

Do country level constructs affect the relation between self-efficacy and fear of failure?

Self-efficacy
and fear of
failure

545

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Abstract

Purpose – This paper aims to show how country level constructs (investment protection, registration cost and legal protection) moderate the relationship between self-efficacy and fear of failure (FoF).

Design/methodology/approach – The authors use global entrepreneurship monitor (GEM) data and augment it with country level data for 12 counties from different levels of economic development. The entrepreneurship literature has not yet addressed the micro/macro level influences on FoF to the best of the authors' knowledge. This paper addresses this lacuna by using multilevel analysis by incorporating state influenced environment effects along with individual traits to explain this phenomenon.

Findings – It is shown that higher registration cost, higher degrees of investor protection and less legal protection diminish the effect of self-efficacy on FoF. Furthermore, the effects of the country-level factors outweigh the impact of the individual-level factors on FoF.

Research limitations/implications – One of the issues discussed earlier was the construct validity of FoF, the wording of the question in GEM data is phrased such that FoF prevents you from starting a business; this means the response is avoidance. Had the question been worded positively, the responses may have varied. A better measure would have been an index with a scale that shows varying degrees of FoF. Another feature of GEM data is that the cohorts change every year, making it impossible to track the effect of closing a business on perceptual variables such as FoF and skill perception. This requires further scrutiny and analysis.

Practical implications – It is noticed that there are regional differences in FoF country rates across various levels of economic development. The authors provide and explain by looking at how these constructs moderate the relation between skill perception and FoF. Thus, countries that have good investment protection may end up with better entrepreneurial activity rates due to mitigating the fear factor.

Social implications – Entrepreneurial activity rates can be increased by lowering the negative effect of FoF. This construct is known to be higher among females, which was typically thought to be an individual trait. This research also shows that legal and institutional constructs are actually more important in explaining FoF.

Originality/value – The contribution of this paper is that it addresses an acknowledged gap in the literature, in that it explains empirical findings that have not been explained before (at the level this paper does).

Keywords Entrepreneurship, Government policy and regulation, Risk and uncertainty, Behavioral psychology

Paper type Research paper



1. Introduction

FoF is an emotion that entails unpleasant feelings such as anger, regret, disappointment and stress; the most prominent among these is shame, diminished self-confidence and

self-esteem. Individuals coping mechanisms with FoF range from problem focused coping, emotion focused coping, and avoidance focused coping (Sagar *et al.*, 2009) with the latter being the most likely to occur. This explains the lower proportion of those who fear failure among entrepreneurs. During the entrepreneurial process, entrepreneurs might have to deal with different difficulties such as the fear related to attaining profit, cash flow issues, fear of losing customers, not winning a contract as well as the fear of not having adequate time to spend with family and friends (Cacciotti and Hayton, 2014) and not least of all the shame that accompanies failure, particularly for women. Government policies (in the area of investment promotion) may prove to be instrumental in alleviating these fears.

Extant literature reveals there are large differences in average perceived skills to establish a new business at the region or country levels, (Stuetzer *et al.*, 2014). Fewer studies focused on FoF, albeit using only individual traits. The literature on Fear of Failure (FoF) as an individual level construct is abundant as a psychological phenomenon (Moreno-Murcia *et al.*, 2019) and (Ryan and Deci, 2017), However, it is much more limited in the entrepreneurship literature. In this domain, it has generally focused on FoF's detrimental role on entrepreneurship rather than its beneficial effects to success; it is because of its negative impact on entrepreneurship that much of the literature on business startups focuses on FoF as a determinant of entrepreneurship (Arenius and Minniti, 2005; Helms, 2003; Koellinger *et al.*, 2007; Minniti and Nardone, 2007; Wagner, 2007) which found that perceptual variables have significant impact on startups (Koellinger *et al.*, 2013).

The effect of individual-level constructs and collective-level constructs on FoF have been studied individually, a group of researchers (Croson and Gneezy, 2009; Rothblum, 1990; Sjöberg *et al.*, 2004) focused on gender differences. Daoud *et al.* (2015) and Sepúlveda and Bonilla (2010) are among the few that addressed FoF determinants using individual-level data and incorporating the gender dimension. On the other hand, some studies (John *et al.*, 2008) (La Porta *et al.*, 2000) investigated firm risk taking behavior and some country-level constructs; which obscures the relation because one of the variables is an individual level and the other is a "cultural-construct" (Wennberg *et al.*, 2013). The finance literature points to the channel through which Investor protection affects those who choose problem focused coping mechanism, that is face the problem and minimize the source of stress. (Porta *et al.*, 1999) show that investor protection reduces the agency problem hazards (expropriation of firm profits by the insiders at the expense of the minority shareholders) and this allays the fears of the minority shareholders. Using the variation in investor protection for the chosen countries allows us to capture the extent to which differences in individual FoF can be explained by this construct. A better understanding of individual/country level constructs and their interactions is needed to not only inform policy makers on how to promote entrepreneurial activity, but for individuals' own pursuit of well-being.

The scarcity of literature on the study of FoF in itself as an individual-level construct is an acknowledged gap (Cacciotti and Hayton, 2014). Moreover, little is known about collective-level constructs and how they relate to the individual-level construct. International differences in FoF rates depend not only on where one lives in the world, but also on the level of development (Kelley *et al.*, 2016)[1]. This finding underlies the need for understanding how FoF is shaped by the individual-level and collective-level constructs as well as their interactions.

To fill this lacuna, we use multi-level analysis for the examination of the interplay between individual FoF and country-level institutional variables, chief among which is investor protection and cost recovery. This approach has been applied to the case of entrepreneurial activity and regional role model effect (Wyrwich *et al.*, 2016), and culture and individual activity (Wennberg, *et al.*, 2013). By incorporating country level aggregates,

we shed light on which factors are responsible for mitigating the fear factor and the mechanism through which it operates.

The contributions of this paper are twofold: First, it applies the multi-level analysis where the focus is on FoF itself using both individual level as well as country level constructs. Second, it provides answers to observed trends of the sort why are FoF rates higher/lower in countries of varying levels of development. If training, education, and networking have effect on FoF; the impact is not homogeneous across the development divide. Thus disentangling individual level and country level constructs and their interactions make the analysis interesting to academics and policy makers alike.

The paper is organized as follows: section two provides the theoretical framework followed by sample descriptive statistics. The fourth section provides the empirical model and sections five and six provide discussion of the results and the conclusion.

2. Theoretical framework

Most studies view FoF as a form of risk aversion, or to be equivalent to risk aversion (Hayton *et al.*, 2013; Morgan and Sisak, 2016) or as an inverse proxy for self-efficacy (Autio and Acs, 2010). Social psychological perspectives' studies define FoF as a "socio-cultural trait that influences attention to rewards in the social environment" (Hayton *et al.*, 2013), see also (Vaillant and Lafuente, 2007). In this paper, our use of FoF as a dependent variable is measured by a single question in the global entrepreneurship monitor (GEM) questionnaire (Table I). It is intended to measure the effect of the presence of FoF on business startup. With that in mind, the construct validity of this measure would be more questionable if it were intended to measure risk aversion (Wyrwich *et al.*, 2016). Hayton *et al.* (2013) question the validity of this construct because it ignores the motivational aspects of FoF on entrepreneurship. The authors review three important perspective theories that help in understanding several aspects of the perception of FoF: the achievement motivation theory

