Departament d'Economia Aplicada

The Long-Term Impact of Inequality on Entrepreneurship and Job Creation

Roxana Gutiérrez Romero,
Luciana Méndez Errico

DOCUMENT DE TREBALL

15.01

UAB
Universitat Autònoma de Barcelona

Facultat d'Economia i Empresa

Aquest document pertany al Departament d'Economia Aplicada.

Data de publicació : **Gener 2015**

Departament d'Economia Aplicada
Edifici B
Campus de Bellaterra
08193 Bellaterra

Telèfon: 93 581 1680
Fax: 93 581 2292
E-mail: d.econ.aplicada@uab.es
http://www.uab.cat/departament/economia-aplicada/

The Long-Term Impact of Inequality on Entrepreneurship and Job Creation

Roxana Gutiérrez-Romero[♦] and Luciana Méndez-Errico[+]

Abstract

We assess the extent to which historical levels of inequality affect the likelihood of businesses being created, surviving and of these creating jobs overtime. To this end, we build a pseudo-panel of entrepreneurs across 48 countries using the Global Entrepreneurship Monitor Survey over 2001-2009. We complement this pseudo-panel with historical data of income distribution and indicators of current business regulation. We find that in countries with higher levels of inequality in the 1700s and 1800s, businesses today are more likely to die young and create fewer jobs. Our evidence supports economic theories that argue initial wealth distribution influences countries' development path, having therefore important policy implications for wealth redistribution.

Keywords: Entrepreneurship, income distribution, job creation, pseudo-panel, instrumental variables.

JEL Codes: M2, O1, D3, C23.

[♦]Associate Professor, Universidad Autónoma de Barcelona, Department of Applied Economics, Bellaterra, 08193, Spain. Email: roxana.gutierrez@uab.es.

[+] Universidad Autónoma de Barcelona, Department of Applied Economics. Bellaterra, 08193, Spain. Email: paulaluciana.mendez@uab.es.

We thank Fabrice Murtin for having shared his estimations of income distribution prevailing in the 1700s and 1800s. We thank Isabel Busom, Cristina López-Mayan, Adam Pepelasis, Xavi Ramos, Francesc Trillas and the participants of the EDIE workshop, the GEM-Barcelona conference, UAB PhD seminar, Universidad Tecnológica Metropolitana de Mérida, the LACEA/IADB/WB/UNDP Research Network of Inequality and Poverty for their comments and suggestions on earlier stages of this article. Roxana is also grateful for the hospitality of St Antony's College and the Department of Economics at the University of Oxford where she spent her sabbatical leave whilst working on this article. We acknowledge financial support from the Spanish Ministry of Science and Innovation (reference ECO2010-21668-C03-02 and ECO2013-46516-C4-1-R), and from the Generalitat of Catalunya (reference 2014SGR-1279). Roxana also acknowledges financial support from the UK Department for International Development (DFID) as part of the Improving Institutions for Pro-Poor Growth (iiG), a research consortium aimed at studying how to improve institutions in Africa and South-Asia. The views expressed are not necessarily those of DFID.

Introduction

To foster development it is crucial to understand the reasons why entrepreneurship struggles or flourishes. Whilst the economics literature has developed complex theoretical models on what might drive entrepreneurship over time, many of these theories have not been empirically tested (Naudé, 2010). Instead, the empirical literature has focused on analyzing separately the individual, economic or institutional factors that might affect entrepreneurship.

We contribute to the literature by testing empirically one of the main mechanisms highlighted in the theoretical literature that suggests initial wealth distribution can affect entrepreneurship over time. The theoretical occupational choice model proposed by Banerjee and Newman (1993) guides our work. This model suggests that initial conditions, understood as the historical distribution of wealth, can be detrimental for economic development if credit constraints are such that they prevent poor individuals from investing in profitable entrepreneurial activities. The model shows that a country can converge to a different family of equilibria, depending on the initial wealth distribution. Countries that start with a high proportion of non-credit constrained people will grow over time. They will do so aided by a high share of people being able to start-up business and these surviving over time along with an active labor market paying high salaries. A contrasting equilibrium could be reached if a country starts with a high proportion of credit constrained people. In this case, only a small share of the population will be able to start-up new businesses, whilst the rest will remain as workers, earning low salaries over time, in which there is (almost) only self-employment at small scale.

Based on this model, the main goal of this paper is to test whether initial conditions, proxied by the income distribution prevailing in the 1700s and 1800s, and taking into account the current business environment, have a detrimental effect on today's chances of businesses being created, surviving, and creating jobs over time.

Since our interest is to look at the impact of initial conditions on the dynamics of entrepreneurship, ideally we would want to follow firms over time. Unfortunately, empirically it is difficult to follow the same firms, especially if firms die in large numbers creating substantial attrition bias and if surveys are being censored by not representing newly created firms. We overcome these limitations by constructing a pseudo-panel of entrepreneurs using the Global Entrepreneurship Monitor (GEM) survey, the largest

comparable dataset covering 70 countries over 2001-2009.[1] The GEM datasets are drawn from a new sample in each country every year. The surveys include nationally representative information on how many people claimed to be entrepreneurs of nascent, young or established firms. The survey also captures firm's size at each of these different stages of entrepreneurship and whether people have shut down businesses over the last year.[2] Thus, using this information we build a pseudo-panel of cohorts of people based on their age and gender for each country following the methodology proposed by Deaton (1985). In doing so, we are able to track generations of people over time and assess whether initial conditions and current business environment affect the creation, survival of firms, as well as job creation.

We complement the GEM surveys with historical data of income distribution from the 1700s and 1800s estimated by Morrisson and Murtin (2011) and Bourguignon and Morrisson (2002) respectively. We also use historical indicators of Gross Domestic Product (GDP) per capita prevailing in the 1800s, obtained from the historical databases estimated by Maddison. In addition, we use the index of credit protection provided by the World Bank, which measures the degree to which laws protect the rights of borrowers and lenders. Thus, this index reflects the extent to which laws are designed to expand access to credit.

We combine the pseudo-panel methodology with instrumental variables. We do so given that the index of law protection of borrowers and lenders could be endogenously determined by the proportion of people involved in entrepreneurial activities, who for instance may lobby for better laws. As instrumental variables we use the legal code of origin and the colonial origin, both variables frequently used in the literature when dealing with the endogeneity of business regulation (La Porta, 1998; 1999). In addition, we use the average blood pressure and cholesterol as instruments, which have been found in the literature to be correlated with the physiology responses to economic stress, such as credit constraints (Ezzati *et al*., 2005; O'Neil *et al*., 2005).

We find that initial conditions have a detrimental effect on development, even when taking into account current regulation in the credit market. Countries that started

[1] Although the survey covers 70 countries we include in our analysis only 48 for which we could obtain data on historical income distribution.
[2] Nascent firms are those recently created that have not paid wages for more than three months; young firms have been running for up to 3.5 years and established firms have been running for more than 3.5 years.

with a high ratio of rich to poor people during the 1700s or 1800s are currently less likely to open new firms, and of these to survive and create more jobs over time.

Although several articles have tested whether inequality has a detrimental effect on development, our central contribution to the literature relies on testing an overlooked mechanism as to why this might be the case (Banerjee and Duflo, 2000; Benabou, 1996). Specifically, our results suggest that high levels of inequality prevent people from taking up business thereby affecting job creation and development in the long-run.

Our findings also suggest that improvements in the regulation of the current credit market promote the creation of both businesses and jobs. This effect, however, is of lower magnitude in Africa than in other regions, perhaps because some African households lack the property rights of their land, which prevents them from providing a collateral and accessing credit.

The article proceeds as follows. Section 2 discusses the literature on entrepreneurship, including the model by Banerjee and Newman. Section 3 describes the dataset and the construction of the pseudo-panel. Section 4 presents the econometric results. Section 5 presents robustness tests. Section 6 concludes.

2. Initial Conditions and Entrepreneurship

This article is related to the large literature analyzing the factors that foster or constrain the success of entrepreneurs. According to Naudé (2008, 2010) the literature on entrepreneurship has experienced three important developments over the last decades, which we describe below.

First, while the traditional research in entrepreneurship has focused on empirically assessing the entrepreneurs themselves, there has been a shift from analyzing their personality traits and individual characteristics towards their behavior and cognitive issues that enable them to recognize and exploit opportunities (Blanchflower *et al*., 2001; Blanchflower and Oswald, 1998; Caliendo and Kritikos, 2011; Shane and Venkartarman, 2000). The same has happened in economics where there has been a shift towards developing theoretical models of occupational choice (Evans and Jovanovic, 1989; Lucas, 1978).

The second development in the literature has been to examine how the business environment influences the creation of firms and its relationship with long-run development (Throton, 1999). Within this literature one can distinguish two veins. The first one analyzes the extent to which historical institutions affect current ones, which in

turn influence today's entrepreneurial sector and growth. These studies, for instance, examine the development path of former colonies.[3] The second vein studies the impact of current business regulation (such as investor protection and regulation of entry) on entrepreneurship (Djankov *et al*., 2002; Glaeser *et al*., 2004; La Porta *et al*., 1998). Within this vein, there is no consensus on whether business regulation always favors entrepreneurship. For instance, business regulation could impose a burden on firms if the regulation is aimed at extracting rents for the benefit of bureaucrats or certain industries. However, the public interest theory of regulation argues entrepreneurship can be fostered if regulation reduces market failures, by for instance allowing lenders to seize the collateral in case borrowers default (Ardagna and Lusardi, 2008).

The third development in the literature has been the theoretical analysis of the relationship between initial conditions, specifically wealth distribution, and development in the long-run. This literature, within the neoclassical viewpoint, analyzes whether initial conditions, such as a country's past inequality, can affect entrepreneurship and economic growth in the long-run (Galor, 2011; Murphy *et al*., 1989a). [4] There is no consensus on the extent that initial conditions can affect development. On the one hand, the supporters of the "big push" hypothesis, argue that if there is the possibility of coordination of investment across various sectors in the economy, which can be promoted with public policy, countries can get out of no-industrialization/development traps (Murphy *et al*., 1989a; Rosenstain-Rodan, 1943). On the other hand, other articles argue that initial conditions can determine the development path. For instance, inequality can have a long-term detrimental effect on growth if the wealthier individuals lobby against changes in policies or institutions that could distribute wealth and foster a more inclusive growth.[5] Inequality can also have a detrimental effect on entrepreneurship if a large proportion of individuals are prevented from taking up profitable investments, thus perpetuating inequality and low levels of economic growth in the long-run. This negative effect of inequality on long-run development could be exacerbated whenever accompanied by credit market imperfections (Aghion and Bolton, 1997; Banerjee and Newman, 1993; Galor and Zeira, 1993; Ghatak and Jiang, 2002).

