AUSTRALIAN JOURNAL OF LABOUR ECONOMICS
Volume 18 • Number 3 • 2015 • pp 329 - 344

How Much Do Tradespersons Really Earn?

Tom Karmel, National Institute of Labour Studies, Flinders University
Ben Braysher, National Centre for Vocational Education Research

Abstract

A popular view is that tradespersons' earnings compare favourably with those with university education. This view is not borne out by wage data, but a common rejoinder is that it is the self-employed tradespersons who make the 'big' money (and probably under-report their income). These ideas are examined by analysing household expenditure data in conjunction with income data from the Australian Bureau of Statistics' Household Expenditure Survey and the Survey of Income and Housing. The data also allow us to look at wealth across occupations. Our findings are that neither expenditure data nor wealth data change significantly the relativities between the trades and occupations more associated with higher education. While no doubt there are some very rich tradespersons, on average those with university degrees earn more than those with trade qualifications. And there is little evidence to suggest than on average self-employed tradespeople 'do better' than those who are employees.

Keywords: Wage level and structure, Professional labour markets, Occupational licensing

JEL classification: J31, J44

1. Introduction

Popular wisdom is that people in the trades do pretty well and in some cases earn more than those with degrees. However, the usual wage comparisons based on employees' earnings do not bear this out and typically there is a handsome premium to university education. The come back to this empirical evidence is that it is the self-employed in the trades who make the real money. But data on the earnings of the self-employed do not confirm the hypothesis that self-employed tradesmen have high earnings. The rejoinder to this is that the earnings of the self-employed are notoriously understated; for example, Hurst *et al*. (2014) estimate that in the US the self-employed understate their incomes by around 25 per cent.

Address for correspondence: Tom Karmel, National Institute of Labour Studies, Flinders University, GPO Box 2100, SA 5001, Australia. Email: tom.karmel@flinders.edu.au
Acknowledgement: This paper is based on work done while at the National Centre for Vocational Research. An earlier version of this paper was presented at the 25th Australian Labour Market Research Workshop (ALMRW) in November 2014.

In this paper, we estimate relative earnings of the employed and self-employed by looking at the household expenditure of both employees and the self-employed, with the idea that household expenditure will better reflect underlying earnings than reported earnings. This approach is similar to that of Hurst *et al*. (2014), who used Engle curves linking income and expenditure of wage and salary earners to infer the earnings of the self-employed from their reported expenditure. The data come from the Australian Bureau of Statistics' Household Expenditure Survey and the Survey of Income and Housing[1]. While somewhat dated (referring to 2003-04) the relationships between earnings and expenditure should remain relatively constant.

A further benefit of these data sets is that some data on household wealth are also collected. Thus we are able to obtain estimates of relativities between employees and the self-employed from income, expenditure and wealth.

While the motivation for the paper was to look at the relative earnings of employees and the self-employed in the trades, the data cover the whole workforce enabling us to cover a wider range of occupational groups. This allows us to examine the trades relative to occupations associated with higher education, and see if the usual comparisons within wage and salary earners are robust when the self-employed are also considered. The surveys also collect data on qualifications and field of study so we can also get the relative earnings by level and field of education. Trade qualifications are typically at the certificate III level. The education data allow us to consider outcomes for trades people who move into other occupations.

Although our starting point is the notion that the self-employed understate their income, it needs to be acknowledged that there is a range of factors that drive self-employment. Therefore a priori there is no compelling reason to assume that the self-employed earn more or less than employees. First, the self-employed choose that state, and Joona and Wadensjo (2013) show that, at least among Swedish-born wage earners, the self-employed come from the most successful (that is, with earnings greater than expected) and the least successful (earnings less than expected). By contrast, Castagnetti and Rosit (2011) find that in the Italian labour market the best graduates become wage and salary earners. Self-employment can also be involuntary in the sense that individuals choose that status because they cannot find a suitable employee position (Kautonen *et al*. 2010; and Lofstrom, 2013) or industrial structures push workers into self-employment (notably in the construction industry – see Harvey and Behling, 2010). Personality traits such as openness to experience, risk tolerance, the importance of locus of control clearly play a role (see for example Caliendo, Fossen and Kritikos, 2014). We also note that earnings is but one attribute of a job and that job satisfaction, for example, may differ between employees and the self-employed (Hangleberger and Merz, 2011). In this regard Millan *et al*. (2013) find that self-employed individuals are more likely to be satisfied with their present jobs in terms of the type of work (but less satisfied in terms of job security), based on the European Community Household Panel. The finding that self-employed persons show substantially higher levels of job satisfaction than employees is consistent across Europe (for example, Blanchflower and Oswald, 1998; Blanchflower, 2000; and Benz

[1] The confidentialised unit record files were accessed through Australian Bureau of Statistics' Remote Access Data Laboratory.

and Frey, 2004 and 2008) and for the USA and Canada (Kawaguchi, 2002; Hundley, 2001; and Benz and Frey, 2004).

