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Sambanden mellan entreprenörskap och **insolvensregler**

En analys av internationella index och mått

I den här empiriska studien undersöker Tillväxtanalys relationen och styrkan mellan olika aspekter av insolvenslagstiftning och särskilt det tillväxtorienterade entreprenörskapet. Syftet är att bygga upp kunskap kring reglers effekter på företagens tillväxt.



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Förord

Myndigheten för tillväxtpolitiska utvärderingar och analyser (Tillväxtanalys) har sedan 2010 haft flera uppdrag från regeringen att upparbeta kunskap inom området *Reglers effekter på företagens tillväxt*. Syftet är att säkerställa att insatser för effektivare och mer ändamålsenliga regler i första hand vidtas där de ger störst effekter på företagens tillväxt.

Tillväxtanalys tillfrågades under våren 2014 av Nystartsutredningen (SOU 2014:44 F-skuldsanering – en möjlighet till nystart för seriösa företagare) att bistå denna genom att analysera konsekvenserna av utredningens förslag till förändrade eller mildrade insolvensregler, med särskilt fokus på hur detta kan påverka företagande och entreprenörskap. Denna analys ingår som bilaga i betänkandet men redovisas även separat i föreliggande pm då insolvensreglernas påverkan på entreprenörskap även är en delleverans inom ramen för Tillväxtanalys regeringssuppdrag.

Mer förlåtande insolvensregler synes ha den positiva konsekvensen att de uppmuntrar ”bättre” och inte bara *mer* entreprenörskap. Den samhällsekonomiska nyttan av att överväga mildare insolvensregler är därmed ansevärd genom att reglerna särskilt påverkar vilka individer som startar företag.

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Sammanfattning

Det kan slås fast att det finns ett samband mellan insolvensförfarande och entreprenörskap även om området är relativt outforskat. Empiriska studier visar att en mindre strikt insolvensrätt har en positiv påverkan på entreprenörskap och företagande. Studier visar vidare att mildare insolvensregler kan påverka såväl kvantiteten som kvaliteten på entreprenörskap genom att uppmuntra företagare att starta igen, vilket ofta leder till framgångsrikt entreprenörskap.

Denna empiriska studie är unik och undersöker relationen och styrkan mellan olika aspekter av insolvenslagstiftning och särskilt det tillväxtorienterade entreprenörskapet. Entreprenörskap är ett mångfacetterat fenomen och motiven bakom, liksom tillväxtpotentialen, skiljer sig åt mellan olika typer av entreprenörskap. Alla företag har inte som motiv att växa eller saknar förutsättningar för att kunna göra detta. Analysen baseras på data från dels Världsbankens index *Cost of Doing Business* och då specifikt det delindex *Resolving Insolvency* som mäter tid, kostnader och återvinningsgrad för borgenärer vid konkurs, dels mått på entreprenörskap från GEM (*Global Entrepreneurship Monitor*) och andra oberoende institut som insamlar data på ett enhetligt sätt.

En tidigare studie av Japan gjord av Stanfordsforskarna Eberhart, Eesley och Eisenhardt visar på starkare kausalitet mellan en reform av insolvensrätten i Japan och en viss typ av entreprenörskap (elitentreprenörer), men den aktuella analysen bygger på data från ett stort antal länder över tid och är robusta för ett antal olika mått på värdeskapande entreprenörskap (innovativt entreprenörskap, tillväxtorienterat entreprenörskap samt möjlighetsinriktat entreprenörskap) varför resultaten är mer generaliserbara. Alla tre indikatorer eller mått på insolvens från Världsbanken (tid, kostnader och återvinningsgrad) har ett negativt samband med möjlighetsbaserat, högtillväxt- och innovativt entreprenörskap även om den relativa betydelsen av dessa varierar. Dimensionen kostnader har även en negativ påverkan på nödvändighetsbaserat entreprenörskap i OECD-länder. Denna typ av entreprenörskap är av en annan karaktär och innebär att individen tvingas till egenföretagande för att få sin försörjning, vilket står i kontrast till den möjlighetsbaserade, innovativa, och tillväxtorienterade typ av entreprenörskap som betraktas som viktigare för OECD-länderna.

Analysen av data på landsnivå visar att en mildare insolvenslagstiftning kan reducera hindren vid misslyckande och därmed uppmuntra tillväxtorienterat och innovativt entreprenörskap. Dessa resultat stödjer och förstärker slutsatserna från Eberhart m.fl. (2013) och deras studie av den japanska reformen, som har karaktären av ett skenbart naturligt experiment. Mer förlåtande insolvensregler synes ha den positiva konsekvensen att de uppmuntrar ”bättre” och inte bara *mer* entreprenörskap. Individer som överväger att starta och arbeta i företag med uttalad tillväxtvilja eller potential tar ofta i beaktande och väger in konsekvenserna av ett misslyckande i sitt beslut.

Den samhällsekonomiska nyttan av att överväga mildare insolvensregler är därmed ansevärd genom att reglerna särskilt påverkar vilka individer som startar företag. Det bör vidare påpekas att ur ett tillväxtperspektiv är betydelsen av att företagare kan driva aktiv näringsverksamhet under ett skuldsaneringsförfarande ganska liten. Det är betydligt viktigare att den sammantagna tiden för konkurs och skuldsanering är kort och att individen ges möjligheter att försöka igen med ett nytt företag eller projekt.

Nystartsutredningens förslag att betalningsplanens längd ska vara tre år för företagare i kombination med utredningens förslag till ändrade effektiva förfaranderegler innebär att den sammantagna tiden som dessa personer genomgår ett insolvensförfarande i princip halveras. Förslaget innebär även att vissa företagare som inte tidigare har kunnat få skuldsanering nu erbjuds en sådan möjlighet. För dessa personer är förändringen ännu större eftersom de med gällande lagstiftning helt saknar möjlighet att få sina skulder avskrivna efter en konkurs.

Summary

It is possible to establish a link between insolvency procedures and entrepreneurship, despite the fact that relatively little research has been carried out in this area. Empirical studies show that less stringent insolvency law has a positive impact on entrepreneurship and business development. The studies also indicate that more lenient insolvency regulations can influence both the quantity and the quality of entrepreneurship by encouraging entrepreneurs to start again, which often leads to the development of successful businesses.

This empirical study is unique. It investigates the strengths of and the relationship between different aspects of insolvency legislation and growth-orientated entrepreneurship in particular. Entrepreneurship is a multifaceted phenomenon and the motives behind it and its growth potential vary depending on the type of entrepreneurship. Some companies do not have the intention to grow or lack the prerequisites to do so. The analysis is based on data from the World Bank Cost of Doing Business index and, in particular, the Resolving Insolvency sub-index, which measures the time, cost and recovery rate for creditors when a company goes bankrupt. It is also based on measurements of entrepreneurship from GEM (Global Entrepreneurship Monitor) and other independent institutes that collect data in a standardised way.

