Self-Employment: Who Are Australia's Entrepreneurs?

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Abstract
Recent years have seen a dramatic growth in the incidence of self-employment, particularly amongst owner managers of incorporated enterprises. Excepting the numerous studies of self-employed migrants, little is known about the general characteristics of the broader community of self-employed persons and, in particular, the extent and determinants of entrepreneurship. Using ABS data from the 1998 Forms of Employment Survey this paper provides some insight into the nature, characteristics and determinants of self-employment in Australia. Amongst other things the results in the paper provide some evidence to support the theory that Professionals, Associate Professionals and migrants from non-English speaking background countries are entrepreneurial and not simply seeking self-employment as a refuge from unemployment.

1. Introduction

Recent years have seen a dramatic growth in the incidence of self-employment, particularly amongst owner managers of incorporated enterprises. It is a trend that parallels the growth in non-standard forms of employment generally, and has led some to question whether or not there has been a genuine surge in entrepreneurial activity in Australia.

Self-employment is hardly a new phenomenon in Australia. Indeed, Australia has traditionally exhibited relatively high levels of self-employment on account of its large agricultural sector and large immigrant population. The latter has attracted considerable interest in the literature as economists and others attempt to understand their self-employment choice. At issue is the extent to which self-employment is a refuge for immigrants experiencing difficulties in the wage and salary sector, or a product of entrepreneurial drive.

Much less is known about the general characteristics of the broader community of self-employed persons and their reasons for 'choosing' such forms of employment. Available literature does, however, suggest that, as with the immigrant self-employment decision, 'push' and 'pull' factors are also at work. High levels of corporate downsizing and outsourcing, privatisation together with government programs to encourage self-employment may be 'pushing' some into self-employment. Identified 'pull' factors might include increasing sophistication and accessibility of computer technology, liberalisation and new opportunities for entrepreneurship, autonomy, flexible work arrangements, status and attractive taxation arrangements.

From a policy perspective it is important that we understand the characteristics of the self-employed and, in particularly, the extent and determinants of entrepreneurship. The small business sector is frequently acknowledged as a critical sector for innovation and

employment. Generous taxation concessions are used to stimulate the sector, encourage entrepreneurial activity and promote employment growth.

In the remainder of this paper data from the ABS 1998 *Forms of Employment Survey* are used to provide some insight into the nature, characteristics and determinants of self-employment in Australia. In the absence of psychological data that might measure entrepreneurial drive, entrepreneurs are defined in this paper as 'self-employed with employees'. The paper should be seen as a modest attempt to fill a large gap in the literature on self-employment in Australia; ie. a basis for future research.

The paper is organised as follows. Section 2 provides a brief overview of theoretical framings of self-employment and highlights key findings in the literature. Section 3 discusses the definition of self-employment and presents the ABS 1998 *Forms of Employment Survey*. Section 4 examines the characteristics of the self-employed vis a vis wage and salary employment using descriptive statistics. Section 5 follows with a logit analysis of the self-employment propensity. A summary and conclusion are contained in Section 6.

2: Theoretical Framework and Empirical Findings

In the simplest neo-classical model developed by de Wit (1993), self-employment may be regarded as income maximisation behaviour within a competitive labour market. The decision whether or not to enter into self-employment (having first determined whether or not to supply labour to the market) is made in relation to expected returns from wage or salary employment. The latter is, in turn, affected a number of other determinants, notably managerial/entrepreneurial ability (e.g. human capital, business experience, labour market experience) (Lucas, 1978) and discrimination or perceived discrimination (Clark and Drinkwater, 2000; Boden, 1999a). If discrimination lowers earnings in the wage and salary sector, or lowers the utility derived from wage and salary employment, those most affected will more likely shift into self-employment, *ceteris paribus*.

Within the literature the simplistic model has been extended to allow for other determinants such as financial capital, liquidity constraints (Evans and Jovanovic, 1989) and risk (Appelbaum and Katz, 1986). Other developments allow for the effects of age and learning capacity on self-employment. In these models it is assumed that learning capacity and age vary across individuals, such that an acceleration of technical progress would tend to favour the entry of younger more inherently capable persons into self-employment (Calvo and Wellisz, 1980).[i]

Economic models have also been augmented with individual and family background variables such gender, occupational status, the presence of young children, father's labour force status, marital status, presence of a working spouse, and race/birthplace. These augmentations capture a number of theoretical positions, such as a preference for flexibility (embodied in the control for young children), availability of capital/finance (as

reflected in the 'working spouse' control), gender differences in labour market outcomes and occupational differences in self-employment opportunities.

Within the economic framework outlined above an individual's tendency to be self-employed may be written as follows: $I_i^* = X_i\hat{\beta}_i + \varepsilon_i$ where I_i^* is an index of self-employment, assumed to be a linear function of a vector of characteristics X, $\hat{\beta}$ a vector of estimated coefficients and ε an error term.[ii] Whether or not an individual is self-employed depends on a comparison of I_i^*, which reflects an individual's particular circumstances, with a critical value of the index $\bar{I}$. The determination of the self-employment/wage-and-salary employment status is then give as: if $I_i^* > \bar{I}$, the individual is self-employed, otherwise the individual is employed as a wage and salary earner. I_i^* is an unobservable index. All that may be observed is a binary indicator variable (SE) which takes the value of one if the individual is self-employed. Hence, the case where SE takes the value of one corresponds to $I_i^* > \bar{I}$, and the case where SE takes the value of zero corresponds to $I_i^* < \bar{I}$. To link the observable indicator of self-employment status (SE_i) to the characteristics of the individual (X_i) the conditional probability of being self-employed may be written as:

$$\text{Prob}(SE_i / X_i) = \text{Prob}(I_i^* > \bar{I}) = F(X_i'\beta), \qquad (1)$$

where F denotes a cumulative distribution function.