The structure of the paper is as follows. We take income, household expenditure and wealth in turn. The paper ends with a discussion bringing together the relativities between the self-employed and employees across our three financial variables.

2. Income

The analysis was restricted to persons between the ages of 15 and 64 years. The models were further restricted to full-time workers (35 or more hours per week), with a reported qualification or level of education (thus omitting non-school qualifications of 'certificate not further defined' or 'level not determined'), and with a positive income. An employee was defined by having wages and salary as the primary source of income. If the primary source of income was 'own incorporated business' the person was classified as self-employed. If the primary source of income was 'other income (including government pensions and allowances)' the person was classified as a non-worker. Table 1 provides the sample numbers in each category.

Table 1 - Sample Size by Primary Source of Income and Type of Employment, Full-time Workers

Primary source of income	*Total*
Zero or negative income	47
Wage and salary	4,987
Own unincorporated business income	529
Other income (incl. govt. pensions and allowances)	107
Total	5,670

We have constructed an occupational classification that straddles one and two digit ASCO (Australian Standard Classification of Occupations), which we label as 'ASCO 1.5'. Essentially this covers the major ASCO groups but with more detail for the trades where the sample permitted. Note that the food trades ASCO 45 have been combined with ASCO 49 'other tradespersons' because there were no self-employed food tradespersons in the sample. Similarly, ASCO 5 (advanced clerical, sales and service workers) and ASCO 6 (intermediate clerical, sales and service workers) have been combined because of very small numbers of self-employed persons in ASCO 5. Table 2 gives the final occupational categories with sample sizes.

We see that construction tradespersons have the greatest proportion of self-employed by a long margin, no doubt reflecting the structure of that industry with its emphasis on contractors. There is also a substantial proportion of self-employed among skilled agricultural and horticultural workers (25 per cent) and electrical and electronic tradespersons (15 per cent).

Table 2 - Sample Size by Occupation and Type of Employment, Full-time Workers

ASCO	*Description*	*Employees*	*Self-employed*	*Per cent Self-employed*	*Total*[1]
1	Managers and Administrators	481	76	13.6	557
2	Professionals	1,130	87	7.1	1,217
3	Associate Professionals	756	95	11.2	851
41	Mechanical and Fabrication Engineering Tradespersons	157	10	6.0	167
42	Automotive Tradespersons	78	11	12.4	89
43	Electrical and Electronic Tradespersons	108	18	14.3	126
44	Construction Tradespersons	118	103	46.6	221
46	Skilled Agricultural and Horticultural Workers	36	12	25.0	48
45/49	Other Tradespersons (inc. food) and Related Workers	173	22	11.3	195.0
5/6	Clerical and Service Workers	925	34	3.5	959
7	Intermediate Production and Transport Workers	450	67	13.0	517
8	Elementary Clerical Sales and Service Workers	253	15	5.6	268
9	Labourers and Related Workers	312	32	9.3	344
Total		4,977	582	10.5	5,559

[1] There were 111 persons with a response of 'Not applicable' not included in this table.

For the level of education analysis we have six categories (excluding level not defined), ranging from Year 10 and below up to diploma and above (table 3). Certificate III/IV is the group with the highest proportion of self-employed, the majority of whom will be in the trades. Interestingly, the categories year 11, and year 10 and below have relatively high proportions of self-employed. The smallest group of self-employed are the most highly educated, suggesting that perhaps self-employment is not always a desired state, or that the returns to schooling differ between employees and the self-employed (Iversen *et al*. (2010) find very low returns for most educational levels in self-employment).

Table 3 - Sample Size by Level of Education and Type of Employment, Full-Time Workers

Qualification	*Employees*	*Self-employed*	*Per cent Self-employed*	*Total*
Not defined	165	9	5.2	174
Year 10 and below	830	128	13.4	958
Year 11	279	49	14.9	328
Year 12	689	55	7.4	744
Certificate I/II	315	34	9.7	349
Certificate III/IV	983	189	16.1	1,172
Diploma and above	1,816	129	6.6	1,945
Total	5,077	593	10.5	5,670

Level of education is a rather coarse filter given the very different types of jobs that are held by people with different fields of education. Thus we combine level of education with field of education to give a somewhat different view of the workforce to occupation. The main motivation for this is it may be the case that tradespeople who start their own business may report their occupation as 'manager' if the business is of any size. Classifying by level and field of education will get over this occupational labelling effect. Unfortunately the relatively small number of self-employed persons severely constrains the level of possible disaggregation. Table 4 shows the disaggregation we have adopted, noting that the sample sizes are really too small to provide much confidence in our estimates in many of the cells.