---

[3] For instance, Acemoglu *et al*. (2001) show that settler colonies perform better than former extractive colonies because they inherited institutions that better protect private property rights.

[4] See Benabou (1996) and Galor (2011) for a complete literature review on the effect of inequality on development.

[5] For an extensive overview of the dynamic interaction between political institutions and the development process see Acemoglu *et al*. (2005).

Within the third development in the literature, there are few empirical papers, often for a single country, testing the impact of wealth distribution on entrepreneurship. These studies have found supporting evidence in the USA that wealthier individuals are more likely to become entrepreneurs (Hurst and Lusardi, 2004). There is however, mixed evidence on whether inequality affects entrepreneurship, or the other way around. For instance, Mesnard and Ravallion (2001) show for the case of Tunisia the number of business start-ups is an increasing function of aggregate wealth and the greater the initial inequality of wealth, the lower the overall rate of new business start-ups.[6] In contrast, Yanya (2012) concludes that firm establishment causes income inequality, but not the other way around using a panel data of the 76 provinces in Thailand over 1997-2008.[7]

In this article we follow the theoretical model by Banerjee and Newman (1993) as it captures the three main developments in the literature described above: analyzing why people choose to become entrepreneurs, and how business institutions along with initial wealth distribution can affect entrepreneurship and development in the long-run.

2.1 Banerjee and Newman's Occupational Choice Model

Banerjee and Newman's model assumes that because of imperfections in the credit market, people can borrow only limited amounts. These imperfections are derived from the possibility that borrowers may renege on their debt. To prevent this, lenders will limit borrowing and will require a collateral, such that:

$$L < w + \left(\frac{\pi F}{\bar{r}} \right) \tag{1}$$

where L is the amount borrowed, w is the borrower's wealth, π is the probability of the borrowers being caught if they renege on their debt, F is the nonmonetary punishment of being caught, and $\bar{r}$ represents the return from an indivisible asset requiring no labor. The model assumes that anyone that invests only in this safe asset is said to be idle or subsisting.

To become an entrepreneur people need to make an up-front investment. Thus, entrepreneurship is only available to those individuals that are wealthy enough to make this investment or provide the required collateral to access credit. Those poorer individuals

[6] Initial wealth is measured by the amount of wealth accumulated by returned migrants from past savings while abroad.

[7] Income inequality is measured using the Gini coefficient. The causal relationship between firm creation and inequality is assessed using the granger causality test.

that do not have enough wealth to provide collateral have two occupation choices: they can become employees, and those individuals with wealth between w^* and w^{**} can also become self-employed. Self-employment is assumed to require some up-front investment but of lower level than that required to become an entrepreneur. As entrepreneurship requires an up-front investment, it is available only to wealthy people or those who can provide the required collateral, whereas poorer individuals who are credit constrained are limited to becoming employees or if they have wealth between w^* and w^{**} they could choose to become self-employed.

The expected return to self-employment and subsistence are given exogenously by the model's parameters. Wage, v, is determined endogenously in the model such that it clears the labor market, and in turns determines the returns of entrepreneurs and workers.

The equilibrium wage can take a low value $\underline{v}$ if $G_t(w^*) > \mu[1 - G_t(w^{**})]$, a high value $\overline{v}$ if $G_t(w^*) < \mu[1 - G_t(w^{**})]$ and a value within the range $[\underline{v}, \overline{v}]$ if $G_t(w^*) = \mu[1 - G_t(w^{**})]$. $G_t(w^*)$ is the proportion of the population that has no other choice but to become a worker, as it does not have enough wealth to provide collateral to become entrepreneurs. $\mu[1- G_t(w^*)]$ is the proportion of the population that can become entrepreneurs. Thus, people's occupational choice depends on their initial wealth as follows:

1) individuals with initial wealth less than w^* will choose to become workers unless wages are exactly equal a minimum level $\underline{v}$. In this case, some potential workers will remain idle as there will be no enough jobs for all potential workers.

2) individuals with initial wealth between w^* and w^{**} can become self-employed and will do so if the equilibrium wage for workers is below the returns they can earn as self-employed.

3) individuals with $w \geq w^{**}$ will become entrepreneurs if the equilibrium wage is below a maximum level under entrepreneurship is profitable $v < \overline{v}$. In the case $v = \overline{v}$, then $\frac{1 - G_t(w^*)}{\mu} - G_t(w^{**})$ of them will opt to become self-employed for the labor market to clear.

The pattern of occupational choice is determined by the initial distribution of wealth, and the structure of occupational choice determines in turn how much people can save and leave as a bequest. These factors in turn lead to a new distribution of wealth affecting long-run development.

The model predicts the fate of the economy depends on the initial wealth distribution. Countries with an initially high proportion of non-credit constrained people will grow over time aided by a high share of people being able to start-up businesses that survive over time and with an active labor market paying high salaries. A contrasting equilibrium could be reached if a country starts with a high proportion of credit constrained people. In this case, the process of development ends up in a situation of low wages, in which there is (almost) only self-employment at small scale.

Based on the Banerjee and Newman model, we will test the following two hypotheses:

Hypothesis 1: Countries that have a historically high ratio of wealthy to poor people, a proxy for the ratio of non-credit to credit-constrained, have a lower probability of firms being created, surviving and of these creating jobs over time.

Hypothesis 2: Countries that currently have more efficient credit markets have a higher probability of people being involved in entrepreneurship and higher job creation.

2.2 Endogeneity between Credit Regulation and Entrepreneurship

When testing our second hypothesis we are likely to encounter an endogeneity problem. We would expect that more efficient credit markets will benefit entrepreneurs. However, it is also possible the degree of imperfections in the credit market change in response to the number of entrepreneurs in the economy, if for instance there is lobbying for better regulation (Besley and Gathak, 2010; Manski, 2000). We address this potential endogeneity by using instrumental variables.

We use four instrumental variables across all the regressions presented in Section 4. Two of these variables (origin of country's legal code and colonial origin), are drawn from the institutional literature that has used these instruments to deal with the endogeneity of the current business environment. The other two instrumental variables used (average blood pressure and cholesterol level) are drawn from the recent literature on physiological responses to economic stress linked for example to being credit constrained. We explain below the literature supporting the use of these instruments.

Based on the pioneering work of La Porta *et al*. (1998, 1999) several authors have addressed the likely endogeneity of the current business environment using as instrumental variables the country's historical legal origin (Ardagna and Lusardi, 2008; Djankov *et al*., 2003; Gleasser *et al*., 2004; Levine *et al*., 2000). La Porta *et al*. show the legal rules

protecting investors are largely dependent on the legal traditions or origins. For instance, they find that countries under the English common law are more protective of investor rights and contractual enforcements than the laws originating in the French civil code. Thus, countries with "better" legal origins are more likely to develop institutions in which property rights are protected and less distorting policies are implemented, which in turn favor investment and economic growth.[8] Other studies have also found the colonial origin of the country is a strong predictor of the current institutions (Acemoglu, *et al*., 2001). These authors explain that different types of colonization policies created different sets of institutions which persisted over time. At one extreme, whenever colonizers aimed at exclusively draining resources from the colony, they developed "extractive" institutions with poor emphasis on protecting private investment.[9] In contrast, whenever colonizers intended to settle in these colonies in the long-run, they tried to replicate European institutions, protecting property rights.[10]

According to recent literature, people who find it hard to gain access to credit can experience physiological responses to stress. For instance, people experiencing financial distress are less likely to follow recommended health maintenance practices such as eating a healthy diet, thus elevating the risk of cardiovascular diseases, high blood pressure and cholesterol (O'Neill *et al*., 2005). Also, cardiovascular diseases, high blood pressure and cholesterol have been predicted to rise with economic development and hence to vary across regions, an important aspect since the credit market regulation we analyze varies sharply across countries (Ezzati *et al*., 2005).

---

[8] La Porta *et al*. (1998) argue that countries under the English common law have the best investor right protection and contractual enforcements, followed by those under German or Scandinavian civil law, and of these followed by countries with French civil law.

[9] Belgian colonization in the Congo is an example of extractive institutions, whilst the British colonization of Australia, New Zealand, United States and Canada are examples of pro-European institutions (Acemoglu *et al*., 2001).

[10] Acemoglu *et al*. (2001) argues that former British colonies prospered relative to former French, Spanish, and Portuguese colonies because of the good economic and political institutions and culture they inherited from Britain.

3. Data and Methodology

3.1 Historical Statistics and Current Credit Regulation

In our regression models presented in Section 4 we control for countries' initial wealth per capita. For this purpose, we use the GDP per capita prevailing in the 1800s estimated by Angus Maddison's historic income database.[11]

We also use the historical data on income distribution prevailing in the 1700s and 1800s as estimated by Morrisson and Murtin[12] (2011) and Bourguignon and Morrisson (2002) respectively. These estimates provide the income share for each decile, which we use to build different indicators to proxy the historical ratio of people that were credit and non-credit constrained, such as the Gini coefficient and different ratios of income shares across different deciles. We do so as Banerjee and Newman stress that income inequality is the main factor preventing poor people to invest in entrepreneurial activities. Moreover, previous research has shown that people in the lower deciles are less likely to have access to credit, as they might not have enough wealth to provide a collateral or are living far from a banking institution, thus affecting their chances of obtaining credit (Baliamoune-Lutz *et al*., 2011; Berg, 2013).

Since we are interested in assessing the impact that credit market imperfections have on the creation of firms and jobs over time, we use indicators of credit protection from the Doing Business database gathered by the World Bank from 2004 to 2009.[13] Specifically, we use the strength of the legal right index, which "measures the degree to which collateral and bankruptcy laws protect the right of borrowers and lenders and thus facilitate lending." The index ranks from 0 to 10. Higher scores indicate that collateral and bankruptcy laws are better designed to expand access to credit.[14] This variable is particularly suitable for our analysis as it is a proxy for the extent to which better credit rules can enhance investment incentives by improving collateralizability of assets and

---

[11] Online data available at: Maddison Project website http://www.ggdc.net/maddison/maddison-project/home.htm

[12] We thank Fabrice Murtin for having provided us these datasets.

[13] Since the Doing Business dataset covers the period 2004-2009, we imputed the values for the period 2001-2003 taking the information for the year 2004 or for the closest year for which we had information. We did so to retain as much information as possible for earlier years and given that there is little change in the business environment observed over the years we have.