A previous study of Japan by Eberhart, Eesley and Eisenhardt, researchers from Stanford University, indicates greater causality between a reform of insolvency law in Japan and a certain type of entrepreneurship (elite entrepreneurs). However, the current analysis uses data from a large number of countries over time and provides robust measurements of a variety of aspects of value-added entrepreneurship (innovative entrepreneurship, growth-orientated entrepreneurship and opportunity-driven entrepreneurship), which means that the results can more readily be generalised. All three indicators or measurements of insolvency from the World Bank (time, cost and recovery rate) have a negative link with opportunity-driven, high-growth and innovative entrepreneurship, despite the fact that the relative importance of these varies. The cost dimension also has a negative influence on necessity-driven entrepreneurship in OECD countries. This type of entrepreneurship is different in nature and involves individuals being forced to become self-employed in order to earn their living. This is in contrast with opportunity-driven, innovative and growth-orientated entrepreneurship, which are regarded as being more important for OECD countries.

An analysis of the data at a country level shows that more lenient insolvency legislation can reduce the obstacles in the event of a company failing and, therefore, encourage growth-orientated and innovative entrepreneurship. This result supports and reinforces the conclusions drawn by Eberhart et al (2013) in their study of the Japanese reform, which gives the appearance of being a natural experiment. More forgiving insolvency regulations are felt to have the positive consequence of encouraging "better" and not just increased entrepreneurship. Individuals who are considering starting up and working in a company that has the explicit intention of growing or the potential to do so often take into account the consequences of failure when they make their decision.

Therefore, the socio-economic benefit of considering less stringent insolvency regulations is considerable, because the rules have an influence in particular on which individuals start up companies. It is also worth mentioning that, from a growth perspective, the significance

of the fact that entrepreneurs can continue actively doing business during a debt rescheduling procedure is very slight. It is much more important for the overall time taken by the bankruptcy and debt rescheduling procedures to be kept to a minimum and for the individual to be given the opportunity to try again and to launch a new company or project.

The proposal from the Public Inquiry (Swedish Government Official Studies, SOU 2014:44) that the length of the payment plan should be three years, combined with the proposal to change the effective procedural regulations, means that the overall time needed for an insolvency procedure will in principle be halved. The proposal also allows certain entrepreneurs who previously were not able to have their debts rescheduled to be offered the opportunity to do so. For these people, the change has an even greater impact, because under the terms of current legislation they cannot have their debts written off after bankruptcy.

1 Introduction

A sizable literature in political economics and law has focused on the importance of a “fresh start” for entrepreneurs who find themselves in financial insolvency (eg. Hallinan, 1986). Encouraging personal risk-taking and entrepreneurship are imperative requirements for modern economic systems since the most productive types of entrepreneurship often involves joint ownership and labour input by the founder-entrepreneur(s) (Kihlstrom, & Laffont, 1979; Gennaioli et al., 2013).

International authority in the field of insolvency law and political economy, Prof. Michelle White, summarizes the state of current academic knowledge as “Our research shows that potential entrepreneurs are strongly affected by changes in the risk of bankruptcy.” (White 2001, p. 19–20) As noted in a recent issue of *The Economist* (2010: 68), which addressed public policy attempts to promote entrepreneurship and economic growth in the midst of the global financial crisis:

“Making it easier to close a business may not sound as inviting as announcing yet another ‘enterprise fund’ or ‘innovation initiative’, but it is more vital to reviving the world’s moribund economy. In the short run, enlightened bankruptcy laws reduce unemployment by keeping viable companies alive. In the long run they boost rates of entrepreneurship. The best way to get more people to start businesses is to make it easier to wind them up.” (Economist, 2010, p. 68)

On the other hand, too lenient insolvency laws imply a risk that creditors will react negatively by raising the costs of interest and/or access to financing of small firms, which may negatively affect small firms’ access to credit. Consequently, growth-friendly insolvency legislation implies a balance between not exclusively favouring the creditors of small firms (Gratzer & Sjögren, 1999) and at the same time not encouraging ‘excess entry’ of unproductive entrepreneurs (Camerer & Lovo, 1999).

The overall goals of insolvency legislation are multifold: on the one hand, insolvency rules and legislation is meant to protect asset owners’ claims to assets that are produced or controlled by a firm (e.g. shareholders in the firm, customers, debt holders, tax authorities). Recent reforms of insolvency rules such as the U.S. Chapter 11 legislation or the Swedish 2010 bankruptcy legislation, often strive to weed out bankrupt firms deemed non-productive and where reorganization is not likely to result in a profitable firm, but encourage the reorganization and re-initiation of firms deemed likely to have the chance to become profitable in the near future. The ‘recycling’ of resources from bankruptcies, be it fixed assets in the firm or the human capital of entrepreneurship and employees, is imperative for recouping societal investments (Lee et al., 2007; Peng et al., 2010; White, 2001) and for the potential of entrepreneurs to learn from their mistakes (Jenkins et al., 2014; Wennberg et al., 2010).

Not all bankrupt firms are declared insolvent by necessity. A substantial number of Swedish bankruptcies are initiated by the entrepreneur themselves, while other entrepreneurs choose to sell off remaining assets, pay their debts and liquidate their firm when facing insolvency, perhaps to avoid the ‘stigma’ of insolvency (Thorburn, 2000). Calls for a firm to be declared bankruptcy may also be initiated by other asset claimants such as customers, distributors, or debt holders.

Even if entrepreneurs in a young firm strive to pursue profitability, erratic performance is common: initial high performance can quickly turn into losses or insolvency because young firms generally have few reserves to withstand sudden environmental shifts (Cooper, Gimeno-Gascon & Woo, 1994). Growing firms imply societal spill overs in terms of new products and services, job creation, and tax payments. Small firms that remain unprofitable, however, imply few or no societal spill overs in terms of low earnings for the entrepreneur, limited job creation and tax payments. From a theoretical perspective, thus, policy makers should balance the encouragement of the exit of unprofitable firms with encouraging the growth of profitable businesses.

Whether insolvency laws and regulations are too lenient or too harsh is however an empirical question. With the exception of a few studies showing a positive relationship between ‘forgiving’ bankruptcy procedures and the rate of firm formation (e.g. Armour and Cummings, 2008; Lee et al., 2011), there is a dearth of empirical studies comparing insolvency legislation and productive entrepreneurship across countries. An exception is the recent quasi-natural experimental study by Eberhart and colleagues (2013). Studying a reform in Japan where changes to bankruptcy laws reduced the consequences of closing a firm, they found that the proportion of firms declaring bankruptcy increased following the reform, especially for firms founded by elite entrepreneurs. Perhaps most importantly: average new firms’ performance increased as these elite entrepreneurs are more likely to found higher performing firms.

In this memo we provide a new comparative study on the association between insolvency regulations and entrepreneurship using recent high-quality data on 66 countries. Specifically, we use state-of-the art multilevel modelling to investigate the relationship between four different measures of ‘resolving insolvency’ from the World Bank (2004-2010) and four different measures of entrepreneurship from the Global Entrepreneurship Monitor (GEM).

