

Self-employment – determinants and rewards in 33 countries

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Abstract

This paper explores the cross-national variation in patterns of self-employment using data from World Inequality Study, a database compiled from high quality, representative national samples from 33 nations. Our main goal is to evaluate the 1) marginalization and 2) family embeddedness theories in light of empirical evidence for a broad array of countries and historical periods.

We first examine the heterogeneity of self-employment in various national and historical settings and next turn to the analysis of labour market returns to small scale entrepreneurship. Our analysis considers a broad range of labour market characteristics and addresses the question of whether the self-employed enjoy above-average financial returns or tend to be outcasts of the world of waged employment.

Multilevel probit models accounting for economic development; basic features of political regimes and a range of respondents' family and labour market characteristics show that economic development is associated with a lower proportion of small scale entrepreneurs which is in line with linking self-employment to growth.

The marginalization thesis receives little support as the self-employed, particularly in post-communist nations, enjoy somewhat higher earnings than waged employees and can be found across a range of occupational positions. However, this is not the case everywhere. The family embeddedness of self-employment is manifested in the positive relationship between father's and children's own self-employment which holds more for sons than daughters. Marriage significantly increases the likelihood of running a business everywhere. In several nations the boost for women is twice as large as for men, which suggests that female self-employment may be more strongly family-embedded.

Keywords: Self-employment, Entrepreneurs, Cross-national Comparisons, Stratification, Self-employment and Gender

Introduction

It is well established that self-employment rates vary substantially across time and from country to country (Blanchflower 2004: 6). Despite the long recognized measurement difficulties¹ which affects most data collections (Wright 1989), self-employment studies have been on the increase in recent decades. A search in

Proquest, an electronic database, returns close to 150 academic articles published on various aspects of self-employment in the last two years. The reasons behind the interest in small business activity range from its perceived capacity to generate and sustain economic growth and new jobs to the perception that professional self-employment offers enclaves of relatively stable prosperity and autonomy in the increasingly futile globalised economy. The goal for many policy makers has been to unravel ways to stimulate and maintain high levels of self-employment in national labour markets. But this commitment exists despite the lack of evidence that having a higher proportion of self-employed people is beneficial for the economic prosperity (Blanchflower 2004). Sociologists do not lag behind economists in vigorous research on social contexts of self-employment, due, among other reasons, to the central role of self-employment in Marxist theories of capitalism. This long-standing legacy and the more recent availability of the OECD data and many surveys studies such as ISSP calls for a re-examination of existing theories.

Theory and Prior Research

Self-employment has been on the increase in many industrialized countries, according to recent cross-national evidence (Arum and Mueller 2004; Blanchflower 2004). At the individual level two competing groups of theories, *the pull and push factors* arguments (Storey 1994), explain this rise either as a preference for pursuing a business opportunity or a proof that workers are pushed out of the preferable wage earning and swell the ranks of unskilled self-employed.

Arum and Müller argue that “individuals become and stay self-employed when the relative advantages are higher than in dependent employment” (2004:427). These gains may include both pecuniary and non-pecuniary components such as the well

documented greater job satisfaction or autonomy of Schumpeterian entrepreneurs. In contrast, a host of other studies at individual and aggregate levels assert, in support of marginalization thesis, that self-employment is a choice of relatively few because it is stressful, insecure and hard work (Blanchflower 2004) or , particularly in countries with high levels of employment protection, a vehicle for employers to hire labour, stripping it of benefits, at cheaper cost by ‘contracting out’ (Grubb and Wells 1993).

Self-employment comes later in life and in some nations the probability of running own business peaks some years before retirement. The extent to which entry into self-employment in particular occupations is facilitated by educational qualifications and gender varies significantly from country to country. Net of these effects prior self-employment is a strong determinant of rates of entry into self-employment which suggests an underlying yearning for the autonomy and flexibility of running own business despite often long hours of work. This speaks against the marginalization theory, which holds that it is mostly the underclass of the salaried world that is pushed into self-employment by dearth of other options. Yet, the self-employed report higher level of stress and work-related exhaustion which leads some researchers to call for reconsidering its subjective attractiveness and objective benefits for both the small scale businessmen and the economy (Blanchflower 2004).

Of particular interest is the family embeddedness theory which links self-employment to tastes and preferences (cultural) as well as economic capital which becomes available through familial transfers across generations or through marriage.

This paper extends previous cross-national research on self-employment in several ways. (1) we investigate whether patterns found in prior studies hold in our World Inequality database, which only partially consists of previously analysed data (2) in these countries our models predicting the likelihood of self-employment control for a

more comprehensive array of possible determinants (3) we explore the patterns in average returns to self-employment net of educational, occupational and family characteristics.

Determinants of self-employment

The hypothesized link between the buoyant small business sector and the economic growth, if true, implies that small scale businesses should be ample in developed nations. By contrast the perception that small scale business emerges and flourishes particularly in places with a dearth of attractive, or any at all, opportunities for waged employment stipulated an expectation that non-agricultural self-employment may support larger numbers of workers in poorer economies. This may be particularly the case if economic development creates labour markets in which returns to waged employment in time exceed profitability of small scale own account work (see for a review Robson 2003: 313) . Therefore we expect that lower GDP levels will be associated with higher rates of self-employment.

Gender, marriage and self-employment Research in Western developed democracies finds systematic differences between the likelihood and determinants of self-employment between men and women. Men, in general, are more likely to be self-employed than women particularly in construction and trades. Due to occupational segregation the opportunities for small scale entrepreneurship for women may be fewer. Possibly in many cases marriage to an already self-employed man facilitates the choice of a wife to either help in running the business, start a new one, or to undertake an entrepreneurial activity aimed at keeping some flow of family income as the self-employed are known to have relatively irregular earnings.

Family background and self-employment Prior research suggests that tastes and preferences instilled by the family of origin or by marrying into a self-employed family may play a key role in establishing a life-long motivation to run own business. The inherited knowledge, capital and networks all work as facilitators of children's entry into small business sector so father's self-employment should be an important predictor net of parental occupation and education. But this endowment may vary by children's gender. In Australia at least; father's self-employment has a great effect on sons but not daughter' likelihood of becoming an entrepreneur.

