



# The Structure and Performance of the Australian Retail Industry

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# Executive Summary

The Australian retail sector is a major employer of Australians and is a significant direct and indirect contributor to the Australian economy. The retail sector has experienced a significant amount of growth and change over the last decade. This Deloitte report, commissioned by Woolworths Ltd, examines some important features of these changes, including changes in the structure and performance of the retail sector over the period, as well as the sector's productivity performance relative to other advanced economies.

Whilst the degree of competition varies among market segments, overall the retail sector (particularly large retailers) appears to be subject to a significant degree of competitive pressure, has relatively low barriers to entry and exit, and provides Australian consumers with increasing choice and variety of products. Moreover, international evidence suggests that Australian retail prices are internationally competitive.

In the long run, productivity growth – broadly defined as the ratio of output to inputs - is the key driver of improvements in economic performance, greater choice, and lower consumer prices in the retail sector. Despite indications that the Australian retail sector has performed reasonably well over the last decade, and despite efficiency-enhancing investment in the retail industry over the past decade, overall productivity growth in the retail sector has stagnated, and has lagged well behind productivity growth in the United States. In other words, whilst the Australian retail sector has performed well in recent times, it has not realised its full economic potential. In fact, the report estimates if the Australian retail sector had enjoyed the same productivity growth as experienced in the US over the same period, output in the sector would have been 9.2 per cent per cent higher, relative prices in the retail sector would have been 3.5 per cent lower, and employment in the retail sector would have been 15 per cent higher (representing an additional 180,000 jobs in the Australian economy).

What is holding the Australian retail sector back? As previous research by the OECD and the Productivity Commission has found, regulatory impediments are an important influence on productivity growth, both at the individual industry level and for the economy as a whole. Ultimately, it is retail customers that lose from poor regulatory arrangements, as lower productivity growth flows through into lower growth in product variety and smaller price reductions than would otherwise be the case.

The report identifies the following serious regulatory burdens facing the Australian retail sector:

- Regulation of trading hours, particularly in relation to public holidays and restrictive trading days – Trading hour regulations directly impacts on customers' accessibility to stores and inconvenience at stores as trading hour restrictions prevent customers from shopping at a time best suited to their needs or limit the stores preparedness when it does open. The impact of trading hour regulations is increasingly important as customers can purchase products online at any time.
- Restrictions on labour flexibility, particularly in relation to the General Retail Industry Award 2010 (which underpins the negotiations of enterprise agreements in the retail sector). Australian retailers are constrained by the assumption that shopping occurs Monday to Friday between 9am and 5pm which is reflected in the General Retail Industry Award. This indirectly impacts customers because whilst retailers can negotiate flexibility to open stores outside this period, there is a considerable cost in doing so as retailers must negotiate higher average wage rates. These increased costs are passed onto customers in the form of higher prices.
- State-based regulation, particularly in relation to age restrictions on the sale of products and other labelling or display restrictions. State-based regulation is often inconsistently

introduced and/or introduced without consideration of its impact on retailers. This directly impacts customers' convenience in store and indirectly impacts customers where Australian retailers must pass on the additional costs that arise from having to comply with a multitude of different regulations.

- Restrictions on transportation – Time of transportation and type of transportation restrict retailers' ability to efficiently move products around and between states/territories. This challenge is exacerbated by remote locations, longer distances, climate fluctuations and the Australia's topographical challenges. These transportation restrictions impact on customers' by increasing the price of products and preventing stock from being available when stores open.
- Inefficient taxation arrangements, which affect labour-intensive industries - particularly large employers in the retail sector. These taxation arrangements discourage employment, create unemployment, and reduce employee after-tax wages across the sector and the rest of the economy.

The report also examines the unique problems faced by the Australian retail sector in relation to sourcing goods manufactured overseas. These challenges, which include restrictions on freight capacity, and complex international sourcing arrangements, tend to increase operational costs, putting pressure on prices for customers and impeding the ability of retailers to deliver value to customers. A particular challenge for Australian retailers is the pricing behaviour of international suppliers. This sees international manufacturers often charging Australian retailers wholesale prices that are not only substantially higher than wholesale prices charged to overseas and online retailers but are often also higher than retail prices charged to consumers overseas and online.

To lift the productivity performance and international competitiveness of the Australian retail sector and to help it realise its full economic potential, policymakers must address and reform the regulatory impediments identified above. The case for undertaking regulatory reform is more compelling than ever, in light of the increasing challenges the sector faces from international competitors who are not subject to the same regulatory burdens. Ultimately, Australian consumers would be the key beneficiaries of such regulatory reform.

# 1 Introduction

On 18 December 2010 the Assistant Treasurer, the Minister for Broadband, Communications and the Digital Economy, the Minister for Home Affairs and Justice and the Minister for Small Business announced that the Productivity Commission would undertake an inquiry into the economic structure and performance of the Australian retail industry.

The terms of reference for this inquiry are as follows:

*“The Commission is requested to examine:*

- 1. The current structure, performance and efficiency of the retail sector and impediments to its contribution to the Australian economy;*
- 2. The drivers of structural change in the retail industry, including globalisation, increasing household and business access to the digital economy, cost structures of the domestic retail industry, employment structure, the exchange rate and structural change driven by the resources boom;*
- 3. The broader issues which are contributing to an increase in online purchasing by Australian consumers and the role of online purchasing in providing consumers with greater choice, access and convenience;*
- 4. The sustainability and appropriateness of the current indirect tax arrangements in this environment, including the impact on Commonwealth and State and Territory budgets, and the extent to which technology could reduce the administrative costs of collecting indirect taxes and duty on imported goods; and*
- 5. Any other regulatory or policy issues which impact on structural change in the sector.”*

The purpose of this report, commissioned by Woolworths, is twofold. First, the report examines some important features of the structure and performance of the Australian retail sector over the last decade. The major finding is that although the Australian retail sector (taken as a whole, but particularly large retailers) appears to be subject to a significant degree of competition, and despite significant improvements in product variety, productivity growth in the retail sector has stagnated. This productivity stagnation has consequences for output, employment and investment. It means, for example, that although there has been a great deal of efficiency-enhancing investment in the retail industry over the past decade, returns to those investments are lower than they otherwise would have been. As a consequence, overall investment in the retail sector is lower than it otherwise would have been.

Secondly, and following on from the findings on productivity growth, the report analyses some of the most serious regulatory burdens facing the sector, providing a discussion and explanation of some of the reasons behind the sector's relatively poor productivity performance. In doing so, it highlights the opportunities for Australian Governments to take steps to improve the productivity and competitiveness of the Australian retail sector into the future.

The report is structured as follows:

- Section 2 briefly summarises the broad economic contribution of retail to Australian economy, including the sector's contribution to Australia's gross domestic product (GDP), employment and investment.
- Section 3 contains an economic analysis of some important features of the overall performance of the Australian retail sector over the last decade, focusing on competition, product variety and productivity.

- Section 4 explores some of the key challenges facing retailers and how these key challenges impact on their customers and productivity performance.
- Section 5 builds upon section 4 and describes the challenges Australian retailers have when importing goods from overseas.
- Section 6 details the conclusions of this report.



## 2 The economic contribution of the Australian retail industry

*This section provides a brief overview of the overall economic contribution of the Australian retail sector. This contribution can be measured in a variety of ways, but the clearest indicator is Gross Value Added (GVA) in the retail sector, which measures the economic value that is added throughout different points along an industry supply chain. Measured at the aggregate level, GVA is equal to the production measure of Gross Domestic Product.*

Retail firms are intermediaries between producers and consumers. As discussed below, one of the primary services provided by retail firms is that they make available to consumers valuable assortments, ranges and combinations of goods and services in a single convenient location.

The retail industry makes a significant direct and indirect contribution to Australia's economy. In the year to March 2011, the volume of retail turnover in Australia was \$239.2 billion,<sup>1</sup> which provides an indication of the sector's total direct and indirect economic contribution.

The sector's direct economic contribution can be measured by looking at its direct contribution to Australia's Gross Domestic Product (GDP). Gross Value Added (GVA) is a production measure of GDP, and is defined as the value of output at basic prices (which removes the distortions caused by taxes and subsidies), less the value of intermediate consumption at purchasers' prices.

The production measure of Australia's GDP is obtained by summing the gross value of various sectors and then adding taxes less subsidies. In other words, the gross value added of each industry or sector is a measure of each sector's direct contribution to the production measure of Australia's GDP.

The Australian Bureau of Statistics (ABS) attempts to isolate the direct contribution of the retail industry by assuming that the industry provides distribution services - that is, the retail industry is viewed as providing the service of distributing goods that have already been produced, rather than directly producing any goods itself.<sup>2</sup>

The direct economic value of retail services that are provided is then measured as the value of trade margins realised on goods sold in the retail sector, rather than by measuring the total value of goods that are sold by retailers. This measure is intended to isolate and capture the direct value of services which retail firms provide to consumers.

Whilst this is a narrower measure than turnover or sales, the total value of goods that are sold (i.e. retail turnover) is important for measuring the economic contribution of the retail sector, since the ABS assumes that the output of retail services is proportional to the quantum of goods that are handled (i.e. turnover). At the same time, it is important to note that there is no adjustment made in the data for changes in the variety of goods that are sold, or the quality or

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<sup>1</sup> See Australian Bureau of Statistics (2011) *Retail Trade Australia*, ABS Catalogue. No. 8501.0, Table 7, Quarterly Retail Turnover, Chain Volume Measures.

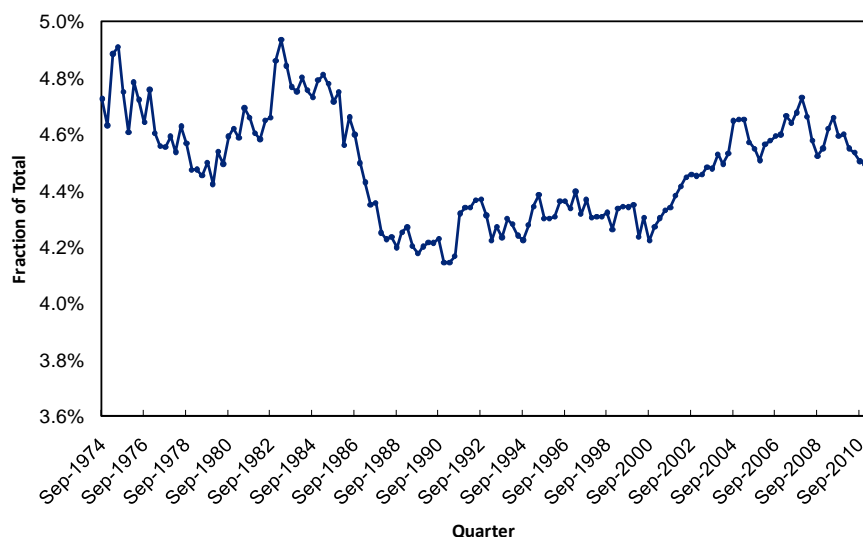
<sup>2</sup> See Australian Bureau of Statistics (2000) *Australian System of National Accounts: Concepts, Sources and Methods*, ABS Catalogue no. 5216.0

other characteristics of the services that are provided (for example, extended or restricted shopping hours).

Figure 1 below illustrates the retail sector's direct economic contribution - value added in the retail sector as a fraction of Australia's total gross value added at basic prices. The data shows that the aggregate economic contribution of the retail industry in Australia has remained relatively steady at around 4.5 per cent of overall GVA for the last decade, but increased slightly from a low of around 4.2 per cent between 1986 and 2000. In 2009-10, the retail sector's direct economic contribution was \$55 billion, or 4.6 per cent of overall GVA (or 4.6% of GDP).

This direct measure of the sector's economic contribution does not take into account indirect economic effects on economic activity in other sectors, such as manufacturing and agriculture. These indirect effects are likely to exceed the direct effects by a significant amount. For example, Woolworths Limited's indirect contribution to the Australian economy in 2010 was estimated to be in excess of \$96 billion and 652,400 full-time equivalent jobs.<sup>3</sup>

**Figure 1: Economic contribution of the Australian retail sector – Gross Value Added as a fraction of total Gross Value Added, 1974-2011**



Source: ABS National Accounts

## 2.1 Employment and wages

### 2.1.1 Employment

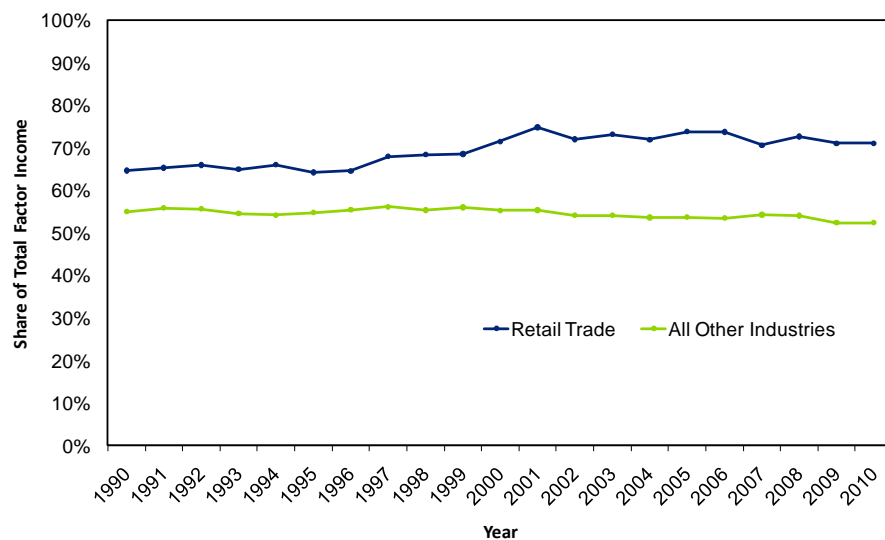
The retail sector is relatively labour intensive, and currently employs over 1.2 million Australians. Overall, employees' share of total factor income in the retail sector is currently over 71 per cent, compared to an average for other industries of just over 52 per cent.<sup>4</sup> In other words, for each dollar of income earned in the retail sector, 71 cents is paid to employees in the form of wages, salaries and other forms of employee compensation. Moreover, the employee share of factor income in the retail sector has been increasing over the last decade, in sharp contrast to the rest of the Australian economy, where labour's share of income has been falling steadily.

<sup>3</sup> Woolworths Ltd (2010) *Corporate Responsibility Report*, page 18.

<sup>4</sup> Australian Bureau of Statistics, Cat. No. 6291.0.55.003 *Labour Force, Australia, Detailed, Quarterly*, February 2011; Australian Bureau of Statistics, Cat. No. 6291.0.55.003 *Labour Force, Australia, Detailed, Quarterly*, February 2011, Table 1; Australian Bureau of Statistics, Cat. No. 5204.0 *Australian System of National Accounts*, Table 46. Total Factor Income, by Industry and principal components.

Understanding employment and wage patterns are therefore a crucial part of understanding the supply side structure and overall performance of the Australian retail sector over time.

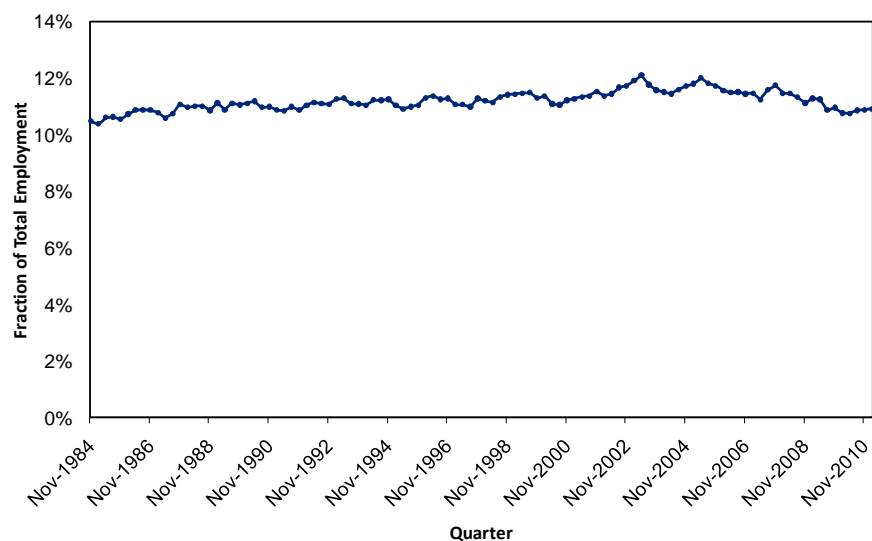
**Figure 2: Compensation of employees as a fraction of all factor income, retail trade and other Industries, 1990-2010**



Source: ABS National Accounts

The relative stability of the economic contribution of the retail sector identified earlier is mirrored in aggregate employment data for the sector. Figure 3 below plots employment in the retail sector as a fraction of total Australian employment. The data shows that whilst retail employment has continued to rise over time, the share of retail employment has remained steady as a fraction of overall employment, at around 11 per cent over the last decade.

**Figure 3: Employment in the Australian retail sector as a fraction of total employment, 1984-2011**

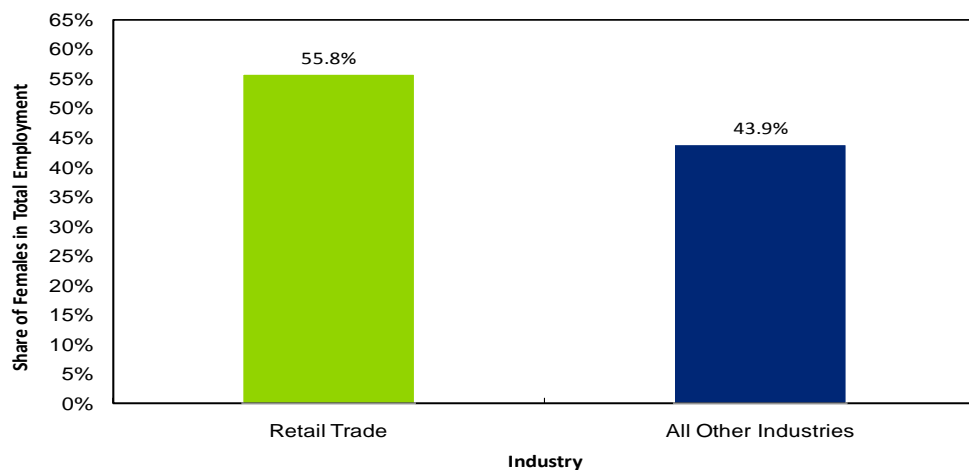


Source: ABS Cat. No. 6291.0.55.003 Labour Force, Australia, Detailed, Quarterly

### 2.1.2 Diversity of Employment in the Retail Sector

A key feature of employment in the Australian retail industry is the diversity of the retail workforce. The sector provides a unique environment that enables those requiring flexibility and special needs to access employment opportunities. One in seven female workers in Australia works in the retail sector.<sup>5</sup> As Figure 4 below shows, the retail sector employs a much higher proportion of females than other industries.

