Supporting Information

Small Business Activity Does Not Measure Entrepreneurship

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On the Representativeness of the *Forbes* list of the Population of Billionaires

It is possible to avoid being on the *Forbes* list by hiding wealth and staying under the radar, though it is not possible to avoid being on *Forbes'* list for privacy reasons if the magazine estimates your wealth as at least one billion dollars.

Since valuing privately held assets is inherently challenging, *Forbes* refers to its estimates as "highly educated guesses". As a check, the estimates are reviewed by a panel of business and financial experts. External evaluations indicate that the list is surprisingly accurate. McCubbin (1) found that the wealth estimated by *Forbes* strongly corresponded to estate tax returns of the deceased.

The Survey of Consumer Finances (SCF) relies in part on tax returns to identify wealthy Americans. As a testament to the comprehensiveness of the *Forbes* list the SCF only tends to find a small number of individuals with assets above the threshold that *Forbes* missed (2). Rankings of billionaires by other bodies such as Bloomberg and Chinese Hurun Report tend to obtain similar findings. The 2012 *Forbes* global list included 1,426 billionaires while Hurun Report independently identified 1453 billionaires, with few exceptions the same individuals.

Forbes undoubtedly misses some billionaires and includes some false billionaires. There is a risk for bias should they systematically miss more billionaires in certain types of countries, notably third world countries. This cannot be ruled out, but we believe that this bias is unlikely to be important. In the case of less developed countries, *Forbes* works with local partners (such as banks and analytics firms) in order to locate and assess the wealth of the local business elite. The annual list has become a major news story among the public and among the wealthy, and in many countries there is an active debate regarding who should and should not be on the list. *Forbes* solicits "tips" from the public about hidden billionaires. Over time this has improved the quality of the list, since even in less developed countries people who are suspected to be around the one billion dollar threshold tend to be locally known.

Forbes' journalists also rely on several methods to attempt to locate the rich, one of which is to start with the large firms (both public firms and large private firms) and determine their

owners. While individuals can more easily hide inherited, illicit or financial wealth, it is much more difficult to hide one's ownership of large new firms. Since entrepreneurial firms are our focus this limits the problem of this potential bias.

Because an analysis including third world countries cannot entirely avoid concerns of mis-measurement, we also conduct our analysis separately for wealthy OECD-countries, where this type of bias is less likely.

References

1. McCubbin, Janet (1994) "Improving Estimates Derived From Estate Tax Data," Compendium of Federal Estate Tax Data and Personal Wealth Studies, Dept. of Treasury, IRS Pub. 1773: 363–370.
2. Kopczuk, Wojciech, David Joulfaian, Arthur Kennickell, Thomas Piketty, Karl Scholz, James Poterba, and Joel Slemrod (2004) "Top Wealth Shares in the United States, 1916–2000: Evidence from Estate Tax Returns," *National Tax Journal* 57(2): 445–488.