Variable	Description	Source
FoF (Dependent)	The questioned person answered whether he/she considers that FoF prevents him/her from starting a business, [No = 0, Yes = 1]	GEM (APS)
Gender	The gender of the questioned person, [Male = 1, Female = 2]	GEM (APS)
Age	The age of the questioned person (in years)	GEM (APS)
Education	The level of education for the questioned person (None/ some secondary/ Secondary/Post- Secondary/ Graduate)	GEM (APS)
Income	The questioned person was asked about the ranges that best describes the total annual income of all the members of his/her household including his/her income, the question person has been characterized into one of the following categories (In the lower 33%/ Middle 33%/ upper 33%)	GEM (APS)
Work status	The work status of the questioned person (Not working/ Full time or part time/ Retired or student)	GEM (APS)
Skills	The questioned person answered if he/she considers that he/she has the knowledge, skill and experience required to start a new business [No = 0, Yes = 1]	GEM (APS)
Know	The questioned person answered if he/she knows personally someone who started a business in the past 2 years [No = 0, Yes = 1]	GEM (APS)
Opportunity	The questioned person answered if he/she sees good business opportunities in the area he/she lives in the next 6 months [No = 0, Yes = 1]	GEM (APS)
Close	The questioned person answered if he/she sold, close, shut down, discontinued or quit a business in the past 12 months [No = 0, Yes = 1]	GEM (APS)

Table I.
The individual-level variables

(McClelland *et al.*, 1953) which seeks to explain why different individuals behave differently under similar situations; the appraisal theory (Lazarus, 1991) developed the cognitive-motivational-relational model of FoF; under this model FoF is multidimensional (unlike the achievement motivation theory which is unidirectional) and aims at explaining FoF not just by individual traits, but also using environmental influences. Finally, and the coping theory (Sagar *et al.*, 2009) which examines the coping strategies for individuals who experience FoF. Based on the preceding discussion, our theoretical framework is illustrated in Figure 1.

At the individual level it is expected that skill perception has a strong effect on FoF (Tsai *et al.*, 2016), we also believe that closing a business in the past 12 months and knowing someone who started a business in the past 2 years may also influence FoF (Fu *et al.*, 2018). At the country level, investor protection, legal rights, and registration cost recovery all have influence on FoF. Interactions terms also appear to moderate the effect of skill perception on FoF.

Skill perception:

H1. Individuals who think they have the sufficient skills to start a business have less FoF.

Knowing someone who started a business in the past two years:

H2. There is no relation between FoF and knowing someone who started a business in the past.

Closing a business in the past twelve months:

H3. There is no relation between FoF and closing a business in the past.

John *et al.* (2008) used cross-country panel and a US only sample to study the association between investor protection and corporate risk taking based on large panel of manufacturing companies of 39 countries from the Compustat Global Vantage dataset for the period (1992-2002). This study used firm and county level data using OLS and the 2SLS

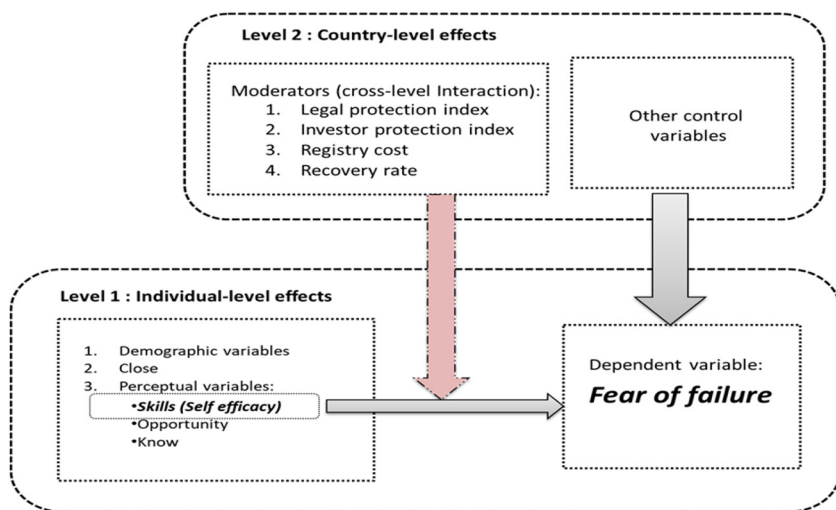


Figure 1.
Theoretical model

regressions. To perform the analysis, three measures (proxies) were developed for corporate risk taking: a market-adjusted volatility of firm-level earnings over the sample period from 1992 to 2002; a country average of the volatility of firm earnings and an imputed country risk score, based on industry risk characteristics. The results showed that the quality of investor protection positively affects corporate risk-taking and firm growth rates; better systems of investor protection could lead corporations to undertake risk with value-enhancing investment. Throughout the analysis, the quality of accounting disclosure standards (ASR), the rule of law (RL) in addition to an index of anti-director rights were used as a proxy for investor protection. The examination of the firm-level of companies in the United States showed that reliance on bank financing and unionization are both associated with less risk taking in corporate investments. Indeed, several studies point that good investor protection contributes to efficient resource allocation as well as economic growth (La Porta *et al.*, 2000).

Although startups are beneficial for employment and growth, they could also be abused for personal gain (Business Doing, 2013). The exploitation by borrowers (managers) might take different forms (La Porta *et al.*, 2000; Shleifer and Vishny, 1997).

Investor protection index measures the strength of minority investor protection against the abuse of corporate assets by directors (borrowers) for their personal gain and shareholder rights; as well as governance safeguards and corporate transparency requirements that reduce the risk of violence. The index has a minimum value of 0 and a maximum value of 10. Indeed, the effects of investor protection on borrower's FoF are mixed; in certain circumstances, higher degree of investor protection reduces FoF, while, in other situations, the opposite is true (Burkart *et al.*, 2002; Haidar, 2009; John *et al.*, 2005):

H4. Investor protection is not related to FoF.

Recovery rate stands for how many cents on the dollar claimants (such as creditors and tax authorities) recover from the insolvent firms. When the recovery rate is higher, banks might be expected to be more willing to give loans, which might reduce FoF among individuals. On the other hand, the higher recovery rates are, the more the claimants recover from an insolvent firm in case business strikes in bankruptcy, which means less is recovered by the entrepreneurs themselves; this generates more FoF among individuals. Creditors and banks are expected to be more willing to provide loans for entrepreneurial activities at higher recovery rates (Chen *et al.*, 2010; Van Stel *et al.*, 2007). Higher recovery rates reduce the likelihood of starting business among necessity driven entrepreneurs (Van Stel *et al.*, 2007):

H5. Higher recovery rates increase FoF among individuals.

The strength of legal rights index measures the degree to which collateral and bankruptcy laws protect the rights of borrowers and lenders and thus facilitate lending[2] (Business Doing, 2008). It is expected that at higher legal protection, creditors and banks are more willing to give loans for entrepreneurship activities; however, the effect of this factor on behavior of borrowers might depend on the relative protection for borrowers compared to lenders.

Registration cost is the cost required by law to register a business and estimated as a percentage of the property value. It is expected to have a positive effect on FoF as it could be considered as sunk cost:

H6. Higher registration cost rates increase FoF among individuals.

Finally, the regression includes set of control variables that are expected to explain some cross-sectional differences in FoF, these factors are: GNI per capita and unemployment rate, countries with higher unemployment rates implies lower probability of getting a job, an entrepreneur who fears failure will be more inclined to start a business if the probability of getting a job is high. In addition to level of economic development dummy and another dummy that controls for countries in transition (moving from level of economic development to another).