[14] Data on the legal rights of borrowers and lenders are gathered through a questionnaire administered to financial lawyers and verified through analysis of laws and regulations as well as public sources of information on collateral and bankruptcy laws. A detailed description of this index can be found in: http://www.doingbusiness.org/methodology/getting-credit

limiting the unfair seizure of collateral. All these aspects improve property rights and thereby reduce imperfections in the credit market (Besley and Gathak, 2010).

3.2 GEM Survey

We use the Global Entrepreneurship Monitor (GEM) survey, the largest study of entrepreneurial activity over 2001-2009.[15] The surveys are representative of the adult population and are collected annually. In developing countries the survey is conducted in face-to-face interviews, and elsewhere through random telephone interviews.

We use the definition of "entrepreneurs" proposed by the GEM network: "*adults in the process of setting up a business they will (partly) own and or currently owning and managing and operating young businesses*" (Reynolds *et al*., 2005 p. 209). To study the dynamics of entrepreneurship we consider the four stages in the life-cycle of businesses, as defined by the GEM network. In the first stage, *nascent entrepreneurs*, are those actively involved in setting up a business they will own or co-own, but who have not paid salaries, wages or any other payments to the owners for more than three months. In the second stage are the owners of *young firms*, defined as those who have paid salaries for more than three months and up to 3.5 years. In the third stage, *established firms*, are those who have paid salaries or wages for more than 3.5 years. In the fourth and last stage are firms that in the past 12 months, have been sold, shut down or discontinued.

For our analysis, we focus on 48 countries surveyed in GEM for which we have also gathered historic information on income distribution and GDP per capita. The countries analyzed are listed in Table A.1 in the Appendix. In total, we have 1,001,458 individuals interviewed over 2001-2009. From these, 37,136 were in nascent entrepreneurship, 32,359 in young firms, 62,514 in established firms and 25,183 had recently shut down their firm.

In Table A.2, in the Appendix, we report the basic descriptive statistics of the pseudo-panel and other aggregate indicators used for the whole sample. Figure 1 shows the percentage of the population engaged in the various stages of entrepreneurship analyzed over 2001-2009. The onset of the economic crises reduced the percentage of the population involved in entrepreneurial activities across all stages (nascent, young and established firms) particularly in 2009.

[15] The chosen period of analysis corresponds to the period for which the GEM datasets are publicly available.

3.3 Pseudo-Panel

Since GEM draws new samples each year, the surveys remain representative of the population engaged (or that were engaged) in entrepreneurial activities over time, avoiding an attrition bias. However, we cannot study the decision of the *same* individuals to become or remain in entrepreneurial activities over time. To overcome this limitation, we construct a pseudo-panel using the GEM surveys and the methodology proposed by Deaton (1985). We describe next the construction of the pseudo-panel.

GEM consist of a set of *T* independent cross-sections of *i* individuals that belong to a new and most likely different set of *I* individuals in each period. Equation (2) denotes the factors that affect whether a person is an entrepreneur, if we were to stack together all the cross-section observations, typically known in the literature as pooled-cross section.

$$y_{it}=\beta x_{it}+\delta_i+\varepsilon_{it} \quad (2)$$

where y_{it} denotes whether the individual is engaged in an entrepreneurial stage, x_{it} denotes a vector of explanatory variables, δ_i and ε_{it} denote the individual-specific time-constant unobserved heterogeneity; and the unobserved idiosyncratic error that varies over individuals and time.

OLS estimates using these pooled-cross section data will be biased and inconsistent if the individual unobserved characteristics (such as personal traits, risk aversion or cognitive abilities) were correlated with some or all of the explanatory variables. To solve this potential endogeneity problem, Deaton (1985) proposed building a pseudo-panel, which yields consistent β estimators, even when the individual unobservable characteristics are correlated with explanatory variables. Pseudo-panels have the additional advantage of avoiding attrition problems that plague genuine panels, since data are collected from random samples drawn from cross sections.[16]

To build the pseudo-panel Deaton (1985) proposes to average observations with similar characteristics that are stable over time (such as gender, year of birth) in a sequence of repeated cross-sectional datasets. These synthetic observations can therefore be thought of as cohorts of generations being "followed" over time, just as if pure panel surveys were available.

[16] The pseudo-panel approach is particularly useful for life-cycle models, largely used in social mobility analysis (Antman and Mckenzie, 2005) and previously used by Gutiérrez-Romero (2012) to study entrepreneurship in Spain.

Following Gutiérrez-Romero (2012) who built a pseudo-panel using the GEM survey for the case of Spain, we build the pseudo-panel by defining the cohorts within countries in terms of gender and year of birth, as these are observable and do not change over time.[17] In total, we have nine time periods (2001-2009) and 10 cohorts in each. Five of these cohorts are for males, and five for females. Within each gender we further defined five cohorts of age: those who in 2001 were 28 years old or less, 29-38, 39-48, 49-58 and over 58.[18] The average sample size for each cohort is shown in Table A.3.

We produce the pseudo-panel by averaging observations over individuals in each of the cohorts *C* described above and *T* periods, as shown in equation (3).

$$\bar{y}_{ct} = \beta \bar{x}_{ct} + \bar{\delta}_{ct} + \varepsilon_{ct} \tag{3}$$

where the bars denote the average value of all individuals in cohort *c* at time *t.* The average of the fixed effects of those members belonging to cohort *c* in the sample $\bar{\delta}_{ct}$ varies over time. Since $\bar{\delta}_{ct}$ is unobserved it might be correlated with $\bar{x}_{ct}$, therefore it could lead to inconsistent estimates.[19]

Baltagi (2005) explains that pseudo-panels estimations could be biased if cohorts do not have enough observations to eliminate a potential unobserved heterogenity bias. Verbeek and Nijman (cited by Gutiérrez-Romero, 2012) show that if each cohort has more than 100-200 observations, as in our case, then the cohorts will be large enough to eliminate the unobserved heterogeneity bias if assumed the individual error is time invariant, $\bar{\delta}_{ct} = \bar{\delta}_{c}$. In that case, equation (3) can be estimated using cohort dummy variables yielding unbiased estimators.

To ensure the estimators are efficient, we control for the likely problem of heteroskedasticity, which could occur if the number of observations per cohort varies substantially. To correct for this we use weighted least squares (WLS) by weighting by the square root of the number of observations in each cohort, as is recommended in the literature (Dargay, 2007).

---

[17] We also define cohorts following age and gender as the literature has found evidence that the probability of engaging in entrepreneurial activities differs considerably with regard to these two variables (Bergmann and Sternberg, 2007).

[18] For instance, individuals are considered to belong to the first cohort of age if they were aged 30 in year 2001, 31 in 2002, 32 in 2003 and so on.

[19] This is likely in our case because we consider a number of explanatory variables that might be correlated with the error term, such as individuals' personality traits like risk aversion and cognitive abilities. Since these characteristics are unobservable and might be correlated with our outcome of interest, the estimated effect could be biased.

4. Econometric Results

4.1 Impact of Initial Conditions on Firm's Life Cycle: Birth, Maturity and Death

To test our two hypotheses and to deal with the potential endogeneity of the degree of credit protection we extend equation (3) and estimate instead equation (4). We correct for this endogeneity in a two-stage process, as is standard in the literature, so equation (4) represents the IV-second-stage least squares estimation.

$$E[\bar{y}_{ct} \mid Z] = \alpha + \beta_1 INEQ_{1820} + \beta_2 Lindex + \beta_3 \bar{x}_{ct} + \beta_4 X + \bar{\delta}_{ct} + \varepsilon_{ct} \qquad (4)$$

where $\bar{y}_{ct}$ measures the dependent variable in the second-stage least square, as the proportion of individuals involved in a specific stage of entrepreneurship, namely nascent, young, established or recently closed firm. $INEQ_{1820}$ represents the historical ratio of wealthy people (income share of top 9th decile) to poor people (bottom 1st decile) prevailing in 1820. We use this indicator as a proxy of the ratio of non-credit to credit constrained people. *Lindex* represents the strength of legal right index[20], X is a set of characteristics, which includes GDP per capita in 1800, regional and year dummy variables to control for unobserved regional and time effects. At cohort level, in $\bar{x}_{ct}$ we include the proportion of people in cohort *c* at time *t* with secondary education or more, and control for cohort fixed effects $\bar{\delta}_{ct}$. Z is the instrument used in the first-stage least squares, which is a dummy variable for whether the country's legal origin code is English or not. All variables are measured in logarithms except the generation cohort, the instrumental variable Z, regional and time dummy variables.

Table A.4, in Appendix, shows the results of the first-stage regressions. This table includes the coefficients associated with our instrument, whether the origin of the legal code is English, and our endogenous variable, the legal right index. We find the instrument is positive and statistically significant across all models presented. We also include the summary statistics for the first stage regressions, in which the F-statistics test of the excluded instrument, is greater than 10 and statistically significant across all models ran, which suggest our instrument is not weak.

Table 1 presents the results of the IV-second-stage least squares. There we also include the endogeneity test, which confirms the legal right index is endogenous with our

[20] Note the legal right index ranks from 0 to 10, however this index is not equal to 0 for any of the countries over the time period considered in the analysis, which then enables us to apply a log transformation.

dependent variable $\bar{y}_{ct}$, the proportion of people involved in different entrepreneurial stages. The Kleibergen-Paap Wald F statistic test confirms the instrument is correlated with the endogenous variable, the legal right index.

Our results confirm the first hypothesis. The higher the ratio of wealthy to poor people in 1820 the lower the probability that people were engaged in entrepreneurial activities across all stages, nascent, young and established firms during the period 2001-2009 (Table 1, columns 1-4). The lower the income share of the poor relative to the wealthy, the lower the share of people involved in firms of any type. For instance, a 1% increase in the historic ratio of wealthy to poor reduces the proportion of people involved in nascent firms by 0.2%, the proportion of people involved in young firms by 0.17% and the proportion of people involved in established firms by 0.08%.

We also find evidence to support our second hypothesis. The higher the index of legal rights, a proxy we use for efficiency in the credit market, the higher the proportion of people involved in entrepreneurial activities. Specifically a 1% increase in the legal right index, increases the proportion of people involved in nascent firms by almost 1%, the proportion of people involved in young firms by 0.8%, and the proportion of people involved in established firms by 0.22%. These results suggest the strength of the legal right index is more important in the early stages of entrepreneurship than those already established. There are potential reasons for this. For instance, already established firms might have had time to generate their own financial resources (from previous profits) and had enough time to develop networks other than with financial markets, which could enable them to stay afloat in case of requiring prompt credit. This argument is in line with previous research that shows small and medium firms are more likely to be more credit constrained than larger firms (Claessens *et al*., 2007). For instance, Kuntchev *et al*. (2013) show the firms' perception of being credit constrained is negatively correlated with firm's size and age: smaller and younger firms tend to find access to credit to be a more stringent constraint to carry out their operations than larger and older firms.