Occupation and Education Prior studies report mixed results regarding the link between education, occupation and self-employment. While some studies found that education greatly contributes to the likelihood of professional self-employment (Arum and Mueller 2004) others note country specific differences (Blanchflower 2004: 5).

Returns to self-employment Earnings of the self-employed are notoriously difficult to measure but the existing literature suggests that the self-employed are well represented in both the top and the bottom deciles of income distributions supporting the "polarization thesis" (Hamilton 2000). Yet, the numbers of the "superstar" earners are usually small and, at least in the US, many entrepreneurs have not only lower initial wages but experience a slower earnings growth, compared to employees with similar characteristics. The commitment to self-employment may be thus explained by a range of non-pecuniary rewards (Hamilton : 628). Conversely, the trend towards occupational upgrading typical for developed societies may lead result in higher rates of professional and managerial "star earners". If this is the case, on balance self-employment should lead to higher returns. This brief review takes us to the specific hypotheses for this study:

H1: Self-employment is more common in less-developed nations

H2: Everywhere men are more likely to be self-employed

H3: Marriage enhances women's chances of self-employment more than men's

H4: Education has a positive effect on likelihood of self-employment, particularly in wealthy nations.

H5: Children of self-employed fathers are more likely to become self-employed

H6: The self-employed earn more than their waged peers

Data

We analyse parts of the World Inequality Study (WIS), which pools over 130 surveys from several major international survey projects incorporating detailed information on father's and respondent's occupation (4 digit ISCO or equivalent) and detailed educational data. The surveys are all large, representative national samples. We recoded each survey to a common international standard.

Data are from: the International Survey of Economic Attitudes (ISEA) conducted in the middle 1990s in Australia, Bulgaria, Finland, Hungary, the Netherlands, and Poland (Kelley 1990); the International Social Survey Programme (ISSP) Ideology of Inequality Round-3 1998-2000 surveys conducted by participating research groups in 24 nations; the "Social Stratification in Eastern Europe" surveys from the middle 1990s for the Czech Republic, Hungary, Poland, Russia, and Slovakia (Szelenyi and Treiman 1994); the Social Change in South Africa survey and the 1973 and 1988 Brazilian PNAD (Pesquisa Nacional por Amostra de Domicilios) household surveys².

We analyse only surveys which included a question about self-employment (Australia, Austria, Brazil, Bulgaria, Canada, Chile, Cyprus, Czech Republic, Finland, France, Germany, Hungary, India, Ireland, Israel, Italy, Japan, Latvia, Netherlands, New Zealand, Norway, Poland, Portugal, Russia, Slovakia, Slovenia, South Africa, Spain, Sweden, Switzerland, Great Britain, United States N = 188,430). Our analysis is limited to the information about non-farm self-employment from respondents in the labour force at the time of survey.

Models predicting the effects of self-employment on earnings and on subjective social location necessarily utilize data from fewer countries.

Measurement: focal variables

Self-employment difficulties with measuring self-employment are well known (Blanchflower 2000; Wright 1989). We define the self-employed as anyone working in their own business, or professional practice, regardless of incorporation or compensation method (salary, profit, or dividend). Thus, self-employment includes both the petit bourgeoisie and owners of larger enterprises. We exclude agricultural self-employment from this analysis to streamline our main argument as farm ownership is known to differ considerably from non-farm small enterprises with regard to many characteristics (Arum and Mueller 2004). Self-employed persons are coded 1. All others are coded zero.

Earnings We measure earnings and family income *relative* to others in the same nation, expressing respondent's income relative to the average income of full-time, male unskilled workers in the same survey regardless of actual purchasing power (Kelley 1990: 85-86). We mainly analyze the natural logarithm of income, an approach strongly enjoined by theory and prevalent in related literatures on economic growth and the returns to education. For working respondents, income is a reasonable proxy for earnings, since earnings are the vast bulk of their income.

Other variables

Rationale. To estimate effects of non-farm self-employment on income, we need to control as many potentially confounding influences as feasible. We use a flexible formulation that allows diverse elements of class to have separate effects (Kelley

1990). This specification predicts income better than does shoehorning the different aspects of class into a typology (Halaby 2003). It includes stratification elements from the Blau-Duncan model (education and occupational status) as well as authority elements from Dahrendorf.

Years of education was measured by nation-specific questions and then recoded by the original investigators into equivalent years of formal education (Jagodziński and Uher 2001; Szelenyi and Treiman 1994). Additional, country-specific information on educational qualifications is available in some cases. We used all this information to construct scores as internationally comparable as possible. Country-by-country details are available on request.

Occupational status is coded from the surveys' original 4-digit ISCO or similarly detailed country-specific scores into Treiman's 14-category Standard International Classification of Occupations (Treiman 1977), and thence into Worldwide Status Scores (Kelley 1990) ranging from 0 (farm labourers) through 1.0 (higher professionals). These scores are often used in international research (e.g. Evans and Sikora 2004; Kelley 1990) and are, in practice, essentially interchangeable with Ganzeboom-Treiman (2003) ISEI scores.

Supervision/ authority is scored 1 for respondents who direct the work of others and zero otherwise. Supervisors may own the business or themselves be employees. This dichotomy has been used successfully in prior research (Jackman and Jackman 1983; Vanneman and Cannon 1987), although even larger differences are obtained using a three-category measure (Holmes, Smith, and Cane 1997).

Male is a dichotomous variable with women scored 0 as the reference category and men scored 1. **Married** is a dichotomous variable with the score of 1 for all in formally married and cohabitating relationships and 0 for all others.

National context: GDP. We measure level of development by gross domestic product per capita at parity purchasing power in 1995 (World Bank 1997). For clarity, we express this as proportion of the US value (so USA = 1). We make further distinctions for South Africa (on the basis of race), Brazil (to distinguish regional heterogeneity) and some post communist nations for which we have pre-1989 data to allow for gauging specificities of these arguably distinctive labour markets.³

Parts of our data sets were collected at different points of time. The year of survey was controlled for in our main analysis but as it was not significant we omitted it from Table 1.