**Figure 4: Female Employment Shares, Retail Trade and all Other Industries, February 2011**



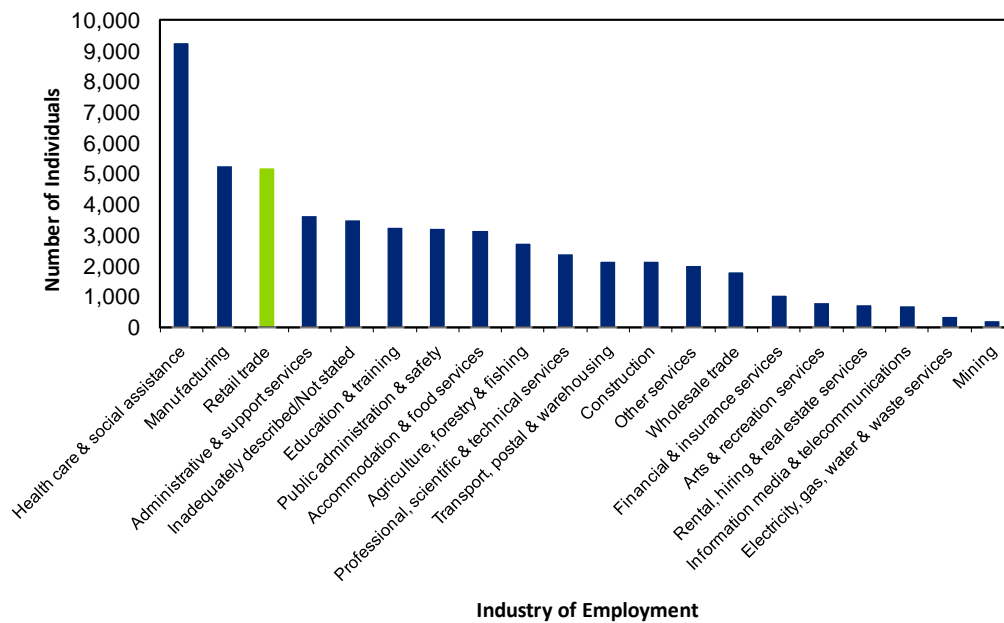
Source: Australian Bureau of Statistics, Cat. No. 6291.0.55.003 Labour Force, Australia, Detailed, Quarterly, February

The retail sector is also an important employer of Australians with profound or severe disability who benefit from the workplace flexibility and training opportunities that working in the retail sector provides.<sup>6</sup> Figure 5 below plots data from the 2006 Census on employment by industry, which shows that the retail sector ranks third among all industries in employment of Australians with a profound or severe disability.

<sup>5</sup> Australian Bureau of Statistics, Cat. No. 6291.0.55.003 Labour Force, Australia, Detailed, Quarterly, February.

<sup>6</sup> The 2006 Census was the first to include "Core Activity Need for Assistance" as a survey category. The ABS includes in this category "people needing help or assistance in one or more of the three core activity areas of self-care, mobility and communication, because of a long-term health condition (lasting six months or more), a disability (lasting six months or more), or old age." See the ABS *Census Dictionary*, 2006.

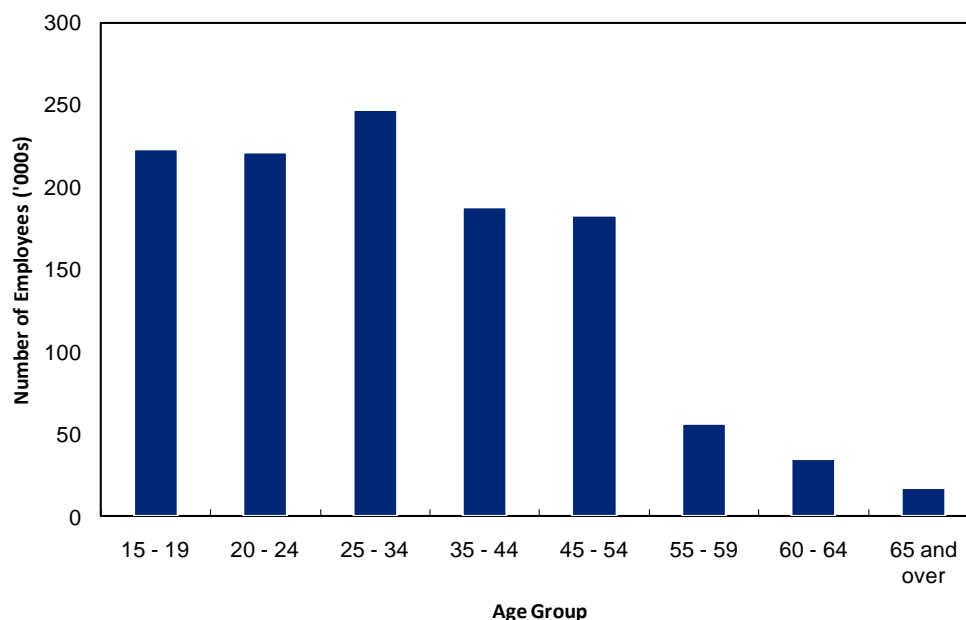
**Figure 5: Employment of Individuals with a Profound or Severe Disability, by Industry, 2006**



Source: Australian Bureau of Statistics, Census, 2006.

Finally, as Figure 6 below shows, the retail sector is a significant source of employment for workers across a range of age categories – including both younger and older workers. Approximately one in three Australian workers between the ages of 15-19 is employed in the retail sector. These jobs help young workers to obtain the skills and experience that are so vital for participation in Australia's workforce. In addition to this, the flexibility of the Australian retail sector also means it provides a significant number of employment opportunities for older Australians – with the retail sector employing approximately 108,000 workers over the age of 55.

**Figure 6: Employment in the Retail Sector by Age Group, February 2011**

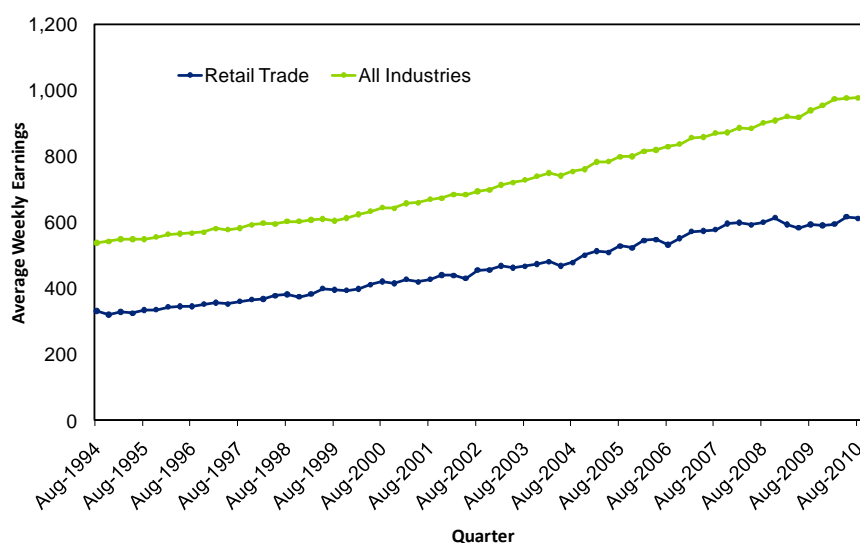


Source: Australian Bureau of Statistics, Cat. No. 6291.0.55.003 Labour Force, Australia, Detailed, Quarterly, February

### 2.1.3 Wages

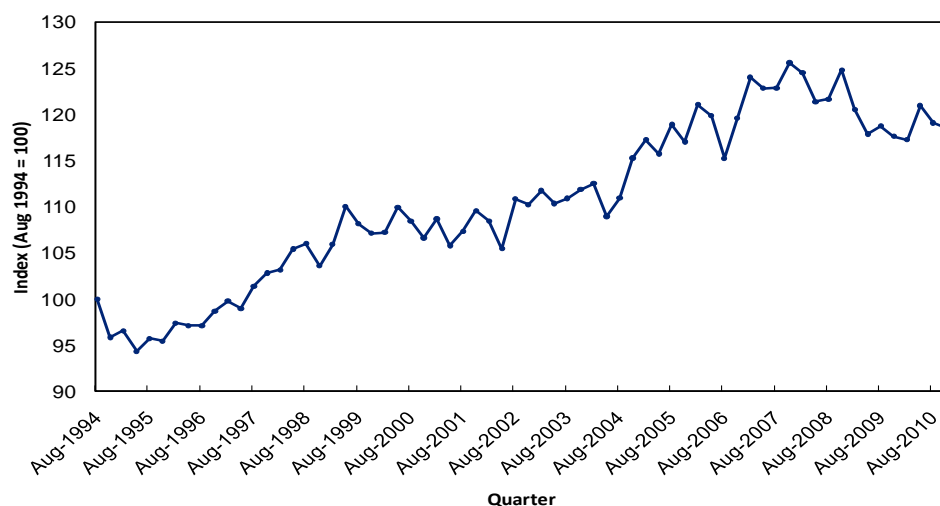
As Figure 7 shows, average weekly earnings in the retail sector are lower than in the rest of the economy. As discussed below, this is partly explained by two key facts regarding the nature of employment in the retail sector: the age structure of employment and the structure of hours worked. Nevertheless, real wages have grown strongly in the retail sector over the last decade (see Figure 8 below). Average real wages in the retail sector have grown by 24 per cent over the last 16 years.

**Figure 7: Average weekly earnings in the retail sector and all industries, 1994 to 2009**



Source: ABS Cat. No. 6302.0, *Average Weekly Earnings*, Australia, Nov 2010

**Figure 8: Inflation adjusted average weekly earnings in the Australian retail sector, 1994-2011**



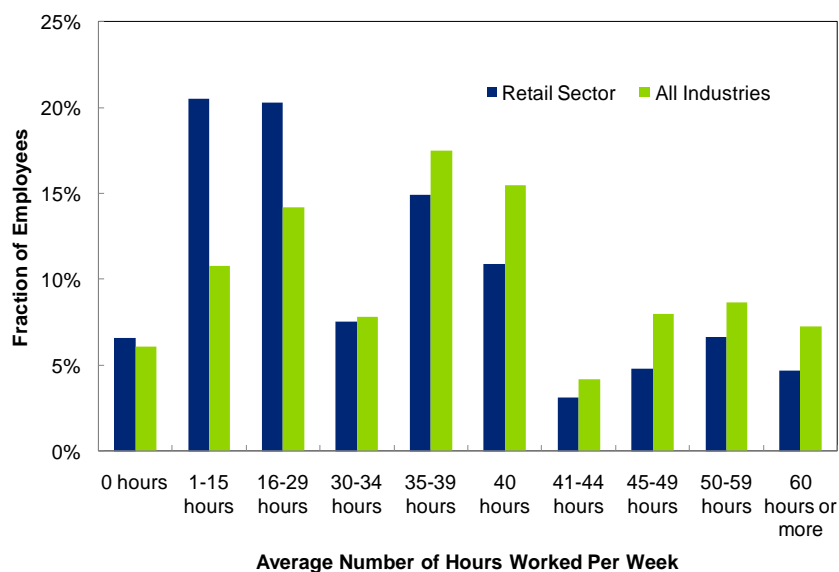
Source: ABS Cat. No. 6302.0, *Average Weekly Earnings*, Australia, Nov 2010 and Cat. No. 6401.0, *Consumer Price Index*, Australia, Mar 2011

As discussed earlier in section 2.1.2, compared with other industries, the retail sector employs a much higher fraction of younger workers than other industries. These workers are likely to be relatively inexperienced compared to their older counterparts and therefore, all else being equal, are likely to earn lower hourly wages.

Second, as illustrated in the figures below (Figure 9 and Figure 10) compared with workers in other industries, workers in the retail sector tend to work significantly fewer hours per week on average. This reduces the observed average weekly earnings in the retail sector.

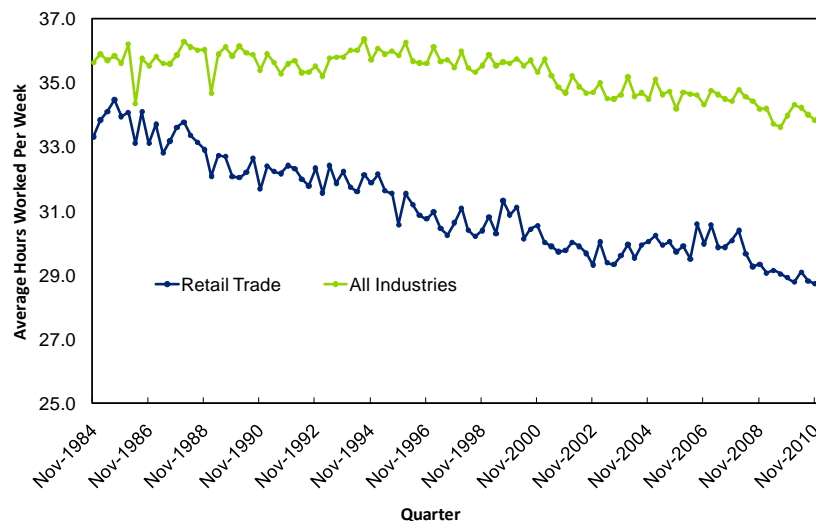
In particular, the fraction of workers working between 1 and 15 hours per week in the retail sector is approximately double the fraction in other industries. As a result, the average number of hours worked per week in the retail sector is around 20 per cent less than in other sectors.

**Figure 9: Distribution of hours worked, retail versus all industries, February 2011**



Source: ABS Cat. No. 6291.0.55.001, *Labour Force, Australia, Detailed - Electronic Delivery*, Mar 2011

**Figure 10: Average hours worked, retail versus all industries, February 2011**



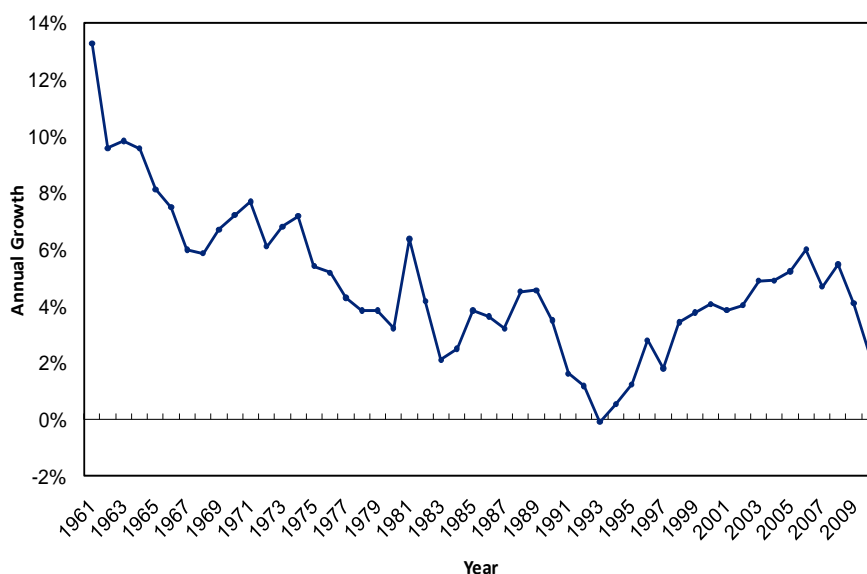
Source: ABS Cat. No. 6291.0.55.001, *Labour Force, Australia, Detailed - Electronic Delivery*, Mar 2011

## 2.2 Investment

As discussed above, a relatively large share of income in the Australian retail sector flows to employees (as opposed to profits and mixed income), and this share has been increasing over time.

Over the same period, whilst significant investment has been undertaken in the sector, the rate of investment growth in the retail sector has been declining. Figure 11 below shows that investment growth in the retail sector experienced a long term decline between 1960 and 1993, with only modest growth over the last decade.

**Figure 11: Investment growth (change in net capital stock) in the retail sector, 1960-2011**

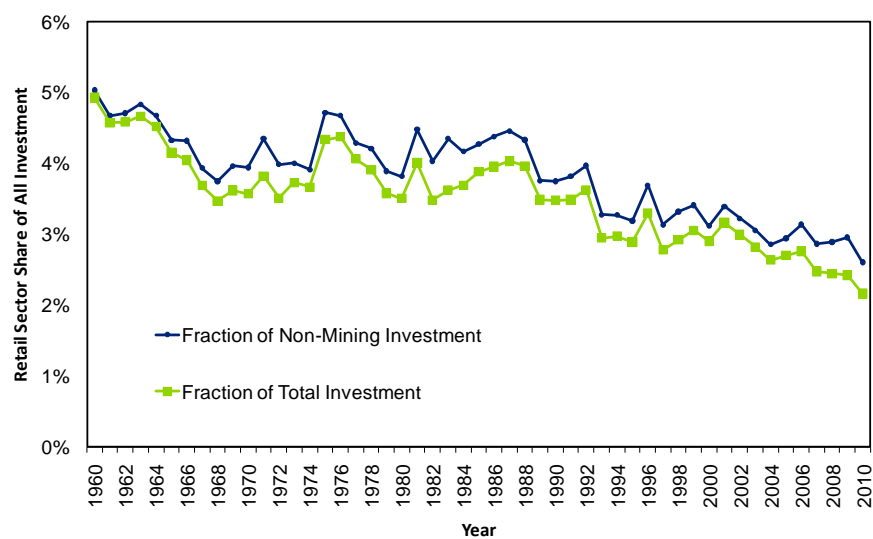


Source: Australian Bureau of Statistics, Cat. No. 5204.0 *Australian System of National Accounts*, Table 58. Capital Stock, by Industry.



In 2009-10, investment (as measured by gross fixed capital formation) in the retail sector as a whole was significant, totalling \$6.3 billion. Woolworths reports that it has invested close to \$7.8 billion on property, plant and equipment over the last 5 years as part of its efforts to improve the efficiency of its operations. However, as a result of falling investment growth, investment in the Australian retail sector as a fraction of overall investment in all sectors has declined significantly over the last 50 years. As discussed in section 3, whilst firms continue to make efficiency enhancing investments in the retail sector to reduce costs and prices, the sector's overall productivity performance has stagnated. As a result, investment levels and returns on investment are lower than may otherwise have been the case.

**Figure 12: Investment in the retail sector as a fraction of total Investment, 1960-2011**



Source: Australian Bureau of Statistics, Cat. No. 5204.0 *Australian System of National Accounts*, Table 52. Private Gross Fixed Capital Formation, by Industry

## 2.3 Long term trends in patterns of retail spending

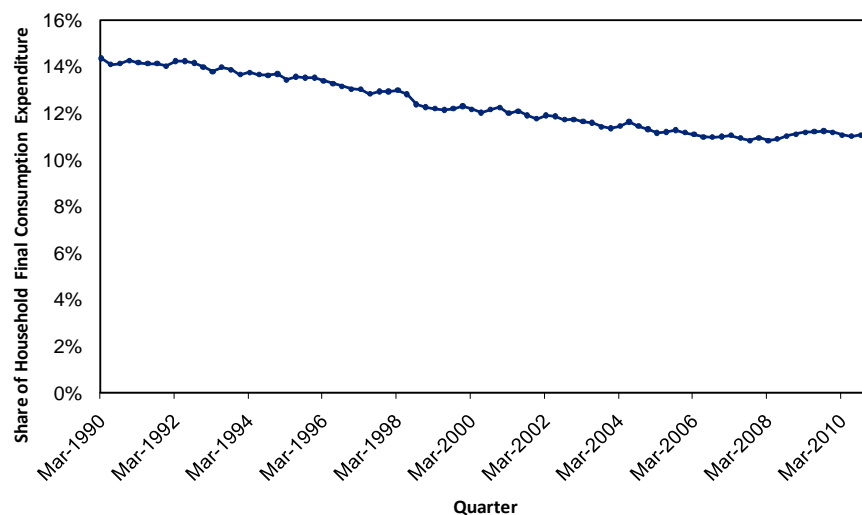
This section examines major long term trends in spending patterns in the Australian retail sector.