We also find the higher the historical GDP per capita is, the fewer the people who would be involved in different stages of entrepreneurial activity over time. It is unclear why this might be the case. One potential reason, and in line with the predictions of Banerjee and Newman model, is that countries that started with higher historical GDP per capita over time developed a more active labor market, paying higher wages. As wages rise more people would prefer becoming workers, instead of entrepreneurs.

The cohort effects on entrepreneurial activity show that in general, older individuals are more prone to be involved in established businesses, while younger people are engaged in young firms. This result is consistent with previous studies that show that because knowledge, capital accumulation, and experience increase with age, over time individuals are more likely to have an established firm (Bergmann and Sternberg, 2007).

In addition, we find evidence the higher the proportion of people with high school education or more, the lower is the likelihood of engaging in entrepreneurial activities, across nascent, young and established firms during the period 2001-2009. A number of studies have found a positive correlation between education and degree of entrepreneurship, suggesting that education helps people identify business opportunities (Simón-Moya *et al*., 2014). Our findings instead, support the other vein in the literature that has found that general education to be negatively related to the probability of being self-employed (Blanchflower, 2004; Reynolds *et al*., 2003). These studies argue that general education is not necessarily correlated with being an entrepreneur as specific entrepreneurial knowledge is what matters more, such as knowledge in accounting and finance (Man *et al*., 2002). Other empirical studies have found that employees in Spain and Portugal value more having higher level of educations, whilst self-employed people have lower levels of education (Garcia-Mainar and Montuenga-Gomez, 2005).

To conclude this sub-section, we focus on the regional differences on firm's life cycle. We find that Africa was less likely to create firms and of these to survive over time than firms located in the rest of the world over 2001-2009. These results might reflect the structural and institutional differences supporting entrepreneurship in Africa and the rest of the world.

4.2 Impact of Initial Conditions on Job Creation: Firms' Size

We next move on to analyze the extent to which initial conditions and credit markets affect the number of employees hired by firms, as shown in equation (5).

$$E[\bar{s}_{ct} \mid Z] = \alpha + \beta_1 INEQ_{1820} + \beta_2 Lindex + \beta_3 \bar{x}_{ct} + \beta_4 X + \beta_5 Lindex * region + \bar{\delta}_{ct} + \varepsilon_{ct} \quad (5)$$

where $\overline{s_{ct}}$ represents the average number of employees hired by firms in each stage of entrepreneurship in the cohort *c* at time *t*. In addition, we interact the legal right index with a regional variable (*Lindex*region*) to take into account regional differences in the credit regulation. We also add in $\bar{x}_{ct}$ a categorical variable denoting the sector of the firm and a

dummy variable denoting whether the firm has a medium/high level of technological intensity, both variables provided in the GEM surveys. We measure in logarithm our dependent variable, the ratio of wealthy to poor, GDP per capita in 1800 and the legal right index.[21]

We chose these explanatory variables following the literature on the determinants of firms' size. Our key explanatory variable affecting firm size over time is the historical ratio of wealthy to poor. We include this variable based on the theoretical model of Banerjee and Newman, expecting the higher the historical income inequality the smaller the firms will be. We also include in our regressions the legal right index, as the literature predicts that countries with better institutions and more access to credit are more likely to develop larger firms (Beck *et al*., 2003; 2005). In addition, we control for sector fixed effects and technological intensity as the literature has found these variables to play a crucial role in firm's size (Aghion *et al.,* 2007). Finally, we take into account market size, as the literature predicts that firms will expand in size the larger the expected market profits are (Lucas, 1978). Since we are interested in studying the impact of initial conditions, and to avoid a potential endogenity issue with current market size, we use as a proxy of market size the GDP per capita prevailing in 1800 and not actual GDP per capita.

The legal right index is likely to be endogenous with the size of the firms, as well as the interaction of this legal right index with the seven regional dummies used.[22] Thus, we require at least eight instruments, one for our proxy for access to credit, and seven for this variable interacted with the dummy regional variables. The instruments Z we use are: the origin of the country's legal code (one dummy for each legal code: English common law, French commercial code, Socialist/Communist law, German commercial code and Scandinavian commercial code); the colonial origin of the country (a dummy variable equal to one if the country's colonial origin is Spanish, and zero otherwise) and two variables that measure blood pressure and cholesterol at country level[23].

---

[21] Given that firms could have no workers hired, our dependent variable could take the value of zero. In this case we would lose observations if the logarithm of that variable was taken. To prevent the loss of observations we transformed our dependent variable by adding one to the number of hired workers. We then took the logarithm of that transformed variable.

[22] The regions considered in the analysis are: Africa, Asia, Western Europe, Latin America, North America, Oceania and Eastern Europe.

[23] We obtained the data on blood pressure and cholesterol from the School of Public Health, Imperial College London.http://www1.imperial.ac.uk/publichealth/departments/ebs/projects/eresh/majidezzati/healthmetrics/metabolicriskfactors/

Tables A.5.1 to A.5.3, in the Appendix, show the first stage regressions. This table includes the coefficients associated with our instruments and our endogenous variables, the legal right index and its interaction with the regional variables. We find the instruments are statistically significant across all models presented. The F-statistics test of the excluded instruments are greater than 10 and statistically significant across all models ran, which suggest our instruments are not weak.

In Table 2 we present the IV second-stage least squares. There we also include the endogeneity test, which shows our dependent variables are endogenous. As before, we include the Kleibergen-Paap rank Wald F statistic test which confirms that our instruments are not weak. All models are just identified.

We find mixed evidence to support our first hypothesis. On the one hand, the higher the historical ratio of wealthy to poor, the bigger the nascent firms were over 2001-2009 (Table 2, column 1). On the other hand, and in line with our first hypothesis, the higher the historical ratio, the smaller the young and established firms are over time (Table 2, columns 2-3). This evidence suggests that as the income share of the poor shrinks (the higher the historical ratio of wealthy to poor) the bigger the nascent firms aided perhaps by low salaries. But, once firms get older they shrink in size. This apparent mixed evidence is however consistent with the predictions of Banerjee and Newman (1993). Their model predicts that countries with a high ratio of rich to poor will fail in the long-run in building a real demand for the local market production, thus affecting the size of firms as they mature. Similarly, Murphy, Shleifer and Vishny (1989b) show that countries with high income inequality will have low demand for labor as they do not have critical mass in their markets to justify firms of bigger size.

We find evidence to support our second hypothesis. The higher the legal right index the bigger the firm's size, across all stages of entrepreneurship.[24] The effect of this index is greater for the nascent firms, and decreases for young and established firms. This confirms, as shown earlier, that once firms are already established they might be less dependent on external credit sources than firms that have just started.

Our estimates suggest improving credit protection increases the firm's size to a lesser extent in Africa compared to other regions. This suggests that even if regulation is improved in Africa, its effect will be lower than in other regions, perhaps because fewer

[24] We obtain the total effect of this legal index by adding up the coefficients of the legal right index and the interactions between this variable and the regional dummies, which are statistically significant across all specifications in Table 2.

people in Africa will take advantage of the improved institutions if they do not have the required collateral. Thus, policy interventions aimed at reducing barriers to credit should take into account the specificities of the different regions. In some regions the problem could be the lack of resources or competition in the banking system and the lack of protection of lenders; while in others it could be the excess of collateral requirements. For instance, Baliamoune-Lutz *et al*. (2011) point out that a major issue for African countries is the collateral needed to secure bank loans. Some households in these countries do not have formal titles for their lands, and the constraint is particularly severe for women-headed households.

5. Robustness Checks

We conducted three main robustness checks to assess the validity and consistency of the results presented so far.

First, we re-run our IV-pseudo-panel regressions but excluding from the analysis self-employed people, in other words, people who claimed not to have hired workers. We do so as the model by Banerjee and Newman (1993) distinguishes between self-employed and entrepreneurship. Table A.6 tests our two hypotheses on the probability of people being engaged in entrepreneurial activities, and Table A.7 on the size of the firms. Both tables confirm our previous results that inequality is detrimental to the creation of businesses, their survival and to creating jobs overtime, whilst a better legal right index is beneficial.

Second, we test alternative inequality measures using the historical income distribution of 1820. Specifically we use four different ratios of wealthy to poor and other indicators such as the Gini index, finding no differences versus the results presented so far.[25] Tables A.8 and A.9 in the Appendix show that overall, the detrimental effect of income inequality on firm's life cycle and job creation is robust across the alternative indices used.

[25] These four ratios are defined as: The income share of the 1st decile to the average income (bottom 10); income share of the 9th decile to average income (top 90); income share of the median to the average income (middle50); the income share of the 8th decile to the income share of the bottom 2nd decile (top20/bottom20). We also use the sum of the income shares of the 2nd, 3rd and 4th quintiles (middle).

Across all regressions presented in Table 1 and Table 2 we also tested the ratio of wealthy to poor but for 1700. This ratio yields practically identical results to the ones presented using the ratio 1820s, hence we chose to omit these results but are available upon request.

Third, we consider different instrumental variables in our estimations, such as religion and language fractionalization (Alesina *et al*., 2002), which are commonly used in the literature. However, as Tables A.10 to A.13 show all of these variables proved to be weaker instruments than the ones presented in our estimations. Overall, since these are weak instruments we obtain less consistent estimations compared to our preferred estimations shown earlier, using stronger instruments.

6. Conclusion

The aim of this article was to test the theoretical predictions that initial conditions of income inequality along with the current business environment affect the probability of creating new businesses and of these surviving over time and creating jobs. For this purpose, we built a pseudo-panel of cohorts of people across 48 countries over 2001-2008, using the Global Entrepreneurship Monitor Survey and the pseudo-panel methodology proposed by Deaton (1985).

We draw two main conclusions from our results. First, initial inequality, understood as the inequality prevailing in the 1700s or 1800s, has a persistent and detrimental effect on the creation and survival of firms as well as job creation over time. Second, in countries with worse credit markets, proxied in our analysis by an index that measures the accessibility to credit, it is less likely that firms will be created, survive and create jobs over time.

