The Economic Trends, Challenges and Behaviour of Small Businesses in Australia

Sam Nicholls and David Orsmond*

1. Introduction

Small businesses make an important contribution to the Australian economy. They account for the vast majority of the active private businesses in the country and represent a large share of employment and value added. Small businesses, however, face many operational challenges and, as a consequence, typically have higher failure rates than larger businesses. While these features have been noted in previous literature, there has been little work examining how these challenges affect the business decisions of small businesses relative to those of larger businesses.

To address this question, this paper uses official and private sector data, as well as information gathered through the Reserve Bank of Australia's business liaison program. Section 2 first provides a summary of the characteristics of the Australian small business sector followed by the contribution small businesses make to the Australian economy, and Section 3 outlines the recent economic conditions faced by the sector. Section 4 then outlines the nature of the operational challenges the sector faces, drawing in particular on the Bank's discussions with small businesses. Finally, Section 5 uses panel data compiled by the Bank to examine econometrically whether, and if so how, small businesses' economic decisions and behaviour differ from those of larger firms. The results suggest that the drivers of smaller firms' current price, employment and investment decisions are generally not statistically different from larger firms, though this may in part reflect the large degree of heterogeneity in the small business sector. There is some evidence, however, that smaller businesses are less forward looking in making their economic decisions. Section 6 concludes.

2. Small Businesses' Contribution to the Economy

There are numerous definitions of small businesses. Definitions that have been used include characteristics like legal structure, number of employees, revenue, size of balance sheet and other financial and economic characteristics. While previous Bank research (Connolly, Norman and West 2012) found that different definitions can identify rather distinct groups of firms, in this paper we adopt the Australian Bureau of Statistics (ABS) definition. The ABS defines small businesses as all entities that are independent and privately owned, are managed by an individual or a small number of persons, and have less than 20 employees. This choice mainly reflects the greater availability of data that can be analysed using this definition.

---

* The authors are respectively from the Economic Analysis and Financial Stability Departments of the Reserve Bank of Australia.

Private firms with fewer than 20 employees are quite heterogeneous, although they can be loosely grouped into three broad categories. One part of the sector provides a range of professional services to other businesses and households. This sector includes, among others, tradespeople (e.g. electricians and plumbers), skilled professionals (e.g. lawyers and accountants), doctors and other health practitioners, real estate and insurance agents, and tourism-related businesses. Another segment includes various types of retail outlets (e.g. grocers, hairdressers, bars and restaurants). Finally, there are a number of firms that produce a range of niche and other goods in the manufacturing, construction and agricultural industries. Given this diverse set of activities, the motivations and consequent economic behaviour are likely to be quite different between the different firms within the small business sector.

While there are several ways to assess the contribution of small businesses, their direct contribution to the Australian economy is substantial on all the measures. Unsurprisingly, given the diverse range of activities undertaken by the sector, there are a large number of small businesses in the economy. Using data on businesses registered for tax purposes, and which are classified as 'actively trading' by the ABS, there are currently over two million small businesses in Australia (Table 1).[1] This is well over 95 per cent of the total number of firms in the economy. Most of these are micro businesses: almost two-thirds had no employees (the 'self-employed') and a further one-quarter had only 1–4 employees. Only around 10 per cent of small businesses have between 5 and 19 employees.

Table 1: Businesses in Australia, by Size – 2013

	Number of employees	Number of businesses		Employment[a]	Value added[a]
		'000	Per cent of total businesses	Per cent of total employment	Per cent of total industry value added
Small	0–19	2 025	97	43	33
Of which:	0	1 264	61		
	1–4	563	27		
	5–19	197	10		
Medium	20–199	51	2	25	23
Large	200+	4	0.2	32	44

Note: (a) Private non-financial sector
Source: ABS

Given this large number of firms, small businesses constitute the overwhelming majority of firms in virtually every industry of the Australian economy. For each of the industries listed in Table 2, between 92 and 99 per cent of the total number of businesses employed fewer than 20 people. In terms of the total number of small businesses in the economy, about one-third are in the business services industry, and just under one-fifth in each of the construction,

---

1 Businesses are classified as actively trading by the ABS if they have remitted a goods and services tax (GST) form in the last five quarters, or three years for annual remitters. These figures likely understate the number of small businesses as there are actively trading businesses that do not have an Australian business number, either because they do not have any obligations under the GST legislation or they are under the revenue threshold for registration.

distribution services and household services industries. In contrast, very few small businesses are in the manufacturing and mining industries – just 4 and 0.4 per cent of all small businesses, respectively. The largest shares of non-employing firms are in the agricultural, business services and construction industries (primarily family-owned farms and self-employed professionals and tradespeople). However, almost half of the firms in the manufacturing and household services sectors are also small firms that do not employ any staff.

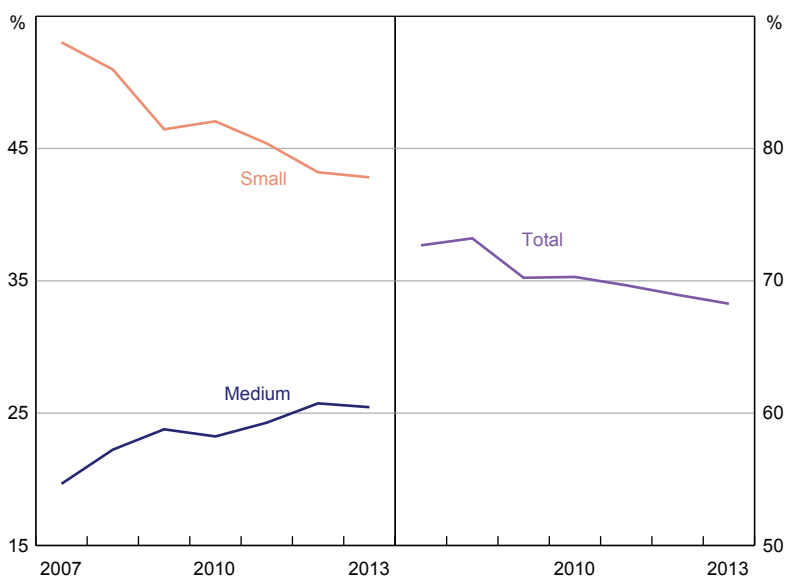### Table 2: Small Businesses in Australia, by Industry – 2013

| | Number of small businesses | | | |
| | Non-employing | Employing | Total | Per cent of total |
	'000	'000	'000	
Agriculture, forestry and fishing	130	53	183	10
Mining	4	3	7	0.4
Manufacturing	35	42	77	4
Construction	196	128	324	18
Distribution services	173	145	319	18
Business services	372	174	545	31
Household services	146	167	314	18

| | Per cent of industry | | | |
| | Number of small businesses | | Employment | Value added |
	Including non-employing firms	Excluding non-employing firms		
Agriculture, forestry and fishing	99	29	83	82
Mining	92	39	13	8
Manufacturing	92	50	29	20
Construction	99	39	60	46
Distribution services	96	44	36	28
Business services	98	31	45	43
Household services	96	51	40	35

Note: Private non-financial sector
Source: ABS

Small businesses account for a large share of national employment – around 43 per cent of the private non-financial sector (Figure 1).[2] Over recent years, this share has tended to decline, and has been only partly offset by a rise in the share of employment in medium-sized businesses (20–199 employees). The share of total employment in each industry that small businesses account for varies considerably. Small businesses are by far the major employer in the agricultural and construction industries (83 and 60 per cent, respectively), and they represent around one-third of total employment in the manufacturing, distribution, and household and business services industries (Table 2). However, they are much less prominent in mining sector employment.