Supporting Figures

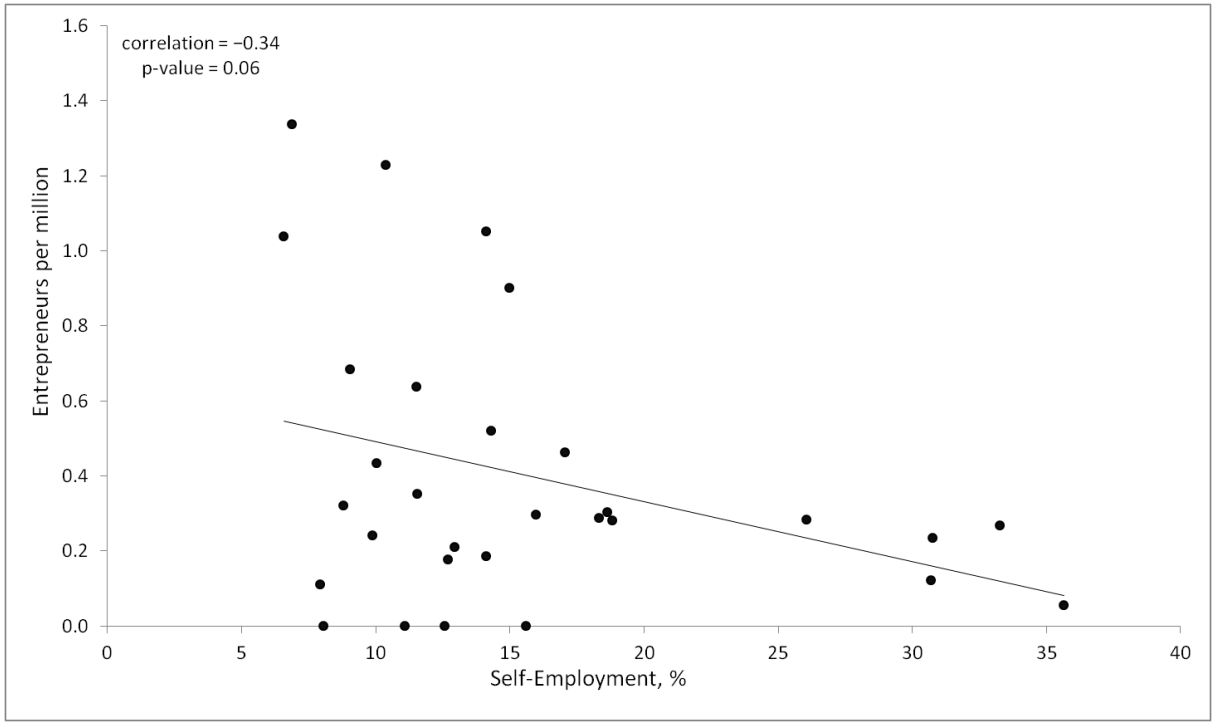

Fig. S1 Entrepreneurship and Self-Employment, OECD countries.

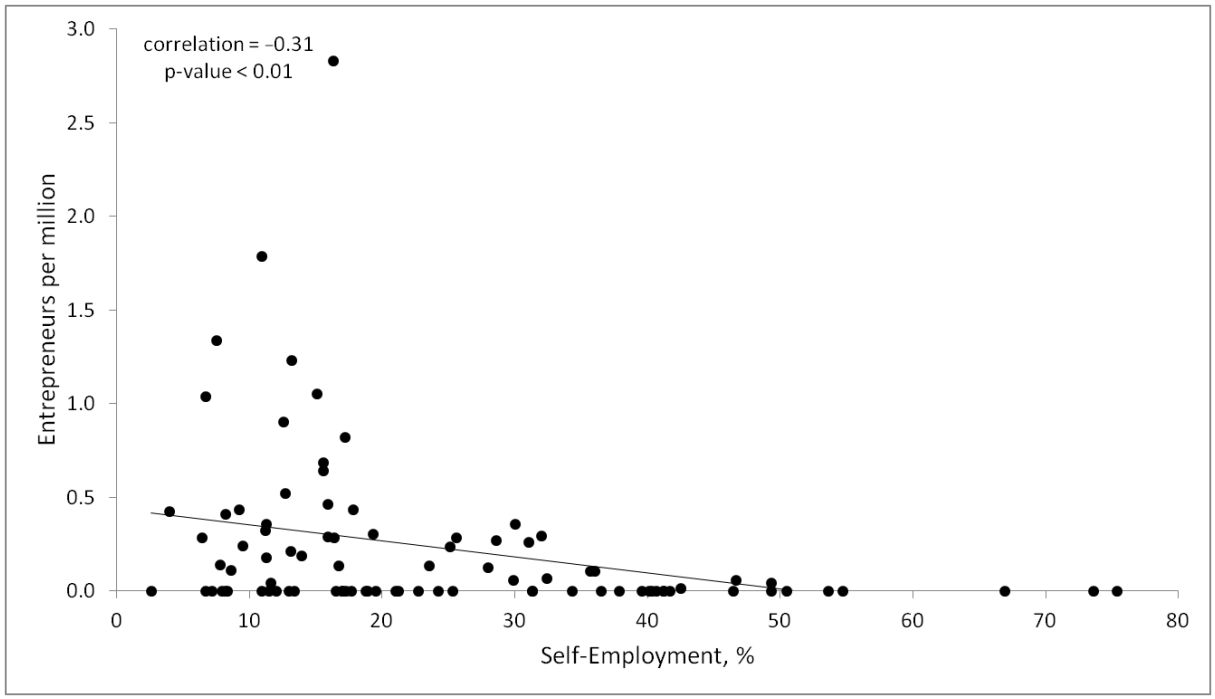

Fig. S2 Entrepreneurship and Self-Employment, All Countries.