Our findings are consistent with the prediction of the model by Banerjee and Newman (1993). This model suggests that if the initial wealth distribution is such that a large percentage of the population is credit constrained, then fewer firms will be created and survive over time especially in the presence of credit market imperfections.

Despite the extensive research on the relationship between inequality and economic growth, considerable disagreement about the sign of this relationship in the literature still remains. Banerjee and Duflo (2000) argue previous studies are far from being conclusive about this relationship, because of identification problems and data limitations in cross-country studies. Moreover, most empirical articles have assessed the impact of inequality by using relatively recent indicators of inequality, (not historic ones

as in this paper), limiting our understanding of the extent to which early inequality conditions affect economic development over time.

To the best of our knowledge, this is the first empirical article that tests the predictions of Banerjee and Newman model and other similar theoretical models that suggest initial conditions, understood as the wealth distribution prevailing in the distant past, can affect entrepreneurship and development in the long-run. Our results have important policy implications. Although we did not specifically test for convergence, our findings suggest that some countries are predisposed by their initial conditions to be trapped into a firms-die-young equilibrium, whilst others are in a different type of equilibrium with businesses thriving over time. Thus, economic convergence across countries is unlikely to occur. Our findings, in line with the theoretical literature, suggest that to foster the creation of businesses and jobs, policies should focus on addressing long-standing differences in wealth within countries as well as reducing credit constraints. Incidentally, these policies could foster convergence across countries as well, an issue that deserves further research.

References

Acemoglu, D., Johnson, S. and Robinson, J. (2001) The colonial origins of comparative development: An empirical investigation. American Economic Review 91, 1369-1401.

Acemoglu, D., Johnson, S. and Robinson, J. A. (2005) Institutions as the fundamental cause of long-run growth. In P. Aghion and S. N. Durlauf (eds), Handbook of Economic Growth, Vol. IA, Elsevier North-Holland, Amsterdam, The Netherlands.

Aghion, P. and Bolton, P. (1997) A theory of trickle-down growth and development. Review of Economic Studies 64, 151-172.

Aghion, P., Fally, T., and Scarpetta, S. (2007) Credit constraints as a barrier to the entry and post-entry growth of firms. Economic Policy 22, 731–779.

Alesina, A., Devleeschauwer, A., Easterly, W., Kurlat, S. and Wacziarg, R. (2002) Fractionalization. Journal of Economic Growth 8, 155-194.

Antman, F. and McKenzie, D. (2005) Earnings mobility and measurement error: A pseudo-panel approach. Stanford University working paper.

Ardagna, S. and Lusardi, A. (2008) Explaining international differences in entrepreneurship: The role of individual characteristics and regulatory constraints. NBER Working Paper 14012.

Baliamoune-Lutz, M., Brixiová, Z. and Ndikumana, L. (2011) Credit constraints and productive entrepreneurship in Africa. Political Economy Research Institute. Working Paper No. 276.

Baltagi, B. H. (2005) *Econometric analysis of panel data.* (3ed.). Chichester, Hoboken, N.J: John Wiley & Sons.

Banerjee, A. and Duflo, E. (2000) Inequality and growth: What can the data say? NBER Working Paper No.7793.

Banerjee, A. and Newman, A.F. (1993) Occupational choice and the process of development. Journal of Political Economy 101, 363-394.

Beck, T., Demirguc-Kunt, A. and Levine, R. (2005) SMEs, Growth and Poverty: Cross-Country Evidence. Journal of Economic Growth 10, 199-229.

Beck, T., Demirguc¸-Kunt, A. and Maksimovic, V. (2003) Financial and Legal Institutions and Firm Size. World Bank Working Paper.

Benabou, R. (1996) Equity and efficiency in human capital investment: the local connection. Review of Economic Studies 63, 237-264.

Berg, E. (2013) Are poor people credit-constrained or mypic? Evidence from a South African panel. Journal of Development Economics 101, 195-205.

Bergmann, H. and Sternberg, R. (2007) The Changing face of entrepreneurship in Germany. Small Business Economics 28, 205–221.

Besley, T. and Ghatak, M. (2010) Property rights and economic development. In D. Rodrik and M. Rosenzweig (Eds.), Handbook of development economics (vol. V, Chap. 68, pp. 4525–4595). Amsterdam: North-Holland.

Blanchflower, D. and Oswald, A. (1998) What Makes an Entrepreneur? Journal of Labor Economics 16, 26-60.

Blanchflower, D., Oswald, A. and Stutzer, A. (2001) Latent entrepreneurship across nations. European Economic Review 45, 680-691.

Blanchflower, D. (2004) Self-employment: More may not be better. NBER Working Paper No. 10286.

Bourguignon, F. and Morrisson, C. (2002) Inequality among world citizens: 1820–1992. American Economic Review 92, 727–744.

Caliendo, M. and Kritikos, A. (2011) Searching for the entrepreneurial personality: New evidence and avenues for further research. IZA DP No. 5790.

Claessens, S. and Perotti, E. (2007) Finance and inequality: Channels and evidence. Journal of Comparative Economics 35, 748-773.

Dargay, J. (2007) The effect of prices and income on car travel in the UK. Transportation Research Part A 41, 949-960.

Deaton, A. (1985) Panel data from time series of cross-sections. *Journal of* Econometrics 30, 109-26.

Djankov, S., La Porta, R., López-de-Silanes, F. and Shleifer, A. (2002) The regulation of entry. Quarterly Journal of Economics 117, 1-37.

Djankov, S., La Porta, R., Lopez-De-Silanes, F. and Shleifer, A. (2003) Courts. Quarterly Journal of Economics 118, 453-517.

Evans, D. and Jovanovic, B. (1989) An estimated model of entrepreneurial choice under liquidity constraints. Journal of Political Economy 97, 808-827.

Ezzati, M., Vander Hoorn, S., Lawes, C., Leach, R., James, W., Lopez, A., Rodgers, A. and Murray, C. (2005) Rethinking the *'*Diseases of affluence*'*, Paradigm: Global Patterns of Nutritional Risks in Relation to Economic Development. *PLoS Med.* 2, 404-412.

Galor, O. (2011) Inequality, human capital formation and the process of development. NBER Working Paper No. 17058.

Galor, O. and Zeira, J. (1993) Income distribution and macroeconomics. Review of Economic Studies 60, 35-52.

Garcia-Mainar, I. and Montuenga-Gomez, V. (2005) Education returns of wage earners and self-employed workers: Portugal vs. Spain. Economics of Education Review 24, 161-170.

Ghatak, M. and Jiang, N.H. (2002) A simple model of inequality, occupational choice and development. Journal of Development Economics 69, 205-226.

Glaeser, E., La Porta, R., Lopez-de-Silanes, F. and Shleifer, A. (2004) Do institutions cause growth? Journal of Economic Growth 9, 271-303.

Gutiérrez-Romero, R. (2012) Determinants of Spanish firms' life cycle and job creation: A pseudo-panel approach. Universidad Autónoma de Barcelona Working Paper 12.09.

Hurst, E. and Lusardi, A. (2004) Liquidity constraints, household wealth, and entrepreneurship. Journal of Political Economy 112, 319-47.

Kuntchev, V., Ramalho, R., Rodríguez-Mesa, J. and Yang, J. (2013) What Have We Learned from the Enterprise Surveys Regarding Access to Credit by SMEs? World Bank Working Paper No.6670.

La Porta, R., Lopez-de-Silanes, F., Shleifer, A. and Vishny, R.W. (1998) Law and finance. Journal of Political Economy 106, 1113-1155.

La Porta, R., Lopez-de-Silanes, F., Shleifer, A. and Vishny, R.W. (1999) The quality of government. Journal of Law, Economics and Organization 15, 222-279.

Levine, R., Loayza, N. and Beck, T. (2000) Financial intermediation and growth: Causality and causes. Journal of Monetary Economics 46, 31-77.

Lucas, R.E. (1978) On the size distribution of business firms. Bell Journal of Economics 9, 508-523.

Man, T. Lau, T. and Chan, K. (2002) The competitiveness of small and medium enterprises A conceptualization with focus on entrepreneurial competencies. Journal of Business Venturing 17, 123-142.

Manski, C. (2000) Economic analysis of social interactions. Journal of Economic Perspectives 14, 115-136.

Mesnard, A. and Ravallion, M. (2001) Is inequality bad for business? Policy Research Working Paper 2527, World Bank.

Morrisson, C. and Murtin, F. (2011) Internal income inequality and global inequality. Foundation pour les etudes et recherches sur le développpement international, Working Paper No. 26.

Murphy, K., Shleifer, A. and Vishny, R. (1989a) Industrialization and the big push. Journal of Political Economy 97, 1003-1026.

Murphy, K., Shleifer, A. and Vishny, R. (1989b) Income Distribution, Market Size, and Industrialization. Quarterly Journal of Economics 104, 537-564.

Naudé, W. (2010) Entrepreneurship, developing countries, and development economics: new approaches and insights. Small Business Economics 34, 1-12.

Naudé, W. (2008) Entrepreneurship in economic development. UNU-Wider Research Paper No. 2008/20.

O'Neill, B., Sorhaindo, B., Xiao, J. J. and Garman, E. T. (2005) Health, financial well-being, and financial practices of financially distressed consumers. Consumer Interests Annual 51.

Reynolds, P., Bosma, N., Autio, E., Hunt, S., De Bono, N., Servais, I.; and Lopez-Garcia, P. (2005) Global entrepreneurship monitor: data collection design and implementation 1998-2003. Small Business Economics 24, 205-31.

Reynolds, P., Autio, E. and Hay, M. (2003) Global Entrepreneurship Monitor Report. Kansas City, MO, US: E.M. Kauffmann Foundation

Rosenstein-Rodan, P. N. (1943) Problems of industrialization of Eastern and South-Eastern Europe. The Economic Journal 53, 202-211.

Shane, S. and Venkataraman, S. (2000) The promise of entrepreneurship as a field of research. Academy of Management Review 25, 217-226.

Simón-Moya, V., Revuelto-Taboada, L. and Fernández-Guerrero, R. (2014) Institutional and economic drivers of entrepreneurship: An international perspective. Journal of Business Research 67, 715-721.

Thornton, P. (1999) The sociology of entrepreneurship. Annual Review of Sociology 25, 19-46

Yanya, M. (2012) Causal relationship between entrepreneurship poverty and income inequality in Thailand. International Journal of Trade, Economics and Finance 3, 436-440.