There have been two important trends:

1. The fraction of total consumer spending on food has declined, as shown in Figure 13 below. In other words, in relative terms, food has become less important in the budgets of Australian households.
2. On the other hand, in relative terms, turnover for food retailers has risen (see Figure 14 below).

Taken together, the data suggests that consumers have been devoting a greater fraction of overall household spending to non-retail items, and within retail spending, a greater fraction of overall expenditure is being devoted to food.

**Figure 13: Fraction of total household consumption expenditure on food, 1990 to 2010**



Source: Australian Bureau of Statistics, Cat. No. 5206.0 Australian National Accounts: National Income, Expenditure and Product.

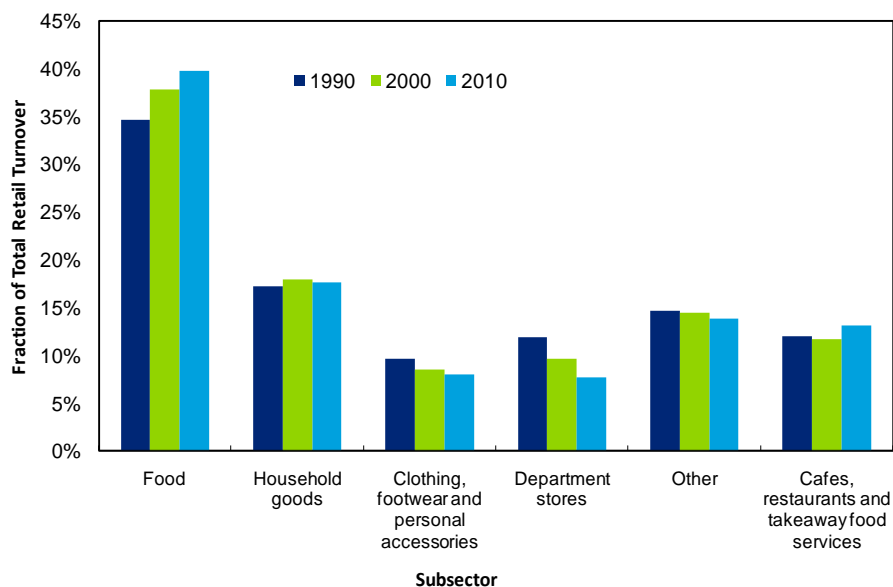
The Australian Bureau of Statistics classifies food retailing as including the following:

- Supermarket and grocery stores and non-petrol sales (convenience stores) of selected fuel retailing;
- Liquor retailing; and
- Other specialised food retailing, including fresh meat, fish and poultry retailing, fruit & vegetable retailing, and other specialised food retailing.

As Figure 14 shows, two of the most important trends in retail spending over the last two decades have been:

- The fraction of total retail turnover flowing to food retailing has increased, by around 5 percentage points; and
- The fraction of total retail turnover flowing to department stores has fallen, by around 4 percentage points.

Figure 14: Fraction of total retail turnover, by retail establishments - 1990, 2000 and 2010



Source: Australian Bureau of Statistics, Cat. No. 8501.0 *Retail Trade Australia*, March 2011.

## 2.4 Key findings

- The retail industry makes a significant direct and indirect economic contribution to Australia's economy. The direct value of retail services can be measured as the value of trade margins realised on goods sold in the retail sector. However, this measure does not capture changes in the quality of retail services, convenience.
- Using this approach, the direct economic contribution of the Australian retail sector is approximately 4.6 per cent of GDP. This fraction has remained relatively steady over a long period of time, increasing slightly over the last decade. The indirect economic contribution of the sector is likely to be much larger than this. For example, Woolworths Limited's indirect contribution to the Australian economy in 2010 was estimated to be in excess of \$96 billion and 652,400 full-time equivalent jobs.<sup>7</sup>
- The sector directly provides about 11 per cent of total employment in Australia. The sector's direct share of overall employment has remained relatively steady over a long period of time. The sector provides a unique environment that enables those requiring flexibility and special needs to access employment opportunities including women, older workers and those living with a disability.
- The fraction of income flowing to employees is relatively high in the retail sector, and in contrast with other sectors, has been increasing over time. For each dollar of income earned in the retail sector, 71 cents is paid to employees in the form of wages, salaries and other forms of employee compensation.
- The retail sector provides approximately 2 per cent of all investment spending in Australia. This fraction has been steadily declining over a long period of time, even when investment in the mining sector is taken into account. As discussed in section 3, whilst firms continue to make efficiency enhancing investments in the retail sector to reduce costs and prices, the sector's overall productivity performance has stagnated. As a result, investment levels and returns on investment are lower than may otherwise have been the case.

<sup>7</sup> Woolworths Ltd (2010) *Corporate Responsibility Report*, page 18.

- Spending on food as a fraction of overall household consumption expenditure has steadily declined over time. At the same time, a greater fraction of retail turnover has been devoted to food-related retailing stores over the last two decades, with a corresponding declining fraction of turnover spent in department stores.

# 3 The performance and competitiveness of the Australian retail sector

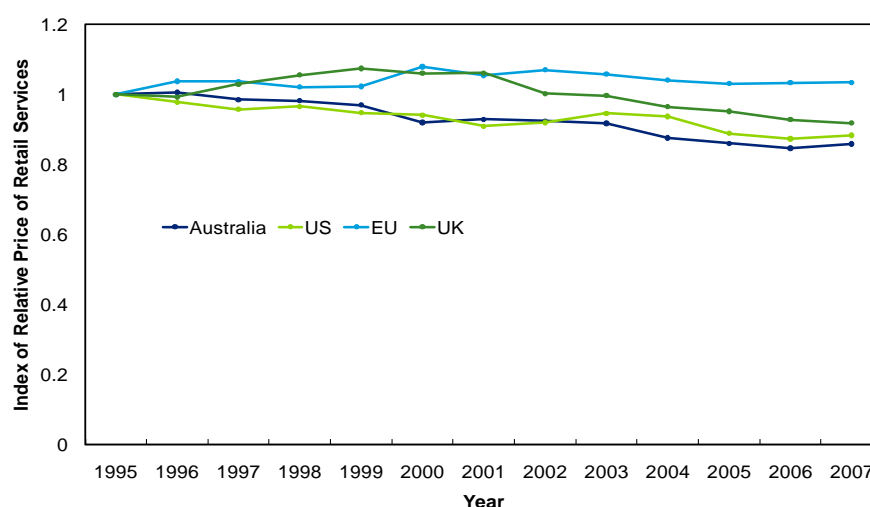
*This section examines some important features of the performance and competitiveness of the Australian retail sector over the last decade. The analysis also examines changes in the variety of products that are sold in the retail sector, and provides estimates of the associated effect on consumer welfare. The analysis concludes with a comparison of productivity trends in the Australian retail sector with those in the United States, and finds that productivity growth in the Australian sector has lagged behind the US.*

## 3.1 Competition and product variety

### 3.1.1 Competition

Whilst the extent of competition in the Australian retail sector differs across different market segments, the available data suggests that overall, the sector is subject to a significant degree of competition. For example, one of the best indicators of the overall competitiveness of Australia's retail sector is the relative price of retail services, compared to the average level of prices in the entire economy. The EU KLEMS database [O'Mahony and Timmer (2009)] publishes international data on sectoral implicit price deflators, from which measures of relative price changes can be computed. These estimates, which are shown in Figure 15 below, show that over the period 1995 to 2007 (the most recent year for which data is available), the relative price of retail services in Australia has declined by around 14 per cent – a larger decline than in the US, Europe and the UK.

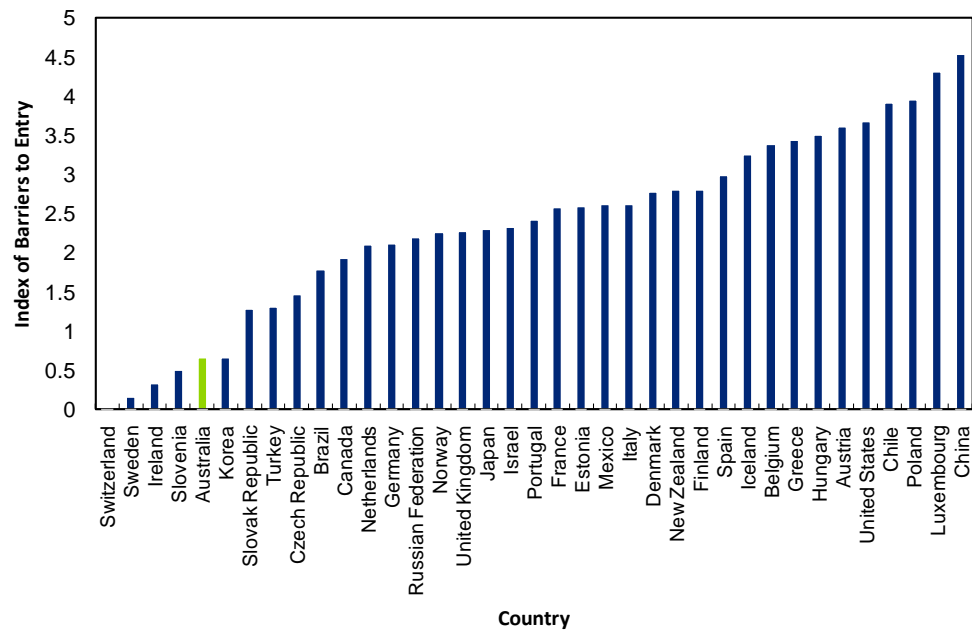
**Figure 15: Relative price of the output of retail trade services, Australia and other major economies, 1995-2007.**



Source: EU KLEMS database.

Regulatory barriers to entry can restrict competition, resulting in consumer prices that exceed levels that would prevail if firms could enter. The OECD publishes international data on regulatory barriers to entry in the retail trade sector. The most recent data (which is from 2008 and is shown in Figure 16 below), shows that taken as a whole, barriers to entry in Australia's retail sector are among the lowest in the OECD.

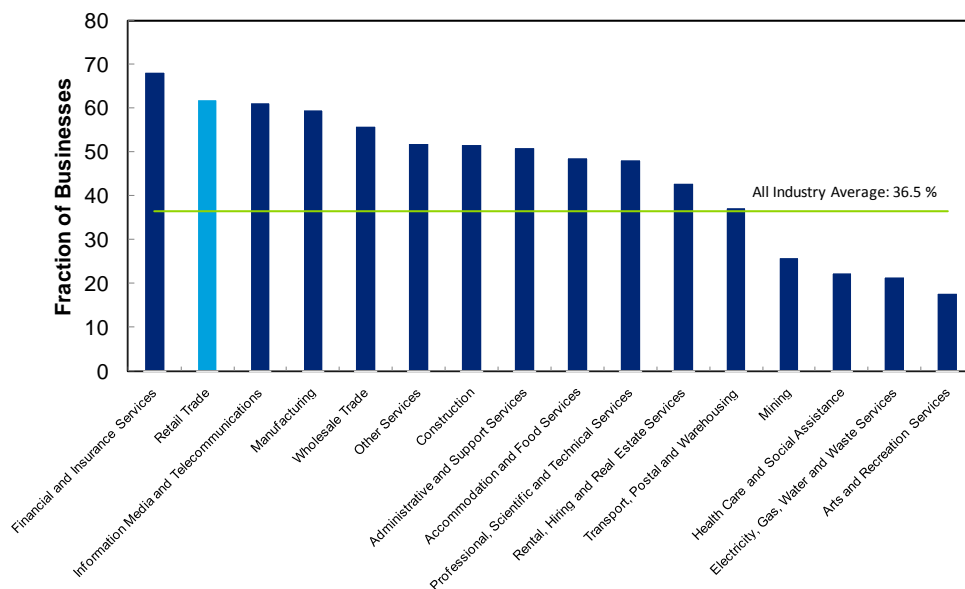
**Figure 16: Barriers to entry in the retail trade sector, OECD and selected non-OECD economies, 2008.**



Source: OECD, Regulation database.

ABS survey data also suggests that large businesses (those with a number of employees exceeding 200) in the retail sector face a very competitive environment. Indeed, the data suggests that with the exception of the financial and insurance sector, large retailers face the strongest competitive environment in Australia.

**Figure 17: Fraction of large (> 200 employees) businesses reporting “strong or tough” competition, 2008-09**

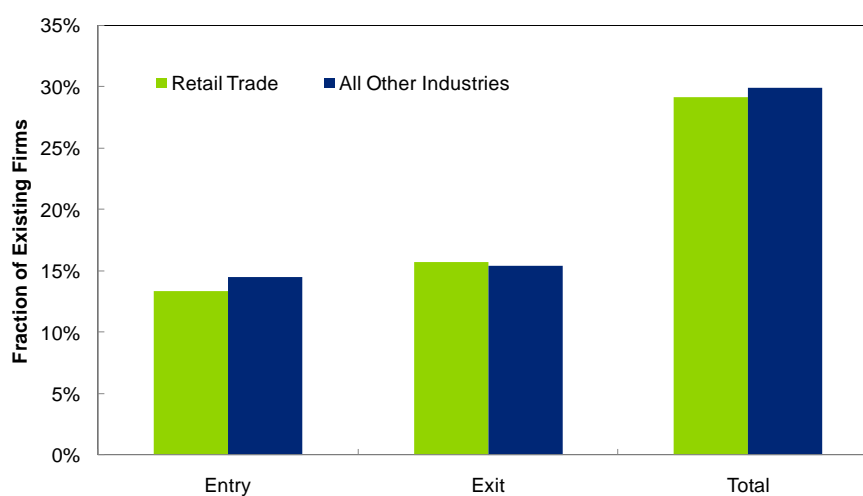


Source: Australian Bureau of Statistics, Cat. No. 8167.0, *Selected Characteristics of Australian Business*, 2008-09, Table 9

In addition to formal regulatory barriers to entry, the extent to which businesses actually enter and exit can provide another indicator of industry competitiveness. A summary measure of entry and exit in a particular sector is the business turnover rate - the sum of number of firms who enter and exit a particular industry as a fraction of existing businesses in that industry.

Turnover data for the retail industry and other industries is shown below in Figure 18, and suggests that overall, the retail industry has similar turnover rates to other Australian industries.

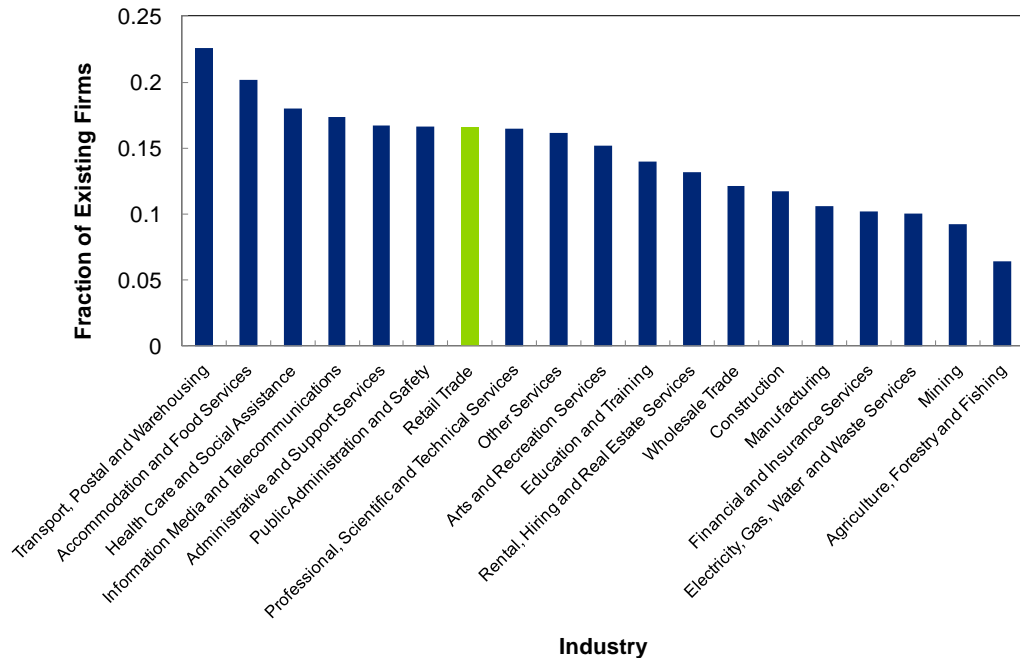
**Figure 18: Turnover of businesses in the retail sector and other industries, 2008-09**



Source: Australian Bureau of Statistics, Cat. No. 8165.0, *Counts of Australian Businesses, including Entries and Exits*, Jun 2007 to Jun 2009.

As Figure 19 demonstrates, however, for large firms (those with more than 200 employees), the retail sector ranks relatively high in terms of business turnover.

**Figure 19: Turnover of large businesses in the retail sector and other industries, 2008-09**



Source: Australian Bureau of Statistics, Cat. No. 8165.0, *Counts of Australian Businesses, including Entries and Exits*, Jun 2007 to Jun 2009.

### 3.1.2 Product variety

As discussed in section 2, an important component of the package of services offered by Australian retail stores is that they not only provide individual goods and services at competitive prices, but that they also provide valuable assortments, ranges and combinations of those goods and services in a single convenient location. As a result, in addition to prices, product variety, range and assortments have become key components of competition and have been an important characteristic of structural change and performance in the retail industry over the last decade.

Standard methods of measuring retail competitiveness (such as retail prices, as measured by some components of the consumer price index) and gross value added fail to fully account for changes in product variety – a shirt, for example, is treated as a shirt, irrespective of its colour or other features. This means that estimates of overall consumer prices will tend to overestimate true inflation, whilst measures of gross value added will tend to underestimate economic contribution.

Economic analysis has developed some very useful methodological tools which can be used to analyse and measure the impact of greater product variety on consumer wellbeing. This section illustrates this approach, whilst Appendix A provides more analytical detail.

To illustrate the approach, take a simple example: if a consumer desires a blue shirt and already owns a green shirt, it may not be much consolation if green shirts currently have a very low price. The basic “love of variety” approach therefore begins by assuming that consumers value variety for its own sake, so that (for example) one unit each of two different types or varieties of a good is preferable to two units of the same variety of the good. So, returning to our earlier example, all else being equal, under the “love of variety” approach, a consumer would prefer owning a green shirt and a blue shirt to owning two identical green shirts.



This simple, intuitive idea has some important economic implications.

- First, it allows economists to quantify both analytically (and, under appropriate assumptions, empirically) the increase in consumer wellbeing which comes about as a result of greater product variety
- Second, and more importantly, it allows economists to compare the gain in consumer wellbeing from greater product variety with the gain to consumers of a fall in the price of a single variety. In other words, using this approach, one can derive “price-equivalent” comparators of changes in variety. Changes in both prices and variety affect consumers – but the economic approach allows one to directly compare the effects of both kinds of changes
- Third, since standard measures of competitiveness ignore product variety, it follows that standard measures of the cost burden of regulation will also tend to underestimate the regulatory burden or “unexplained potential” of the retail industry. The approach allows economists to more accurately measure the costs to consumers of regulations in situations where variety is important.