Table 4 - Sample Size by Qualification and Field of Education for Full-time Workers

Highest Level of Qualification	*Area of Qualification*	*Employees*	*Self-employed*	*Per cent Self-employed*	*Total*
Cert I/II	Natural Sci./Physical Sci./Agriculture	20	7	25.9	27
Cert III/IV	Natural Sci./Physical Sci./Agriculture	22	3	12.0	25
Dipl. or higher	Natural Sci./Physical Sci./Agriculture	198	8	3.9	206
Cert I/II	Information Technology/ Engineering	72	8	10.0	80
Cert III/IV	Information Technology/ Engineering	551	78	12.4	629
Dipl. or higher	Information Technology/ Engineering	297	18	5.7	315
Cert I/II	Architecture/Building	11	3	21.4	14
Cert III/IV	Architecture/Building	112	84	42.9	196
Dipl. or higher	Architecture/Building	29	6	17.1	35
Cert I/II	Health/Education	14	1	6.7	15
Cert III/IV	Health/Education	32	3	8.6	35
Dipl. or higher	Health/Education	445	30	6.3	475
Cert I/II	Management/Commerce	156	6	3.7	162
Cert III/IV	Management/Commerce	132	6	4.3	138
Dipl. or higher	Management/Commerce	393	19	4.6	412
Cert I/II	Society/Culture/Creative Arts/Food/ Hospitality/ Personal Services	41	9	18.0	50
Cert III/IV	Society/Culture/Creative Arts/Food/ Hospitality/ Personal Services	129	14	9.8	143
Dipl. or higher	Society/Culture/Creative Arts/Food/ Hospitality/ Personal Services	428	46	9.7	474
Total		3,114	352	10.2	3,466

Notes: 'Certificate not defined' not included in this analysis.

The group we are most interested in is certificate III/IV in architecture/ building, the qualification linked to the construction trades. As expected, this is the group with the highest proportion of self-employed (42.9 per cent).

3. The Income Model

We use a simple Mincer style model for income with log income a function of sex interacted with age and age-squared (to proxy experience) within each category. The categories are those we described above, being occupation, level of education and level of education classified by field of education. The differential between employees and self-employed is a single dummy variable within each category (that is we are assuming that the impact of age and sex is the same for employees and the self-employed). The reason for this assumption is one of parsimony – the sample size for the self-employed is quite constrained.

The results are tabulated in table 5. The coefficient on the employment status dummy translates to the premium that employees get relative to the self-employed. For example, a coefficient of 0.35 equates to the ratio of employee income to self-employed income of 1.4.[2]

Table 5 - Income Model for Occupations

ASCO		*N*	*Coef on 'employee'*	*SE*	*t*	*Employee income relative to self-employed*	*Employee income ($s per week)*	*Self-employed income ($s per week)*
1	Managers/administrators	172	-0.1855	0.149	-1.24	0.8	948.78	1142.13
2	Professionals	1209	0.3537	0.07	5.1	1.4	1271.66	892.83
3	Associate professional	845	0.8294	0.067	12.4	2.3	1059.28	462.18
41	Mechanical and fabrication trades	165	0.6255	0.214	2.91	1.9	994.19	531.87
42	Automotive	89	0.5106	0.132	3.88	1.7	957.27	574.51
43	Electrical and electronic trades	123	-0.01418	0.123	0.12	1.0	996.14	1010.36
44	Construction trades	215	0.287	0.091	3.16	1.3	955.91	717.46
46	Ag and horticultural trades	47	0.1252	0.141	0.89	1.1	777	685.54
49	Other trades including food	194	0.4202	0.099	4.25	1.5	969.3	636.77
5&6	Clerical and service	955	0.8453	0.083	10.2	2.3	826.59	354.98
7	Production and transport	512	0.6701	0.057	11.7	2.0	917.41	469.42
8	Elementary clerical sales and service	266	0.755	0.177	4.26	2.1	786.45	369.64
9	Labourers	341	0.1809	0.108	1.68	1.2	754.96	630.06

Note: Income for a male aged 39 years.

We see that on the whole employees have higher incomes than the self-employed, with a couple of exceptions. One of these is in the trades - electrical and electronic tradespersons- while the other is managers and administrators, although in both cases the null hypothesis of no difference in income between employees and the self-employed is accepted. For the other trades the ratio of employee to self-employed income ranges

[2] Exp(0.35)=1.4.

from a low of 1.1 in the agricultural and horticultural trades (a low paying occupational group) to 1.9 for the mechanical and fabrication trades. For the construction trades – the group with the highest proportion of self-employed persons – the ratio of employee income to self-employed is 1.3. The higher incomes of employees were expected, which leads us to the nub of the paper which is whether analysis of household expenditure changes our finding that employees are generally 'doing better' than the self-employed.

Before doing this, however, we report the results of the income models based upon the other classifications. First, we present the results by education level.