2 Methods and data

Our data covers the period from 2004 to 2010. Resolving insolvency data from the World Bank started in 2004 and we had access to GEM-based data until 2010. We first conducted country-level analyses estimating the relationship between country-level measures of resolving insolvency from the World Bank and eight different indicators of entrepreneurship. Second, we conducted individual-level analyses estimating the relationship between the same country-level measures of resolving insolvency and an individual's likelihood of the four types of entrepreneurial activity.

2.1 Country-level Analyses

2.1.1 Sample

221 country-year observations from 66 countries (with OECD dummy variable included).

2.1.2 Dependent variables

- Prevalence rate of (i) opportunity-driven entrepreneurship, (ii) necessity-driven entrepreneurship, (iii) innovative entrepreneurship based on new products, and (iv) growth-orientated entrepreneurship. Following standard procedures, all outcomes are defined as the percentage of the working-age population (18–64 years old) who have claimed the business mentioned above in the current year of the GEM survey (i.e. the number of certain types of entrepreneurship per 100 working-age population, see e.g. Reynolds et al. (2003).
Independent variables: resolving insolvency measures from the World Bank (2004–2010) and described in detail by e.g. Djankov et al. (2008). We use four different proxies to measure resolving insolvency. The data describing resolving insolvency for all 66 countries in our study are described in detail in Appendix 5.
- Insolvency Time refers to the average time (in years) to complete a bankruptcy procedure within a given country. We expect that a shorter time for bankruptcy procedures will be associated with a higher rate of bankruptcy filings as well as higher rates of entrepreneurship.
- Insolvency Cost (% of estate) represents the cost of the bankruptcy proceedings, and includes court fees and government levies; fees of insolvency administrators, auctioneers, assessors and lawyers; and all other fees and costs. As mentioned in the parenthesis, it is recorded as a percentage of the value of the debtor's estate.
- Recovery rate calculates how many cents on the dollar claimants (creditors, tax authorities, and employees) recover from an insolvent firm. In other papers this variable is called 'Fresh start' (Lee et al., 2011).
- Alternative measure of Resolving Insolvency: Distance to frontier (DTF) shows the distance of each economy to the "frontier", which is the highest performance observed of each of the indicators across all economies measured in Doing Business since the inclusion of the indicator (Hölzl & Friesenbichler, 2010). An economy's distance to frontier is reflected on a scale from 0 to 100, where 0 represents the lowest performance and 100 represents the frontier. (E.g. a score of 75 in DB 2013 means an economy was 25 percentage points away from the frontier constructed from the best

performances across all economies and across time. A score of 80 in DB 2014 would indicate the economy is improving.)

2.1.3 Control variables

- OECD country dummy variable took value 1 if yes
- GDP per capita adjusted for purchasing power parity
- GDP per capita squared
- GDP growth rate
- Interest rate is the lending interest rate adjusted for inflation as measured by the GDP deflator
- Distance to Frontier-starting a business

2.1.4 Analyses

Random effect panel regression (GLS) with standard errors clustered on countries. All 66 countries are included for each of the years 2004–2010. Descriptive data and correlations pooled for all years in the study are provided in Appendix 6.

2.1.5 Results

Overall, we find relatively strong but somewhat mixed results on the insolvency legislation – entrepreneurship association in countries. In each of the four country-level estimates obtained we find that the four entrepreneurship measures (opportunity-driven, necessity-driven, innovative, and growth-orientated entrepreneurship) are affected by at least two, but often two or three, of the four World Bank insolvency legislation measures.

For Opportunity-driven Entrepreneurship, we find somewhat differing effects of the four of the World Bank insolvency legislation measures. First, we find that insolvency time is negatively associated with the rates of Opportunity-driven Entrepreneurship among developing nations, but not among OECD countries. Second and conversely, we found that insolvency cost (% of estate) is negatively associated with the rates of Opportunity-driven Entrepreneurship among OECD countries, but not among developing nations. These effects are described in detail in Appendix 1.

For Necessity-driven Entrepreneurship, we find as expected much weaker effects of the four World Bank insolvency legislation measures, compared to Opportunity-driven Entrepreneurship. Insolvency cost (% of estate) is negatively associated with country-level rates of Necessity-driven Entrepreneurship among OECD countries, but not among developing countries. The remaining three World Bank insolvency legislation measures do not exhibit any noticeable effect. These effects are described in detail in Appendix 2.

Also for Innovative Entrepreneurship based on new products, we find rather weak effects of the four World Bank insolvency legislation measures. The only significant measure is insolvency time (year) which is negatively associated with country-level rates of Innovative Entrepreneurship based on new products among developing nations, but not among OECD countries. These effects are described in detail in Appendix 3.

For Growth-Orientated Entrepreneurship, we found two apparent effects: first, insolvency recovery rate (cents on the dollar) is negatively associated with country-level rates of established growth-orientated entrepreneurs. Second, our measure Distance to Frontier is negatively associated with country-level rates of established growth-orientated entrepreneurs. These effects are described in detail in Appendix 4.

2.1.6 Discussion and Conclusion

The Flash Eurobarometer Entrepreneurship Survey (European Commission, 2004) suggests that the risk of personal bankruptcy is one of the most important reasons for individuals not to engage in entrepreneurship. However, the perceived risk of bankruptcy differs significantly across nations, with Sweden as an important outlier where the perceived risk of bankruptcy is highest among all the surveyed nations (OECD, 2007).

In this memo we present a comparative study on the association between insolvency regulations and entrepreneurship in 66 countries. We first conducted a traditional cross-country analysis of the relationship between four different measures of ‘resolving insolvency’ from the World Bank (2004–2010) and four different measures of entrepreneurship rates from the Global Entrepreneurship Monitor (GEM). Our analyses show that reducing the “barriers to failure” may indeed stimulate opportunity-driven, high-growth and innovative entrepreneurship. However, the effects of our four World Bank insolvency legislation measures differ across estimates obtained. All the three World Bank measures insolvency time, insolvency cost (% of estate) and recovery rate are negatively related to opportunity-driven, high-growth, and innovative entrepreneurship, but their relative salience differs for these three proxies of high-potential entrepreneurship. Insolvency cost is also negatively associated with necessity-driven entrepreneurship, generally considered a less important measure of entrepreneurship in OECD countries.

Our alternative measure of Resolving Insolvency – the country’s level of distance to the frontier of entrepreneurship as measured in GEM data, is related only to growth oriented entrepreneurship. These findings suggest that insolvency legislation is indeed related to the level of entrepreneurship in a country, especially opportunity-driven, high-growth and innovative entrepreneurship.

Our country-level analyses suggest that reducing the “barriers to failure” can stimulate opportunity-driven, high-growth and innovative entrepreneurship. These findings support and extend the quasi-natural experimental study by Eberhart and colleagues (2013) in Japan by suggesting that more forgiving insolvency rules and regulations do in fact encourage ‘better’ not just ‘more’ entrepreneurship.

Overall, the analyses in this memo provide food for thought for authorities to consider balanced insolvency laws and regulations that take the societal costs of entrepreneurial failure into account. Given the costs and benefits of alternative changes in rules and regulations related to entrepreneurship, considering more moderate insolvency rules and regulations does in fact encourage ‘better’ not just ‘more’ entrepreneurship.