It has been argued that individuals who perceive that they have the necessary skill to run a business are not homogeneous; to this end, we include interaction terms to reflect variations between groups. While skill perception reduces Individuals' tolerance of uncertainty, the degree depends on how well they are protected by the role of law (Sully de Luque and Javidan, 2004; Wennberg *et al.*, 2013). Accordingly, we present the following:

- H7a.* The multi-level model (MLM) is better than ordinary logistic model in investigating the factors that influence FoF.
- H7b.* There is a significant variation in FoF across country-year groups.
- H7c.* The effect of self-efficacy on FoF is lower at higher levels of investor protection.
- H7d.* The effect of self-efficacy on FoF is stronger at higher levels of legal protection.
- H7e.* The effect of self-efficacy on FoF is lower at higher levels of recovery rate.
- H7f.* The higher the cost of property registration, the lower the effect of self-efficacy on FoF.

3. Methodology and Data

3.1 Descriptive statistics

This study uses the individuals Adult Population Survey (APS) GEM data to investigate the determinants of FoF[3] which is an individual level construct. Table I provides a list of the dependent and independent variables and their measurement. The variables are FoF, gender, age, work status, level of education, level of income, in addition to some perceptual factors such as to self-efficacy (Skills), perceiving business opportunities (Opportunity) and knowing other entrepreneurs (Know). Moreover, the study incorporates the variable (Close) which stands for whether or not the individuals have closed business during the past 12 months preceding the survey. Every year GEM collects data of roughly 2000 observations on each country stratified by age, and gender using the population sampling frame[4]. The data is harmonized and checked for consistency across all countries. Table III shows the sample size and sample indicators. We see that FoF is higher among females while their skill perception is lower. The table also shows that more women are not working compared to men although they are similar in education. Table IV also shows the bivariate spearman correlation between FoF and other variables, the relation is significant and negative for most, particularly skill perception (−13 per cent).

In addition to individual level variables, country level data for 12[5] countries for the period (2008-2010 and 2012) were added (see Table II for full details). The countries are chosen for the three levels of economic development, 4 countries from each level are chosen as follows: for innovation (Israel, Japan, France and Slovenia) , for efficiency (Russia, Uruguay, South Africa and Peru), and factor driven economies (Palestine, Egypt, Iran and Uganda). The individuals in these countries vary in their entrepreneurial perceptions and countries vary in their economy-wide variables. Variation across years is ignored, as the

Variable	Description	Source
Investor protection	The strength of minority shareholder protections against misuse of corporate assets by directors for their personal gain as well as shareholder rights, governance safeguards and corporate transparency requirements that reduce the risk of abuse. This index is an average of the Extent of Disclosure index, the Extent of Director Liability index, and the Ease of Shareholder suit index	WBDB ^a
Strength of legal rights index	Measures the degree to which collateral and bankruptcy laws protect the rights of borrowers and lenders and thus facilitate lending. The index ranges from 0 (weak) to 10 (strong rights), the higher scores indicating that these laws are better designed to expand access to credit. Stronger legal rights such as efficient bankruptcy procedures, rules for financial disclosure, clear property rights, facilitate lending. etc.	WBDB
Registration cost	Cost is recorded as a percentage of the property value, the value of property is assumed to be equivalent to 50 times income per capita. What is record in this indicator is only the official costs required by law, it includes: fees, transfer taxes, stamp duties and any other payment to the property registry, notaries, public agencies or lawyers, the costs borne by the buyer and those borne by the seller. The capital gains tax and value added tax are excluded from the measurement. If cost estimates differ among sources, the median reported value is used	WBDB
Recovery rate	How many cents on the dollar claimants (creditors, tax authorities, and employees) recover from an insolvent firm. This variable more or less combines the former two variables as the cost of bankruptcy proceedings is deducted from the initial available money, and the recovery rate is then calculated as the present value of what is left	WBDB
GNI per capita (PPP)	Gross National Income per capita in PPP terms (constant 2011 PPP\$) The aggregate income for an economy is estimated by its production and its ownership of factors of production, less the incomes paid for the use of factors of production owned by the rest of the world, converted to international dollars using PPP rates, divided by midyear population	UNDP ^b
Unemployment rate	Percentage of total labor force (modeled ILO estimate)	World Bank ^c
Established business rate	The percent of adult population that is the owner/manager of a business that is older than 42 months	GEM, National Reports

Notes: ^aThe data from the WBDB: www.doingbusiness.org/ (accessed August 2015); ^bFrom <http://hdr.undp.org/> (accessed August 2015); ^cFrom www.worldbank.org/ (accessed August 2015)

Table II.
The country-level
variables

time span covered does not warrant high variability on important dimensions. The country-level variables are the GNI per capita, unemployment rate, recovery rate, investor protection index, registry cost and legal rights index. This data was obtained from the World Bank and the World Bank Doing Business (WBDB) data set[6].

Figure 2 below shows the proportion of respondents in each country that would be stopped from starting a business by FoF. Variations do exist by gender and country, but no particular trend is observable at the development level. The trend is more visible at the gender level. The Chi squared test shows that FoF is more prevalent among females than males in all countries included in the study, except in Japan, where there are no gender

JEEE 12,4		Male (%) (N = 47828)	Female (%) (N = 53379)	Total (%) N = (101207)
552	Variables			
	FoF	34.25	39.78	37.11
	Skill perception	56.10	41.63	48.58
	Know someone who started a business	46.24	35.62	40.72
	Sees good opportunities	41.85	36.74	39.23
	Closed a business in the past 12 months	5.74	4.20	4.93
	<i>Income</i>			
	Lowest 33rd	25.13	30.34	27.83
	Middle 33rd	33.62	34.20	33.92
	Highest 33rd	41.25	35.46	38.25
	<i>Education</i>			
	None	10.24	13.25	11.83
	Some Secondary	23.29	22.67	22.96
	Secondary	32.33	30.77	31.51
Post-Secondary	26.97	26.80	26.88	
Graduate Exp.	7.16	6.51	6.82	
<i>Work status</i>				
Full time or part time	64.84	44.06	53.87	
Not working	14.03	37.34	26.34	
Retired or student	21.13	18.60	19.79	
Age (average)	39.27	39.87	39.59	

Table III.
Sample indicators
(%) (unweighted)

Variable	Correlation coefficient
Skill perception	-0.13***
Sees good opportunities	-0.06***
Know someone who started a business	-0.04***
Level of Education (4 = highest)	0.03***
Income (tier, 3 = highest)	-0.01***
Work status	-0.03***
Gender (1: male, 2 :female)	0.06***
Age	0.00
Closed a business in the past 12 months	-0.03***

Notes: ***Significant at > 99% level of confidence

Table IV.
Spearman bivariate
correlation of FoF
with some
individual-level
variables
(unweighted)

differences in FoF. The highest gender gap in FoF is found in Egypt, where the Egyptian women are 1.5 times as likely to have FoF than men.

Country differences in FoF may be attributed to culture (Japan), political risk (Palestine, Israel), or institutional/legal factors [7][8]. The Spearman rank correlations between FoF and the main individuals' factors suggest that FoF decreases when individuals think they have skills to start business, see good business opportunities, know other entrepreneurs, or having a business discontinuation experience.