Figure 1: Small and Medium-sized Enterprises – Employment
Share of private non-financial sector employment, financial years

Source: ABS

The share of small businesses in private non-financial output – around 33 per cent – is smaller than its employment share, and has also been declining (Figure 2). This result suggests that, on average, small businesses are concentrated in more labour-intensive, service-based activities compared with those of larger firms. Specifically, while their contribution to gross value added in the agricultural industry is large (82 per cent), it is only around 10–20 per cent in the mining and manufacturing industries.

---

2   The available data cover only the private non-financial sector; includes working proprietors and partners of unincorporated businesses.

Figure 2: Small and Medium-sized Enterprises – Gross Value Added
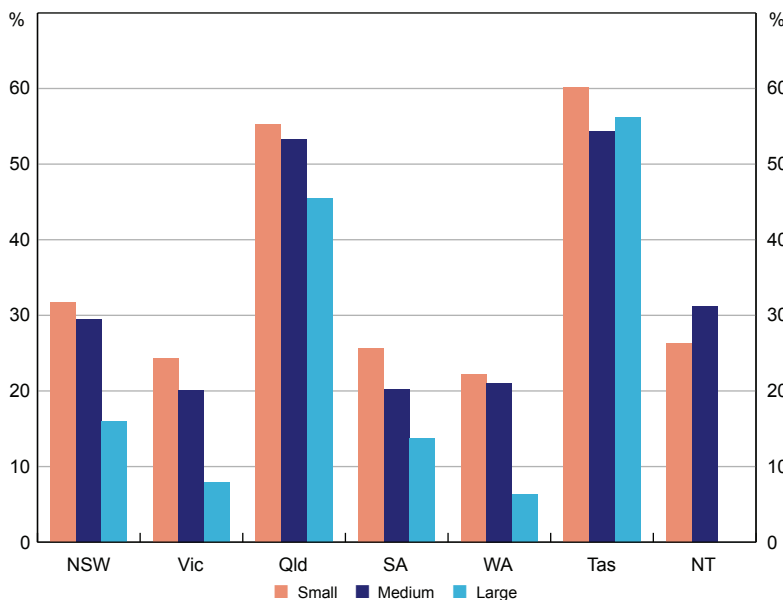Share of private non-financial sector gross value added, financial years

Source: ABS

Another way of measuring the contribution of small businesses to the Australian economy is through their role in providing goods and services to regional areas, where it may be less feasible for large businesses to do so because of the low potential for economies of scale. For example, a large supermarket is less likely to open in a small town, and small businesses can fill the void. Across each state in Australia, small businesses tend to be more likely to be located in regional areas compared with larger businesses, especially in New South Wales, Victoria and Western Australia (Figure 3).

The small business sector also makes a significant indirect contribution to the economy that is not reflected in the data on small businesses' shares of national employment and output aggregates. One of these indirect contributions is through innovation.[3] Over 85 per cent of the firms in Australia that are engaging in innovative activity are small businesses, reflecting the large number of small businesses in the economy overall. While a smaller share of small businesses is engaged in innovative activity compared with larger firms (40 per cent relative to 64 per cent in 2012/13), this still represents a large number of entrepreneurial innovation activities. Somewhat tempering the interpretation of these data, small businesses only account for a small share of national research and development expenditure (13 per cent in 2011/12). Regardless, the small business sector can be an important source of productivity advances and for bringing new products to market.

---

3 The ABS defines innovation as the introduction of a new or significantly improved good or service, operational process, organisational or managerial process, or marketing method.

Figure 3: Share of Businesses in Regional Areas
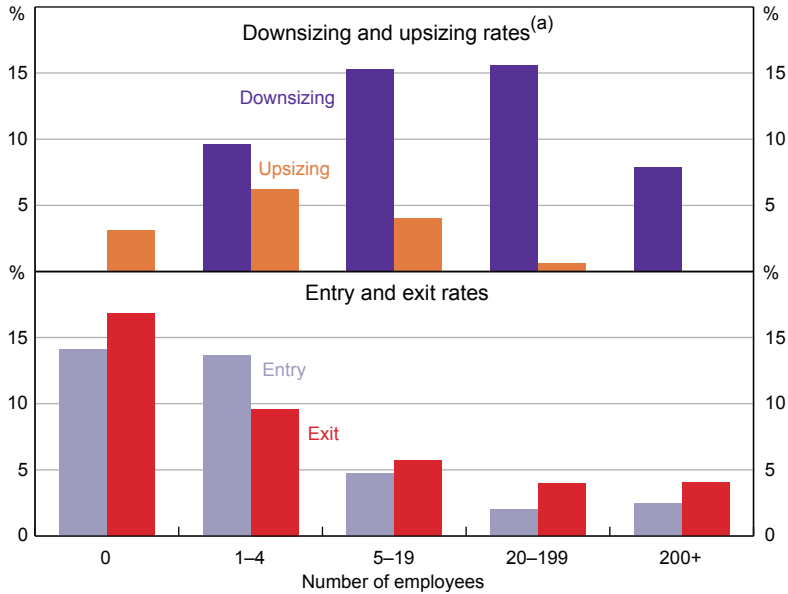By size, as at June 2013

Source: ABS

While some small businesses are focused on innovation, many small businesses – such as the self-employed – are focused on providing an existing service to an existing market, and do not intend to be a significant source of innovation or to expand significantly. Indeed, firms with 1–4 employees are more likely to expand employment over the coming year than the very large number of firms with 0 employees (Figure 4, top panel). This dichotomy highlights an important aspect of the small business sector. Research in the United States suggests that many small business owners are motivated by a lifestyle choice, where the establishment of the firm is driven by aspects such as a desire to be one's own boss, to have more control over the hours of work, and to engage in a passion or hobby.[4] For many of these types of small businesses, the firm is almost indistinguishable from the owner's household (such as a bed and breakfast accommodation facility or a corner store). However, within the broad small business sector these types of firms coexist alongside other firms that are willing to take risks in order to grow rapidly and expand the company's size, adding to the diversity of the sector.

---

4   For further discussion, see Hurst and Pugsley (2011); for research in Australia, see Craig, Schaper and Dibrell (2007).