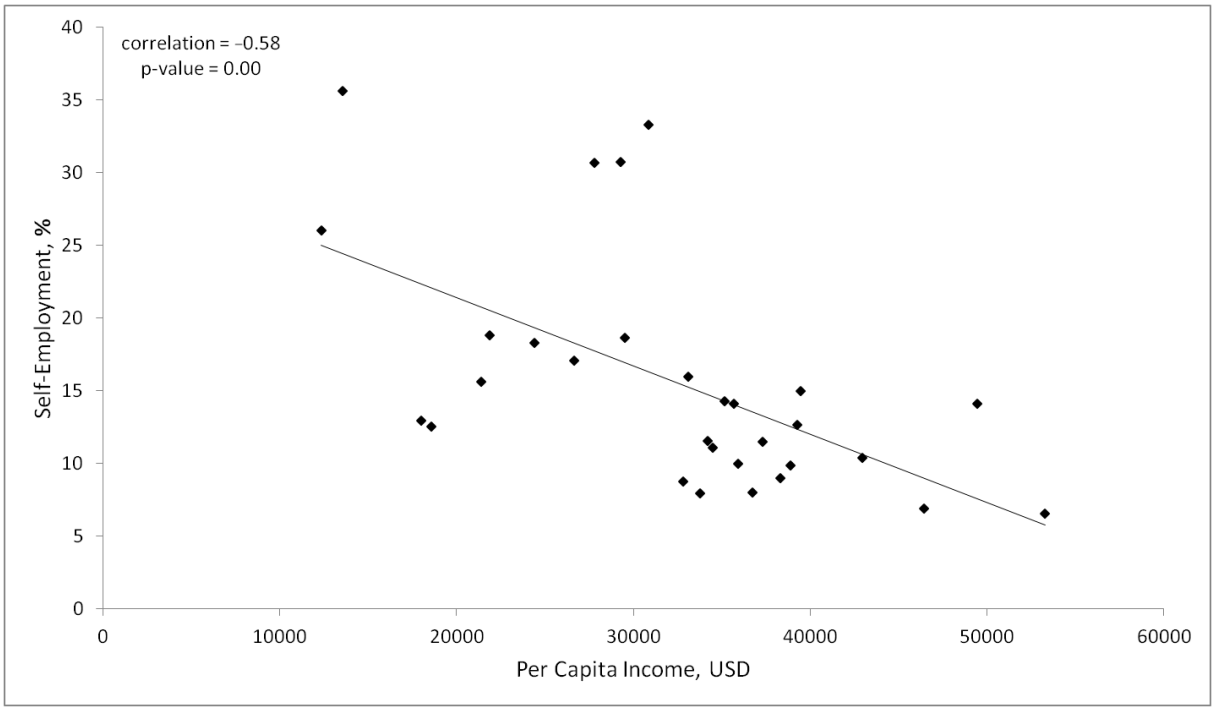

Fig. S3 Self-Employment and Per Capita Income, OECD countries.