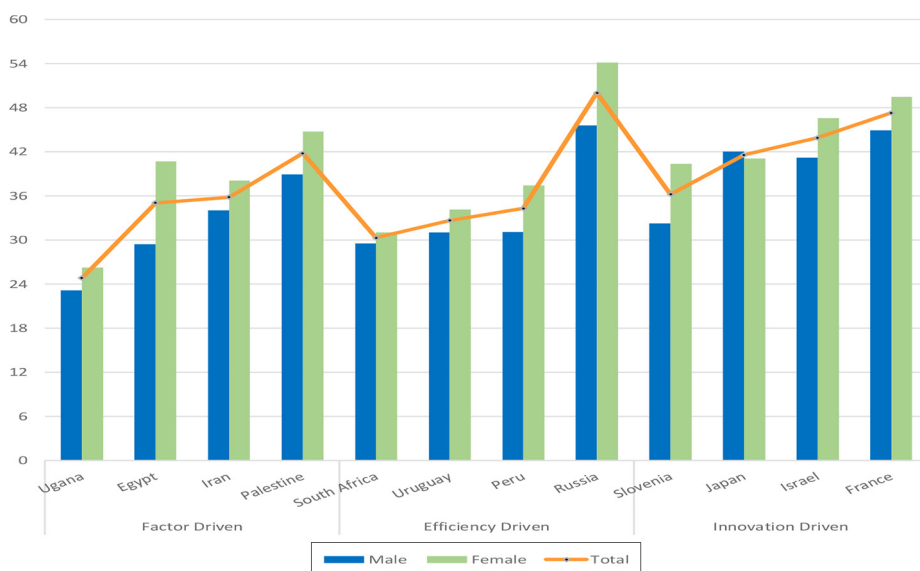


Figure 2.
FoF by country
(average 2008-2010
and 2012)

Notes: Unweighted since stata 12 do not allow the weight option for the xtlogit command

3.2 Research design

The theoretical framework outlined above, as well as the data section both show that individual level constructs can be grouped by country where institutional arrangements play a role in affecting individual behavior, and/or by year. The cohorts do vary overtime, and this provides an opportunity to perform the analysis over a third dimension. The first level uses individual level characteristics, while the country level data is the second level. We pooled estimations for each country over time to increase the sample size due to the fact that we only have 12 countries. In addition to that, the time span is short enough to not allow greater variability overtime for the main indicators. Thus the multilevel analysis allows us to see if country level variables can explain between group differences as well as interactions with individual level constructs. The MLM is different from the well-known panel data in that panel data could be considered as multilevel in which “the observations at multiple time points are nested with an individual” (Albright and Marinova, 2015). It is possible for a variable to exist in both the fixed and random effects. The fixed effect reflects the overall expected effect of a certain factor on the dependent variable, while the random effect provides information whether this effect varies across countries or not. It is of interest to test whether variables at the country-level help to explain country differences in FoF. For that reason, the model includes the following variables: recovery rate[9], investor protection, strength of legal right index (Legal)[10], registration cost as a per cent of property value[11], GNI PPP per capita and unemployment rate.

3.3 Empirical model

This study uses the multilevel logistic regression sine the variable of interest is FoF (0 or 1)[12], (Autio and Acs, 2010) used multilevel linear model where the dependent variable was the growth aspirations for new entrepreneurs.

The general form of the MLM takes the form[13]:

$$Y_{ij} = \beta_{00} + \beta_{p0}X_{p ij} + \beta_{0q}Z_{qj} + \beta_{pq}X_{p ij}Z_{qj} + u_{pj}X_{p ij} + \mathbf{u}_{0j} + \mathbf{e}_{ij} \quad (1)$$

where the dependent variable Y_{ij} is FoF for individual i in country j , X_{ij} is a set of individuals level regressors, and Z_{qj} is the country-level regressors (q) in country j , β_{00} is the intercept, β_{p0} is the direct effect coefficients of the individual-level regressors, β_{0q} captures the direct effect coefficients of the country-level regressors, β_{pq} are the coefficients of cross-level interaction terms, and the random[14] part of the equation is summarized by $(u_{pj} X_{p ij}, \mathbf{u}_{0j}$ and $\mathbf{e}_{ij})$, where \mathbf{u}_{0j} and u_{pj} are the country-level residuals and \mathbf{e}_{ij} represents the individual-level residuals. The two-level mixed logistic regression[15] (random intercept and random slope model) is estimated by Maximum likelihood (ML) method.

Estimates of equation (1) are provided in Table V which includes five variants of the model. The analysis would be started by the intercepts-as-outcome model “the null model”, this model is just interested in testing whether level 2 units (country-year) are different on average in FoF. The second model is the slope as outcome model; this model adds the individual explanatory variables to examine their direct effect on FoF. The third model adds the country-level explanatory variables to investigate their direct impact on FoF. The other country-level variables which are the unemployment rate and the GNI are added to control for their effects across countries. The fixed effects for the individual-level and the country-level variables are represented like logit regression estimates; however, the random effects are not directly estimated as model parameters but as a summation for variance components. The fourth model tests the potential for some cross-level interaction with self-efficacy (Skill) and country-level variables. In the estimation of cross level interaction between self-efficacy and the country-level variables, the direct effect of the country-level variables which are included in the interaction must be included in the regression despite some of them might be insignificant, (Hox, 1995). Finally, Model 5 tests whether the effect of seeing good business opportunities (country-year) on FoF varies across country-year groups or not. This could be tested by including a random intercept and a random slope for each Opportunity and self-efficacy.

4. Results

The regression results are shown in Table V, Model 1 tests if there exist heterogeneity (variation) in FoF between groups or not, this could be done by allowing intercepts to vary across country-year groups. The standard deviation of random intercepts (0.339) being more than six times its standard error (0.051) or by the likelihood ratio test versus an ordinary logistic regression ($p \approx 0.000$). The significant likelihood ratio test offers a significant enhancement over the ordinary logistic regression with fixed effects only. In other words, the MLM is significantly better than the logistic regression in investigating the determinants of FoF on our sample. As Model 1 in Table V shows, the likelihood of FoF varies by (0.115) across the groups[16].

Model 2 adds the fixed effect to control for the individual-level factors. The results in Table V show that the individuals’ factors have important impact on FoF. Women are more likely to fear failure compared to men, this finding is consistent with the literatures (Croson and Gneezy, 2009; Daoud *et al.*, 2015; Sepúlveda and Bonilla, 2010). Age is found influencing FoF in quadratic form, this might be because age is capturing the wealth effect; (Sepúlveda and Bonilla, 2010). Individuals who have “secondary” education show less FoF compared to individuals who are not educated. Regarding to work status, retired or student individuals tend to have less FoF compared to unemployed individuals. This segment of society is

Dependent: FoF	Model 1 Coef.	Model 2 Coef.	Model 3 Coef.	Model 4 Coef.	Model 5 Coef.
Gender (2= female, 1 = male)					
Age		0.15***	0.13***	0.13***	0.13***
Age squared		0.04***	0.04***	0.04***	0.04***
Closed a business		0.00***	0.00***	0.00***	0.00***
Knows other entrepreneurs		0.02	0.03	0.03	0.03
Sees business opportunities		0.00	0.02	0.02	0.01
Skill perception		-0.11***	-0.09***	-0.08***	-0.08**
		-0.45***	-0.45***	-0.97***	-0.80***
<i>Work status</i>					
Full or part time		-0.02	-0.02	-0.01	-0.01
Retired or student		-0.08**	-0.08**	-0.08**	-0.08**
<i>Education</i>					
Some secondary		-0.05	-0.04	-0.04	-0.04
Secondary		-0.08**	-0.07*	-0.08**	-0.08**
Post-Secondary		-0.06	-0.05	-0.06	-0.05
Graduate		-0.03	-0.02	-0.03	-0.04
<i>Income</i>					
Middle 33%		-0.01	-0.03	-0.02	-0.02
Upper 33%		-0.03	-0.04	-0.03	-0.03
GNI per capita (PPP)			0.00	0.00	0.00
Recovery rate			0.00	0.00	0.00
Investment Protection			-0.09*	-0.11**	-0.10*
Registry cost			-0.01	-0.04***	-0.04**
Legal rights			0.03	0.05	0.04
Unemployment rate			0.00	0.00	-0.01
Cross level interaction					
Investment protection* skills				0.07***	0.07**
Legal*skills				-0.04**	-0.08***
Registry cost*skills				0.06***	0.07***

(continued)

Table V.
Multilevel logistic
regression output
(unweighted)

Table V.

