Australian Government
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DRAFT RESEARCH PAPER

Declining self-employment: examining evidence and labour market impacts of business consolidation

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Abstract

This paper explores the recent decline in the self-employment rate in Australia, the drivers of this trend, and impacts on labour market conditions. It is demonstrated that the decline has been most marked among self-employers with employees, reflecting a reduction in the rate of small business ownership in Australia. It is argued that this change represents business consolidation, similar to trends observed in other developed countries, and the implications on business dynamism are discussed. A Vector Autoregression model is employed to examine the relationship between the unemployment rate and different forms of self-employment over the period. Results suggest that a decline in the rate of self-employment is likely to have placed upward pressure on the unemployment rate. The need for further research is highlight, particularly with respect to the impact of reduced business dynamism on productivity growth.

JEL Codes: J21, J23, L11, M13
Keywords: Self-employment, Labour Demand, Firm Size Distribution, Business Consolidation

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Key points

- **The rate of self-employment has declined in Australia over the past two decades. This has predominantly occurred in the 'employer' class of self-employment, with a distinct decline observed in the number of owner-managers of unincorporated enterprises with employees. Evidence suggests that this trend may reflect business consolidation, with the dominance of larger enterprises appearing to increase over the period.**
- **Two factors are likely to have contributed significantly to business consolidation. Firstly, the effect of increased firm entry costs that result from higher wages in developed countries (indicated in previous research) is evident in the greater impact observed in more highly labour intensive service sector industries. Secondly, it is argued that greater benefit has been afforded to larger enterprises by advances in technology that facilitate discovery of, and access to, new markets, and allow more efficient coordination of large operations.**
- **Business consolidation has potentially contributed to reduced business dynamism, which is reflected by lower levels of firm entry and exit.**
- **Evidence presented in this paper suggests that the reduction in business dynamism has placed upward pressure on unemployment levels, which may reflect slower responses of larger enterprises to economic developments and changes in demand.**
- **Further research is required to investigate the potential impact of declining business dynamism on productivity growth in Australia.**

1. Introduction

Many Australian workers view self-employment as an attractive alternative to salaried employment because of the flexibility, potential for high earnings and upward social mobility it may afford. Self-employment strengthens the economy in a number of ways, including through the creation of jobs, flexibility to adjust to meet niche market demands and heightened productivity of workers whose livelihood equates more directly to the effort and efficiency with which their work is undertaken.

It would be inaccurate to conceptualise self-employment as comprising a single type of worker, with a single motivation for having become self-employed. Instead, self-employment is made up of many different types of workers, from non-employing consultants and professionals, to small business operators employing a number of workers. The motivations for becoming self-employed are diverse, as are the markets in which self-employed workers participate.

Recent evidence has pointed to a decline in self-employment in Australia.[1] Because a substantial proportion of self-employed workers are small business owners, a relative decline in the rate of self-employment may reflect consolidation of business (an increase in the proportion of economic activity that is attributable to larger enterprises). In turn, this may impact on the rate at which firms enter and exit the market (commonly referred to as 'business dynamism'). This relationship is evidenced in the work of Hathaway & Litan,[2] who argue that business consolidation has contributed to the decline in firm formation rates in the US.

Declining business dynamism may present challenges to the function of labour markets and innovation systems. With respect to employment, reduced business dynamism may increase frictional unemployment levels, as larger firms take longer to adapt to changing demand and conditions. The pool of displaced workers may be larger at any one point in time due to a reduced number of entering firms seeking to benefit from emerging market opportunities, or because there are fewer small enterprises with the flexibility to adjust rapidly to economic developments.

Business consolidation may also impede innovation systems. Markets comprised of a higher proportion of small firms, which can be brave and innovative but therefore also vulnerable, may be more conducive to creative destruction, and therefore growth in productivity, than those characterised by a large proportion of cumbersome big enterprises.

Despite evidence of reduced firm entry and exit rates in Australia,[3] as well as in a number of other developed countries,[4] lack of comparable time series

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[1] Atalay, K., Kim, W. & Wheelan, S. (2013) The *Decline of the Self-employment Rate in Australia*, University of Sydney Economics Working Paper Series, No. 03

[2] Hathaway, I. & Litan, R. (2014) *What's driving the decline in the firm formation rate?* A Partial Explanation. The Brookings Institution

[3] See Talimanidis, D. (2014) *Where have all the entrepreneurs gone? Australia's falling business entry rate.* Institute of Public Affairs.

limits direct investigation of the effects of this trend.[5] If declining self-employment may be demonstrated to reflect business consolidation, however, changes in self-employment may be used to examine the effects on business dynamism. In this way, the decline in self-employment in Australia has the potential to inform our understanding of the effects of business consolidation on business dynamism, and thereby contribute to public policy debate.

This research has two primary objectives. Firstly, to explore features and trends in self-employment in Australia, particularly relating to the decline of self-employment observed in previous research and the information this may convey with regard to business consolidation. Secondly, to examine labour market dynamics related to self-employment, particularly with regard to motivation (the "push" and "pull" effects), and the implications for how the decline in self-employment may be viewed. This investigation will also seek to address the question of whether reduced business dynamism, as reflected in the observed business consolidation, has impacted adversely on employment levels. This study will be confined to investigation of the labour market effects of reduced business dynamism, but intends to lay the foundations for research examining the impact on productivity growth using self-employment data.

The first part of this paper provides a conceptual framework with which to understand self-employment. That is, the formal data definitions of self-employment are explored in the context of inferred characteristics of these different forms and the implications for how compositional changes relating to these groups should be interpreted. This section also assesses such compositional changes across different industries and sectors in order to explore evidence of business consolidation and the potential drivers of such trends.

Following this, time series analysis methods are employed to examine the extent to which each self-employment class may be considered to approximate the different motivations for becoming self-employed, and the relationship between each of these motivation types and the unemployment rate. Specifically, a Vector Autoregression (VAR) model is employed to explore the dynamic relationship between the unemployment rate and groups of workers either 'pushed' or 'pulled' into self-employment. Findings with regard to the impact on unemployment of changes in the rate of different classes of self-employment are discussed, as well as the policy implications and avenues for future research.

[4] See Hathaway, I. & Litan, R. (2014) *The Other Aging of America: The Increasing Dominance of Older Firms.* The Brookings Institution

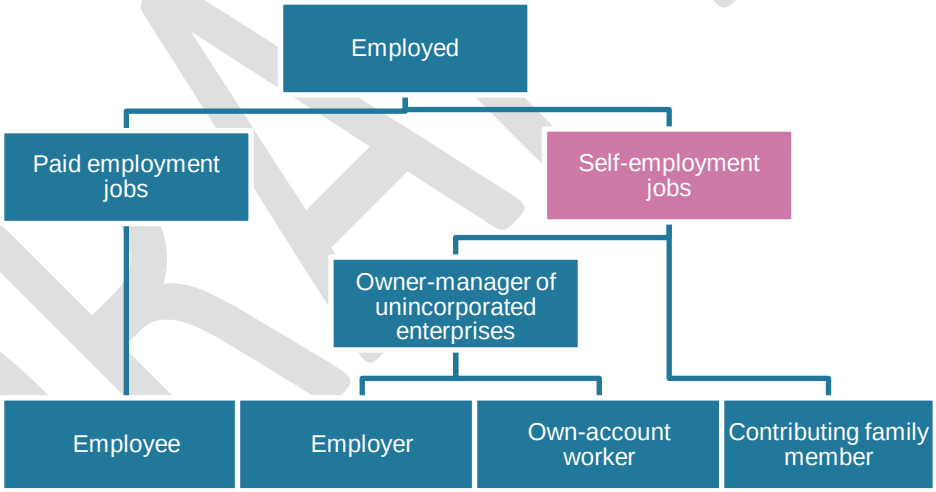
[5] ABS Cat. No. 8165.0 *Count of Australian Businesses, including entries and exits*, for example, has significant discontinuities that prevent comparison with data prior to 2007

2. Defining self-employment

To analyse trends in self-employment in Australia, it is important that self-employment is first defined. With respect to official data, one definition exists in the Australian Bureau of Statistics (ABS) Cat. No. 6102.0.55.001 *Labour Statistics: Concepts, Sources and Methods, 2013*. According to this definition, self-employment is comprised of three of the four *status in employment* classifications – employers, own-account workers and contributing family members (the fourth status being employee, see Figure 2.1).