Over the past decade or so the Australian retail industry has witnessed a significant expansion in the variety of products that are sold to consumers. There are a number of examples of this in both the grocery and discretionary retail sector – where retailers have been introducing new product ranges to meet evolving customer needs.

For example, as Table 1 below shows, in response to customer demand, Woolworths has introduced a significant number of different varieties or types of ready-to-eat and pre-prepared meals in its stores over the last few years. There has been an increase in the number of product varieties of over 400 per cent for these products.

**Table 1: Number of varieties of convenience meal products sold by Woolworths, 2005 and 2010**

2005	2010
41	166

Source: Woolworths Ltd.

Another example of growth in product variety is the introduction by Woolworths in recent years of an extended variety of organic products, as shown in Table 2 below. Product variety in this area has nearly doubled over the last four years.

**Table 2: Number of varieties of organic products sold by Woolworths, 2007 and 2011**

2007	2011
142	356

Source: Woolworths Ltd.

Expansion in variety has been a major source of structural change in the retail industry, and is likely to have provided significant benefits to Australian consumers. The next section provides some estimates of these benefits.

### **3.1.2.1 Estimating the welfare effects of greater product variety**

Increased product variety provides consumers with more choice, and can make consumers better off even when prices of other goods do not fall. In other words, holding the prices of existing goods fixed, the introduction of new product varieties can act as an independent source of improvement in consumer wellbeing.

Using a standard model of product variety, Appendix A shows how it is possible to estimate the welfare effects of an increase in the number of variety of products over time in a way that is

comparable to estimates of the benefits of lower prices. In particular, the analysis in Appendix A illustrates the following propositions:

1. The introduction of new product varieties at the same price as existing varieties makes consumers better off
2. The introduction of new varieties (even a very small number of varieties) at the same price as existing varieties can be equivalent to a significant fall in the prices of all existing varieties.

### 3.1.2.2 Results

In the modelling approach outlined in Appendix A, the welfare effect of the introduction of new varieties depends on the willingness of consumers to substitute between varieties. Intuitively, if consumers regard different varieties as close substitutes, then the introduction of new varieties will not increase welfare by much. In the special case where goods are perfect substitutes, for example, introducing a new variety would have no effect on consumer wellbeing.

The willingness to substitute between varieties is measured by the *elasticity of substitution*. A relatively low (high) value of the elasticity of substitution indicates that the consumer places a high (low) value on product variety. Hence, the welfare effect of an increase in product variety will vary inversely with the elasticity of substitution.

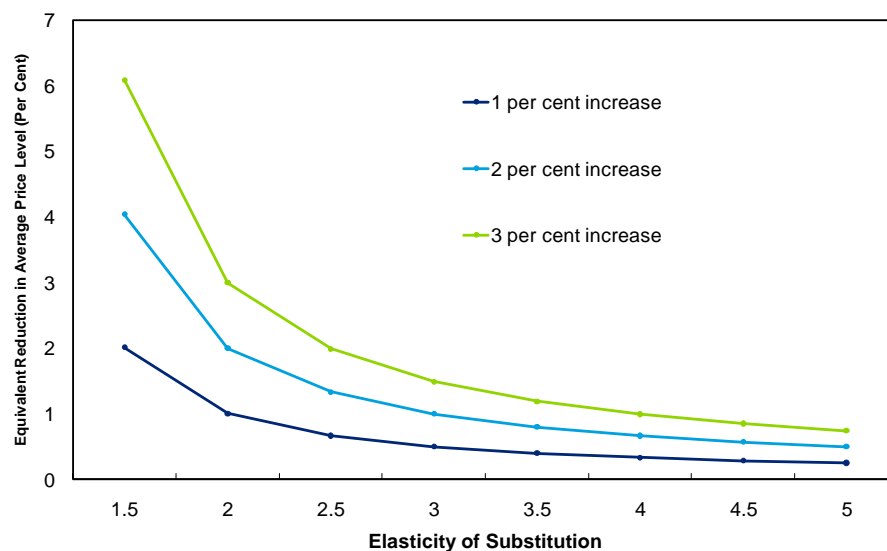
The empirical literature suggests that for standard retail goods, the elasticity of substitution is greater than unity and varies between 2 and 9, depending on the retail good. Table 3 below provides a summary of some empirical estimates from published studies.

**Table 3: Empirical estimates of the elasticity of substitution for retail goods, selected studies**

Study	Product	Point Estimate of $\sigma$
Feenstra (1994)	Athletic Shoes	6.23
	Knit Shirts	5.83
	TV Receivers	8.38
	Typewriters	2.96
De Haan (2002)	Cake Snacks	4.5
	Cereals	2.4
	Crisps	4.4
	Detergents	5
	Disposable Baby's Napkins	6.4
	Scents	2.1
	Soft Drinks	3.5
	Tea	5
	Yoghurt	3.9

The analysis in Appendix A shows that a one per cent increase in product variety is equivalent to a  $1/(\sigma-1)$  per cent reduction in the average level of prices of all goods, where  $\sigma$  is the elasticity of substitution. Figure 20 below illustrates this result, and plots the equivalent reduction in the average level of prices for a range of improvements in product variety.

**Figure 20: Average Price Level Reduction Equivalent of an Increase in Product Variety**



To apply these modelling results, consider the following benchmark example. Suppose that the overall increase in product variety in the retail sector over a given period was 1 per cent. If the elasticity of substitution is 2, then this is equivalent to a 1 per cent reduction in the average level of prices over the same period - or a permanent increase in real income of 1 per cent, which is a significant increase in wellbeing.

To put this in perspective, for an individual on average weekly earnings (currently \$1274.30 per week)<sup>8</sup>, a 1 per cent increase in product variety and the equivalent reduction in prices is comparable to a permanent increase in real earnings of \$12.74 per week. For lower estimates of the elasticity of substitution, this estimate is lower. Estimates for different values of the elasticity of substitution are provided in Table 4 below.

**Table 4: Equivalent increase in real average weekly earnings of a 1% increase in product variety**

Elasticity of Substitution	Equivalent Increase in Real Average Weekly Earnings	Equivalent Increase in Average Annual Earnings
2	\$12.74	\$662.6
2.5	\$8.48	\$441.0
3	\$6.36	\$330.5
3.5	\$5.08	\$264.3
4	\$4.23	\$220.1
4.5	\$3.63	\$188.7
5	\$3.17	\$165.0

<sup>8</sup> Australian Bureau of Statistics, Cat. No. 6302.0, *Average Weekly Earnings, Australia*, Nov 2010, Full time adult ordinary time earnings, private and public sectors, seasonally adjusted estimate.

## 3.2 Key findings

- Expansion in product variety has been a major source of structural change in the retail industry in Australia over the last decade or so, and is likely to have provided significant benefits to Australian consumers.
- An increase in product variety can be regarded as being equivalent to a fall in the prices of all consumer goods.
- Using a simple model of product variety and empirical estimates of the elasticity of substitution from the literature, a hypothetical increase in product variety of 1 per cent would be equivalent to a permanent fall in the average level of prices of between 0.25 per cent and 1 per cent. The actual increase in overall product variety in the retail sector is likely to have been much higher than this.
- Applying these estimates to an individual on average weekly earnings, such an increase in product variety would be roughly equivalent to a permanent increase in real earnings of between \$3 and \$13 per week.

## 3.3 Productivity in the Australian retail sector

An industry's productivity growth is a key determinant of its ability to compete internationally. Improvements in productivity allow firms to produce more outputs with the same quantity of inputs. Total factor productivity (TFP) growth measures that part of the change in a sector's output that cannot directly be explained by growth in factor inputs (such as capital and labour) alone. Improvements in TFP can come about as a result of better management practices, improvements in technology and so on, which can simultaneously make all inputs more productive.

Despite the relatively high overall degree of competition in the retail sector as discussed in the previous section, the retail sector's overall productivity performance over the last decade has, on the whole, been stagnant. This section compares total factor productivity growth in Australia's retail sector with TFP in retail sectors in other economies, particularly the United States.

### 3.3.1 Selected previous studies

There are a number of earlier studies of productivity in the retail sector which are relevant to our analysis. Johnston et al (2000) is an early study which examines productivity in Australia's wholesale and retail trade sectors between 1974-5 and 1991-92. They find that following an improvement in productivity between 1974-75 and 1984-85, there was a widespread slowdown in TFP growth in the Australian retail sector between 1984-85 and 1991-92, with TFP growth averaging -1.7 per cent over the period. On the other hand, they find the TFP growth in department stores was quite strong over the same period, averaging 2.7 per cent.

Dolman et al (2007) and Young et al (2008) examine productivity trends in Australia more generally, and compare recent trends with the United States. One of the key findings of both papers is that productivity growth in the Australian retail sector has lagged behind the performance of the sector in the US.

### 3.3.2 Analysis, data and results

This section compares the economic performance of the Australian retail sector with the performance in the United States. The comparison is undertaken using a standard growth accounting framework.

As shown in Appendix B, the economic performance (i.e. output growth) of the retail sector (and the economy as a whole) can be analysed using the broad decomposition illustrated in Figure 21 below:

**Figure 21: Decomposing the economic performance of the Australian retail sector**



The empirical analysis uses data from the EU KLEMS database.<sup>9</sup> The analysis decomposes growth in value added in the Australian retail sector into the following sources:

- Total factor productivity (TFP) or “Solow residual”, which is a measure of technological progress, which is not embodied in new capital equipment
- Capital Services, which comprises changes in:
  - ICT capital services
  - Non-ICT capital services.
- Labour Services, which comprises changes in:
  - Hours worked
  - Labour composition.

The main results focus on comparisons with the US, and can be summarised as follows. Since 1995, value added in the Australia retail industry has, on average, grown at about the same annual rate as value added in the US retail sector. Using this aggregate performance measure, the Australian retail sector therefore compares relatively favourably with the US.

However, the overall data masks several important differences in economic performance.

- In Australia, most of the contribution to growth in output in the retail sector has come from growth in the total number of hours worked
- In contrast, in the United States, most of the contribution to growth in output the sector has come from technological progress (that is, growth in total factor productivity).

The analysis concludes that, consistent with previous studies, productivity growth in the Australian retail sector has lagged behind productivity in the US. Moreover, this cannot be explained by aggregate economy-wide productivity measures.

### 3.3.3 Economy-wide international productivity comparisons

The chart below shows how Australia’s productivity performance has fallen away since 2000. Part of the reason for this seemingly poor overall productivity performance is the recent mining boom - large investments with long lead times mean that output growth will lag input growth. As Topp et al (2008)<sup>10</sup> point out, in the case of mining the headline measure of productivity needs to be interpreted very carefully because of the following important considerations:

1. The influence of resource inputs on headline productivity growth rates – particularly changes in availability and quality of resources, which tend to drag down standard measures of multifactor productivity growth.
2. The influence of higher world prices, which can lead to lower observed standard productivity growth measures as more marginal, higher cost deposits are extracted, exacerbating the effects identified in (1) above
3. Long lead times between exploration, other capital investments and outputs. Since mining is highly capital intensive relative to other sectors, these lag effects are particularly important for measuring multifactor productivity and MFP growth in the mining sector.

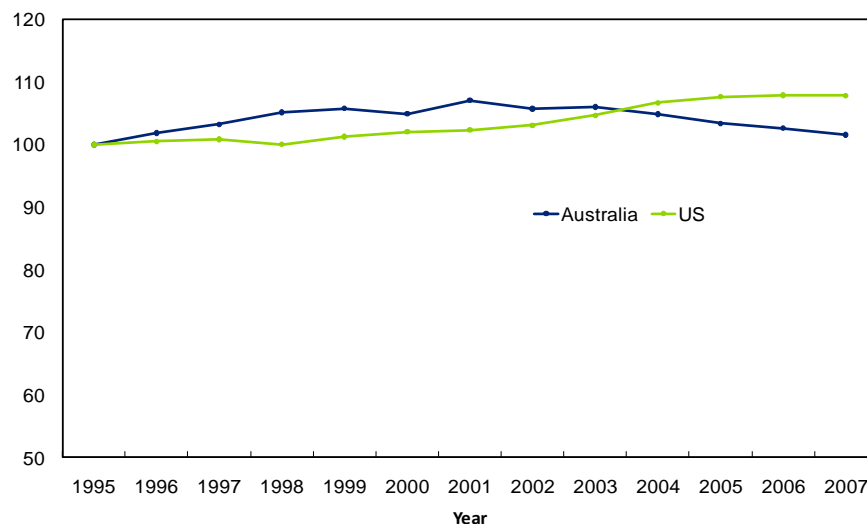
Topp et al adjust the headline rate of MFP growth in the mining sector for these effects, and show that annual MFP growth in the mining sector averaged 2.3 per cent between 1974-5 and 2006-07. This growth rate exceeded growth rate of MFP in the manufacturing and agricultural sectors, as well as the market sector as a whole.

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<sup>9</sup> See <http://www.euklems.net/>

<sup>10</sup> Topp, V. et al (2008) *Productivity in the Mining Industry: Measurement and Interpretation*, Staff Working Paper, Productivity Commission.

**Figure 22: Total Factor Productivity index, Australia and the US, 1995-2007 (1995=100)**

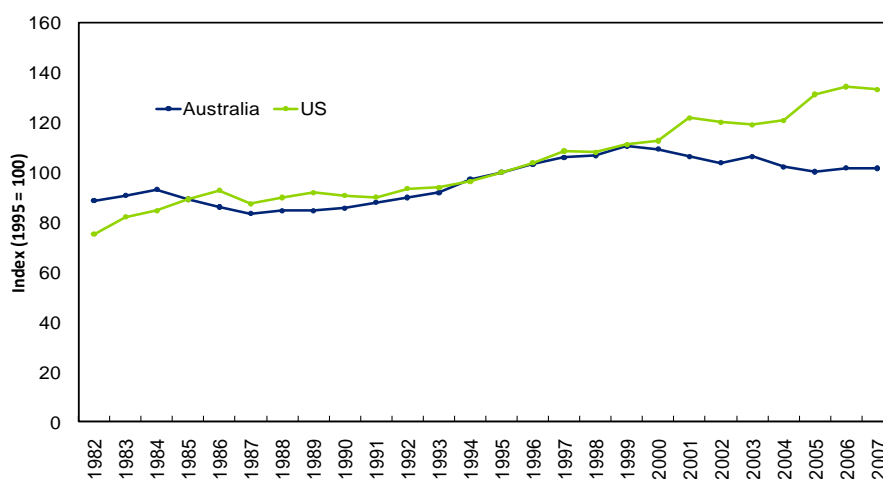


Source: EU KLEMS Database, Total Factor Productivity Index, All Industries

### 3.3.4 International productivity comparisons for the retail sector

As Figure 23 below shows, productivity growth in the Australian retail sector has mirrored productivity growth in the wider Australian economy. However, a comparison with productivity in the retail sector in the US shows that Australia has lagged significantly behind the US – the “productivity growth gap” that has emerged over the last decade is larger in the retail sector than overall.

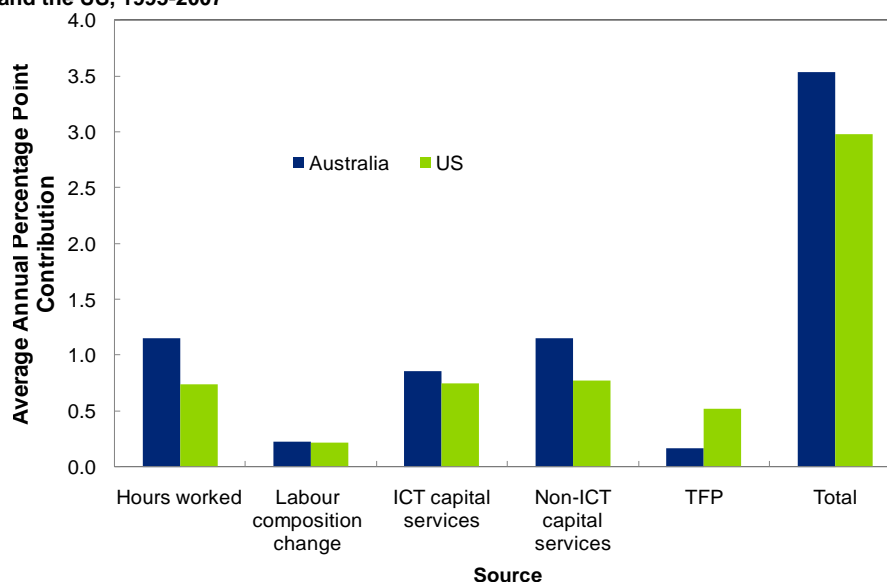
**Figure 23: Total Factor Productivity index, Australian and US retail sectors, 1982-2007 (1995=100)**



Source: EU KLEMS Database, Total Factor Productivity Index, All Industries

Despite the poor performance of Australia in relation to total factor productivity, the average overall economic growth rate has been higher in Australia over this period, due to larger increases in hours worked and greater contributions from ICT and non-ICT capital services. This is illustrated in Figure 24 below.

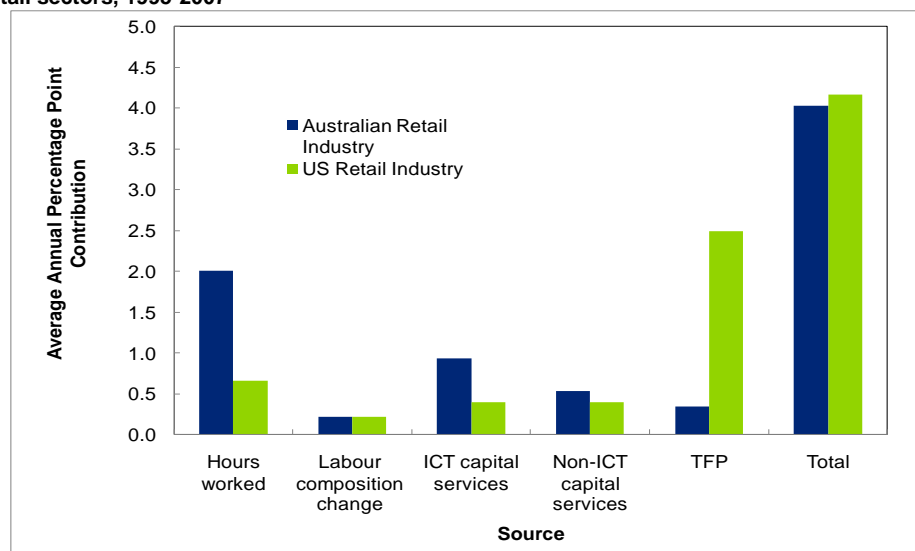
**Figure 24: Growth accounting decomposition of contributions to average annual overall economic growth, Australia and the US, 1995-2007**



Source: EU KLEMS Database, Contributions to Value Added Growth, All Industries

This conclusion is even more pronounced in the retail sector. On average, output growth (growth in value added) in the Australian retail sector has been about the same as in the US since 1995. However, the main source of growth in Australia has been from increases in hours worked. In contrast, in the US, changes in TFP have been the primary driver of greater value added.