Omitted variables

This analysis is currently devoid of any direct measures of national policy and labour market regulation measures which are known to affect self-employment from country to country. The main reason for this omission is the difficulty with locating a measure of government's "friendliness" towards or regulation of the self-employed that would be comparable between OECD and non-OECD countries and would cover all in our database. For OECD one such measure is Blanchard and Wolfer's measure of strictness of employment protection (Robson 2003) . Others are OECD's SME development indices but they are available only for post-communist economies.

Personality traits. Social psychologists argue that the self-employed are more individually oriented than others and this holds in most European nations (Beugelskijk and Noorderhaven 2005). However, it is not clear to what extent these personality traits are causes and to what outcomes of entrepreneurial activities. Methodologically it is also not clear to what extent attitudinal questions used to typify respondents by personality traits are valid measures of such.

Functional form

To allow for curvilinearity, which is often present for occupation and labour force experience and occasionally for education, we include quadratic terms: (occupation - 0.5) squared, (age - 20) squared, and (education - 12) squared. Subtracting a constant near the mean reduces the danger of rounding error; it leads to predictions that, after some algebra, are mathematically identical to those that would flow from simple quadratics, absent rounding error (Mosteller and Tukey 1977: 285-286). To allow for differing effects of marriage and father's self employment by gender we include two interaction terms: between gender and marriage and between gender and paternal self-employment.

Methods and models: imputations of missing data

We impute missing data separately for each society, following the approach of King and colleagues (Honaker, Joseph, King, Scheve, and Singh 2003; King, Honaker, Joseph, and Scheve 2001)— basically a regression based technique with the addition of a random component to the imputed value . These and related procedures have desirable properties when data are MAR, as is reasonable to assume here, and also perform well in simulations (Allison 2000; Schafer 1997). For our large samples, King et al's attractive software was impractical, so we used *MICE* (Royston 2004), choosing options to make it estimate models similar to King's.

Details (1) Conservatively, we did not impute missing data on self-employment, our key variable, nor on income when used as a dependent variable. We used both of these in imputing missing data on other variables, which is necessary for unbiased estimates (King, Honaker, Joseph, and Scheve 2001: 57-58). (2) After some analysis,

we chose to recode out-of-range imputed values (e.g. negative years of education) back into range; this involved under 1% of the cases. In-range but atypical imputed values we left alone (for example, 9.3 years of education). (3) To ease the computational burden of our very large sample and Monte Carlo confidence intervals, we rely on a single imputation rather than the usual 5. Our standard errors are therefore slightly underestimated.

Estimation

Because our models deploy both individual- and national-level data, we need multilevel models to get appropriate standard errors for the national-level variable, GDP (DiPrete and Forristal 1994; Goldstein 1999). We estimated a variance-components multilevel probit model (Hox 1995) using the `xtprobit` program in Stata 8 for the determinants of non-agricultural self-employment, and estimated multilevel regressions using `xtreg` for its effects on earnings. Estimates of the main models are in Appendix Tables. The country-by-country results (Appendix Tables 1,2,3) are from a simple probit and two OLS models without quadratic terms.

Presentation of results For the intrinsically non-linear estimates of the probability of being self-employed, as well as for the models with quadratic terms, expressing the magnitude of effects is not straightforward. We present first differences in predicted values, which are closely related to partial derivatives (King, Honaker, Joseph, and Scheve 2001: 62-65). We estimate them from a whole population standardization (Kelley 1990);⁴ this makes comparisons using a common reference population, here the pooled international sample.

For example, the predicted percent of the non-farm self-employed from Eq. 1 is obtained by changing every case to be 65 years of age but leaving all other variables

unchanged; computing predicted values from Eq. 1 for every case (using the coefficients in Table 2, Panel B); and then averaging the results. The answer is that 13% would be in non-farm self-employment if everyone were 65, but otherwise unchanged. Similarly, the predicted percent for young workers is obtained by changing every case to be 25 years old and proceeding similarly. In that case, only 8% would be own account workers. The difference between these two predictions, 13% – 8% = 5%, is the effect of age (Table 2, Panel A, Row Age (65 years old vs. 25 years old)). Thus workers approaching their retirement age are 5 percentage points more likely to be in self-employment than are people with only a few years of experience in or just entering the labour market, according to the model. The effects we discuss throughout the paper are obtained thus.

We have chosen comparison points that reflect the full range of values, from high (but not extraordinary) to low (but still reasonable). Specifically, for **occupation**, we compare free professionals at the top of the occupational hierarchy (ISCO major group 1) to unskilled workers closer to the bottom. For **education** we compare college graduates (15 years of education) to people who left school after 6th Grade. A proxy for **labour force experience** is catered for by including age and its quadratic. For **GDP**, we compare US levels, at the top, with India, near the bottom with GDP per capita below 10% of the US.

Models

We mainly focus on those in the labour force with positive earnings.⁵ We begin by examining who is likely to be self-employed:

$$\text{NonFarm_SelfEmployed} = f(\text{Age, Age_Squared, Male, Married, Male*Married, Education, Education_Squared, Occupational_Status, Occupational_Status_Squared, Supervision, Father's occupation and Self-employment status, Parents' education, GDP}) \quad \text{Eq 1}$$

Estimates of first differences based on this model and the coefficient estimates are shown in Table 2 below. Panel A has first differences, Panel B has coefficients.