Tables and Figures

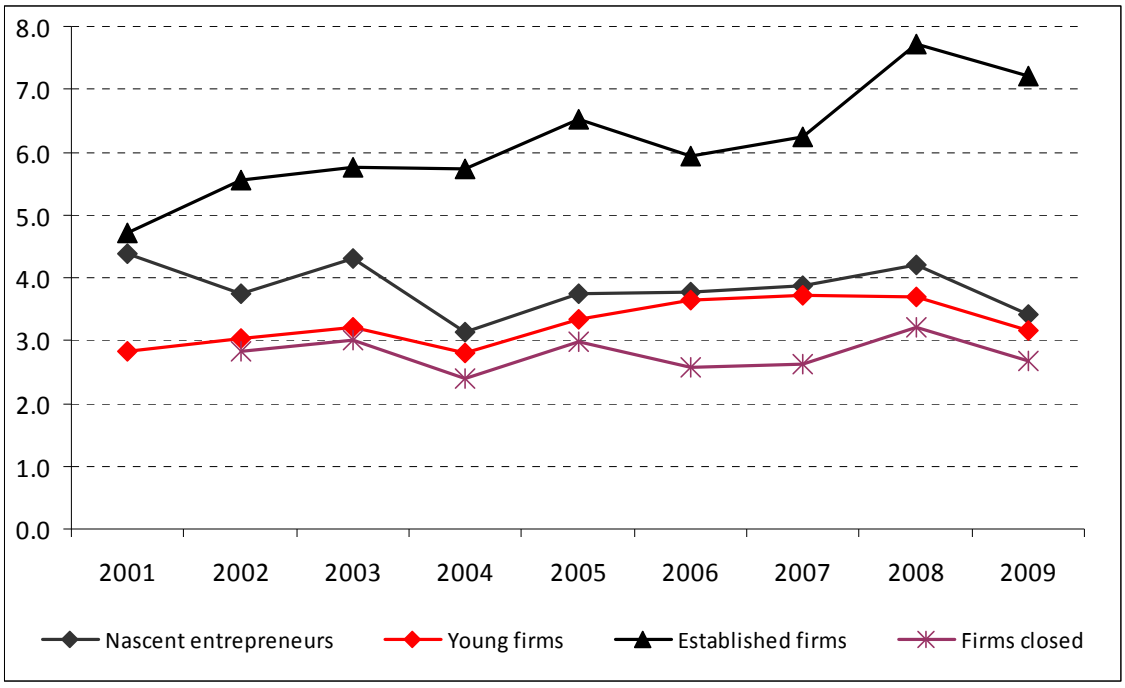

Fig. 1. Proportion of people engaged in entreprenerual stages.

Table 1

IV second stage pseudo-panel regression: Impact on firm's life cycle.

	(1) Nascent IV		(2) Young IV		(3) Established IV		(4) Closed IV	
Initial conditions								
Log (Ratio 90/10)	-0.197***	(0.005)	-0.175***	(0.005)	-0.087***	(0.004)	-0.177***	(0.011)
Log (GDPpc1800)	-0.749***	(0.006)	-0.698***	(0.006)	-0.500***	(0.006)	-0.683***	(0.009)
Institutional environment								
Log (IndexCreditProtection)	0.997***	(0.011)	0.799***	(0.011)	0.222***	(0.010)	0.707***	(0.011)
Region (reference group: Africa)								
Asia	0.206***	(0.010)	1.073***	(0.011)	1.625***	(0.010)	0.727***	(0.019)
Western Europe	0.209***	(0.010)	0.664***	(0.011)	1.325***	(0.010)	-0.004	(0.011)
Latin America	1.445***	(0.011)	1.541***	(0.012)	1.476***	(0.011)	1.310***	(0.012)
North America	0.892***	(0.010)	1.029***	(0.011)	1.443***	(0.010)	0.475***	(0.015)
Oceania	0.122***	(0.009)	0.570***	(0.010)	1.384***	(0.009)	-0.203***	(0.010)
Eastern Europe	0.297***	(0.010)	0.433***	(0.011)	0.880***	(0.010)	-0.018	(0.012)
Individual characteristics								
% of individuals with high school or more (at cohort level)	-0.142***	(0.006)	-0.345***	(0.006)	-0.317***	(0.005)	-0.121***	(0.026)
Cohort (Male aged 16-28 reference group)								
Male 29-38	0.138***	(0.004)	0.182***	(0.004)	1.143***	(0.004)	0.308***	(0.004)
Male 39-48	-0.105***	(0.004)	-0.136***	(0.004)	1.355***	(0.004)	0.273***	(0.004)
Male 49-58	-0.570***	(0.005)	-0.515***	(0.005)	1.237***	(0.004)	0.247***	(0.005)
Male 59-64	-1.456***	(0.006)	-1.420***	(0.006)	0.453***	(0.005)	0.074**	(0.037)
Female 16-28	-0.609***	(0.004)	-0.593***	(0.004)	-0.637***	(0.004)	-0.384***	(0.004)
Female 29-38	-0.464***	(0.004)	-0.347***	(0.004)	0.369***	(0.004)	-0.117***	(0.004)
Female 39-48	-0.686***	(0.004)	-0.687***	(0.004)	0.594***	(0.004)	-0.186***	(0.004)
Female 49-58	-1.172***	(0.005)	-1.172***	(0.004)	0.367***	(0.004)	-0.375***	(0.006)
Female 59-64	-2.200***	(0.009)	-2.136***	(0.009)	-0.333***	(0.005)	-0.553***	(0.013)
Year (reference: 2001)								
2002	-0.178***	(0.005)	-0.054***	(0.005)	0.105***	(0.005)	-0.346***	(0.015)
2003	0.023***	(0.005)	0.171***	(0.006)	0.257***	(0.005)	-0.106***	(0.020)
2004	-0.333***	(0.006)	-0.072***	(0.005)	0.248***	(0.005)	-0.223***	(0.018)
2005	-0.134***	(0.005)	0.004	(0.005)	0.349***	(0.005)	-0.308***	(0.019)
2006	-0.064***	(0.005)	0.147***	(0.005)	0.417***	(0.005)	-0.217***	(0.035)
2007	-0.114***	(0.005)	0.091***	(0.005)	0.435***	(0.005)	-0.238***	(0.023)
2008	-0.116***	(0.005)	0.166***	(0.005)	0.687***	(0.005)	-0.103***	(0.021)
2009	1.142***	(0.007)	1.418***	(0.007)	1.102***	(0.005)		
Constant	0.772***	(0.027)	0.085***	(0.028)	-1.636***	(0.026)	0.259***	(0.066)
No. Observations	959,199		942,535		973,873		914,094	
R-squared	0.509		0.506		0.603		0.469	
F test	31198.78***		31095.09***		30728.22***		27843.20***	
K-P Wald rk F statistic (weak identification test)	150,000***		130,000***		140,000***		150,000***	
Endogeneity test	5520***		3866.9***		150.286***		2591.045***	

Notes: Robust standard errors in parentheses. * p<0.1, ** p<0.05, *** p<0.01

Table 2
IV second stage pseudo-panel regression: Impact on job creation.

	Nascent		Young		Established	
	IV		IV		IV	
Initial conditions						
Log (Ratio 90/10)	0.605***	(0.126)	-0.304***	(0.066)	-0.165***	(0.024)
Log (GDPpc1800)	-0.792***	(0.127)	0.093	(0.060)	0.087***	(0.022)
Institutional environment						
Log(IndexCreditProtection) Total effect	7.023***	(0.703)	1.996***	(0.283)	2.224***	(0.218)
*Ommited: Log(IndexCreditProtection)*Africa*						
Log(IndexCreditProtection)	0.529***	(0.162)	0.508***	(0.079)	0.332***	(0.051)
Log(IndexCreditProtection)*Asia	2.028***	(0.216)	0.514***	(0.090)	0.344***	(0.049)
Log(IndexCreditProtection)*Western Europe	1.354***	(0.147)	0.113*	(0.058)	0.352***	(0.045)
Log(IndexCreditProtection)*Latin America	1.941***	(0.196)	0.505***	(0.066)	0.436***	(0.044)
Log(IndexCreditProtection)*North America	-0.390	(0.284)	0.060	(0.085)	0.181***	(0.055)
Log(IndexCreditProtection)*Oceania	0.280**	(0.136)	-0.313***	(0.078)	0.118**	(0.047)
Log(IndexCreditProtection)*Eastern Europe	1.282***	(0.148)	0.609***	(0.058)	0.461***	(0.044)
Individual characteristics						
% of individuals with high school or more (at cohort level)	-0.669***	(0.117)	-0.114**	(0.051)	0.066***	(0.023)
Cohort (Male aged 16-28 reference group)						
Male 29-38	-0.119*	(0.063)	-0.073**	(0.030)	0.024	(0.020)
Male 39-48	0.118	(0.079)	0.013	(0.037)	0.066***	(0.019)
Male 49-58	-0.584***	(0.122)	-0.204***	(0.047)	-0.043*	(0.023)
Male 59-64	0.018	(0.164)	-0.171*	(0.091)	-0.270***	(0.030)
Female 16-28	-0.548***	(0.099)	-0.393***	(0.034)	-0.339***	(0.025)
Female 29-38	-0.802***	(0.079)	-0.308***	(0.029)	-0.369***	(0.021)
Female 39-48	-0.676***	(0.072)	-0.601***	(0.039)	-0.337***	(0.022)
Female 49-58	0.328	(0.212)	-0.359***	(0.103)	-0.472***	(0.025)
Female 59-64	-0.510*	(0.310)	-0.620***	(0.093)	-0.577***	(0.031)
Technology sector (reference: No/ Low technology sector)						
Medium or high	-0.003	(0.068)	0.069*	(0.036)	0.025	(0.020)
Sector (reference: Extractive sector)						
Transforming sector	0.095	(0.088)	0.057	(0.039)	0.064***	(0.015)
Business services	0.146	(0.092)	0.024	(0.041)	0.099***	(0.016)
Consumer oriented	0.041	(0.088)	0.030	(0.039)	0.014	(0.014)
Year (reference: 2001)						
2002	-0.378	(0.245)	-0.258***	(0.098)	0.146***	(0.025)
2003	0.831***	(0.270)	0.038	(0.094)	0.314***	(0.028)
2004	0.479**	(0.243)	-0.363***	(0.093)	0.084***	(0.023)
2005	0.465*	(0.255)	-0.147	(0.094)	0.188***	(0.024)
2006	0.063	(0.273)	-0.316***	(0.093)	0.170***	(0.024)
2007	0.009	(0.220)	-0.157*	(0.093)	0.141***	(0.025)
2008	-0.615**	(0.241)	-0.277***	(0.095)	0.132***	(0.025)
2009					0.436***	(0.029)
Constant	2.758***	(1.046)	0.660	(0.514)	0.168	(0.169)
No. Observations	6,952		22,119		53,067	
F test	933.11***		1833.33***		3332.82***	
K-P Wald rk F statistic (weak identification test)	27.24***		106.994***		317.925***	
Endogeneity test	28.58***		62.53***		489.05***	

Notes: Robust standard errors in parentheses. * p<0.1, ** p<0.05, *** p<0.01

Appendix

Table A.1

Historical indicators in countries analyzed.