Le (1999) shows that empirical evidence based on such reduced-form equations of self-employment are robust and accord closely with theory. "The empirical studies of self-employment, therefore, have provided a solid basis for understanding the determinants of this employment status." (*ibid.* p411). Important determinants include job security, unemployment experience, income and liquidity constraints. Educational attainment, labour market experience and marital status also emerge as important determinants, although their significance appears to vary depending on how the model is specified, suggesting other linkages may be important.

3. Data and Issues of Measurement

Defining and measuring self-employment is fraught with difficulty. Conceptually, self-employment may be defined according to income source (eg. the share of taxable income derived from running a business), legal status (eg. 'genuinely' self-employed vis a vis dependent contractors) or labour force status (Eardley and Bradbury, 1997).

Within Australia, key data sets used to study the determinants and characteristics of self-employment include the ABS (Australian Bureau of Statistics): Census household sample files; Income and Housing Cost Survey and the Labour Force Survey. In each of these

surveys the ABS classifies an employed person as either: a wage and salary earner, employer or self-employed (ie. 'own account worker' or unincorporated business). Incorporated self-employed workers are technically defined as employees. Data from these sources thus *underestimate* the number of people running their own business.

Table 1 illustrates this point. In 1998 owner managers of unincorporated enterprises accounted for 12.8 per cent of all employed persons. Owner managers of incorporated enterprises accounted for a further 7 per cent, bringing the self-employment ratio (all owner managers as a proportion of all employed persons) to 19.9 per cent. As of 1998 owner managers of incorporated enterprises accounted for 35 per cent of all owner manager businesses; the corresponding share in 1978 was 10.8 per cent. The rising significance of the incorporation amongst self-employed persons suggests a need to extend current definitions of self-employment to include this sector. The 1998 ABS *Forms of Employment Survey* allows such an extension to be made.

Table 1:
Self-Employed, Incorporated and Unincorporated Enterprises as a Proportion of all Employed Persons: 1978 and 1998 (per cent)

	Owner/Managers of Incorporated Enterprises		Owner/Managers of Unincorporated Enterprises		Total	
	1978	1998	1978	1998	1978	1998
Males	2.3	8.6	16.6	15.5	18.9	24.1
Females	1.0	5.0	11.2	9.4	12.2	14.4
Persons	1.8	7.0	14.7	12.8	16.6	19.9

Source: *The Labour Force*, ABS Cat. No. 6203, July 1997 (1978 figures) and weighted estimates from the 1998 ABS *Forms of Employment Survey*..

The FOES was undertaken in August 1998. The object of the survey was to collect information on non-standard forms of employment, such as self-employment, casual employment (employment without leave entitlements), part-time work, multiple-job holding, temporary and contract work. The survey sampled employed persons (excluding contributing family workers and employees who worked only for payment in kind). Unweighted records are available for 28,518 persons. After excluding persons employed in the agricultural sector and restricting the sample to persons aged between 15 and 65 whose labour force status was defined as either employee PAYE (pay as you earn) or owner manager (incorporated and unincorporated), the sample was reduced to 25,725 records.

The main advantage with the FOES for a study of self-employment is, as indicated above, the ability to define self-employment as incorporated plus unincorporated owner managers. Both groups are identifiable in this survey. A second advantage with the data set is the ability to separately identify self-employed workers who hire employees. In the absence of psychological variables which might proxy 'entrepreneurial drive' (eg. an index measuring 'need for achievement' or 'internal locus of control', as used by Evans

and Leighton, 1989), entrepreneurs are defined in this paper as 'self-employed owner managers with employees'.

The major disadvantage with the FOES is the absence of data on income and educational attainment. The survey does, however, contain information on occupation of employment. The latter is generally highly correlated with educational attainment and will, thus, capture some of the influences normally accorded to educational status. In studies of self-employment propensity occupational status will also capture differences in self-employment opportunities embodied in attributes such as the nature of the work, contacts etc.

Le (1999, p.387) shows that, empirically, the relationship between education and self-employment is mixed. When occupation is not controlled for education variables tend to be either positive or weakly negative. When occupation is controlled for the relationship is generally negative. It is acknowledged that the relationship between education and self-employment propensity may vary across groups. Empirical findings reported in Kidd (1993), for example, show that levels of education are unrelated to self-employment propensities for immigrant males, and significantly related to the self-employment propensities of Australian born men.

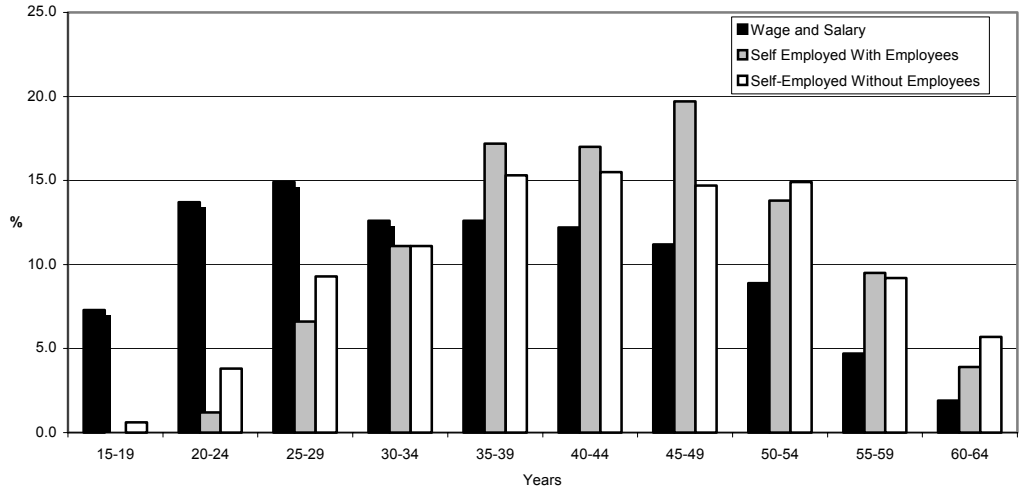
4. Characteristics of the Self-Employed

Self-employment (incorporated plus unincorporated) tends to be lower amongst women, accounting for 14.4 per cent of all women in paid employment (wage and salary plus self-employment). In contrast, self-employment accounts for 24.1 per cent of all male jobs in Australia (Table 1).[1] Within the pool of self-employed persons, estimates show that around 42.5 per cent of all male owner managers hire employees. The corresponding share for women is 44.8 per cent. Overall women account for nearly a third of all self-employed persons, with similar gender divisions apparent when self-employment is cross-classified with the presence of employees. In other words, women account for 33 per cent of all owner managers who hire employees. Aside from gender there are other important differences in the characteristics of self-employed owner managers with and without employees, thus providing a further justification for their separate treatment (see Table A1, Appendix A).