Next, we explore the effect of entrepreneurship on income. The main results of this analysis are shown in Table 2, panel B in the middle column, while supplementary country-by-country results are in Appendix Table 2 for readers' reference. We use the following model:

$$\ln \text{Earnings} = f(\text{Self-employment, Age, AgeSquared, Male, Married, Male*Married, Education, Education_Squared, Occupational_Status, Occupationa_lStatus_Squared, Supervision})^{\delta} \quad \text{Eq 2}$$

Description

The self-employed are found throughout the world, but more often in some countries than in others (Figure 1 and Table 1 organized by GDP). In the rich USA, 14 % men and 10% women aged 25-65 are in non-farm self-employment. Even larger proportions of the employed live off own-account work in several other rich countries:

Figure 1. Percent self-employed, non-farm, age 25-64

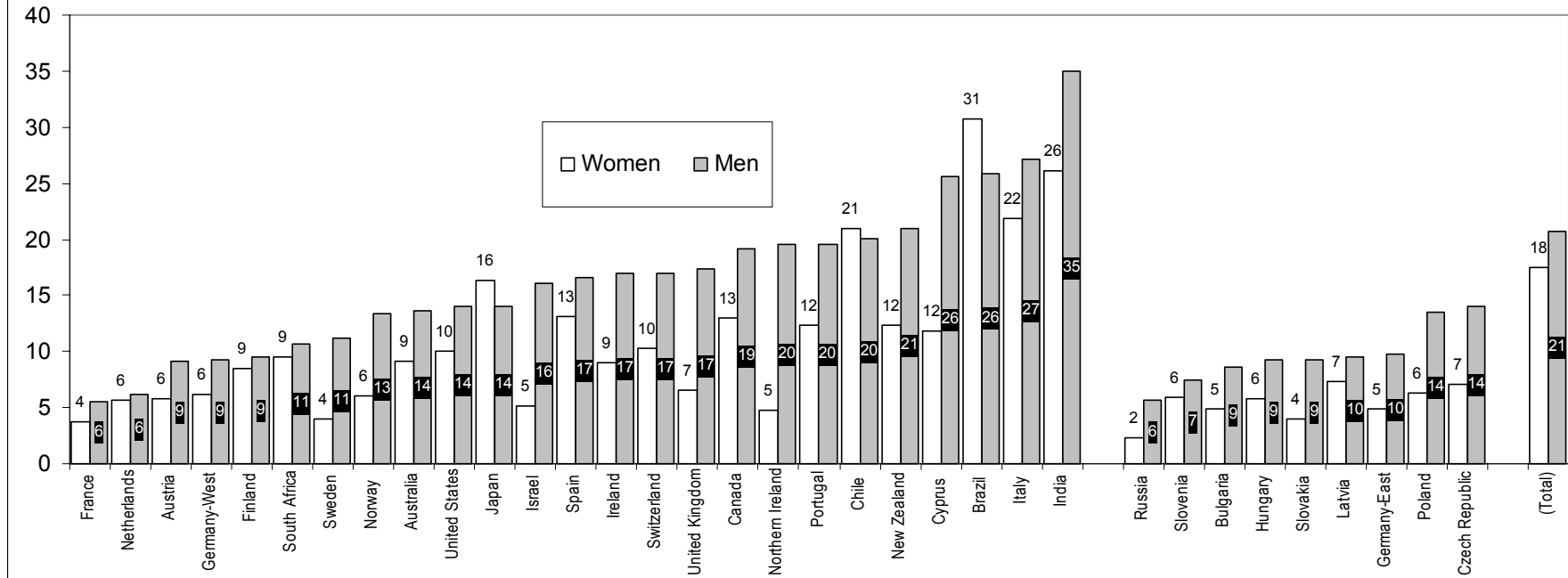


Table 1. Description: Percentages and means for 33 societies rates of selfemployment. People age 25-65 in labor force

Society (by GDP)	% Non-farm selfemployed	Women selfemployed in the labor force	Men selfemployed in the labor force	Earnings -- ratios to blue collar worker's wage	Father selfemployed	GDP (Index: 1995 USA=1)
	%	%	%	Mean	%	Mean
United States	12	10	14	1.13		1.00
Switzerland	14	10	17	1.63	23	.92
Norway	10	6	13	1.15	11	.90
Japan	15	16	14	1.20	48	.84
Canada	17	13	19	1.13	27	.83
Germany-West	8	6	9	1.28	27	.82
Austria	8	6	9	1.15	21	.80
Australia	12	9	14	1.13	24	.77
Netherlands	6	6	6	1.15	17	.75
France	5	4	6	1.55	64	.75
Italy	25	22	27	1.42		.74
Sweden	8	4	11	1.10	26	.73
United Kingdom	12	7	17	1.17		.71
Germany-East	7	5	10	0.98	11	.70
Finland	9	9	9	1.30		.68
Northern Ireland	13	5	20	1.53		.64
Ireland	15	9	17	1.56		.63
New Zealand	17	12	21	1.01	32	.63
Israel	10	5	16	-	30	.62
Cyprus	20	12	26	2.56	24	.60
Spain	15	13	17	1.16	28	.55
Portugal	16	12	20	1.74	33	.49
Slovenia	7	6	7	1.17	13	.47
Czech Republic	11	7	14	1.21	21	.44
Hungary	8	6	9	1.19	30	.34
Slovakia	7	4	9	1.06	5	.31
South Africa	10	9	11	2.19	17	.43
Chile	20	21	20	1.31	30	.27
Russia	4	2	6	0.87	3	.26
Poland	10	6	14	1.07	30	.24
Brazil	27	31	26	2.34	64	.24
Bulgaria	7	5	9	0.93	11	.20
Latvia	8	7	10	1.67	4	.18
China	23	9	24	1.45	7	.10
India	34	26	35	-	7	.07
(Total)	19	18	21	1.84	44	.40

Canada (17% men and 13% women), Switzerland (17% men and 10% women), and Japan (16%¹ and 14%). Very low rates, around 4%, are found in several post-Communist nations – Russia, Slovenia and Bulgaria, – but also in France, the Netherlands and Austria.

The collation of data from many countries reveals that the gender imbalance in chances of running a business is not an idiosyncrasy of the more developed nations.

Beyond gender differences other clear patterns emerge:

(1) There is a roughly inverse relationship between economic development and the prevalence of small business employment (Table 1) from which only countries with long history of post-war communism deviate (2) While, overall, the long-established market societies seem to have more small scale business owners than Communist and post-Communist societies, the historical peculiarities of the legacy of communism seem to peter out as in many of these nations the levels of entrepreneurship matched some western established economies by the end of 1990s.

Who is Self-Employed?

