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ABSTRACT

"Entrepreneurs out of Necessity": A Snapshot

"Entrepreneurs out of necessity" identified by the Global Entrepreneurship Monitor survey are a sizeable group across countries. They tend to have low education, run smaller firms, expect their firms to grow less, but are likely to stay in the market. This evidence is a challenge for existing theories of heterogeneous firms.

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1 Introduction

Growth theory, in particular of the Schumpeterian variety, identifies entrepreneurs as a crucial engine of growth. Similarly, policy makers appear convinced that entrepreneurship is a universally beneficial phenomenon. Yet the reality of firms is more nuanced: most firms are small, and only some grow substantially, suggesting that not all entrepreneurs are drivers of growth.

Indeed, at the opposite end of the spectrum there are "entrepreneurs out of necessity" who, when asked in the Global Entrepreneurship Monitor (GEM) survey "Are you involved in this start-up/firm to take advantage of a business opportunity or because you have no better choices for work?", opt for the latter.[1] [2] The GEM dubs these people "entrepreneurs out of necessity". Figure 1 shows that they make up a sizeable fraction of entrepreneurs, in particular in countries characterized by high entrepreneurship rates.[3]

Their existence poses a challenge to theory: In standard theories of heterogeneous firms, only the most productive survive (see e.g. Jovanovic 1982, Hopenhayn 1992, Melitz 2003). While some entrepreneurs may tolerate low performance e.g. because they like being their own boss (Hamilton 2000), it seems unlikely that they would classify themselves as necessity entrepreneurs. So who are the necessity entrepreneurs? This note uses the recent GEM micro data to describe them and their firms, with the objective of informing future theoretical work.

2 Characteristics of "necessity enterprises"

This section describes the firms run by necessity entrepreneurs, while the next section describes their owners. The GEM data set provides quantitative information on a few firm attributes, in particular current and expected future employment and firm age. Unfortunately, only very rough information on income from the firm is available. Therefore, I use the more detailed data on employment, which has been shown to be strongly correlated with productivity (see e.g. Foster, Haltiwanger and Krizan 2001), as an indicator of firm performance.

Table 1 shows that across the countries in the GEM data set, the fraction of necessity entrepreneurs is almost 30%, an average of 21% in OECD countries and almost 50% in non-

[1] A well-trained economist would surely also opt for the second answer, which seems to indicate some maximization, but only a minority of entrepreneurs do so. This makes it important to characterize the empirical content of that answer.

[2] The GEM data consists in cross-country micro data with a focus on entrepreneurs, collected in a harmonized way. For details, see Reynolds et al. (2005) and `http://www.gemconsortium.org/`.

[3] Here and in the following, respondents are classified as entrepreneurs if they derive income from running a business of which they own a share, whether they employ others or not.

OECD members. In all countries, the fraction of necessity entrepreneurs is substantially higher among the self-employed (no employees) and small firms.

This is not just due to differences in characteristics of owners. Table 2 shows results from regressions of employment (n_t) on whether the firm is run by a necessity entrepreneur, controlling for the entrepreneur's gender, age and education. Being a necessity entrepreneur is strongly significantly correlated with size in all specifications. It raises the probability of not having employees ($n_t = 0$) by almost 8% (column 4). Given that 29% of firms in the sample do not have employees, this is an economically very large effect. Even if they have employees, necessity entrepreneurs have about 3.2 fewer of them (column 6). Relative to an average size of 9.6 overall and 13.9 for employer firms, this is again economically very significant. Other coefficients overall have expected signs; while the R^2 is low, this is not surprising given that it is known that firms are extremely heterogeneous even within narrowly defined sectors.

Necessity entrepreneurs also expect their firms to grow less, as shown in Table 3. That table shows results from regressions of expected firm size in five years ($\mathbb{E}n_{t+5}$) on whether the firm is run by a necessity entrepreneur, controlling for current firm size and the entrepreneur's gender and age. (Education is not significant in this setting; not reported.) This specification allows analyzing growth without facing the problem of computing growth rates when size can be 0. Necessity entrepreneurs are 6% more likely to expect not to have any employees in 5 years, controlling for a similar circumstance today ($n_t = 0$). Even conditional on expecting positive future employment, they expect it to be almost 9 employees lower than their "opportunity" counterparts. Thus, they expect the already existing size difference with respect to opportunity entrepreneurs to grow over time. Again, all coefficients are of an economically very significant size.