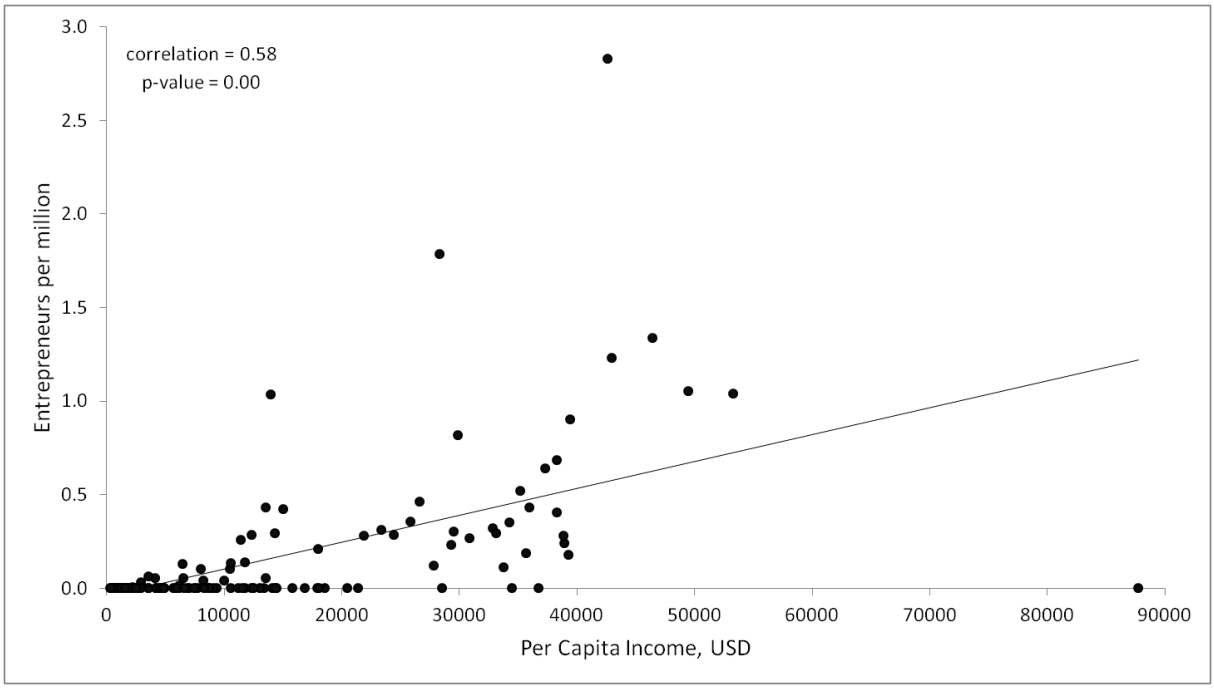

Fig. S4 Entrepreneurship and Per Capita Income, All Countries.

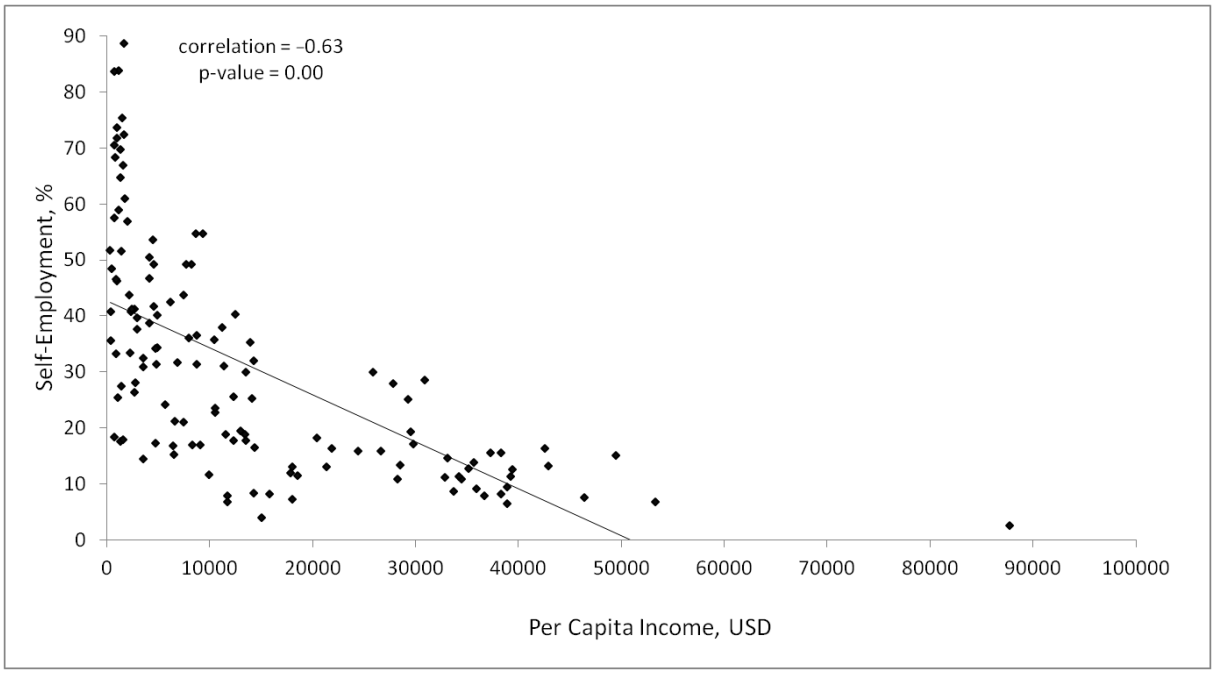

Fig. S5 Self-Employment and Per Capita Income, All Countries.

