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A consumption-based measure of the monetary rewards to entrepreneurship

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Recent findings by Hamilton (*Journal of Political Economy,* 2000) suggest that the self-employed do not receive a monetary premium for the risk and uncertainty associated with business ownership. In this paper, I show that that income underreporting by entrepreneurs can explain the lack of evidence for monetary premia. Using a large national dataset (PSID), I first document evidence of underreporting, and then proceed to make alternative comparisons using measures of consumption. I find that the self-employed enjoy large earnings premia that are reflected in their consumption.

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1. Introduction

This paper examines the monetary returns to entrepreneurship. I compare rewards of self-employment to those of wage employment. This is, of course, an exercise that has been carried out many times before. However, previous studies have typically overlooked a potentially important source of bias that arises from the propensity of entrepreneurs to underreport their income. As a result, evidence that entrepreneurship is not a monetarily rewarding undertaking, and that other nonmonetary rewards must be important (Hamilton 2000; Moskowitz and Vissing-Jorgensen 2002), may be misleading. In this paper I produce indirect evidence of underreporting of income in survey data, and I provide alternative measures of monetary rewards to entrepreneurship based on consumption data. The paper also estimates the effects of previous business ownership on current consumption. Contrary to some recent investigations, I find entrepreneurship to be a financially rewarding activity.

Numerous obstacles present themselves when measuring the earnings of entrepreneurs. First, the distribution of income appears to have fat tails, suggesting that OLS estimates are likely to be unreliable.[1] In this paper, I employ a quintile regression method, which is a better metric for contrasting earnings distributions produced by two groups, such as wage workers and the self-employed (Hamilton 2000). Second, because the returns to self-employment consist of salary and accumulated business equity, the income of entrepreneurs is hard to define and track. Business equity is hard to measure unless the researcher examines the entire lifespan of a given firm, and even then, dissolution of a business only reveals its equity value at that particular point in time. In other words, an entrepreneur could have received more (or less) funds if she was to sell the business earlier. The issue is further complicated by entrepreneurs who stay in business for periods beyond the boundaries of any data collection survey. However, by tracking consumption instead of income, it may be possible to capture the wealth effect by observing increased spending of the entrepreneur. Additionally, lifestyle comparisons obtained from consumption measures are likely to be more reliable because they do not rely on income, which, even if not hidden, is computed differently from wage income due to different legal metrics and reporting methods by entrepreneurs.

At the same, time some benefits of self-employment are very hard to measure, regardless of the metric at hand. Much more serious complications arise if a researcher attempts to measure less obvious business benefits, some of which include use of business assets for personal use, or claiming personal expenditures as business expenses. Nonmonetary benefits of wage employment, such as fringe benefits, are much easier to measure because they appear as business costs on their employers' books. This drawback associated with difficulty of measuring

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[1] The heavy right tail of this income distribution produces support for the superstar theory (Rosen 1981)

nonmonetary benefits of self-employment is also better addressed through consumption comparisons: the researcher can detect differences in particular consumption categories in which there is no overlap with business expenditures – housing expenditures, vacations, money spent on clothing, etc.

The consumption comparison approach carries significant benefits in assessing and addressing both expense overstatements and income underreporting. By examining expenditures in a number of discrete categories and subcategories, I can allocate particular expenditures into business, individual consumption, or both categories, thus facilitating better estimates of earnings spent on personal consumption. Overstatements of business expenditures, together with hiding of income by the self-employed, comprise the underreporting gap. The underreporting gap is quite significant given that U.S. General Office of Accounting states that entrepreneurs are responsible for 68% of the $48 billion underreported gap in 1987 (USGAO 1990). It is a striking number considering that the self-employment rate remained below 10% throughout the 1980s (Hipple 2004).

In this paper, I show that consumption among entrepreneurs is strictly greater than consumption of wage earners, even after controlling for race, education, experience, family size, and wealth. This is in striking contrast to recent investigations, claiming that entrepreneurship does not pay (Hamilton 2000; Moskowitz and Vissing-Jorgensen 2002). These investigations have relied on income data in order to reach their conclusions without any adjustments for income underreporting, which is best detected by examining consumption data. To detect income underreporting, one has to either assume (or calculate) saving rates for each of the groups (self-employed and wage earners), or assume that an individual's propensity to save is constant over time. I rely heavily on previous estimates of saving rates in assessing income underreporting. Noting that entrepreneurs save more than their wage counterparts (Caner 2003; Dynan, Skinner et al. 2004; Siman 2008) by creating an interaction term of income and self-employment, I am able to detect underreporting of earnings. Higher saving rates by the entrepreneurs should then lead to a negative sign of the interaction term when regressing expenditure of the self-employed on income, demographics, and the interaction term. Using the Panel Study of Income Dynamics (PSID), I show repeatedly a positive, highly significant sign on the interaction term, suggesting extensive underreporting of income. I also detect underreporting using a second assumption (constant individual marginal propensities to save) by observing changes in sign of an interaction term (income and self-employment status) with change of employment status.

I then proceed to compare wage rewards to entrepreneurial rewards without using income by switching to consumption metrics. Not surprisingly, consumption comparisons shows greater benefits for the entrepreneurs than do income comparisons. These results might of course be contaminated by sample selection problems. Sample selection bias could arise because a sample

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of current entrepreneurs consists of those who either just started or those who chose to remain self-employed and are thus deemed to be successful entrepreneurs. However, to form an accurate interpretation of entrepreneurial earnings, it is important to examine the earnings of all subjects, not just the successful ones. I therefore also estimate effects of *previous* business ownership on current consumption in order to ameliorate. I find evidence that those remaining in business enjoy the largest consumption premium but even those who are no longer self-employed, on average, get a small increase in their consumption. Additionally, making sure the sign of the interaction term switches for individuals at the same time as changes in their individual self-employment status (*i.e.*, going back into wage sector, or becoming self-employed), ensures that underreporting accounts for sign of the interaction term and not some fixed effect, which could be associated with people who are more likely to undertake entrepreneurship.

The rest of the paper is structured as follows: Section 2 reviews the literature, Section 3 describes the data, Section 4 constructs the analysis, and Section 5 concludes.

2. Literature Review

Measuring earnings is important because it could help researchers and policymakers understand the entrepreneur. In the most simple scenario, policymakers want to be able to identify able entrepreneurs *ex ante* in order to provide the future self-employed the necessary support. The entrepreneur is the Supermen of economics, he is credited with fostering innovation, creating jobs, keeping production efficient, and producing exactly what consumers desire.

As Adam Smith noted,

> [w]hen an independent workman, such as a weaver or shoemaker, has got more stock than what is sufficient to purchase the materials of his own work, and to maintain himself till he can dispose of it, he naturally employs one or more journeymen with the surplus, in order to make a profit by their work (Smith 1776).