Firms run by necessity entrepreneurs thus are on average smaller, and have lower growth expectations. This may suggest that they should last less long in the market. Table 4 shows that this is not the case: except among young firms, the average age of firms run by necessity entrepreneurs is not statistically significantly different from other firms, suggesting a similar survival rate.[4] This suggests that while some necessity entrepreneurs start their activity as a stopgap measure and abandon it again as soon as they find a better opportunity (see also Rissman 2003), some of them stay in the business for as long as other firms. Necessity entrepreneurship thus is not purely a short-lived phenomenon of people e.g. trying to bridge an unemployment

[4] As the GEM data consists of repeated cross-section, duration analysis on this stock sample à la Nickell (1979) would require assumptions on entry rates and is left for future research.

spell. Many firms run by these entrepreneurs are there to stay, although they are smaller and expect to grow less than other firms.

3 Characteristics of "necessity entrepreneurs"

Having analyzed "necessity enterprises", what are the characteristics of their owners? Table 5 shows that entrepreneurs with low educational attainment are more likely to be necessity entrepreneurs. The same is true for women in non-OECD countries.

The regression results in Table 6 show that controlling for age and education, female entrepreneurs in OECD countries are actually slightly less likely to be necessity entrepreneurs, while this is much more likely outside the OECD. When also including country dummies, gender effects retain their sign but become less significant. Across specifications, more educated entrepreneurs are less likely to be necessity entrepreneurs. Although the education group coefficients increase in absolute size with education in all specifications, the most significant effect is associated with having 12 or more years of education. The effect of education documented here is in line with results by Ardagna and Lusardi (2008).

4 Conclusion

Entrepreneurs out of necessity are a sizeable group in all countries. The concept has clear empirical content: these entrepreneurs have lower education, run smaller firms, and expect their firms to grow less. Still, they are likely to stay in the market.

This evidence runs counter to the implications of existing theories of heterogeneous firms and entrepreneurship. A possible lead for future work may be given by the phrasing of the survey question, which suggests an important role of outside options in the decision to take up entrepreneurship. Occupational choice and unemployment may thus be important features of a theory that can address necessity entrepreneurship. A good theory, in turn, is needed for appropriately anticipating effects of policies like subsidies for entrepreneurship by the unemployed, as in place in many countries.

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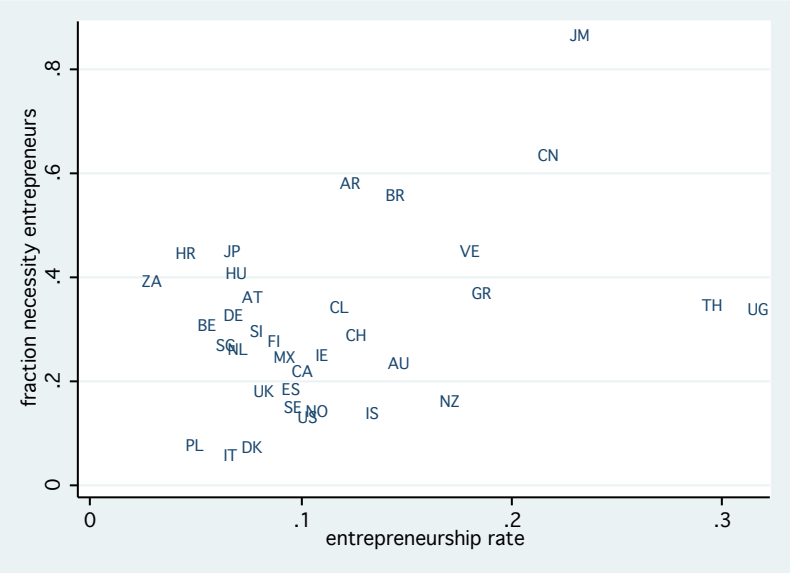
Tables and Figures

Figure 1: Entrepreneurship rates and the fraction of necessity entrepreneurs across countries



Notes: Data as in Table 1, country averages for 2001-2005.

Table 1: The percentage of necessity entrepreneurs across firm size classes

	all countries		OECD members		non-OECD members	
employment at firm	%	(% firms in size class)	%	(% firms in size class)	%	(% firms in size class)
0	32.9	28.8	25.1	29.3	52.4	27.7
1-4	31.4	46.2	22.4	44.3	51.0	51.1
5-19	19.2	18.3	16.6	19.3	27.3	15.8
20+	14.6	6.6	13.1	7.1	20.3	5.4
total	28.4		21.1		46.5	
observations	12686		9123		3563	

Notes: GEM micro data, 2001-2005 surveys pooled, entrepreneurs only, classifying as entrepreneurs respondents who derive income from running a business of which they own a share, whether they employ others or not. Observations for countries with at least 100 responses to entrepreneurship out of necessity question. Respondents aged 18-64. GEM weights for this population group used.

