G Additional information on Food, beverage and tobacco products

This appendix provides additional information on Food, beverage and tobacco product (FBT) manufacturing, as discussed in chapter 5.

## G.1 Data comparability issues for FBT

Comparability of FBT data over time is affected by changes in industry classification. For some variables, there are also differences in FBT data taken from alternative ABS surveys.

### ANZSIC classification changes

The change in industry classification, from ABS *Australian and New Zealand Standard Industrial Classification 1993* (ANZSIC93) to *Australian and New Zealand Standard Industrial Classification 2006* (ANZSIC06), affects the data presented in chapter 5. Box G.1 provides details of the broad correspondence between ANZSIC06 and ANZSIC93 at the industry group level.

Five of the eleven ANZSIC06 groups are directly comparable with ANZSIC93 groups or classes. The most significant changes are in two of the remaining six groups:

* Bakery product manufacturing, where Non-factory bakery was in Retail trade under ANZSIC93 but moved into Bakery product manufacturing under ANZSIC06
* Other food manufacturing, where the ANZSIC93 group was split into Seafood processing, Sugar and confectionery manufacturing and a narrower Other food manufacturing group under ANZSIC06. There were also some other additions to the new Other food manufacturing group, both from within FBT and from outside Manufacturing.

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| Box G.1 Effects on FBT subsector of change from ANZSIC93 to ANZSIC06 |
| ANZSIC changes at the industry group level are summarised below. The extent of the additions/leakages cannot be readily quantified, but some indication is given of the likely importance of the change.   |  |  |  | | --- | --- | --- | | *ANZSIC06 group* | *Main ANZSIC93 group/class* | *Extent of change; Additions/leakages* | | 111 Meat & meat product mfg | 211 Meat & meat product mfg | **No change** | | 112 Seafood processing | 217 Other food mfg (*part*)  2173 Seafood processing | **Moderate change** Plus part of ANZSIC93 Wholesale trade division (Fish wholesaling *(part)*) | | 113 Dairy product mfg | 212 Dairy product mfg *(part)* | **Minor change** Less part of ANZSIC93 212 | | 114 Fruit & veg. processing | 213 Fruit & veg. processing | **No change** | | 115 Oil & fat mfg | 214 Oil & fat mfg | **No change** | | 116 Grain mill & cereal  product food mfg | 215 Flour mill & cereal food   mfg *(part)* | **Moderate change** Less parts of ANZSIC93 215 Plus part of ANZSIC93 212 Plus part of ANZSIC93 218 | | 117 Bakery product mfg | 216 Bakery product mfg | **Major change** Plus part of ANZSIC93 Retail trade division (Bread and cake retailing *(part)*) Plus parts of ANZSIC93 215 | | 118 Sugar & confectionery   mfg | 217 Other food mfg (*part*)  2171 Sugar mfg  2172 Confectionery mfg | **No change** at group level | | 119 Other food mfg | 217 Other food mfg (*part*) | **Major change** Lessparts of ANZSIC 217 (2171, 2172, 2173)Plus parts of ANZSIC93 215 Plus part of ANZSIC93 Wholesale trade division (Grocery wholesaling nec *(part)*) | | 121 Beverage mfg | 218 Beverage & malt mfg | **Moderate change** Plus part of ANZSIC93 217 Less part of ANZSIC93 218 | | 122 Cigarette & tobacco   product mfg | 219 Tobacco product mfg | **No change** | | *(part)* indicates partial allocation to corresponding ANZSIC06 group. | | | |
| *Source*: ABS (*Australian and New Zealand Standard Industrial Classification, 2006,* Cat. no. 1292.0). |
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|  |

### Value added

Real value added (VA) for FBT in aggregate, the output volume measure used in the estimation of FBT multifactor productivity (MFP) for this paper, is from the ABS National Accounts (Cat. no. 5204.0). Data at a more disaggregated level are not available from the National Accounts, so a more disaggregated examination of FBT required the use of data from a different ABS source, the *Economic Activity Survey*[[1]](#footnote-1) (EAS).

There are limitations on the comparability of real VA derived from EAS and that published in the National Accounts.

* EAS data are subject to breaks in series, as a result of ANZSIC changes (as discussed above) and other changes in the EAS survey over time.
* Real VA estimates have been derived from EAS data by using a different process of deflation than that used in the National Accounts.

Figure G.1 compares real VA for FBT in total from the ABS National Accounts with two real VA series derived from the EAS — one with breaks in series and an approximate series adjusted for breaks. The adjusted EAS series is a backcast series based on information about the two breaks in series and is relatively crude. However, while the adjusted series does not exactly align with the National Accounts VA data, in both series growth in cycle 4 was lower than in cycle 3. Figure G.2 shows the approximate adjusted series for Food manufacturing and for Beverage and tobacco product (BT) manufacturing that underlie the FBT aggregate.