**Figure 25: growth accounting decomposition of contributions to average annual economic growth, Australian and US retail sectors, 1995-2007**



Source: EU KLEMS Database, Contributions to Value Added Growth, Retail Industries



### 3.3.5 Lagging productivity growth and the Australian retail sector's unrealised potential

The previous analysis has shown that between 1995 and 2007, productivity growth in the Australian retail sector has lagged behind the United States despite the levels of competition and ongoing investment. A natural question to ask is: what would the performance of the retail sector in Australia had been if it had enjoyed the same productivity growth as the US experienced over the same period, rather than the actual productivity growth that was observed (in terms of output and employment)? This section provides estimates of this counterfactual outcome.

Technological progress or total factor productivity growth has two broad economic effects. First, it allows firms to produce the same outputs with fewer inputs. Thus, productivity growth can reduce the demand for labour, capital and other inputs. This is the supply side effect of productivity growth.

On the other hand, productivity growth also lowers unit costs, which lowers market prices, leading to an increase in the quantity of goods demanded by consumers. This is the demand side effect of productivity growth. The increase in quantity demanded increases output and the demand for inputs, with the size of the increase in employment (assuming that wages are constant), depending on the responsiveness of consumers to lower prices (the price elasticity of demand).

Under very general assumptions,<sup>11</sup> the net effect of productivity growth on the demand for labour and employment is simply the difference between these two effects. A one per cent improvement in TFP will lower unit costs and also increase industry output by  $\varepsilon$  per cent, where  $\varepsilon$  is the price elasticity of demand.

In contrast, the change industry employment will be  $\varepsilon-1$  per cent. Hence, if demand for the good is relatively unresponsive to price (i.e. inelastic, so that  $\varepsilon < 1$ ), then the supply side effect dominates the demand side effect: productivity growth will reduce consumer prices, but the overall effect is for industry employment to fall. On the other hand, if demand for the good is relatively responsive to price (i.e. elastic, so that  $\varepsilon > 1$ ), then the demand side effect dominates the supply side effect: productivity growth will reduce consumer prices, but the rise in quantity demanded increases the demand for labour and more than offsets the supply side effect.

As discussed earlier, for the purposes of estimating output and employment effects in the retail industry, the services that are being consumed are not the retail goods themselves, but are the supply of services such as assortments, variety, location, convenience (including longer trading hours), and customer service. There are very few direct estimates of the elasticity of demand for retail services in the economics literature. The evidence that does exist tends to compare the price elasticity of demand for goods sold through different channels (i.e. "bricks and mortar" retail outlets versus online stores), and finds that demand is very responsive to price differentials.<sup>12</sup> Hence, this evidence suggests that improvements in productivity in the retail sector would tend to increase employment.

To estimate the likely employment and output effects of higher productivity growth, it is important to note that although value added in the Australian and US retail sectors grew by approximately the same proportion since 1995, the overall growth rate of the Australian economy has been much higher over the same period. In other words, the relative growth rate of value added in the retail sector in the US has been much higher than in Australia. The same conclusion applies to the relative TFP performance of the retail sector within each economy. This is illustrated in Table 5 below, which computes the relative growth of output and productivity in the retail sector in each country.

<sup>11</sup> These assumptions are discussed in Appendix C.

<sup>12</sup> See, for example, Goolsbee (2001), Ellison and Ellison (2009).

**Table 5: Relative performance of the retail sector output and productivity, Australia and the US, 1995-2007**

	Australian Output	Australian TFP	US Output	US TFP
Average annual growth rate in the retail sector	4.02%	0.34%	4.12%	2.52%
Average annual growth rate of the overall economy	3.53%	0.16%	2.98%	0.52%
Cumulative relative performance of the retail sector, 1995-2007	6.3%	2.37%	15.5%	29.25%
Implied Elasticity	2.65		0.52	

Source: EU KLEMS database

From the data on output and productivity growth, we can estimate the implied elasticity of demand for retail services – it is the ratio of the cumulative change in relative output to the cumulative change in relative TFP growth. Australia's implied elasticity in Table 4 is derived from noting that a 2.37 per cent relative increase in TFP in the retail sector produced a 6.3 per cent increase in relative output, giving an estimate of the elasticity of demand of 2.65.

The superior productivity performance in the US retail sector produced the high output growth rate of the US retail sector, relative to the overall performance of the US economy over the period. What would have occurred if the Australian retail sector had enjoyed the same productivity performance, and Australia's retail sector had grown by the same relative amount as in the US (i.e. 15.5 per cent)?

Assuming that productivity growth is not biased towards any factor of production, if this had occurred, output in Australia's retail sector would have been 9.2 per cent higher than it was in 2007, with relative prices 3.5 per cent lower. Employment in the retail sector would have been  $(2.65-1) \times 9.2 = 15$  per cent higher than the observed level. Average employment in the retail sector in Australia in 2007 was 1.2 million, so this increase in productivity would have equated to additional employment of 180,000 workers in the Australian retail sector in 2007.

The indirect contribution to output and employment would likely exceed these estimates of the direct effects.

### 3.4 Key findings

- Available evidence that suggests that the Australian retail sector is, overall, subject to a significant amount of competition compared with other sectors. The available evidence suggests that this is particularly true for large retailers.
- Despite this, the productivity performance of the sector has stagnated.
- In percentage terms, since 1995, growth in value added in the Australian retail sector has been identical to growth in value added in the retail sector in the US.
- However, most of this growth in value added in the Australian retail sector has come from greater labour inputs, in particular, in hours worked. Only a very small component has come from technological progress.
- In contrast, most of the growth in output in the US retail sector has been driven by productivity growth.
- Estimates suggest that if the Australian retail sector had enjoyed the same productivity growth as experienced in the US over the same period, output in the sector would have been 9.2 per cent higher, relative prices in the retail sector would have been 3.5

per cent lower, and employment in the retail sector would have been 15 per cent higher (in the form of an additional 180,000 Australian jobs). This is an estimate of the unrealised potential of the Australian retail sector – the economic costs of the sector's relatively poor productivity performance - in terms of output, prices and employment.

- Some possible reasons for Australia's relatively poor productivity performance and the challenges Australian retailers face in the increasingly globalised retail environment are discussed in the next section.

# 4 Impediments to retail productivity and meeting the needs of Australian customers

*This section outlines a number of challenges that impede the productivity of Australian retailers and illustrates how these challenges impact on the ability of retailers to service customer needs. This section provides an overview of the impediments to retail productivity, how these impediments directly and indirectly impact on customers and uses case study examples to illustrate these issues.*

## 4.1 What are the challenges that retailers face?

As demonstrated in Section 3, productivity performance in the Australian retail sector has been relatively low compared to international retailers – particularly in the United States. This is despite efficiency-enhancing investment in the retail industry over the past decade and strong competition. From a practical perspective, this means that the Australian retail sector has lower employment, investment and output relative to its potential levels.

The limitations Australian retailers face in improving their productivity has a significant impact on their ability to meet the needs and expectations of their customers. This is because limitations on productivity constrain retailers' ability to be flexible and to improve their efficiency, competitiveness and product offering. In the increasingly global retail market, these restrictions hinder the competitiveness of Australian retailers as they compete with overseas based online retailers.

There is a strong theoretical and empirical link between regulatory impediments and productivity growth in general and at the industry level. For example, in a wide ranging study of regulation in advanced economies, researchers at the OECD found that “economy-wide product market regulations that curb competition and private governance have a negative effect on productivity, mainly by slowing down technological catch-up.”<sup>13</sup> Researchers at the Productivity Commission have also found that productivity in the retail sector was strongly influenced by sector specific regulatory arrangements, such as trading hour restrictions.<sup>14</sup>

Two key issues seem to be impeding Australian retailers from increasing their productivity and as a consequence, meeting the needs of their customers, including:

1. The scope and extent of regulatory burdens imposed on Australian retailers (discussed in this section)
2. The challenges of importing goods from overseas at competitive prices for Australian consumers (discussed in Section 5).

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<sup>13</sup> See Nicoletti and Scarpetta, (2003), page 45.

<sup>14</sup> See Johnston, A. et al (2000) *Productivity in Australia's Wholesale and Retail Trade*, Productivity Commission Staff Research Paper, October, pages 75-78.

Woolworths has represented that the top regulatory burdens facing national retailers that hinder their productivity, competitiveness and responsiveness to customer needs include:

- Regulation of trading hours, particularly in relation to public holidays and restrictive trading days – Trading hour regulations directly impacts on customers' accessibility to stores and inconvenience at stores as trading hour restrictions prevent customers from shopping at a time best suited to their needs or limit the stores preparedness when it does open. The impact of trading hour regulations is increasingly important as customers can purchase products online at any time.
- Restrictions on labour flexibility, particularly in relation to the General Retail Industry Award 2010 (which underpins the negotiations of enterprise agreements in the retail sector) – Australian retailers are constrained by the assumption that shopping occurs Monday to Friday between 9am and 5pm which is reflected in the General Retail Industry Award. This indirectly impacts customers because whilst retailers can negotiate flexibility to open stores outside this period, there is a considerable cost in doing so as retailers must negotiate higher average wage rates. These increased costs are passed onto customers in higher prices.
- State-based regulation, particularly in relation to age restrictions on the sale of products and other labelling or display restrictions. State-based regulation is often inconsistently introduced and/or introduced without consideration of its impact on retailers. This directly impacts customers' convenience in store and indirectly impacts customers where Australian retailers must pass on the additional costs that arise from having to comply with a multitude of different regulations.
- Restrictions on transportation – Time of transportation and type of transportation restrict retailers' ability to efficiently move products around and between states/territories, a challenge that is exacerbated by remote locations, longer distances, climate fluctuations and the topographical challenges of Australia. These transportation restrictions impact on customers by increasing the price of products and preventing stock from being available when stores open.
- Inefficient taxation arrangements, which affect labour-intensive industries – particularly large employers in the retail sector. These taxation arrangements discourage employment, create unemployment, and reduce employee after-tax wages across the sector and the rest of the economy.

## 4.2 How do these challenges impact on customers?

Impediments to retail productivity have direct and indirect impacts on customers. The key challenges (as identified above) limit retailers' ability to be flexible and responsive to consumer needs and expectations.

### 4.2.1 Direct impacts

Customers are directly impacted in the following ways:

- Accessibility – impeding customers' ability to shop at their local store because of trading restrictions on certain days of the year
- Inconvenience at store – through additional time and hassle from not being able to shop at certain times because of trading restrictions, having to wait longer in queues or having to produce identification as proof of age to comply with state-regulated restrictions on the purchase of certain products.

### 4.2.2 Indirect impacts

Customers are also indirectly impacted in the following ways:

- Operational efficiency – challenges that directly impact retailers through additional time and cost to their operations are consequently reflected in higher prices for customers. Sources of these disturbances to operations include trading hour regulations, restrictions on labour flexibility, transportation restrictions, state-regulated restrictions on the purchase of certain products and certain forms of taxation.
- Economies of scale – challenges that directly impact retailers' capacity to achieve cost advantages obtained through production expansion (including building new stores or acquiring other companies) consequently indirectly impact on customers. Sources of these scale constraints include restrictions on labour flexibility and certain forms of taxation.
- Economies of scope – challenges that directly impact retailers' capacity to achieve cost advantages obtained through product expansion (including introducing new products) consequently indirectly impact its customers. Sources of these expansion constraints include restrictions on labour flexibility and transfer pricing issues.

## 4.3 Key regulatory challenges

As discussed above, a number of regulatory burdens impede retail productivity and result in direct and indirect impacts on customers. The following section draws together the interrelationship between the challenge of regulatory burdens and the impacts on customers. Case study examples further illustrate the nature and the extent of these challenges and impacts for retailers.

### 4.3.1 Trading hour restrictions

#### 4.3.1.1 Overview

Trading hour restrictions directly impact on Australian customers' accessibility to stores and inconvenience at stores. This is because the range of trading hour restrictions in place across Australia effectively prevents customers from shopping at a time that is best suited to their lifestyle as well as limiting a retailers' preparedness when its stores do open. The direct impact of trading hour restrictions is increasingly important when these retailers compete against online retailers from which customers can purchase products at any time.

Trading hour regulations in Australia broadly has five key implications on retailers.

Firstly, store trading hours are regulated through legislation by the states and territories which limit when retailers can trade (see *7-day trading* and *Boxing Day trade* examples). There are distinctions and inconsistencies between states and territories for restrictions on:

- Extended weekday trading (i.e. past 5pm)
- Sunday trading
- Public holiday trading
- Restricted trading days (which may or may not be a public holiday).

For each of the above trading times, there may be an additional layer of restriction on the:

- Maximum number of employees staffed at any one time
- Floor size of the shop
- Type of goods sold.

Secondly, in addition to differences between states/territories there are also restrictions within states/territories on when retailers are permitted to trade (see *7-day trading* example).

Thirdly, in some states/territories trading hours are regulated by multiple legislative instruments. For example, in New South Wales retailers must comply with the trading restrictions prescribed in both the Liquor Act 2007 and the Shop Trading Act 2008.

#### 4.3.1.2 Case study examples

##### A. 7-day trading (QLD & WA)

Not all communities across Queensland permits 7-day trading – a number still only permitting 6-day trade. For example, Big W currently has 20 stores in Queensland which trade on Sundays, including Toowoomba, and eight stores of which are unable to trade on Sundays, including Warwick.

In BIG W's experience, a significant number of customers from Warwick travel the 83 kilometres (approximately 1 hour drive) to shop in Toowoomba on Sundays because they are not able to purchase goods on Sundays that could normally be accessed from stores such as the Warwick Big W.

In terms of lost employment opportunities, the Toowoomba BIG W store generates approximately 244 additional hours for employees on an average Sunday trading day where the Warwick stores must remain closed. This particularly impacts on those community members who would value the opportunity to obtain casual work (with penalty rates) such as students.

Woolworths has been part of a broad coalition of retailers seeking to obtain 7-day trading in communities across Queensland – this has involved multiple complex and costly applications to the Industrial Relations Commission of Queensland which have not all been successful. Woolworths expects that stores, such as Warwick, could benefit from additional sales and staff hours in a similar manner to stores such as Toowoomba. In addition, Woolworths has represented that it would be better able to meet the expectations and needs of customers' whose consumer consumption patterns are aligned to shopping on a Sunday.

Similarly, Western Australia is an illustrative case study of the complexities of trading hour restrictions based on store location. Stores located in designated tourist areas are able to open on Sundays in the Perth Metropolitan Area unless the store is designated a particular store category, such a domestic development goods retailer selling hardware. Once a store is designated as a domestic development goods retailer (or some other category), they are only allowed to sell a specified list of goods creating some perverse outcomes.

For example, a retailer that sells home improvement goods is not, under the terms of current legislation, able to sell lighting on a Sunday. Areas in these stores must restrict access to lighting on a Sunday or not carry such products. This is despite the ability for their other stores across Australia to sell lighting products on a Sunday. Not only does this create costs for retailers – who must change their store format and/or product range to account for this regulatory difference, it also inconveniences customers who are looking to purchase all home improvement items in one location at the one time. Furthermore, trading hour restrictions that limit product ranges impact on the ability of retailers to be innovative which hinders the competitiveness of the Australian retail sector.



There are a number of similar product range restrictions in place across both Western Australia and South Australia. Of note is the fact that the Western Australian Government is currently considering enabling retailers of durable goods (such as whitegoods) to trade on Sundays. It is not clear, however, whether retailers of all formats selling such goods will be able to trade on Sundays.

### *B. Boxing Day trade (NSW)*

Under the NSW Retail Trading Act, there are four restricted trading days (Boxing Day, Good Friday, Easter Sunday and before 1pm on ANZAC day) when retailers cannot trade.

Retailers can open their stores on those days, however, if that store is located in a local council area that was traditionally exempted as a “Resort Area” that store may be exempt from the restricted trading day. To establish whether stores fall inside the Resort Area, retailers are required to consult past Government maps to determine original council boundaries before checking whether the relevant exemption period applies. These maps are, in fact, not always available.

Boxing Day trade in Moama and Echuca is an illustrative example of the above points. Woolworths currently operates supermarkets in Moama (NSW) and Echuca (VIC) and these towns are in close proximity to one another being located on opposite sides of the Murray River. They are also popular tourist destinations and trade strongly in holiday periods.

There is no restriction on Boxing Day trading in Victoria meaning that Woolworths’ Echuca store opens on that day. In contrast, the Moama store is unable to open due to New South Wales trading hour regulations. Table 6 illustrates the Boxing Day trade differences between Echuca and Moama which results from inconsistent regulation between states

**Table 6: Boxing Day trade in Echuca and Moama**

	Echuca (Vic)	Moama (NSW)
Boxing Day 2010 turnover	\$128,893	\$0
Boxing Day 2010 customer numbers	3,829	0

Source: Woolworths

When the Echuca store does open on Boxing Day it experiences significant congestion due to the increased number of people who come from Moama and surrounding areas to shop in that store. This is not just a problem for the Echuca store but also for the entire community as it creates significant traffic congestion on the bridge between the two towns. To ensure appropriate traffic controls are in place, Woolworths has had to engage the services of the local police to direct traffic.

Inconsistent trading hour regulation between states and an inability for retailers to successfully receive exemptions where such an exemption would benefit consumers, significantly limits customers’ access to stores.

### *C. Easter/Anzac Day trade (All states/territories)*

The implementation of restricted trading days and public holidays are not uniformly applied by states/territories across Australia even during the same period. From customers point of view these inconsistencies mean that they do not know when stores will be open and cannot shop when they need or want to. From a retailer’s point of view, it is extremely difficult to give certainty to staff around their rostering arrangements and, with the likelihood that public holiday pay rates are payable, effectively manage wage costs.

Retail trading during the Easter/Anzac Day period in 2011 is illustrative of the implications regulatory inconsistencies can have on retailers, their customers and their staff. Table 7 illustrates the differences between the states and territories during the Easter/Anzac Day 2011



trading period where the implementation of a public holiday versus a restricted trading day for the 25 April was not uniformly applied by states and territories.<sup>15</sup> This directly impacts on customers as the accessibility to stores is limited.

**Table 7: State and Territory differences during Easter/Anzac Day trading 2011**

  -Public Holiday

  -Substitute public holiday

State/Territory	Good Friday	Easter Saturday	Easter Sunday	Easter Monday/ Anzac day	Tuesday
WA	Closed	Open 8am-5pm	Closed*	Closed*	Open 8am-5pm
SA	Closed*	Open 9am-5pm*	Closed*	Closed*	Closed*
NT	No restrictions - generally closed	No restrictions	No restrictions	No restrictions - generally close before 12 pm	No restrictions
TAS	Closed	No restrictions	No restrictions	Closed before 12pm	No restrictions
VIC	Closed*	No restrictions	No restrictions	Closed before 1pm	No restrictions
NSW	Closed*	No restrictions	Closed*	Closed before 1pm	No restrictions
ACT	No restrictions - generally closed	No restrictions	No restrictions	No restrictions - generally close before 1pm	No restrictions
QLD	Closed	Dependent upon local area	Dependent upon local area	Closed	No restrictions

Notes: \*-unless exempt

<sup>15</sup> Anzac Day is typically a restricted trading day. However in 2011, Anzac Day coincided with Easter Monday which is typically a public holiday. In 2011, states/territories did not consistent apply trading hours for this period

As a result of the differences between trading hour regulations across the states/territories, as well as the different times and processes for gazetted public holidays, retailers experienced significant costs associated with preparing for the Easter/Anzac Day trading period. At a corporate and regional management level, additional tasks were required in order to understand, comply and administer the Easter/Anzac Day trading period. These additional tasks are outlined in Table 8 and are indicative of activities experienced across all Woolworths' businesses when inconsistent trading hours occur.