Table 2: Necessity entrepreneurship and firm size

dependent	employment (n_t)		self-employment ($n_t = 0$)		employer firms ($n_t \mid n_t > 0$)	
variable	(1)	(2)	(3)	(4)	(5)	(6)
necessity	-4.485 ***	-2.881 **	0.062 ***	0.079 ***	-5.435 **	-3.119 *
entrepreneur	(1.481)	(1.246)	(0.023)	(0.017)	(2.040)	(1.674)
female		-1.625		0.065 ***		-1.259
		(1.447)		(0.014)		(2.041)
age		0.68 *		0.002 **		1.042 **
		(0.341)		(0.001)		(0.495)
age^2		-0.008 *				-0.012 **
		(0.004)				(0.006)
schooling:						
12 years		3.561 ***		-0.032 *		4.47 **
		(1.268)		(0.018)		(1.720)
13-16 years		3.019 **		-0.023		3.884 **
		(1.334)		(0.023)		(1.632)
17-20 years		4.662 ***		-0.05 *		6.067 ***
		(1.400)		(0.028)		(2.060)
country dummies		yes		yes		yes
constant	10.048 ***	-5.966			13.759 ***	-10.74
	(1.586)	(7.676)			(2.073)	(10.860)
adjusted R^2	0.001	0.016			0.001	0.018
N	10453	9619	10453	9560	7380	6780

Notes: Data as in Table 1. For education, the reference group is < 12 years of schooling. Columns 1-2 and 5-6 estimated by OLS, columns 3-4 by probit, marginal effects reported. Robust standard errors clustered within country in parentheses. Significance levels: * 10%, ** 5%, *** 1%.

Table 3: Necessity entrepreneurship and expected firm growth

dependent variable	expected employment in 5 years ($\mathbb{E}n_{t+5}$)		expected employment in 5 years = 0 ($\mathbb{E}n_{t+5} = 0$)		expected employment in 5 years > 0 ($\mathbb{E}n_{t+5}|\mathbb{E}n_{t+5} > 0$)	
	(1)	(2)	(3)	(4)	(5)	(6)
necessity entrepreneur	-8.109 ***	-7.465 ***	0.047 ***	0.063 ***	-9.658 ***	-8.944 ***
	(2.507)	(2.371)	(0.013)	(0.013)	(3.085)	(2.786)
female		-4.261 **		0.018 *		-4.436 *
		(2.082)		(0.009)		(2.448)
age		-0.339 **		0.003 ***		-0.385 **
		(0.145)		(0.000)		(0.172)
n_t	1.051 ***	1.008 ***			1.045 ***	0.998 ***
	(0.108)	(0.109)			(0.107)	(0.109)
$n_t = 0$			0.530 ***	0.519 ***		
			(0.016)	(0.021)		
country dummies		yes		yes		yes
constant	10.307 ***	25.543 ***			12.955 ***	29.838 ***
	(2.668)	(6.964)			(3.324)	(8.033)
adjusted R^2	0.428	0.430			0.424	0.429
N	9122	8683	10453	9906	7035	6696

Notes: Data as in Table 1. Columns 1-2 and 5-6 estimated by OLS, columns 3-4 by probit, marginal effects reported. Robust standard errors clustered within country in parentheses. Significance levels: * 10%, ** 5%, *** 1%.

Table 4: Necessity entrepreneurship and firm age

dependent variable	firm age (years)		firm age, young firms (age < 5 years)	
	(1)	(2)	(3)	(4)
necessity entrepr.	0.160	0.220	-0.186 ***	-0.111 *
	(0.325)	(0.251)	(0.061)	(0.064)
female		-0.475 **		-0.080
		(0.233)		(0.058)
age		0.160 ***		0.011 ***
		(0.028)		(0.003)
country dummies		yes		yes
constant	7.236	0.972	2.199 ***	1.819 ***
	(0.281)	(1.086)	(0.049)	(0.101)
adjusted R^2	0.0002	0.147	0.004	0.057
N	10251	9786	4145	3952

Notes: Data as in Table 1. Firms older than 40 years excluded. Estimation by OLS. Robust standard errors clustered within country in parentheses. Significance levels: * 10%, ** 5%, *** 1%.

Table 5: Demographic characteristics of necessity entrepreneurs (% necessity entrepreneurs in each demographic group)

	all countries		OECD members		non-OECD members	
	%	(% firms in group)	%	(% firms in group)	%	(% firms in group)
gender:						
male	26.9	62.9	20.7	64.2	43.5	59.5
female	31.1	37.1	21.7	35.8	51.1	40.5
schooling (years):						
1-11	42.0	34.7	29.2	28.2	59.3	52.0
12	24.9	22.5	21.1	24.4	39.5	17.6
13-16	19.4	21.3	16.6	22.9	29.1	17.1
17-20	16.9	21.4	15.3	24.5	25.5	13.3

Notes: Data as in Table 1.