Owner managers with employees are, for example, much more likely to be middle aged (35 to 50 years) than their counterparts without employees. Very few self-employed persons are young. Data in Table A1 show that around 21 per cent of wage and salary employees are aged between 15 and 24; the corresponding share of all self-employed persons is 3 per cent. The proportion of young self-employed people with employees is even less (see Figure 1).

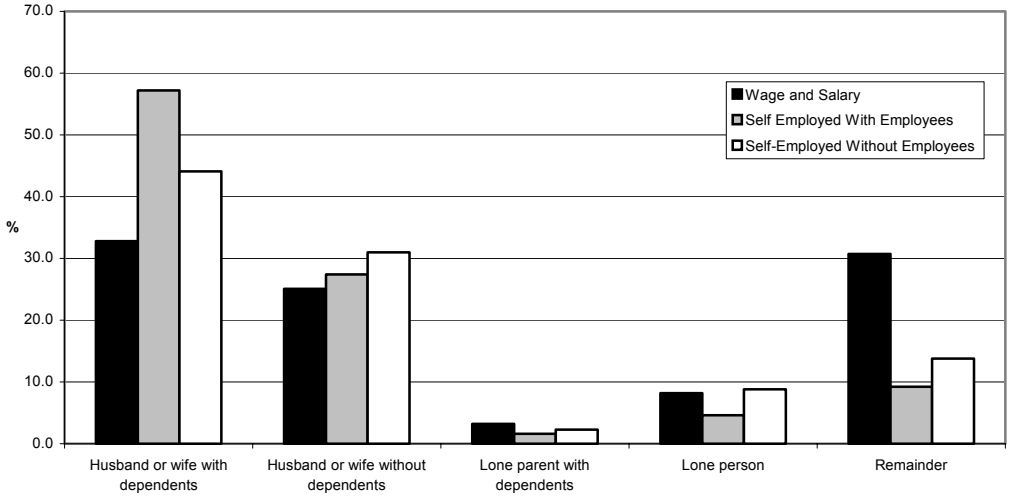
[1] Differences in these figures and those reported in Table A1 reflect different samples. Table A1 excludes the agricultural sector and is restricted to persons aged between 15 and 65 who were either owner managers of employees (PAYE).

Figure 1: Distribution of Wage and Salary Earners and Self-Employed by Age, August 1998



The age distribution in the self-employed sector undoubtedly reflects factors such as access to capital, financial risk and maturity of business. The FOES does not contain specific data on issues such as capital and attitudes to risk, but other variables such as marital status might capture some of these influences. The idea here is that marriage provides a stable background for risky self-employment. A number of empirical studies find a significant and positive relationship between marriage and self-employment (Evans and Leighton, 1989; Bernhardt, 1994; Le 1999a). Estimates in Table A1 confirm this pattern, with nearly 82 per cent of all self-employed persons classified as married. This compares to a 60 per cent marriage rate in the wage and salary sector. Figure 2 showing information on 'Relationship in Household' sheds further light on this characteristic of the self-employed while simultaneously illustrating a positive relationship between self-employment and the presence of dependants. In 1998 42.7 per cent of all self-employed persons had dependant children under the age of 15. In the wage and salary sector the corresponding share was 30.1 per cent. These shares did not vary markedly between the sexes; 42.3 per cent of self-employed men had dependants compared to 43.6 per cent of self-employed women.

Figure 2: Distribution of Wage and Salary Earners and Self-Employed by Relationship in Household, August 1998



Although the shares are similar, the US literature on self-employment suggests that a feminist or gendered interpretation may be placed on these statistics. According to Boden (1999) "… men's reasons for becoming self-employed are virtually unrelated to their parental status" (p.79). Women, in contrast, appear to be increasingly moving into self-employment because it allows them more flexibility to meet family obligations. Similar findings were echoed in Brush (1992) and Losocco (1997). In the past part-time work has been one avenue through which women have sought to meet their work and family needs, with around 56 per cent of female wage and salary earners working part-time (35 hours or less). Part-time work is also a characteristic of self-employment, particularly amongst females; around 60 per cent of all self-employed women were employed part-time in 1998 (see Table A1). It might be that the combination of part-time and self-employment provides added flexibility, hence the attraction. Another interpretation for the shift to self-employment is that it allows women to work part-time while, at the same time, maintain a career. In the wage and salary sector part-time work is typically associated with low status, low paid jobs.

One might expect that if women were pursuing self-employment because of issues associated with flexibility they might be less inclined to expand their business to include other employees. Self-employment rates amongst persons that do have children are higher than equivalent rates for those without children. This is true for men and women. As at August 1998 around 28 per cent of men with dependants were self-employed. The corresponding ratio for women was 19 per cent.

Within the group of owner managers that hire employees there is a very marginal gender difference when the data are disaggregated by children. Around 48.5 per cent of male owner managers with employees have children; the corresponding share for women is 45.3 per cent (Table A1). Moreover, women with dependants are much more likely to employed full-time if they are owner managers that hire employees; 49.2 per cent are

employed full-time compared to 42.8 per cent in the wage and salary sector. Women with dependants who are self-employed without employees are, in contrast, much more likely to be employed part-time (65.7 per cent) (see, also Table A1).