An employer, in this context, is defined as a person who operates his or her own unincorporated economic enterprise or engages independently in a profession or trade, and hires one or more employees. An own-account worker is a person who operates his or her own unincorporated economic enterprise or engages independently in a profession or trade, and hires no employees. Contributing family members are those who work without pay in an economic enterprise operated by a relative.

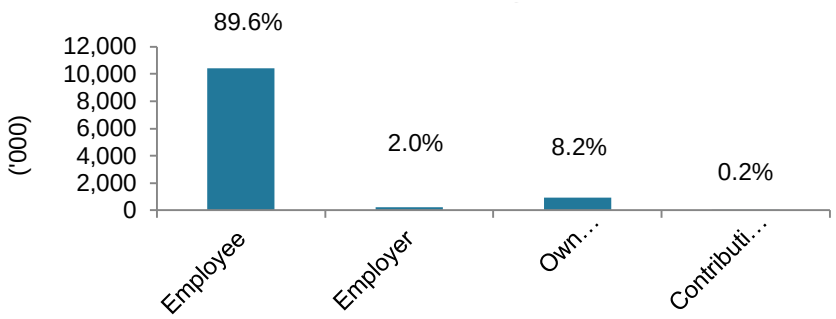
Figure 2.1 Status in Employment Classification



Source: ABS Cat. No. 6102.0.55.001 Labour Statistics: Concepts, Sources and Methods, 2013

As demonstrated in Figure 2.2, *employees* comprise the distinct majority of total employment, with 10.4 million employees representing 89.6 per cent of employment in the May Quarter 2014. This was followed, distantly, by *own-account workers*, with 947,000 such workers accounting for 8.2 per cent of employment. The number of employers was smaller again (227,000 workers representing 2.0 per cent), which was followed by *contributing family members* (the smallest employment classification with just 26,000 workers representing 0.2 per cent of those employed).[6]

Figure 2.2 Status in Employment, May Quarter 2014[7]



Source: ABS Cat. No. 6291.0.55.003 - *Labour Force, Australia, Detailed, Quarterly, Feb 2014*.

3. Motivations for self-employment

A growing body of evidence points to a dichotomy in individual motivations for becoming self-employed. Some self-employed workers appear to identify with being self-employed in response to difficulty obtaining salaried employment; the so called 'push' effect produces self-employed workers that the literature often refers to as 'own-account workers'.[8,9] Such workers have been characterised as possessing relatively low skill levels, having less access to capital, and being likely to move more rapidly between self- and salaried employment.[10] In distinct contrast are those self-employed 'entrepreneurs', with higher levels of skill and business knowledge, more capital backing and a greater likelihood of expanding into employing firms and thereby drive job growth; this is commonly referred to as the 'pull' effect of self-employment.

[6] While acknowledging that contributing family members belong to the class of employment considered 'self-employment', due to the small number of workers in this cohort, and the fact that this class is not particularly relevant to discussions around the push and pull drivers of self-employment, this form of self-employment will remain largely outside the scope of this research.

[7] It should be noted that the three-month averages are represented here.

[8] Earle, J. S. & Sakova, Z. (2000) *Business Start-Ups or Disguised Unemployment? Evidence on the Character of Self-Employment From Transition Economies.* Labour Economics, Vol. 7, No. 5, pp. 575-601

[9] Not to be confused with the Status in Employment definition of the same name (described above). However, the 'push'-motivated self-employed workers exist predominantly within this Status in Employment class

[10] Meager, N. (1992) *Does unemployment lead to self-employment?* Small Business Economics No.4, pp. 87-103

Evidently, the prevailing economic conditions, and unemployment rate more specifically, will have differing interactions with each type of self-employed worker. Higher levels of unemployment will result in a stronger 'push' effect, and a rising number of own-account workers. Increasing unemployment, however, may be negatively correlated with the number of entrepreneurs, who provide employment opportunities to displaced workers. Indeed, research attempting to delineate the two forms of self-employment has demonstrated a lagged increase in own-account workers following labour market downturns, followed by an increase in entrepreneurial self-employed workers in synchrony with a decrease in unemployment rates.[11] In addition, a positive relationship has been demonstrated between the unemployment rate and count of non-employing businesses in Australian regions.[12] Further, research suggests that different policy measures exhibit varying levels of success between own-account workers and entrepreneurs. For example, business management training programs have been found to have a strong positive effect on unemployed workers entering self-employment.[13] The evidence suggests, however, that entrepreneurs, with higher average skill levels and a better understanding of the corporate world, experience more limited benefits. These findings highlight the need to consider the different types of self-employed worker independently.

Atalay, Kim & Wheelan[14] demonstrate that the rate of self-employment in Australia, has been declining over the past decade. In examining the demographics of self-employed workers using the Household Income and Labour Dynamics in Australia (HILDA) survey, Atalay et al. argue that this decline may be attributed to reduced self-employment among older workers, particularly females. Atalay et al. suggest that several tax and pension system reforms are most likely to be the drivers of this change. Implicit in the findings of this research is the notion that a reduction in self-employment has occurred more in the *own-account workers* component of self-employed workers, with the level of entrepreneurship more stable in comparison. Because of the significant policy implications and, fundamentally, whether a decline in the self-employment rate may be viewed as positive or negative, it is important to explore any potential change in the composition of self-employed workers in Australia.

4. Recent trends in self-employment

Figure 4.1 demonstrates that the level of self-employment (including employers, own-account workers and contributing family members) between 1991 and 2014 remained relative stable in absolute terms (up 23,000 or 2.0 per cent, to 1,200,000 in 2014). The share, however, has fallen pronouncedly

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[11] Thurik, A., Carree, M., van Stel, A. & Audretsch, D. (2008) *Does self-employment reduce unemployment?* Journal of Business Venturing, No. 23, pp. 673-686

[12] Swanepoel, J. A. & Harrison, A. W. (2015) *The Business Size Distribution in Australia*, Office of the Chief Economist Working Paper Series, Commonwealth Department of Industry and Science.

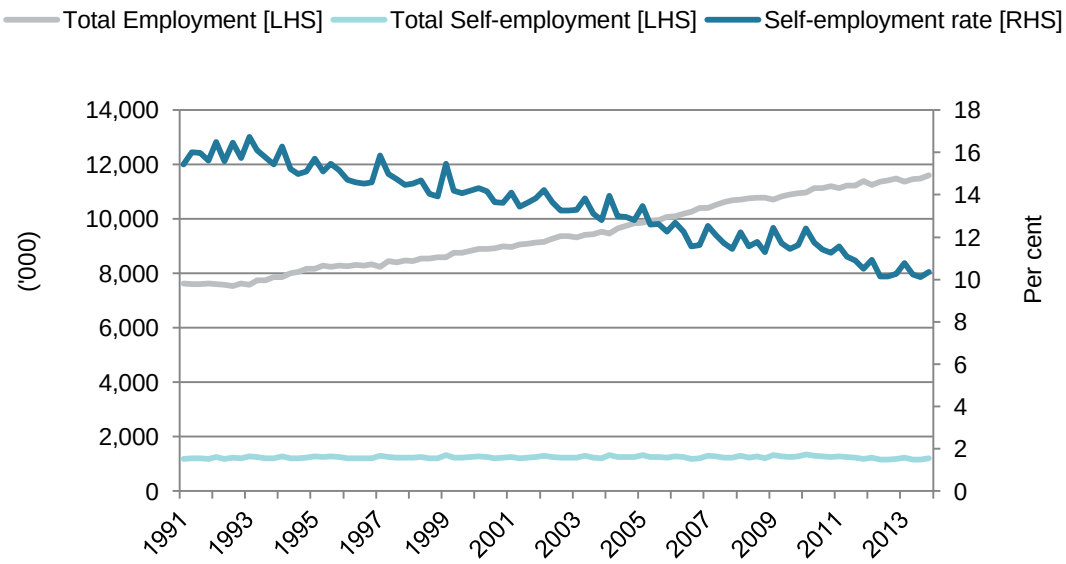
[13] Michaelides, M. & Benus, J. (2012) *Are self-employment training programs effective? Evidence from Project GATE*, Labour Economics, Vol. 19(5), pp. 695-705

[14] Atalay, K., Kim, W. & Wheelan, S. (2013) *The Decline of the Self-employment Rate in Australia,* University of Sydney Economics Working Paper Series, No. 03

as salaried employment has grown over this period. From 15.4 per cent of employed workers in 1991, self-employment has reduced by 5.1 percentage points to represent 10.4 per cent of those employed in 2014.