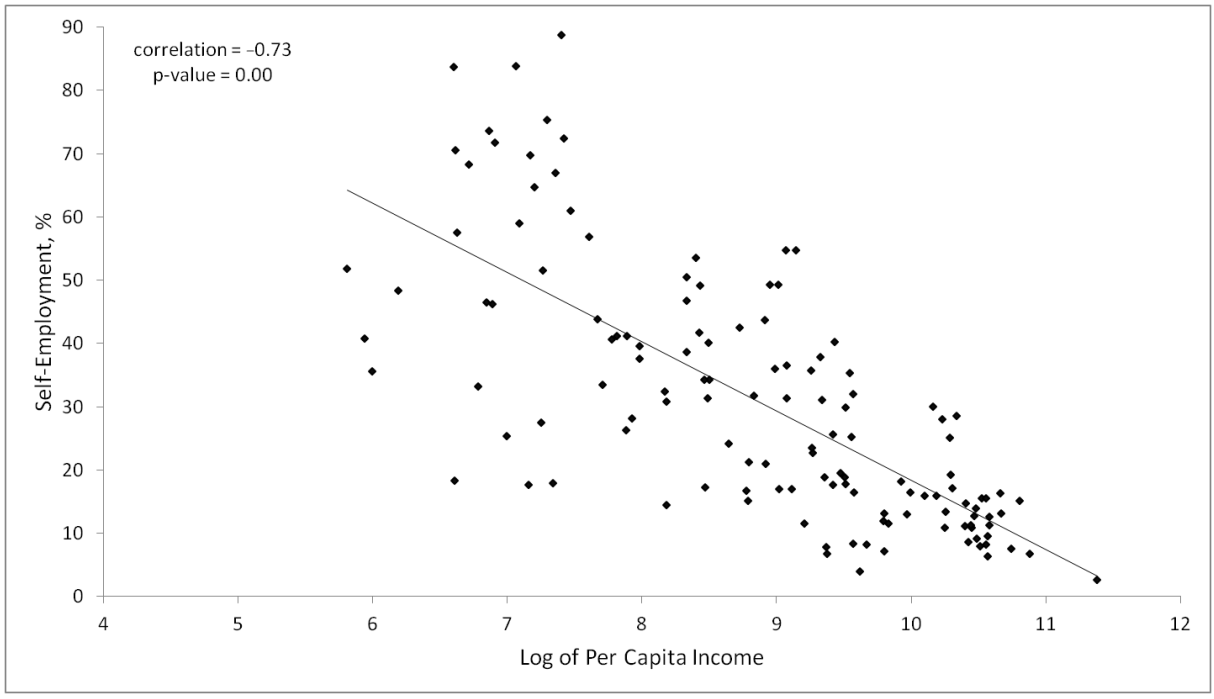

Fig. S6 Self-Employment and the log of Per Capita Income, All Countries.