One other individual or personal characteristic of interest in any analysis of the characteristics of the self-employed is birthplace. As indicated in the introduction to this paper, there have been numerous studies of the immigrant self-employment decision in Australia (and elsewhere). Self-employment amongst immigrants, particularly those from non-English speaking backgrounds is often regarded as a refuge from unemployment or a way of minimising treatment disadvantage in the labour market. The data in Table A1 show that around 30 per cent of all owner managers in Australia are migrants; this compares to 24 per cent in the wage and salary sector. Of the immigrant self-employed population a greater proportion (58.7 per cent) were born outside the main English-speaking countries. This is particularly true of immigrant owner managers who hire employees, where the corresponding share is equal to 64.7 per cent.

Turning to occupation and industry of employment the data show that self-employment is concentrated in a few sectors suggesting that there may be something about these particular sectors that lend themselves to self-employment. Relative to wage and salary workers, the self-employed are over-represented amongst Managers and Administrators, Associate Professionals, and Tradespersons and Related Workers. Across industries they are over-represented in Construction, Retail Trade, Property and Business Services and Personal and Other Services

Further analysis of the data disaggregated by whether or not the owner manager hires employees also reveals other interesting results. Owner managers with employees are much more likely than their counterparts without employees to be either Managers and Administrators or Associate Professionals. Owner managers without employees are more likely to be tradespersons or labourers and related workers (see Figure 3). Across industries similar patterns are evident. Owner managers with employees are more likely to be located in either Wholesale or Retail Trade or Accommodation, Restaurants and Cafes. In contrast owner managers without employees are heavily concentrated in Construction (Figure 4).

Figure 3: Distribution of Wage and Salary Earners and Self-Employed by Occupation, August 1998

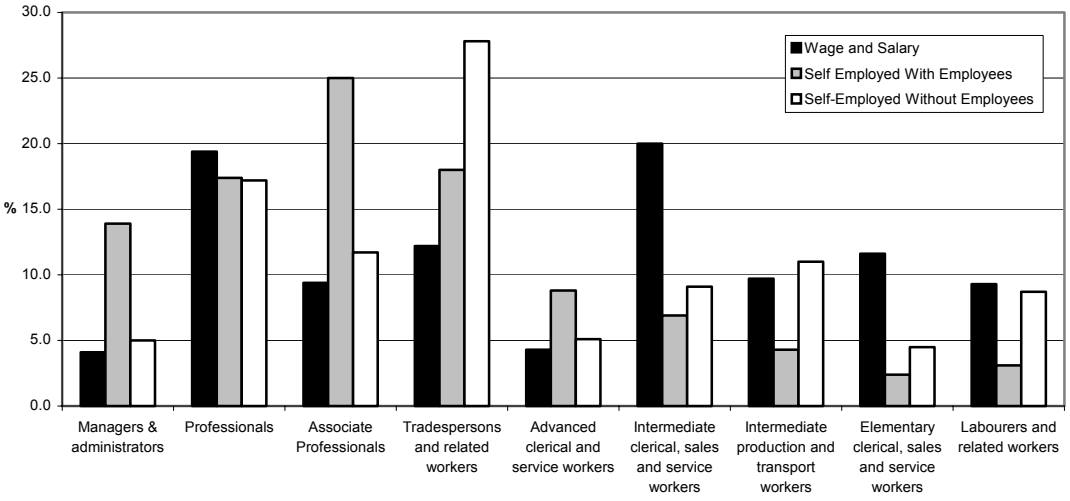
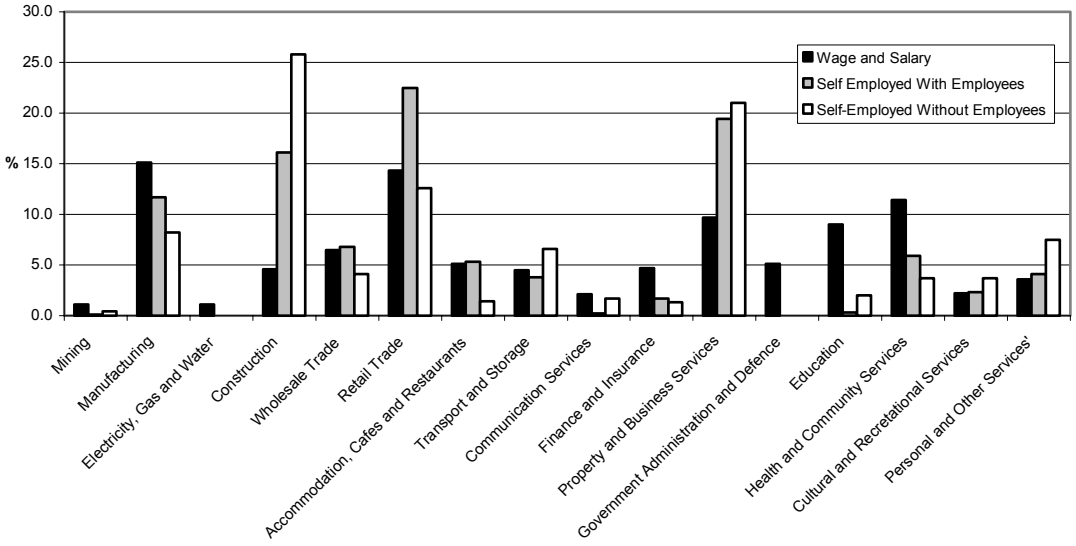


Figure 4: Distribution of Wage and Salary Earners and Self-Employed by Industry, August 1998



Other defining features of self-employment include hours of work, duration of main job and variability of earnings from main job. These characteristics are summarised in Table A1. It is evidently clear that self-employment brings with it a long working week. Of all owner managers, 21.8 per cent reported working 60 or more hours per week. This compares to 4.7 per cent in the wage and salary sector. Owner managers with employees are particularly prone to long hours with 29 per cent working 60 or more per week. This compares to 16.4 per cent amongst owner managers without employees.