2.2 Validation Estimations: Individual-level Analyses

2.2.1 Motivation

Estimates on the country level may mask what goes on at the individual level, where effects of country-level institutions (such as insolvency legislation) can be ‘averaged out’ or biased. In other words, using country-level predictors to predict country-level

aggregates of individual behaviours masks the effect of individual-level attributes on behaviours, called ‘the individualistic fallacy’ in the literature (Seligson, 2002: 273). Individuals can behave entrepreneurially, but it is far less obvious what the notion of an “entrepreneurial country” means (Acs, Autio & Szerb, 2012). A multilevel statistical design helps avoid this fallacy by allowing the simultaneous consideration of country-level and individual-level factors in entrepreneurial behaviours. To validate the country-level results obtained and further scrutinise the relationship between insolvency legislation and entrepreneurship we therefore use state-of-the-art multilevel modelling to investigate the relationship between four different measures of ‘resolving insolvency’ from the World Bank and the four comparable individual-level measures of entrepreneurship from GEM.

2.2.2 Sample

We have 321,475 members of the working-age population from 30 OECD countries in this analysis.

2.2.3 Dependent variables

- Opportunity-driven entrepreneurs are entrepreneurs taking advantage of a business opportunity
- Necessity-driven entrepreneurs are entrepreneurs having no better choices for work other than the current business
- Innovative entrepreneurs -new product are entrepreneurs introducing new products (products are new to all or some customers).
- Growth-orientated entrepreneurs are entrepreneurs expecting high job (20+) growth in 5 five years

2.2.4 Independent variables

The same four resolving insolvency measures from the World Bank (2004–2010) as defined in the individual-level study.

2.2.5 Control variables

Age of an individual was measured in years.

Gender took the value 1 for females and 0 for males.

Education took the values 1, 2, 3, 4, and 5 for individuals who received no education, primary education, secondary degree, post-secondary, and graduate education respectively.

Household income took the values of 1, 2, and 3 for the lowest, middle, and highest income tiers in the population respectively.

Fear of failure indicated whether fear of failure would prevent the individual from setting up a business (1=yes).

Familiarity ties with entrepreneurs indicated whether the individual knew other persons who had started a business in the past 2 years (1=yes).

Entrepreneurial knowledge and skills indicated whether the individual perceived the required skills and knowledge to start a new business (1=yes).

2.2.6 Analyses

- Multilevel logit regressions for opportunity-driven and necessity-driven entrepreneurship (with nascent entrepreneurship as the baseline model). This provides an estimate of the relative likelihood of engaging in either opportunity-driven or necessity-driven entrepreneurship, given specific levels of insolvency procedures in a given country.
- Heckman two stage regressions with probit model at the first stage and multilevel logit models at the second stage for innovative and growth-oriented entrepreneurship. This provides an estimate of the relative likelihood of engaging in innovative-driven or growth-oriented entrepreneurship respectively, given specific levels of insolvency procedures in a given country.

2.2.7 Results

The individual-level estimates support those obtained in the country-level regressions, but add further detail by focusing the multi-level effects whereby legal regulations in countries' affect individual entrepreneurs' likelihood to engage in any type of entrepreneurship. In each of the four individual-level estimates obtained we find that the four entrepreneurship measures (opportunity-driven, necessity-driven, innovative, and growth-orientated entrepreneurship) are affected by at least two of the four World Bank insolvency legislation measures.

For opportunity-driven entrepreneurship, we find overall negative effects of two of the World Bank insolvency legislation measures. First, insolvency time is negatively related to an individual's likelihood of engaging in opportunity-driven entrepreneurship. Specifically, holding all other variables constant at their mean, the marginal effect of a one-unit increase in insolvency time decreases the likelihood of an individual engaging in opportunity-driven entrepreneurship by 0.1% (in average terms, 0.2%).

We also find that the insolvency cost (% of estate) is strongly negatively associated with the likelihood of engaging in opportunity-driven entrepreneurship. Specifically, holding all other variables constant at their mean, the marginal effect of a one-unit increase in insolvency cost decreases the likelihood that an individual will engage in opportunity-driven entrepreneurship by 0.702% (in average terms, 1.207%). Given that the majority of the variance in an individual's likelihood of engaging in entrepreneurship resides at the individual and not the country level of analysis (and thus cannot readily be affected by policy makers, at least not in the short and intermediate horizon) this is in fact quite a substantial effect. Our proxy measure Distance to Frontier is however positively associated with an individual's likelihood of engaging in opportunity-driven entrepreneurship. These effects are described in detail in Appendix 7.

For necessity-driven entrepreneurship, we find similar but weaker effects of the three significant World Bank insolvency legislation measures, compared to opportunity-driven entrepreneurship. Insolvency time is negatively related to an individual's likelihood of engaging in necessity-driven entrepreneurship. Specifically, holding all other variables constant at their mean, the marginal effect of a one-unit increase in insolvency time decreases the likelihood that an individual will engage in necessity-driven entrepreneurship by 0.1%.

We also find that insolvency cost (% of estate) is strongly negatively associated with the likelihood of engaging in necessity-driven entrepreneurship. Specifically, holding all other variables constant at their mean, the marginal effect of a one-unit increase in insolvency

cost decreases the likelihood that an individual will engage in necessity-driven entrepreneurship by 0.2%. Also here our proxy measure Distance to Frontier is positively associated with an individual's likelihood of engaging in necessity-driven entrepreneurship. These effects are described in detail in Appendix 8.

For innovative entrepreneurship based on new products, we find a markedly stronger negative effect of insolvency time (year) for an individual's likelihood of engaging in innovative entrepreneurship. Specifically, holding all other variables constant at their mean, the marginal effect of a one-unit increase in insolvency time decreases the likelihood that an individual will engage in innovative entrepreneurship by 3.356%, a substantial effect. However, the variable insolvency cost (% of estate) is not statistically significant in its association with the likelihood of engaging in innovative entrepreneurship, affirming the patterns on the country level. Also here our proxy measure Distance to Frontier is positively associated with an individual's likelihood of engaging in innovative driven entrepreneurship. These effects are described in detail in Appendix 9.

For growth-orientated entrepreneurship, we find two somewhat differing effects compared to our first 3 types of entrepreneurship, which mirrors the results obtained on the country level: first, insolvency time is positively associated with individual-level rates of established growth-orientated entrepreneurs. Holding all other variables constant at their mean, the marginal effect of a one-unit increase in insolvency time increases the likelihood that an individual will engage in growth-orientated entrepreneurship by 0.896%.

We also find that insolvency cost is not significantly associated with the likelihood of engaging in growth-orientated entrepreneurship. However, our proxy measure Distance to Frontier is here negatively associated with an individual's likelihood of engaging in growth-orientated entrepreneurship, in that a one-unit increase in Distance to Frontier decreases the likelihood that an individual will engage in growth-orientated entrepreneurship by 1.511%. These effects are described in detail in Appendix 10.