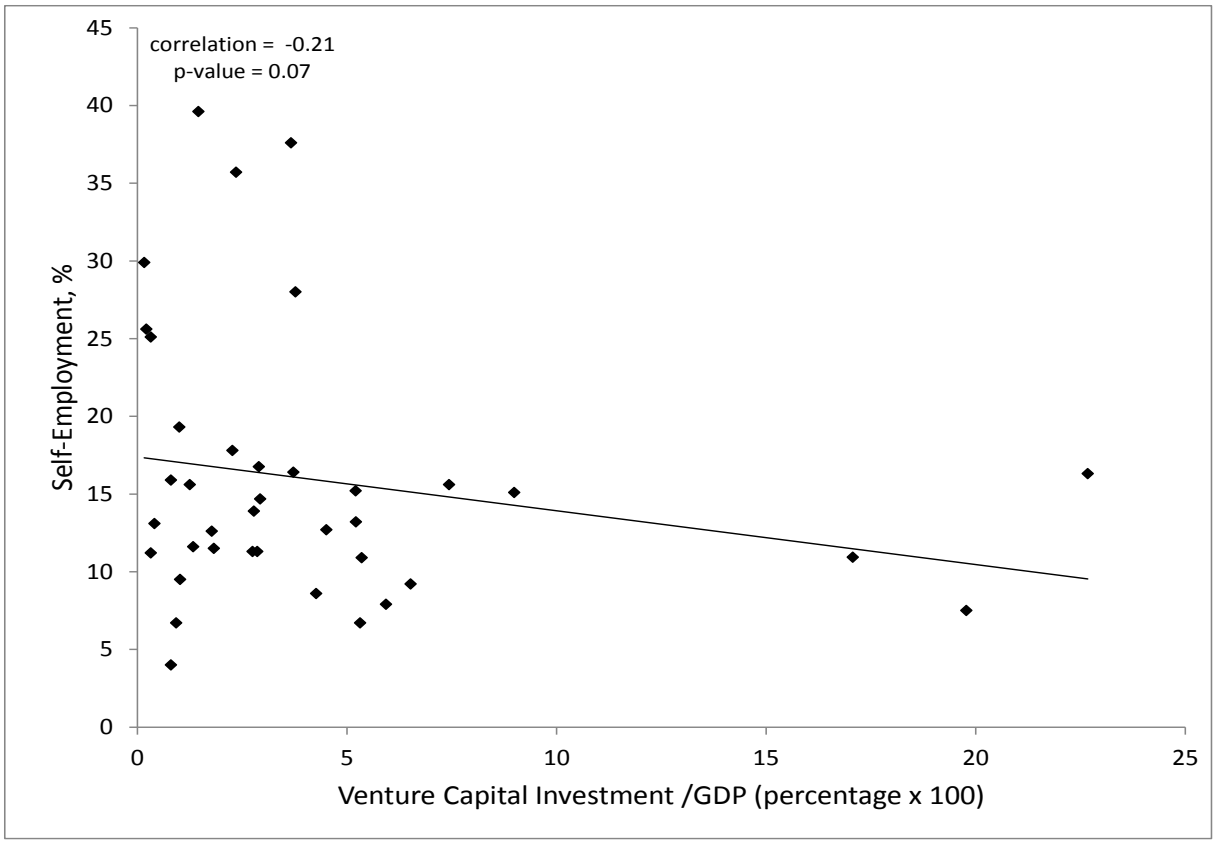

Fig. S7 Self-Employment and Venture Capital Investment as a Share of GDP.

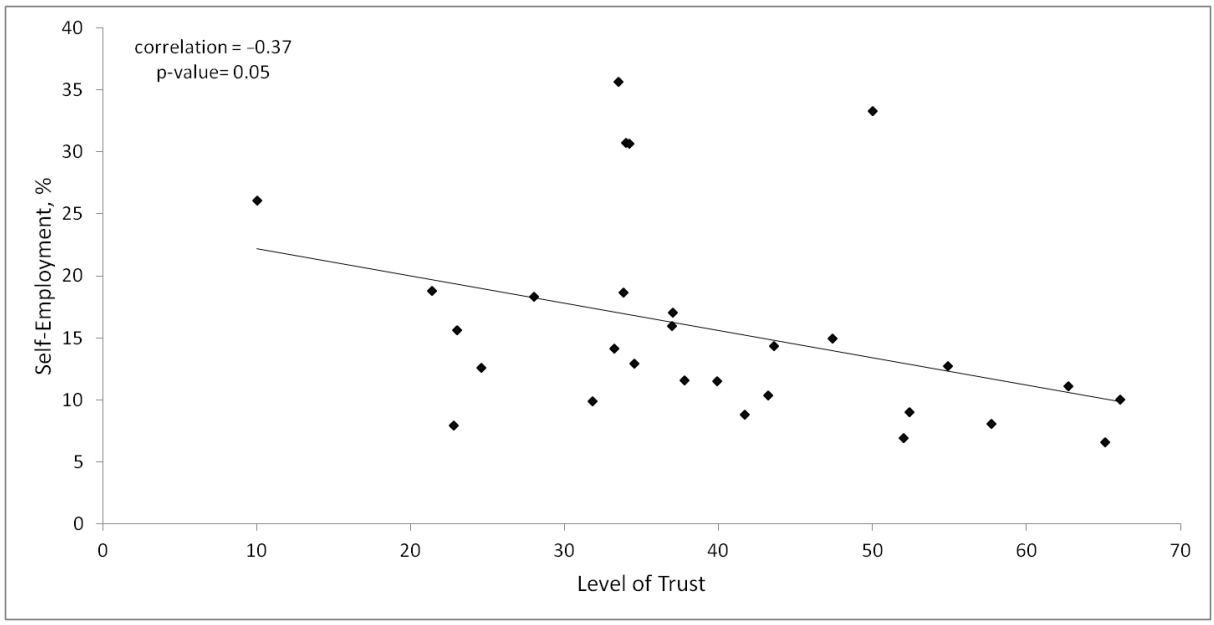

Fig. S8 Self-Employment and Trust, OECD Countries.

