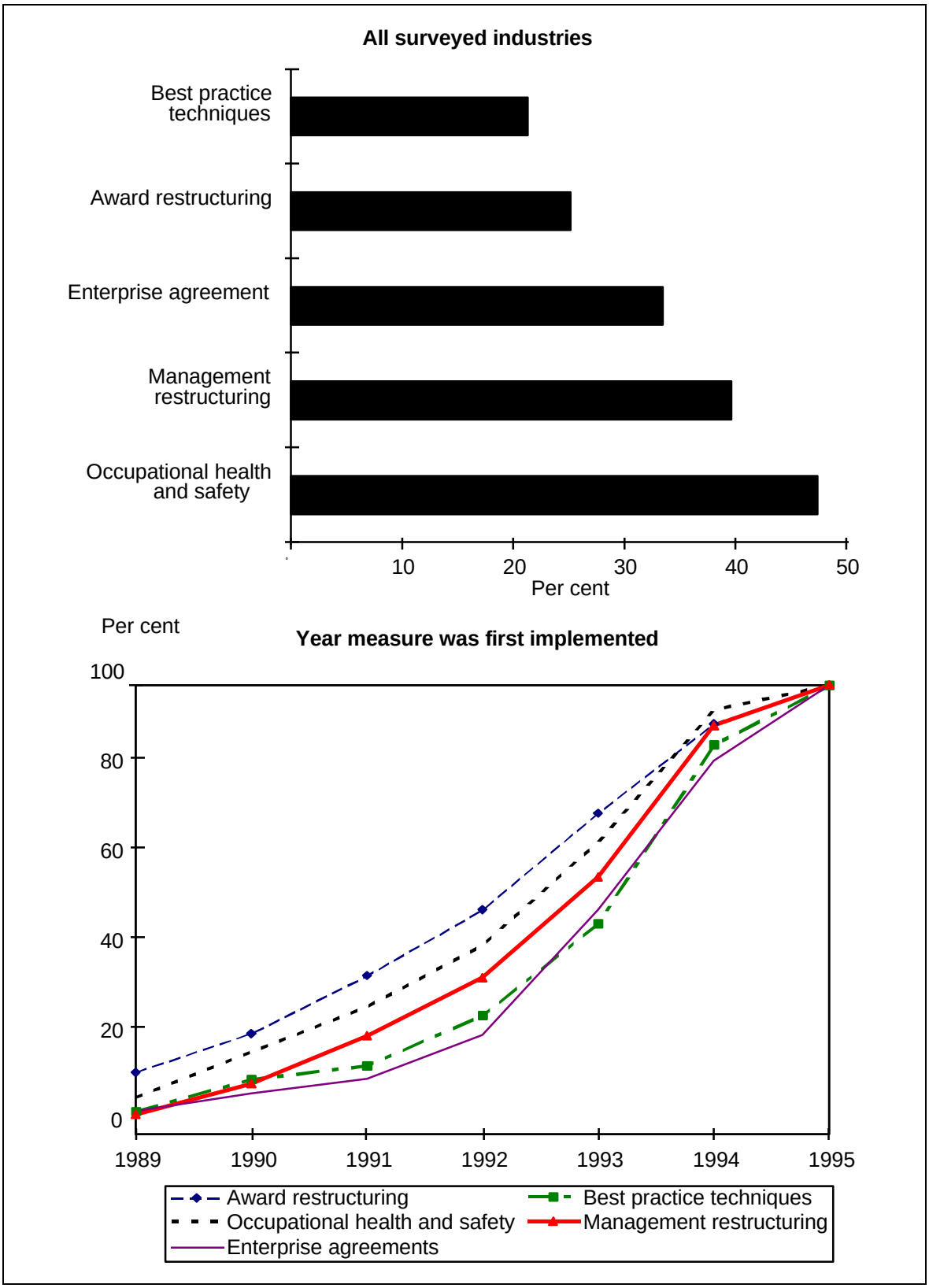
an enterprise agreement by May 1995. Less than 30 per cent of firms indicated they had implemented award restructuring. The relatively small number of firms implementing award restructuring is not surprising as awards normally occur at the industry/union level, rather than the firm level.

For most reforms, less than 10 per cent of firms implementing them had done so by 1989 (figure A10.3). By far the largest proportion of industrial and workplace reforms were implemented by firms between 1992 and 1994. This result is not surprising given that reform in this area only gathered speed in the 1990s. A good example is the rapid growth in the proportion of firms introducing enterprise agreements. Prior to 1991, formal enterprise agreements were restricted to a small range of short-term agreements designed to supplement awards. In 1991, the Australian Industrial Relations Commission (AIRC) introduced enterprise bargaining in its national wage case decision. Legislation was put in place to further facilitate enterprise agreements under the federal system in 1992. Further amendments to the legislation came into effect in 1994. This subsequent legislation was intended to facilitate the ratification of enterprise agreements in non-unionised enterprises. The timing of state legislation encouraging enterprise agreements was generally similar (see chapter 2 and BIE 1996a).