To investigate the composition of this decline, Figure 4.2 presents growth in the number of *own-account workers* and *employers* between 1991 and 2014. The number of own-account workers increased moderately across the 20-year period, with an additional 23.3 per cent or 179,000 operating in 2014. The modest reduction in own-account workers relative to the overall labour force appears to reflect improvement in labour market conditions between the early 1990s and the Global Financial Crisis (GFC) in 2008, as evidenced by the reduced unemployment rate. It is clear, however, that there was a marked decrease in the number of *employers* across the period, down 112,000 or 33.1 per cent, to 227,000 in 2014. The magnitude of this decline is more apparent when considered in conjunction with the fact that total employment grew by 52.2 per cent over the period.

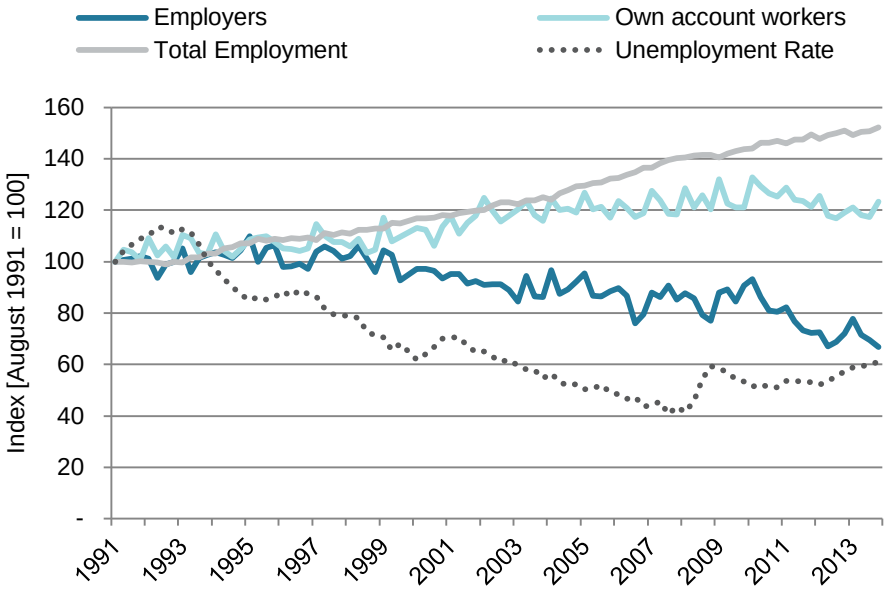
Figure 4.1 Self-employment, 1991 to 2014



Source: ABS Cat. No. 6291.0.55.003 - *Labour Force, Australia, Detailed, Quarterly*, Feb 2014

Figure 4.2 Growth by type of self-employment, 1991 to 2014

Source: ABS Cat. No. 6291.0.55.003 - *Labour Force, Australia, Detailed, Quarterly*, Feb 2014;



ABS Cat. No. 6202.0 - *Labour Force, Australia*, Nov 2014

Naturally, each class of self-employment is comprised of workers that have moved into self-employment for a range of different reasons. Some workers observed in the own-account worker class have been pushed into self-employment through a lack of available salaried jobs. Others may have recently entered self-employment with the intention of building a business, creating jobs and innovating, but have not yet established themselves. In fact, a range of demographic and economic factors have been demonstrated to relate to the number of non-employing firms at a regional level, including educational attainment and industry composition.[15] On balance however, workers in the *own-account worker* category could be considered to represent, predominantly, those self-employed workers without the skills or intention of expanding into an employing business.

Those in the *employer* category of self-employment are, by definition, those self-employed workers that own and manage their own businesses and have employees working for them. While a small number of *employers* may have originally entered self-employment as a result of 'push' factors (being unable to obtain salaried employment), it is likely that the 'pull' of managing a small business is the predominant force motivating these workers to remain self-employed. It is important also to note that, while the *employer* class does not represent exclusively small businesses, the distribution of firms by employment size class in Australia suggests that the majority of these *employers* are operating small businesses. At June 2013, for example, 93.3 per cent of employing firms employed between 1 and 19 employees.

[15] Swanepoel, J. A. & Harrison, A. W. (2015) *The Business Size Distribution in Australia*, Office of the Chief Economist Working Paper Series, Commonwealth Department of Industry and Science.

With these categories in mind, the trend observed in Figure 4.2 (above) may elicit some concern. The decrease in employers (owner-operators with employees) represents a decline in the number of small business owners, from tradesmen running their own business, creating jobs for apprentices and meeting the niche demands of the communities in which they live; to the owners of restaurants and independent grocery stores - establishing networks, supporting local supply chains and the needs of other businesses in the region. The drivers of such change are not immediately apparent. Whether a natural consequence of a changing economy that favours larger enterprises with the ability to access global value chains, or an artificial product of the burden of regulation that impacts adversely on the ability for small business owners to enter the market or remain competitive, this decline warrants further investigation.

5. Factors driving the decline in self-employment

A reduction in the number of *employers* suggests that the decline in self-employment has been driven by reduced 'pull' into self-employment for aspiring business owners and entrepreneurs, rather than the reduced 'push' into self-employment (workers seeking self-employment as an alternative for workers facing difficulty obtaining salaried employment), as suggested by previous research.

There are, most likely, a multitude of factors that have contributed to this trend. Several such drivers relate to natural compositional changes that have occurred as the economy has grown and developed, similar to those that have expedited an increasing dominance of older firms in the US.[16] For example, increased globalisation may have given a comparative advantage to large firms, who benefit from greater access to global value chains, lower informational costs[17] and, potentially, increased economies of scale as technological advances allow better large-scale logistical coordination, especially technologies facilitated by online media. In addition, business consolidation, whereby a larger proportion of economic activity may be attributed to firms with more than one establishment,[18] has also changed the dynamics of economies such that larger firms, with better established networks, are more favoured. Hathaway & Litan[19] partially attribute the decline in the firm formation rate in the US to increased business consolidation, which, in combination with reduced entry rate, most likely reflects lower levels of self-employment as larger, older and more established entities constitute an increasing proportion of the market.

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[16] Hathaway, I. & Litan, R. (2014) *The Other Aging of America: The Increasing Dominance of Older Firms.* The Brookings Institution

[17] See Alchian, A. A. & Demsetz, H. (1972) P*roduction, Information Costs, and Economic Organization.* The American Economic Review, Vol. 62, No. 5, pp. 777-795

[18] See Hathaway, I. & Litan, R. (2014) *What's driving the decline in the firm formation rate? A Partial Explanation*. The Brookings Institution

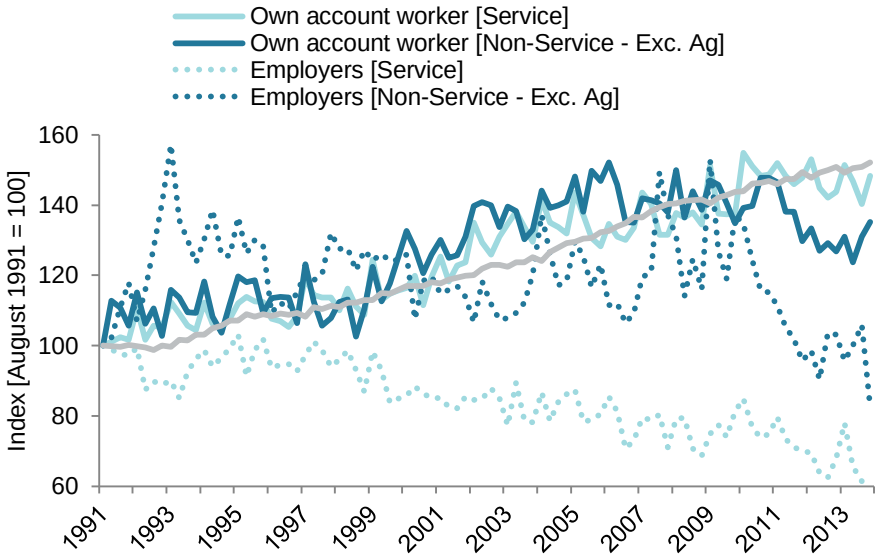
[19] Hathaway, I. & Litan, R. (2014) *The Other Aging of America: The Increasing Dominance of Older Firms.* The Brookings Institution

5.1 The fall in service sector employers

One well-documented aspect of structural change that has occurred in Australia in recent decades is the rise of the service sector.[20] It is important that changes that have occurred with respect to self-employment in the service sector are also understood.