If this career choice is motivated by profit, as in Smith's vision, then it is a very straight forward case where uncertainty of business profits is rewarded by a larger than wage profit (profit for Adam Smith is the combination of interest and risk rewards). Hence, the expectation is that entrepreneurial earnings are higher than what the entrepreneur can get otherwise by earning a less risky wage working for someone else. There could be other nonmonetary reasons as to why people choose these careers. However, it seems that alternative explanations are proposed only after self-employment is found not to be financially rewarding, because otherwise profit is the most natural explanation for why people choose entrepreneurship.

The inquiry into earnings comparison originates in the desire to empirically verify several models explaining why some people choose entrepreneurship. One of the first rigorous theoretical mods

to explain entrepreneurship was developed by Kihstrom and Laffont (1979) who stipulated that risk tolerances were responsible for selection into an entrepreneurial. Essentially, a random parameter in the production function imposes some uncertainty on the output, thus attracting more risk tolerant agents to business ownership. Unfortunately, risk is hard to measure empirically, although several attempts have been made (Hersch and Viscusi 2001; Cramer, Hartog et al. 2002; Sanarelli and Vivarelli 2007; Krichevskiy 2009). Nonetheless, Kihlstrom and Laffont opened up the floodgates of theoretical models and empirical investigations by formally modeling what Adam Smith in 1770s and Frank Knight in the 1920s stipulated about the entrepreneur (Smith 1776; Knight 1916-1921).

Three new classes of models have subsequently emerged: 1) investments and agency models (Lazear and Moore 1984) claiming that earnings profiles differ from wage workers to self-employed because entrepreneurs do not need to be provided incentivized to perform. 2) Matching and learning models (Jovanovic 1982) where entering firms do not know what the true costs are and thus have to rely on some prior beliefs to make an entry choice. Upon entry, costs are revealed and firms update their beliefs about their costs (this could be viewed as firm quality) and only the best survive, while those that made an erroneous entry choice exit. 3) Alternatively, either the beliefs (Steen 2004) or the information used in updating (Krichevskiy 2008) could be incorrect, or the utility is not fully measured because there could also be nonpecuniary benefits to business ownership. If an entrepreneur is neither overoptimistic nor misled about the profit potential upon entry, but earns less profit compared to wage work, it is reasonable to assume that she derives her utility elsewhere (*e.g.* the benefit of being in control). However, these conclusions are usually drawn only after the realization that entrepreneurship is not as monetarily rewarding as wage work. In all three models, mentioned above, rewards matter and the next step is to empirically measure those rewards. Nonpecuniary benefits aside, which group has higher earnings?

There are papers claiming that entrepreneurship does not pay (Hamilton 2000; Moskowitz and Vissing-Jorgensen 2002), as well as other works claiming that entrepreneurs are better off (Rees and Shah 1986; Borjas and Bronars 1989; Brock and Evans 1989; Evans and Leighton 1989; Quadrini 1999). The varied conclusions are caused by numerous complications associated with defining an average entrepreneur, choice of household vs. individual comparison, measuring entrepreneur's profits (business equity in particular), choice of hourly wage vs. annual income comparisons, and by a choice of control variables. For example, Quadrini (1999) reports higher household annual incomes for families whose head of the household is self-employed and those who have any family member as the self-employed. He main goal of Quadrini's paper is to measure wealth accumulation by the entrepreneurs; he uses both Panel Study of Income Dynamics (PSID) and Consumer Survey of Finance (CSF) data. However, Quadrini does not control for either education or hours worked; he also does not measure business equity. In

contrast, Hamilton (2000), finds that entrepreneurs get both lower initial earnings and lower earnings growth. Hamilton uses the Survey of Program and Income Participation (SIPP) and estimates hourly earnings while also controlling for education and tracking changes in business equity.

This paper uses annual income and annual consumption measures. I do not think hourly earnings are the best metric for measuring monetary rewards to employment, because the nature of work is different for the self-employed. First, the self-employed base their work hours on the demands of the business and are oftentimes not able to replace their expertise with that of employees. There is also no supervisor to make sure they only take, say, thirty minutes for lunch, meaning reported work hours are not necessary actual work hours (since business owners come and go as they please). Because of the absence of oversight, entrepreneurs may feel that they spend an entire workday at their business while in-between they might have managed to pick up their kids from schools or accomplish other personal tasks. Most wage jobs in the private and public sectors do not allow such flexibility.

Second, most wage workers (especially in the lower half of the income distribution) would be happy to work overtime, thus accumulating more annual hours, but the choice is not theirs to make (business owners who have to pay higher wage rates for hours exceeding 40 hour per week are often discouraged from providing additional work hours to their workers). I draw a distinction between controls such as education, experience, race, and family size versus hours worked, with the former being a universal measure across population and the latter being a very different metric depending on the group in question. Unlike Hamilton, I therefore choose annual earnings measures instead of hourly earnings.

Hamilton also addresses distributional differences by running quintile regressions, since the distribution of earnings for the self-employed is noted to have fat tails, this idea first emerged as a superstar theory put forward by Rosen (1981). Noting these distributional differences I also employ quintile regressions in my comparisons. Unfortunately, neither Quadrini nor Hamilton addresses the income underreporting issue, which is likely to change both of their estimates.

Some researchers maintain that income underreporting is partially circumvented because most research is based on many surveys that ask income questions directly and that do not rely on income tax data (Hamilton 2000). The idea is that net profits are not reported correctly but so long as econometricians have reported salary draw, overstatements of expenses do not appear in the data. This may not be true if the salary draw is also not reported honestly. My dataset contains both income reported to the IRS and income reported to the surveyors. The two income measures are very similar and produce virtually identical regression estimates; thus, income reported to the IRS is not different from that which is reported to researchers. Hence, if a person has reasons to

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misrepresent her income for the IRS, she is just as likely to do the same when it comes to interviews with government-funded surveys.

The finding that self-employed underreport their income is not new. It has long been suspected that self-employment provides an opportunity for the tax evasion and underreporting. This problem is not as rampant among wage earners whose income is reported by their employers. Thus, wage earners are not necessarily made of higher moral fiber; they are simply deprived of the tax evasion opportunity. To address the widespread underreporting by the self-employed several measures have been proposed (Klepper and Nagin 1989; Feinstein 1991; Adreoni, Erard et al. 1998; Schuetze 2000). One way to overcome the problem and estimate someone's income is to use consumption (expenditure) estimates (Pissarides and Weber 1989) via parametric (Baker 1993) and nonparametric (Tedds 2005) measures. These expenditure estimates give a researcher an idea as to how much a person should be earning (on average) given her level of consumption. I explore this avenue by examining consumption differences between entrepreneurs and wage earners. I measure distributional differences when comparing several measures of consumption for wage earners and the self-employed. I also find evidence of underreporting by entrepreneurs. Income underreporting places a big question mark on the traditional income comparisons among wage earners and the self-employed. I suggest building consumption measures instead of outright income comparisons. To detect underreporting by the self-employed, I have to rely on the well-supported assumption that entrepreneurs save more (Quadrini 1999; Caner 2003; Dynan, Skinner et al. 2004; Siman 2008).