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Appendix

Appendix 1: GLS regression on country-level measures of resolving insolvency and country-level rates of Opportunity-Driven entrepreneurship

Opportunity-driven entrepreneurs in country (%)										
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10
<i>Predictor variables</i>										
OECD (yes=1)	-0.167 (0.259)	-0.179 (0.262)	-0.148 (0.248)	-0.179 (0.209)	-0.369 (0.239)	-0.372 (0.240)	-0.235 (0.237)	-0.241 (0.229)	-0.369 (0.239)	-0.373 (0.240)
Insolvency time (year)	-0.153*** (0.044)	-0.130*** (0.034)					-0.087 (0.059)	-0.038 (0.065)		
Insolvency time x OECD		-0.109 (0.127)						-0.104 (0.179)		
Insolvency cost (% of estate)			0.193 (0.167)	0.319+ (0.185)			0.253 (0.166)	0.365* (0.186)		
Insolvency cost x OECD				-0.659** (0.219)				-0.589* (0.229)		
Insolvency recovery rate (cents on the dollar)					0.303+ (0.162)	0.309 (0.260)	0.278 (0.193)	0.385 (0.312)		
Insolvency recovery rate x OECD						-0.010 (0.228)		-0.324 (0.335)		
Distance to frontier_resolve insolvency									0.304+ (0.162)	0.311 (0.260)
dtf_resolve insolvency x OECD										-0.012 (0.229)
<i>Control variables</i>										
GDP per capita, ppp (\$)	-0.475* (0.192)	-0.482* (0.195)	-0.303 (0.197)	-0.384+ (0.196)	-0.538* (0.238)	-0.537* (0.244)	-0.488* (0.227)	-0.527* (0.232)	-0.539* (0.238)	-0.538* (0.244)
GDP per capita, ppp_squared	0.182* (0.074)	0.180* (0.074)	0.146* (0.074)	0.147* (0.072)	0.185* (0.080)	0.184* (0.082)	0.187* (0.078)	0.181* (0.078)	0.185* (0.080)	0.184* (0.082)
GDP growth rate (%)	-0.047+ (0.027)	-0.049+ (0.028)	-0.045 (0.028)	-0.044 (0.028)	-0.062* (0.028)	-0.062* (0.028)	-0.046+ (0.026)	-0.045+ (0.027)	-0.062* (0.028)	-0.062* (0.028)
Distance to frontier_start a business	-0.126 (0.119)	-0.125 (0.119)	-0.121 (0.120)	-0.109 (0.123)	-0.132 (0.121)	-0.132 (0.121)	-0.129 (0.118)	-0.120 (0.123)	-0.132 (0.121)	-0.132 (0.121)
Interest rate (%)	-0.085 (0.058)	-0.095 (0.061)	-0.090 (0.068)	-0.086 (0.065)	-0.111+ (0.064)	-0.111+ (0.063)	-0.064 (0.057)	-0.066 (0.059)	-0.111+ (0.064)	-0.111+ (0.063)
Constant	0.003 (0.172)	-0.008 (0.172)	0.017 (0.163)	-0.101 (0.153)	0.092 (0.180)	0.098 (0.194)	0.019 (0.163)	-0.003 (0.173)	0.092 (0.180)	0.099 (0.194)
Observations	221	221	221	221	221	221	221	221	221	221
Number of countries	66	66	66	66	66	66	66	66	66	66
Robust standard errors in parentheses										
*** p<0.001, ** p<0.01, * p<0.05										

Appendix 2: GLS regression on country-level measures of resolving insolvency and country-level rates of Necessity-Driven entrepreneurship

Necessity-driven entrepreneurs in country (%)										
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10
<i>Predictor variables</i>										
OECD (yes=1)	-0.158 (0.235)	-0.168 (0.240)	-0.064 (0.239)	-0.097 (0.214)	-0.279 (0.192)	-0.280 (0.193)	-0.227 (0.189)	-0.239 (0.188)	-0.280 (0.192)	-0.281 (0.193)
Insolvency time (year)	-0.037 (0.052)	-0.008 (0.037)					0.042 (0.064)	0.124+ (0.070)		
Insolvency time x OECD		-0.159 (0.118)						-0.209 (0.163)		
Insolvency cost (% of estate)			0.246 (0.168)	0.361+ (0.192)			0.329+ (0.177)	0.471* (0.205)		
Insolvency cost x OECD				-0.585** (0.225)				-0.605* (0.254)		
Insolvency recovery rate (cents on the dollar)					0.204 (0.166)	0.206 (0.291)	0.362+ (0.207)	0.602 (0.374)		
Insolvency recovery rate x OECD						-0.004 (0.247)		-0.542 (0.367)		
Distance to frontier_resolve insolvency									0.205 (0.166)	0.207 (0.290)
dtf_resolve insolvency x OECD										-0.004 (0.247)
<i>Control variables</i>										
GDP per capita, ppp (\$)	-0.690*** (0.184)	-0.706*** (0.185)	-0.588*** (0.166)	-0.654*** (0.171)	-0.773*** (0.234)	-0.772** (0.244)	-0.730*** (0.204)	-0.781*** (0.208)	-0.774*** (0.234)	-0.773** (0.244)
GDP per capita, ppp_squared	0.220* (0.088)	0.222* (0.087)	0.203* (0.083)	0.210* (0.082)	0.239* (0.096)	0.238* (0.099)	0.236** (0.090)	0.237** (0.087)	0.239* (0.096)	0.238* (0.099)
GDP growth rate (%)	-0.045* (0.023)	-0.048* (0.023)	-0.038+ (0.022)	-0.038+ (0.023)	-0.051* (0.024)	-0.051* (0.024)	-0.045* (0.023)	-0.045+ (0.024)	-0.051* (0.024)	-0.051* (0.024)
Distance to frontier_start a business	-0.038 (0.075)	-0.036 (0.075)	-0.036 (0.075)	-0.027 (0.076)	-0.038 (0.074)	-0.038 (0.075)	-0.037 (0.075)	-0.029 (0.075)	-0.038 (0.074)	-0.038 (0.075)
Interest rate (%)	-0.010 (0.055)	-0.024 (0.060)	0.005 (0.053)	0.007 (0.052)	-0.015 (0.055)	-0.015 (0.057)	0.010 (0.055)	0.005 (0.061)	-0.015 (0.055)	-0.015 (0.057)
Constant	-0.108 (0.181)	-0.130 (0.179)	-0.147 (0.176)	-0.255 (0.176)	-0.068 (0.165)	-0.066 (0.163)	-0.106 (0.154)	-0.083 (0.170)	-0.068 (0.165)	-0.066 (0.163)
Observations	221	221	221	221	221	221	221	221	221	221
Number of countries	66	66	66	66	66	66	66	66	66	66
Robust standard errors in parentheses										
*** p<0.001, ** p<0.01, * p<0.05										

Appendix 3: GLS regression on country-level measures of resolving insolvency and country-level rates of Innovative entrepreneurship based on new products