Figure 5.1.1 presents growth in *own-account workers* and *employers* by the services and non-service sector since 1991. While growth in the number of *own-account workers* in both sectors almost equalled the growth observed in the labour market more broadly, the number of *employers* has decreased in each.

Figure 5.1.1 Growth in self-employment by service/non-service sector, 1991 to 2014



Source: ABS Cat. No. 6291.0.55.003 - *Labour Force, Australia, Detailed, Quarterly*, Feb 2014

The number of *employers* in the non-service sector demonstrated considerable cyclicality across the period, leading into a sharp contraction following the onset of the GFC in 2008. Self-employment in the non-service sector decreased in a similar manner in the US following the GFC, which has been attributed to reduced demand in certain industries where self-employment is most prominent, including construction and real-estate.[21] These results are in distinct contrast, however, to trends observed in the

[20] Service industries include *Wholesale trade*; *Retail trade*; *Accommodation & food services*; *Transport, postal & warehousing*, *Information media & telecommunications*; *Financial & insurance services*; *Rental, hiring & real estate services*; *Professional, scientific & technical services*; *Administrative & support services*; *Public administration & safety*; *Education & training*; *Health care & social assistance*; *Arts & recreation services*; and *Other services*. The classification of these industries as service industries is consistent with the definition used by the Australian Bureau of Statistics (ABS).

[21] Smith, J. (2014) *Self-Employment Rates Are Down Since The Recession, But May Be On The Rise Again Soon*. Forbes

European Union following the GFC. Pianta & Cirillo[22] found that self-employed workers were more resilient during the economic crises in Europe, having observed a smaller reduction in overall employment than salaried workers. This may perhaps be attributed to differing responses, and timing of such responses, between Europe, the US and Australia. Evidence was also found to suggest that self-employed European workers in the service sector fared better than in the non-service sector. Through periods of such instability, it is likely that growth in the number of workers 'pushed' into self-employment counterbalanced a reduction in those workers 'pulled' into self-employment; brought about by reduced business confidence.

5.2 Technology, informational costs and economies of scale

The number of employers in the service sector demonstrated a gradual but sustained contraction between 1991 and 2014. This trend may be partially explained by Bollard, Klenow & Li,[23] who argued that firm entry costs increase with development. Because it was posited that this comes about, in part, as a result of the increasing cost of labour, the greater labour intensity of industries in the service sector[24] mean that such increases to the entry cost in developed countries will be more pronounced in the service sector.

Another compelling explanation for the decline in employers in the services sector relates to the impact of new technologies and the informational cost sustained by firms seeking new market opportunities or competitive suppliers. An increasingly global market place has opened unprecedented opportunities to firms that are able to identify markets for which they hold a competitive advantage, or suppliers that offer superior value. The cost of acquiring such information is inherent in the extent to which firms may use this information to improve the competitiveness of their product. That is, firms for which the informational cost is lower are placed at a comparative advantage to those firms who, for whatever reason, are not privy to such information or to whom the cost of obtaining the information is higher. A range of studies have found evidence to indicate that such informational costs are higher for Small and Medium Enterprises (SMEs) in the service sector than for non-service sector industries, such as Manufacturing.[25] Evidence suggests that once such 'market discovery' challenges are overcome, export channels for service sector SMEs are persistently and effectively used, with high rates of survival observed in international markets.[26] Consequently, a number of studies have demonstrated positive effects on trade performance when policies are introduced to facilitate better internationalisation of firms.[27]

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[22] Pianta, M. & Cirillo, V. (2014) *Industrial Policy, Employment and Skills.* Universita di Urbino/Sapienza University. 20th Conference on Alternative Economic Policy in Europe.

[23] Klenow, P., Bollard, A. & Li, H. (2013) *Entry Costs Rise with Development.* Centre for International Development Working Paper No. 518

[24] Kutscher, R. E. & Mark, J. A. (1983) *The service-producing sector: some common perceptions reviewed.* Monthly Labour Review, April. Bureau of Labor Statistics

[25] Lejárraga, I., Rizzo, H. L., Oberhofer, H., Stone, S. & Shepherd, B. (2014) *Small and Medium-Sized Enterprises in Global Markets: A Differential Approach for Services?* OECD Trade Policy Papers No. 165.

[26] Ibid

[27] See Cadot et al. (2011) *Impact Evaluation of Trade Interventions: Paving the Way*, World Bank Policy Research Working Paper 5877; Le, A. T. (1999) *Empirical Studies of Self-employment*,

Lejárraga et al. attribute the higher informational costs to the difficulty experienced by firms in the service sector in liberating human resources due to their small size.[28] In examining employment size classes, this does not appear to hold in the data, at least in Australia, where the same proportion of service-sector firms employ between 0 and 19 employees as for non-service sector firms excluding agriculture (97.1 per cent of firms in each sector was comprised of such firms in June 2013).[29] Service sector firms have been shown to have higher labour intensity,[30] however, so while the distribution of firms by employment size class is comparable, firms with the same number of employees in the service sector are likely to be smaller with respect to turnover.

Taken together, increased opportunities for networking and trade, both domestically and internationally, is providing greater benefits to firms with lower informational costs – namely larger entities and the non-service sector. It is likely that economies of scale are increased with new technologies that facilitate better coordination and exchange of information. The so-called 'Walmart effect' is encouraging the proliferation of mega-companies[31] that are now better able to centrally coordinate the enterprise, taking advantage of economies of scale in supply networks and marketing, lower informational costs and thereby access to a broader market, and an online presence which is maintained for a minute proportion of overall operating costs. Addressing the informational costs of SMEs with policies designed to better facilitate 'market discovery' may provide Australian businesses with a foothold in domestic and international markets, and a basis for future success.

5.3 Features of business consolidation

Figure 5.3.1 provides the number of employers by industry in 1991 and 2014, as well as the percent change over the period. While the number of *employers* reduced for most service sector industries, in line with the factors described above, the most notable reductions can be seen in the *Wholesale trade* and *Retail trade* industries (down 12,700 or 83.0 per cent, and 43,300 or 68.7 per cent respectively). In light of changes in total employment in these industries over the period (a decrease of 7.7 per cent and an increase of 49.5 per cent respective), these can be seen to represent a considerable reduction in the number of employers relative to employees over the period, indicating a move towards greater dominance of larger entities.[32]

The decline in the number of employers in *Wholesale trade* and *Retail trade* may be attributed, in large part, to the competitive advantages provided to

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Journal of Economic Surveys, Vol. 13, No. 4, pp. *381-416*; and Lederman et al. (2010) *Export Promotion Agencies Revisited*, Journal of Development Economics (91), p.p. 257-265

[28] Lejárraga, I., Rizzo, H. L., Oberhofer, H., Stone, S. & Shepherd, B. (2014) *Small and Medium-Sized Enterprises in Global Markets: A Differential Approach for Services?* OECD Trade Policy Papers No. 165.