In fact, wealthy individuals save more regardless of occupation (Reiter 2004). Wealth itself is correlated with entrepreneurship, or with so-called entrepreneurial ability (Hurst and Lusardi 2004); entrepreneurs obtain higher wealth precisely because they save more. Entrepreneurs invest heavily in their own business (Moskowitz and Vissing-Jorgensen 2002), which is oftentimes driven by either the information asymmetry or the expense and unavailability of external financing. Continued re-investment into an entrepreneur's own business could also hide some earnings from the observer.

It appears that while, earning a lot less than their wage counterparts, entrepreneurs save a lot more. While it has been found that entrepreneurs accumulate more wealth (Quadrini 1999), most of the studies of saving patterns used income as a variable (Caner 2003; Siman 2008), which may be problematic if income information is biased due to commonly overstated business expenses and understatement of income. But in a recent careful examination Dynan et al., (2004) found that saving rates are almost identical for samples which included and excluded entrepreneurs. While zeroing in on the saving rates of the self-employed was not their explicit goal, by examining several large datasets (Panel Study of Income Dynamics, Survey of Consumer Finances, and Consumer Expenditure Survey) and looking at the long term (10 years) income

averages they were able to side-step the issue of underreporting by entrepreneurs in establishing saving rates (over the periods of time extending beyond business tenure), even while using income. Thus, it is fair to assume when doing consumption comparisons that entrepreneurs do not save less than their wage counterparts.

Armed with the fact that entrepreneurs save more, it is worth re-examining the income-wealth relationship. Two components of the income-wealth relationship and findings about savings still pose some problems: (1) it appears that entrepreneurs need to save a lot of their income to make up in wealth. This is paradoxical since it is hard to imagine people with a smaller income saving more (in absolute terms) than those whose incomes are significantly larger and (2) much more troubling, income estimates for entrepreneurs are not reliable if there is any underreporting on the part of the self-employed. Mindful of these underreporting issues, I re-examine the income of the self-employed and compare it to the income of wage-workers. To circumvent the issue of income underreporting, I design consumption measures to better estimate levels of disposable income. I find that controlling for demographic variables and assets that self-employed consume more, regardless of whether total expenditure, housing values and expenditures, car values, or utilities expenditures are used as a measure. As a result, this paper contributes to the existing self-employed vs. wage-worker income comparison debate as it points to significant monetary rewards associated with self-employment that are not captured by traditional income measures.

There is also a bigger issue for economists to tackle, related to the core question of who reaps more benefits from their respective jobs, the self-employed or the wage worker? To understand who benefits more, income has been used as a means of obtaining desired goods and services. However, this may not be fully appropriate when comparing self-employed individuals with wage workers, even if neither group attempts to hide its incomes from the IRS (or surveys). Because business owners have the power to decide how business assets are used, and can potentially use these assets for personal benefits (e.g. transportation using the company car), it might be worthwhile to include these benefits into calculations of received earnings. Granted, sometimes similar benefits are available to the wage workers, for example a cab driver who does not own a vehicle may still go and do his grocery shopping using the cab car. However, these benefits are at the discretion of the business owner, and in many cases must be reported as income. In other words, if a business has a nice car, beach condo etc., business owners receive the same utility from using these resources as private owners do, and thus they ultimately choose to use their cars, properties and other assets as they see fit. Unlike the intangible and unquantifiable psychological rewards of business ownership, resource use is tangible and should be measured. I argue that in light of the scope for underreporting, which is further complicated by definitional difficulties (in terms of what is a legitimate business expense and what is not) of income itself, consumption instead of income can be used to contrast monetary benefits of employment.

Although consumption seems like a natural proxy for earnings, several challenges remain. First issue is the inability of researcher to separate true business expenditures from personal use consumption. For example, a self-employed person may purchase an expensive car to later write it off as a business expense. While this car could be helpful in signaling quality of the self-employed to potential clients, making it a very useful business tool, the owner also enjoys this high quality product. For example, when hiring a Certified Public Accountant (CPA) a customer may perceive an expensive car driven by the CPA as a signal of experience, quality, or sign of fewer instances of IRS audit, all of which are measures of success. In this example the expensive car aids the entrepreneur (CPA) in attracting business clientele making it a useful business asset. However, at the end of the day, when she goes to the stores, malls, and restaurants, she enjoys the quality of the car in the pure consumption sense.

Another issue arises with self-selection of people into self-employment. It may be necessary to have collateral in order to secure the funding crucial for establishment of a business. Hence, by observing that more of the self-employed own their own housing we cannot conclude that these differences are due to larger incomes as the wage workers with large incomes may be kept out of the self-employment due to lack of collateral. Accumulation of collateral can either come from bequest or from saving over time. So are the entrepreneurs (or prospective entrepreneurs) different when it comes to lifelong saving behavior?

To ensure that these entrepreneurial individuals do not have some fixed effect associated with their saving behavior and thus causing the income-entrepreneurship interaction term to serve as a proxy for this fixed effect: I look at the long-term history of business ownership. I create a number of terms interacting indicators for prior business ownership with current consumption. Observing the sign of the interaction terms, contingent on current business ownership only (essentially observing change in sign with the change of self-employment status),I find additional re-assurance that it is underreporting and not some fixed effect that is responsible for significant sign of the interaction term. This method has not been previously used in the underreporting literature which has previously assumed the same marginal propensity to consume for everyone (Pissarides and Weber 1989). The only assumptions that I make are that 1) consumption is reported truthfully for everyone, 2) marginal propensities to consume remain constant for all agents for the duration of the study, and 3) self-employed individuals have higher saving rates, as has been repeatedly demonstrated (Quadrini 1999; Caner 2003; Dynan, Skinner et al. 2004; Siman 2008).

3. Data

I use the Panel Study of Income Dynamics (PSID) as it offers a number of asset variables, income variables and most recently (starting with 2005 data) a number of detailed consumption variables.

The PSID is designed to track individuals, but it also collects income and expenditure information on their spouses and, to a lesser degree, on other family members living with them. While my dataset does not contain a long history of consumption, it does have business ownership history, which I use to estimate the long-term effects of business ownership. By examining how current consumption levels differ among wage earners some of whom were previously self-employed but no longer are, I can see how long these differences persist after a person returns to wage employment.

My dataset consists of detailed observations for 2005, with demographic and income variables going as far back as the 1995 wave. I examine consumption to produce results compatible to income estimates of Hamilton (2000), I restrict my sample to males. Following convention, I exclude farmers and anyone outside the 18-65 age range. I also exclude people earning practice income, since they are often re-classified into self-employment as they become partners in their firms, but they are not self-employed in the conventional sense. The resulting sample consists of 4,797 people. Of these, 708 are what I will call self-employed (14.77%). This number is unusually high. Participants of the PSID survey are asked if they are working, and if "yes", then the following options are given: (i) for someone else, (ii) themselves or (iii) both? Only seven percent of those surveyed work for themselves. However, since I am examining consumption and household consumption records are not disaggregated, it is possible to determine whose income went towards what (in terms of purchasing goods and services by members of the household), I use another variable in PSID in deciding whether the person is a part of the self-employed group. If any person answers positively to the question of whether they, or anyone else in their household, are self-employed, I place them in the self-employed group. I create similar variables for other years of the survey going back to 1995.