Country	GDP per capita 1800	Ratio90/10 1820	Freq.	Percent	Region
Argentina	871.63	6.00	18,070	1.80	Latin America
Australia	671.48	7.75	12,646	1.26	Oceania
Austria	1434.51	5.42	4,199	0.42	Western Europe
Bosnia and Herzegovina	490.82	12.00	4,016	0.40	Eastern Europe
Brazil	509.20	9.38	20,000	2.00	Latin America
Canada	1159.50	7.75	7,008	0.70	North America
Chile	702.10	6.00	19,005	1.90	Latin America
China	985.89	5.22	14,443	1.44	Asia
Colombia	522.98	9.38	8,157	0.81	Latin America
Croatia	1227.06	12.00	16,013	1.60	Eastern Europe
Czech Republic	1622.74	5.42	2,001	0.20	Eastern Europe
Denmark	1342.84	6.19	26,083	2.60	Western Europe
Egypt	748.79	5.50	2,603	0.26	Africa
Finland	1037.69	6.19	18,044	1.80	Western Europe
France	1388.32	6.11	17,947	1.79	Western Europe
Germany	1695.68	5.42	58,535	5.84	Western Europe
Greece	934.41	12.00	13,970	1.39	Western Europe
Hungary	1390.67	5.42	17,726	1.77	Eastern Europe
Iceland	801.90	6.19	16,025	1.60	Western Europe
India	562.88	4.80	10,751	1.07	Asia
Indonesia	514.12	4.30	2,000	0.20	Asia
Ireland	1213.17	10.00	15,888	1.59	Western Europe
Italy	1339.84	6.11	20,744	2.07	Western Europe
Japan	1055.06	6.75	17,270	1.72	Asia
Korea	596.01	5.22	8,023	0.80	Asia
Macedonia	800.76	12.00	1,971	0.20	Eastern Europe
Mexico	1053.60	9.38	9,448	0.94	Latin America
Netherlands	2412.43	5.92	29,625	2.96	Western Europe
New Zealand	541.62	7.75	8,868	0.89	Oceania
Norway	950.00	6.19	19,921	1.99	Western Europe
Peru	697.30	9.38	9,985	1.00	Latin America
Philippines	626.97	6.47	2,000	0.20	Asia
Poland	1198.39	12.00	6,001	0.60	Eastern Europe
Portugal	1284.41	6.11	5,023	0.50	Western Europe
Romania		12.00	6,218	0.62	Eastern Europe
Russia	823.99	12.00	9,378	0.94	Eastern Europe
Serbia	1308.87	12.00	6,776	0.68	Eastern Europe
Slovenia	1357.95	12.00	21,138	2.11	Eastern Europe
South Africa	759.05	10.83	24,865	2.48	Africa
Spain	1443.02	6.11	158,307	15.81	Western Europe
Sweden	1100.00	6.19	38,786	3.87	Western Europe
Switzerland	1612.48	5.92	13,632	1.36	Western Europe
Taiwan	871.27	5.22	2,236	0.22	Asia
Thailand	496.98	6.47	7,043	0.70	Asia
Turkey	869.92	9.58	7,217	0.72	Asia
UK	2716.87	10.00	197,518	19.72	Western Europe
United States	1912.62	6.84	36,848	3.68	North America
Venezuela	442.02	9.38	7,487	0.75	Latin America
Total			1,001,458	100	

Sources: GDP per capita Madisson's database, ratio 90/10 Bourguignon and Morrisson (2002).

Table A.2
Summary of main variables.

Year	2001	2002	2003	2004	2005	2006	2007	2008	2009
% of people involved in									
Nascent firms	4.32	3.68	4.22	3.15	3.58	3.65	3.72	4.21	3.37
Young firms	2.75	2.97	3.17	2.77	3.21	3.53	3.58	3.63	3.09
Established firms	4.57	5.54	5.75	5.50	6.64	5.98	6.33	7.92	7.05
Closed firms		2.83	2.99	2.32	2.73	2.50	2.61	3.14	2.63
% of people									
Education high school or more	63.26	59.94	72.91	55.87	56.93	66.82	64.75	69.13	71.65
Firm's size by entrepreneurial stage									
Nascent firms		2	7	3	4	3	4	11	11
Young firms		8	6	5	7	6	6	5	7
Established firms	8	13	15	9	11	9	10	10	10
Sector of activity									
Extractive sector	9.15	7.98	8.99	9.93	6.24	8.75	7.23	8.56	9.97
Transforming sector	29.19	28.80	27.36	30.48	26.86	31.74	28.83	28.16	24.12
Business services	21.23	22.00	22.74	21.24	21.42	17.24	21.57	19.07	15.19
Consumer oriented	40.42	41.23	40.91	38.35	45.49	42.26	42.37	44.20	50.71
Medium/high technology intensity	7.78	7.09	7.09	7.07	7.06	4.91	5.61	5.12	3.10
Observations	62,598	115,418	92,228	140,537	110,870	171,465	153,657	133,793	156,825

Table A.3
Number of observations per cohort.

Cohort	Freq.	Percent
<29male	118,663	11.85
>28male	87,396	8.73
>38male	82,135	8.2
>48male	70,088	7.0
>58male	107,228	10.71
<29female	121,738	12.16
>28female	106,129	10.6
>38female	98,491	9.83
>48female	82,431	8.23
>58female	127,159	12.7
Total	1,001,458	100

Table A.4

IV first stage pseudo-panel regression: Impact on firm's life cycle.

	Nascent firms Log (Index CreditProtection)		Young firms Log (Index CreditProtection)		Established firms Log (Index CreditProtection)		Closed firms Log (Index CreditProtection)	
Initial conditions								
Log (Ratio 90/10)	-0.229***	(0.002)	-0.224***	(0.002)	-0.221***	(0.002)	-0.239***	(0.002)
Log (GDPpc1800)	0.284***	(0.001)	0.294***	(0.001)	0.291***	(0.001)	0.284***	(0.002)
Region (reference group: Africa)								
Asia	-0.240***	(0.005)	-0.249***	(0.005)	-0.232***	(0.005)	-0.244***	(0.006)
Western Europe	-0.136***	(0.005)	-0.146***	(0.005)	-0.145***	(0.005)	-0.111***	(0.005)
Latin America	-0.392***	(0.005)	-0.401***	(0.005)	-0.389***	(0.005)	-0.378***	(0.005)
North America	-0.325***	(0.005)	-0.332***	(0.005)	-0.325***	(0.005)	-0.300***	(0.006)
Oceania	0.155***	(0.004)	0.158***	(0.004)	0.163***	(0.004)	0.171***	(0.004)
Eastern Europe	-0.031***	(0.005)	-0.046***	(0.005)	-0.035***	(0.005)	-0.011**	(0.005)
Year (reference: 2001)								
2002	-0.013***	(0.002)	-0.021***	(0.002)	-0.012***	(0.002)	-0.006*	(0.003)
2003	-0.105***	(0.002)	-0.119***	(0.002)	-0.106***	(0.002)	-0.092***	(0.004)
2004	-0.059***	(0.002)	-0.053***	(0.002)	-0.046***	(0.002)	-0.046***	(0.004)
2005	-0.056***	(0.002)	-0.057***	(0.002)	-0.045***	(0.002)	-0.040***	(0.004)
2006	-0.055***	(0.002)	-0.056***	(0.002)	-0.045***	(0.002)	-0.050***	(0.007)
2007	-0.057***	(0.002)	-0.069***	(0.002)	-0.043***	(0.002)	-0.036***	(0.005)
2008	0.036***	(0.002)	0.024***	(0.002)	0.052***	(0.002)	0.063***	(0.004)
2009	-0.036***	(0.002)	-0.039***	(0.003)	-0.033***	(0.003)	0.469***	(0.001)
Individual characteristics								
% of individuals with high school or more (at cohort level)	0.143***	(0.002)	0.159***	(0.002)	0.156***	(0.002)	0.135***	(0.005)
Cohort (Male aged 16-28 reference group)								
Male 29-38	0.003	(0.002)	0.003	(0.002)	0.006***	(0.002)	0.003*	(0.002)
Male 39-48	0.017***	(0.002)	0.020***	(0.002)	0.016***	(0.002)	0.015***	(0.002)
Male 49-58	0.031***	(0.002)	0.040***	(0.002)	0.033***	(0.002)	0.030***	(0.002)
Male 59-64	0.058***	(0.002)	0.059***	(0.002)	0.064***	(0.002)	0.036***	(0.007)
Female 16-28	0.002	(0.002)	0.002	(0.002)	0.001	(0.002)	0.004***	(0.002)
Female 29-38	0.002	(0.002)	0.004**	(0.002)	0.006***	(0.002)	0.001	(0.002)
Female 39-48	0.020***	(0.002)	0.024***	(0.002)	0.017***	(0.002)	0.016***	(0.002)
Female 49-58	0.034***	(0.002)	0.045***	(0.002)	0.037***	(0.002)	0.038***	(0.002)
Female 59-64	0.068***	(0.002)	0.063***	(0.002)	0.077***	(0.002)	0.048***	(0.003)
Legal origin (reference: other legal origin)								
English	0.458***	(0.001)	0.448***	(0.001)	0.454***	(0.001)	0.469***	(0.001)
Constant	0.229***	(0.010)	0.153***	(0.010)	0.143***	(0.010)	0.213***	(0.015)
No. Observations	959,199		942,535		973,873		914,094	
R-squared	0.526		0.535		0.518		0.536	
Shea Partial R2	0.1458		0.1404		0.1441		0.1507	
Partial R2	0.1458		0.1404		0.1441		0.1507	
F statistic test excluded instruments	150,000***		130,000***		140,000***		150,000***	

Notes: Robust standard errors in parentheses. * p<0.1, ** p<0.05, *** p<0.01

Table A.5.1

IV first stage pseudo-panel regression: Impact on job creation in nascent firms.