While the build up of enterprise agreements tends to mirror the progressive shift towards enterprise agreements, away from a reliance on awards, not all agreements were formally ratified by an industrial tribunal. A follow-up telephone survey of 92 respondent firms indicated that of those with enterprise agreements, only 60 per cent were formally approved by a federal or state industrial relations tribunal (table A10.1). The number ratified was split evenly between state or federal tribunals.

At the industry level, the Packaging, Sugar manufacturing and Dairy product nec industries had a substantially higher proportion of firms implementing measures associated with industrial relations and work place reforms (table A10.1). For example, in the Packaging industry 83 per cent of firms had implemented enterprise agreements, 78 per cent had changed OH&S procedures, 72 per cent had restructured their management, while 61 per cent had introduced best practice techniques and award restructuring. By contrast, proportionally fewer firms in the Fruit and vegetable wholesaling industry introduced industrial relations and workplace reforms. Only 11 per cent of fruit and vegetable wholesalers introduced best practice techniques, less than half the survey average (table A10.1). Similarly, 23.5 per cent of Fruit and vegetable wholesaling firms introduced enterprise agreements, 32 per cent changed OH&S procedures and 33 per cent restructured their management. The lower union coverage and the small size of many of these Fruit and vegetable wholesaling firms (over 75 per cent of respondent firms have less than 20 employees) may explain the lower incidence in this industry.

Figure A10.3 Proportion of firms implementing industrial relations and workplace reforms



Data source: BIE Agri-food survey 1995.

While not necessarily embracing a comprehensive range of industrial relations and workplace reforms, some industries stand out as implementing particular reforms. For example, nearly 70 per cent of respondents in the Meat processing industry indicated they had implemented changes to OH&S procedures. This is not surprising given the health and safety dangers associated with this industry. Implementation of best practice and enterprise agreements were around the survey average for meat processing. According to a report by the Industry Commission, labour issues are a major area in need of reform within the industry (IC 1994).

As noted above, the relatively small size of respondent firms in the Fruit and vegetable wholesaling industry may help explain the industry's low take-up of industrial relations and work place reforms. However, isolating the industry's responses does not substantially increase the overall proportion of respondent firms implementing these reforms. For example, the proportion of firms introducing enterprise agreements rises from 33.5 per cent to 37.7 per cent when fruit and vegetable wholesalers are excluded. Similarly, excluding the packaging industry (who tended to have a high take up of these measures) from the results has little impact on the survey average (see table A10.1).

A10.4 Management's relationship with its employees

The relationship between management and their employees can affect firm performance. For example, an improvement or deterioration in the relationship between management and employees can contribute to a change in the firm's productivity and consequently unit costs (see appendix 9). Management reported that despite the change in the level of competition, changes to assistance arrangements and a domestic recession, their relations with staff had generally been stable over the period. Almost two-thirds of the firms felt that relations had remained fairly stable, while around 30 per cent nominated an improvement in relations, with just over half of these indicating substantial improvement (figure A10.4). Only 5 per cent of respondents indicated that management's relations with employees had deteriorated, with less than half reporting a substantial deterioration.