Further details about the limitations on comparability related to breaks and deflation are provided below.

Figure G.1 Real VA of FBT**a**

2009-10 $bn

|  |
| --- |
|  |

a National accounts value added is a chain volume measure. EAS data are deflated by producer price index for output. To the extent that output and intermediate input prices have grown at different rates, the real VA series derived from EAS will differ from the doubled deflated National Accounts series. Deflators on an ANZSIC06 basis are applied to ANZSIC93 and ANZSIC06 data.

*Data sources*: ABS (*Australian System of National Accounts, 2010-11*, Cat. no. 5204.0); Authors’ estimates based on ABS (*Manufacturing Industry, Australia,* various issues,Cat. no. 8221.0); ABS (*Experimental Estimates for the Manufacturing Industry*, various issues, Cat. no. 8159.0); ABS (*Australian Industry*, various issues,Cat. no. 8155.0); and ABS (*Producer Price Indexes, June 2012,* Cat. no. 6427.0).

Figure G.2 Adjusted real VA of FBT and its subdivisions**a**

2009-10 $bn

|  |
| --- |
|  |

a EAS data deflated by producer price index for output. To the extent that output and intermediate input prices have grown at different rates, the real VA series derived from EAS will differ from the doubled deflated National Accounts series. Deflators on an ANZSIC06 basis are applied to ANZSIC93 and ANZSIC06 data.

*Data sources*: Authors’ estimates based on ABS (*Manufacturing Industry, Australia,* various issues,Cat. no. 8221.0); ABS (*Experimental Estimates for the Manufacturing Industry*, various issues, Cat. no. 8159.0); ABS (*Australian Industry*, various issues,Cat. no. 8155.0); and ABS (*Producer Price Indexes, June 2012,* Cat. no. 6427.0).

#### Break in series

The first two years of the EAS data are understated by around 1 per cent because of a change in survey methodology (ABS 2001).[[2]](#footnote-2) The change to ANZSIC06 from 2006‑07 led to net additions to FBT so all prior years are understated — VA in FBT on an ANZSIC06 basis is on average 2.4 per cent higher than on an ANZSIC93 basis for the years for which overlapping data are available.[[3]](#footnote-3)

At a lower level of disaggregation (ANZSIC groups), there is no equivalent information about the effects of these breaks in series. Data at the ANZSIC group level presented in chapter 5 will therefore be less comparable over time.

#### Deflators

Real VA estimates derived from the EAS are based on nominal VA deflated using the producer price index (PPI) for output. A process of double deflation is used in the National Accounts — that is, output and intermediates are deflated separately. Sufficient data are not available to derive real VA from EAS using double deflation.

To the extent that output and intermediate input prices have grown at different rates, the real VA series derived from EAS will differ from a series that has been double deflated. The derived real VA series for Food and BT are therefore only broadly comparable with the real VA series for FBT from the National Accounts.

For Food, these two price series have tracked closely over the period examined (figure G.3).[[4]](#footnote-4) However, for BT there is a larger difference. If output prices are growing faster than input prices (as is the case for BT over cycle 4), then the use of an output deflator on VA will lead to a higher rate of real VA growth than a double deflated series.

Figure G.3 Producer price indexes by FBT subdivision**a**

Index 2009-10 = 100

|  |  |
| --- | --- |
|  |  |

a Deflators are for ANZSIC06 so will not match the ANZSIC93 data.

*Data source*: ABS (*Producer Price Indexes, June 2012,* Cat. no. 6427.0).

At the ANZSIC group level there are no intermediate input prices available so a similar comparison cannot be made. For this reason (and because of the change in ANZSIC) only limited use is made in chapter 5 of derived real VA by ANZSIC group. Limitations on the comparability of these estimates with those at a more aggregated level should be noted.

### Labour

The labour input measure used by the ABS in its MFP estimates for Manufacturing in aggregate is an index of annual hours worked. This index is based on data from the ABS *Labour Force Survey* (LFS) but adjustments have been made by the ABS including for changes in survey methodology (appendix A). Hours worked indexes for each of the eight subsectors were derived from the hours worked series for Manufacturing, using information (from the same survey) about the distribution of hours worked across Manufacturing subsectors.

There are two issues related to the use of the ABS LFS data for FBT that are worth examining, given the large turnaround in hours worked trend:

* the possible impact of ANZSIC classification change on the LFS series
* how the LFS data compare with an alternative source, the ABS EAS.

#### Impact of ANZSIC classification change on LFS data

ABS LFS data are available as an ANZSIC06 time series, with data prior to August 2006 converted (or backcast) by the ABS from earlier industry classifications. The LFS data was dual coded in ANZSIC93 and ANZSIC06 from August 2006 until November 2008 (ABS 2008d, p. 5). This dual coded data, supplemented by 2006 ABS Census data, was used to calculate the percentages to split the earlier ANZSIC data. The dual coding and backcasting was done at the ANZSIC group level.