Figure 4: Business Size Category Transitions
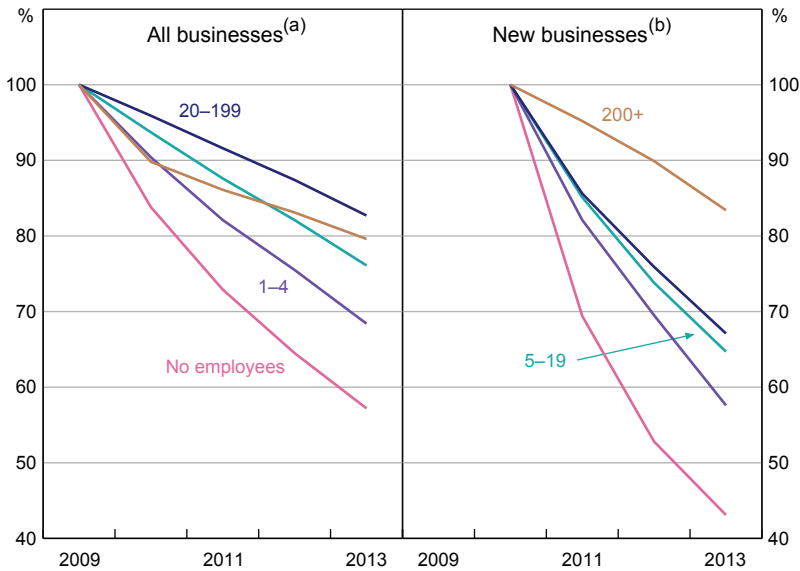Share of businesses in each category

Notes: Based on one-year transition probabilities averaged over the years 2011, 2012 and 2013
          (a) Share of businesses moving into a lower or higher size category
Sources: ABS; Authors' calculations

Whatever the motivation of their owners, the survival rate of firms in the small business sector is much lower than that for larger businesses. More small businesses have downsized than upsized in recent years, and the exit rate of firms has generally exceeded the entry rate (Figure 4, bottom panel). Only around 60–70 per cent of micro businesses (those with 0 or 1–4 employees) that were operating in 2008/09 are still operating, and less than half of the micro businesses that were established in 2009/10 are still operating (Figure 5). In contrast, the survival rate of established businesses that have 5–19 employees is higher than micro businesses and is fairly close to the survival rate for firms with 20–199 employees. New businesses of all sizes up to 200 employees have a much lower survival rate than firms that employ more than 200 people.

Figure 5: Business Survival Rates
By number of employees, financial years

Notes: (a) Firms operating at end June 2009
             (b) Firms commencing operations in 2009/10
Source: ABS

While business exits may reflect the sale or merger of a business, or the retirement of an owner, many are the consequence of business failure. These failures can reflect cyclical reasons – especially since the global financial crisis – or a range of structural constraints that are faced by small businesses. These issues are explored further below.
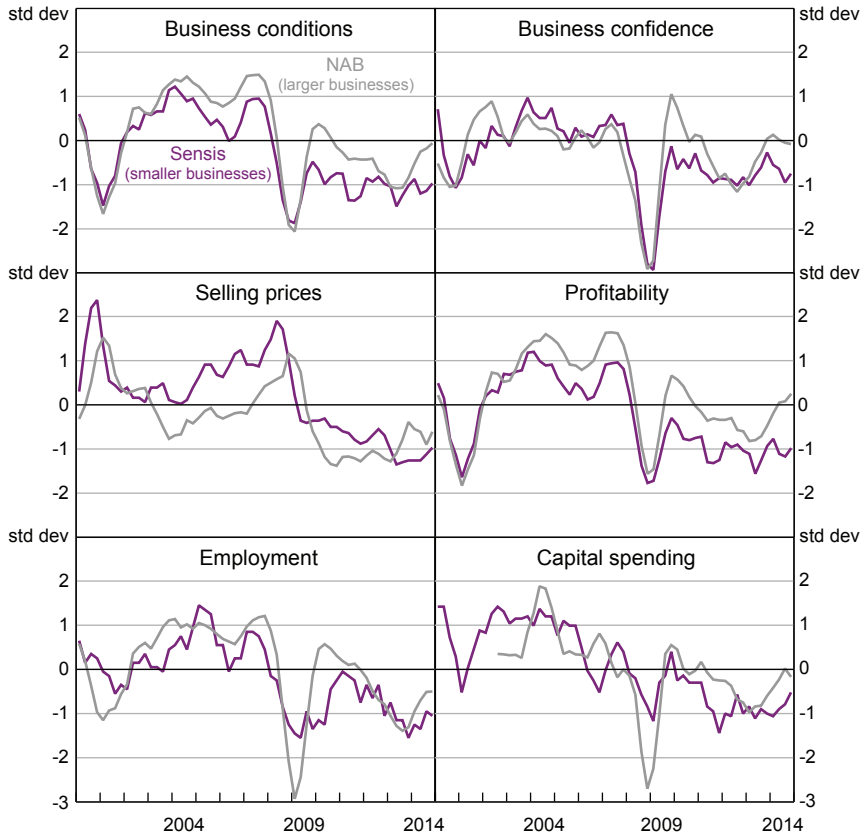
3.   Recent Conditions in the Small Business Sector

After experiencing a supportive environment prior to the financial crisis, economic conditions for the small business sector have since been quite challenging. While to some extent this is true for all firms, data suggest that conditions for small businesses have been noticeably weaker than for larger businesses since the onset of the global financial crisis in 2008–09 (Figure 6).[5] In particular, both business conditions and confidence for the small business sector have remained around one standard deviation below their long-run averages, and there has been little sign of recovery. This is in contrast to larger businesses, which report that overall current and expected conditions have almost returned to their long-run averages.

---

5   A number of other surveys of business sentiment of large and small firms exist. Both the NAB and Sensis surveys benefit from having a long history, which is important when making comparisons of current economic conditions relative to the long-run average.

Figure 6: Business Conditions

Note: Standard deviation from average since 1993, except for capital spending, which is since 2002
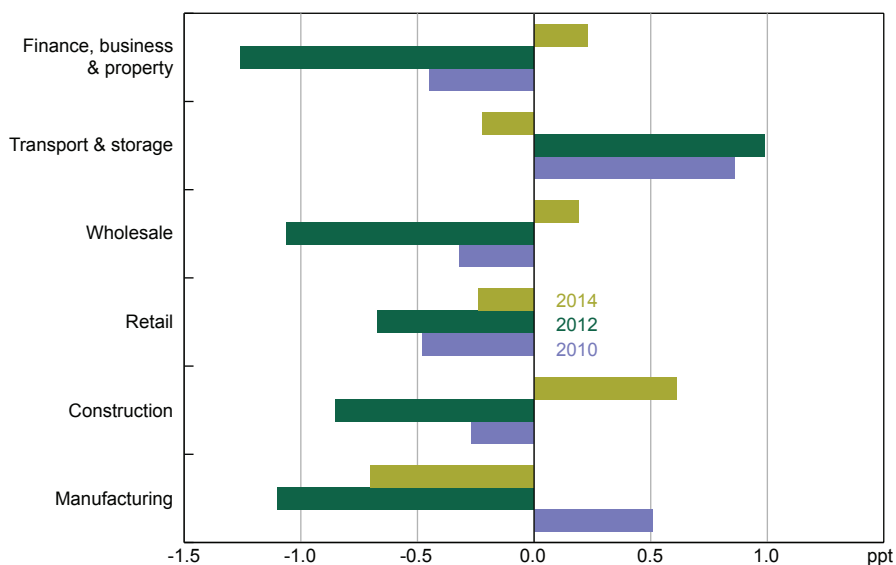Sources: NAB; Sensis

This ongoing weakness is reflected across a range of economic indicators for the small business sector. In particular, faced with below-trend demand, selling prices have come under significant pressure. This has led to weak profit levels in the sector overall. Small businesses have responded by scaling back hiring and capital spending.