[29] ABS Cat. No. 8165.0 - *Count of Australian businesses, including entries and exits*, Sep 2014

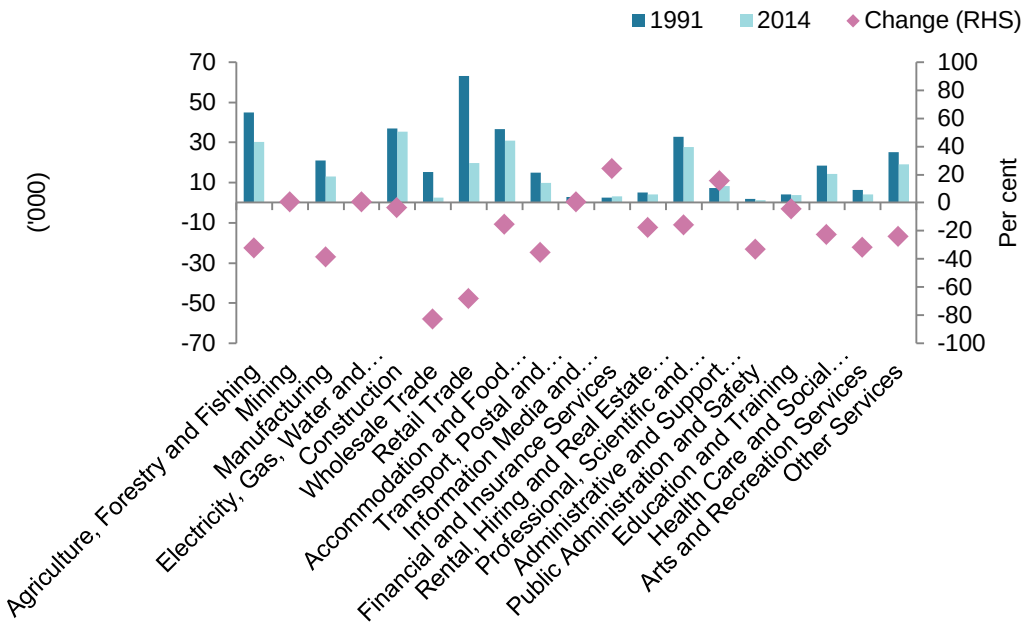
[30] Kutscher, R. E. & Mark, J. A. (1983) *The service-producing sector: some common perceptions reviewed.* Monthly Labour Review, April. Bureau of Labor Statistics

[31] Stodola, S. (2012) *The American Entrepreneur: A Dying Breed?* The Fiscal Times.

[32] As no comparable time series is available with employment size classes by industries across the period, this cannot be measured directly.

firms in these industries by online retail. Although data on online retail has traditionally been sparse and unreliable, estimates suggest that in the 12 months to October 2014, Australian consumers spent $16.9 billion on internet sales, representing 6.8 per cent of traditional retail spending.[33] Despite continuing to represent only a limited share of total retail sales, the fact that over half of this revenue was captured by *Departmental & Variety Stores* and *Homewares & Appliances* (34 per cent and 17 per cent of total sales respectively) highlights that online retail may be better suited to non-perishable goods, which may be kept in stock at central warehouses before shipping.

Figure 5.3.1 Employers by Industry, 1991 to 2014[34]



Source: ABS Cat. No. 6291.0.55.003 - Labour Force, Australia, Detailed, Quarterly, Feb 2014

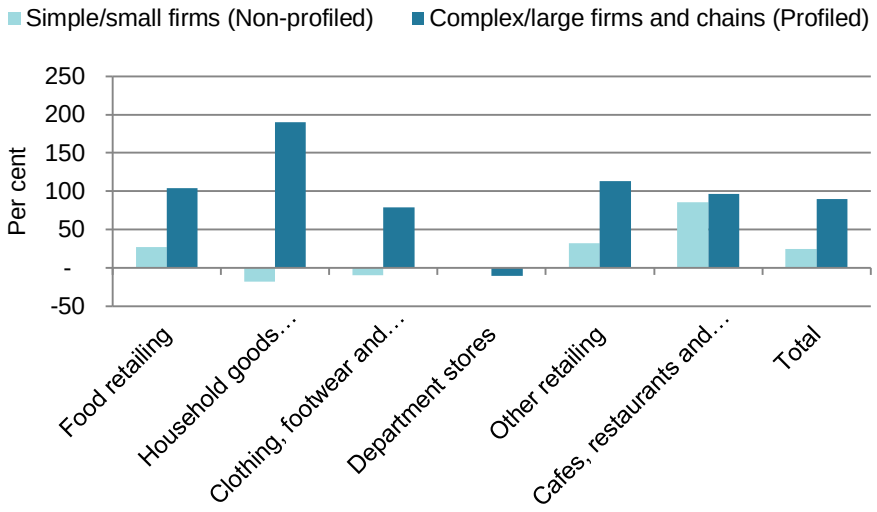
Data from the ABS Business Register may be used to explore the nature of business consolidation in the Retail Trade industry. Here the ABS distinguishes between two separate firm populations. The majority of businesses included on the register are in the Non-Profiled Population. Most of these businesses are understood to have simple structures. For these businesses, the ABS is able to use the ABN as the basis for a statistical unit. One ABN equates to one statistical unit. For a small number of businesses, the ABN unit is not suitable for ABS economic statistics purposes and the ABS maintains its own 'unit' structure through direct contact with businesses. These businesses constitute the Profiled Population. This population consists typically of large or complex groups of businesses.

[33] NAB (2014) *Online Retail Sales Index: In depth report - October*

[34] Data was not available for this time-series comparison for either the *Mining* or *Electricity, gas, water and waste services* industries. It is worth noting that these industries represent only a very small amount of the overall count of employers, so unobserved trends will have had a very limited impact on self-employment dynamics.

Because profiled firms are large or complex entities, and the non-profiled population are simple, small enterprises, examining the change in retail sales for these two populations provides an indication of the extent of business consolidation in Australia. Figure 5.3.2 demonstrates that, after adjusting for inflation, retail trade turnover of large firms and retail chains (the Profiled Population) increased by 90 per cent in the 20 years to September 2014. Over the same period, the retail turnover for small/simple firms increased by just 25 per cent. The most notable difference was observed in the *Household goods retailing* industry group, where the turnover of large firms and chains increased by 190 per cent while, in inflation-adjusted terms, the retail turnover for simple/small firms actually decreased by 18 per cent. Distinct contrasts may also be observed in the *Other retailing, Food retailing,* and *Clothing, footwear and personal accessory retailing* industry groups.

Figure 5.3.2 Inflation-adjusted change in turnover for simple and complex firms by retail industry group, 1994 to 2014



Source: ABS Cat. No. 8501.0 *Retail Trade, Australia*, Sep 2014; ABS Cat. No. 6401.0 *Consumer Price Index, Australia*, Sep 2014

Given that business consolidation appears to have occurred most in industry subdivisions where online retail is most prominent, it is likely that the informational costs outlined above are largely responsible for the decline that has been observed in self-employment in these industries. Self-employed entrepreneurs have, in this way, been disadvantaged relative to larger enterprises, which have taken advantage of lower informational costs to leverage new trade opportunities in domestic and international markets.

These findings suggest that the decline in self-employment has been driven primarily by a reduced 'pull' of aspiring business owners into self-employment. The trend has been most marked in the service sector, where growth in online sales has been disproportionately from larger, more complex entities. It is likely that self-employed *employers* in the service sector have been challenged most by informational costs that represent a more significant proportion of overall operating costs in comparison with larger firms.

6. Cause for concern? Self-employment, business consolidation and labour market dynamics

Business dynamism refers to the natural, ongoing process by which firms form, expand, fail and exit the market. Such 'creative destruction' is of fundamental importance to productivity growth, as more innovative and efficient firms are rewarded while less productive firms are forced out of the market[35] and has, for this reason, received considerable interest in recent years, particularly in the US.[36] Evidence provided by Hathaway[37] suggests that business consolidation has played a central role in declining business dynamism in the US. In this way, business consolidation has noteworthy implications for economic conditions and development, as a shift towards an economy with an increased proportion of firms that are larger entities may potentially reduce business dynamism, slowing the process of creative destruction and reducing the rate of productivity growth.