Supervision and family resources Though self-employment is known to be dominated by solo entrepreneurs in many countries supervision and entrepreneurial activity are closely related (Table 2, Panel A). On average, supervisors are more likely (by 13%) to be also self-employed. ($20 - 7 = 13$ percentage points in Table 2). The second most important factor is father's self employment which clearly contributes to children's own chances to work for themselves net of smaller positive effects of parents' education and occupational status. Men and people of both genders who

¹ The estimate of female self-employment in Japan appears somewhat inflated in this data set, compared to estimates available in the literature or from the Japanese Bureau of Statistics.

marry are also more likely to be self-employed, in accordance with previous studies. Marriage (not shown in Table 2, Panel A, but see Panel B) boosts women's opportunities for self-employment more than men's. The self-employment rate for single women is 7% whereas the self-employment rate for married women is 10%, indicating that married women are more likely to be self-employed than single women. Marriage affects men less, although it gives a small 1% boost from 10% to 11%. Familial connections play a key role in linking individuals with entrepreneurship on a small scale not only in Western developed contexts (Arum and Mueller 2004) but also in poorer nations in other parts of the world .

Education and age

Table 2. Determinants of self-employment. Coefficients and predicted differences from multi-level linear and probit regression models with interactions and quadratic terms and with multiple imputation of missing data separately in each country						
Variable (and comparison)	A. Predicted differences with other variables unchanged, estimated by whole population standardization Gain in (percentage) points [1]		B. Coefficients and t-statistics from multi-level linear and probit regressions with multiple imputation of missing data			
	Probability of non-farm selfemployment	Predicted difference in earnings (percentage of blue collar wage)	Probability of non-farm selfemployment	Predicted difference in earnings (natural log of ratio to blue collar wage)		
		gain		gain	b	t
Non-farm selfemployed (Yes vs No)		2.9%			0.05	2.99
Age (65 yo vs 25yo)	5%	13%	0.01	5.90	0.0049	10.97
Age squared			-0.0002	-1.42	-0.0004	-14.71
Male (Yes vs no)	2%	45%	0.23	4.50	0.22	12.82
Married (Yes vs no)	1%	6%	0.21	5.01	-0.06	-3.79
Male * Married			-0.21	-3.78	0.21	10.51
Years of education (15 vs 6)	-4%	49%	-0.03	-6.44	0.05	24.02
Years of education squared			0.0018	3.26	-0.0013	-5.13
Occupation (professional vs unskilled)	0%	42%	0.0024	2.91	0.01	21.27
Occupation squared			-0.0001	-5.26	-0.0001	-9.12
Supervisor (Yes vs No)	13%	20%	0.68	28.21	0.21	18.20
Family income (10 vs 1 blue collar wage)	--	--				
Parents' education in years (15 vs 6)	1%		0.01	1.48		
Parents' occupation (professional vs unskilled)	4%		0.0026	4.91		
Father selfemployed (Yes vs No)	7%		0.30	6.46		
Father selfemployed * Male			0.13	2.23		
GDP per capita at ppp 1995 USA vs India	-16%		-0.30	-10.61		
Eastern Europe (Yes versus No)	-3%		-0.29	-1.41		
(constant)			7.41	0.80	-1.10	-23.95
(std error of u_i)			(0.37)		-0.23	-
(rho) ^[2]			0.12		0.10	-
Number of countries			33		38	
N			83445		92046	
(Pseudo) R-squared ^[2]			(.04)		(.23)	-

[1] For example in row 2, someone 65 years old has the 5% more probability of being in non-agricultural self-employment compared to someone aged 20 who is similar in regard to other characteristics. [2] Squared correlation between the predicted value and the dependent variable

Education itself is negatively related to the chances of self-employment which speaks against the prevalence of these paths into self-employment which require tertiary qualifications. Country-by-country regressions (Appendix Table 1) reveal differences in effects of education, which when significant, often has a curvilinear relationship with the dependent variable. Occupational status makes little difference in the

predictions for the professionals (7%) and the unskilled (7%) because the relationship is curvilinear with middling occupational scores (e.g. Higher sales) having higher, about 10%, likelihood of being self-employed than people at both ends of the occupational spectrum.

Self-Employment and Earnings

Self-employment in the countries included in our analysis leads to definitely higher, although not by great amount, returns. All else being equal a self-employed brings home at least 3% more of the typical blue collar wage in his country compared to an employee with similar characteristics. This pattern prevails in country-by-country analyses (Appendix Table 2) although in some places the evidence seems to support the theories which place strong emphasis on non-pecuniary returns to self-employment. Earnings of the self-employed are not easy to measure and what is more complex, some families rely on income from multiple sources and thus in this data some imprecision is bound to occur. Yet, the general trend is clearly in conflict with assertions that the self-employed are not rewarded in monetary terms. More interestingly this seems to be the case particularly in the post-communist countries, in which the relative pecuniary advantage seems larger than elsewhere. But self-employment is not nearly as highly rewarded as other labour market characteristics: education, work experience, authority, gender or professional occupation in these countries (Table 2 Panel A, middle column). Indeed in relative terms the advantage enjoyed by the self-employed across the board is at best moderate.

Discussion

Although self-employment is heterogeneous, shaped by nation-specific policy and historical legacies, certain features of small scale entrepreneurship appear across many nations and circumstances. Firstly in many countries people enter self-employment, later in life. Married men and married women are more likely to be self-employed. In most countries marriage affects the chances of entering self-employment differently for men and women although in some nations it makes no difference at all. The wealthier nations have smaller self-employment sectors, which is in line with marginalization arguments in which self-employment is constructed as a necessity brought on by dearth of attractive wage earning opportunities in economically volatile globalized labour markets. However, the self-employed seem to be doing better financially, if by a small margin, than their wage-earning peers in most nations considered here. While this can be seen as a contradiction of the marginalization argument, the full exploration of returns to self-employment would have to consider returns such as superannuation, autonomy and stability of small business employment.

Notes:

- 1 In addition to the longer known problems with enumerating the incorporated as well as unincorporated self-employed, the recent alleged rise in the number of franchises poses additional difficulties. In Australia for instance, the estimates of numbers of the self-employed, following changes to definitions of self-employment in the late 1990s, rose by at least a third. Currently there are no attempts to identify in surveys people in franchise arrangements. Often respondents are unsure themselves whether they are employees or self-employed and thus the Australian Bureau of Statistics in the last decade attempted to decide for their respondents in dubious cases, asking additional questions about dependency on clients, benefits and leave entitlements. In view of all these dilemmas the practical solution for now is to rely on respondents' self-identification which is what we do in this analysis.
- 2 These are large surveys, fielded on an annual basis since the late 1960s, covering virtually all of Brazil.