The implication of this backcasting process is that there may be some imprecision in the ANZSIC06 series prior to 2006, particularly where ANZSIC06 classes within a group had different growth rates over time. For example, take the case of activities moved into a new ANZSIC06 class, that is, one split from other activities in an ANZSIC93 class. If the activities moved into this new class had grown more rapidly than the other activities in the ANZSIC93 class, then backcasting the new class on the basis of the percentage shares from the dual coded data may lead to it being overestimated in earlier years.

The new ANZSIC06 Bakery product manufacturing (non-factory) class, which was previously part of the ANZSIC93 Bread and cake retailing class, may be affected by the need to make such assumptions based on dual coded data. But no information is available to assess whether Bakery product manufacturing (non-factory) was growing faster than the other activities within Bread and cake retailing. The implications for hours worked estimates for Bakery are discussed further in section G.4.

#### Comparison of alternative sources of employment data

The ABS collects employment data and hours worked data in the LFS but only employment data in the EAS. Figure G.4 compares employment estimates from these two surveys. The EAS data are affected by the ANZSIC06 change in 2006-07, while the LFS data have been adjusted for comparability over time by the ABS. While these two employment series are not directly comparable, there are some broad similarities in trend, with apparent faster growth in cycle 4 than cycle 3 in both series. The cycle growth rates for the LFS series are sensitive to the use of 2003-04 as the end of cycle 3 and beginning of cycle 4. This year is a low point in the series, which is not observed in the EAS series. (This is the year identified by the ABS as a peak year for market sector MFP and therefore a cycle year). This is likely to lead to a lower growth rate in cycle 3 and a higher growth rate in cycle 4 than the EAS series (abstracting from the break in the latter series).

Figure G.4 Comparison of data sources for employment in FBT**a**

Number of persons

|  |
| --- |
|  |

a FBT employment from EAS has been adjusted for 1998-99 and 1999-00 for change in survey methodology (appendix A), but has not been adjusted for change to ANZSIC06 in 2006-07.

*Data sources*: Authors’ estimates based on ABS (*Manufacturing Industry, Australia,* various issues,Cat. no. 8221.0); ABS (*Experimental Estimates for the Manufacturing Industry*, various issues, Cat. no. 8159.0); ABS (*Australian Industry*, various issues,Cat. no. 8155.0); andABS (unpublished Labour Force Survey data).

One source of difference between surveys can be the difference in the accuracy of the details given by different types of respondents. Household surveys, such as the LFS, sometimes provide a less accurate picture of the distribution of employment across *industries* than business surveys, such as the EAS. This is because employees may provide a less accurate description of the industry in which they are employed than their employers. This problem is likely to be greater the more detailed the industry breakdown. In the LFS, where there is insufficient detail collected from the survey respondent to allocate to the most detailed level of industry code, 'not further defined' (nfd) codes are used. Since 2000, there has been some growth in allocations to nfd industry categories as a result of changes to coding practices (ABS 1999, 2003, 2005). See Connolly et al. (2013) for further discussion of differences between EAS and LFS employment estimates.

The extent of the difference between LFS and EAS data for employment varies across ANZSIC group within FBT. For example, figure G.5 compares labour input (hours worked and employment) measures based on LFS data and on EAS data for the three ANZSIC groups that contributed most to the large increase in hours worked growth for FBT in total between cycles 3 and 4.

Figure G.5 Comparison of data sources for labour input, selected ANZSIC groups within FBT

Average annual growth rate (per cent)

|  |  |
| --- | --- |
| *Meat* | *Sugar & confectionery* |
|  |  |
| *Bakery* |  |
|  |  |

a 2007-08 employment imputed as midpoint of 2006-07 and 2008-09 EAS data — no disaggregated EAS data was published in 2007-08. 1998-99 EAS data has been adjusted for change in survey methodology by applying the adjustment factor identified by ABS for FBT on average (appendix A). No adjustment has been made for the ANZSIC06 change in 2006-07, which affects Bakery but not Meat and Sugar and confectionery.

*Data sources*: Authors’ estimates based on ABS (*Manufacturing Industry, Australia,* various issues,Cat. no. 8221.0); ABS (*Experimental Estimates for the Manufacturing Industry*, various issues, Cat. no. 8159.0); ABS (*Australian Industry*, various issues,Cat. no. 8155.0); andABS (unpublished Labour Force Survey data).

* For Meat, EAS employment grew more strongly between cycles than LFS employment or hours worked.
* For Sugar and confectionery, the opposite was the case. LFS employment and hours worked grew more strongly between cycles than EAS employment — mainly due to employment falling in the LFS but rising in the EAS over cycle 3.
* For Bakery, the ANZSIC change hampers comparisons. The large difference over cycle 4 is attributable to the addition of Non-factory bakery to Bakery in the EAS from 2006-07, while the LFS has been backcast to include Non-factory bakery throughout the period.