The economic weakness experienced by the small business sector compared with larger businesses over recent years reflects a range of factors. Part of this is due to the different industry composition of the small business sector compared with larger businesses. As noted, small businesses are most common in the agricultural and construction sectors – sectors that have been weaker overall. Larger businesses are more common in the mining sector where, at least until recently, economic conditions have been more buoyant. Furthermore, the ongoing weak global demand conditions have led to an increase in the global competitive environment, which has compounded a range of issues faced by small businesses in particular, as outlined below.

Nonetheless, there is some tentative evidence that the economic environment for smaller businesses in some industries may have strengthened a little of late. Compared with two years

ago, conditions for small and medium-sized enterprises (SME) in the wholesale and, to a lesser extent, retail industries have picked up alongside the rise in national household consumption. Conditions in the construction industry have also improved, likely due to the strong growth in dwelling investment (Figure 7). In contrast, manufacturers have reported weaker conditions over the past several years, in part reflecting the strong Australian dollar; this could ease if the depreciation of the exchange rate over the past 18 months is sustained.

Figure 7: SME Business Conditions by Industry
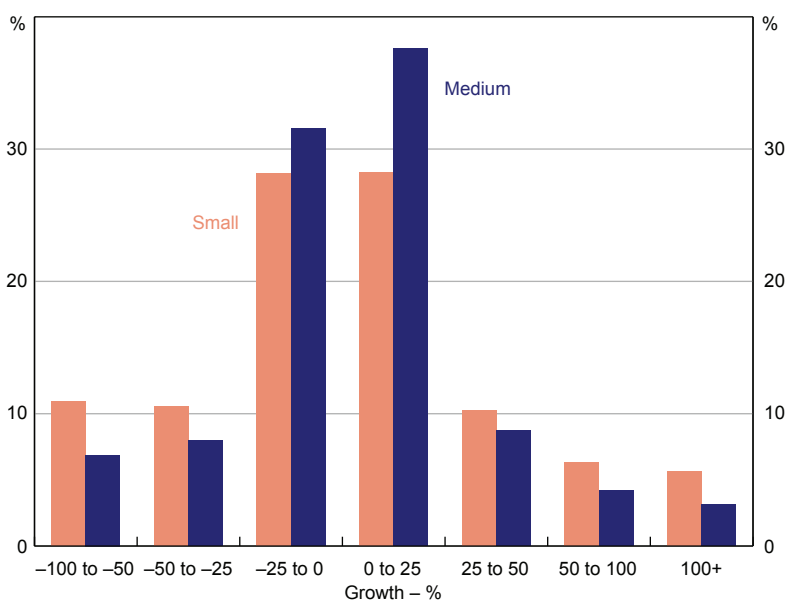Relative to industry average since 2006, December

Source: NAB

4.   Main Economic and Operational Constraints Faced by Small Businesses

To explore further the factors behind the historically high failure rates faced by small businesses, we draw on the Bank's business liaison. In the Bank's discussions with firms, a number of constraints are noted that are common to firms of all sizes. These have included generally weak economic conditions, the low level of confidence, low risk tolerance threshold, and the relatively high Australian dollar. Nonetheless, small businesses are reportedly often less resilient than larger businesses to economy-wide shocks, regardless of their source, and appear to face a range of structural challenges specific to small businesses that add to their vulnerabilities. The issues raised by small businesses in Bank liaison include four themes that we discuss next: demand fluctuations; economies of scale and high fixed costs; managerial issues; and financing relationships.

4.1 Demand fluctuations

Small businesses appear to be much more susceptible to cyclical fluctuations in demand for their output and, as a consequence, experience much greater swings in revenue growth than larger businesses. This is reflected in a wider distribution of revenue growth rates for small businesses (Figure 8). While this in part reflects the higher risk-return nature of the new activities undertaken by some small businesses, it is also likely to be indicative of the relatively narrow geographic markets in which many small businesses operate and hence their sensitivity to local demand conditions.

Figure 8: Annual Revenue Growth
Share of firms by size

Note: Sample of firms reporting revenue in consecutive years between 2005 and 2011
Source: ABS

In the Bank's liaison, small businesses also note that the trend reduction in global transport costs and advances in communications technology has intensified competition from foreign producers. While in principle small businesses can take advantage of the same technologies to operate in other domestic and global markets, this requires building knowledge of such markets and securing access to finance to do so, which has a high fixed cost for small businesses.

4.2   Economies of scale and high fixed costs

Many small businesses find it challenging to compete against larger businesses since they generally cannot take advantage of economies of scale to lower their average costs. These include the costs associated with understanding and complying with changing labour, tax and other regulations and reporting requirements. These can imply a significant time commitment for small businesses. It also includes the search and training costs associated with new labour, especially for key personnel.

Related to this, small businesses generally constitute a small share of the broader market in which they operate. As such, they can be subject to less favourable pricing arrangements from suppliers, which in turn inhibits their ability to compete with larger rivals. While in some cases, small businesses can maintain profit margins by offering a product or experience that is differentiated in some way, other small businesses offer products that are broadly similar to those available from their larger competitors and hence normally operate on thinner margins.
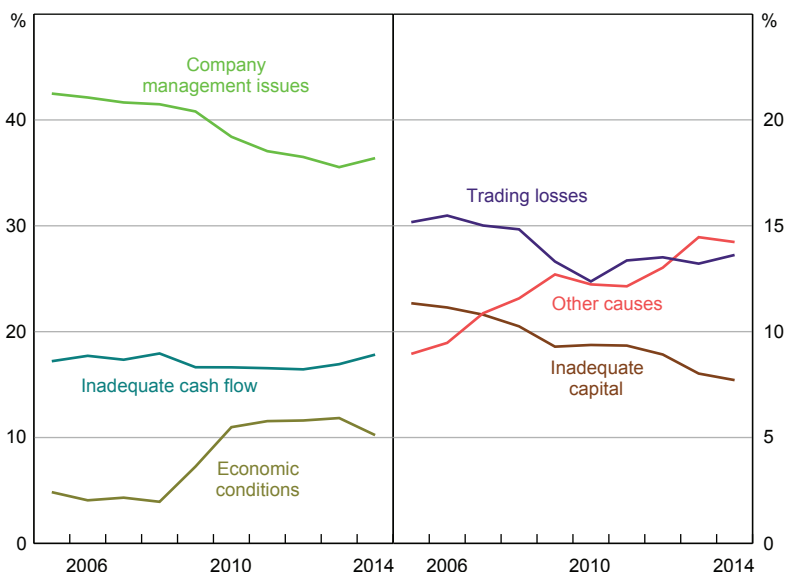
4.3   Managerial issues

As small businesses grow, their owner-managers often try to stretch their skills over several new areas, and can struggle to deal with the expanding complexity of operating a growing firm. Many owners are not experienced in complying with regulations, managing cash flow or evaluating capital investments rigorously. For instance, some small business owners do not have or use a well-developed business plan (and only write such plans when they need a loan), and seek to win contracts for new business to expand revenue even if the price they bid implies a very thin margin or a loss. Consultants in the small business sector report that owner-managers can be reluctant to improve their firm's performance by hiring a professional manager to free up the owner's time to return to their original trade or expertise. Indeed, of the small businesses that fall into corporate administration, managerial issues are the most commonly cited cause by the external administrators. Weak economic conditions, inadequate cash flow and low capital are also common causes of failure (Figure 9).[6] Such limitations leave firms vulnerable when demand softens and financing conditions tighten.

---

6   A limitation of the corporate administrations data is that they do not capture small businesses that fail but are not incorporated.