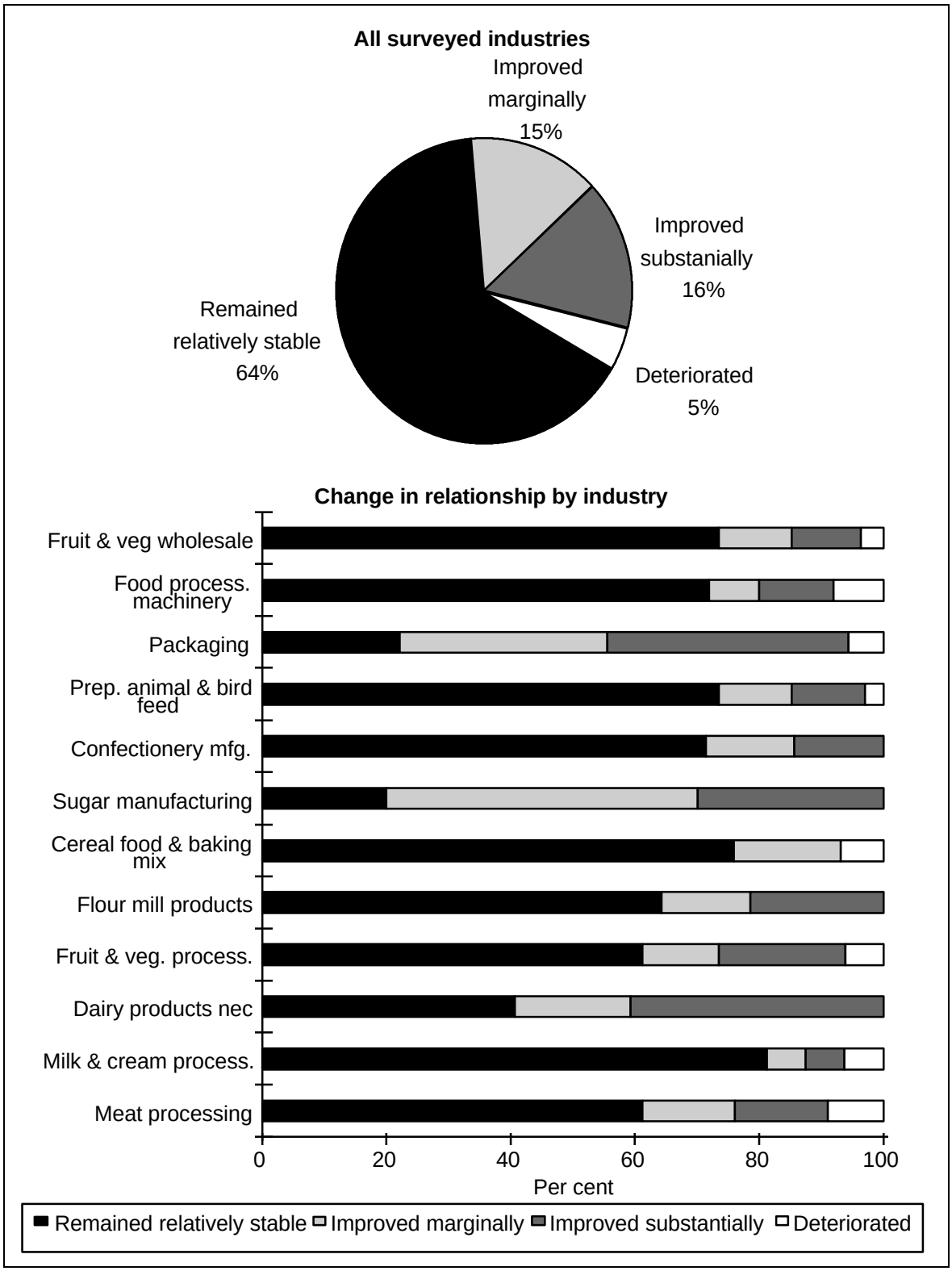
The largest improvements in management/employee relations were reported by firms in the Sugar manufacturing, Packaging and Dairy product nec industries (figure A10.4). For example, 80 per cent of respondents in the Sugar industry perceived that relations had improved since July 1989, with around 30 per cent reporting a substantial improvement. By contrast, a larger-than-average proportion of firms in the Meat processing and Food processing machinery industries reported management's relations with employees had deteriorated (9 and 8 per cent respectively).

Table A10.1 Proportion of firms implementing human resource measures, by industry[a]

Industry	*Number of respondents*	*Award restructuring*	*Best practice techniques*	*Changes to OH&S*	*Management restructuring*	*Enterprise agreements*
Meat processing	67	26.9	22.4	68.7	46.3	31.3
Milk and cream processing	16	37.5	31.3	50.0	37.5	43.8
Dairy product manufacturing nec	27	37.0	51.9	63.0	59.3	66.7
Fruit and vegetable processing	49	30.6	24.5	44.9	36.7	28.6
Flour mill product manufacturing	14	50.0	28.6	50.0	57.1	42.9
Cereal food and baking mix manufacturing	29	24.1	17.2	37.9	31.0	20.7
Sugar manufacturing	10	70.0	50.0	70.0	30.0	90.0
Confectionery manufacturing	35	25.7	11.4	31.4	34.3	20.0
Prepared animal and bird feed manufacturing	34	23.5	17.6	55.9	32.4	32.4
Packaging	18	61.1	61.1	77.8	72.2	83.3
Food processing machinery manufacturing	25	16.0	8.0	52.0	40.0	32.0
Fruit and vegetable wholesaling	136	10.3	11.0	31.6	33.1	23.5
Survey average	**460**	**25.2**	**21.3**	**47.4**	**38.7**	**33.5**
Survey average less Fruit & vegetable wholesaling	324	31.5	25.6	54.0	41.0	37.7
Survey average less Packaging	442	23.8	19.7	46.2	37.3	31.4

a Per cent of industry total.
Source: BIE Agri-food survey 1995.