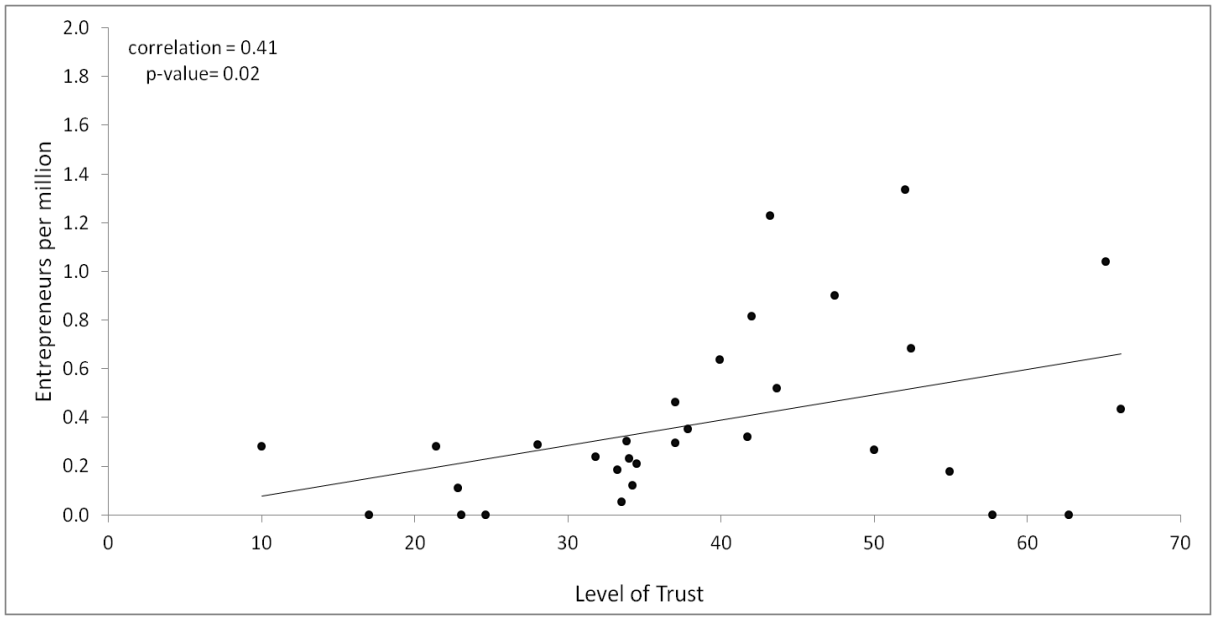

Fig. S9 Entrepreneurship and Trust, OECD Countries.

Supporting Tables

Table S1 Cross-Country Regressions of Entrepreneurship Rates Based on Entrepreneur's Country of Residence.

	(a)	(b)	(c)	(d)
Population	0.013**	0.015**	0.013**	0.014**
	(0.0003)	(0.0004)	(0.0003)	(0.0005)
GDP per capita	0.034**	0.037**	0.024**	0.027**
	(0.002)	(0.002)	(0.003)	(0.003)
Taxes		−0.031*		−0.028**
		(0.007)		(0.007)
Regulations			−0.006**	−0.005**
			(0.001)	(0.001)
Constant	0.278**	0.945**	0.842**	1.431**
	(0.76)	(0.170)	(0.149)	(0.209)
R-squared	0.76	0.76	0.76	0.79
No. of obs.	90	90	90	90

This table reports coefficients from a Poisson Event Count Model where the dependent variable represents the number people who become billionaire entrepreneurs in each country. Entrepreneurs are coded based on country of residence rather than nationality. Taxes refer to the standard statutory corporate income tax rate as measured by the World Bank. Regulations refer to the ease of doing business, again as measured by the World Bank. Two stars (**) denote statistical significance at the 1% level and one star (*) denote statistical significance at the 5% level.

Table S2 Cross-Country Regressions of Entrepreneurship Rates, Immigrant Entrepreneurs Excluded.