Around 35 per cent of all self-employed persons are employed part-time (35 hours or less per week); slightly less than the corresponding share in the wage and salary sector. Part-time work is, however, much more likely amongst owner managers without employees (equal to 43 per cent), particularly female owner managers without employees (56 per cent). Only 24 per cent of owner managers with employees worked part-time, the majority of which were women. Within the literature on self-employment there is a view that many women who are formally classified as self-employed actually play a minor role in the business with their energies concentrated on activities such as book-keeping and answering the telephone (Eardley and Bradbury, 1997). Whilst this may be true of some women it would be erroneous to ascribe this behaviour to all self-employed women. Around 50 per cent of female owner managers of enterprises which hire employees work full-time, many of them also working very long hours.

The majority of self-employed persons are owner managers of unincorporated enterprises although, as previously noted, there has been a strong growth in levels of incorporation. In 1998 owner managers of incorporated businesses accounted for 35 per cent of all self-employed persons; after excluding the agricultural sector and restricting the sample to persons aged between 15 and 65, this share increases to 38.8 per cent (see Table A1). Incorporation is strongly correlated with a propensity to hire employees; 59.4 per cent of owner managers who hire employees have an incorporated enterprise. In contrast, only 23.2 per cent of owner managers without employees are incorporated.[2]

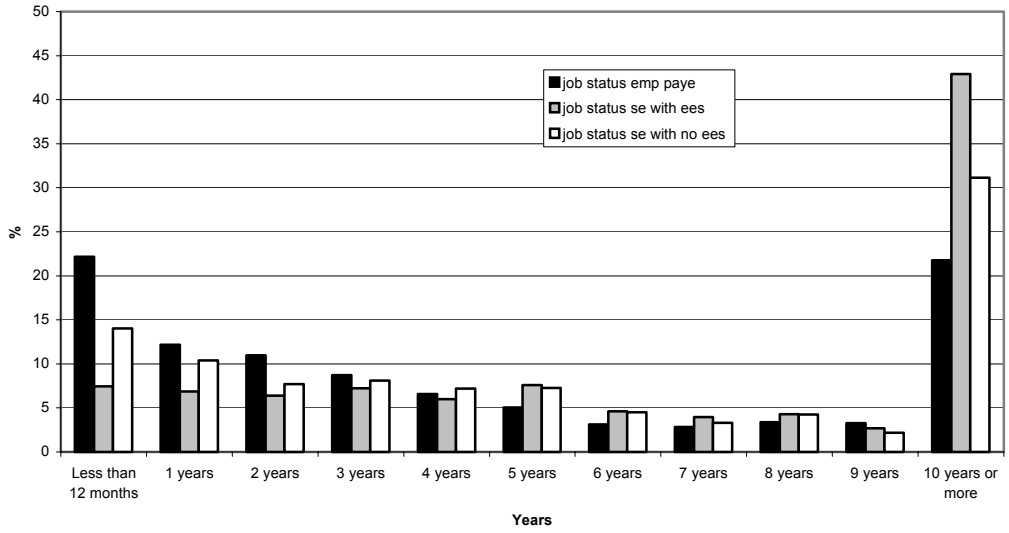
Owner managers with employees recorded the greatest level of job tenure, with 42.9 per cent having been in their main job for 10 or more years (see Figure 5). One interpretation that might be placed on this is that it is stable businesses which are more likely to hire employees. A related feature is stability of earnings. Of all owner manager enterprises with employees, 52.3 per cent reported variable earnings; the corresponding share amongst enterprises without employees was 80.2 per cent.

[2] The Pearson correlation coefficients on dimensions discussed here are summarised as follows:

	Self-Employed with Employees	Self-Employed without Employees
Incorporated	0.596	0.201
Unincorporated	0.280	0.714

All correlation coefficients are statistically significant.

Figure 5: Distribution of Wage and Salary Earners and Self-Employed by Duration of Main Job, August 1998



In summarising this section, data from the 1998 *Forms of Employment Survey* are used here to demonstrate the importance of self-employment within the Australian labour market and highlight some key characteristics of the self-employed, disaggregated according to whether or not the owner manager hires employees. The results show that around 41 per cent of all self-employed persons hire employees. Relative to their self-employed counterparts without employees, owner managers with employees are more likely to be: middle-aged (35 to 50 years); married with dependants; employed in a Managerial, Professional or Associate Professional capacity; working in Retail Trade and Accommodation, Cafes and Restaurants; working very long hours within an incorporated business.

In the following section multiple regression techniques are used to further explore the determinants of self-employment. Comparisons are made between owner managers with and without employees. The reference group in both cases is the wage and salary sector.

5. Self-Employment Propensity

This section reports the results on the determinants of self-employment (with and without employees) following estimation of equation (1).

$$\text{Prob}(SE_i / X_i) = \text{Prob}(I_i^* > \bar{I}) = F(X_i'\beta), \qquad (1)'$$

where SE is a binary variable (either owner manager with employees, or owner manager without employees depending on the model estimated). The X is a vector of characteristics believed to influence the self-employment choice. In the model discussed below X consists of gender, age and its square (capturing labour market skills and

capital), marital status (also capturing risk and availability of capital), the presence of dependent children (under 15 years of age) interacted with gender, a dummy variable capturing hours of work (full-time/part-time), birthplace, geographic location, occupation and industry dummies. The results from the logit model are reported in Table 2.

Consistent with the literature elsewhere, demographic factors emerge as important determinants of self-employment, although differences in the propensity to be self-employed with and without employees are apparent. Starting with gender, one can see that females are less likely than males to be self-employed. The t-statistic in the last column of Table 2, however, shows a significant difference in the form of self-employment that women opt for. For women choosing self-employment there is more chance that they will become owner managers of enterprises which hire employees.