Table 6- Income Model for Education Levels, Full-time Workers

Highest qualification level	*N*	*Coef on 'employee'*	*SE*	*t*	*Employee/ self-employed income*	*Employee income ($A/wk)*	*Self-employed income ($A/wk)*
Year 10 or below	948	0.5766	0.0592	9.75	1.8	861.06	483.57
Year 11	324	0.4423	0.029	5.34	1.6	878.89	564.75
Year 12	743	0.466	0.0675	6.9	1.6	1039.94	652.78
Cert I/II	345	0.6237	0.0967	6.45	1.9	914.32	490.04
Cert III/IV	1158	0.4842	0.044	10.99	1.6	959.77	591.4
Dipl. and above	1933	0.6036	0.0624	9.66	1.8	1254.85	686.17

We see that the results are very consistent by level of education. The groups with the lowest penalty to being self-employed are those with year 11 or year 12 and those with a certificate III/IV.

Table 7 - Income Models for Qualification by Field of Study, Full-time Workers

Area of Qualification	*Qualification level*	*N*	*Coef on 'employee'*	*SE*	*t*	*Employee to self-employed income*	*Employee income*	*Self-employed income*
Natural/Physical Sci./Ag	Cert I/II	27	0.232	0.306	0.76	1.3	1043.75	827.48
	Cert III/IV	25	0.7069	0.389	1.82	2.0	862.96	425.56
	Dipl. and above	204	2.4118	0.25	9.64	11.2	1108.05	99.34
IT/Engineering	Cert I/II	78	0.3985	0.191	2.08	1.5	831.52	558.24
	Cert III/IV	621	0.4984	0.064	7.85	1.6	990.64	601.83
	Dipl. and above	314	1.0826	0.152	7.11	3.0	1354.23	458.69
Architecture/Building	Cert I/II	14	0.3878	0.264	1,47	1.5	887.97	602.51
	Cert III/IV	191	0.4307	0.108	4.01	1.5	897.79	583.63
	Dipl. and above	34	0.0394	0.7058	0.06	1.0	908.02	872.94
Health and Education[1]	Cert III/IV	35	-0.0506	0.254	-0.2	1.0	1018.32	1071.18
	Dipl. °and above	474	0.4404	0.109	4.05	1.6	1198.92	771.86
Management/ Commerce	Cert I/II	161	1.2804	0.212	6.03	3.6	923.28	256.61
	Cert III/IV	137	0.9601	0.156	6.14	2.6	917.36	351.22
	Dipl. and above	409	0.729	0.173	4.21	2.1	1349.77	651.1
Society/Culture/Arts/ Food & Hospitality	Cert I/II	50	0.5906	0.231	2.56	1.8	895.19	495.96
	Cert III/IV	143	0.7438	0.132	5.65	2.1	937.96	445.84
	Dipl. and above	470	0.1964	0.098	2.01	1.2	1210.12	994.36

Our particular interest is the trades, with trade qualifications equating to certificate III/IV. The two fields with the greatest proportion of self-employed are IT and engineering, and architecture and building. In these two areas we see still a very substantial premium to being an employee, with the ratio of employee to self-employed income being 1.6 and 1.5 respectively. This compares to 1.0 for electrical and electronic trades and 1.3 for the construction trades. Thus, this broader view of workforce destinations does not change our finding that on average trade employees have higher incomes than trade self-employed. Given that this way of looking at the workforce does not change our conclusion regarding the income of trade employees and self-employed we do not pursue this alternative classification further in the paper.

4. Household Expenditure

The immediate issue we have is that the Australian Bureau of Statistics collects expenditure data for households, not for individuals. Thus the analysis is considerably more complicated.

Our approach is to build up household expenditure by taking a linear combination of the incomes of the members of a household and then multiplying this by a factor which reflects the demographics of the household. The incomes of the members of the household are partitioned into the income of employees, the income of own account workers and the incomes of non-workers. We can further partition the workers into employee managers and administrators, self-employed managers and administrators and so on. The coefficients on these income variables tell us how income translates into expenditure for a given group, abstracting from the demographics of the household. If the self-employed are understating their income we would expect that a given level of income translates to a higher level of expenditure.