Declining business dynamism has also recently been observed in Australia. In 2003-04, the firm entry rate (the number of firms entering the market in any one year as a proportion of firms operating at the start of the year) was 17.4 per cent.[38] This had fallen to just 11.2 per cent in 2012-13. From 15.2 per cent in 2003-04, the exit rate also declined to 13.1 per cent in 2011-12 before rising again slightly to 14.1 per cent in 2012-13 (reflecting the poor economic conditions and subsequent challenges facing firms following the GFC). The nature of declining entry and exit rates was explored by Talimanidis,[39] who illustrated that the decline is both considerable and pervasive, having occurred across all states and territories, industry divisions and employment size classes between 2004 and 2013.[40]

The relationship between business consolidation and the prevailing labour market conditions is multifaceted. On the one hand, reduced productivity growth stemming from reductions in business dynamism may lower unemployment rates as technological advancement is slowed and the role of labour remains more important. Conversely, the increased rigidity of labour markets that results from fewer small enterprises may impact on frictional unemployment levels. This may contribute to unemployment as cumbersome

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[35] See Syverson, C. (2011) *What Determines Productivity?* Journal of Economic Literature, 49(2), pp. 326-365

[36] See Decker, R., Haltiwanger, J., Jarmin, R., & Miranda, J. (2014) The *role of entrepreneurship in US job creation and economic dynamism.* The Journal of Economic Perspectives, 3-24; and Hathaway, I., & Litan, R. (2014) *Declining Business Dynamism in the United States: A Look at States and Metros*. Brookings Institution.

[37] See Hathaway, I. & Litan, R. (2014) *What's driving the decline in the firm formation rate? A Partial Explanation.* The Brookings Institution

[38] ABS Cat. No. 8165.0 - *Count of Australian businesses, including entries and exits*, several

[39] Talimanidis, D. (2014) W*here have all the entrepreneurs gone? Australia's falling business entry rate.* Institute of Public Affairs.

[40] While indicative of the magnitude of the changes that have occurred and useful in exploring aspects of the decline in entries and exits, it should be noted that Talimanidis presents business count time series over the life of the ABS Cat. No. 8165.0 publication, sometime specifically advised against (due to methodological changes) by the ABS in the publication's accompanying explanatory notes.

larger enterprises take longer to adjust their workforce, or because fewer entrepreneurs identify and exploit emerging market opportunities to drive job growth. Evidence of a short-run positive relationship between productivity growth and unemployment has been demonstrated (consistent with theories positing displacement of workers due to technological advancement), though this effect has been found to be both small and temporary.[41]

6.1 Modelling self-employment and labour market conditions

For reasons described above, it is important that the relationship between unemployment and the different classes of self-employment is better understood. The following section explores, empirically, the relationship between unemployment, own-account workers and employers over the past two decades.

Due to the complex nature of these relationships, an appropriate model must incorporate measures capable of capturing bilateral causal relationships over time. That is, unemployment rates are conceivably affected by changes in the number of self-employed workers when these workers either become employers, taking on workers themselves, or choose to identify as self-employed (those own-account workers without employees). An increase in the unemployment rate, as discussed above, can act to push displaced workers into self-employment through a lack of salaried work, or may discourage entrepreneurial self-employed workers from entering the labour market due to poor economic conditions. Furthermore, the business consolidation reflected in both reduced entry and exit rates outlined above and the gradual decline in the number of employers is likely to have reduced business dynamism, which is also likely to affect labour market conditions.

In tying this together, we wish to produce a model to examine the following primary hypotheses:

i. A decrease (increase) in the unemployment rate will lead to a short-run decrease (increase) in the proportion of the workforce that are own-account workers (unemployment 'push' into self-employment)
ii. A decrease (increase) in the unemployment rate will lead to a decrease (increase) in the proportion of the workforce that are employers, as entrepreneurs enter the market after identifying market opportunities (entrepreneurial "pull" into self-employment)
iii. A decrease (increase) in the proportion of the workforce that are employers will lead to an increase (decrease) in the proportion of the workforce that are own-account workers, as own-account workers face greater competition from small business.
iv. A decrease (increase) in the proportion of the workforce that are employers will lead to a decrease (increase) in the unemployment

[41] See Blanchard, O., Solow, R. & Wilson, B.A. (1995) *Productivity and Unemployment*, Massachusetts Institute of Technology for a conceptual framework of the relationship between productivity and unemployment

rate, as reduced productivity growth results in the displacement of fewer workers.[42]

A useful model with which to test these hypotheses is the Vector Autoregression (VAR). This model endogenises each variable, by making each variable dependent on previous values of itself, and other variables in the model.

To illustrate, let O represent the proportion of the workforce that is comprised of own-account workers. The value of O in any given period (t) may be the product of previous values of itself (O_{t-l}, where j represents the elapsed period since the value of O that impacts on its value at t), a previous value of unemployment (U_{t-j}, where l represents the elapsed period since the value of U that impacts on its value at t), and a previous value of the proportion of the workforce that were employers (E_{t-k}, where k represents the elapsed period since the value of E that impacts on its value at t). When constant and error terms are added, we have the following:

$$O_t = C + \beta U_{t-j} + \gamma O_{t-l} + \alpha E_{t-k} + \mu \quad (1)$$

Where:

C = constant term

β = the coefficient of U

γ = the coefficient of O

α = the coefficient of E

μ = error term

To mitigate the effects of seasonality in our model, and to ensure stationarity,[43] we will incorporate the year-over-year change (in percentage points). The percentage point year-over-year change (in quarter t) in the proportion of the workforce that is own-account workers (O), employers (E), and the unemployment rate (U), are given in the following general form equations:

$$U_t - U_{t-4} = C + \sum_{j=1}^{k} \beta_U (U_{t-j} - U_{t-j-4}) + \sum_{j=1}^{k} \gamma_U (O_{t-j} - O_{t-j-4}) + \sum_{j=1}^{k} \alpha_U (E_{t-j} - E_{t-j-4}) + \mu_t$$

$$E_t - E_{t-4} = C + \sum_{j=1}^{k} \beta_E (U_{t-j} - U_{t-j-4}) + \sum_{j=1}^{k} \gamma_E (O_{t-j} - O_{t-j-4}) + \sum_{j=1}^{k} \alpha_E (E_{t-j} - E_{t-j-4}) + \mu_t$$

$$O_t - O_{t-4} = C + \sum_{j=1}^{k} \beta_O (U_{t-j} - U_{t-j-4}) + \sum_{j=1}^{k} \gamma_O (O_{t-j} - O_{t-j-4}) + \sum_{j=1}^{k} \alpha_O (E_{t-j} - E_{t-j-4}) + \mu_t$$

[42] Although theoretical cases were presented to support both positive and negative relationships, the ex-ante expectation was that the larger effect would be provided by reduced productivity growth resulting in fewer displacements.

[43] The stationarity of variables was verified using the Augmented Dicky Fuller (ADF) test. See Fuller, W. A. (1976). *Introduction to Statistical Time Series.* New York: John Wiley and Sons; and Said, S. E. & Dickey, D. A. (1984). *Testing for Unit Roots in Autoregressive-Moving Average Models of Unknown Order*. Biometrika 71 (3): 599–607.

Where:

C	=	constant term
O_t	=	proportion of the workforce that are own-account workers at time t
U_t	=	rate of unemployment at time t
E_t	=	proportion of the workforce that are employers at time t
$\beta_O, \beta_U, \beta_E$	=	coefficient of U in regression for O, U and E respectively
$\gamma_O, \gamma_U, \gamma_E$	=	coefficient of O in regression for O, U and E respectively
$\alpha_O, \alpha_U, \alpha_E$	=	coefficient of E in regression for O, U and E respectively
μ_t	=	error term at time t

The Johansen Cointegration Test[44] was used to confirm cointegration of variables included in the model, and Jarque Bera tests[45] suggested normal distribution of each variable. In addition, Bai & Perron[46] Multiple Breakpoint Tests confirmed that time series for each variable were free from structural breaks. These tests were conducted on Least Squares equations with quadratic spectral kernel based HAC covariance estimation using prewhitened residuals (allowing heterogeneous error distributions across breaks).