#### Shift-share analysis of labour intensity

Average labour intensity in FBT, measured as employed persons per million dollars of real VA,[[5]](#footnote-5) increased by 21.2 per cent between 2003-04 and 2006-07 (table G.1). This is a significant increase, compared with the 5.8 per cent decline between 1998‑99 and 2003-04 (cycle 3) — although the change in ANZSIC classification in 2006‑07 is a factor in the increase (with the addition of non-factory baking).

Around 72 per cent of this increase (15.2 percentage points) was the result of changes in labour intensity of the FBT industry groups (the ‘shift’ effect), rather than a change in the relative size of the FBT groups in VA terms (the ‘share’ effect) or the interaction of the shift and share effects (the ‘dynamic’ effect).

Bakery manufacturing made the largest contribution to the ‘shift’ effect in labour intensity but part of this was due to changes in ANZSIC. (Nevertheless, labour intensity in FBT would still have increased and the ‘shift’ effect would still have dominated if Bakery manufacturing was excluded from the analysis.)

Table G.1 Shift-share analysis of FBT labour intensity, 2003-04 to 2006-07

Percentage points

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| ANZSIC group | 'Shift' | 'Share' | 'Dynamic' | Total |
| Meat | 1.7 | 0.7 | 0.0 | 2.4 |
| Seafood | 0.9 | -1.2 | -0.5 | -0.8 |
| Dairy | -1.5 | 1.1 | -0.2 | -0.5 |
| Fruit & vegetables | 2.3 | -1.3 | -0.4 | 0.5 |
| Oil & fat | 0.1 | -0.6 | -0.1 | -0.6 |
| Grain & cereal | -0.1 | -0.1 | 0.0 | -0.2 |
| Bakery | 8.8 | 6.5 | 4.4 | 19.7 |
| Sugar & confectionery | 0.0 | 0.7 | 0.0 | 0.7 |
| Other food | -0.8 | -1.1 | 0.1 | -1.8 |
| Soft drink | 0.3 | 0.7 | 0.1 | 1.0 |
| Wine | 2.9 | -1.4 | -0.5 | 0.9 |
| Other BT | 0.5 | -0.6 | -0.1 | -0.1 |
| **Total FBT** | **15.2** | **3.1** | **2.9** | **21.2** |

*Sources*: Authors’ estimates based on ABS (*Manufacturing Industry, Australia*, various issues, Cat. no. 8221.0); and ABS (*Producer Price Indexes, Australia, June 2012*, Cat. no. 6427.0).

## G.2 FBT in aggregate

### Investment

Figure G.6 shows available data for investment by ANZSIC group/class over the period 2001-02 to 2006-07. Large projects result in some lumpiness in investment.

Figure G.6 Investment**a** by ANZSIC groups/classes**b** within FBT

$m

|  |
| --- |
|  |

a Investment is total acquisitions (expenditure on the acquisition of capital including plant, machinery and equipment, buildings, and other assets) and is not net of disposals of assets. b Affected by ANZSIC change so groups/classes are only broadly comparable. Baking includes Non-factory bakery only in 2006-07.

*Data source*: ABS (*Manufacturing Industry, Australia*, various issues,Cat. no. 8221.0).

Over the period 2003-04 to 2006-07 (which is the closest available to cycle 4) more than half of the investment in FBT is likely to have been in four FBT groups/classes — Wine (16 per cent), Meat (15 per cent) and Dairy (13 per cent), and Sugar and confectionery (10 per cent).[[6]](#footnote-6)

### Linkages between FBT and other parts of the economy

FBT includes resource processing of agricultural products but also more elaborately transformed products. Table G.2 (third column) shows that intermediate inputs make up around 70 per cent of the value of FBT output, the highest intermediates share of all subsectors within Manufacturing. Large shares of FBT’s intermediate inputs come from Agriculture (44 per cent), Services (30 per cent), and other parts of FBT (17 per cent).

FBT provides inputs to a range of other parts of the economy. Table G.2 (third row) shows that FBT provides between 0.4 and 6.6 per cent of total intermediates used by other sectors of the economy and 5.2 per cent of intermediates used by Manufacturing in total.