Table 6: Probability of being a necessity entrepreneur as a function of demographics

	(1)		(2)		(3)		(4)	
female	0.039	***	-0.044	*	0.032	**	0.019	
	(0.015)		(0.023)		(0.014)		(0.016)	
female × non-			0.258	***			0.039	
OECD country			(0.060)				(0.028)	
age	0.002	***	0.003	***	0.003	***	0.003	***
	(0.001)		(0.001)		(0.001)		(0.001)	
schooling (years)								
12	-0.147	***	-0.131	***	-0.096	***	-0.096	***
	(0.041)		(0.035)		(0.018)		(0.018)	
13-16	-0.185	***	-0.17	***	-0.129	***	-0.128	***
	(0.046)		(0.037)		(0.017)		(0.017)	
17-20	-0.215	***	-0.199	***	-0.155	***	-0.155	***
	(0.041)		(0.035)		(0.021)		(0.021)	
country dummies					yes		yes	
N	10374		10374		10374		10374	

Notes: Data as in Table 1. Estimation by probit, marginal effects reported. Robust standard errors clustered within country in parentheses. Significance levels: * 10%, ** 5%, *** 1%.

Appendix

Table 7: Necessity entrepreneurship and firm size – additional specifications

dependent	employment (n_t)		self-employment ($n_t = 0$)		employer firms ($n_t \mid n_t > 0$)	
variable	(1)	(2)	(3)	(4)	(5)	(6)
necessity	-3.526 **	-3.2 **	0.057 ***	0.064 ***	-3.298 **	-5.219 **
entrepreneur	(1.704)	(1.182)	(0.022)	(0.023)	(1.480)	(2.301)
female	-2.256	-1.247	0.072 ***	0.07 ***	-1.313	-1.839
	(1.404)	(1.492)	(0.018)	(0.017)	(1.938)	(2.097)
age	0.833 **	0.53	0.002 **	0.002 **	0.884 *	1.034 **
	(0.334)	(0.362)	(0.001)	(0.001)	(0.485)	(0.492)
age^2	-0.01 **	-0.007 *			-0.01 *	-0.013 **
	(0.004)	(0.004)			(0.006)	(0.006)
firm age		0.458 ***		-0.004 **		0.636 **
		(0.143)		(0.002)		(0.243)
schooling:						
12 years	4.645 ***		-0.025			
	(1.473)		(0.040)			
13-16 years	4.53 **		-0.002			
	(1.928)		(0.036)			
17-20 years	4.098 **		-0.028			
	(1.542)		(0.043)			
country dummies		yes			yes	
constant	-9.056	-2.062			-4.101	-9.181
	(7.111)	(8.123)			(10.244)	(10.667)
adjusted R^2	0.004	0.019			0.017	0.005
N	9619	9222	9619	9222	7064	6554

Notes: Data as in Table 1. For education, the reference group is < 12 years of schooling. Columns 1-2 and 5-6 estimated by OLS, columns 3-4 by probit, marginal effects reported. Robust standard errors clustered within country in parentheses. Significance levels: * 10%, ** 5%, *** 1%.

Table 8: Necessity entrepreneurship, expected firm growth and firm age – additional specifications

dependent variable	$\mathbb{E}n_{t+5}$	$\mathbb{E}n_{t+5}=0$	$\mathbb{E}n_{t+5}\|n_{t+5}>0$	firm age (years)	firm age, young firms (age <5)
	(1)	(2)	(3)	(4)	(5)
necessity	-7.459 ***	0.039 ***	-9.151 ***	-0.021	-0.192 ***
entrepreneur	(2.378)	(0.013)	(3.036)	(0.336)	(0.063)
female	-5.065 **	0.013	-5.691 **	-0.483	-0.091
	(2.254)	(0.009)	(2.692)	(0.248)	(0.058)
age	-0.348 **	0.003 ***	-0.396 **	0.165 ***	0.011 ***
	(0.146)	(0.001)	(0.176)	(0.028)	(0.003)
n_t	1.030 ***		1.025 ***		
	(0.110)		(0.109)		
$n_t=0$		0.528 ***			
		(0.017)			
country dummies					
constant	25.960 ***		30.428 ***	0.842	1.849 ***
	(9.038)		(10.744)	(1.208)	(0.133)
adjusted R^2	0.415		0.411	0.102	0.012
N	8683	9982	6696	9786	3952

Notes: Data as in Table 1. Columns 1 and 3-5 estimated by OLS, column 2 by probit, marginal effects reported. Robust standard errors clustered within country in parentheses. Significance levels: * 10%, ** 5%, *** 1%.