Figure 9: Corporate Administrations
By cause, share of total, financial years

4.4   Financing relationships[7]

The impediments faced by small businesses also include cash constraints and the cost and access to finance, both for working capital and for investment. Payment delays by customers therefore add disproportionately to financial pressures. Other financial issues raised by small businesses in the Bank's liaison include the continuity of personnel at banks to develop an understanding of the firm and its products, and the common requirement that loans be secured by the owner's property. However, the vulnerabilities of small business operations outlined above also imply a comparatively higher degree of lending risk.

5.   An Econometric Analysis of the Drivers of Small Businesses' Behaviour

The previous analysis documented that small businesses face challenges handling changing demand and operational conditions, and consequently have a high failure rate. Accordingly, it might be expected that the drivers of economic and strategic decisions of small business behaviour would vary from those of larger businesses. For instance, in determining current and future pricing, employment and investment decisions, small businesses may be more sensitive to the strength of current demand conditions than larger businesses because they are less resilient to shocks. To explore whether these differences between small and large businesses exist, we use data collected by the Bank in the context of its business liaison program.

---

7   The financial challenges of small businesses are outlined in other papers of this Conference and, hence, are only briefly touched on here.

5.1 The data

The Bank's business liaison program is primarily focused on obtaining qualitative information from contacts, although attempts are also made to quantify some of the information received.[8] These data cover a range of variables that have been recorded at the firm level. The variables reflect either the growth or the level of certain variables relative to the firm's historical average, at both their current level and what the firm expects to occur over the next year. For instance, the variables where growth rates are assessed include demand, employment, wages and other costs; the variables where levels are assessed include capacity utilisation, investment spending and margins.

The verbal descriptions of current and expected conditions provided by firms are assigned a 'likert score' by an officer of the Bank. These scores take a value between –5 and +5, with higher values corresponding to stronger growth or a higher level of a particular variable relative to the firm's own historical average. To provide a common standard, for scales that measure growth in variables, a score of 2 is interpreted as an average rate of growth for the firm and 0 for no growth; for scales that measure levels, a score of 0 is interpreted as the firm's average level.

The data contain information on developments over the past year and firms' expectations for the coming year. In practice, the information incorporated may not be based on a precise one-year period. Firms may provide information based on their most recent reporting cycle, such as the financial or calendar year. The forward-looking data may also be affected by biases related to reporting periods or myopia. Overall, however, we do not believe that our results outlined below are substantially affected by these factors.
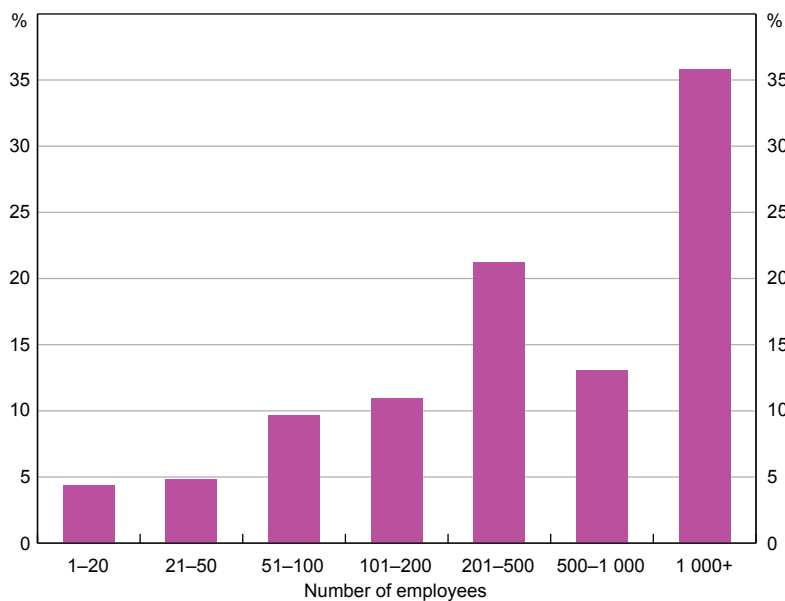
The composition of the likert database reflects the frequency with which firms in different industries are contacted by the Bank. In general, the focus of the Bank's discussions with firms is on the more cyclically sensitive areas of the economy, and a greater share of the discussions is with larger businesses where conditions are likely to reflect broader economic trends, rather than idiosyncratic factors. Furthermore, firms are normally contacted once they have a noticeable presence in their market, and hence the sample contains very few start-up businesses. There are also virtually no self-employed persons in the sample; most firms have at least 10 employees. Nevertheless, about 5 per cent of the full sample consists of firms with up to 20 employees, corresponding to around 300 observations over the full sample period since 2001 (Figure 10). Of the small businesses in our sample, over half have more than 10 employees and there are virtually no firms with 5 or fewer employees.[9] Our sample of small businesses is therefore probably more homogenous than the overall population of small businesses, though it is still more heterogeneous than our sample of larger businesses. The industry composition of these firms is concentrated within the manufacturing, business services and construction industries (Figure 11).

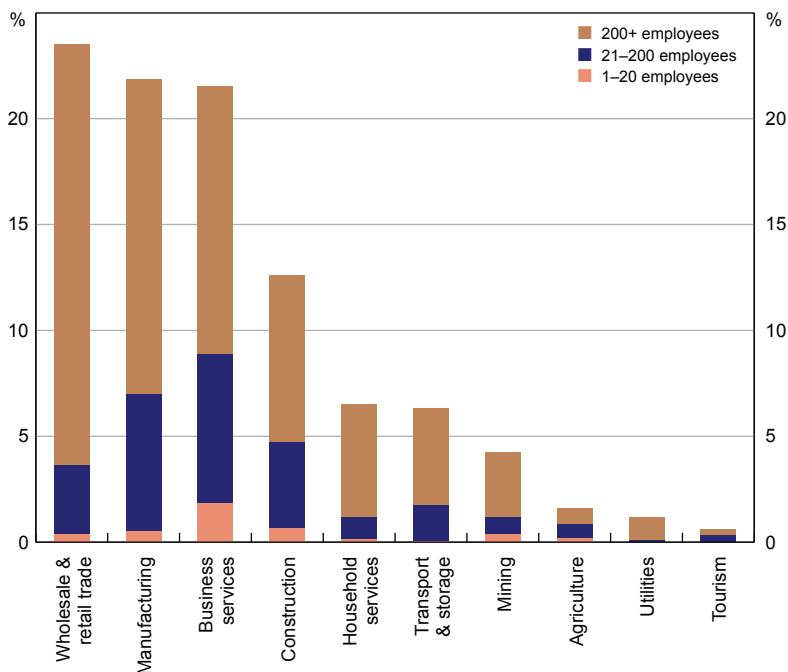8   For more information on the Bank's business liaison program, see RBA (2014).

9   Within the class of businesses with 20 or fewer employees in the business liaison database, the average number of employees is 11. The results are therefore most representative of behaviour for firms in the upper end of the 1–20 employees category.

Figure 10: Business Liaison Database
Share of interviews, by firm size

Source: RBA

Figure 11: Industry Composition
Share of interviews, by industry and firm size

Source: RBA

5.2   The methodology

Using these data, we can compare the behaviour of firms of various sizes by modelling certain variables with a standard fixed-effects regression model. Specifically, the dependent variables (*Y*) examined are:

- price growth

- employment growth

- investment spending.