To examine the relationship between the variables over a given period of time the VAR model was adjusted until the greatest significance of correlations was achieved. The greatest significance in Akaike (AIC)/Schwarz (BIC) tests was observed using 1, 2 and 3 period lags.[47] The Lagrange Multiplier (LM) test verified autocorrelation of variables over the given lag periods. Results from this specification are provided in Table 6.1.1.

[44] Johansen, S. (1991) *Estimation and Hypothesis Testing of Cointegration Vectors in Gaussian Vector Autoregressive Models*. Econometrica 59 (6): 1551–1580

[45] Jarque, C. M., Bera, A. K. (1987) *A test for normality of observations and regression residuals*. International Statistical Review 55 (2): 163–172

[46] Bai, J., & Perron, P. (2003). *Computation and analysis of multiple structural change models*. Journal of applied econometrics, *18*(1), 1-22.

[47] VAR Lag Exclusion Wald Tests confirmed the appropriateness of including each lag period in the final specification.

Table 6.1.1 VAR(1,3) Self-employment and Labour Market Model[48] [49]

	Lag (j)	$\Delta Unemp$	$\Delta Empr$	$\Delta OwnA$
$\Delta Unemp$	1	0.983***	-0.001	-0.000
		[8.684]	[-1.700]	[-0.395]
	2	-0.031	0.002**	-0.001
		[-0.200]	[2.266]	[-0.521]
	3	-0.202	-0.000	0.003**
		[-1.751]	[-0.613]	[2.044]
$\Delta Empr$	1	7.370	0.207	-0.438**
		[0.405]	[1.775]	[-2.237]
	2	-43.413**	0.117	0.052
		[-2.349]	[0.987]	[0.263]
	3	33.849	0.073	0.140
		[1.835]	[0.613]	[0.704]
$\Delta OwnA$	1	-26.080**	0.079	0.245**
		[-2.417]	[1.143]	[2.105]
	2	19.347	-0.080	0.157
		[1.684]	[-1.091]	[1.273]
	3	-5.536	0.062	-0.112
		[-0.525]	[0.916]	[-0.984]
C		-0.080	-0.000	-0.001
		[-1.499]	[-1.336]	[-1.844]
R-squared		0.730	0.203	0.180
p-value (Granger Causality)		0.096	0.136	0.175

n = 85

[t-statistics]

*** Significant at 0.01 level

** Significant at 0.05 level

Source: Department of Industry and Science, 2015.

[48] For impulse response functions relating to this model, please see *Appendix A: Impulse Response Functions*

[49] The un-differenced variables are charted over the period in Figure 4.1 (indexed to August 1991)

7. Evaluation of hypotheses

i. A decrease (increase) in the unemployment rate will lead to a short-run decrease (increase) in the proportion of the workforce that are own-account workers (unemployment 'push' into self-employment)

Evidence is provided in the model to support the notion of an unemployment push into self-employment. That is, a decrease (increase) in the proportion of the labour force that are own account workers is observed 3 quarters (9 months) following decrease (increase) in the unemployment rate. This finding is consistent with earlier research demonstrating such an effect, but indicates a considerably shorter timeframe, with other research demonstrating the largest effects between 8 and 12 years following increases in the unemployment rate.[50] A 9 month period appears more consistent with displaced workers recognising that they risk lapsing into long-term unemployment, so choosing to seek to establish themselves as self-employers at that time. This relationship was only significant at the 10 per cent level (with a p-value of 0.095), however, so requires further investigation to establish more definitively.

ii. A decrease (increase) in the unemployment rate will lead to a decrease (increase) in the proportion of the workforce that are employers, as entrepreneurs enter the market after identifying market opportunities (entrepreneurial "pull" into self-employment)

The model provides support for this hypothesis, with a decrease (increase) in the proportion of the workforce that are employers observed 2 quarters (6 months) following a decrease (increase) in the unemployment rate. The fact that this appears to occur before the unemployment push indicates that, rather than representing displaced workers successfully establishing businesses, these self-employed workers are entrepreneurs identifying market opportunities in lower relative wages that result from increased unemployment. Such activity provides job opportunities to those displaced workers and aides in the recovery from economic downturns. Again, it is telling that this occurs in a relatively short timeframe, which highlights the important role played by entrepreneurs, and small business owners more generally, in providing greater flexibility to adapt quickly to economic developments.

iii. A decrease (increase) in the proportion of the workforce that are employers will lead to an increase (decrease) in the proportion of the workforce that are own-account workers, as own-account workers face greater competition from small business.

The results demonstrate that a decrease (increase) in the proportion of the workforce that are employers is followed 1 quarter (3 months) later by an increase (decrease) in the proportion of the workforce that are own-account workers. This reflects the competition between small business and own-account workers, as they co-exist in similar markets and compete for work. In

[50] Thurik, A., Carree, M., van Stel, A. & Audretsch, D. (2008) *Does self-employment reduce unemployment?* Journal of Business Venturing, No. 23, pp. 673-686

addition, it is likely that larger firms seek external assistance from consultants and contractors more regularly than small businesses do, so a reduction in the number of employers (through business consolidation) may result in increased opportunities for own-account workers.

iv. A decrease (increase) in the proportion of the workforce that are employers will lead to a decrease (increase) in the unemployment rate, as fewer entrepreneurs identify emerging market opportunities to provide job growth, and relatively few small businesses are able to flexibly adapt to changes in demand.

Interestingly, the relationship between a change in the proportion of the workforce that are employers and subsequent changes to the unemployment rate was found to be significant, but the sign of the coefficient was opposite to what was expected. An increase (decrease) in the proportion of the workforce that are employers actually leads (2 quarters/6 months following) to a decrease (increase) in the unemployment rate. Rather than reducing the displacement of workers by lowering productivity growth, it is possible that a larger number of employers, and greater business dynamism, maintains lower levels of unemployment through greater flexibility to changing demand. This finding suggests that lower levels of business dynamism, as reflected in the decline in the proportion of the workforce that are employers, may present challenges with respect to unemployment rates. Frictional unemployment may be larger in economies with greater consolidation of business.

8. Conclusion

Self-employment will continue to play an important role in the Australian economy, with workers taking on self-employment in place of salaried employment for a range of reasons. There has, however, been a notable decline in both own-account workers and employers. Although the decrease in proportion of the workforce comprised of *own-account workers* may be attributable to a generalised improvement in labour market conditions (lower unemployment levels and therefore a slightly reduced push effect into self-employment), the trend observed in the *employer* class is of more concern. The number of employers has reduced in both relative and absolute terms over the past two decades. This appears to primarily be a result of increased dominance of larger firms and chains, particularly in the retail trade sector. The challenges faced by such firms are likely to have been exacerbated by the increasing prominence of online retail and developments in information technologies that benefit larger firms by providing greater economies of scale.

Evidence explored in this paper demonstrates that the two distinct motivation classes for workers becoming self-employed may be observed in Australian data. The observed relationships suggest that different classes of self-employment proxy the ‘push’ and ‘pull’ motivations of self-employed workers. *Employers* represent those workers pulled into self-employment by business opportunities provided by strong economic conditions. *Own-account workers* represent predominantly those workers pushed into self-employment as a result of difficulty obtaining salaried employment.

Further investigation should seek to exclude other potential drivers of declining self-employment including, for example, regulatory barriers,[51] the impact of tax thresholds and access to capital.[52] It is important that the decline in self-employment is fully understood, and losses are not sustained as a result of burdensome regulations or other artificial influences.

Overall, the analysis provided here indicates that reducing self-employment is reminiscent of business consolidation within the economy. Empirical evidence that the employer class of self-employment is motivated primarily by the entrepreneurial pull of self-employment supports the assertion that the decline in self-employment has come about predominantly as a result of reduced pull. One explanation for this is that increasing returns to scale has been provided to larger enterprises, through advances in technology that have facilitated better co-ordination of large and dispersed entities, as well as an explosion in online retail.

The impact of such business consolidation is multifaceted. A reduction in the proportion of the workforce that are employers is shown here to be followed by an increase the unemployment rate, presumably reflecting the lower flexibility of larger enterprises with respect to both their workforce and ability to respond to changing demand. There is, however, a strong theoretical base for believing that business consolidation may impact adversely on productivity growth as well, and building on the foundations set by this study, such effects must be the focus of future research.