The PSID underwent major revisions in 1997, starting bi-annual interviews instead of previously conducted annual interviews. Hence, my dataset includes 1995, 1996, 1997, 1999, 2001, 2003, and 2005 interview variables. Demographic variables are carried through unless there is a change. I use demographic variables for the current year (2005) as the controls in the analyses. I also construct variables capturing whether a business owner is present in the household since the previous survey. In other words if there was a self-employed person in 1995-97 but since then he or she either went back to the wage sector or left the household, I create a variable capturing this change in order to trace the effects of previous business tenure on current consumption.

It is not immediately obvious which consumption measure should be employed. I create several consumption measures with total annual consumption being the broadest – it includes total annual expenditure on housing, transportation (car leases, gasoline, parking, insurance, and public transportation), utilities (net of subsidies), food, clothing, child-care, adult-care, schooling, home repair, vacations, entertainment, and total donations. In the case of transportation, cars are often

claimed as business expenses, but they are consumption goods as well. I keep expenditure on cars as consumption in my sample and exclude utility vehicles, which are used more for business than as consumption goods. I replicated my analysis excluding pickup trucks as well. This exclusion did not alter the results to any significant degree, so I re-introduced the pickup truck category into the data set, while excluding utility vehicles. In other measures of consumption, I used using housing or utilities as the dependent variables only – these are much narrower definitions that oftentimes do not detect significant differences between the two groups.

Income in my analysis includes wages, interest, royalties, rent, dividends and both public and private transfers. This variable encompasses head of the household income and spouse's income as well. Additional income brought in by other family members both present at the household and transferring money from elsewhere is also accounted. I also repeated the entire analysis using taxable income, which is asked separately in the survey. The results were practically identical and are not reported here.

4. Group Differences, Underreporting and the Long Term Effects of Self-Employment

4.1 *Descriptive Statistics and Group Differences*

I first set out to explore population differences between the self-employed and wage workers. I then examine their respective consumption profiles controlling for these differences. The two populations differ along every measured dimension. First, the average self-employed person is older, more likely to be married, with more work experience and education; he has greater self-reported income and he also consumes more. I conduct non-parametric Kolmogorov-Smirnov tests (Conover 1999) on expenditure, income, education, and experience distributions. In each case, the distribution of the self-employed dominates those of wage workers, with *p*-values near zero. In my sample 86 percent of business owners are married compared to the 78 percent of married wage workers. The self-employed also differ from wage earners along racial, educational, and experience lines as well (Table 1). As for distribution differences the findings are well in-line with the expectations given that self-employed are more experienced, and older.

Another dimension along which the self-employed differ markedly from wage workers is in the amount of household assets and debt. The self-employed own more of all types of assets, including housing assets, stocks, and certificates of deposit. At the same time, the self-employed carry more debt (Table 2). Assets are necessary to obtain business financing, which is reflected in the greater housing equity held by the self-employed. Additionally, both assets and business loans generate debt since all of these are likely to be financed.

Table 1

Descriptive Statistics of Demographic Variables

	Self-Employed	Wage Workers
Mean age	46.46	40.65
No children	54.06	51.19
2 or more kids	9.37	11.81
High school diploma only	26.85	34.59
2 year college	17.65	19.82
4 years +	15.54	7.49
Race white	64.57	82.13
10 yrs or less experience	40.91	53.11
20 yrs or more experience	21.52	16.5

Values are percentage of total population

Table 2

Assets and Debt Comparison

	Self-Employed	Wage Workers
Mean CD Savings	$31,154	$8,710
Median CD Savings	$5,000	$1,000
Percent of Population with CD $\geq$ 25,000	24.19	9.04
Mean Housing Equity	$142,575	$94,768
Median Housing Equity	$74,500	$53,000
Percent of Population with Housing equity>500,000	8.2	2.09
Mean Family Debt	$16,844	$7,709
Median Family Debt $\geq$ 10,000	$2,000	$500
Percent of Population with Family Debt $\geq$ 25,000	13.12	8.39

Significant demographic group differences create two very different income and consumption profiles. At the same time, even the raw plots of the distributions suggest some disparity in the reliability of income reporting. Figure 1 depicts estimated consumption and income distributions for the two groups. It demonstrates a within group income-consumption contrast revealing interesting patterns. In the case of the self-employed, it seems that consumption outpaces income, suggesting some underreporting of income taking place. There is no reason for which an entire group of people would be consuming beyond their current income – unless the group in question

Figure 1. Densities
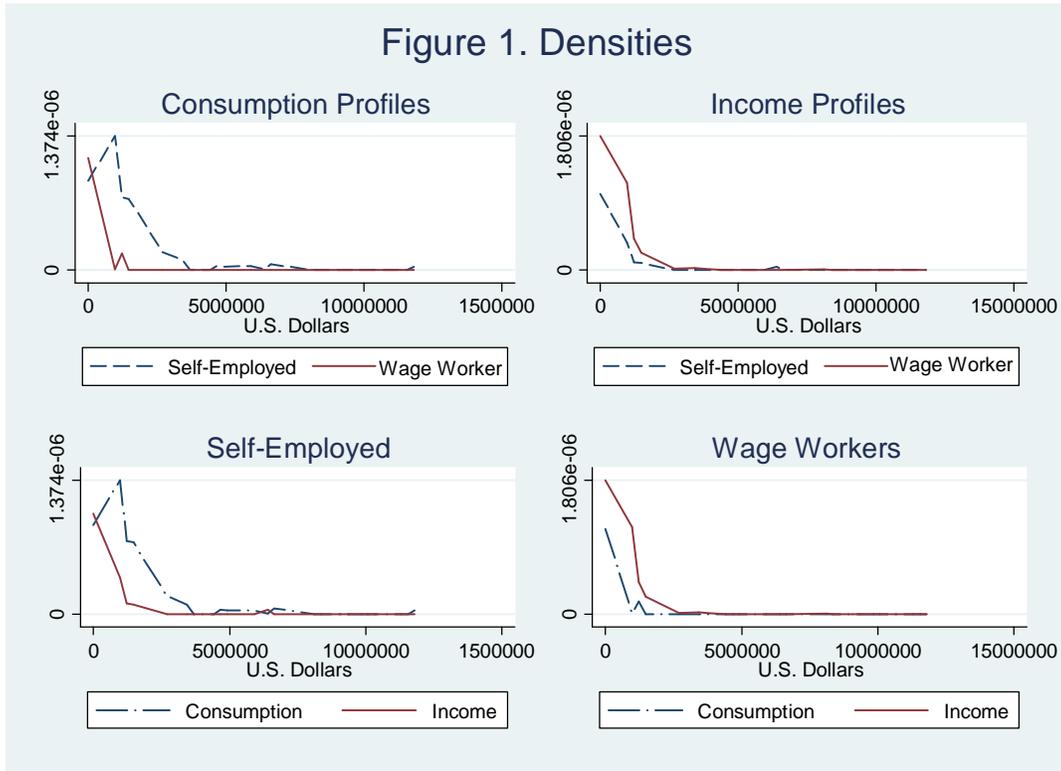
is the unemployed. Yet it seems that self-employed households enjoy consumption well beyond the levels allowed by the earnings they receive. At the same time, merely observing these differences of distributions is not sufficient to deduce that there is any underreporting of income.