Innovative entrepreneurs-new product (%)	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10
OECD (yes=1)	-0.079 (0.196)	-0.104 (0.209)	-0.113 (0.183)	-0.144 (0.176)	-0.247 (0.169)	-0.245 (0.184)	-0.176 (0.206)	-0.184 (0.254)	-0.247 (0.169)	-0.246 (0.185)
Insolvency time (year)	-0.119* (0.061)	-0.078* (0.035)					-0.073 (0.084)	0.038 (0.055)		
Insolvency time x OECD		-0.183 (0.190)						-0.358 (0.280)		
Insolvency cost (% of estate)			0.029 (0.165)	0.095 (0.192)			0.070 (0.169)	0.174 (0.183)		
Insolvency cost x OECD				-0.349 (0.229)				-0.340 (0.228)		
Insolvency recovery rate (cents on the dollar)					0.260+ (0.147)	0.390 (0.238)	0.193 (0.213)	0.522 (0.319)		
Insolvency recovery rate x OECD						-0.236 (0.209)		-0.716+ (0.391)		
Distance to frontier_resolve insolvency									0.261+ (0.147)	0.392 (0.239)
dtf_resolve insolvency x OECD										-0.238 (0.210)
GDP per capita, ppp (\$)	-0.340* (0.165)	-0.346* (0.174)	-0.248 (0.172)	-0.281 (0.176)	-0.403* (0.199)	-0.413* (0.204)	-0.381+ (0.200)	-0.408+ (0.211)	-0.404* (0.199)	-0.414* (0.204)
GDP per capita, ppp_squared	0.161* (0.072)	0.156* (0.071)	0.136+ (0.071)	0.133+ (0.070)	0.165* (0.074)	0.170* (0.076)	0.166* (0.075)	0.161* (0.075)	0.166* (0.074)	0.170* (0.076)
GDP growth rate (%)	-0.045* (0.022)	-0.049* (0.023)	-0.049* (0.023)	-0.049* (0.023)	-0.057* (0.023)	-0.057* (0.023)	-0.050* (0.022)	-0.052* (0.022)	-0.057* (0.023)	-0.057* (0.023)
Distance to frontier_start a business	-0.252 (0.162)	-0.253 (0.164)	-0.250 (0.164)	-0.247 (0.167)	-0.258 (0.163)	-0.260 (0.163)	-0.257 (0.164)	-0.256 (0.168)	-0.258 (0.163)	-0.260 (0.163)
Interest rate (%)	0.021 (0.047)	0.003 (0.054)	0.001 (0.057)	0.001 (0.056)	0.001 (0.050)	0.007 (0.048)	0.021 (0.046)	0.008 (0.052)	0.001 (0.050)	0.007 (0.048)
Constant	-0.074 (0.148)	-0.088 (0.150)	-0.038 (0.152)	-0.089 (0.151)	-0.002 (0.139)	0.070 (0.170)	-0.035 (0.146)	0.075 (0.188)	-0.002 (0.139)	0.071 (0.170)
Observations	221	221	221	221	221	221	221	221	221	221
Number of countries	66	66	66	66	66	66	66	66	66	66
Robust standard errors in parentheses										
*** p<0.001, ** p<0.01, * p<0.05										

Appendix 4: GLS regression on country-level measures of resolving insolvency and country-level rates of Growth-Orientated Entrepreneurship

Growth-orientated entrepreneurs (%)	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10
OECD (yes=1)	-0.592+ (0.312)	-0.566* (0.277)	-0.575+ (0.332)	-0.559+ (0.301)	-0.420 (0.332)	-0.411 (0.252)	-0.441 (0.331)	-0.458+ (0.249)	-0.420 (0.332)	-0.411 (0.252)
Insolvency time (year)	0.160+ (0.082)	0.044 (0.056)					0.053 (0.080)	0.055 (0.069)		
Insolvency time x OECD		0.352* (0.143)						0.059 (0.124)		
Insolvency cost (% of estate)			-0.046 (0.104)	-0.183* (0.089)			-0.121 (0.100)	-0.173* (0.087)		
Insolvency cost x OECD				0.662* (0.267)				0.307 (0.341)		
Insolvency recovery rate (cents on the dollar)					-0.338* (0.146)	0.008 (0.171)	-0.330+ (0.178)	-0.015 (0.199)		
Insolvency recovery rate x OECD						-0.607** (0.190)		-0.402 (0.312)		
Distance to frontier_resolve insolvency									-0.338* (0.146)	0.008 (0.171)
dtf_resolve insolvency x OECD										-0.607** (0.190)
GDP per capita, ppp (\$)	0.605*** (0.174)	0.628*** (0.159)	0.507** (0.188)	0.596*** (0.180)	0.711*** (0.196)	0.691*** (0.179)	0.665*** (0.202)	0.662*** (0.185)	0.711*** (0.196)	0.691*** (0.180)
GDP per capita, ppp_squared	-0.087 (0.071)	-0.079 (0.071)	-0.071 (0.074)	-0.050 (0.075)	-0.081 (0.070)	-0.074 (0.072)	-0.078 (0.071)	-0.058 (0.073)	-0.081 (0.070)	-0.074 (0.072)
GDP growth rate (%)	0.197*** (0.050)	0.200*** (0.051)	0.201*** (0.051)	0.196*** (0.051)	0.215*** (0.050)	0.215*** (0.050)	0.204*** (0.051)	0.198*** (0.052)	0.215*** (0.050)	0.215*** (0.050)
Distance to frontier_start a business	0.259** (0.093)	0.249** (0.091)	0.237* (0.096)	0.215* (0.091)	0.275** (0.091)	0.249** (0.088)	0.276** (0.091)	0.242** (0.088)	0.275** (0.091)	0.249** (0.088)
Interest rate (%)	-0.051 (0.055)	-0.018 (0.053)	-0.027 (0.046)	-0.044 (0.045)	-0.025 (0.052)	-0.008 (0.045)	-0.058 (0.056)	-0.050 (0.053)	-0.025 (0.052)	-0.008 (0.045)
Constant	0.271 (0.197)	0.320+ (0.183)	0.252 (0.202)	0.356* (0.181)	0.189 (0.217)	0.380* (0.175)	0.197 (0.214)	0.390* (0.172)	0.189 (0.217)	0.380* (0.175)
Observations	221	221	221	221	221	221	221	221	221	221
Number of countries	66	66	66	66	66	66	66	66	66	66
Robust standard errors in parentheses										
*** p<0.001, ** p<0.01, * p<0.05										