Table G.2 FBT input-output linkages, 2008-09**a**

Percentage shares of total intermediate inputs

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **TO** | | | | | | | | | | | |
|  |  |  | Manufacturingb | | | | | | | | |  |
| **FROM** | Ag. | Mining | FBT | TCO | WP | PRM | PCCR | NM | MP | ME | Total Mfg | Serv-icesc |
| *Share of total intermediate inputs* | | | | | | | | | | | | |
| Ag |  |  | **43.7** |  |  |  |  |  |  |  | 13.0 |  |
| Mining |  |  | **0.8** |  |  |  |  |  |  |  | 14.9 |  |
| **FBT** | **4.3** | **0.5** | **17.1** | **6.6** | **0.4** | **0.5** | **1.7** | **0.4** | **0.1** | **0.4** | **5.2** | **2.7** |
| TCO |  |  | **0.3** |  |  |  |  |  |  |  | 0.7 |  |
| WP |  |  | **2.2** |  |  |  |  |  |  |  | 2.3 |  |
| PRM |  |  | **0.2** |  |  |  |  |  |  |  | 0.4 |  |
| PCCR |  |  | **3.2** |  |  |  |  |  |  |  | 6.1 |  |
| NM |  |  | **0.8** |  |  |  |  |  |  |  | 1.7 |  |
| MP |  |  | **0.8** |  |  |  |  |  |  |  | 16.6 |  |
| ME |  |  | **0.4** |  |  |  |  |  |  |  | 2.3 |  |
| Total Mfg. | 16.4 | 15.3 | **25.2** | 43.6 | 27.3 | 35.7 | 27.7 | 34.7 | 40.1 | 51.8 | 35.2 | 15.1 |
| Services |  |  | **30.3** |  |  |  |  |  |  |  | 36.9 |  |
| *All sectors* | *100* | *100* | ***100*** | *100* | *100* | *100* | *100* | *100* | *100* | *100* | *100* | *100* |
| *Total intermediate inputs as a share of output* | | | | | | | | | | | | |
| *All sectors* | *50.4* | *33.2* | *67.4* | *43.0* | *54.2* | *42.6* | *46.1* | *53.2* | *59.5* | *49.9* | *55.5* | *44.0* |

a Based on industry by industry flow (direct allocation of imports). For simplicity, only selected linkages are included. Only includes domestically produced intermediates. b FBT is Food, beverage & tobacco products; TCF is Textile, clothing & footwear; WP is Wood & paper products; PRM is Printing & recorded media; PCCR is Petroleum, coal, chemical & rubber products; NM is Non-metallic mineral products; MP is Metal products; ME is Machinery & equipment manufacturing. c Services includes non-market sector industries.

*Source*: Authors’ estimates based on ABS (*Australian National Accounts: Input-Output Tables*, *2008-09*, Cat. no. 5209.0.55.001, Table 5).

A high proportion of FBT output is for final use rather than as intermediate inputs to other industries (table G.3).

Table G.3 Breakdown of FBT output into industry and final use, 2008-09**a**

Percentage of total supply

|  |  |  |
| --- | --- | --- |
|  | FBT | Total Manufacturing |
| *Industry use* | *40.5* | *53.6* |
| *Final use* |  |  |
| Final consumption | 36.8 | 17.0 |
| Exports | 21.8 | 21.9 |
| GFCFb | 0.9 | 7.5 |
| **Total** | **100** | **100** |

a Based on industry by industry flow (direct allocation of imports). b Gross fixed capital formation. Includes change in inventories.

*Source*: Authors’ estimates based on ABS (*Australian National Accounts: Input-Output Tables*, *2008-09,* Cat. no. 5209.0.55.001, Table 5).

### Trade and assistance

#### Imports for final consumption or inputs for industry?

ABS estimates of imports of food and beverages, classified as ‘mainly for industry’ or ‘mainly for household consumption’, suggest that most of the increase in imports has been in final consumption goods rather than intermediate inputs. Food and beverage imports for consumption have risen strongly, particularly over cycle 4, while imports for industry use have been relatively stable (figure G.7).

Figure G.7 Food and beverage product imports by economic category**a**

2009-10 $m

|  |
| --- |
|  |

a Balance of Payments Broad Economic Category basis.

*Data sources*: Authors’ estimates based on ABS (*International Merchandise Imports, Australia*, March 2013, Cat. no. 5439.0) and ABS (*International Trade Price Indexes, Australia*, March 2013, Cat. no. 6457.0).

#### Effective rates of assistance

Over the last 15 years, there has not been a substantial change in the rate of assistance for FBT as a whole. The combined value of budget and tariff assistance to both FBT and Manufacturing, expressed as a share of their value of output, has been constant at less than 5 per cent (figure G.8). Prior to this, from the early 1980s to the mid-1990s, the effective rate of assistance to FBT and Manufacturing in total declined — with FBT starting at a considerably lower level of assistance than Manufacturing on average.

Figure G.8 Effective rates of assistance, FBT and Manufacturing**a**

Per cent

|  |
| --- |
|  |

a Breaks in the series are represented by gaps in the chart, and overlaps are included to show the effects of the methodological and data changes made in moving between series.

*Data source*: PC (2011).