Retailers experience significant costs for interrupting and implementing a public holiday or restricted trading day. For example, Woolworths has represented that its supermarkets incurred an estimated \$3.4 million for undertaking interrupting and implementing the 2010 Christmas/Boxing Day trading period. Woolworths has also represented that similar costs were experienced for the 2011 Easter/Anzac Day trading period and for other public holidays and restricted trading days.

**Table 8: Additional tasks performed by Woolworths to prepare for a public holiday**

Position	Additional task
Regional HR services	By state each HR manager is required to interpret local government legislation, in conjunction with the National agreement and formulate an employee entitlement pack for Stores
Employee relations HR manager	Reviews every Regions Pack for certification Engage solicitor if required for interpretation
Regional HR services	Present proposal to unions Once certified, present Regions Pack to Regional Executive Team Present Regions Pack to Area HR Specialists
National Payroll	Interpret each Regions Pack and formulate payroll instructions for stores
Productivity Specialist	Analyse financial planning Present financial planning to Regional Executive Team Present financial planning to Store Managers
Regional HR services	Present Regions Pack to Store Managers and Retail Support Team
Store Managers	Present Regions Pack to Department Managers
Department Managers	Present Regions Pack to Assistant Department Managers Administer new rostering arrangement including - calling for volunteers / employee election forms / costings and rostering
Store Managers	Reviews every change of roster / and ph change processes
Store Services Offices	Change of contracts and rostering entered into payroll system
Store Managers	Re-arrange business services e.g. cleaners
Regional Office Admin	Re-arrange Armguard, waste, trading hours
Regional executive team	Sign off on agreed trading hours for all Regions in state

Position	Additional task
Retail Support Team	Keys revised trading hours in to system by store by day communicating to National Retail Operations
National Retail Support	Keys revised trading hours into system to list on Web site and internal systems
	Communicated with local supply chain on delivery schedule requirement changes for the public holiday
	Schedules are then sent to stores to make any additional requirements or changes to their current schedules
Retail Support Team	Schedule changes keyed into spread sheet where Area Managers review and sign off
	Retail operations forward to supply chain for keying into the data base and sign off on changes
	Forward current schedules with proposed changes for Armaguard and waste delivery services. Stores forward request for change or sign off where by changes are keyed and communicated to Armaguard and waste

Source: Woolworths Ltd.

Compounding these difficulties are the further restrictions that some States have introduced which limit the ability of retailers to have staff who volunteer to work in closed stores on restricted trading days. For example, at the end of 2010 the former NSW Government introduced laws which meant staff could no longer volunteer to work in closed stores on restricted trading day to prepare the store for when it reopened (as had been allowed for a number of years). This change meant that stores in NSW that could not open also had to significantly alter staffing, planning and delivery operations to minimise customer impact. The implications of this change were expected to be worse over the Easter / ANZAC Day public holiday period when stores would effectively be opening at 1pm on ANZAC day with little fresh stock (such as bread or BBQ chickens ready to sell). It was only in the week before the Easter/ANZAC Day period that the NSW Government agreed to exercise discretion and allow retailers to undertake necessary stock preparation tasks in closed stores over the long weekend. Notwithstanding this last minute and welcome change, Woolworths has represented that it had already spent time and resources putting in place contingencies, for example shifting deliveries, to minimise the impact on trade and to customers.

### 4.3.2 Labour flexibility

#### 4.3.2.1 Overview

The regulatory framework governing labour and employment in Australia is complex and has recently seen significant changes, with the introduction of the Fair Work legislation. The *Fair Work Act 2009* was introduced to promote productivity and fairness through enterprise agreements tailored to suit the needs of businesses and the needs of employees. Modern awards, in conjunction with the National Employment Standards, were introduced to provide a safety net against which enterprise agreements are negotiated. Every enterprise agreement must pass a threshold test against which each employee covered by an enterprise agreement must be better off overall than they would be under the applicable modern award (BOOT).

Whilst there has been a harmonisation of retail employment arrangements within this new legislative framework, including through the development of the General Retail Industry Award, one of the key impediments that retailers face is that the General Retail Industry Award (which underpins the negotiations of enterprise agreements in the retail sector) still relies on the

assumption that shopping occurs Monday to Friday between 9am and 5pm. That is, the General Retail Industry Award provides for penalty rates for work done outside this period (see Table 9 and *Enterprise bargaining agreement* example).

**Table 9: Penalty rates under the General Retail Industry Award provides**

Working time	Full time or part time employees	Casual employees
Monday – Friday (after 6pm)	25%	Standard 25% casual loading
Saturday (all hours)	25%	Standard 25% casual loading
Sunday (all hours)	100%	100% (including casual loading)
Public Holidays	150%	150%

Whilst retailers can negotiate flexibility to open stores during this time (as Woolworths has done through agreements such as *Woolworths National Supermarket Agreement*) there is a considerable cost in doing so. This is because retailers must effectively negotiate higher average wage rates and in most instances will still have to pay penalty rates for hours of work done outside these “standard” hours.

This is to pass the requirements of the BOOT. The effect of this is that retailers effectively incur higher costs when operating their stores at times when customers wish to shop. Invariably these costs must be reflected in higher prices. Alternately, retailers may be forced to employ less staff during these peak periods creating leading to customer inconvenience.

#### 4.3.2.2 Case study examples

##### *A. Enterprise bargaining agreements (All states/territories)*

Consumer shopping patterns have changed substantially over recent decades. Accompanying these changes have been some legislative amendments around trading hours, such as relaxing restrictions for:

- Saturday afternoon and Sunday trading
- Night trading
- Public holiday trading.

Consumers have altered their shopping habits in response to these changes and the days leading up to and including the weekend have become busy shopping days.

Nevertheless, the regulatory framework governing labour and employment has not kept up with consumer expectations to shop outside the traditional shopping period of Monday to Friday, between 9am and 5pm.

Retailers face operational challenges to meeting their customers’ expectations by the labour regulations requiring them to pay penalty rates to its staff (and in particular, its full time and part time staff) working outside the traditional 9am-5pm weekday trading times. Alternatively, where retailers negotiate more flexible arrangements under an Enterprise Agreement (in lieu of applying the General Retail Industry Award) this has the effect of considerably increasing the overall average wage rates that are payable across the week (in order to pass the requirements of the BOOT). This is shown in Figure 26 which demonstrates that Woolworths’ average wage rates for a Grade 2 employee in a supermarket (such as a shop assistant) are higher than that required under the Modern Retail Award.

**Figure 26: Average Wages Rates under Woolworths National Supermarket Agreement vs. Wage Rates General Retail Industry Award**

Instrument	Current Average Weekly Wage
Woolworths National Supermarket Agreement - NSW/ACT - Grade 2 Employee	\$701.27
General Retail Industry Award 2010	\$630.42

Note: A majority of staff in a Woolworths' supermarket are classified as Grade 2 under the Woolworths National Supermarket Agreement including shop assistants, service assistants, stocktake assistants. Whilst the Woolworths National Supermarkets Agreement is a national agreement, it currently provides for State/Territory based wage rates.

Notwithstanding this average wage rate, Woolworths represents it pays a range of penalty rates under this Agreement for operating and preparing stores at times customers are increasingly undertaking their shopping as set out in Table 10.

**Table 10: Penalty rates payable under Woolworths National Supermarket Agreement**

Working time	Full time or part time employees	Casual employees (inclusive of 20% casual loading)
Monday – Friday from Midnight to 5am	30%	50%
Saturday – from Midnight Friday to 5am Saturday	30%	50%
Saturday – from 10 pm to Midnight Saturday	25%	45%
Sunday – from Midnight Saturday to 6am Sunday	100%	120%
Sunday – from 6 am Sunday to 9 pm Sunday	50%	70%
<i>Vic, WA and Tas</i>		
Sunday – from 9 pm Sunday to Midnight Sunday	100%	120%
<i>SA/NT, NSW/ACT and Qld</i>		
Sunday – from 9 pm Sunday to Midnight Sunday	75%	95%

Another labour flexibility challenge faced by retailers is the business transfer provisions under the Fair Work Act 2009 – this impacts on the ability of business to harmonise labour and employment relationships when businesses are acquired and hinder retailers' ability to flexibly move team members across business divisions (which are associated entities). Under the *Fair Work Act 2009*, where there is a transfer of business, an industrial instrument which covered a transferring employee during their employment with their old employer will continue to cover the employee and will start to cover the new employer in relation to the transferring work. These transferring instruments apply until terminated or replaced (where previous legislative provided that transferring instruments only applied to the new employer and the transferring employee for 12 months after a transmission of business).

The effect of these provisions is that they inhibit the extent to which Australian retailers can increase their scope and capacity to achieve economies of scale through purchasing other businesses. This is because many of the synergies underpinning such acquisitions arrive from harmonising the employment arrangements between the target and acquiring business. Alternately, the associated entity provision, means that if an employee is transferred between businesses, in their new role their employment will still be governed the industrial instrument from their previous role. This creates the situation where the two employees undertaking the same role will have different benefits (and potentially pay rates) where one employee's role is still governed by the industrial agreement from their previous role. From a retailer's perspective,

this creates a number of operational and administrative difficulties as well as limiting the ability to provide employees with flexible work opportunities across the whole business (where there may be an incentive to avoid transferring staff between retail brands).

A further specific example of the limitations in the General Retail Industry Award is that it does not expressly permit an employer and a part-time employee to agree to 'flex up' a part-time employee's hours from their agreed rostered hours to a maximum of 38 hours per week on a temporary basis without incurring overtime. An employer and a part-time employee can agree to vary the employee's regular pattern of work but it is unclear about whether this can be done on a temporary basis from week to week. This current uncertainty creates a disincentive for retailers to engage employees on a part-time basis compared to if it could 'flex up' its employees' hours on a temporary basis to respond to consumer demand and this impedes overall operational efficiency.

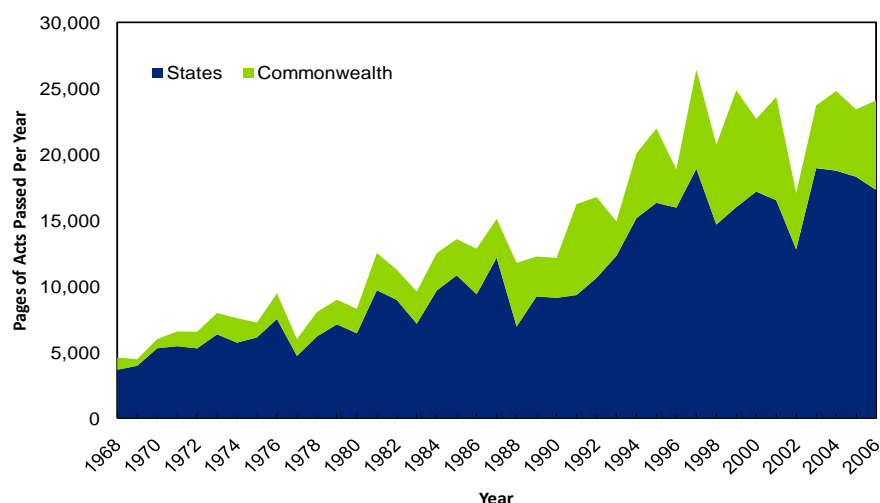
### 4.3.3 Increasing inconsistent State/Territory-specific regulation

#### 4.3.3.1 Overview

The Federal nature of our legal and regulatory framework means that many areas of regulation facing business are governed by Federal, State and even local government laws and often all three at the same time. Given this, Australian retailers often find themselves having to comply with regulation that is:

- Inconsistent across states/territories in both its content and implementation (see *Knife ban*, *Tobacco retail display ban* examples)
- Introduced without regard to its potentially significant (but often unintended) impact on this sector (see *DVD range*, *Food labelling* examples)
- Of concern is the fact that the volume and complexity of this legislation is increasing as evidenced by Figure 27.

Figure 27: Number of pages of Commonwealth and State acts passed per year, 1968-2006.



Source: Berg (2007)

National retailers experience significant operational inefficiency having to ensure compliance with laws in each jurisdiction in which they operate. This means that their operational systems, most of which are designed, developed and managed on a national basis, must be able to respond to specific-State or local laws (see *Knife ban* and *Tobacco retail display ban* examples).

In addition, several regulations with which retailers must comply involve restrictions on the purchase of certain products, for example, prohibitions on the purchase of certain products by under-18 or under-16 year olds. While retailers may be supportive of the policy objectives underpinning these legislative schemes, the inconsistencies in their operation and the lack of consideration of the impact on the retail sector in their drafting create significant challenges for retailers in meeting customer needs. These challenges directly impact on customers through inconveniences and inconsistent experiences at the store level and indirectly by impeding Retailers' operational efficiencies which impacts on their costs and consequently the prices customers pay.

#### 4.3.3.2 State-specific regulation

##### A. Knife ban (VIC, NSW & SA)

In Victoria and New South Wales a ban on the sale of knives to minors has been introduced and a ban is proposed in South Australia. However the three State regulations differ in the age above which retailers may sell a knife, in the extent of the knife ban and in the penalty imposed for a prohibited sale (see Table 11).

**Table 11: Knife ban regulation in Victoria, New South Wales and South Australia**

	Victoria	New South Wales	South Australia
Year in which ban was introduced	2010	1998 (ban applied to supermarkets a few years later)	Not yet introduced
Age under which ban applies	18	16	16
Extent of ban	All knives	All knives except plastic knives used for eating	(Unknown)
Means of monitoring	Same ID as tobacco laws	Difficult to monitor as there is no acceptable recognised forms of ID for 16 year olds	(Same as for NSW)
Penalty for prohibited sale	12 penalty units (approx \$2,389)	Up to \$5,500	Up to \$20,000 and two years imprisonment

The knife ban not only impacts retailers' operational efficiencies it is also confusing and frustrating for customers who, in some States, are prevented from purchasing a pack of 20 HomeBrand plastic knives whilst in others they are allowed to purchase such items.

In raising this issue, regard must be had to the significant time and cost that each small regulatory change involves for national retailers. For example, Woolworths has represented that the introduction of the knife ban in Victoria alone included:

- The development of training content, setting up e-learning and paper-based training by human resources and training staff at a one off cost of approximately \$1000
- The delivery of 25 minute training sessions to every staff member in Victoria, with approximately one-third of the training completed online, at a cost of approximately \$110,000 in lost staff time
- The development and purchase of new signage for knives in its stores at a cost of \$6,650 per store.

Information about the knife ban has to be incorporated in the general training provided by retailers to their staff each year. The differences between the bans, discussed in the table

above, means that the same training cannot be rolled out in Victoria and NSW and instead must be tailored to each State. Further difficulties arise where:

- Retailers are unable to nationally manage all their ranged lines as different items in each state are restricted
- Retailers' business teams need to manually apply a "check ID flag/prompt" for items scanned by check-out operators including all ranged weapons on a state by state basis
- Retailers must also comply with different signage requirements in each State and are unable to have a sign created by them to display nationally due to the differences in the details of the ban in each State.

### *B. Tobacco retail display ban (All jurisdictions)*

A retail display ban (RDB) for tobacco products has been implemented in all States and Territories (either as partial display or full display bans). Despite each State and Territory having introduced these display restrictions to achieve the same policy purpose, each has introduced different legislation, undertaken separate and time-consuming consultation processes and introduced different regulatory requirements, including the ticketing allowed in retail stores, and the way in which staff are allowed to re-stock shelves and serve customers.

For example, in terms of product ticketing:

- In NSW, retailers can use price tickets but they can be no larger than 3.5cm, the letters can be no more than 2cm in height
- In Victoria, price tickets cannot be used by "product locator" tickets can be used so long as the text is not visible to customers.

In Tasmania, retailers are not allowed to have price tickets or product locator tickets on show on the front of a tobacco cabinet but retailers are allowed to have tickets under a tobacco display cover.

In terms of requirements when serving a customer:

- In NSW, incidental viewing of tobacco products is not allowed so retailers needed to put in place self closing mechanisms on doors
- In Victoria, tobacco products and packaging may only be visible when a "customer makes a request for a specific tobacco product" so retailers have had to give specific training to their staff about what constitutes a specific customer request
- Inconsistency of application of tobacco sale/display laws is not limited to physical retail outlets. For example, in South Australia, online sale of tobacco is prohibited whilst being allowed in other States and Territories.

The different regulation for the tobacco retail display ban is not only inconsistently applied across different states/territories despite the fact that it has the same policy purpose. As such, retailers' ability to comply with state-specific regulation could be improved where legislation across states that appears to have the same objectives is consistently applied both in terms of content and timeframe. This in turn would seek to minimise customer confusion and inconveniences which arise from time spent understanding the tobacco retail display ban.

Retailers' operational efficiency is significantly affected by these restrictions and each different state approach to this issue has required the establishment of a specific tobacco control committee in its business to put in place state and business specific measures (including adjustments to store configuration and to operating procedures) and training programs to comply with different legislative requirements. To date, Woolworths has represented that making the changes required in store to meet each State's tobacco display changes has cost it in excess of \$4,000,000 (not including time or expense for staff training).



### *C. DVD range (SA)*

In 2010, South Australia saw the introduction of restrictions regarding the display of R18+ DVDs. R18+ DVDs must be displayed in a different area from that in which material for other films is displayed, and the different area must be marked with a prescribed notice displayed in a prominent place near the area. Failure to comply with these requirements is an offence with a maximum penalty of \$5,000. There is no similar restriction in any other state.

Intended to only impact DVDs of a sexual nature, the number of DVD titles caught by the legislation was significant (where many DVDs are classified as R18+ for reasons other than sexual content). Consistent with its family-friendly focus BIG W only carried a small number of R18+ DVDs (such as *The Hangover*). To comply with this new law, however, BIG W had to develop new store plans (planograms) with separate areas for its R18+ DVDs, implement these changes and purchase signage for the new displays, involved a cost of approximately \$150,000.

### *D. Food labelling (NSW, SA, VIC & ACT)*

The New South Wales government has introduced a regulatory scheme (and the South Australian, Australian Capital Territory and Victorian governments are considering or have announced plans to introduce similar schemes) requiring major fast food outlets to display kilojoule information alongside the price of the product on their menu boards, website, leaflets and menus.

The policy objective of the regulations was to target fast food retailers. However an unintended consequence of the regulations has been the capturing of supermarkets who sell similar food to fast food retailers. The NSW Act was introduced with no consultation with supermarkets and on a number of occasions supermarket operators were explicitly told that the law was, in fact, to have no application to the sector on the basis that supermarkets are not fast food or snack food outlets where customers purchase meal solutions for immediate consumption.

Despite these assurances, Woolworths has represented that it has now been advised that it will be required to implement food labelling on over 200 lines of products including BBQ chickens, bread products and salads made in store. This extension of the law, done without any regard to the impact it will have is likely to result in significant direct and indirect impacts on its customers and retailers.