Appendix 5: Descriptive data on country-level insolvency measures

Country	Insolvency time (year)	Insolvency cost (% of estate)	Insolvency recovery rate (cents on the dollar)	Distance to frontier X resolve insolvency
United States	1,5	7	78,186	82,805
Russia	2	9	41,057	43,479
Egypt	4,2	22	16,400	17,369
South Africa	2	18	32,629	34,558
Greece	2	9	44,943	47,579
Netherlands	1,1	4	86,200	91,273
Belgium	0,9	4	86,229	91,337
France	1,9	9	46,257	48,983
Spain	1,5	15	71,800	76,062
Hungary	2	15	38,186	40,459
Italy	1,8	22	57,029	60,392
Romania	4,0429	9,286	19,729	20,882
Switzerland	3	4	46,843	49,600
Austria	1,1	18	72,571	76,859
United Kingdom	1	6	84,986	90,003
Denmark	2,3143	4	74,843	79,292
Sweden	2	9	75,543	80,041
Norway	0,9	1	90,414	95,758
Poland	3	15	33,086	35,054
Germany	1,2	6	81,514	86,337
Peru	3,1	7	27,686	29,339
Mexico	1,8	18	64,186	68,003
Argentina	2,8	12,857	30,614	32,422
Brazil	6,571	10,714	8,814	9,351
Chile	4,229	16,286	25,557	27,079
Colombia	3	6	52,057	55,126
Malaysia	2,3	15	38,557	40,833
Australia	1	8	79,571	84,291
Indonesia	5,214	18	13,571	14,363
Philippines	5,7	38	4,171	4,423
New Zealand	1,3	4	77,671	82,242
Singapore	0,8	3	89,400	94,698
Thailand	2,7	36	42,743	45,287
Japan	0,6	4	92,586	98,083
Korea	1,5	4	81,143	85,934
China	2,1	22	33,271	35,224
Turkey	3,3	15	14,814	15,675
India	4,3	9	24,400	25,843
Pakistan	2,8	4	39,700	42,038
Iran	4,5	9	20,200	21,409
Canada	0,8	4	89,271	94,538
Morocco	1,8	18	34,943	36,995
Algeria	2,5	7	41,700	44,125
Tunisia	1,3	7	51,900	54,972
Ghana	1,9	22	24,343	25,794
Uganda	2,2	30	40,886	43,279
Zambia	2,7	9	24,729	26,190
Portugal	2	9	72,700	77,005
Ireland	0,4	9	87,400	92,555
Iceland	1	4	79,433	84,124
Finland	0,9	4	88,171	93,393
Latvia	3	13	33,271	35,243
Serbia	2,7	23	22,271	23,588
Montenegro	2	8	43,000	45,528
Croatia	3,1	15	29,414	31,157
Slovenia	2	8	44,357	46,987
Bosnia and Herze	3,3	8,714	34,229	36,250
Macedonia	2	10	39,329	41,656
Czech Republic	8,043	15,857	18,800	19,908
Guatemala	3	15	27,543	29,158
Costa Rica	3,5	15	20,529	21,739
Panama	2,5	25	26,300	27,837
Venezuela	4	38	5,671	5,975
Bolivia	1,8	15	36,914	39,095
Ecuador	5,3	18	15,557	16,496
Uruguay	2,1	7	32,300	34,208
Tonga	2,7	22	25,500	27,037
Vanuatu	2,6	38	40,986	43,427
Kazakhstan	1,5	15	36,657	38,822
Puerto Rico	3,243	8	62,486	66,214
Hong Kong	1,1	9	80,171	84,897
Trinidad & Tobag	2,5	25	25,180	26,693
Jamaica	1,1	18	64,129	67,946
Taiwan	1,9	4	80,643	85,411
Lebanon	3	15	28,943	30,673
Jordan	3	20	27,171	28,765
Syria	4,1	9	29,200	30,964
Saudi Arabia	2,8	22	27,686	29,322
Yemen	3	8	28,543	30,243
United Arab Emirates	3,2	20	27,029	28,624
Israel	3	23	49,329	52,235

Appendix 6: Descriptives and correlations, Country-level measures

	Mean	Std.dev.	Min	Max	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
1 Nascent entrepreneurs (%)	0,061	0,051	0,004	0,313																	
2 New entrepreneurs (%)	0,049	0,043	0,004	0,282	0,64																
3 Established entrepreneurs (%)	0,072	0,044	0,004	0,277	0,47	0,82															
4 Early-stage entrepreneurs (%)	0,107	0,079	0,015	0,522	0,92	0,89	0,70														
5 Opportunity-driven entrepreneurs (%)	0,074	0,052	0,011	0,318	0,93	0,81	0,67	0,97													
6 Necessity-driven entrepreneurs (%)	0,029	0,031	0,002	0,197	0,75	0,87	0,66	0,89	0,76												
7 Innovative entrepreneurs-new product (%)	0,048	0,047	0,004	0,317	0,86	0,64	0,48	0,84	0,84	0,69											
8 Innovative entrepreneurs-new technology (%)	0,015	0,016	0	0,096	0,63	0,57	0,42	0,67	0,63	0,63	0,64										
9 Growth-orientated entrepreneurs (%)	0,010	0,008	0	0,043	0,43	0,38	0,27	0,46	0,44	0,42	0,54	0,36									
10 Insolvency time (year)	2,364	1,506	0,4	10	0,17	0,25	0,17	0,24	0,16	0,33	0,17	0,25	0,09								
11 Insolvency cost (% of estate)	12,077	8,204	1	38	0,21	0,41	0,26	0,33	0,24	0,43	0,16	0,27	0,01	0,32							
12 Insolvency recovery rate (cents on the dollar)	50,549	26,003	0,2	94,4	-0,29	-0,30	-0,15	-0,34	-0,25	-0,44	-0,28	-0,32	-0,12	-0,79	-0,56						
13 Distance to frontier_resolve insolvency	53,538	27,54	0,225	100	-0,29	-0,30	-0,15	-0,34	-0,25	-0,44	-0,28	-0,32	-0,12	-0,79	-0,56	1,00					
14 GDP per capita, ppp (\$)	21258	13835	856,7	61342,0	-0,42	-0,47	-0,31	-0,50	-0,38	-0,62	-0,40	-0,46	-0,16	-0,55	-0,54	0,81	0,81				
15 GDP growth rate (%)	3,378	4,183	-17,955	14,2	0,20	0,24	0,16	0,24	0,22	0,25	0,26	0,22	0,29	0,19	0,13	-0,22	-0,22	-0,29			
16 Distance to frontier_start a business	77,173	14,013	23,908	97,601	-0,35	-0,43	-0,44	-0,44	-0,36	-0,51	-0,36	-0,31	-0,12	-0,51	-0,33	0,59	0,59	0,63	-0,39		
17 Interest rate (%)	5,368	7,87	-9,872	44,93	0,18	0,22	0,18	0,24	0,18	0,28	0,18	0,13	0,03	0,46	-0,07	-0,32	-0,32	-0,26	-0,11	-0,33	

Note: Country observations: 221. We note low to moderately high correlations between the four insolvency measures (variables 10-14). These are therefore introduced separately in all regressions.