Figure A10.4 Change in management's relationship with employees between 1989-90 and 1993-94



Data source: BIE Agri-food survey 1995.

Relations with unions, industrial relations and work place reforms all contribute to changes in business' relationship with employees. However, there are other factors that impact on the relationship, such as changes to operational structures. For firms indicating that relations with employees had improved, management restructuring was the most important factor bringing about this change (figure A10.5). As noted above, employees may not necessarily agree with the management view. About 70 per cent of respondent firms felt that changes to management structure was of moderate or major significance. Changing the business' operational structure and staff training arrangements were also important factors in this change. Surprisingly, respondents did not feel that major changes to assistance arrangements, such as tariff reductions, or changes in the level of competition had a significant impact on management/employee relations.

Industrial relations reform was the most important factor for firms reporting relations with employees had deteriorated. Over 60 per cent of these firms said it was of moderate or major significance. Changes in the business' operational structure and changes to staff training arrangements were the next most important contributors to the deterioration in relations. Changes in the level of competition had a somewhat larger impact on firms in this category.

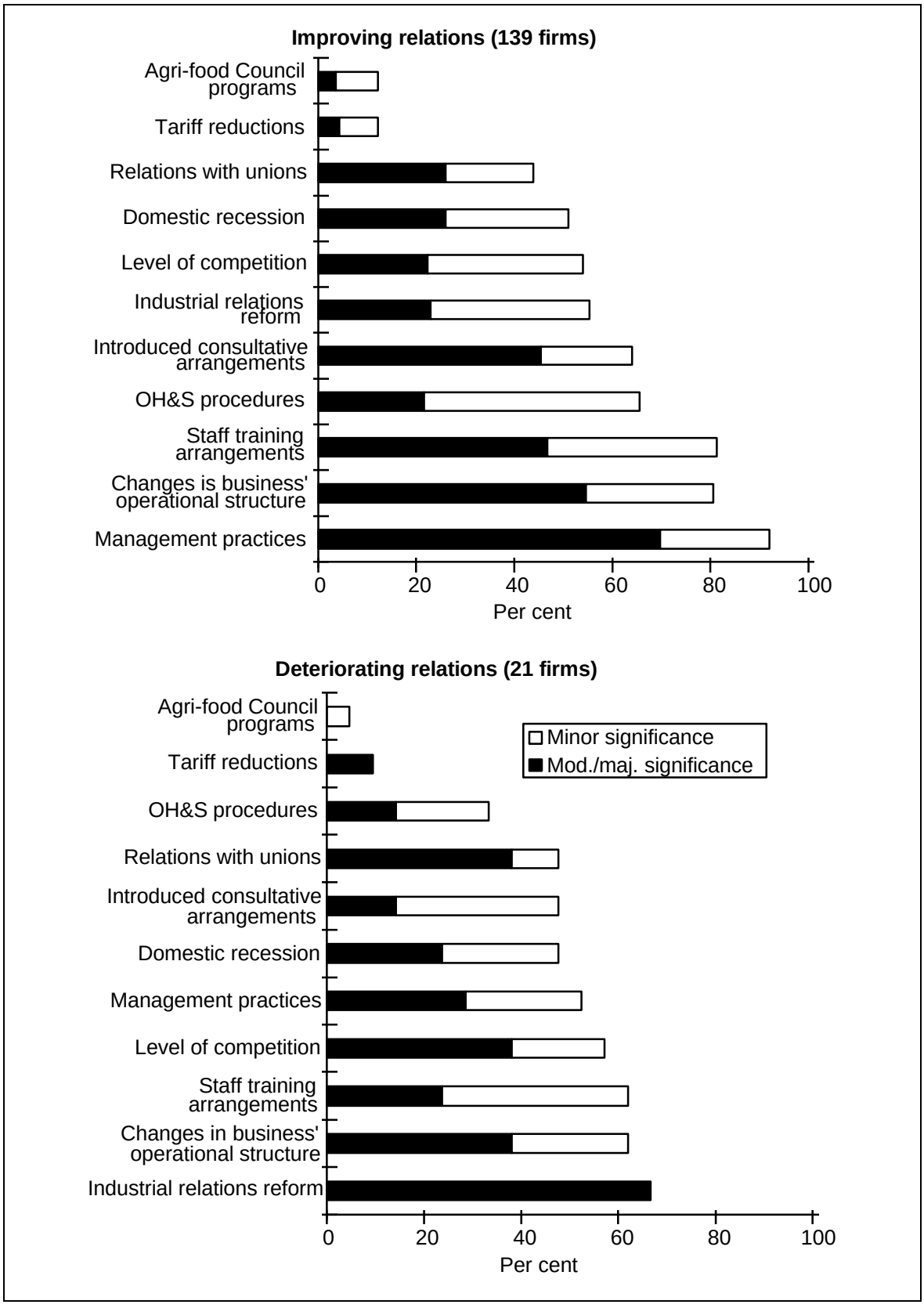
Changes in management practices was the most commonly reported factor contributing to changes in the business' relationship with employees by ten of the twelve surveyed industries (table A10.2). Firms in the Cereal food and baking mix industry nominated changes to staff training as the most significant factor contributing to changes in management/employee relations, while changes to relations with unions were most important for those in the Milk and cream processing industry. For some industries, changes to the business' operational structures, consultative arrangements and occupational health and safety procedures were also important contributors.