4.2 *Personal Income and Expenditure Comparisons*

Unconditional distributions provide only a limited insight and are not entirely suitable for the comparison of rewards to employment – especially given what we know about differences in education, experience, and financial wellbeing among the two populations. Thus, I produce conditional estimates of both incomes and expenditures controlling for education, experience, and family size. I regress demographic variables and the self-employed dummy on both expenditure and the total consumption as in (1) and (2)

$$E_i = \beta_0 + X'_i \beta_i + Z_i + \epsilon_i \tag{1}$$

$$I_i = \beta_0 + X'_i \beta_i + Z_i + \xi_i \tag{2}$$

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where E_i is expenditure, I_i is income, $\mathbf{X}_i$ is a vector of demographic variables and Z_i is a self-employment dummy. I produce both OLS estimates and quantile regression estimates at the 25th, 50th, and 75th percentiles, mindful of the fat tail distributions documented by Hamilton (2000). Tables 3 and 4 provide the results.

Table 3

Expenditure and Self-Employment

Variable	OLS	Quantile Regression		
		.25	.50	.75
Education	8.77***	3.32***	5.52***	9.54***
	(2.55)	(.20)	(.30)	(.93)
Race White	-18.17	6.51***	7.76***	10.28**
	(14.52)	(1.28)	(1.72)	(4.39)
Experience	-0.84	.095	.50***	1.20***
	(.74)	(0.067)	(.09)	(.21)
Family size	55.24***	-7.50***	-6.86***	-10.64**
	(11.69)	(.88)	(1.37)	(4.17)
Self-Employed	35.51*	11.74***	19.74***	39.99***
	(18.34)	(1.61)	(2.17)	(5.54)
Constant	2.48	-19.55**	-36.38***	-61.70***
	(35.65	(2.90)	(4.23)	(12.71)
R-squared	0.013	0.04	0.048	0.05

Dep. Var: Total Expenditure in thousands. *N=3082*

***$\alpha=0.01$. **$\alpha=0.05$. *$\alpha=0.1$

It is immediately clear that the choice between mean or median comparisons, as well as the choice of consumption versus income, yields very different results. Quantile regressions produce a slightly better fit when comparing the *R*-squared of the OLS to the pseudo *R*-squared of any of the quantile regressions; Figure 1 also shows severe skewness and non-normality, which also suggests quantile regressions are more appropriate. Consequently, I shall pay more attention to them than to the results obtained via OLS. However, using either specification, it is clear that self-employed earn more. Moreover, regardless of the methodology, expenditure premiums of self-employment are larger than income premiums. This suggests underreporting on part of the

self-employed, especially since we would expect the opposite results given higher saving rates of the self–employed.

Table 4

Income and Self-Employment

Variable	OLS	Quantile Regression		
		.25	.50	.75
Education	10.25***	4.61***	6.80***	8.54***
	(1.17)	(.24)	(.32)	(.53)
Race White	24.75***	13.05***	16.11***	17.45***
	(6.81)	(1.60)	(1.90)	(2.62)
Experience	.79**	.26***	.46***	1.06***
	(.33)	(.088)	(.09)	(0.12)
Family size	-9.18**	-5.90***	-7.72***	-9.52***
	(5.93)	(1.20)	(1.66)	(2.53)
Self-Employed	30.79***	-.57	5.32**	16.47***
	(8.77)	(2.04)	(2.45)	(3.40)
Constant	-83.59***	-35.96***	-45.62***	-46.29***
	(16.39)	(3.52)	(4.59)	(7.33)
R-squared	0.038	0.065	0.084	0.095

Dep. Var: total income in thousands. *N=3601.*
***α=0.01. **α=0.05. *α=0.1

4.3 *Underreporting*

A closer examination of the data suggests that some income claims made by the surveyed self-employed individuals are not likely to hold up to scrutiny. For example, 51.8 percent of males and their spouses who claim to be self-employed only (these are the households where everyone is self-employed) claim to have received exactly zero income from their self-employment in 2005. This clearly is not likely. Additionally, it would mean severe dissavings on the part of these households. To confirm my suspicion of underreporting I regress demographic variables such as

race, individual's education, experience, family size, total income and the interaction term between income and business ownership on the total expenditure. My model specification is

$$E_i = \beta_0 + X_i'\beta_i + I_i + D_i + \varepsilon_i \tag{3}$$

where E_i is expenditure, X_i is the vector of demographic variables, I_i is individual's income, and D_i is the interaction term. I find strongly significant positive coefficients on the income x business ownership interaction term (see Table 5). This suggests that the self-employed are underreporting their income since their higher saving rates should lead to a negative coefficient if they were to report their income honestly.

Table 5

Evidence of Income underreporting.

Variable	OLS	Quintile Regression		
		.25	.50	.75
Income	.000065445	.0001690939***	.0003322333***	.0005700435***
	(.0000458526)	(.0000458526)	(.0000042246)	(.0000052913)
Education	7.596428***	2.178698***	2.922443***	4.339161***
	(2.801553)	(.1462655)	(.2578926)	(.5867257)
Race	-18.17901	3.811877***	3.198972**	5.118825*
	(16.32578)	(.9476383)	(1.50196)	(2.890641)
Experience	-.986501	0.03359129	.2768124***	.6390559***
	(.8130209)	(.04890513)	(.07486109)	(.1382626)
Family size	72.16536***	-5.674421***	-5.218422***	-6.752845*
	(13.83903)	(.7051715)	(1.267869)	(2.818167)
Interaction	.0002034619***	.0000526269***	.0000328126***	.0002601576***
Term	(.0000692232)	(.0000045018)	(.0000063774)	(.0000083956)
Constant	15.85689	-10.37368***	-16.34522***	-25.89748***
	(39.23889)	(2.093101)	(3.610893)	(8.075975)

Dep. variable expenditure in thousands $(N=2705; =0.023; =0.084; =0.099; =0.11)$

***$\alpha=0.01$. **$\alpha=0.05$. *$\alpha=0.1$

In Table 6, I demonstrate repeatedly (using specification (3) with variables representing current income interacted with indicators for self-employment status in previous years) a positive sign on the interaction term for current business owners and mixed signs for people who are no longer self-employed (see Appendix for complete regression results). Finding mixed sign for the wage workers' interaction terms is not surprising since I do not have any particular expectation about the saving rates for the wage workers. In fact, the coefficient turns out to be negative for most years, whereas for current business owners the positive sign suggests continued income underreporting.