Dependent: FoF	Model 1 Coef.	Model 2 Coef.	Model 3 Coef.	Model 4 Coef.	Model 5 Coef.
Recovery rate*skills					
Constant	-0.52*** Parameter (st. error)	-0.99*** Parameter (st. error)	-0.36*** Parameter (std. error)	0.00 -0.16*** Parameter (st. error)	0.00 -0.20*** Parameter (st. error)
Random effect:					
st. dev(Opportunity)					0.238 (0.039)
st. dev (Skills)					0.251 (0.039)
Log likelihood	0.339 (0.051)	0.284 (0.032)	0.182 (0.023)	0.175 (0.022)	0.240 (0.039)
LR test prob > chi2 vs Logit	-52,741.62 0.00	-32,647.55 0.00	-30,573.79 0.00	-30,528.75 0.00	-30,448.18 0.00
Nu. Groups	45	44	42	42	42
Nu. Observations	81,281	50,828	47,718	47,718	47,718
Obs per group: Min	707	235	235	235	235
Max	3,861	2,411	2,411	2,411	2,411
AIC	105,487.2	65,329.11	61,201.57	61,119.49	60,968.36
BIC	105,505.9	65,479.32	61,438.44	61,391.46	61,284.19
LR test prob > chi2		NA		(3 vs 2) 90.08***	(5 vs 4) 161.13***

Notes: The control groups are: for education is (none), for work status (not employed) and lowest 33rd percentile for income, $P < 0.01$ ***, $P < 0.05$ **, $P < 0.1$ *, level of development is added as dummy but is removed from the table of output. NA: not available because of unequal number of observations

classified outside the labor force while unemployed individuals are seeking wage employment; this can be a testimony for the lower opportunity cost for the first group or a stronger preference for self-employment. Household income, on the other hand, shows no significant impact on the probability of FoF[17]. As expected, self-efficacy and seeing good business opportunities have negative impact on FoF. The experience gained from closing a business in the 12 months preceding the survey has no significant impact on FoF. Despite the organizational learning theorists suggestion that negative emotions resulting from business discontinuation motivate search processes in addition to learning and adaptation; however, learning from business closure occurs (be more efficient) when individuals can use the available information related to why the business failed (Shepherd, 2003). Given that learning from business failure is not automatic or instantaneous; learning from business closure might interfere with the individual's ability to learn from loss (Shepherd, 2003).

Knowing other entrepreneurs could reduce the ambiguity resulting from entrepreneurship activity, and could increase the probability of starting business, but in this study, knowing other entrepreneurs shows no significant effect on individual's FoF. This result is counterintuitive, but is somehow similar to the finding of (Daoud *et al.*, 2015; Sepúlveda and Bonilla, 2010).

Notably, the results of Model 2 show that after the controlling for the individuals' factors in the fixed effect the variation of the random effect for the country-year group decreased by 30 per cent (from 0.115 to 0.081). Furthermore, the model selection criteria (AIC and BIC)[18] as well as to the log likelihood for Model 2 decreased slightly compared to the previous model, this confirms that Model 2 fits significantly better than Model 1.

Model 3 adds the country-level variables to the fixed effect (Table V). Given the other factors, among the seven country-level factors added to the regression, only the investor protection index shows a significant direct effect on the probability of FoF, signifying that FoF is less in the countries of higher investor protection. However, by adding only the country-level variables to Model 1[19], the results further show that the legal protection index and the cost of property registration have significant impact on FoF; which provides some signals for important cross level interactions[20].

When Model 3 is compared to Model 2, the decrease in the model selection criteria (AIC and BIC) and the log likelihood confirms that Model 3 which adds the country-level variables to the regression fits significantly better than Model 2. In addition to that, the variation of the random effect for the country-year group decreased by roughly 72 per cent relative to Model 1.

Interestingly, the control for the macro level variables resulted in a little change in the effects on the individuals level factors on FoF, the coefficient of gender which is signifies the gender gap in FoF and the coefficient of perceiving good business opportunities decreased by 2 percentage points. Furthermore, the addition of the country-level variables decreases the variation of FoF across country-year by around 59 per cent compared to Model 2 (from (0.284)2 in Model 2 to (0.182) in Model 3, this suggests that the country-level factors are important in explaining FoF variation across groups. However, the relative importance of the individual and country-level factors would be shown later.

The results of the preceding model provide signals for the potential of important interaction between the individual-level factors and the country-level factors. Interestingly, based on Model 2, the self-efficacy in the FoF equation recorded the highest coefficient compared to the other regressors. Indeed, FoF is considered as an inverse proxy of self-efficacy (Autio and Acs, 2010). This, in turn, raises the question, "when" and "under what condition" self-efficacy influences FoF strongly.

This concern could be handled by including cross level interactions between the country-level variables and self-efficacy. The interaction terms are called moderators since they could alter the nature or the strength of the impact of the independent (self-efficacy in our case) on the outcome variable (FoF) (Andersson *et al.*, 2014). The potential for significant interaction is tested between self-efficacy and the following country-level factors: investor protection index, legal right index, recovery rate and the cost of registration. Indeed, as mentioned previously despite the insignificance of three of the country-level variables having direct effect on FoF, but their direct effects should be included in the regression that examines the possibility of the interaction terms. The results of the regression are illustrated in Table V. The findings indicate that self-efficacy interacts significantly with each of investor protection index, legal protection index and property registration cost in an interesting way.

The coefficient of the interaction term between self-efficacy and investor protection index is positive and significant ($\beta = 0.07, P \approx 0.000$). Individually, each of the skill and investor protection reduce the probability of FoF; but in multiplicative form, investor protection moderates the negative effect of skill perception such that (as in Model 4 coefficients) in countries with very high investor protection scores, policies that promote skill perception reduce FoF by larger amounts. This is compared to negative direct effect of investor protection on FoF. In strong investor protection countries and particularly when reinvestment opportunities are poor, investors and creditors use their legal power to “extract the dividends from firms resulting in less manager personal benefits, consequently increase managers’ risk-taking (Acharya *et al.*, 2011). While, on the other hand, in poor investor protection countries, managers tend to abstain from taking risky projects and invest in safe ones (become more risk averse) to “secure” their private benefits, (John *et al.*, 2008; La Porta *et al.*, 2000; Paligorova, 2010). While, turning back for the interaction term between investor protection and self-efficacy, the positive sign of the interaction term implies that the *strength* of the negative impact of self-efficacy on FoF is *lower* in the countries where the investors are more protected. Or in other words, higher investor protection dampens the negative effect of self-efficacy on FoF. Self-efficacy which is the belief that an individual has the skills necessary to run a business is found to have less effect in reducing individuals (entrepreneurs/borrowers) FoF among individuals in the countries where the investors/creditors/banks are highly protected. In fact, this relation might be, somehow, consistent with the arguments that suggest a negative relation between investor protection and FoF. Higher investor protection might increase the bankruptcy costs which encourage shareholders (borrowers) to avoid insolvency; this could be achieved only by conducting conservative investment policies (Acharya *et al.*, 2011; Paligorova, 2010).