Turning to age, the results show a non-linear relationship. Probability of self-employment rises with age but increases at a decreasing rate (a similar result is reported in Chapman *et al*. 1999). The relationship may reflect the effects of capital accumulation on the ability to enter self-employment (i.e the young face greater capital constraints) and learning capacities of older workers. Marital status (being married) is another proxy for risk and availability of capital. Being married raises the probability of self-employment with employees by 0.07 percentage points relative to persons not married. The partial effect of marriage on self-employment without employees is lower, equal to 0.03 percentage points.

In addition to the positive relationship between marriage and self-employment there is also a positive effect of children on self-employment. In the results below a female*child interaction term is used to capture the hypothesised link between self-employment and a women's preference for flexibility to meet her work and family needs. The results suggest a strong positive link. Being female and having children raises the probability of self-employment, particularly within enterprises which hire employees.

Relative to Australian born persons, migrants born in non-English speaking countries have a significantly higher probability of being an owner manager of business which hires employees. Migrants born in English-speaking countries, on the other hand, have a significantly lower probability than their Australian born counterparts to enter self-employment and also employ other workers. Birthplace or migrant status is not a significant determinant of self-employment as an owner manager without employees.

Hours of work was also controlled for in the model in the form of a part-time/full-time dummy variable. The rationale for including this variable was the notion that it might capture a level of commitment to the business and/or preference for flexibility. In the first model (self-employment with employees) the variable is insignificant suggesting no difference in the self-employment propensities of those who work full-time and part-time. In the second model (self-employment without employees) persons who work part-time (and thus possibly value flexibility) have a higher propensity for self-employment.

As expected, job tenure shows up as a significant determinant of self-employment, although the partial effect of this variable on self-employment propensity is much stronger for self-employment with employees. As previously suggested, this might reflect time taken to build up the business and understand the market, leading eventually to growth and employment of others.

The locational (state dummies) variables show up some interesting results. Relative to New South Wales (omitted group) the only state where the propensity to be an owner manager without employees differs is Western Australia (where the propensity is higher). Elsewhere there is no significant difference in self-employment (without employees) propensities. In contrast, the propensity to be self-employed *with* employees in New South Wales is significantly lower when compared to Victoria, Queensland, Western Australia and Tasmania. It is not abundantly clear whey these propensities vary so much. Differences in opportunities (reflected in occupation and industry) have been controlled for. It may be that institutional forces are shaping this outcome. Under the temporary business migration category, for example, migrants are granted a temporary business visa and have four years within which to demonstrate the viability of their business. As part of agreement they must also hire at least one employee through their business. In the application process extra points are given for migration to less populated areas such as Western Australia and Tasmania.

We turn now to occupation of employment. As with the results on birthplace it is evident that important differences exist between owner managers with and without employees. The base category in both cases is tradespersons. Tradespersons have the highest propensity for self-employment within the 'owner-manager-no-employee' sector. Within the 'owner-manager-with-employee' sector Managers and Administrators, Professionals and Para-Professionals are much more likely to be self-employed than tradespersons.

Differences in self-employment propensities also exist across industry divisions. Relative to Retail Trade, the probability of being self-employed as an owner managers with employees is higher in only one other industry sector – Construction. All other industry sectors record significantly lower self-employment propensities. This pattern is not, however, consistent across the two self-employment states studied here. In the case of self-employment without employees, relative to Retail Trade, the probability of entering self-employment is higher in Construction, Property and Business Services, Cultural and Recreational Services and Personal and Other Services.

Table 2: Determinants of Self-Employment Propensity (With and Without Employees), August 1998. (Comparisons are made with respect to the Wage and Salary Sector)

	Self-Employed With Employees			Self-Employed Without Employees			Comparison of 2 sets of results
	coef	t-stat.	partial effect	coef	t-stat.	partial effect	t-stat
constant	-7.360	17.396	0.00	-4.783	16.233	0.00	4.999
female	-0.227	2.966	-0.02	-0.484	7.111	-0.05	2.509
age	0.211	10.183	0.02	0.158	10.415	0.02	2.036
age^2	-0.002	8.080	0.00	-0.001	7.059	0.00	2.225
married	0.830	10.657	0.07	0.249	4.242	0.03	5.955
*female*children*	0.680	7.248	0.06	0.379	4.508	0.04	2.388
born main English speaking country	-0.360	4.285	-0.03	0.013	0.196	0.00	-
born outside a main English-speaking country	0.203	2.755	0.02	0.121	1.798	0.01	-
Works 36 or more hours in main job.	0.116	1.383	0.01	-0.870	13.694	-0.09	-
Has been employed in main job for 6 years or more	0.623	11.145	0.05	0.120	2.382	0.01	6.675
Victoria	0.157	2.004	0.01	-0.007	0.101	0.00	1.570
Queensland	0.268	3.202	0.02	0.028	0.378	0.00	-
South Australia	-0.088	0.865	-0.01	-0.084	0.970	-0.01	-
Western Australia	0.331	3.620	0.03	0.253	3.328	0.03	0.652
Tasmania	0.374	3.103	0.03	-0.013	0.121	0.00	-
Northern Territory	0.141	0.782	0.01	-0.151	0.921	-0.02	-
Australian Capital Territory	-0.121	0.818	-0.01	-0.174	1.379	-0.02	-
Manager	0.910	8.554	0.08	-0.748	6.196	-0.08	10.304
Professional/ Associate Professional	0.508	6.040	0.04	-0.360	4.897	-0.04	7.771
Advanced & Intermediate Clerical, ales and Service Workers	-0.342	3.369	-0.03	-0.895	10.308	-0.09	4.137
Intermediate Production and Transport Workers	-1.431	13.961	-0.12	-1.032	14.370	-0.11	3.192
Mining & Communication Services	-3.994	10.315	-0.34	-1.127	7.226	-0.12	6.868
Manufacturing	-1.360	14.255	-0.12	-0.852	8.819	-0.09	3.743
Construction	0.359	3.631	0.03	1.455	16.923	0.15	8.360
Wholesale Trade	-1.150	9.784	-0.10	-0.546	4.515	-0.06	3.580
Accommodation, cafes & restaurants	-0.511	4.108	-0.04	-1.237	7.106	-0.13	3.391