## G.3 Wine manufacturing

### Excess supply of wine relative to demand

Strong production growth in cycle 3 and record levels of production in the first three years of cycle 4, contributed to a structural oversupply of wine. The gap between the volume of inventories held by Australian wineries and wine sales widened by 9.6 per cent a year during cycle 3 and peaked in the middle of cycle 4 (2005-06). The gap fell significantly by 43.3 per cent during the 2006-07 drought year (figure G.9, left panel). At the end of cycle 4, wine inventories were around 62 per cent greater than total sales.

Figure G.9 Sales and inventories of Australian wine**a**

Volume (megalitres)

|  |  |
| --- | --- |
| *Total sales, production and  inventories of Australian wine* | *Wine sales* |
|  |  |

a Inventory only includes wineries crushing more than 400 tonnes annually. Sales of Australian wine only includes winemakers with sales of 250 000 litres or more in either of the previous two years.

*Data source*: ABS (*Australian Wine and Grape Industry*, various issues, Cat. no. 1329.0).

### International competition and competitiveness pressures

Expansion of Australian wine production in the mid to late 1990s was particularly focused on the growth of Australian wine exports

The vision is that by the Year 2025 the Australian wine industry will achieve $4.5 billion in annual sales by being the world's most influential and profitable supplier of branded wines, pioneering wine as a universal first choice lifestyle beverage. (Australian Wine Foundation, Winemakers' Federation of Australia, and Peter Fuller & Associates 1996, p. 4)

The volume of Australian exports grew by 23.8 per cent a year during cycle 3, growing from 201 million litres in 1998-99 to 584 million litres in 2003-04 (figure G.9, right panel). By 2001-02, exports overtook domestic sales as the largest contributor to total Australian wine disposals.

Export growth slowed to 5.2 per cent a year over the most recent complete productivity cycle (cycle 4), driven by a combination of: growing competition from other new‑world wine producing nations, such as Chile, South Africa and New Zealand; the strength of the Australian dollar against our major export markets; the relatively high cost of Australian labour; and increased energy and water costs (Bailey 2011). These factors also contributed to a 29.9 per cent per year growth, although from a relatively low-base, of imports cleared for the Australian market during this period (figure G.9, right panel).

### Industry consolidation

The ABS reported some consolidation in the number of wine making businesses during cycle 4, with a decline of 1.5 per cent per year of those crushing over 50 tonnes of grapes a year (table G.4). While some consolidation is also reported by industry sources, this has only been experienced by producers crushing over 10 000 tonnes of grapes a year (box G.2). The number of smaller producers, on the other hand, is shown to be consistently growing during the same period (table G.4).

Table G.4 Number of wine makers in Australia, by tonnes crushed

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Australian Bureau of Statistics Wine and Grape Industry Surveya | | | |  | The Australian and New Zealand  Wine Industry Directoryb | | | | |
| Year | 50-400a | 401-10 000 | 10 001 or more | **Total** |  | Less than 49 | 50-499 | 500-9 999 | 10 000 or more | **Total** |
| 1998-99 | 163 | 92 | 21 | **276** |  |  |  |  |  |  |
| 2003-04 | 185 | 151 | 28 | **364** |  |  |  |  |  |  |
| 2004-05 | 187 | 155 | 24 | **366** |  | 1 028 | 628 | 193 | 41 | **1 899** |
| 2007-08 | 174 | 140 | 28 | **342** |  | 1 280 | 719 | 203 | 35 | **2 299** |
| 2009-10 | 156 | 158 | 22 | **336** |  | 1 348 | 766 | 200 | 25 | **2 420** |

a ABS only includes wineries which crush 50 tonnes or more of grapes. b *Wine Industry Directory* producer totals also include producers whose wine crush is ‘unknown or unspecified’.

*Sources*: ABS (*Australian Wine and Grape Industry*, various issues, Cat. no. 1329.0); Winetitles (2013).

This growth in the number of wine-making business, especially from smaller family‑owned or ‘lifestyle’ operations, should only have a marginal effect on output. By the end of cycle 4 (2007-08), large wine producers crushing over 10 000 tonnes of grapes a year, were responsible for over 83.1 per cent of wine production.[[7]](#footnote-7)

Moreover, five of the largest wine producers in Australia have a 43.1 per cent share of the domestic market (Richardson 2012), with significant restructuring amongst these manufacturers reported between 2001 and 2003 (box G.2) in response to increasing consolidation at the retail end (The Age 2003).