On the other hand, the interaction term between the legal protection index and self-efficacy is significantly negative, this, in turn, outweighs the positive but insignificant direct impact of legal protection index on FoF. Since the negative impact of self-efficacy on FoF is found to be stronger in the countries where the rights of both investors (creditors) and borrowers (entrepreneurs) are more protected. The moderation effect of the legal protection is opposite to that of investor protection on self-efficacy, highlighting the importance of the legal protection of borrowers alongside investor protection to reduce individuals FoF. The interaction of self-efficacy and property registration is found to be significantly positive; this reveals that in the countries where the registration cost is high the negative effect self-efficacy on FoF is weaker. Noticeably, the direct effect of the cost of registration is significantly negative, however, it exhibits the same sign but with insignificant impact on FoF in the preceding models, this might be related to collinearity or because of sample size[21].

As for recovery rate, neither its direct effect nor its interaction effect has a significant impact on FoF; its effect might be embedded indirectly in the investor protection.

Regarding the individual-level fixed effect, the coefficients are nearly the same compared to the previous model, except the coefficient of self-efficacy. When the interaction terms between self-efficacy and the four country variables are included in the regression, the coefficient of self-efficacy doubled, this is normal because the cross-level interaction included in the model are only with self-efficacy. As for gender, its coefficient has remained constant compared to the previous model. In a separate regression (results not shown) when only gender is included in the fixed effect, the coefficient was estimated to around (0.24), while, it has decreased to half its value (0.13) once the individuals level variables were added to the regression. This suggests that unlike the country-level variables included in the study, the individual-level factors could explain important portion of the observed gender gap in FoF. The gender gap in FoF is still significant after the control of the variables in the model, this means that the gap might be due to unobserved factors, such as gender stereotype, family background, culture, marital status and number of children[22]. Notably, the addition of the cross-level interactions explains a small portion of the variation in the county-year groups. The variation between the groups in FoF has decreased by 8 per cent (from 0.033 to 0.031).

However, considering Model 1 as a base model, the addition of the individual-level variable explains around 30 per cent of the country-year variation[23] in FoF, while controlling for the country-level factors explains additional 41 per cent of the variation, whereas, including the cross-level interactions explains a small but important portion, (nearly 2 per cent) of the variation in the FoF across groups. This indicates that the institutional contexts are relatively more important than the individual-level factors in explaining the variation in FoF across the groups. Again, Model 4 fits significantly better than Model 3 by the model selection criteria, and the log likelihood ratio test confirms that at ($P \approx 0.000$).

The results of the preceding models indicate that self-efficacy and seeing good business opportunities are among the key variables that reduce the probability of FoF. But, do the effects of self-efficacy and perceiving good business opportunities differ by country-year division? This could be tested by including both random intercepts and slopes on each of self-efficacy and Opportunity. The results of the regression are presented in Table V Model 5. The findings confirm that the random intercept and the random slope of Skills and Opportunity exhibit significant variation. The log likelihood ratio test confirms that adding the random slope for opportunity in addition to self-efficacy to the model offer significant improvement over the last model with random intercept only, with ($P \approx 0.000$)[24]. In addition, the standard deviation of the random slope for self-efficacy is (0.24) which is around 6 times its standard error, similar findings are observed for the random slope for opportunity. These findings in addition to the significant likelihood ratio test confirm substantial country-year differences in FoF and in how individual's self-efficacy and perceiving good business opportunities affect FoF[25]. Individual's reaction for having self-efficacy (self-esteem) and perceiving good business opportunities on FoF might be sensitive to the context where they find themselves, such as the institutional, industrial, political framework and the stability of macroeconomic conditions. Further, the response might be conditional to individual-level factors not included in the model, such as the social support, community norms, and access to capital and psychological traits as well as to the nature of the opportunity itself.

The model fit shows significant improvement compared to the last model. The model selection criteria and the log likelihood ratio test ($P \approx 0.000$) confirm that. The total effects of

Opportunity and Skills on FoF equal to their random effects plus their fixed effects. Figures 3 and 4 visualize why the models show significance improvement when the random slopes for skills and opportunity are included. On average, the total effects of self-efficacy on FoF are found negative across the 12 countries [26] (Figure 3).

However, the effects of self-efficacy are much stronger among the individuals in Uruguay followed by Uganda and Slovenia, while, the effects are positive but less strong among individuals in Russia and Israel then Japan.

The fixed effects are positive across the 12 counties, while, the estimated random effects are negative [27] in some countries. Yet, the corresponding negative fixed effects are higher, resulting in negative total effect of self-efficacy on FoF across the 12 counties (Table VI). While, as for the total effects for opportunity, they range from negative to positive, Figure 4 shows that the total effects of opportunity are negative in 8 countries out of the 12 countries included in this study, while, the total effects are positive in Uruguay, Palestine, France and

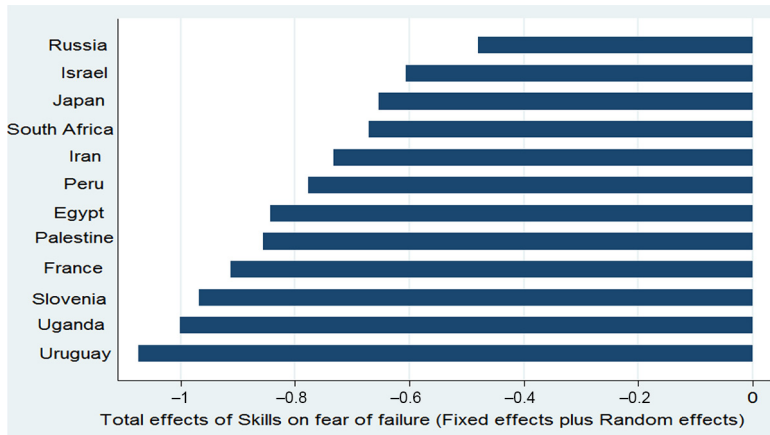


Figure 3.
Total effects of self-efficacy on FoF (average 2008-2010 and 2012)

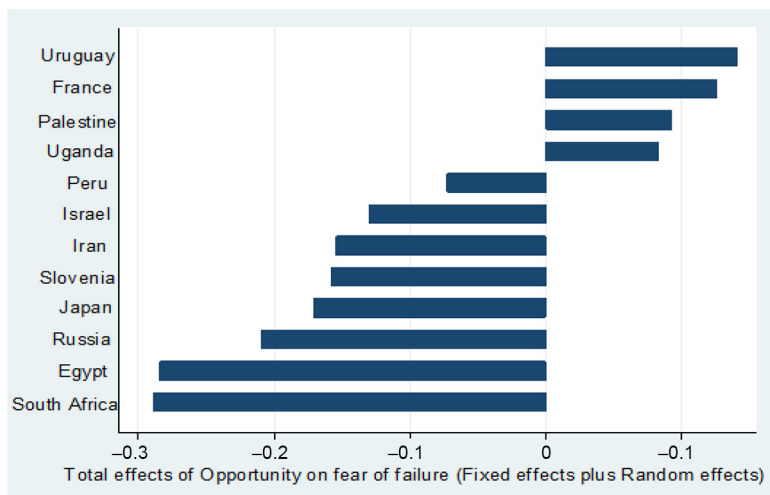


Figure 4.
Total effects of opportunity on FoF (average 2008-2010 and 2012)