Table 6

Additional evidence of Income underreporting. (10th percentile)

Interaction Term	Self-Employed 2005	Wage Worker 2005	Number of Cases Self Employed (SE) and Wage Workers (WW)
1995xCurrent Income	.0000807***	.000177***	SE 158
	(.0000277)	(.0000139)	WW 817
1996xCurrent Income	.0000980***	-.000169***	SE 164
	(.0000276)	(.0000125)	WW 839
1997xCurrent Income	.0000708**	-.000171***	SE 171
	(.0000325)	(.0000096)	WW 957
1999xCurrent Income	.0000381	-.000197***	SE 182
	(.0000280)	(.0000112)	WW 1067
2001xCurrent Income	.0000697**	-.000197***	SE 192
	(.0000318)	(.0000112)	WW 1185
2003xCurrent Income	.0000113***	-.000313**	SE 212
	(.0000284)	(.0000142)	WW 1351

Dep. variable expenditure in thousands, ***α=0.01. **α=0.05. *α=0.1

Other regressors: Total Income, Education, Experience, Family Size, Race

The regressions in Table 6 show the sign of the interaction term to be contingent on business ownership. In my regressions the interaction term for the self-employed always has both positive sign. Table 6 presents results for the 10th quintile of the expenditure distribution using quantile regression. These results are robust to changes in specification with similar signs on the interaction coefficient for other quintiles. The regression signs for the lower 10th quintile are the same as those from 25th, $75^{th,}$ 90th, or 95th quintiles (not reported here). But for the 10th percentile I find statistical significance for interaction term much more often (compared to 25th, 50th, or 75th quintile). My suspicion is that 10th percentile shows a significant sign more often because of

lower variances in the left tail of income distributions for both groups. The results in Table 6 lead to the conclusion that the self–employed do not have any particular tendencies associated with income underreporting as a fixed individual trait. To the contrary, they only underreport their income while they are in still in business.

4.4 *Long Run Effects*

I now examine how previous business tenure effects current consumption. I regress the same demographic variables (excluding income) on current consumption, adding previous business ownership dummies. These dummies record previous years' business ownership while all other variables continue to report current consumption and current demographics. My model specification is

$$E_i = \beta_0 + X_i'\beta_i + Z_i + \epsilon_i \tag{4}$$

where Z_i is a specific year of business ownership.

I run this specification for both types of individuals: those currently in the wage sector and those currently self-employed. I produce estimates for both mean (via OLS regression) and median (via quantile regressions). The results are very similar in nature with those agents who are still self-employed enjoying the largest consumption premiums. For both median and mean estimates the same cannot be concluded about the people who went back into the wage sector, as we cannot observe the reason for this change of status. Returning to the wage sector could be due to failure of business venture (bankruptcy for example) or it could be a successful sale of a business. There is a large body of literature addressing firms' exit and how it is related to success and failure (Headd 2003). The benefits of previous business ownership are highly correlated with current consumption (survival and success go hand in hand). At the same time, the only conclusive results for current wage workers who were previously self-employed is that, on average (in both median and mean regressions), there is a positive shock to current consumption due to previous business ownership. Median estimation results are summarized in Table 7, whereas mean estimates (with the 95 percent confidence intervals) are shown in Figure 2.

Table 7 reveals that even after controlling for demographic differences long term average effects are positive. On average, even after business tenure has completed, there are positive effects on consumption that extend for up to four years after the termination of a business. Even combined with the fact that for those that stayed in business effects are mostly larger, the finding of a lingering positive effect suggests that undertaking self-employment has rewards even if one was to go back into the wage sector. This suggests that on average, business termination is not failure when compared to wage work. This, "on average" statement needs to be taken at face value - while on average the effect is non-negative for many agents the change is negative nonetheless,

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because this average is not statistically significant and a large portion of the confidence interval is in the negative territory . Recent investigation of long term effects using income finds that an individual significant penalty (via income reduction) is paid by entrepreneurs returning to the wage sector (Krichevskiy 2009), yet in the long run it pays off to attempt business ownership - regardless of the success of the business venture. Using SIPP Krichevskiy (2009) finds that people attempting business ownership have bigger chance of ending up in higher income classes. These effects are likely to be even more pronounced given income underreporting of the self-employed.

Table 7

Long Run Effects of Self-Employment (Median Regression)

Business Ownership Year	Self-Employed 2005	Wage Worker 2005	Number of Cases Self Employed (SE) and Wage Workers (WW)
1995 Business	28.57**	18.18***	SE 185
	(12.81)	(5.65)	WW 915
1996 Business	11.25**	11.25**	SE 192
	(4.89)	(4.89)	WW 942
1997 Business	2.08	4.53	SE 202
	(9.89)	(4.77)	WW 1073
1999 Business	1.96	1.22	SE 214
	(7.04)	(4.91)	WW 1198
2001 Business	3.71	3.71	SE 226
	(3.83)	(3.83)	WW 1330
2003 Business	.000011***	-.00031**	SE 248
	(.000028)	(.000014)	WW 1517

Dep. variable expenditure in thousands, ***α=0.01. **α=0.05. *α=0.1
Other regressors[2]: Total Income, Education, Experience, Family Size, Race

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[2] Full regression results are reported in the Appendix