|  |
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| Box G.2 Examples of consolidation in Wine manufacturing |
| **2001**  Southcorp acquired Rosemount Estates from the Oatley family for $1.5 billion effective 1 January 2001 (Southcorp 2001).  **2002**  (July) Brian McGuigan Wines Limited merged with Simeon Wines Limited, which created the fourth largest wine company at the time (Martin 2002).  **2003**  (April) Constellation Brands Incorporated (2003) announced that it would acquire BRL Hardy Limited, Australia's largest wine producer. The transaction reportedly made Constellation Brands the world's largest wine company at $1.7 billion in wine sales.  (October) McGuigan Simeon Wines Limited acquired Miranda Wines Pty Ltd, which allowed the company to enter the cask and sparkling wine markets (McGuigan Simeon Wines Limited 2004).  **2004**  (June) Foster’s Group (2004a) announced the outcome of a comprehensive review of its Global Wine Trade business. Some infrastructure consolidation activities were reported, with planned capital investment expected to fall by at least 40 per cent compared with that announced at the full year 2004 (of approximately A$150 million).  (September) Foster’s Group (2004b) announced the development of a purpose-built bottling and warehousing operation. The high speed bottling facility was intended to have initial capacity of 10 million cases per annum but with a ‘modular, scaleable design to a potential capacity of over 24 million cases per annum.’ The facility consolidated the majority of Beringer Blass’ Australian wine production and packaging to the Wolf Blass winery. Capital expenditure associated with the project was estimated at $69 million, with commissioning and full operation expected by June 2006.  **2005**  (April) Foster's Group (2005b) announced the takeover of Southcorp to ‘create the world’s leading premium wine company.’  (August) Foster’s Group (2005a) announced outcomes of its initial review of the combined Foster’s-Southcorp wine production operations in Australia. The review identified surplus wine processing capacity and approved plans to consolidate wine processing facilities. Foster’s proposed to sell its Lower Hunter Valley winery and the smaller of its Coonawarra wineries as soon as practical.  **2006**  (June) Foster’s Group (2006) announced its intention to sell two Australian wineries, as well as surplus production and packaging facilities in the Upper Hunter Valley, Barossa Valley, and selected facilities at Penfolds Nuriootpa. |
| (continued on next page) |

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| Box G.2 (continued) |
| **2007**  (November) Hardy Wine Company announced that from 2008 it would consolidate its winemaking and packaging currently taking place at its Buronga winery, to its Berri Estates winery, the largest in Australia. Both are located in the River Murray inland regions of central Australia (Constellation Brands Incorporated 2007).  **2008**  (August) Constellation Wines Australia (formerly Hardy Wine Company) announced the proposed sale of three of 10 production facilities, in addition to the sale of more than 20 vineyard properties; consolidation of bottling operations; portfolio streamlining and rationalization of more than 30 per cent of the company's Australian stock keeping units. The company's Australian employment was reported to be impacted by more than 20 per cent, or 350 positions, primarily associated with assets expected to be sold (Constellation Brands Incorporated 2008).  **2012**  (July) Accolade Wines and Treasury Wine Estates entered into reciprocal bottling and packaging contracts that would see, by January 2013, Accolade Wines bottle for Treasury Wine Estates in the United Kingdom and Treasury Wine Estates bottle for Accolade Wines in Australia. The announcement reportedly resulted in 175 redundancies at Accolade’s Reynella bottling and distribution facility (Accolade Wines 2012). |
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## G.4 Bakery product manufacturing

### Scope of Bakery product manufacturing

#### In-house supermarket bakeries not included

In-house supermarket bakeries do not appear to be included in ABS statistics for Bakery product manufacturing. Due to confidentiality, the ABS cannot specify where the large supermarket bakeries are included. However, in the ABS EAS*,* for example, the ABS classifies a business to its single predominant industry class, irrespective of any diversity of activities undertaken unless its secondary activity alters subdivision statistics by 2 per cent where the primary and secondary activities are in different ANZSIC divisions (ABS 2012f). In-house bakeries in supermarkets would be a secondary Manufacturing activity of supermarkets, where the primary activity is Retail trade (a separate ANZSIC division to Manufacturing). Given the large size of Manufacturing and Retail trade it would not be expected that in-house supermarket bakeries would affect either of the divisions by 2 per cent.

#### Change in ANZSIC classification to include Non-factory bakery

A major implication of the introduction of ANZSIC06 for the analysis of Bakery product manufacturing is that there is a limited time series available. The shift of Non-factory bakery from Retail trade to Manufacturing in ANZSIC06 is a major break in series and the effects differ across surveys. The ABS has backcast data from the ABS LFS into ANZSIC06. Data from the ABS EAS (as published in Cat. nos 8221.0 and 8155.0) have not been backcast by the ABS.

Comparisons of Factory bakery under ANZSIC93 and ANZSIC06 (together with anecdotal evidence on Non-factory bakery in chapter 5), suggest that Non-factory bakery is more likely than Factory bakery to have been the main contributor to employment and VA growth in ANZSIC06 Bakery in total over cycle 4.

##### Value added

Figure G.10 shows that there was little growth in Factory bakery over cycle 3. Growth in Factory bakery from 2006-07 to 2007-08 was higher than over cycle 3 — but it should be noted that Factory bakery under ANZSIC06 also includes an expanded range of activities with additions from elsewhere in FBT manufacturing.