- 3 We adjusted the World Bank estimates by our income estimates for each sub-
group.
- 4 For non-linear equations, the standard predicted value for an artificial case
with average characteristics may be far from the average and the slopes can
vary greatly from person to person. So there is no simple summary. What we
have done, a variant of "whole population standardization," is to calculate
predicted values for every single person in the sample and average those
figures. The results depend both on the equation and on the population chosen
as a baseline for comparison. Our samples differ in size so all the models
reported here are computed assuming equal sizes of particular countries, or
group within them (weighted to 1000 cases). However, in the predictions
population sizes are not weighted. Taking out or leaving in large samples such
as Brazil or Australia makes no difference to the substance of the results and
hence we conclude that the differential in country sample size is not a
seriously biasing factor.
- 5 Defined as earning at least one quarter of the average income of blue collar
workers in their own country. In models not utilizing earnings information
from all respondents aged 25-65 in labour force was used.
- 6 Father's occupation and self-employment status, Parents' education, GDP are
not significant in this model and thus have been omitted.

References

- Allison, P.D. (2000). "Multiple Imputation for Missing Data: A Cautionary Tale." *Sociological Methods and Research* 28 (3):301-309.
- Arum, R. and W. Mueller. (2004). "The Re-emergence of Self-Employment: A Comparative Study of Self-Employment Dynamics and Social Inequality." Princeton: Princeton: Princeton University Press.
- Beugelskijk, S. and N. Noorderhaven. (2005). "Personality Characteristics of Self-Employed: An Empirical Study." *Small Business Economics* 24 (2):159-167.
- Blanchflower, D. G. (2000). "Self-employment in OECD countries." *Labour Economics* 7 (5):471-505.
- Blanchflower, D. G. (2004). "Self-employment: more may not be better." *Swedish Economic Policy Review*: 11(2): 15-74.
- DiPrete, T. A. and J. D. Forristal (1994). "Multi-level Models: Methods and Substance." *Annual Review of Sociology*, :331-357.
- Evans, M. D. R. and Joanna Sikora. (2004). "Self-employment in Australia 1980-1999." Pp. 203-244 in *The Re-emergence of Self-Employment: A Comparative Study of Self-Employment Dynamics and Social Inequality*, edited by R. Arum and W. Mueller. Princeton: Princeton University Press.
- Ganzeboom, H.B.G. and D. J. Treiman. (2003). "Three Internationally Standardised Measures for Comparative Research on Occupational Status." Pp.159-193 in *Advances in Cross-National Comparison. A European Working Book for Demographic and Socio-Economic Variables*, edited by J. H. P. Hoffmeyer-Zlotnik and C. Wolf. New York: Kluwer Academic Press.
- Goldstein, H. (1999). *Multilevel Statistical Models*: (First internet edition). Accessed 13-08-2006
http://www.ats.ucla.edu/stat/examples/msm_goldstein/goldstein.pdf

- Grubb, D. and W. Wells. (1993). "Employment Regulation and Patterns of Work in EC Countries." *OECD Economic Studies* 21:7-58.
- Halaby, C. N. (2003). "Where job values come from: Family and schooling background, cognitive ability, and gender." *American Sociological Review* 68(22):251-278.
- Hamilton, Barton H. (2000). "Does entrepreneurship pay? An empirical analysis of the returns to self-employment." *The Journal of Political Economy* 108 (3):604-631.
- Holmes, S., S. Smith, and G. Cane. (1997). "Gender Issues in Home-Based Business Operation and Training: An Australian Overview." *Women in Management Review* 12(2):68-73.
- Honaker, J., A. Joseph, G. King, K. Scheve, and N. Singh. (2003). "Amelia: A Program for Missing Data." Department of Government, Harvard University (accessed 13-06-2006 <http://gking.harvard.edu/amelia/>).
- Hox, J.J. (1995). *Applied Multilevel Analysis*. Amsterdam: TT-Publikaties.
- Jackman, M. R. and R. W. Jackman. (1983). *Class Awareness in the United States*. Berkeley, CA: University of California Press.
- Jagodziński, K. and R. Uher. (2001). "International Social Survey Program 1998: Ideology of Inequality -- Pooled International File, ZA." Zentralarchiv fuer Empirische Sozialforschung, Universitat zu Koeln, Koeln (accessed 10-02-2001 <http://www.gesis.org/en/services/data/survey-data/issp/modules-study-overview/social-inequality/1999/>).
- Kelley, J. (1990). "The Failure of a Paradigm: Log-linear Models of Social Mobility." Pp. 319-346 in *John Goldthorpe: Consensus and Controversy*, edited by C. M. J. Clarke, and S. Modgil. London: Falmer Press.
- King, G., J. Honaker, A. Joseph, and K. Scheve. (2001). "Analyzing Incomplete Political Science Data: An Alternative Algorithm for Multiple Imputation." *American Political Science Review* 95(1):49-69.
- Mosteller, F. and J. W. Tukey. (1977). *Data Analysis and Regression*. Sydney: Addison-Wesley.
- Robson, M. T. (2003). "Does stricter employment protection legislation promote self-employment?" *Small Business Economics* 21(3):309-19.
- Royston, P. (2004). "Multiple imputation of missing values." *Stata Journal* 4(3):227-241.
- Schafer, J. L. (1997). *Analysis of Incomplete Multivariate Data*. London: Chapman and Hall.
- Storey, D. J. (1994). *Understanding the Small Business Sector*. London: Routledge.
- Szelenyi, I. and D. J. Treiman. (1994). *Social Stratification in Eastern Europe After 1989: Codebook and Machine Readable Data File*. Los Angeles: UCLA.
- Treiman, D. J. (1977). *Occupational prestige in comparative perspective*. New York: Academic Press.
- Vanneman, R. D. and L. W. Cannon. (1987). *The American Perception of Class*. Philadelphia: Temple University Press.
- World Bank. (1997). *World Development Report 1997*. Oxford: Oxford University Press.
- Wright, E. O. and G. Steinmetz (1989). "The Fall and Rise of the Petty Bourgeoisie: Changing Patterns of Self-Employment in the Postwar United States." *The American Journal of Sociology* 94(5):973-1018.