Figure 2. Long-Run Mean Effects with 95% Confidence Intervals
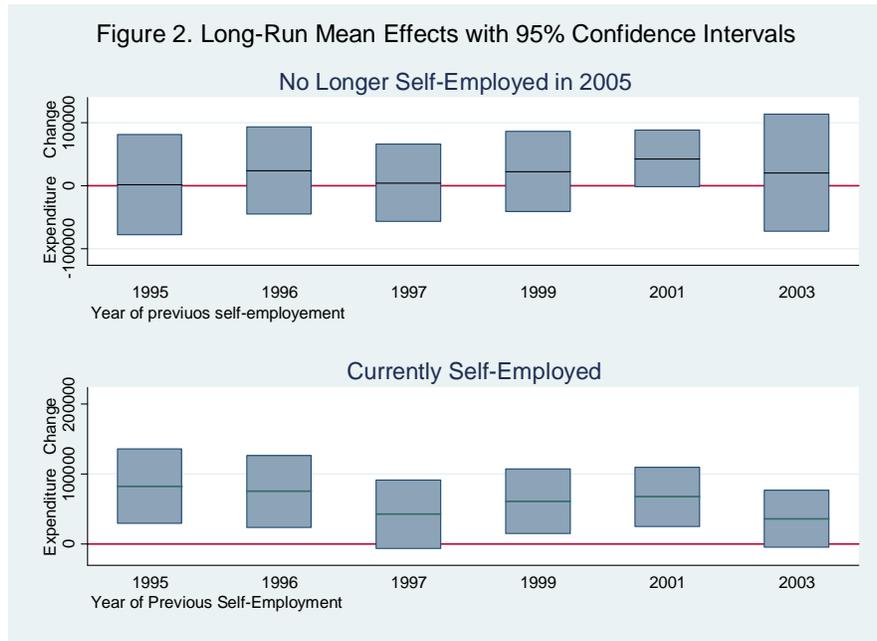
Excluding income from the regressions completely is likely to create an omitted variable bias, since income matters in the determination of an individual's consumption levels. But as it is underreported by the self-employed, including income will offset the findings associated with the self-employed and the regression dummy coefficient. Hence, removal of income and using a consumption comparison alone is more informative. I look at the coefficients of correlation for the relevant variables and try to determine the magnitude of the bias created by the omission. It could be assumed that the correlation coefficient for the wage workers is the unbiased estimate, which could be used to adjust the incomes of the self-employed. However, economists are not yet set on the systematic differences between the two groups and because of that we cannot assume that the relationship of income to consumption is the same. This is partially because of different spending patterns created by legitimate business expenses. Nonetheless, the coefficients of correlation themselves provide some evidence of the disparities, but even very big systematic differences among the two groups should not lead to the striking differences observed; I find a coefficient of 0.48 for the self-employed and 0.04 for the wage workers. Needless to say that both the difference over 10 times in magnitude and the 3% income consumption correlation for the wage workers seem unrealistic. Clearly, better estimates are needed. An ideal way to address this issue is via a long panel data examination with both income and consumption, which should create better coefficients for people who have switched from self-employment into the wage sector and back as their fixed effects could be controlled for. Nonetheless, this paper

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demonstrates the importance of underreporting issue, which needs to be carefully considered in any earnings comparison.

5. Conclusions

The self-employed are financially better off compared to the wage workers even after controlling for their respective demographics. This finding is in stark contrast to some of the recent literature on income comparisons (e.g., Hamilton 2000). The main reasons for this disparity are that this paper pays particular attention to the underreporting issue, largely ignored elsewhere, and the choice of annual income versus hourly wage comparisons. None of the recent income comparisons of self-employed and the wage worker controls for the income underreporting by the self-employed. I find significant evidence of income underreporting by the self-employed which casts doubts on conclusions stating that self-employment is not as financially rewarding as wage work.

Comparisons undertaken in this paper find that the self-employed are better off in terms of both income and consumption, even after controlling for education, experience, and demographic variables. Perhaps the entire income definitions need to be re-written whenever evaluating self-employment. Researchers need to be very careful in separating business expenses from those of pure consumption. Having said that, there is often no clear line about the proportions of good's used for many mixed purpose expenses (cars are a good example of this). In this paper I address the issue of mixed purpose expenses by reducing the vehicle category to exclude various types of cars, some of which appear to carry much smaller consumption utility and much larger business purpose. At the same time this paper does not address a full addition of the fringe benefits to the rest of the consumption due to data availability. Therefore, even the consumption measures created here are only limited representatives as both large categories, such as fringe benefits, as well as small categories of incidental spending and numerous services categories are not accounted for in the survey. There should be no situation in which self-employed people with similar characteristics earn less; this is because they can simply close shop and move into wage employment. The only scenario where the above situation can persist is when there are some benefits not captured by income. I argue that consumption captures some of the benefits not reflected by income (for example personal use of business assets). At the end of the day, the self-employed consume more and are thus better off. These differences are both robust to changes in definitions of consumption and persistent across the two distributions.

Annual earnings comparisons are a better metric because entrepreneurs can choose to work more hours whenever business conditions allow whereas wage earners mostly depend on the entrepreneurs (and managers) to make these choices for them. Due to current law structure workers are usually more motivated to work overtime (since they get paid more than their regular

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fare); in most cases, they are not able to work the hours that they want. Earnings, in the end of the day, are only the means necessary for the acquisition of goods and services. It is goods and services (current or future) that people are really after. Hence, consumption comparison is a more direct metric in comparison of benefits to employment across groups. For example, a much fuller picture of how taxing unemployment is could be drawn by examining individual's consumption before, during, and after the unemployment spell, as the actual hardships can be observed by looking at substitutions in consumption.

The long term effects of business ownership, while non-negative on average, do not seem to persist for people returning to the wage sector. This is because there could be various reasons responsible for the end of business tenure. At one extreme, a business may end because it was a complete failure, while at the other termination of a business could be due to a successful sale by the entrepreneur.

Some limitations arise consumption comparisons are on the household level. The self-employed, in this context, are households that have someone who is self-employed as a member. Any changes in household makeup can move the household into either wage or self-employment category, having nothing to do with either business origination or the termination of such venue. For the self-employed still in business, previous business ownership is correlated with current increase of consumption as one would expect. Unfortunately, since the PSID has only recently started to track expenditure variables, our ability to measure long-run effects is very limited. This is the limitation of cross-section analysis, which can only be corrected with evaluation of the panel data.

Better income estimates need to be constructed in the future with income underreporting corrections made for the self-employed. The obvious difficulty lies in estimating the magnitude of underreporting. Perhaps a long panel data containing income, consumption, assets, and employment data needs to be examined, as the cross-section analysis is able to detect the underreporting issues but not correct for them.

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Appendix

Regressions for Table 6

Additional Evidence of Underreporting (Median Estimates)

Dependent variable expenditure in thousands, ***α=0.01. **α=0.05. *α=0.1

A1. Current propensities to save using 1995 employment status.		
	Current Wage Earners	Current Self-employed
Income	.000177722*** (.0000139353)	.0001760637*** (.0000280074)
Education	1.657036*** (.2229091)	.8809366 (.9877422)
Race White	1.955574* (1.185384)	3.24959 (2.936027)
Experience	-.0536193 (.06186582)	.1522846 (.2037608)
Family size	-4.55209*** (.9903618)	-2.519669* (1.390202)
(Self-Employed 1995)x(2005 Income)	.000177722*** (.0000139353)	.0000807228*** (.0000277231)
Constant	-12.2845*** (2.670906)	-6.404724 (15.07987)
	N=817, R^2=0.089	N=158, R^2=0.16

A2. Current propensities to save using 1996 employment status.

	Current Wage Earners	Current Self-employed
Income	.0001881638***	.0001595584***
	(.00001257319)	(.0000281575)
Education	1.854621***	.8614481
	(.2482233)	(.9150135)
Race White	2.927793**	2.456798
	(1.410048)	(2.872762)
Experience	.03436921	.1516165
	(.0685051)	(.1855706)
Family size	-4.670029***	-2.331599*
	(.9261412)	(1.347432)
(Self-Employed 1996)x(2005 Income)	-.0001698983***	.0000980634***
	(.0000125199)	(.0000276934)
Constant	-15.9463***	-6.16006
	(3.210247)	(13.28564)
	N=839, R^2=0.096	N=164, R^2=0.16

A3. Current propensities to save using 1997 employment status.