Table VI.
Total effects of self-
efficacy on FoF by
country^a

Country	Mean of opportunity fixed effects	Mean of opportunity random effects	Mean of opportunity total effect
Russia	-0.078	-0.131	-0.209
Egypt	-0.078	-0.206	-0.284
South Africa	-0.078	-0.211	-0.289
France	-0.078	0.204	0.126
Peru	-0.078	0.005	-0.073
Japan	-0.078	-0.093	-0.171
Iran	-0.078	-0.076	-0.155
Uganda	-0.078	0.161	0.083
Slovenia	-0.078	-0.079	-0.158
Uruguay	-0.078	0.218	0.14
Palestine	-0.078	0.171	0.093
Israel	-0.078	-0.051	-0.129

Note: ^aAverage by country-year

Uganda. On the other hand, the highest negative total effects of opportunity on FoF are found in South Africa, Egypt and Russia. Indeed, all the fixed effects of opportunity are negative, but some positive random effects are higher than the corresponding fixed effect and resulted in positive mean of Opportunity total effects on FoF, see [Table VII](#). On the other hand, if Model 5 is estimated by ordinary logistic regression which studies the fixed effects only (ignores the random effects), the model would approximate the mean of the negative and positive random effects for Skills (nearly -0.06) and adds it for the fixed effect of Skills, so that the regression coefficient of Skills would be (-1.03) [28] instead of (-0.97) as presented in Model 5). As for, opportunity, the average of random effects seems to be nearly zero, since its fixed effect in the MLM is almost the same when ignoring its random effects[29]. Finally, we re-estimate Model 5 with some variation[30] to reflect the effect on predicted probabilities of FoF on investment protection by country as well as the effect of investment protection on the predicted probabilities using the fixed effects only.

[Figure 5](#) shows that irrespective of the country, higher investment protection lowers the probability of FoF. Japan has the highest probability while Peru has the lowest. [Figure 6](#) on

Table VII.
Total effects of
opportunity on FoF
by country^a

Country	Mean of skills fixed effects	Mean of skills random effects	Mean of skills total effects
Russia	-0.796	0.316	-0.48
Egypt	-0.796	-0.047	-0.843
South Africa	-0.796	0.126	-0.67
France	-0.796	-0.116	-0.912
Peru	-0.796	0.019	-0.777
Japan	-0.796	0.142	-0.654
Iran	-0.796	0.063	-0.733
Uganda	-0.796	-0.205	-1.001
Slovenia	-0.796	-0.172	-0.968
Uruguay	-0.796	-0.279	-1.075
Palestine	-0.796	-0.06	-0.856
Israel	-0.796	0.19	-0.606

Note: ^aAverage by country-year

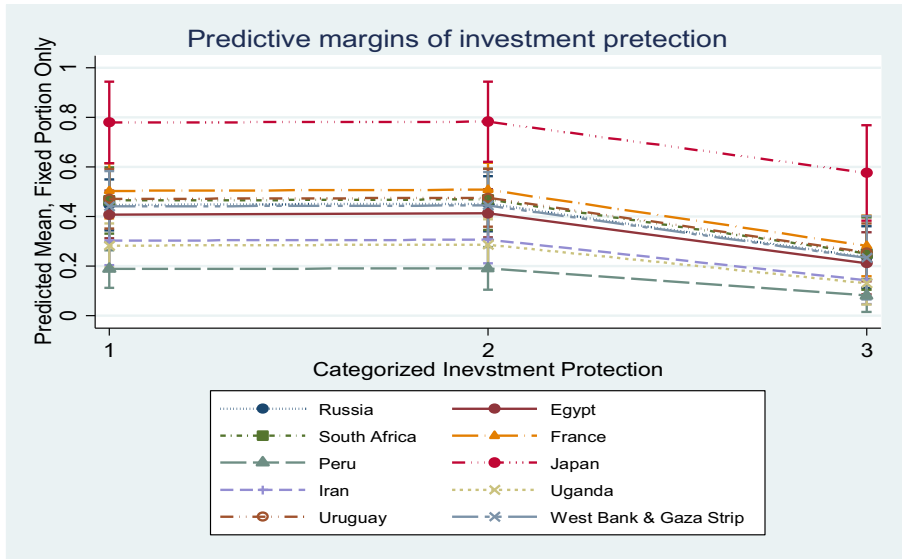


Figure 5.
Predicted probabilities of FoF by country given level of investment protection

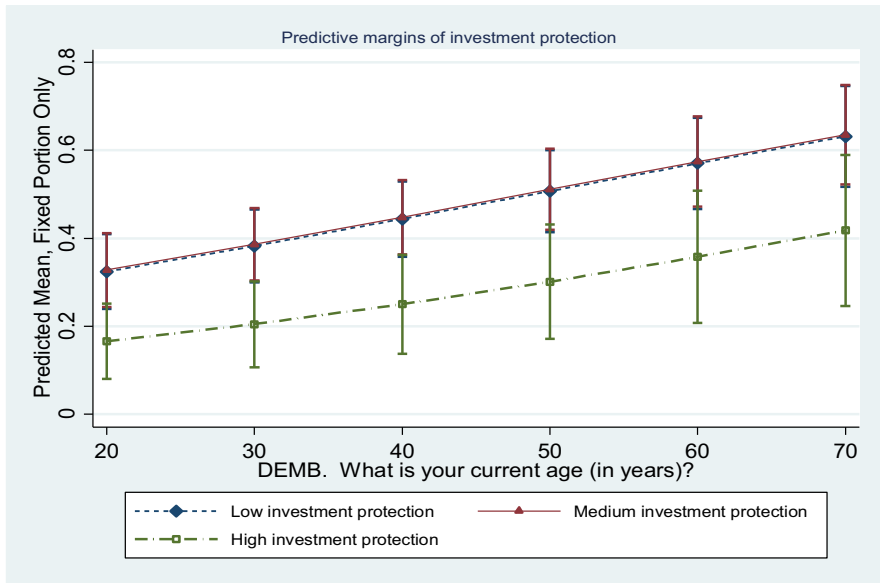


Figure 6.
Predicted probabilities of FoF by country given level of investment protection

the other hand shows that age increases the probability of failure and echoes the same message in [Figure 5](#); that is high levels of investment protection has a larger negative effect on the probability of failure than low and medium levels which are practically indistinguishable.

5. Conclusions, recommendations and limitations

This study investigates the factors that affect FoF on both individual and country level by using a multilevel (hierarchical) logistic model. This technique could provide a wider view on the determinants of FoF compared to the ordinary logistic regression; the MLM estimation allows catching the effect of individual's characteristics and country-level variables as well as cross level interaction effects on FoF.

The investor protection, legal rights protection (for both borrowers and creditors) and the cost of registration are found acting as cohesive factors that moderate the relation between self-efficacy and FoF. Higher registration cost, higher degrees of investor protection and less legal protection diminish the effect of self-efficacy on FoF. In other words, individuals are more likely to fear failure when they are less protected, the rights of creditors are highly protected and at higher cost of registration. The individual-level factors which are important in predicting the probability of FoF are gender, age, self-efficacy, seeing good business opportunity, education and work status. But, the country-level factors explain relatively higher portion of the between group variations in FoF than the individual-level factors.

Further, the effects of the country-level factors outweigh the impact of the individual-level factors on FoF. In addition, the effects of perceiving business opportunities and self-efficacy are different across the country-year groups, the effects are expected to be conditioned by environment context where the individuals find themselves.

The implications tell policy makers how regulations are vital in reducing FoF. This ultimately hinders individuals from starting new businesses. It is important for governments to balance between protecting the rights of investors (creditors) and that for entrepreneurs (borrowers) to protect each of them from the exploitation by the other. In addition, it might be worth it for governments to review their legislations that are related to the registration cost of a new business. Such regulations are important in reducing individuals FoF through boosting their self-efficacy. On the other hand, several studies find that higher investor protection leads to higher growth rates and better allocation of resources. It might be worth a while for future research to measure the net effect resulting from higher investor protection on business startup and business growth. In particular, it is often found that emerging economies have high rates of FoF as well as high registration cost, uncertainty about investment, low investor rights, etc. This research suggests that institutional reform can have positive impact on lowering FoF hence enhancing entrepreneurial prospects.