For example, customers are likely to be directly impacted by the laws as they will experience confusion about the new labelling. Customers will also be indirectly impacted by the laws which will require investment by supermarkets (both large and small) of over \$10 million in the next year to ensure regulatory compliance. This significant cost estimate is reflected in the need for supermarket retailers to make considerable changes to their store formats and the way in which they sell and promote products. Retailers will be required to implement new ticketing machinery and display infrastructure and make changes to its catalogues. Ultimately, customers are indirectly impacted through the introduction of such legislation either through increased cost or because retailers are less able to sell the products that customers want to buy.

## **4.3.4 Transportation restrictions**

### **4.3.4.1 Overview**

Retailers heavily rely upon an efficient logistics network where third-party road carriers, shipping and airfreight operators undertake the majority of their product transportation.

The operational efficiency and cost effectiveness of retailers' logistics networks are diminished by two key transportation restrictions:

- Time of transportation

- Type of transportation.

Time of transportation to retail outlets is restricted by local council regulation. Restrictions on the time of transportation are aimed at reducing noise and light disturbances at night for local residents. Time of transportation restrictions can differ between local areas but are generally imposed from 6pm to 7am (see *Curfews on night-time deliveries* example).

Type of transportation to retail outlets is restricted by the freight capacity delivery trucks. State-based regulation limits the size of vehicles used for store deliveries and line haul operations. Australian retailers are unable to transport goods using Super B-Doubles or B-Triples and in the absence of optimal rail infrastructure, existing trailers are limited to moving a maximum of 36 pellets per vehicle. Woolworths has represented that using the existing B-Double trailers, rather than the Super B-Doubles limits freight capacity by an estimated 10 to 12 per cent..

Time of transportation and type of transportation restrict retailers' ability to move efficiently move products around and between states and territories, a challenge that is exacerbated by remote locations, longer distances, climate fluctuations and the topographical challenges of Australia. Consequently, this indirectly impacts on customers as retailers' operational efficiency is restricted which increasing the price of products and preventing stock from being available when stores open.

#### 4.3.4.2 Case study examples

##### *A. Curfews on night-time deliveries (All states/territories)*

As previously discussed, retailers are significantly impacted on by state/territory and Federal legislation however, local council restrictions represent an additional layer of regulatory burden that retailers must face. One example of a local council restriction that, in this case, places a restriction on transportation is curfews on night-time deliveries.

A number of local councils apply curfews and restrict night time deliveries. Restricting night time deliveries subsequently limits retailers' ability to remove vehicles from the roads during peak times and move stock efficiently. This is further exacerbated by the need for additional vehicles in a fleet to meet tighter delivery windows. In addition, delivery runs are organised according to curfew restrictions rather than the preferred geographical groupings.

Woolworths has undertaken financial modelling on scenarios where stock is delivered to a store during a night time period. The financial impacts of night time deliveries were modelled for Sydney and Brisbane where 57 per cent and 31 per cent of stores respectively have curfews on night-time deliveries.

Night time deliveries are a practical example of how retailers could maximise benefits and reduce costs related to time of transportation restrictions. This would ultimately increase the operational efficiency of their transport and logistics network.

The benefits from moving towards night time delivers include the following:

- Decreased transit time due to less congestion on roads
- Faster unload time due to lessen congestion at stores and streamline paperwork process
- Lower kilometres travelled
- Smaller fleet requirement as deliveries are spread out through the day and evening
- Increased capacity of the distribution centre by allowing the distribution centres to operate over a 24 hour period (i.e. retailers would not need to keep trucks and trailers idle at distribution centres during curfew restriction times).

Lifting the curfews on night-time delivers would allow retailers to increase their operational efficiency and deliver products to consumers at a lower cost.

## 4.3.5 Taxation

### 4.3.5.1 Overview

Firms in the retail sector pay a range of taxes. For example, Woolworths has represented that it pays the following taxes and user charges:

- Company income tax
- Goods and services tax
- Casino tax / community benefit levy
- Customs duties
- Duty on vehicle registrations and transfers
- Electronic gaming machines tax
- Excise duties
- Gaming Commission supervision charge
- Goods and services tax (GST)
- Insurance contributions to fire brigades
- Insurance premium tax
- Vehicle registration fees
- Wine equalisation tax
- Employment taxes
- Fringe benefits tax (FBT)
- PAYG - employees
- Payroll tax
- Property taxes
- Council collections of fire brigades levy
- Council rates
- Duty on hire of goods / rental business duty
- Duty on the acquisition of businesses / goodwill
- Land tax
- Land transfer duty / conveyance duty.

Generally speaking, all forms of taxation alter economic incentives. For most taxes (other than those which correct negative external effects), there is a subsequent loss in economic value, which exceeds the revenue raised by the tax. This is the “excess burden” or deadweight loss of taxation. In addition to these pure economic costs, the costs of taxation also include administrative costs and compliance costs.

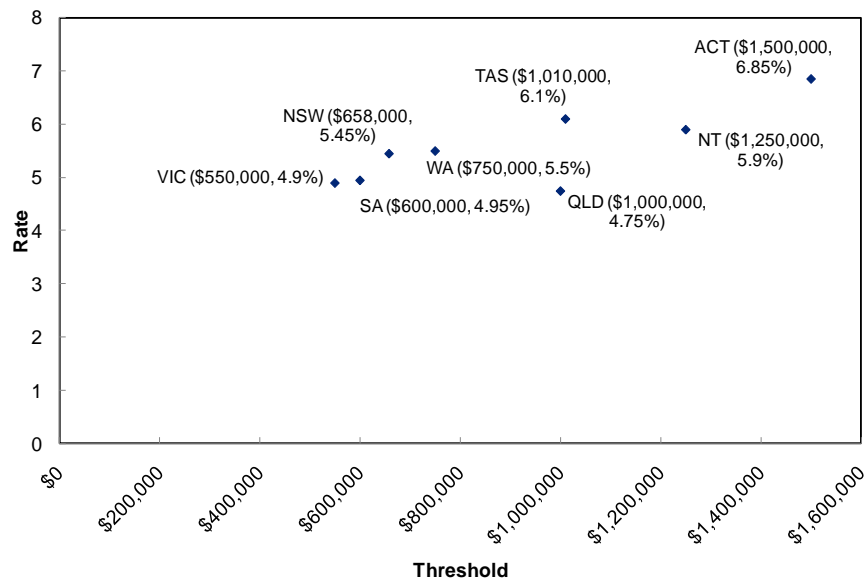
### 4.3.5.2 Case study examples

#### *A. Payroll Tax*

Payroll taxes are taxes on employment and, where retail is a significant employer, impact significantly on the cost base of Australian retailers.

As shown in Figure 28 below, the rates and thresholds of payroll taxes vary across each Australian State and Territory.

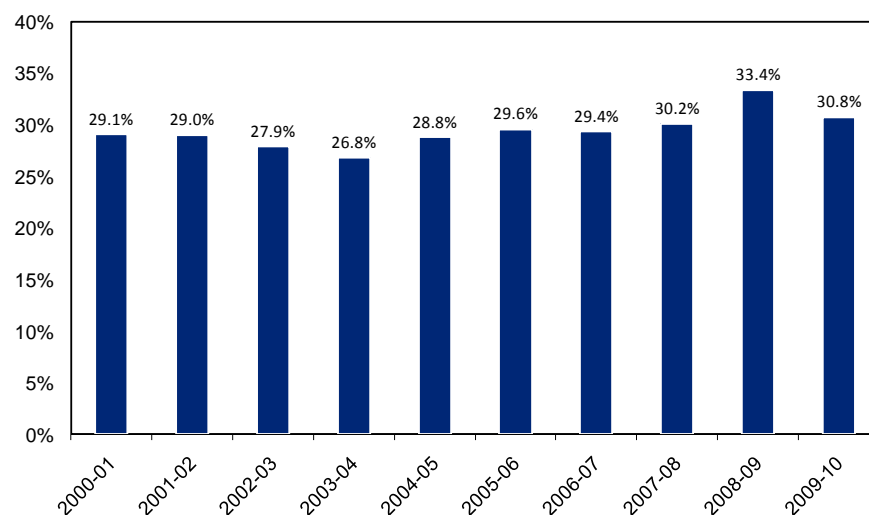
**Figure 28: Current payroll tax rates and thresholds**



Source: Offices of State Revenue, various jurisdictions.

As Figure 29 below shows, payroll taxation has gradually become an increasingly important source of revenue for State and Territory governments, and in 2009-10 comprised 30.8 per cent of all State and Territory tax revenue.

**Figure 29: Payroll tax revenue as a fraction of all state government revenue, 2000-01 to 2009-10**

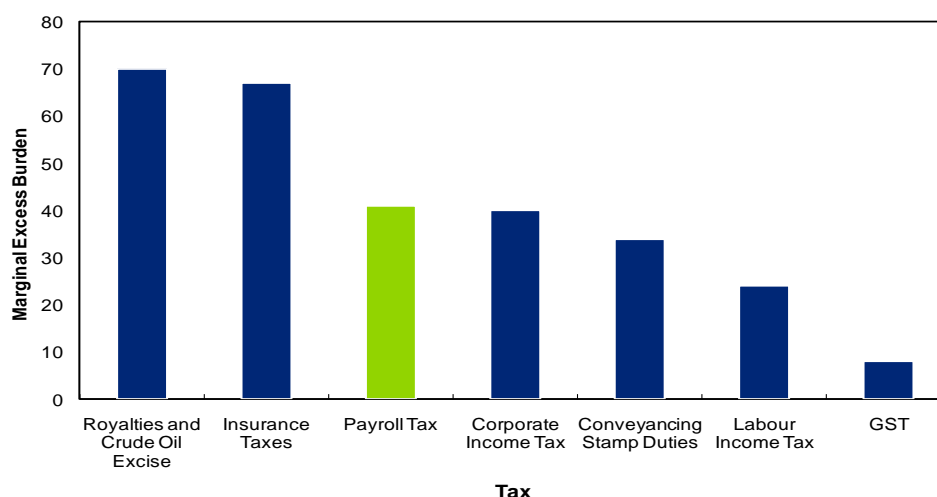


Source: Australian Bureau of Statistics, Cat. No. 5506.0, *Taxation Revenue, Australia, 2009-10*

The Australia's Future Tax System (AFTS) Review found that payroll taxes can in principle be a relatively efficient form of taxation – the reduction in economic wellbeing per dollar of revenue raised (the marginal excess burden per dollar of revenue raised) is, in theory, relatively low compared to other forms of taxation.

However, in practice, this is not the case with current payroll taxes in Australia. Indeed, as Figure 30 below demonstrates, the AFTS Review found that whilst payroll taxes can in theory be relatively efficient, the payroll tax is the third most inefficient tax in the Australian tax system, and is more inefficient than conveyancing stamp duty, which is traditionally viewed as one of the most inefficient taxes.<sup>16</sup>

**Figure 30: Inefficiency of selected taxes in Australia**



Source: AFTS Review Final Report (2009), Part One Overview, page 13

Payroll taxes drive a wedge between the wage that employers are willing to pay, and the wage that workers want to receive. They reduce the net expected benefit of hiring workers, since higher pre-tax wages must be offered to keep the same number of employees in the same jobs or to encourage them to sustain their work effort at previous levels. They also reduce the net expected benefit of working. Fewer workers are willing to work at lower after-tax wages. Alternatively, the same number of workers simply reduce their work effort. The effect of payroll tax on employee after-tax wages flows through across the entire economy and so can affect all workers, even if they do not work in firms that have to pay payroll tax.

Payroll taxes reduce job creation and labour market participation, and promote job destruction. If labour is mobile, high payroll taxes encourage migration to lower tax economies. Finally, payroll taxes reduce the net expected benefits of workers investing in education, training and skills formation (for both employers and employees) and ultimately reduce long run labour productivity.

For the retail industry (which, as we have noted, is relatively labour intensive), the interaction between payroll taxes and labour market regulation can also be important. Labour market regulations create minimum employment conditions (such as minimum wages) for employees. Minimum wages are typically expressed in gross-of-payroll-tax terms. This means that in the presence of labour market regulations, the incidence of payroll taxes can fall heavily on firms, whilst the effect of payroll taxes on employment (and unemployment) is higher than it otherwise would be in the absence of labour market regulations.

<sup>16</sup> See the AFTS Review Final Report (2009), Part One Overview, page 13.

# 5 The challenges faced by Australian retailers sourcing goods from overseas

*Building upon the previous section, the purpose of this section is to describe the challenges Australian retailers have when importing and transporting goods from overseas.*

## 5.1 Overview of the challenges that occur as a result of sourcing products from overseas

Australia has a relatively small manufacturing base coupled with strong customer demand for international branded products. This means that Australian retailers face an operating environment where they will consistently need to import products from overseas.

However, Australia is a unique market, characterised by large distances and a small population with low population growth that is not conducive to sourcing goods from overseas. There are two key challenges that Australian retailers face when sourcing goods from overseas:

1. Restrictions on freight capacity
2. Pricing power of international suppliers.

These factors naturally make it more difficult for Australian retailers to compete internationally and online. In addition, these challenges impact on customers by increasing retailers' operational costs, increasing pressure on prices and impeding the ability to achieve economies of scope in its product ranges. In the current environment, when Australian customers are increasingly looking to purchase goods from overseas based online retailers, these challenges make it even harder to Australian retailers to offer comparable prices to these retailers.

These challenges and their associated impacts are discussed in more detail below.

### 5.1.1 Restrictions on freight capacity

Cargo ships used to transport products to Australia for sale are generally smaller and less efficient than those used overseas. This makes it more difficult for retailers to fractionalise transport costs. For example, Woolworths has represented that it costs approximately 30 per cent higher more to transport a similar product to Australia than it does to the US. The restrictions on freight capacity create further cost issues for Australian retailers that must be overcome in order to provide competitive prices to Australian retailers. These are costs that are not necessarily borne by overseas retailers who are now servicing the Australian market online.

### 5.1.2 Pricing power of international suppliers

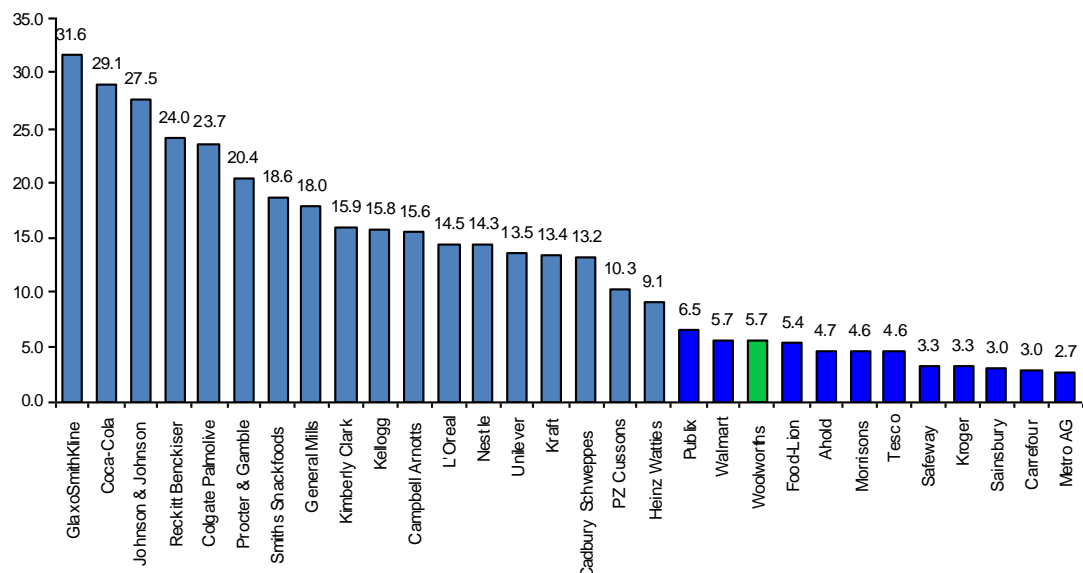
One of the key challenge experienced by Australian retailers in providing goods to Australian customers at a price comparable to overseas is the practice of international manufacturers

charging Australian retailers wholesale prices that are not only substantially higher than wholesale prices charged to overseas and online retailers but are often also higher than retail prices charged to consumers overseas and online. These applies to grocery items sold by retailers as well as those sold by discretionary retailers such as BIG W and Dick Smith.

Woolworths has represented that this is one of the key reasons why Australian customers, in some instances, are paying higher prices for overseas manufactured goods despite the ongoing efforts of Australian retailers to provide competitive prices. This is particularly the case for popular brand label items. The ability of Australian retailers to match prices on these items is, of course, made more difficult in light of the regulatory costs and challenges outlined in the preceding section.

Evidence pointing to this is fact that Australian retailers' gross product margins are broadly comparable to overseas retailers and, further are far lower than the major international manufactures of branded products, as shown in Figure 31.

**Figure 31: Comparison of EBIT margin for leading international vendors of branded products in Australia vs. global retailers (including Woolworths), Financial Year 2008-09**



Source: Woolworths

The challenge of purchasing products are competitive prices (comparable to overseas retailers), has seen retailers and other Australian manufacturers increasingly looking to parallel import products as a method of providing value to Australian customers as is discussed below.

### 5.1.3 International sourcing arrangements

For a number of years, retailers have been seeking to actively address the structural cost disadvantage it faces in order to deliver customer value and ensure its ongoing international competitiveness. Retailers do this by expanding their direct sourcing and parallel import arrangements as well as investing increasing the efficiency and effectiveness of their sourcing/ international logistics arrangements.

However there are a number of challenges involved in importing products from overseas which mean that, whilst activities such as parallel importing are an effective way of delivering products to customers, there are considerable compliance issues which mean that its use on a broad scale is limited. In addition, the extended lead times in sourcing and bringing products to market and associated costs further impede retailers' ability to parallel price. Consequently, Australian-

based retailers' are at a disadvantage in bringing lower cost products to consumers when compared to online and overseas retailers.

Figure 32 illustrates the complex and multiple steps involved in the importation of products to Australia.

**Figure 32: Importation of products to Australia**



1. Identify of product and financial analysis as to whether importation is feasible / cost effective and whether it will deliver value to customers
2. Complete quality assurance / sensory testing of product to it complies with regulatory requirements and, from a customer's perspective, is sufficiently similar to target products
3. Perform legal and trade mark checks to ensure the product can be parallel imported and will not be subject to a legal challenge by the local distributor when imported
4. Develop and issue "overstickering" requirements to supplier of products to ensure product complies with local product labelling requirements such as for ingredients and consumer warranties
5. Plan transport and logistics of importing products including identification of required customs checks
6. Ship product, move it through customs and deliver it to distribution centres for distribution to stores.

Whilst retailers will parallel import products to access lower wholesale prices, this is not a straightforward or simple process. Each of these additional processes (such as relabelling product) involves cost and slows down the ability of retailers to bring these parallel imported products to market. There is also the ongoing restriction on the parallel importing of some products including books and software which mean Australian retailers continue to be limited in their ability to provide value to customer comparable to that which is available overseas or from overseas based retailers delivering to Australia online (who are not subject to the same restrictions).