More formally, the base model is defined as:

$$\boldsymbol{x} = (b_1\boldsymbol{y}_1 + b_2\boldsymbol{y}_2 + b_3\boldsymbol{y}_3)*(1 + c_1\boldsymbol{f}_1 + c_2\boldsymbol{f}_2 + c_3\boldsymbol{f}_3 + c_4\boldsymbol{f}_4 + c_5\boldsymbol{f}_5 + c_6\boldsymbol{f}_6 + c_7\boldsymbol{f}_7 + c_8\boldsymbol{f}_8 + c_9\boldsymbol{f}_9)$$

where

$\boldsymbol{x}$ = household expenditure ($A/week)

and

$\boldsymbol{y}_1$ = income of employees ($A/week)
$\boldsymbol{y}_2$ = income of own account workers ($A/week)
$\boldsymbol{y}_3$ = income of non-workers ($A/week)

and

$\boldsymbol{f}$ is a vector of family characteristics the elements comprising:
$\boldsymbol{f}_1$ = number of dependent children in the household aged 0-4
$\boldsymbol{f}_2$ = number of dependent children in the household aged 5-14
$\boldsymbol{f}_3$ = number of dependent children in the household aged above 15
$\boldsymbol{f}_4$ = number of adults in the household aged below 25
$\boldsymbol{f}_5$ = number of adults in the household aged 25-34
$\boldsymbol{f}_6$ = number of adults in the household aged 35-44
$\boldsymbol{f}_7$ = number of adults in the household aged 45-54
$\boldsymbol{f}_8$ = number of adults in the household aged 55-64
$\boldsymbol{f}_9$ = number of adults in the household aged 65+

b_1, b_2 and b_3 are the coefficients for $\mathbf{y}_1$, $\mathbf{y}_2$ and $\mathbf{y}_3$, respectively and $c_1..c_9$ are the coefficients for $\boldsymbol{f}_1$ to $\boldsymbol{f}_9$.

The main point of presenting the results for this simple model is to demonstrate its structure. While our interest is in the coefficients of y_1 and y_2 in particular, we show all the coefficients for completeness.

Table 8 - Results of simple expenditure model

Variable	*Coef*	*SE*
Employee income	1.05	0.03
Self-employed income	0.91	0.03
Other income	1.21	0.05
No. of children 0-4	0.06	0.01
No. of children 5-14	0.04	0.01
No. of children 15+	0.08	0.02
No. of adults <25	-0.01	0.01
No. of adults 25-34	-0.04	0.01
No. of adults 35-44	-0.04	0.01
No. of adults 45-54	-0.03	0.01
No. of adults 55-64	-0.06	0.01
No. of adults <65+	-0.05	0.02
No. of observations 6,845 Adjusted R squared 0.478		

The interest in the income coefficients is their deviation from one. A value of one indicates that income translates to expenditure on a one to one basis (for a neutral demographic mix). A value greater than one indicates that expenditure is higher than income, while a value less than one the opposite. Not surprisingly, the coefficient on 'other income' is greater than one indicating that those depending on 'other income' are drawing on their savings. Our main interest, however, is in the difference between the coefficients on employee and self-employed income. Our presupposition is that the coefficient for self-employed income would be greater than one, indicating that the self-employed were possibly understating their income. However, the results are in the opposite direction indicating that the self-employed in general are spending less than their reported incomes. We return to this when we partition the income by occupation.

We have included the demographic characteristics to give an understanding of how the model works. The neutral value for a demographic coefficient is zero. Thus we see that in general households with children spend more than other households (and by implication more than their income) while households consisting of adults spend less of their income. Adults under 25 years are the group that are closest to neutral, with income translating very closely to expenditure.

If we evaluate the demographic variables at their average we can calculate 'main effects' as in table 9 (that is, the income coefficient multiplied by the demographic factor for the average household).

Table 9 - Main Effects for Base Expenditure Model

Term	*Description*	*Average Main Effect (per A$ income)*
y1	Total income from employees in household	1.0137
y2	Total income from self-employed in household	0.8781
y3	Total other income in household	1.1701

Note: Coefficients on y1, y2 and y3 are statistically different from each other at the one per cent level.

Comparing this with the earlier table we see that on average the demographic factor is a little less than one.

The model above is simplistic and so in the next table we compare the main effects for the occupational classification we introduced earlier. Our particular interest is in the two trades with the greatest proportion of self-employed: the construction trades and the skilled agricultural and horticultural groups (although the automotive, electrical and electronic and 'other' trades also have reasonable numbers of self-employed).

The earlier model is expanded by partitioning y_1 and y_2 defined above into y_{1j} and y_{2j} where j is one of the 13 areas of occupation defined using the ASCO 1.5 classification defined earlier. The variable y_3 (income from non-workers) and the demographic variables remain as before.

Table 10 - Main Effects for Expenditure

Occupation	*Average main employee effect (per A$ income)*	*Average main self-employed effect (per A$ income)*	*Significance of the difference between employee and self-employed main effects* **** *(one per cent)* *** *(five per cent)* ** *(10 per cent)* * *(20 per cent)*
Managers and administrators	1.0442	0.6667	****
Professional	1.021	0.7952	****
Associate Professional	0.9898	1.1305	*
Mechanical and Fabrication Engineering Tradespersons	0.9899	0.871	
Automotive Tradespersons	0.9564	0.7088	
Electrical and Electronic Tradespersons	0.97	0.9361	
Construction Tradespersons	0.9806	1.0814	
Skilled Agricultural and Production	0.923	1.2087	
Other Tradespersons (Incl. Food)	0.9728	1.3567	*
Clerical and Service	1.1333	0.7648	****
Intermediate and Production Transport	0.904	1.1585	**
Employee Elementary Clerical and Service	1.0714	1.0105	
Labourers and Related	0.8963	1.0674	

Note: The main effect for 'other income' is 1.1798.