It is believed that this study makes a contribution to the broader literature about FoF by acknowledging that the country-level factors could alter individuals FoF; further, their effects on FoF outweighs that of the individual factors. This, in turn, might provide directions and areas for future research in studying the determinants of FoF by looking at the latter as a multifaceted perceived perception that could be studied at different levels of analysis such as individual, groups, organizational, community or country-level analysis.

However, some limitations remain. One of the issues discussed earlier was the construct validity of FoF, the wording of the question in GEM data is phrased such that FoF prevent you from starting a business; this means the response is avoidance. Had the question been worded positively, the responses may have varied. A better measure would have been an index with a scale that shows varying degrees of FoF. Another feature of GEM data is that the cohorts change every year, making it impossible to track the effect of closing a business on perceptual variables such as FoF and skill perception. This requires further scrutiny and analysis. A third consideration would be the inclusion of a third dimension, such as time or level of development; the sample size on countries in each level of development and/or years is not large enough to allow the analysis.

Notes

1. The authors highlight stronger differences at the regional level rather than at the stage of development level as reported in page 17 of the 2015-2016 global report.
2. This index is an average of the Extent of Disclosure index, the Extent of Director Liability index, and the Ease of Shareholder suit index.
3. The data of established business entrepreneurs were excluded from the sample because the focus is on nascent and early stage entrepreneurial activity.
4. For a detailed discussion of the sampling design and weights, please see www.gemconsortium.org/wiki/1175
5. This study makes the analysis using country-year groups (45 groups), but having only 12 countries for a single year might be insufficient to do MLM. Sadeq and Setti (2013) used 15 countries to perform two level model. Hox (1995) highlighted the rule of thumb in estimating MLM which is called the 30/30 rule, with at least 30 groups and with 30 individuals as a minimum for each group. Maas and Hox (2003) pointed out that small sample size at level two (i. e. 50 or less) could yield biased estimates for the second-level standard errors.
6. Except GNI which was obtained from the UNDP.
7. Later the country-level descriptive statistics indicate that the country-level variables (recovery rate, investor protection) are higher in these countries compared to the other countries included in the study.
8. According to the imf.org and the World Outlook Report 2014 (Japan, Slovenia, Israel and France are developed countries while the remaining are developing.
9. The lower the recovery rate the difficult to close a business , Rankings are based on the recovery rate: how many cents on the dollar claimants (creditors, tax authorities and employees) recover from the insolvent firm
10. This index take the values between (1-10) it measures the degree to which collateral and bankruptcy laws protect the rights of borrower and lender and thus facilitate lending, this index provide an indication whether or not these laws are better designed to expand access to credit and loans.
11. Recovery rate, Investment protection, Credit, registry cost was obtained from World Bank Doing business www.doingbusiness.org/, access time July 2015. The GNI per capita was obtained from the WBDB reports 2008-2012
12. However, unlike (Autio and Acs, 2010) which estimate random intercept model, this study expands the estimation to include random intercept and random slope model as shown later
13. The equation is taken from (Hox, 1995) which assumes that the model has more than one variable in each level.
14. According to stata manual, the assumptions of the random effects distribution are Gaussian., while the conditional distribution of the response given the random effects are Bernoulli, however, the log likelihood for this model is approximated by adaptive Gaussian quadrature because it has no closed form (see stata manual).
15. Stata 12 is used to estimate the model
16. Which is the standard deviation square (0.3392)
17. This result is different compared to the results obtained by ordinary logistic model (results not shown) , in the ordinary logistic model, individuals in the upper 33% income have less fear of failure compared to lowest 33% income base group. This suggests that the effect of income has significant effect within the countries but have no significant between groups, hence, the association between fear of failure and income might be related to country specifics.

18. Bayes Information Criterion (BIC) and Akaike's Information Criterion (AIC)
19. The results are not shown but available upon request.
20. Indeed, this is similar to that done by Elam (2006) to pave the way for the potential for significant interaction between the individual-level factors and the macro level factors in examining the factors that affect starting business.
21. In a separate regression, when the registration cost squared is added to the regression, the sign of the coefficient of registration cost turn to positive, and nearly zero for the registration cost squared, but both are not significant, further the model selection criteria (AIC and BIC) increased slightly.
22. Number of children was not used in the regression, since it is not available in the APS data for the year 2008.
23. In the estimation of the variation we follow Elam (2006).
24. In addition, the log likelihood ratio tests support this result when first, the random slope for Opportunity is added, and then when that for self-efficacy is included.
25. The estimated correlation between the random slope for Skills and Opportunity and the random intercept are (-0.74) and (-0.50) respectively. The likelihood-ratio test confirms that allowing for correlations results in significant enhancement compared to the same model but without correlation between the random slopes and the random intercept (with $p \approx 0.000$).
26. It is possible to graph a figure for the total effects for Skills and Opportunity on fear of failure across the 42 country-year groups, but for simplification, the means for the total effects of Skills and Opportunity are illustrated across the 12 countries instead of the 42 country-years groups.
27. The negative random effect might reflect that the sample size is not large enough to measure the variation across the country-year groups, this suggest larger sample size.
28. Results are not shown.
29. Further, the standard deviation for the fixed effect of Skills increased to (0.9) when only the fixed effects are estimated compared to (0.02) in the random slope model. The standard deviation for Opportunity is the same after and before adding the random slope model, because the random effects (negative and positive) of Opportunity are averaged to zero, thus, this indicates that ignoring the random effect might yield for inefficient biased estimation.
30. Here we first removed interaction terms, changed the grouping variable to country instead of country/year to reduce the number of intercepts to 12 instead of 45. We changed investment protection to a categorical variable with three levels (low (3-4.7), medium (5-6.3) and high (6.7-8.3) with roughly 1/3 of the sample in each category. The results of the regression are presented in the Appendix [Table A1](#).

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	Coefficient	<i>p</i> -value
Gender (2 = female, 1 = male)	0.1229	0.00
Age	0.0269	0.00
Age squared	-0.0004	0.00
Closed a business	0.0260	0.53
Knows other entrepreneurs	0.0015	0.95
Sees business opportunities	-0.1060	0.00
Skill perception	-0.4517	0.00
<i>Work Status</i>		
Full or part time	-0.0310	0.24
Retired or student	-0.0903	0.02
<i>Education</i>		
Some secondary	-0.0273	0.46
Secondary degree	-0.0776	0.04
Post secondary	-0.0693	0.08
Graduate experience	-0.0485	0.42
<i>Income</i>		
Middle 33% tile	-0.0469	0.08
Upper 33% tile	-0.0694	0.01
GNI_PPP	0.0000	0.51
recov_rate	0.0328	0.00
<i>Invetsment Protection</i>		
Medium	0.0622	0.81
High	-0.9670	0.01
Registry_cost	0.0032	0.86
credit	-0.1916	0.00
Unemployment1	0.0427	0.00
_cons	-1.2719	0.00
<i>Reandom Effect</i>		
St. Dev. Const	0.1354	0.10
LR test prob> chi2 vs. Logit	655.1400	0.00
Nu. Groups	10.0000	
Nu. Observations	41,882.0000	
Obs per group: Min	2,801.0000	
Max	5,727.0000	

Table A1.
Multilevel regression
output for a variant
of model 5