[51] A recent study using US data has provided evidence that reduced business dynamism at an industry level does not appear to be related to regulatory conditions. See Goldschlag, N. & Tabarrok, A. (2014) *Is Regulation to Blame for the Decline in American Entrepreneurship?* GMU Working Paper in Economics No. 15-11.

[52] Factors influencing business set-up, transfer and closure will be examined in the upcoming Productivity Commission inquiry, *Review of Barriers to Business Entries and Exits in the Australian Economy.*

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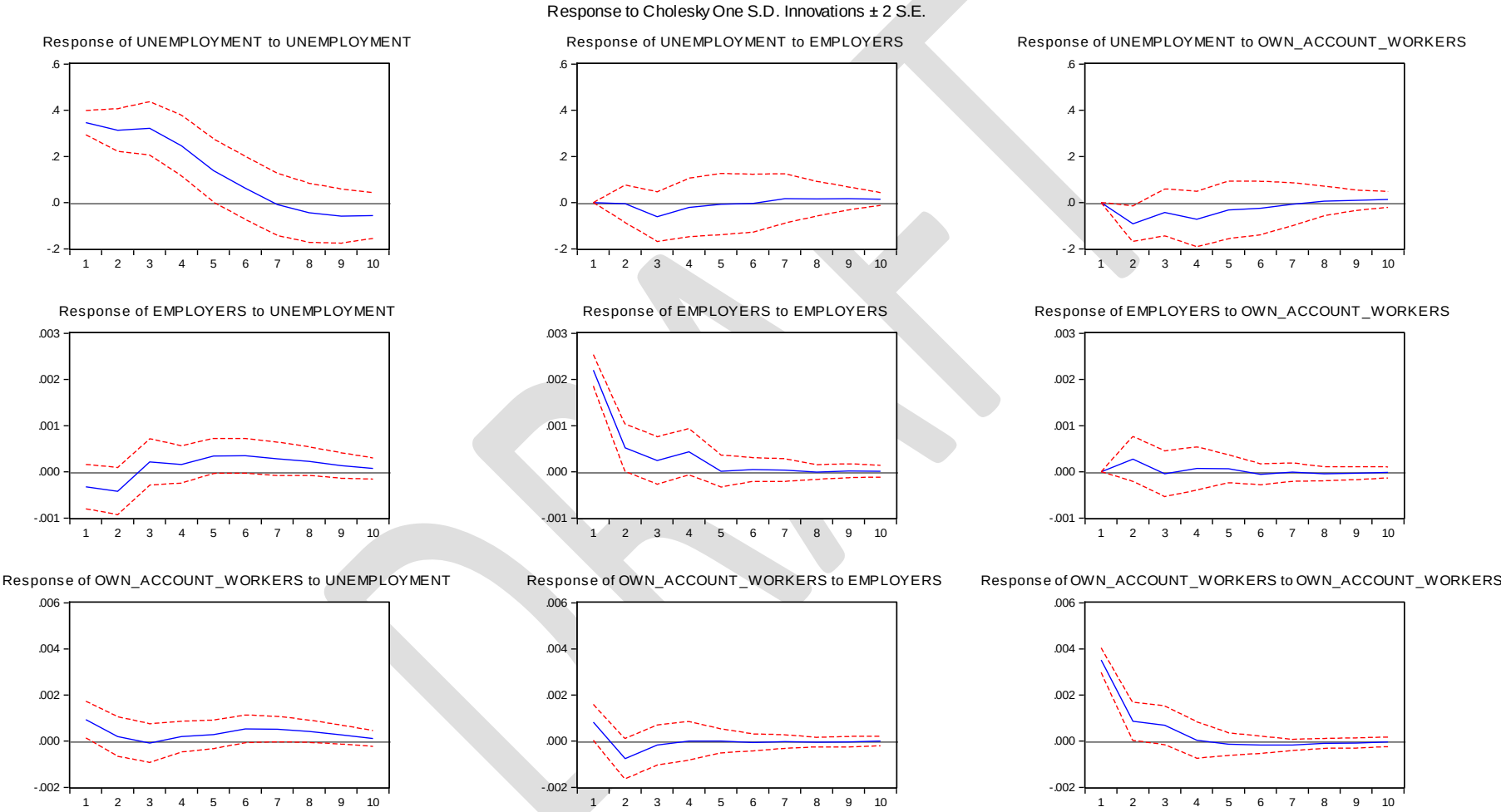
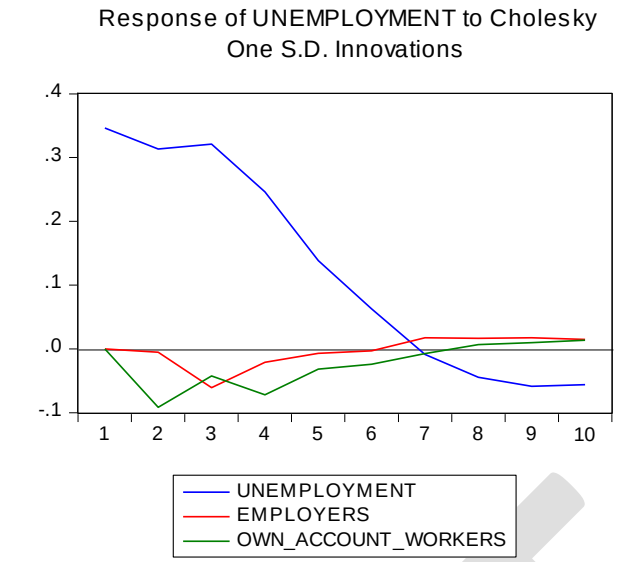
Appendix A: Impulse Response Functions

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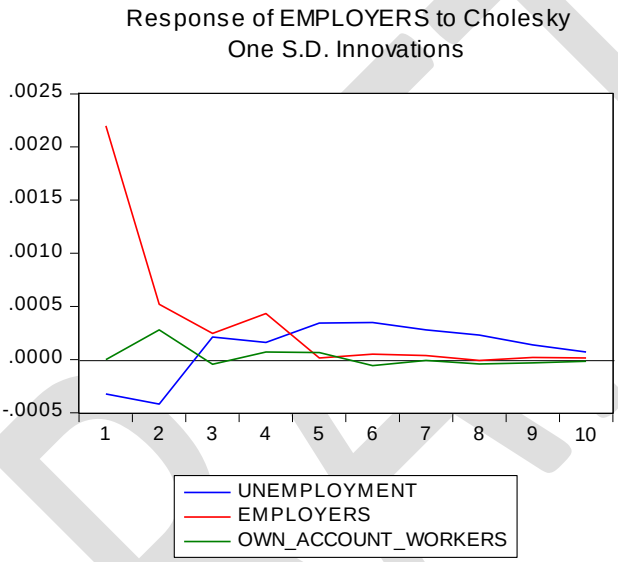
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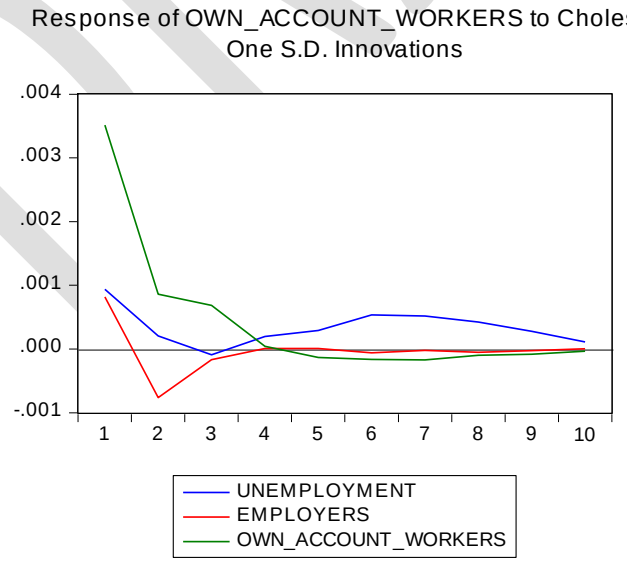
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