	Current Wage Earners	Current Self-employed
Income	.0001901903***	.0001842529***
	(.0000123907)	(.0000328447)
Education	1.077878***	1.181003
	(.1617026)	(.9881792)
Race White	2.61863**	.9665809
	(1.099963)	(5.519584)
Experience	.07094096	-.01802031
	(.05348281)	(.1775672)
Family size	-4.265715***	-2.910628*
	(.8894281)	(1.527428)
(Self-Employed 1997)x(2005 Income)	-.0001711012***	.000070879**
	(.0000096425)	(.0000325506)
Constant	-7.234556***	-5.58392
	(2.093277)	(14.2219)
	N=957, R^2=0.089	N=171, R^2=0.16

A4. Current propensities to save using 1999 employment status.

	Current Wage Earners	Current Self-employed
Income	.0002188864***	.000258373***
	(.0000143044)	(.0000279386)
Education	.5615408***	.6577603
	(.1646435)	(1.196253)
Race White	2.718512**	-1.640338
	(1.099693)	(6.437674)
Experience	.02313125	-.07083331
	(.05157134)	(.2362744)
Family size	-4.547023***	-2.744733
	(.8895046)	(1.839639)
(Self-Employed 1999)x(2005 Income)	-.0001974567***	.0000381247
	(.0000112482)	(.0000280574)
Constant	-.9092512	1.817691
	(2.119199)	(16.97725)
	N=1067, R^2=0.096	N=182, R^2=0.16

A5. Current propensities to save using 2001 employment status.

	Current Wage Earners	Current Self-employed
Income	.0001911024***	.0002293289***
	(.0000164882)	(.0000318041)
Education	.8929879***	-.07335361
	(.1756677)	(1.176397)
Race White	2.397245**	-2.522549
	(1.055269)	(6.93356)
Experience	.0386792	-.05446202
	(.05366305)	(.2110872)
Family size	-4.377966***	-2.775846
	(.7391648)	(1.959667)
(Self-Employed 2001)x(2005 Income)	-.000011739	.0000697666**
	(.0000180819)	(.0000318041)
Constant	-4.705587**	13.48344
	(2.161508)	(16.28237)
	N=1185, R^2=0.097	N=192, R^2=0.16

A6. Current propensities to save using 2003 employment status.		
	Current Wage Earners	Current Self-employed
Income	.0001943649***	.0001527923***
	(.0000142112)	(.0000287006)
Education	.8216306***	.7662472
	(.1513525)	(.9020232)
Race White	2.110387**	1.331547
	(.8718046)	(5.466565)
Experience	.05597175	-.06633353
	(.04399514)	(.1992514)
Family size	-4.574083***	-3.100908**
	(.6220216)	(1.464956)
(Self-Employed 2003)x(2005 Income)	-.000313388**	.0000113688***
	(.0000142112)	(.0000284406)
Constant	-3.494536*	.6483869
	(1.836009)	(11.23985)
	N=1351, R^2=0.077	N=212, R^2=0.16

Long Run Effects (Median Estimates)

Dependent variable expenditure in thousands, ***α=0.01. **α=0.05. *α=0.1

A7. Effects of 1995 employment status on current expenditure.		
	Current Wage Earners	Current Self-employed
Education	7.076***	10.75564***
	(.6638936)	(2.684138)
Race White	8.312667**	5.244272
	(3.350804)	(20.56587)
Experience	.209333	-.6293636
	(.1735715)	(.6929092)
Family size	-6.696444**	-8.889273
	(2.801582)	(11.63469)
Self-Employed 1995	18.18467***	28.57373**
	(5.656639)	(12.81543)
Constant	-54.56933***	-84.50963
	(9.051145)	(42.65558)
	N=915, R^2=0.050	N=185, R^2=0.061

A8. Effects of 1996 employment status on current expenditure.		
	Current Wage Earners	Current Self-employed
Education	7.508965***	10.800***
	(.6356214)	(2.150845)
Race White	7.426621**	-1.895273
	(3.236627)	(15.52712)
Experience	.2998621*	-.1398182
	(.1652749)	(.5208083)
Family size	-7.151724**	-21.42982*
	(2.691952)	(11.07528)
Self-Employed 1996	11.25234**	28.06273***
	(4.895187)	(9.957066)
Constant	-60.25434***	-82.30836
	(8.640316)	(33.05751)
	N=942, R^2=0.053	N=192, R^2=0.063

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A9. Effects of 1997 employment status on current expenditure.

	Current Wage Earners	Current Self-employed
Education	4.857238***	9.74377***
	(.5156421)	(1.848756)
Race White	6.122857*	6.303385
	(3.132357)	(12.97612)
Experience	.2480952	.5830769
	(.1569289)	(.4479618)
Family size	-8.289571***	-8.897693
	(2.783942)	(10.04055)
Self-Employed 1997	4.538	2.083077
	(4.771968)	(9.8912681)
Constant	-24.17914***	-78.05108
	(7.28194)	(27.67717)
	N=1073, R^2=0.040	N=202, R^2=0.060

A10. Effects of 1999 employment status on current expenditure.

	Current Wage Earners	Current Self-employed
Education	4.887877***	7.911467***
	(.4741486)	(1.458155)
Race White	6.631234**	11.67733
	(2.822728)	(10.34467)
Experience	.4017284***	.3026667
	(.1447127)	(.3707955)
Family size	-9.086362***	-14.45367**
	(2.500521)	(6.099329)
Self-Employed 1999	1.227868	1.9696
	(4.913084)	(7.047)
Constant	-26.80052***	-58.2656***
	(6.677371)	(22.05197)
	N=1198, R^2=0.040	N=214, R^2=0.056

A11. Effects of 2001 employment status on current expenditure.

	Current Wage Earners	Current Self-employed
Education	4.68387***	8.039644***
	(.3860218)	(2.290889)
Race White	6.402304***	1.044633
	(2.227324)	(16.38391)
Experience	.469087***	.01542573
	(.1145432)	(.5648374)
Family size	-6.654967***	-16.84731*
	(1.688007)	(10.10809)
Self-Employed 2001	3.715022	14.87653
	(3.836145)	(11.09489)
Constant	-26.50613***	-50.58998
	(5.33793)	(34.7174)
	N=1330, R^2=0.050	N=226, R^2=0.057

A12. Effects of 2003 employment status on current expenditure.

	Current Wage Earners	Current Self-employed
Education	4.426252***	7.710286***
	(.3441727)	(1.309546)
Race White	7.48526***	6.867858
	(1.95912)	(8.996112)
Experience	.4786866***	.4078571
	(.1008178)	(.33343)
Family size	-6.519347***	-7.574286
	(1.50875)	(7.192842)
Self-Employed 2003	.02457672	7.814
	(3.837547)	(6.44438)
Constant	-25.2937***	-58.376***
	(4.744954)	(19.3729)
	N=1517, R^2=0.037	N=248, R^2=0.049