We see that this more detailed partitioning provides quite a varied picture. We find three of the trades, all with higher than average proportions of self-employed, with main effects that exceed unity: construction, skilled agricultural and horticultural, and other trades with main effects of 1.08, 1.21 and 1.36 respectively (compared to main effects for employees of 0.99, 0.92 and 0.97, respectively). This provides some evidence of these trades under reporting their income, although the differences are not statistically different at conventional levels. However, there are two trades with reasonable proportions of self-employed – automotive and electrical and electronic trades – which have main effects less than unity (0.71 and 0.94, respectively), although it is acknowledged that the sample sizes are quite small (the two trades in question had self-employed samples of 11 and 18 respectively) and therefore the statistical power of the analysis is weak.

If we accept that the differences in the proportion of income that translates to expenditure reflects under reporting of the income of self-employed, we can combine the above results and the earlier income estimates to get an 'adjusted' income estimate for the self-employed. We simply take the earlier income ratio and multiply by the ratio of the main effects for the employees to self-employed to give an 'adjusted ratio'. The results of this exercise are shown for selected trades in the table below.

Table 11 - Income and Income Adjusted for Expenditure Relationship for Selected Trades

ASCO		*Employee income relative to self-employed*	*Employee 'adjusted' income relative to self-employed*
44	Construction trades	1.33	1.21
46	Ag and horticultural trades	1.13	0.87
49	Other trades including food	1.52	1.09

While this adjustment does affect the relativities, the conclusion remains that for construction trades and other trades (including food) the employees have higher incomes than the self-employed. Only for the agricultural and horticultural trades is the relativity reversed, and it is worth keeping in mind that this trade is the worst paid of all the trades.

While our initial interpretation of how self-employed income translates into expenditure relates to the extent to which income is understated there is an alternative explanation. The alternative would be to argue that the self-employed are in a position to confound household and business expenditure. For example, it could be the case that the household car is also a business vehicle and thus the household may not fully report automotive expenditure. Of course, there is also the possibility that there is a degree of misreporting of household expenditure – perhaps the self-employed are suspicious of the Australian Bureau of Statistics on the expenditure side as well as on the income side. It is also possible that the self-employed save at different rates to employees and this drives the differences in the relationship between reported income and expenditure.

5. Household Wealth

Our final approach to seeing if the self-employed 'do better' than employees is to consider the differences in household wealth between the two groups. As for the expenditure data we observe household wealth rather than individual wealth, and we adopt a similar approach to mapping individuals to households. We also acknowledge that the data refer to a point in time and we have not observed the accumulation process (for example a self-employed person at one point in time may have been an employee in the past or *vice versa*). Thus at the outset we acknowledge that the analysis is simplistic. Nevertheless, we can look at the wealth of those who are at the time of the survey are employees or self-employed.

In the Household Expenditure Survey household wealth is defined as the net worth of the household at the time of the survey i.e. the value of the household assets (financial and non-financial) minus its liabilities.

Household wealth is modelled against counts of persons in each household in each employment category (employees, self-employed income, and those who primarily rely on income from non-employment sources), adjusted for the demographic composition of the household. Thus we are assuming that the demographic factors impact on the three employment status groups in the same way.

That is

$$\boldsymbol{w} = (b_1\boldsymbol{n}_1 + b_2\boldsymbol{n}_2 + b_3\boldsymbol{n}_3)*(1 + c_1\boldsymbol{f}_1 + c_2\boldsymbol{f}_2 + c_3\boldsymbol{f}_3 + c_4\boldsymbol{f}_4 + c_5\boldsymbol{f}_5 + c_6\boldsymbol{f}_6 + c_7\boldsymbol{f}_7 + c_8\boldsymbol{f}_8 + c_9\boldsymbol{f}_9)$$

where $\boldsymbol{w}$ is the wealth for the household,

$\boldsymbol{n}_1$ is the number of persons in the household that are employees,

$\boldsymbol{n}_2$ is the number of persons in the household that are self-employed,

$\boldsymbol{n}_3$ is number of persons in the household that have other sources of income,

$\boldsymbol{f}_1..\boldsymbol{f}_9$ are as defined in the expenditure analysis (age categories for the number of dependent children and number of adults 15+ in the household),

$b_1..b_3$ and $c_1..c_9$ are the parameters to be estimated.