Figure G.10 Nominal value added of Bakery product manufacturing**a**

$m

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a Breaks in series: change in survey methodology in 2000-01 (appendix A); shift from ANZSIC93 to ANZSIC06 in 2006-07 (ANZSIC06 Non-factory bakery added from outside Manufacturing; and ANZSIC06 Bakery (factory) included additional activities not in ANZSIC93 Bakery (factory)).

*Data sources*: ABS (*Manufacturing Industry, Australia,* various issues,Cat. no. 8221.0); ABS (*Experimental Estimates for the Manufacturing Industry*, various issues, Cat. no. 8159.0); ABS (*Australian Industry*, various issues,Cat. no. 8155.0).

Very limited information is available on the growth of Non-factory bakery prior to 2006-07. Box 5.10 in chapter 5 provided some qualitative indicators of stronger growth in Non-factory bakery than Factory bakery over the longer term. The ANZSIC93 class ‘Other food retailing’ (in which Non-factory bakery was included under ANZSIC93) does have stronger growth in turnover over cycle 4 than cycle 3 (ABS 2009). However, this increase in growth could also be attributable to the other retailing activities in this ANZSIC93 class in addition to Non-factory bakery.

##### Labour

Factory bakery and Non-factory bakery employment can be compared on a similar basis to that used for VA. Missing EAS data for 2007-08 (when the ABS did not publish ANZSIC group data for employment) hamper the comparison. But there is an alternative source of data from the LFS for total Bakery (including Non-factory).

EAS data suggest that employment in Factory bakery has been relatively stable (figure G.11). Therefore, while the EAS and LFS data are not directly comparable (as discussed in section G.1), this suggests that Non-factory bakery was more likely to be behind the increase in growth in the LFS employment series over cycle 4. However, the LFS employment series has been backcast into ANZSIC06 and is subject to potential measurement error (as discussed in section G.1).

Figure G.11 Employment in Bakery product manufacturing**a**

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a Breaks in series: change in survey methodology in 2000-01 (appendix A); shift from ANZSIC93 to ANZSIC06 in 2006-07 (ANZSIC06 Non-factory bakery added from outside Manufacturing; and ANZSIC06 Bakery (factory) included additional activities not in ANZSIC93 Bakery (factory)).

*Data sources*: ABS (*Manufacturing Industry, Australia,* various issues,Cat. no. 8221.0); ABS (*Experimental Estimates for the Manufacturing Industry*, various issues, Cat. no. 8159.0); ABS (*Australian Industry*, various issues,Cat. no. 8155.0); ABS (unpublished Labour Force Survey data).

##### Capital

Limited data are available for investment in Bakery product manufacturing. Figure G.12 shows Non-factory bakery investment was around 30 per cent of the Bakery total in 2006-07. Earlier data for Non-factory bakery are not available.

Figure G.12 Investment**a** of Bakery product manufacturing**b**

$m

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a Current prices. Investment is total acquisitions (expenditure on the acquisition of capital including plant, machinery and equipment, buildings, and other assets) and is not net of disposals of assets. b Affected by ANZSIC change so groups/classes are only broadly comparable. Baking includes Non-factory bakery only in 2006-07.

*Data source*: ABS (*Manufacturing Industry, Australia,* various issues,Cat. no. 8221.0).

1. This is the current survey that underlies the ABS (*Australian Industry,* Cat. no. 8155.0) — earlier data comes from its predecessor, the Manufacturing Census (*Manufacturing Industry, Australia,* Cat. no. 8221.0). [↑](#footnote-ref-1)
2. See appendix A for further details. [↑](#footnote-ref-2)
3. ABS (*Manufacturing Industry, Australia,* Cat. no. 8221.0, 2006-07) provided backcast data for 2005-06 and 2004-05 in ANZSIC06 that can be compared with ANZSIC93 data from ABS (*Manufacturing Industry, Australia,* Cat. no. 8221.0, 2005-06). The equivalent percentages are 3.7 for Food and 0 for BT. [↑](#footnote-ref-3)
4. The figure presents subdivision PPIs for Food and BT from 2001-02. For 1998-99 to 2000-01, aggregate PPIs were not available as PPIs for two ANZSIC groups were not available. Real VA estimates for Food and BT were derived as the sum of ANZSIC group level estimates, using the PPIs for the closest available ANZSIC group/class to backcast the missing PPI series. [↑](#footnote-ref-4)
5. Real VA is calculated by deflating nominal industry VA for each ANZSIC group with the relevant producer price index for output. [↑](#footnote-ref-5)
6. This is based on an alternative data source (ABS EAS) to that used in the capital services estimates. Investment in the EAS is around 80 per cent of the authors’ estimates of FBT gross fixed capital formation. [↑](#footnote-ref-6)
7. Derived from producer statistics in ABS (*Australian Wine and Grape Industry*, Cat. no. 1329.0). [↑](#footnote-ref-7)