	(a)	(b)	(c)	(d)
Population	0.013**	0.015**	0.013**	0.014**
	(0.0003)	(0.0004)	(0.0003)	(0.0005)
GDP per capita	0.037**	0.041**	0.026**	0.029**
	(0.002)	(0.002)	(0.003)	(0.003)
Taxes		−0.033*		−0.029**
		(0.007)		(0.007)
Regulations			−0.008**	−0.007**
			(0.001)	(0.001)
Constant	0.145**	0.858**	0.889**	1.489**
	(0.78)	(0.170)	(0.149)	(0.209)
R-squared	0.77	0.78	0.78	0.79
No. of obs.	90	90	90	90

This table reports coefficients from a Poisson Event Count Model where the dependent variable represents the number people who become billionaire entrepreneurs in each country. Entrepreneurs are coded based on country of residence rather than nationality. Immigrant billionaires are excluded from the analysis. Taxes refer to the standard statutory corporate income tax rate as measured by the World Bank. Regulations refer to the ease of doing business, again as measured by the World Bank. Two stars (**) denote statistical significance at the 1% level and one star (*) denote statistical significance at the 5% level.

Table S3 Cross-Country Regressions of Venture Capital Investment Rates.

	(a)	(b)	(c)	(d)
GDP per capita	0.160**	0.191**	0.129*	0.146**
	(0.058)	(0.063)	(0.064)	(0.066)
Taxes		−0.005		−0.0006
		(0.160)		(0.163)
Regulations			−0.014	−0.031
			(0.018)	(0.020)
Constant	−0.125	−1.102	1.313	0.922
	(1.21)	(4.131)	(2.140)	(4.652)
R-squared	0.18	0.22	0.19	0.23
No. of obs.	36	36	36	36

This table reports standard cross-sectional regressions where the dependent variable is VC investment as percentage of GDP. The investment ratio will have the value 100 if VC investment totals one percent of GDP in a given year. Taxes refer to the corporate income tax rate as measured by the World Bank. Regulations refer to the ease of doing business, again as measured by the World Bank. Two stars (**) denote statistical significance at the 1% level.

Table S4 Cross-Country Regressions of Entrepreneurship Rates Using PPP-adjusted Wealth and 1.5 Billion Dollar Threshold.

	(a)	(b)	(c)	(d)
Population	0.013**	0.016**	0.013**	0.016**
	(0.0004)	(0.0006)	(0.0004)	(0.0006)
GDP per capita	0.028**	0.034**	0.023**	0.029**
	(0.002)	(0.003)	(0.004)	(0.004)
Taxes		−0.053**		−0.052**
		(0.009)		(0.009)
Regulations			−0.003[#]	−0.002
			(0.002)	(0.002)
Constant	−0.028	1.137**	0.313[#]	1.372**
	(0.091)	(0.203)	(0.189)	(0.259)
R-squared	0.70	0.72	0.71	0.72
No. of obs.	90	90	90	90

This table reports coefficients from a Poisson Event Count Model where the dependent variable represents the number people who become billionaire entrepreneurs in each country. The wealth of each entrepreneur is adjusted for the purchasing power of the resident country and year. Taxes refer to the standard statutory corporate income tax rate as measured by the World Bank. Regulations refer to the ease of doing business, again as measured by the World Bank. Two stars (**) denote statistical significance at the 1% level, one star (*) denote statistical significance at the 5% level and ([#]) denotes significance at the 10% level..

Table S5 Cross-Country Regressions of Entrepreneurship Rates Using PPP-Adjusted Wealth and 2 Billion Dollar Threshold.

	(a)	(b)	(c)	(d)
Population	0.013**	0.016**	0.013**	0.016**
	(0.0004)	(0.0007)	(0.0005)	(0.0007)
GDP per capita	0.023**	0.029**	0.019**	0.026**
	(0.003)	(0.003)	(0.005)	(0.005)
Taxes		−0.060**		−0.059**
		(0.011)		(0.011)
Regulations			−0.002	−0.001
			(0.002)	(0.002)
Constant	−0.150	1.128**	1.060**	1.264**
	(0.103)	(0.231)	(0.223)	(0.302)
R-squared	0.63	0.65	0.63	0.65
No. of obs.	90	90	90	90

This table reports coefficients from a Poisson Event Count Model where the dependent variable represents the number people who become billionaire entrepreneurs in each country. The wealth of each entrepreneur is adjusted for the purchasing power of the resident country and year. The threshold used in this specification is $2 billion rather than $1 billion. Taxes refer to the standard statutory corporate income tax rate as measured by the World Bank. Regulations refer to the ease of doing business, again as measured by the World Bank. Two stars (**) denote statistical significance at the 1% level and one star (*) denote statistical significance at the 5% level.