Each of these variables can be directly influenced by firms and therefore analysing their determinants enables us to draw inferences about the economic behaviour of firms in different size groups. We first aim to identify differences in the drivers of firms' *current* behaviour across different size groups; later we examine how firms form expectations for their *future* behaviour.

Our models are of the form:

$$Y_{it} = \beta X_{it} + \alpha S_i Z_{it} + \varepsilon_{it}$$

where X is a set of control variables and S_i is a set of indicator variables for firm size, as of the most recent liaison meeting (i.e. S_i does not vary over time; information on firm size is updated regularly after each meeting with firms, but a time series is not maintained). In each regression,

the variable of interest (Z) is interacted with the size dummies in order to determine how its relationship with Y varies across firm size. The pattern of the coefficients contained in α enables us to draw inferences about how the sensitivity of Y to Z varies across firm size categories. For each regression, the explanatory variables have been chosen according to what is reasonably likely to be related to the dependent variable. In choosing which variables are interacted with the size dummies we also take into account considerations about sufficient sample sizes; for example, capacity utilisation is not interacted with the size dummies in a regression for prices, due to an insufficient sample for some firm sizes. For each dependent variable, we run a regression for each of the associated Z variables listed in Table 3 (when a variable is included as a Z variable, it is not included in X).[10]

Table 3: Variables Included in Regressions

	Dependent variable (Y)		
	Prices	Employment	Investment
Control variables (X)	Demand	Demand	Demand
	Expected demand	Expected demand	Expected demand
	Wages	Wages	Wages
	Non-wage costs	Non-wage costs	Non-wage costs
	Capacity utilisation	Capacity utilisation	Capacity utilisation
Variables successively interacted with the size dummies (Z)	Demand	Demand	Demand
	Wages	Wages	Capacity utilisation
	Non-wage costs	Capacity utilisation	Expected demand
	Expected demand	Expected demand	

Note: In each regression, one variable (Z) will be interacted with the size dummies (S); this variable is then not included as one of the control variables in X

The model allows for unobserved firm-specific effects captured in ε. This is an important feature of the model, as such unobserved factors are likely to be prevalent. For example, there may be variation in the periods over which firms estimate long-run averages (likert scores represent magnitudes relative to the firm-specific long-run average). There may also be variation in the degree of optimism/pessimism bias across firms. Since these sources of variation will affect all the firm's scores, the firm-specific factors will be correlated with the explanatory variables. Therefore, a fixed-effects specification seems appropriate. We use conventional standard error estimates, as the estimated standard errors are not materially different when clustered by firm, industry or firm and industry.

The nature of the business liaison database presents several econometric issues to be addressed. First, the ordered-categorical nature of the data presents a hurdle in our analysis. Likert scores are recorded on a scale of –5 to +5, though they are not, strictly speaking, interval data; the distance between –2 and –1 may, for instance, be different to the distance between +1 and +2. There has been considerable debate on treating categorical variables as if they were continuous,

---

10 Our regressors are generally positively correlated, though variance inflation factors are quite small (below 2 in all cases), indicating that multicollinearity is not a significant concern.

particularly in the field of health sciences. Nunnally and Bernstein (1994) state that, typically, little information is lost when categorical variables with 11 or more categories are treated as continuous. Similarly, Streiner and Norman (2008) note that while debate is ongoing, one can analyse data from rating scales as if they were equally spaced without introducing severe bias, as long as the distribution is not severely skewed.

In contrast, Townsend and Ashby (1984) argue that the ordered-categorical data must be demonstrated to have a linear relationship with the underlying latent variable of interest before they can be treated as continuous. Fortunately, there are certain series available that allow an examination of the relationship that two of the likert scales have with the underlying variables that they aim to measure: sales growth figures for several contacts that were collected in the course of one of the Bank's internal projects; and the pace of wage growth, which is collected alongside wage growth likert scores. The figures for actual sales and wage growth were compared with the likert scores for demand growth and wage growth. For both sales growth and wage growth, the actual growth rates appear to exhibit a linear relationship with the likert data. These findings, combined with generally supportive recommendations from the literature, make us comfortable in imposing linearity on the data, especially given the broader array of econometric methods that are available when analysing standard continuous data.

A second methodological issue concerns the potential for an omitted variable bias in the model. There are undoubtedly sources of shocks to the dependent variables in the models that are not captured by any of the explanatory variables in the model. Such shocks may also be specific to firms in certain size categories. For example, liaison over the financial crisis period indicated that smaller businesses were affected by credit constraints to a greater degree than larger businesses were. This would have materially affected smaller businesses' investment decisions over the 2008–09 period and possibly other aspects of their behaviour. To capture size and time-period specific shocks such as the financial crisis we include a series of indicator variables for each combination of year and size category.

Third, as noted above, the Bank meets with the majority of liaison contacts on an annual basis. However, for some contacts, scores are recorded as often as quarterly. Quarterly observations for a firm may introduce some bias into our estimates as the scores relate to growth over the past year or expectations for growth over the coming year. This type of 'overlapping data' problem has been explored in detail in the context of time series analysis (Dhrymes 1971; Harri and Brorsen 2009; Britten-Jones, Neuberger and Nolte 2011), and has been shown to induce correlation between the error terms and the explanatory variables. To avoid this problem, we drop from the sample any observations from a single firm that are less than one year apart.

5.3   Results for current behaviour

The elements of α are interpreted as the typical change in the relevant dependent variable associated with a unit change in the explanatory variable. Plotting the elements of α across size categories provides a simple visual summary of how these sensitivities vary across size groups. This provides an indication of whether, and by how much, the behaviour of small businesses varies compared with that of larger businesses, on average.

5.3.1   Price-setting behaviour

We start by examining the pricing behaviour of small businesses.[11] The coefficient estimates suggest that the price-setting behaviour of small businesses (here taken as those with 20 or fewer employees) with respect to changes in demand is different from that of larger businesses. Small businesses are, on average, much more responsive in setting their prices. However, the confidence bands around the coefficient estimates are very wide, which likely reflects the significant heterogeneity within the small business sector as well as the smaller sample sizes for these types of firms in the Bank's liaison. As such, we cannot reject that the pricing strategies of smaller businesses are the same as those employed by larger businesses (Figure 12).[12]

The same broad conclusions can be drawn with respect to the importance of wage and non-wage cost pressures; specifically, the confidence intervals around the estimates of the sensitivity of current pricing decisions to changes in wages and other costs are again quite wide, and overall the pricing behaviour of small businesses taken as a group is not statistically different from that for larger businesses.

---

11 Economic theory and empirical evidence suggests that in setting the prices of their output, firms take into account current demand conditions or follow a simple mark-up over costs. The evidence presented here indicates that both current demand conditions and mark-up strategies affect the pricing decisions of firms in Australia, regardless of size.

12 While the differences between the coefficients contained in α are not statistically significant in several of the regression results presented here, some caution is needed in concluding from this that the economic behaviour of small businesses is therefore similar to that for larger businesses. In particular, the sample sizes used here are more limited for small businesses, which results in wider confidence intervals. Additionally, the heterogeneous nature of small businesses along many dimensions tends to further widen our confidence intervals.