Transport & storage	-1.060	7.526	-0.09	0.178	1.616	0.02	-
Finance & Insurance	-2.206	11.840	-0.19	-1.225	6.565	-0.13	3.720
Property & Business Services	-0.508	5.813	-0.04	0.553	6.707	0.06	8.831
Education	-5.631	12.413	-0.48	-2.121	13.956	-0.22	7.336
Health & Community Services	-2.337	19.883	-0.20	-1.673	13.625	-0.18	3.904
Cultural & Recreational Services	-1.136	6.416	-0.10	0.318	2.398	0.03	6.573
Personal & Other Services	-1.187	8.908	-0.10	0.339	3.225	0.04	8.993
McFadden R^2	0.270s			0.215			
Sample Size	21746			22375			
Mean of SE	0.094			0.119			

Notes: The study is restricted to persons aged between 15 and 65 who are employed in industries other than agriculture, forestry and fishing and government. The reference groups (omitted categories) for the occupation and industry dummies are Tradesperson and Retail Trade, respectively. The omitted geographic control is New South Wales. The reference group for the birthplace dummies is Australian born. The partial effects may be calculated as $\partial SE / \partial X_i = \overline{SE}(1-\overline{SE})\hat{\beta}_i$. The McFadden R^2 is calculated as 1-(l_m/l_o), where l_m is equal to the log-likelihood value of the model and l_o is equal to the log-likelihood value if the non-intercept coefficients are restricted to zero (Veall and Zimmermann, 1996). The t-statistic comparing coefficient estimates on the probability of self-employment with and without employees are only calculated for coefficients which attain significance in both models.

6. Summary & Conclusion

This paper provides an overview of the characteristics of self-employment with and without employees. The distinction is drawn in an attempt to better understand the determinants of 'entrepreneurial' self-employment, where entrepreneurs are defined as owner managers of enterprises which hire employees. The results from the logit analysis of self-employment propensities yield some interesting results. The three most salient features are as follows:

- There are significant differences in the characteristics and determinants of self-employed persons who hire employees and those who don't hire employees, thus confirming the decision to treat the two groups separately.

- A trade occupation is significantly correlated with self-employment, due principally to self-employment opportunities created by the possession of these vocational skills. Relative to other occupational groups (eg. Managers and Professionals), Tradespersons have a lower probability of self-employment in an enterprise that hires employees, and a significantly higher probability of self-employment within an enterprise that does not hire employees. The construction industry presents the greatest self-employment opportunities for businesses that don't hire employees.

- Relative to Australian born persons, migrants born in non-English speaking countries have a significantly higher probability of being an owner manager of business which

hires employees. Birthplace or migrant status is not a significant determinant of self-employment as an owner manager without employees.

If one can equate entrepreneurial drive with self-employment in a business that hires employees, the results in this paper provide some support for the notion that self-employed migrants from non-English speaking are entrepreneurial and do not enter self-employment simply as a refuge from unemployment. Professionals and Associate Professionals who set up their own businesses may also be seen as pursuing entrepreneurial activities, rather than being simply pushed into self-employment as a result of corporate downsizing etc.

Women also appear to be entering self-employment because of the opportunities it affords. The hypothesis that women are opting for self-employment because of the advantages that self-employment offers for women who wish to have a family and a career appears to have some merit. Self-employment rates are considerably higher amongst women with dependant children (19 per cent vis a vis 10.7 per cent for those without children). Estimates in Table 2 also show a significant correlation between self-employment propensity and the presence of children. Women now comprise just under one third of all self-employed persons. Around 45 per cent of all women who enter self-employment hire employees (the corresponding share for men is 42.5 per cent). Consequently, nearly one third of all owner managers who hire employees are women, with around 50 per cent of those women employed on a full-time basis, many working very long hours. These statistics challenge conventional wisdom which suggests that many self-employed women are silent partners (tax deductions) in their partner's business enterprise.

In conclusion, thus study uses data from the 1998 *Forms of Employment Survey* to shed light on the characteristics and determinants of entrepreneurial self-employment (defined as self-employment with employees). The data reveal a number of significant differences between those with and without employees, suggesting that this may be a fruitful categorisation for further work in the area of self-employment. The results suggest a significant amount of self-employment within Australia is entrepreneurial in nature.

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APPENDIX A

Table A1: Characteristics of Self-Employed Workers and Wage and Salary Earners, 1998, %

	Wage and Salary	Self Employed	Self Employed With Employees	Self-Employed Without Employees
	%	%	%	%
Sex				
Males	53.2	68.3	67.2	69.2
Females	46.8	31.7	32.8	30.8
Birthplace				
Born in Australia	76.0	69.9	70.9	69.1
Born in main English-speaking countries	10.9	12.4	10.3	14.1
Born in other countries	13.1	17.7	18.8	16.8
Birthplace & Period of Arrival				
Born in Australia	76.0	69.9	70.9	69.1
Born outside Australia and:				
-arrived before 1971	7.4	13.1	13.3	12.9
-arrived 1971-80	5.4	7.1	6.5	7.5
-arrived 1981-90	7.2	7.3	7.1	7.5
-arrived 1991 to survey date	4.0	2.6	2.2	2.9
Age				
15-19	7.3	0.3	-	0.6
20-24	13.7	2.7	1.2	3.8
25-29	14.9	8.1	6.6	9.3
30-34	12.6	11.1	11.1	11.1
35-39	12.6	16.1	17.2	15.3
40-44	12.2	16.1	17.0	15.5
45-49	11.2	16.8	19.7	14.7
50-54	8.9	14.4	13.8	14.9
55-59	4.7	9.3	9.5	9.2
60-64	1.9	4.9	3.9	5.7
Relationship in household				
Husband or wife with children under 15	27.7	41.2	46.4	37.3
Husband or wife without children under 15	30.3	38	38.2	37.8
Lone parent with children under 15	2.5	1.5	1.1	2.8
Remainder (other family status)	39.6	19.3	14.4	23.1
Gender & Dependants				
Male – has dependants	31.8	42.3	48.5	37.7
Female – has dependants	28.3	43.6	45.3	42.3
Male – no dependants	68.2	57.7	51.5	62.3
Female – no dependants	71.7	56.4	54.7	57.7
Marital Status				
Married	59.5	81.8	88.0	77.1
Not Married	40.5	18.2	12.0	22.9