# 6 Conclusion

In the long run, productivity growth is the key driver of improvements in economic performance, greater choice, and lower consumer prices. This applies as much to individual sectors as it does to the Australian economy as a whole.

The key lesson from this report is that despite indications that the Australian retail sector has performed reasonably well and is highly competitive, and despite efficiency-enhancing investment in the retail industry over the past decade, overall productivity growth in the retail sector has stagnated, and has lagged well behind productivity growth in the United States.

In other words, whilst the Australian retail sector has performed well in recent times, it has not realised its full economic potential. This has meant that the rate of employment growth and the contribution the retail sector makes to the Australian economy has been lower than it would have been. As the report estimates, Australian retail sector had enjoyed the same productivity growth as experienced in the US over the same period, output in the sector would have been 9.2 per cent higher, relative prices in the retail sector would have been 3.5 per cent lower, and employment in the retail sector would have been 15 per cent higher (representing an additional 180,000 jobs in the Australian economy).

Consistent with previous research, regulatory impediments are an important influence on productivity growth in the Australian retail sector. That is, the level of regulatory burden faced by Australian retailers has significantly impacted on the growth and the development of the sector.

The key regulatory impediments identified in this report are:

- Regulation of trading hours
- Restrictions on labour flexibility
- Restrictions on transportation
- State-based regulation
- Inefficient taxation arrangements.

This is in addition to number of important and unique challenges that the Australian retail sector faces in relation to sourcing goods from overseas – particularly due the pricing power of international suppliers. This sees international manufacturers often charging Australian retailers wholesale prices that are not only substantially higher than wholesale prices charged to overseas and online retailers but are often also higher than retail prices charged to consumers overseas and online.

To lift the performance of the retail sector and help it realise its full potential, policymakers must address and reform the regulatory impediments identified in this report. The case for this regulatory reform is, in fact more compelling than ever in light of the increasing challenges the sector faces from international competitors who are not subject to the same regulatory burdens. Ultimately, it is Australian retail customers who lose the most from these poor regulatory arrangements, as lower productivity growth flows through into lower growth in product variety and smaller price reductions than would otherwise be the case. Ultimately, therefore, Australian consumers would be the key beneficiaries of regulatory reforms in the areas identified in this report.

# Appendix A: The economic effects of greater product variety

*This appendix develops an analytical framework for quantifying the welfare effects of an increase in product variety.*

## Example

The basic analytical approach is best illustrated by the following simple example. Suppose that a consumer purchases only one type of good: shirts. The consumer prefers to wear a different coloured shirt each day of the week. Shirts can be produced in different colours, and different these colours can be produced at a constant marginal cost which is identical for all colours.

Suppose that the consumer derives benefits from wearing shirts, but gains additional benefits if they can wear shirts of different colours.

Specifically, suppose that there are only two possible shirt colours (green and blue) and that the pattern of total benefits from owning shirts is as described in Table A.1 below.

**Table A.1: Assumed Benefits from Different Consumption Patterns**

Consumption Bundle	Total Benefits
3 Green Shirts	5
1 Green Shirt and 1 Blue Shirt	5
2 Green Shirts	4

Note that in Table A.1, we assume that owning two shirts of different colours is the same as owning three shirts of the same colour. In turn, it is assumed that each of these options is preferred to owning two shirts of the same colour. The numbers are deliberately constructed to reflect the consumer's *love of variety*: the ability to purchase shirts with different colours provides the consumer with more choice, and is preferable to buying two shirts of the same colour.

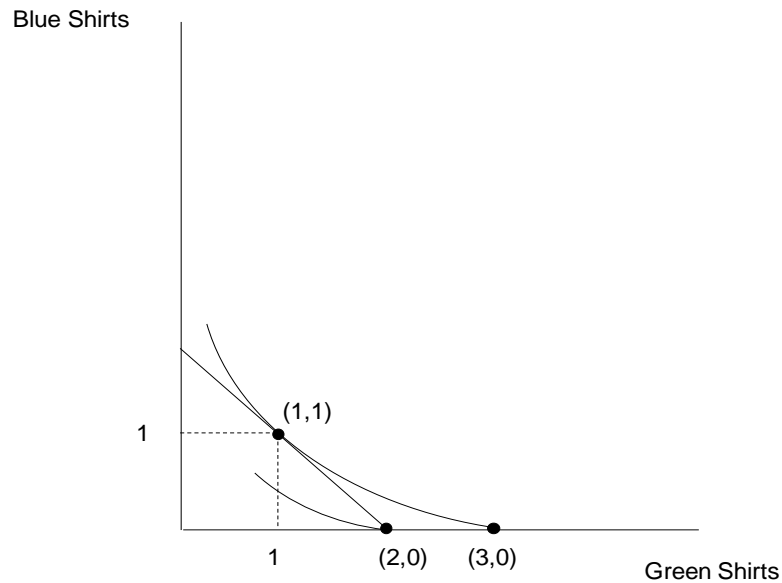
To illustrate the basic results, suppose that a shirt costs \$1 to produce. Since the shirt industry is perfectly competitive, shirts will sell for \$1. Suppose that the consumer has \$2 of income. Now imagine two situations:

- Initial situation: only green shirts are produced and sold.
- Final situation: both green and blue shirts are produced and sold

In the initial situation, the consumer buys two green shirts. In the final situation, he buys one blue shirt and one green shirt, and is better off. The results are summarised in table A.2 below and is illustrated in Figure 33.

**Table A.2: The welfare effect of the introduction of a new product variety**

	Consumption	Total Output	Benefit	Cost	Net Benefit
Initial Situation	2 Green Shirts	2 shirts	4	2	2
Final Situation	1 Green Shirt and 1 Blue Shirt	2 shirts	5	2	3
Overall Welfare Improvement					+1

**Figure 33: The welfare effect of the introduction of a new product variety**

The improvement in welfare comes about as a direct result of the consumer's love of variety. Even though total consumption, production and prices have not changed, there has been a welfare improvement.

This welfare improvement is exactly analogous to a fall in prices. To see this, consider the same example but now suppose that the number of varieties is fixed, with prices falling instead. The consumer is again assumed to have \$2 of income. Now imagine two situations:

- Initial situation: The price of green shirts is \$1.
- Final situation: The price of green shirts falls by 33 per cent, to \$0.66.

In the initial situation, the consumer buys two green shirts. In the final situation, he buys three green shirts, and is better off. The results are summarised in Table A.3 below.

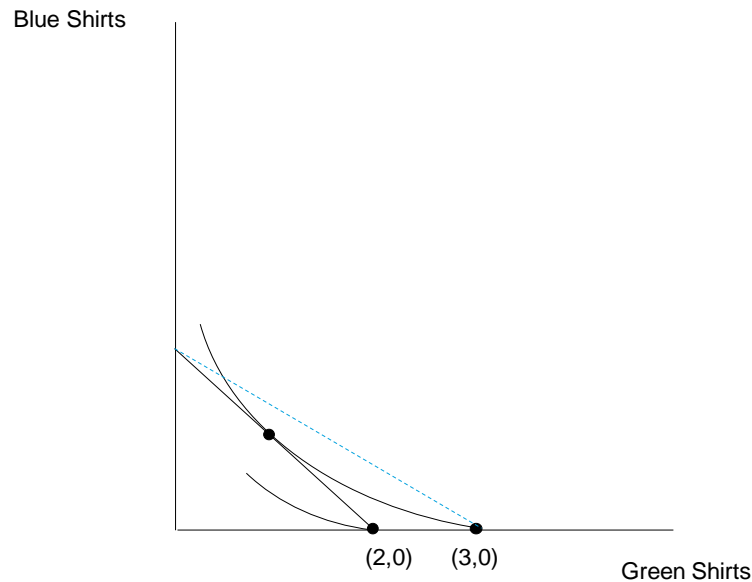
**Table A.3: The welfare effect of a 33 per cent fall in the price of green shirts**

	Consumption	Total Output	Benefit	Cost	Net Benefit
Initial Situation	2 Green Shirts	2 shirts	4	2	2
Final Situation	3 Green Shirts	3 shirts	5	2	3
Overall Welfare Improvement					+1

Note that the overall welfare improvement in Table A.3 as a result of the fall in prices is identical to that obtained in Table A.2 as a result of the introduction of a new variety at constant prices. In other words, in this example, the introduction of a new product variety is

equivalent to a 33 per cent fall in the price of existing varieties. This is illustrated in Figure 34 below.

**Figure 34: The welfare effect of a 33 per cent fall in the price of green shirts**



This example illustrates two important points:

1. The introduction of a new variety of good at the same price as existing varieties makes consumers better off
2. The introduction of a new variety at the same price as existing varieties is equivalent to a significant fall in the prices of all existing varieties

## A More General Analysis

The above analysis can be generalised and extended in several directions. The main extension is to change the assumptions regarding consumer preferences in the following ways:

1. Include more goods. A typical assumption in the literature is to assume a continuum of goods. This sounds complicated but it actually simplifies the analysis considerably.
2. Assume that the consumer's willingness to substitute between different varieties is constant and identical for all pairs of goods. This is the *constant elasticity of substitution* assumption. The consumer's elasticity of substitution measures the curvature their indifference curves. If the elasticity of substitution is very high, this means that consumers regard different varieties as very close substitutes. This means that as the elasticity of substitution rises, the love of variety falls. The elasticity of substitution can be any positive real number. When it is 0, goods are perfect complements. As it approaches infinity, goods become perfect complements.

To model the welfare effects of greater product variety, we consider an economy in which there is a continuum of goods. Varieties are indexed by the parameter  $z \in [0, n]$ , where  $n$  is the number or “mass” of varieties. A marginal increase in product variety is modelled as an increase in  $n$ . We seek to quantify the effect of an increase in  $n$  on the consumer’s welfare, and to compare this welfare measure with a reduction in prices.

The consumer chooses  $q(z) : z \in [0, n]$  to solve:

$$\begin{aligned} \max U \equiv Q &= \left[ \int_0^n q(z)^{\frac{\sigma-1}{\sigma}} dz \right]^{\frac{\sigma}{\sigma-1}} \\ \text{subject to } Y &= \int_0^n p(z)q(z)dz \end{aligned}$$

where  $Y$  is the consumer’s nominal income,  $q(z)$  is the quantity of good  $z$  consumed, and  $p(z)$  is the price of good  $z$ .

Note that each variety of good is assumed to enter the consumer’s utility function symmetrically, which allows the analysis to be simplified considerably. In particular, in this setup, the elasticity of substitution between each pair of goods is identical. To see this, note that the elasticity of substitution between any pair of varieties  $i$  and  $j$  is defined as:

$$\text{Elasticity of substitution} \equiv \frac{d \ln \left[ \frac{q(j)}{q(i)} \right]}{d \ln |MRS_{ij}|}$$

where  $MRS_{ij}$  is the marginal rate of substitution between goods  $i$  and  $j$ . Now the marginal utility of any variety  $z$  is:

$$\frac{\sigma}{\sigma-1} \left[ \int_0^n q(z)^{\frac{\sigma-1}{\sigma}} dz \right]^{\frac{1}{\sigma-1}} \frac{\sigma-1}{\sigma} q(z)^{-\frac{1}{\sigma}} = \left[ \frac{q(z)}{Q} \right]^{-\frac{1}{\sigma}}$$

Hence the marginal rate of substitution between any pair of varieties  $i$  and  $j$  is:

$$|MRS_{ij}| = \frac{\left[ \frac{q(i)}{Q} \right]^{-\frac{1}{\sigma}}}{\left[ \frac{q(j)}{Q} \right]^{-\frac{1}{\sigma}}} = \left[ \frac{q(j)}{q(i)} \right]^{\frac{1}{\sigma}}$$

and so

$$\text{Elasticity of substitution} \equiv \frac{d \ln \left[ \frac{q(j)}{q(i)} \right]}{d \ln |MRS_{ij}|} = \frac{d \ln \left[ \frac{q(j)}{q(i)} \right]}{\frac{1}{\sigma} d \ln \left[ \frac{q(j)}{q(i)} \right]} = \sigma$$

The first order conditions for the consumer's problem yield:

$$\left[ \frac{q(z)}{Q} \right]^{-\frac{1}{\sigma}} = \lambda p(z) \quad (1)$$

where  $\lambda$  is the marginal utility of income. Since these preferences are homogenous degree 1, there is an aggregate price index  $P$  such that

$$PU = PQ = Y$$

Moreover, we have  $\lambda = dC/dY = 1/P$ . Hence we can write (1) above as:

$$\frac{q(z)}{Q} = \left[ \frac{p(z)}{P} \right]^{-\sigma}$$

Now:

$$PQ = \int q(z) p(z) dz$$

and so:

$$P = \int \left[ \frac{q(z)}{Q} \right] p(z) dz$$

We can also write this as:

$$P = \left[ \int p(z)^{1-\sigma} dz \right]^{\frac{1}{1-\sigma}} = n^{\frac{1}{1-\sigma}} \left[ \frac{1}{n} \int p(z)^{1-\sigma} dz \right]^{\frac{1}{1-\sigma}} = n^{\frac{1}{1-\sigma}} \bar{P}$$

where  $\bar{P}$  is the weighted average of all prices, with weights proportional to the consumption level for each good. Hence we can write:

$$U = C = Y/P = Y \left( n^{\frac{1}{1-\sigma}} \bar{P} \right)^{-1} = n^{\frac{1}{\sigma-1}} [Y/\bar{P}] \quad (2)$$

Expression (2) is our key result – it states that holding the distribution of prices constant, a 1 per cent increase in variety leads to a  $\frac{1}{\sigma-1}$  increase in welfare. It is also the case that a one per cent reduction in  $\bar{P}$  leads to a one per cent increase in welfare. Hence we obtain our key result: a one per cent increase in product variety is equivalent to a  $\frac{1}{\sigma-1}$  reduction in the average level of prices.

# Appendix B: Productivity in the retail sector: growth accounting analysis

*This appendix illustrates some well known propositions in growth analysis that are used in the main text to analyse productivity growth in the Australian retail sector.*

Consider the aggregate production function:

$$Y = F(A, K, L)$$

where Y is gross value added, A is a measure of the level of technology (or total factor productivity), K is the capital stock, and L is the quantity of labour employed. Differentiating with respect to time and dividing by Y yields:

$$\frac{\dot{Y}}{Y} = \frac{\dot{A}}{A} + \frac{F_K K}{Y} \frac{\dot{K}}{K} + \frac{F_L L}{Y} \frac{\dot{L}}{L} \quad (1)$$

This states that the growth rate of output over time,  $\frac{\dot{Y}}{Y}$ , is equal to a weighted sum of the growth rates of total factor productivity, the capital stock, and labour. If factors of production get paid their marginal products, then  $F_K = R$  and  $F_L = w$ , where R is the real rental price of capital and w is the real wage rate. We can then rewrite (1) as:

$$\frac{\dot{Y}}{Y} = \frac{\dot{A}}{A} + s_K \frac{\dot{K}}{K} + s_L \frac{\dot{L}}{L}$$

Where  $s_K = \frac{RK}{Y}$  and  $s_L = \frac{wL}{Y}$  are the income shares of capital and labour respectively.

This again states that in any sector (and for the economy as a whole), the growth rate of output over time,  $\frac{\dot{Y}}{Y}$ , is the weighted sum of the growth rates of total factor productivity and the growth rates of the capital stock and labour, where the weights on capital and labour growth are simply the income shares of each factor.

The growth rate of capital can be further decomposed into growth rates for ICT and non-ICT capital, whilst changes in the growth rate of labour can be further decomposed into changes in the number of persons employed (and increases in hours worked).

For the retail industry in Australia,  $s_L^{\text{Retail}} = 0.71$  in 2009-10, compared to an economy wide share of  $s_L^{\text{Aggregate}} = 0.52$ . Moreover,  $s_L^{\text{Retail}}$  has been rising steadily since 1990, whereas over the same time period  $s_L^{\text{Aggregate}}$  has been falling steadily.

# Appendix C: Employment Demand and Productivity Growth

*This appendix explains how employment demand responds to productivity growth.*

The key assumptions are:

1. Constant returns to scale technology
2. Hicks-neutral technological progress – this assumes that improvements in product are not biased towards any particular factor of production
3. Wages remain unchanged (perfectly elastic labour supply curve)

Let the demand curve for retail services be  $Q(P)$ , where  $Q$  is the quantity demanded and  $P$  is the price of retail services. Let there be a constant returns to scale technology<sup>17</sup> with Hicks neutral technological progress, which takes the form  $Q = AF(K, L)$ , where  $A$  is a total factor productivity (TFP) parameter. Let  $r, w$  be the prices of capital and labour services.

Suppose that the unit cost function when  $A$  is 1 is:

$$\bar{C} = C(r, w, 1, 1)$$

We have the following results:

1.  $C(r, w, A, 1) = \frac{\bar{C}}{A}$ . If total factor productivity improves, this lowers the cost of producing one unit by a factor of  $A$ .
2.  $\frac{\partial C}{\partial A}(r, w, A, 1) = -\frac{\bar{C}}{A^2}$ . This follows from the previous results.
3.  $C(r, w, A, Q) = Q \frac{\bar{C}}{A}$  For any value of  $A$ , the cost of producing  $Y$  units is  $Y$  times the cost of producing a single unit
4.  $L(r, w, 1, 1) = \bar{C}_w$ . This is Shepard's Lemma. It states that the unit demand for labour is equal to the change in unit costs with respect to the wage.
5.  $L(r, w, A, Q) = \bar{C}_w \frac{Q}{A}$ . This follows from the property of constant returns to scale and the relations above. If  $\bar{C}_w$  units of labour are needed to produce one unit of output, then

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<sup>17</sup> A production function exhibits constant returns to scale if scaling up (or down) each input by the same proportion also scales up (or down) output by exactly the same proportion. Technological change is Hicks neutral if it affects labour and capital symmetrically.



$Q\bar{C}_w$  will be needed to produce  $Q$  units of output. If total factor productivity improves, then only  $\bar{C}_w \frac{Q}{A}$  will be needed to produce  $Q$  units of output.

Using these results, the elasticity of labour demand with respect to  $A$  is:

$$\begin{aligned}\frac{\partial L}{\partial A} \frac{A}{L} &= \bar{C}_w \frac{AQ'(P)C_A - Q}{A^2} \frac{A}{L} = -\frac{\bar{C}_w}{AL} \left( Q'(P) \frac{\bar{C}}{A} + Q \right) \\ &= -\frac{1}{Q} [Q'(P)P + Q] = \varepsilon - 1\end{aligned}$$

This is the result used in the main text of the report: a 1 per cent increase in Hicks-neutral TFP leads to a  $\varepsilon - 1$  increase in the demand for labour, where  $\varepsilon = -Q'(P) \frac{P}{Q}$  is the elasticity of demand for the final good.

Intuitively, a one per cent increase in Hicks-neutral TFP means that the same output can be produced at a total cost which is one per cent lower than before the productivity improvement, since fewer inputs now need to be used to produce the same amount of output. This is the supply side effect.

But the resulting reduction in unit costs also lowers prices, which increases the quantity of the final good that is demanded (and also increases labour demand) by  $\varepsilon$  per cent. This is the demand side effect.

The net effect on labour demand is the difference between the supply and demand side effects, which is  $\varepsilon - 1$  per cent.

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