The coefficients for this simple model are shown in table 12.

Table 12 - Simple Wealth Model

	Coef	*SE*
Number of employees	304,612	15,939
Number of self-employed	409,384	26,053
Number who rely on other income	162,034	10,537
No. of children 0-4	0.091	0.033
No. of children 5-14	0.025	0.021
No. of children 15+	0.098	0.026
No. of adults <25	-0.273	0.018
No. of adults 25-34	-0.328	0.019
No. of adults 35-44	-0.136	0.025
No. of adults 45-54	0.053	0.029
No. of adults 55-64	0.307	0.041
No. of adults <65+	0.389	0.054
No. of observations 6,845		
Adjusted R squared 0.128		

Table 13 - Main Effects for Wealth of Employees and Employed Persons

Description	*Average main effect for employees (A$ per person)*	*Average main effect for self-employed (A$ per person)*	*Ratio of main self-employee to self-employed wealth*	*Significance of the difference between employee and self-employed main effects *** (five per cent) ** (10 per cent) * (20 per cent)*
# of Managers and Administrators in household	785,064	684,848	1.15	***
# of Professionals in household	376,236	472,172	0.80	**
# of Associate Professionals in household	384,946	417,534	0.92	
# of Mechanical and Fabrication Engineering Tradespersons in household	89,496	43,239	2.07	
# of Automotive Tradespersons in household	163,240	219,972	0.74	
# of Electrical and Electronic Tradespersons in household	237,459	224,879	1.06	
# of Construction Tradespersons in household	182,363	137,596	1.33	
# of Skilled Agricultural and Production workers in household	152,852	119,829	1.28	
# of Other Tradespersons (incl. Food) in household	268,780	207,833	1.29	
# of Clerical and Service workers in household	245,157	300,289	0.82	
# of Intermediate and Production Transport workers in household	117,448	126,419	0.93	
# of Elementary Clerical and Service workers in household	150,129	290,645	0.52	*
# of Labourers and Related workers in household	62,474	207,292	0.30	**

Note: The main effect for other income earners in the household is $168,749.

Thus, for a 'demographically neutral' household, each employee contributes $304,612 to household wealth, each self-employed person $409,385 and each person relying on other income $162,034. In terms of the demographics, households with children are somewhat wealthier than other households (for example, 9.1 per cent wealthier if the household has one child 0-4 years relative to a demographically neutral household) but not as wealthy as households with adults over the age of 55 years. Households made up of younger adults tend to be poorer. These results, of course, reflect household and wealth formation over the life cycle.

However, the most interesting figure to emerge from the point of view of this paper is that the self-employed tend to be considerably wealthier than employees, although there may well be an interaction with age that is influencing this finding.

As in the expenditure model we now partition the first part of the above model by occupation. That is, separate variables are entered for the number of employees (and self-employed) within each occupation.

In order to abstract from the demographics we present the results of this model evaluated for 'an average' household in respect of the demographics (table 13).

We see quite a deal of variation in the average wealth of employees and self-employed across occupational groups. The self-employed are wealthier among labourers, clerical and service workers, professionals and associate professionals (and these differences are statistically significant). Our main interest, though, is the trades and in this occupational group it is employees who are wealthier than the self-employed except for those in automotive. However, the sample sizes are such that the differences are not statistically significant at conventional levels, so not much can be concluded from this. We also see that the levels of wealth on average of those in the trade are modest compared to those of most other occupational groups. In particular, those employed as managers and administrators, professionals and associate professionals have accumulated considerably higher levels of wealth than those in the trades.

6. Concluding Comments

The motivation behind this paper was to examine the idea that incomes of employees in the trades give a false picture of the rewards from undertaking a trade compared in particular with those undertaking higher education. We did this by looking at the relationship between income, household expenditure and household wealth for both those who are employees and those who are self-employed. We acknowledge that there are limitations to the analysis in terms of sample sizes (self-employment is quite unusual in most occupations) and the relationship between demographics and expenditure or wealth and whether an individual is self-employed or an employee. We have treated employee/self-employed status as an exogenous variable; modelling why people are self-employed is beyond this paper and the data sets which it uses.

Nevertheless, there is no evidence to suggest that a comparison of employee income of those in the trades with, say, those in professional or associate professional occupations, gives a false impression of rewards associated with the trades. Adjusting the reported income of those who are self-employed in the trades by considering their expenditure makes little difference, and looking at levels of wealth does not change the picture either.

In drawing this conclusion, we note that self-employment is not very common (10 per cent overall among full-time workers) except in a couple of trades, notably construction (47 per cent of full-time workers in the sample) and agriculture and horticulture (25 per cent). In the former, employees earn more that the self-employed, have higher levels of expenditure, and have greater levels of wealth. In the latter, employees earn more than the self-employed and greater levels of wealth but lower levels of expenditure. However, the trades in agriculture and horticulture are among the most poorly paid trades, and the sample size is not large.