A10.5 Concluding comments

Following the trend of employment in the FBT industry and manufacturing sector as a whole, total employment by respondent firms fell 0.3 per cent between 1989-90 and 1993-94. A large rise in the number of part-time employees was largely offset by a fall in full-time employment.

There was a large rise in the number of survey respondents whose employees were covered by only one union between June 1990 and May 1995. However, it appears that the largest contribution to this growth came from firms whose employees were previously unrepresented by unions.

Figure A10.5 Factors contributing to management's change in relationship with employees between 1989-90 and 1993-94



Data source: BIE Agri-food survey 1995.

Table A10.2 Factors contributing to the business' relationship with its employees, by industry

Industry	*Firms reporting an improvement in relations (%)*	*Most commonly reported factor*	*%*	*2nd most reported factor*	*%*
Meat processing	30	Management practices	81	(Operational structure changes (Staff training	77
Milk and cream processing	13	Relations with unions	67	Consultative arrangements	67
Dairy products	59	Management practices	94	Consultative arrangements	88
Fruit and vegetable processing	33	Management practices	88	Operational structure changes	82
Flour mill products	35	(Management practices (Operational structure changes	100	Relations with unions	80
Cereal foods and baking mixes	17	Staff training	86	Operational structure changes	71
Sugar manufacturing	80	Management practices	89	(OH&S (Staff training	78
Confectionery	29	Management practices	100	(Staff training (Operational structure changes	70
Prepared animal and bird feed	24	(Operational structure changes (Management practices	100		
Packaging	72	(Consultative arrangements (Management practices	93		
Food processing machinery	20	(Management practices (OH&S	75		
Fruit and vegetable wholesaling	23	Management practices	89	(Operational structure changes (Staff training	81

Source: BIE Agri-food survey 1995.

Over the period surveyed industrial relations and workplace reforms were a major focus of the government's micro reform agenda. Despite this, by May 1995 the proportion of respondent firms implementing reforms such as enterprise agreements, changes in occupational health and safety or best practice techniques was relatively low. Firms also believed that their relations with employees remained stable over the survey period, with more than half indicating no significant change.

Abbreviations

AATS&E	Australian Academy of Technological Sciences and Engineering
ABARE	Australian Bureau of Agricultural and Resource Economics
ABS	Australian Bureau of Statistics
ACCC	Australian Competition and Consumer Commission
A.C.F.	Australian Co-operative Foods Ltd
ACTU	Australian Council of Trade Unions
AMC	Australian Manufacturing Council
AWB	Australian Wheat Board
AQIS	Australian Quarantine Inspection Service
DFAT	Department of Foreign Affairs and Trade
DIST	Department of Industry, Science and Tourism - formerly the Department of Industry, Science and Technology
DITAC	Department of Industry, Technology and Commerce
DPM&C	Department of Prime Minister and Cabinet
EFIC	Export Finance and Insurance Corporation
EPA	Environmental Protection Agency
ERA	effective rate of assistance
ESAA	Electricity Supply Association of Australia
ETMs	elaborately transformed manufactures
FBT	food, beverages and tobacco
FPRG	Food Processing Reference Group
GST	Goods and services tax
IC	Industry Commission
NFA	National Food Authority
NRA	nominal rate of assistance
OECD	Organisation for Economic Co-operation and Development
OH&S	occupational health and safety
QSC	Queensland Sugar Corporation
R&D	Research and development
RBA	Reserve Bank of Australia
SCNPMGTE	Steering Committee on National Performance Monitoring of Government Trading Enterprises
SMAs	statutory marketing authorities
TFP	total factor productivity
VDIA	Victorian Dairy Industry Corporation

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