Appendix Table 1: Predicted likelihood of non-agricultural self-employment probit estimates separately by country.

	Age in years	Age square	Male	Married	Male*Married	Education in years	Education squared	Occupation	Occupation squared	Supervisor	Parents' education in years	Father's occupation	Father self-employed	Father self-employed * Male	Constant	(Pseudo R square)	N of cases
Australia	0.01	-0.001	0.35	0.38	-0.25	ns	ns	ns	-0.0001	0.11	0.02	ns	0.17	0.21	-2.31	0.03	9252
Austria	0.03	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	-4.00	0.12	1181
Brazil: Poor North	ns	-0.001	0.37	ns	ns	ns	0.00	0.01	-0.0003	0.76	ns	0.004	0.63	ns	-2.21	0.14	5910
Brazil: Rich South	0.01	0.00	ns	ns	ns	ns	ns	ns	ns	ns	-0.06	ns	ns	ns	-1.11	0.06	1486
Bulgaria	ns	ns	ns	ns	ns	ns	ns	0.01	-0.0003	0.74	ns	0.00	0.67	ns	-2.01	0.12	4930
Canada	0.01	ns	ns	ns	ns	ns	ns	ns	ns	ns	-0.07	ns	ns	ns	-1.42	0.04	1250
Chile	0.03	ns	0.49	0.45	-0.74	ns	ns	0.01	0.00	0.43	ns	0.01	ns	ns	-2.52	0.13	629
Cyprus	ns	ns	ns	ns	ns	-0.02	ns	ns	ns	1.68	0.07	ns	0.47	ns	-2.09	0.32	667
Czech Republic	ns	0.00	0.39	ns	ns	ns	ns	0.01	-0.0001	ns	ns	ns	ns	ns	-2.37	0.06	4867
Finland	ns	ns	ns	ns	ns	ns	ns	0.00	ns	ns	ns	ns	ns	ns	-1.79	0.12	938
France	ns	ns	ns	ns	ns	ns	ns	-0.004	ns	ns	ns	ns	ns	ns	-1.54	0.06	1139
Germany-East	ns	ns	ns	ns	ns	ns	ns	0.01	ns	0.83	-0.07	ns	ns	ns	ns	0.12	963
Germany-West	0.02	ns	ns	ns	ns	ns	ns	ns	ns	0.32	ns	ns	0.49	ns	-3.54	0.07	2069
Hungary: communist	ns	ns	ns	ns	ns	0.15	ns	ns	ns	-0.38	ns	0.01	0.66	ns	-3.44	0.12	1406
Hungary: market	ns	ns	ns	-0.21	ns	0.15	-0.01	-0.01	ns	0.22	ns	ns	0.63	ns	-3.04	0.06	3653
India: urban	ns	ns	ns	ns	ns	-0.11	ns	0.04	0.00	ns	ns	ns	ns	ns	-1.58	0.20	399
India: rural	0.01	0.00	0.00	-0.07	0.02	-0.17	-0.01	0.04	0.00	-0.54	ns	ns	ns	ns	-0.54	0.36	540
Israel	ns	ns	0.84	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	-1.96	0.07	648
Ireland	ns	ns	ns	ns	ns	ns	ns	0.02	ns	ns	ns	ns	ns	ns	-3.23	0.08	418
Italy	ns	ns	ns	ns	ns	ns	ns	0.05	-0.0003	ns	ns	ns	ns	ns	-1.59	0.12	468.00
Japan	ns	ns	ns	ns	ns	ns	ns	ns	ns	2.04	ns	ns	ns	ns	-2.25	0.39	719
Latvia	ns	ns	ns	ns	ns	ns	ns	0.01	-0.0003	0.94	ns	ns	ns	ns	ns	0.17	673
Netherlands	0.02	ns	ns	ns	ns	-0.11	0.01	0.01	ns	0.43	0.05	ns	0.61	ns	-2.87	0.11	2568
New Zealand	0.01	-0.001	0.54	0.56	ns	ns	ns	ns	ns	0.30	ns	ns	ns	ns	-2.12	0.06	1322
Norway	0.01	-0.001	0.36	ns	ns	ns	ns	0.02	ns	0.30	0.05	ns	ns	ns	-2.41	0.07	1587
Poland: communist	ns	ns	ns	ns	ns	ns	ns	0.06	-0.01	ns	ns	0.01	1.27	ns	-5.41	0.34	1305
Poland: market	ns	ns	0.67	0.31	ns	ns	ns	0.01	-0.0002	0.55	0.04	0.003	0.57	-0.06	-3.19	0.13	5619
Portugal	ns	ns	ns	ns	ns	-0.12	ns	0.03	ns	ns	ns	ns	ns	ns	-2.29	0.20	738
Russia	-0.01	ns	0.44	ns	ns	ns	ns	0.01	-0.0002	0.60	0.02	ns	1.06	ns	-1.69	0.12	5297
Slovakia	-0.01	-0.001	0.42	ns	ns	ns	ns	0.01	-0.0002	0.40	ns	0.003	ns	ns	-2.41	0.09	4221
Slovenia	ns	ns	ns	ns	ns	0.25	-0.02	-0.02	ns	0.86	ns	0.01	ns	ns	-4.62	0.21	1079
South Africa: Asian	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	0.01	ns	ns	-2.58	0.22	388
South Africa: Black	0.01	ns	ns	0.37	-0.46	-0.07	-0.01	0.01	0.00	0.66	ns	ns	ns	ns	-1.71	0.11	1997
South Africa: Colored	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	-3.96	0.12	440
South Africa: White	0.02	-0.001	ns	0.49	ns	ns	ns	0.01	ns	-0.54	0.06	ns	ns	ns	-1.96	0.08	1309
Spain	ns	ns	0.65	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	-2.34	0.03	487
Sweden	ns	ns	ns	ns	ns	ns	ns	ns	ns	0.92	ns	ns	ns	ns	-3.46	0.18	691
Switzerland	0.02	ns	ns	ns	ns	-0.11	0.01	0.01	ns	0.28	ns	ns	0.44	ns	-1.93	0.09	1317
United Kingdom	0.02	ns	0.49	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	-2.70	0.06	1610
Northern Ireland	ns	ns	0.85	ns	ns	0.36	-0.04	ns	ns	ns	ns	ns	ns	ns	-6.30	0.12	366
United States	0.02	-0.0004	0.43	0.35	-0.34	ns	ns	0.003	ns	0.02	0.004	0.83	-0.02	ns	-2.96	0.07	17254