Figure 12: Selling Price Sensitivity
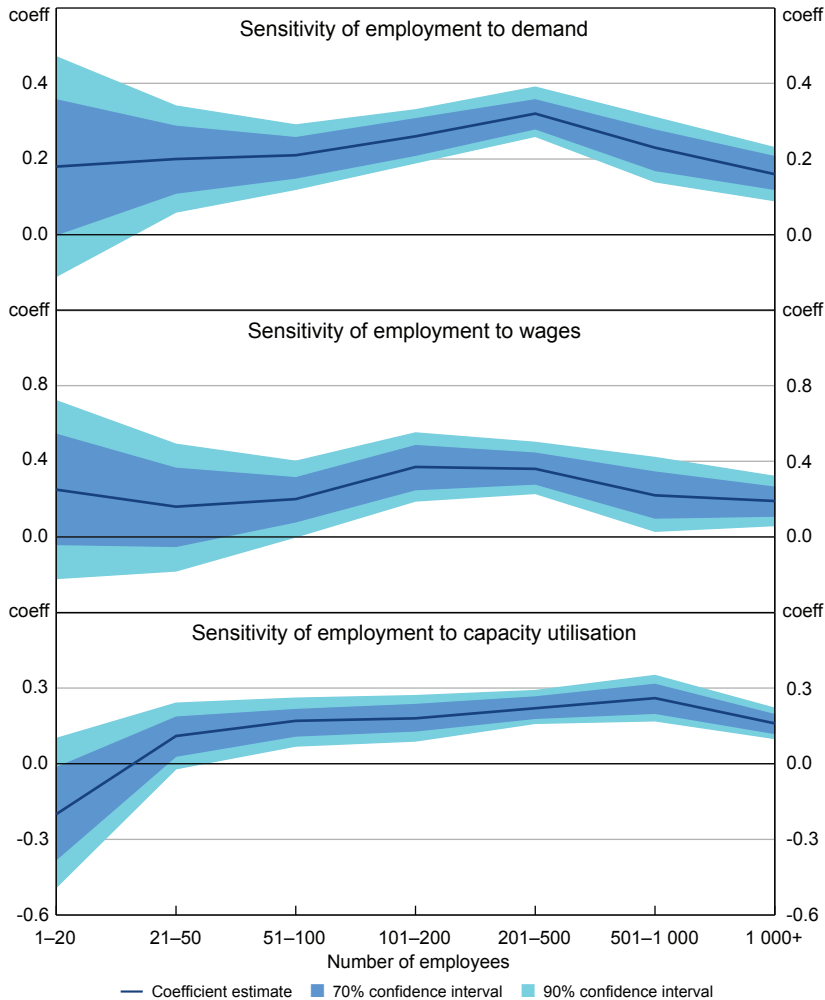By employment size category

Sources: Authors' calculations; RBA

5.3.2 Employment behaviour

As with price-setting behaviour, the sample data provide little indication that small businesses are markedly more or less sensitive to current demand or wages in determining their employment decisions. For all firm size categories, employment is positively correlated with demand and wages growth. The coefficient estimates for small businesses are around the same as those for larger businesses, although with wider confidence intervals (Figure 13). However, there appears to be a difference in the sensitivity of employment growth to the level of capacity utilisation across firm size categories. Small businesses appear to place much less weight on their current level of capacity utilisation in making their employment decisions. This may reflect that small businesses

tend to operate with the minimum level of staff and are unable to change employment levels when capacity falls off.

Figure 13: Employment Sensitivity
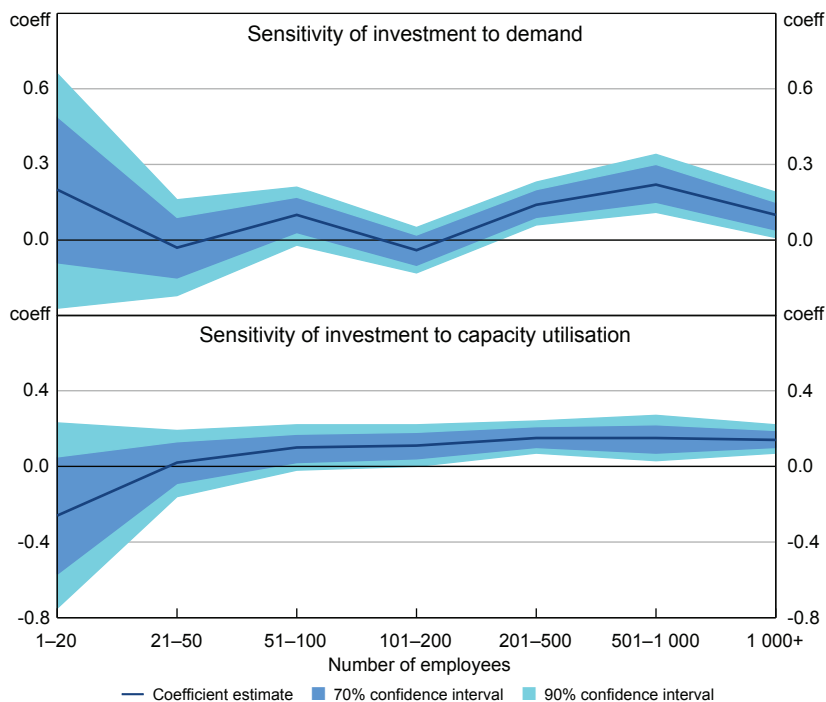By employment size category

Sources: Authors' calculations; RBA

5.3.3 Investment decisions

A similar result can also be seen when examining the correlation of investment activities across firm size. Investment is generally positively correlated with higher demand for all firm sizes (Figure 14). Because of the wide confidence intervals around our estimates, small businesses' behaviour is not statistically different from that for larger businesses. However, as previously seen in regard to their employment behaviour, the coefficient estimates for the sensitivity of

investment to capacity utilisation are higher for larger businesses than for small businesses. This may indicate that a standard model of investment decisions, in which firms invest in additional capacity periodically as their capacity utilisation rates become high, may not apply to smaller businesses.

Figure 14: Investment Spending Sensitivity
By employment size category

These results are consistent with the notion that small businesses think about their investment and employment decisions in a somewhat different way to larger businesses. On one hand, small businesses may operate with a minimal level of investment, generally opting only to invest to offset depreciation. Small businesses would then be unable to reduce investment spending further when capacity utilisation rates fall. This is in contrast to larger businesses, which invest constantly and adjust their investment spending in line with fluctuations in demand. On the other hand, the results may simply suggest that there are factors that inhibit investment and expansion for small businesses, even when they are operating at a high level of capacity utilisation – such as greater difficulty accessing finance. These inhibiting factors may make small businesses less responsive to capacity utilisation until there are clear indications of a significant further pick-up in the pace of demand.

5.3.4 Results for future behaviour

Another way of exploring the motivations behind small businesses' behaviour is to examine how their plans for *future* price, wage and employment growth are determined. In particular, we examine the relative importance of both *current* and *expected* demand in influencing firms' expected price, employment and investment growth. Firms that place a greater weight on expected demand relative to current demand are deemed to be more 'forward looking' in their behaviour.