If we accept this analysis then how do we rationalise the common perception that there are a lot of wealthy tradespersons, particularly in the construction industry? There are a couple of possible explanations. First, no doubt there are some very successful and wealthy tradespersons but perhaps these represent a long tail in the distribution, and that the average self-employed tradesperson is a long way from these outliers. It is also possible that tradespersons display their material wealth in a way that catches the eye compared to other groups.

Is our conclusion surprising? Not really. It seems to be the case that for many people self-employment is an outcome rather than a choice. If the self-employed person could get an appropriate employee job then they may well do so. Certainly, Buchanan and Allan (2000) examined the expansion in contractors in the construction industry and pointed to 'dependent contractors' as being the major source of growth and argued that the growth has been driven by taxation arrangements to a large extent. They also point out that there is an imprecise distinction between employee and contractor forms of employment. In respect of our analysis, there is a possible implication that the self-employed would do a little better compared to employees if we considered taxation arrangements as well as reported income. On the other hand, our modelling of the relationship between expenditure and income must account for this to some extent.

In conclusion, no doubt some in the trades have very remunerative careers, but it does seem to be the case that on average those who get into a professional or associate professional occupation have higher financial rewards. This conclusion is very apparent from employee income data, but our examination of the self-employed in the trades does not alter that conclusion.

References

Benz M. and Frey, B.S. (2004), 'Being Independent Raises Happiness at Work', *Swedish Economic Policy Review*, 11(2), 95-134.

Benz, M. and Frey, B.S. (2008), 'Being Independent is a Great Thing: Subjective Evaluations of Self-Employment and Hierarchy', *Economica*, 75(298), 362-383.

Blanchflower, D.G. and Oswald, A.J. (1998), 'What Makes an Entrepreneur?' *Journal of Labor Economics*, 16(1), 26-60.

Blanchflower, D.G. (2000), 'Self-employment in OECD Countries', *Labour Economics*, 7(5), 471-505.

Buchanan, J. and Allan, C. (2000), 'The Growth of Contractors in the Construction Industry: Implications for Tax Revenue', *The Economic and Labour Relations Review*, 11(1), 46-75.

Caliendo, M., Fossen, F. and Kritikos, A.S. (2014), 'Personality Characteristics and the Decisions to Become and Stay Self-employed', *Small Business Economics*, 42(4), 787-814.

Castagnetti, C. and Rosti, L. (2011), 'Who Skims the Cream of the Italian Graduate Crop? Wage Employment versus Self-employment', *Small Business Economics*, 36(2), 223-234.

Hanglberger, Dominik and Merz, Joachim (2011), 'Are Self-employed Really Happier than Employees? An Approach Modelling Adaptation and Anticipation Effects to Self-employment and General Job Changes', FFB-Discussion Paper, No. 88.

Harvey, M. and Behling, F. (2010), 'Self-employment and Bogus Self-employment in the European Construction Industry', *Project Carried Out with the Financial Support of the European Commission*.

Hundley, G. (2001), 'Why and When Are the Self-Employed More Satisfied with Their Work?', *Industrial Relations: A Journal of Economy and Society*, 40(2), 293-316.

Hurst, E., Li, G. and Pugsley, B. (2014), 'Are Household Surveys Like Tax Forms? Evidence from Income Underreporting of the Self-Employed', *Review of Economics and Statistics*, 96(1), 19-33.

Iversen, J., Malchow-Møller, N. and Sørensen, A. (2010), 'Returns to schooling in self-employment', *Economics Letters*, 109(3), 179-182.

Joona, P.A. and Wadensjö, E. (2013), 'The Best and the Brightest or the Least Successful? Self-Employment Entry Among Male Wage-Earners in Sweden', *Small Business Economics*, 40(1), 155-172.

Kautonen, T., Down, S., Welter, F., Vainio, P., Palmroos, J., Althoff, K. and Kolb, S. (2010), 'Involuntary Self-employment as a Public Policy Issue: A Cross-Country European Review', *International Journal of Entrepreneurial Behaviour & Research*, 16(2), 112-129.

Kawaguchi, D. (2002), 'Compensating Wage Differentials among Self-employed Workers: Evidence from Job Satisfaction Scores' (No. 568), ISER Discussion Paper, Institute of Social and Economic Research, Osaka University.

Lofstrom, M. (2013), 'Does Self-employment Increase the Economic Well-being of Low-Skilled Workers?', *Small Business Economics*, 40(4), 933-952.

Millán, J.M., Hessels, J., Thurik, R. and Aguado, R. (2013), 'Determinants of Job Satisfaction: A European Comparison of Self-employed and Paid Employees', *Small Business Economics*, 40(3), 651-670.