Table A1: continued

	Wage and Salary	Self Employed	Self Employed With Employees	Self-Employed Without Employees
	%	%	%	%
Area of usual residence				
State capital city	67.3	64.1	63.2	64.7
Balance	32.7	35.9	36.8	35.3
Occupation				
Managers & administrators	4.1	8.8	13.9	5.0
Professionals	19.4	17.3	17.4	17.2
Associate Professionals	9.4	17.5	25.0	11.7
Tradespersons and related workers	12.2	23.6	18.0	27.8
Advanced clerical and service workers	4.3	6.7	8.8	5.1
Intermediate clerical, sales and service workers	20.0	8.1	6.9	9.1
Intermediate production and transport workers	9.7	8.1	4.3	11.0
Elementary clerical, sales and service workers	11.6	3.6	2.4	4.5
Labourers and related workers	9.3	6.3	3.1	8.7
Industry				
Mining	1.1	0.3	0.1	0.4
Manufacturing	15.1	9.7	11.7	8.2
Electricity, Gas and Water	1.1	-	-	-
Construction	4.6	21.6	16.1	25.8
Wholesale Trade	6.5	5.2	6.8	4.1
Retail Trade	14.3	16.9	22.5	12.6
Accommodation, Cafes and Restaurants	5.1	3.1	5.3	1.4
Transport and Storage	4.5	5.4	3.8	6.6
Communication Services	2.1	1.0	0.2	1.7
Finance and Insurance	4.7	1.4	1.7	1.3
Property and Business Services	9.7	20.3	19.4	21.0
Government Administration and Defence	5.1	-	-	-
Education	9.0	1.2	0.3	2.0
Health and Community Services	11.4	4.7	5.9	3.7
Cultural and Recreational Services	2.2	3.1	2.3	3.7
Personal and Other Services'	3.6	6.0	4.1	7.5
Hours worked in Main Job				
0-35	40.5	34.2	23.6	42.6
36-39	15.8	3.3	3.2	3.4
40	16.5	13.2	12.7	13.6
41-44	5.7	2.8	3.1	2.6
45-49	8.6	8.4	9.2	7.8
50-54	5.6	10.9	12.7	9.5
55-59	2.7	5.2	6.4	4.3
60+	4.7	21.8	29.0	16.4

Table A1: Continued

	Wage and Salary	Self Employed	Self Employed With Employees	Self-Employed Without Employees
	%	%	%	%
Hours worked in Main Job by Sex				
Men				
0-35	26.7	22.8	10.5	31.9
36-40	35.6	18.0	16.3	19.3
41-49	18.5	12.5	12.5	12.5
50-59	12.0	19.6	24.1	16.3
60+	7.3	27.0	36.5	20.0
Women				
0-35	56.0	59.1	50.5	66.1
36-40	28.6	13.2	15.1	11.7
41-49	9.6	8.4	11.9	5.6
50-59	4.0	8.5	8.7	8.3
60+	1.8	10.7	13.8	8.2
Hours worked in main job, by sex and presence of children under 15 years.				
Does not have dependants				
Male – full-time worker	87.4	87.3	96.2	81.8
Male – part-time worker	12.6	12.7	3.8	18.2
Female – full-time worker	66.3	48.8	68.9	51.1
Female – part-time worker	33.7	41.2	31.1	48.9
Has dependant children				
Male – full-time worker	95.2	93.6	99.0	88.5
Male – part-time worker	4.8	6.4	1.0	11.5
Female – full-time worker	42.8	41.2	49.2	34.3
Female – part-time worker	57.2	58.8	50.8	65.7
Employment Type				
Employees with leave entitlements	77.0	-	-	-
Self-identified casuals	19.5	-	-	-
Other	3.5	-	-	-
Owner Managers of Incorporated Enterprises	-	38.8	59.4	23.2
Owner Managers of Unincorporated Enterprises	-	61.2	40.6	76.8
Other Job Characteristics				
Duration of Main Job				
less than 12 months	22.2	11.2	7.4	14.0
1 year	12.2	8.9	6.9	10.4
2 years	11.0	7.1	6.4	7.7
3 years	8.7	7.7	7.2	8.1
4 years	6.6	6.7	6.0	7.2
5 years	5.1	7.4	7.6	7.3
6 years	3.1	4.5	4.6	4.5
7 years	2.9	3.6	4.0	3.3

8 years	3.4	4.3	4.3	4.2
9 years	3.3	2.4	2.7	2.2
10 years	21.8	36.2	42.9	31.1
Whether earnings vary				
Earnings in main job vary	23.9	68.1	52.3	80.2
Earnings in main job do not vary	76.1	31.9	47.7	19.8
Whether has control over own work procedures				
Has control	-	87.3	93.3	82.6
Employer/Client has control	-	12.7	6.7	17.4
Whether able to subcontract own work				
Able to subcontract work	-	57.8	53.8	60.7
Unable to subcontract work	-	42.2	46.2	39.3
Whether draws a wage from business				
Draws a wage or salary from business	-	61.2	77.0	49.2
Does not draw a wage or salary form business	-	38.8	23.0	50.8
Sample Size (unweighted)	21015	4710	2040	2670

Note: Employed Persons in Agriculture, Forestry and Fishing are not included in the above analysis. The above percentages are estimated using the population weights provided by the ABS. The unweighted sample size is shown in the last row.

[i] For a formal derivation of this basic model of self-employment and a detailed discussion of theories of self-employment see Le (1997).

[ii] The approach detailed here follows Miller and Neo (1997).