Several factors may affect the degree to which small businesses are more or less forward looking than larger businesses. On the one hand, small businesses that tend to be highly strategic in their efforts to tap new markets are likely to make pricing, hiring and investment decisions pre-emptively, based on their expectations of future demand for their products. For such firms, expected demand should be a significant variable in driving their behaviour. On the other hand, firms where the owner is motivated by lifestyle choices or firms that are more vulnerable to unexpected developments may not be particularly strategic in their expected behaviour. Additionally, small businesses can face constraints on their ability to act on their expectations, such as difficulty accessing finance and generally longer search periods in order to find quality staff.

We investigate whether small businesses tend to be more or less forward looking in their behaviour than larger businesses by using a simple variation of the fixed-effects model described above. Firms' expected prices, employment and investment outcomes are modelled using the same explanatory variables outlined above. However, now we also allow for variation in the coefficients on both current demand and expected demand across size categories:

$$Y_{it}^e = \beta X_{it} + \alpha_1 S_i D_{it}^e + \alpha_2 S_i D_{it} + \varepsilon_{it}$$

where Y^e is the firm's expectation for prices, employment or investment over the coming year, X is a set of control variables as listed in Table 3 (excluding current and expected demand), D represents the likert score for current demand and D^e represents the likert score for expected demand. We estimate the model for each of the three dependent variables listed in Table 3. We are particularly interested in the statistical significance of the coefficient on expected demand relative to the coefficient on current demand. A straightforward measure of the relative significance of the two variables is provided by the *t*-statistic from a test that the difference between coefficients on D and D^e for a given size category is statistically different from zero. Specifically, for each size category *i* our test statistic is:
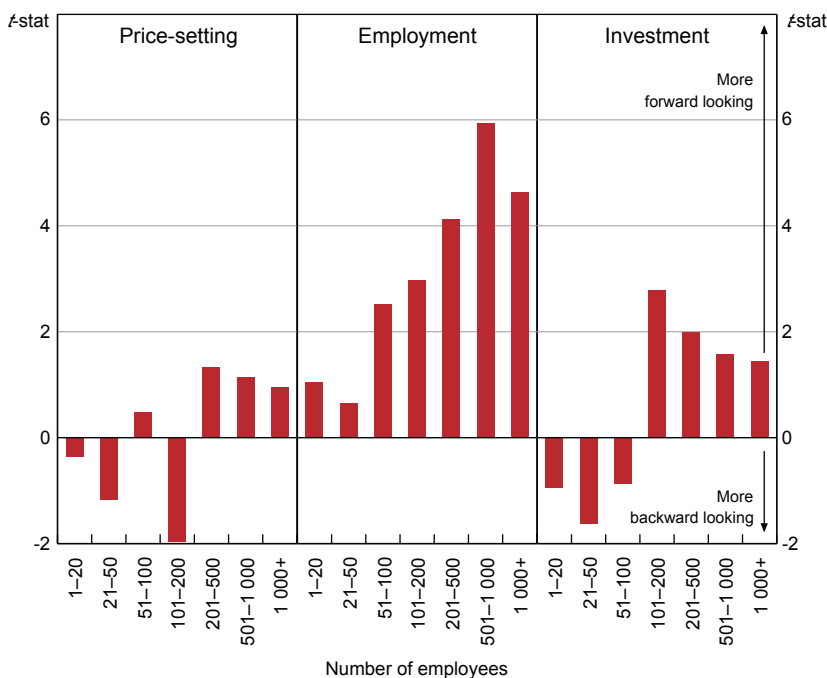
$$t_i = \frac{\alpha_{1i} - \alpha_{2i}}{SE(\alpha_{1i} - \alpha_{2i})}.$$

A positive *t*-statistic indicates that firms place more weight on their expectations for future demand than on the level of demand they have experienced over the past year. A negative *t*-statistic could indicate that firms do not tend to act on their expectations for future demand, possibly because they are prevented from doing so, or because they simply do not have confidence in their projections.

These *t*-statistics are plotted for each size category in Figure 15 below. The results suggest two broad conclusions.

- When considering prices, employment and investment intentions, larger businesses (those with employment greater than 100 employees) tend to be more forward looking than firms with fewer employees. This is most noticeable in terms of firms' employment decisions and to a lesser extent their investment behaviour.

- Within the class of firms with fewer than 100 employees, there are generally only minor differences.

Figure 15: Business Behaviour
By employment size category

Sources: Authors' calculations; RBA

The tendency among small businesses to be more backward looking than larger businesses has several possible explanations. As mentioned previously, small businesses may be constrained in their access to funding. This may limit their ability to invest, regardless of their expectations for future demand. Additionally, small businesses often face significant lags in finding and attracting quality staff, which would inhibit their ability to adjust employment levels based on expectations for future demand. Alternatively, the more backward-looking behaviour may reflect that small businesses plan less for the future, or that small businesses have less confidence in their expectations for the future than larger businesses and are therefore less willing to act on their expectations given the risks involved. Indeed, the task of forecasting future demand is often more difficult for small businesses, due to the generally greater volatility of their revenues. This

may result in small businesses having less confidence in their expectations for the future. A final possibility is that small businesses can rely on having greater flexibility in their operations that allows them to respond to current developments, and therefore have less need to be forward looking.

6.   Conclusions

While small businesses play an important role in the Australian economy, they face a number of challenges in dealing with fluctuations in demand, the costs of doing business, managerial skills and financial issues. Nonetheless, despite these challenges, there is no strong evidence that the economic behaviour of the small business sector is different to that of larger businesses. While the significant heterogeneity in the small business sector and relatively small sample sizes make it difficult to draw statistically significant conclusions, the results indicate two possible exceptions to this general conclusion: small businesses appear to respond much less to capacity utilisation than larger businesses; and they appear to be less forward looking in forming their pricing, employment and investment plans.

References

Britten-Jones M, A Neuberger and I Nolte (2011), 'Improved Inference in Regression with Overlapping Observations', *Journal of Business Finance & Accounting*, 38(5-6), pp 657–683.

Connolly E, D Norman and T West (2012), 'Small Business: An Economic Overview', *Small Business Finance Roundtable*, Reserve Bank of Australia, Sydney, pp 1–13.

Craig JB, M Schaper and C Dibrell (2007), 'Being the Boss and Working for a Boss: Upsides and Downsides', Paper presented at the 21st Australian & New Zealand Academy of Management Conference 'Managing Our Intellectual and Social Capital', Sydney, 4–7 December.

Dhrymes PJ (1971), *Distributed Lags: Problems of Estimation and Formulation*, Mathematical Economics Texts, 8, Holden-Day, Inc, San Franscisco.

Harri A and BW Brorsen (2009), 'The Overlapping Data Problem', *Quantitative and Qualitative Analysis in Social Sciences*, 3(3), pp 78–115.

Hurst E and BW Pugsley (2011), 'What Do Small Businesses Do?', *Brookings Papers on Economic Activity*, Fall, pp 73–118.

Nunnally JC and IH Bernstein (1994), *Psychometric Theory*, 3rd edn, McGraw-Hill Series in Psychology, McGraw-Hill, New York.

RBA (Reserve Bank of Australia) (2014), 'The RBA's Business Liaison Program', RBA *Bulletin*, September, pp 1–5.

Streiner DL and GR Norman (2008), *Health Measurement Scales: A Practical Guide to their Development and Use*, 4th edn, Oxford University Press, Oxford.

Townsend JT and FG Ashby (1984), 'Measurement Scales and Statistics: The Misconception Misconceived', *Psychological Bulletin*, 96(2), pp 394–401.