[1] Brazil, China, Poland, Hungary and South Africa split into regions, historical periods and ethnic groups respectively

All coefficients statistically different from zero at p= 0.01, coefficients in italics at p=0.05, ns not different from zero at p=0.05

Appendix Table 2: Effects of self-employment on earnings (natural log of ratio to blue collar wage). OLS estimates separately by country [1]

	Constant	Non-farm self-employed	Age in years	Male	Married	Male*Married	Education in years	Occupation	Supervisor	adj R square	N of cases
Australia	-1.12	ns	0.00	0.26	-0.21	0.36	0.04	0.00	0.26	0.30	8494
Austria	-0.59	ns	ns	0.20	-0.14	0.29	ns	0.01	0.19	0.32	1146
Brazil: Poor North	-1.02	0.20	0.01	0.20	ns	0.15	0.09	0.01		0.42	16894
Brazil: Rich South	-0.96	0.29	0.00	0.32	<i>0.02</i>	0.22	0.08	0.01		0.48	71835
Bulgaria	-0.82	0.18	ns	0.19	ns	ns	0.04	0.00	0.17	0.14	4148
Canada	-1.31	-0.09	0.01	0.24	ns	<i>0.15</i>	0.03	0.00	0.15	0.21	1186
Chile	-1.66	ns	<i>0.01</i>	0.31	ns	ns	0.07	0.01	0.34	0.42	531
Cyprus	1.58	-0.59	ns	ns	ns	ns	ns	ns	-0.48	0.06	636
Czech Republic	-0.66	0.30	ns	0.17	-0.08	0.18	0.03	0.00	0.14	0.33	4435
Finland	-1.11	-0.21	0.01	0.25	ns	ns	0.03	0.00	0.20	0.29	661
France	-1.59	ns	0.01	0.19	ns	0.25	0.04	0.01	0.27	0.41	1101
Germany-East	-0.65	0.21	ns	ns	-0.16	0.30	0.02	0.01	0.23	0.32	822
Germany-West	-0.76	0.22	0.00	0.20	-0.29	0.53	0.01	0.01	0.19	0.43	1678
Hungary: communist	-0.71	0.07	0.00	0.26	ns	0.19	0.03	0.00	0.15	0.37	1399
Hungary: market	-0.99	ns	0.01	0.20	ns	ns	0.05	0.00	0.23	0.33	3184
Ireland	-1.21	ns	ns	ns	ns	0.46	0.09	ns	0.49	0.33	387
Italy	-0.46	0.14	ns	ns	ns	<i>0.20</i>	0.02	0.00	0.28	0.30	415
Japan	-1.89	ns	0.01	0.39	-0.49	0.78	0.06	0.01	0.37	0.46	678
Latvia	-0.71	0.27	ns	0.34	ns	ns	0.05	0.00	0.42	0.28	615
Netherlands	-1.29	0.21	0.01	0.19	-0.24	0.51	0.04	0.00	0.21	0.48	929
New Zealand	-1.25	-0.01	ns	0.16	<i>-0.10</i>	0.40	0.04	0.01	0.33	0.35	1286
Norway	-0.79	0.08	0.00	0.18	-0.16	0.24	0.03	0.00	0.18	0.32	1538
Poland: communist	-0.81	0.41	<i>0.00</i>	0.31	ns	ns	0.03	ns	0.11	0.31	1227
Poland: market	-1.14	0.32	0.01	0.22	<i>-0.05</i>	0.11	0.05	0.00	0.25	0.29	4854
Portugal	-1.10	-0.18	0.01	ns	ns	0.35	0.07	0.01	0.35	0.43	576
Russia	-0.80	0.45	-0.01	0.30	<i>-0.06</i>	0.11	0.03	0.00	0.23	0.18	4908
Slovakia	-0.75	0.37	ns	0.14	<i>-0.04</i>	0.15	0.03	0.00	0.14	0.32	3859
Slovenia	-1.16	0.13	ns	0.19	0.16	ns	0.05	0.00	0.20	0.34	904
South Africa: Asian	-1.63	0.42	ns	0.33	ns	ns	0.08	0.01	0.29	0.33	348
South Africa: Black	-2.25	ns	ns	0.55	ns	0.30	0.08	0.02	0.41	0.23	1787
South Africa: Colored	-1.82	ns	ns	ns	ns	ns	0.12	0.01	0.43	0.43	388
South Africa: White	-0.52	0.41	ns	0.29	ns	0.31	0.07	0.00	0.24	0.32	1226
Spain	-0.95	0.15	ns	0.28	ns	ns	0.02	0.01		0.28	366
Sweden	-0.74	ns	0.00	0.19	ns	0.17	0.02	0.00	0.08	0.33	594
Switzerland	-0.89	ns	0.01	0.17	-0.55	0.76	0.03	0.00	0.28	0.44	1203
United Kingdom	-0.97	ns	0.00	0.42	-0.35	0.50	0.04	0.01	0.30	0.51	1334
Northern Ireland	-1.92	0.26	<i>0.01</i>	ns	ns	0.50	0.12	0.00	0.33	0.40	300
United States	-1.86	-0.08	0.01	0.33	-0.14	0.37	0.06	0.01	0.15	0.28	14498

[1] Brazil, China, Poland, Hungary and South Africa split into regions, historical periods and ethnic groups respectively
 All coefficients statistically different from zero at p=0.01, coefficients in italics at p=0.05, ns not different from zero at p=0.05