Appendix 7: GLS regression on country-level measures of resolving insolvency and individual-level likelihood of engaging in Opportunity-Driven entrepreneurship

Opportunity-driven entrepreneurs	M1	Average marginal effect	Marginal effect at means	M2	Average marginal effect	Marginal effect at means	M3	Average marginal effect	Marginal effect at means	M4	Average marginal effect	Marginal effect at means
Insolvency time (year)	0.961* (0.019)	-0.200% (0.001)	-0.100% (0.001)									
Insolvency cost (% of estate)				0.804*** (0.034)	-1.207% (0.002)	-0.702% (0.001)						
Insolvency recovery rate (cents on the dollar)							1.547*** (0.075)	2.567% (0.004)	1.587% (0.002)			
Distance to frontier_resolve insolvency										1.552*** (0.076)	2.567% (0.004)	1.587% (0.002)
Level-2 variance (SD)	0.429*** (0.060)			0.360*** (0.049)			0.457*** (0.068)			0.459*** (0.069)		
Observations	320,475	320,475	320,475	320,475	320,475	320,475	320,475	320,475	320,475	320,475	320,475	320,475
Number of groups	30			30			30			30		
Log likelihood	-64825	.	.	-64815	.	.	-64776	.	.	-64775	.	.
Degrees of Freedom	14	.	.	14	.	.	14	.	.	14	.	.
Chi2	13373	.	.	13393	.	.	13444	.	.	13445	.	.
Standard errors in parentheses												
*** p<0.001, ** p<0.01, * p<0.05, + p<0.10												

Note: Control variables included but omitted to save space (Age, Gender, Education (4 dummies), Household Income, (3 dummies), Perceived Fear of Failure, Familiarity ties with entrepreneurs, Entrepreneurial knowledge and skills, GDP per capita (purchasing power adjusted), GDP growth

Appendix 8: GLS regression on country-level measures of resolving insolvency and individual-level likelihood of engaging in Necessity-Driven entrepreneurship

Necessity-driven entrepreneurs	M1	Average marginal effect	Marginal effect at means	M2	Average marginal effect	Marginal effect at means	M3	Average marginal effect	Marginal effect at means	M4	Average marginal effect	Marginal effect at means
Insolvency time (year)	0.911** (0.031)	-0.100% (0.001)	-0.100% (0.000)									
Insolvency cost (% of estate)				0.844* (0.057)	-0.200% (0.001)	-0.200% (0.001)						
Insolvency recovery rate (cents on the dollar)							1.267** (0.109)	0.300% (0.001)	0.200% (0.001)			
Distance to frontier_resolve insolvency										1.269** (0.109)	0.300% (0.001)	0.200% (0.001)
Level-2 variance (SD)	0.593*** (0.084)			0.582*** (0.083)			0.628** (0.097)			0.629** (0.097)		
Observations	320,475	320,475	320,475	320,475	320,475	320,475	320,475	320,475	320,475	320,475	320,475	320,475
Number of groups	30			30			30			30		
Log likelihood	-22030	.	.	-22031	.	.	-22030	.	.	-22030	.	.
Degrees of Freedom	14	.	.	14	.	.	14	.	.	14	.	.
Chi2	2084	.	.	2084	.	.	2085	.	.	2085	.	.
Standard errors form in parentheses												
*** p<0.001, ** p<0.01, * p<0.05, + p<0.10												

Note: Control variables included but omitted to save space (Age, Gender, Education (4 dummies), Household Income, (3 dummies), Perceived Fear of Failure, Familiarity ties with entrepreneurs, Entrepreneurial knowledge and skills, GDP per capita (purchasing power adjusted), GDP growth

Appendix 9: GLS regression on country-level measures of resolving insolvency and individual-level likelihood of engaging in Innovative entrepreneurship based on new products

Innovative entrepreneurs - new product	M1	Average marginal effect	Marginal effect at means	M2	Average marginal effect	Marginal effect at means	M3	Average marginal effect	Marginal effect at means	M4	Average marginal effect	Marginal effect at means
Inverse Mills ratio	2.200*** (0.207)	1.209*** (0.027)	1.216*** (0.028)	2.203*** (0.207)	1.210*** (0.028)	1.216*** (0.028)	2.198*** (0.207)	1.204*** (0.027)	1.216*** (0.029)	2.198*** (0.207)	1.204*** (0.027)	1.216*** (0.029)
Insolvency time (year)	0.875*** (0.034)	-3.252% (0.009)	-3.356% (0.009)									
Insolvency cost (% of estate)				0.943 (0.078)	0.986 (0.020)	0.985 (0.020)						
Insolvency recovery rate (cents on the dollar)							1.262* (0.146)	5.449% (0.028)	5.733% (0.031)			
Distance to frontier_resolve insolvency										1.268* (0.147)	5.638% (0.028)	5.921% (0.031)
Level-2 variance (SD)	0.757+ (0.122)			0.633** (0.110)			0.837 (0.177)			0.843 (0.177)		
Observations	26,234	26,234	26,234	26,234	26,234	26,234	26,234	26,234	26,234	26,234	26,234	26,234
Number of groups	30			30			30			30		
Log likelihood	-17263	.	.	-17269	.	.	-17267	.	.	-17267	.	.
Degrees of Freedom	14	.	.	14	.	.	14	.	.	14	.	.
Chi2	254.2	.	.	243.2	.	.	246.5	.	.	246.7	.	.
Standard errors in parentheses												
*** p<0.001, ** p<0.01, * p<0.05, + p<0.10												

Note: Control variables included but omitted to save space (Age, Gender, Education (4 dummies), Household Income, (3 dummies), Perceived Fear of Failure, Familiarity ties with entrepreneurs, Entrepreneurial knowledge and skills, GDP per capita (purchasing power adjusted), GDP growth

Appendix 10: GLS regression on country-level measures of resolving insolvency and individual-level likelihood of engaging in Growth-Orientated Entrepreneurship

Growth-orientated entrepreneurs	M1	Average marginal effect	Marginal effect at means	M2	Average marginal effect	Marginal effect at means	M3	Average marginal effect	Marginal effect at means	M4	Average marginal effect	Marginal effect at means
Inverse Mills ratio	3.954*** (0.668)	1.121*** (0.018)	1.111*** (0.017)	3.956*** (0.669)	1.125*** (0.019)	1.115*** (0.017)	3.959*** (0.669)	1.122*** (0.018)	1.111*** (0.017)	3.959*** (0.669)	1.122*** (0.018)	1.111*** (0.017)
Insolvency time (year)	1.123** (0.042)	0.995% (0.003)	0.896% (0.003)									
Insolvency cost (% of estate)				1.101 (0.090)	1.008 (0.007)	1.008 (0.007)						
Insolvency recovery rate (cents on the dc							0.818** (0.062)	-1.715% (0.006)	-1.511% (0.006)			
Distance to frontier_resolve insolvency										0.818** (0.062)	-1.715% (0.006)	-1.511% (0.006)
Level-2 variance (SD)	0.463*** (0.069)			0.493*** (0.074)			0.461*** (0.070)			0.461*** (0.070)		
Observations	26,234	26,234	26,234	26,234	26,234	26,234	26,234	26,234	26,234	26,234	26,234	26,234
Number of groups	30			30			30			30		
Log likelihood	-7797	.	.	-7801	.	.	-7798	.	.	-7798	.	.
Degrees of Freedom	14	.	.	14	.	.	14	.	.	14	.	.
Chi2	617.1	.	.	609.8	.	.	614.8	.	.	614.8	.	.
Standard errors in parentheses												
*** p<0.001, ** p<0.01, * p<0.05, + p<0.10												

Note: Control variables included but omitted to save space (Age, Gender, Education (4 dummies), Household Income, (3 dummies), Perceived Fear of Failure, Familiarity ties with entrepreneurs, Entrepreneurial knowledge and skills, GDP per capita (purchasing power adjusted), GDP growth

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