	Log (IndexCredit Protection)		Asia* Log (IndexCredit Protection)		Western Europe* Log (IndexCredit Protection)		Latin America* Log (IndexCredit Protection)		North America* Log (IndexCredit Protection)		Oceania* Log (IndexCredit Protection)		Eastern Europe* Log (IndexCredit Protection)	
Initial conditions														
Log (Ratio 90/10)	-0.114***	(0.022)	-0.619***	(0.024)	0.206***	(0.027)	-0.101***	(0.016)	-0.192***	(0.017)	0.062***	(0.021)	0.339***	(0.027)
Log (GDPpc1800)	0.107***	(0.012)	-0.059***	(0.018)	1.102***	(0.017)	0.005	(0.006)	0.260***	(0.018)	-1.191***	(0.026)	-0.126***	(0.015)
Individual characteristics														
% of individuals with high school or	0.176***	(0.020)	0.123***	(0.023)	-0.409***	(0.025)	0.180***	(0.020)	0.094***	(0.014)	-0.074***	(0.024)	0.138***	(0.019)
Cohort (Male aged 16-28 reference group)														
Male 29-38	0.017	(0.011)	0.098***	(0.016)	0.100***	(0.017)	-0.011	(0.007)	-0.082***	(0.013)	-0.036**	(0.017)	-0.036***	(0.014)
Male 39-48	-0.004	(0.011)	0.085***	(0.018)	0.093***	(0.020)	-0.043***	(0.009)	-0.050***	(0.014)	-0.025	(0.015)	0.013	(0.020)
Male 49-58	0.045**	(0.018)	0.072***	(0.023)	0.101***	(0.022)	0.044***	(0.011)	-0.083***	(0.014)	0.035	(0.025)	-0.051***	(0.017)
Male 59-64	0.027	(0.026)	0.037	(0.029)	0.054	(0.039)	-0.001	(0.013)	-0.014	(0.016)	-0.021	(0.027)	0.057**	(0.028)
Female 16-28	0.018	(0.017)	-0.025	(0.017)	0.192***	(0.023)	0.082***	(0.010)	-0.087***	(0.013)	-0.004	(0.018)	-0.120***	(0.025)
Female 29-38	0.007	(0.012)	0.146***	(0.018)	0.178***	(0.019)	0.032***	(0.006)	-0.100***	(0.019)	-0.107***	(0.022)	-0.062***	(0.016)
Female 39-48	0.043***	(0.011)	0.040**	(0.020)	0.032	(0.020)	0.050***	(0.011)	-0.051***	(0.013)	0.039*	(0.021)	0.037**	(0.018)
Female 49-58	-0.067***	(0.022)	0.003	(0.040)	-0.034	(0.045)	-0.029***	(0.011)	0.174***	(0.052)	-0.087	(0.053)	-0.026	(0.022)
Female 59-64	0.018	(0.028)	0.166***	(0.047)	0.189***	(0.059)	-0.047**	(0.021)	-0.151***	(0.022)	0.049*	(0.029)	-0.113***	(0.033)
Technology sector (reference: No/ Low technology sector)														
Medium or high	-0.028**	(0.014)	-0.002	(0.016)	-0.002	(0.019)	-0.011	(0.010)	0.016	(0.015)	-0.012	(0.017)	-0.011	(0.017)
Sector (reference: Extractive sector)														
Transforming sector	-0.033**	(0.015)	-0.059***	(0.022)	0.008	(0.024)	-0.010	(0.011)	-0.018	(0.016)	-0.042*	(0.024)	0.066***	(0.019)
Business services	-0.021	(0.015)	-0.031	(0.022)	0.014	(0.025)	-0.014	(0.011)	-0.025	(0.017)	-0.008	(0.024)	0.030	(0.020)
Consumer oriented	-0.028**	(0.014)	-0.028	(0.021)	0.016	(0.023)	-0.009	(0.010)	-0.021	(0.015)	-0.044**	(0.022)	0.043**	(0.018)
Year (reference: 2001)														
2002	-0.042	(0.028)	-0.214***	(0.036)	-0.505***	(0.043)	-0.011	(0.015)	0.132***	(0.020)	-0.264***	(0.032)	0.568***	(0.032)
2003	-0.198***	(0.029)	-0.248***	(0.035)	-0.326***	(0.044)	-0.179***	(0.021)	0.193***	(0.023)	-0.142***	(0.031)	0.404***	(0.032)
2004	0.002	(0.027)	-0.262***	(0.037)	-0.425***	(0.045)	-0.035**	(0.016)	0.087***	(0.018)	-0.060**	(0.027)	0.503***	(0.032)
2005	0.001	(0.027)	-0.357***	(0.035)	-0.312***	(0.043)	-0.039***	(0.015)	0.137***	(0.020)	-0.194***	(0.031)	0.484***	(0.031)
2006	-0.000	(0.027)	-0.220***	(0.038)	-0.434***	(0.050)	-0.053***	(0.016)	0.147***	(0.021)	-0.161***	(0.031)	0.572***	(0.038)
2007	-0.004	(0.028)	-0.104***	(0.033)	-0.218***	(0.042)	0.029*	(0.015)	0.076***	(0.018)	-0.119***	(0.030)	0.386***	(0.035)
2008	0.311***	(0.030)	-0.235***	(0.036)	-0.085*	(0.044)	0.206***	(0.020)	0.203***	(0.022)	-0.240***	(0.029)	0.511***	(0.037)
Legal origin (reference: English)														
French	-0.673***	(0.012)	-0.030	(0.020)	0.302***	(0.021)	0.009	(0.010)	-0.247***	(0.018)	-0.515***	(0.022)	0.078***	(0.015)
Socialist/Communis	-0.322***	(0.023)	-0.009	(0.024)	-0.955***	(0.025)	0.010	(0.008)	-0.139***	(0.015)	-0.004	(0.023)	1.311***	(0.032)
German	-0.267***	(0.016)	0.422***	(0.036)	0.412***	(0.031)	-0.043***	(0.010)	-0.213***	(0.017)	-0.644***	(0.022)	-0.100***	(0.019)
Scandinavian	-0.569***	(0.012)	-0.103***	(0.020)	0.731***	(0.021)	-0.021**	(0.009)	-0.137***	(0.013)	-0.760***	(0.021)	-0.094***	(0.015)
Colonial origin (reference: other colonial origins or never colonized by a western oversea)														
Spain	-0.041***	(0.011)	-0.663***	(0.015)	-0.684***	(0.017)	1.351***	(0.013)	0.138***	(0.012)	-0.150***	(0.012)	0.030**	
Blood pressure	-0.017***	(0.002)	-0.051***	(0.003)	0.057***	(0.003)	-0.016***	(0.001)	-0.038***	(0.002)	-0.055***	(0.002)	0.027***	(0.001)
Colestherol	0.425***	(0.030)	-1.094***	(0.036)	0.315***	(0.029)	0.178***	(0.017)	-0.015	(0.014)	1.743***	(0.036)	0.321***	(0.025)
Constant	1.568***	(0.171)	14.398***	(0.266)	-15.835***	(0.289)	1.253***	(0.115)	3.710***	(0.251)	7.206***	(0.313)	-5.585***	(0.203)
No. Observations	6,952		6,952		6,952		6,952		6,952		6,952		6,952	
R-squared	0.722		0.799		0.893		0.914		0.301		0.646		0.772	
Partial R2 of excluded	0.63		0.7021		0.7708		0.8788		0.2216		0.5490		0.7344	
Shea R2	0.1942		0.1268		0.2161		0.1522		0.1107		0.2703		0.2599	
F statistic test excluded	1117.91***		1474.49***		1931.21***		7744.93***		35.89***		262.46***		361.21***	

Notes: Robust standard errors in parentheses. * p<0.1, ** p<0.05, *** p<0.01

Table A.5.2
IV first stage pseudo-panel regression: Impact on job creation in young firms

	Log (IndexCredit Protection)		Asia* Log (IndexCredit Protection)		Western Europe* Log (IndexCredit Protection)		Latin America* Log (IndexCredit Protection)		North America* Log (IndexCredit Protection)		Oceania* Log (IndexCredit Protection)		Eastern Europe* Log (IndexCredit Protection)	
Initial conditions														
Log (Ratio 90/10)	-0.028**	(0.012)	-0.559***	(0.014)	0.119***	(0.019)	0.172***	(0.010)	0.038***	(0.010)	-0.215***	(0.011)	0.398***	(0.017)
Log (GDPpc1800)	0.193***	(0.008)	-0.211***	(0.011)	0.956***	(0.012)	-0.139***	(0.005)	0.329***	(0.012)	-0.677***	(0.020)	-0.208***	(0.007)
Individual characteristics														
% of individuals with high school or more (at cohort level)	0.145***	(0.012)	0.065***	(0.015)	-0.337***	(0.017)	-0.009	(0.012)	0.201***	(0.013)	-0.015	(0.017)	0.163***	(0.012)
Cohort (Male aged 16-28 reference group)														
Male 29-38	0.012	(0.008)	0.001	(0.011)	-0.002	(0.013)	0.002	(0.007)	-0.006	(0.010)	0.012	(0.012)	0.001	(0.009)
Male 39-48	0.017*	(0.009)	-0.039***	(0.013)	0.002	(0.014)	0.010	(0.008)	0.014	(0.013)	0.019	(0.015)	0.005	(0.011)
Male 49-58	0.042***	(0.011)	-0.049***	(0.017)	0.040**	(0.020)	-0.020**	(0.009)	-0.005	(0.016)	0.061***	(0.018)	-0.002	(0.014)
Male 59-64	0.037	(0.031)	-0.089***	(0.022)	-0.122***	(0.037)	0.026	(0.026)	0.120***	(0.040)	0.064	(0.045)	0.085***	(0.030)
Female 16-28	-0.001	(0.009)	-0.026*	(0.014)	-0.008	(0.016)	0.012	(0.008)	0.015	(0.014)	0.012	(0.018)	-0.005	(0.010)
Female 29-38	0.023***	(0.008)	-0.037***	(0.011)	0.030**	(0.014)	0.026***	(0.008)	0.007	(0.012)	0.022	(0.014)	-0.029***	(0.011)
Female 39-48	0.042***	(0.032)	-0.028**	(0.023)	-0.021	(0.042)	0.025**	(0.036)	0.029*	(0.038)	0.040**	(0.045)	0.009	(0.030)
Female 49-58	0.033	(0.028)	-0.056***	(0.020)	-0.080***	(0.027)	-0.035**	(0.016)	0.079***	(0.021)	0.024	(0.019)	0.044	(0.028)
Female 59-64	0.041	(0.032)	-0.143***	(0.024)	-0.108***	(0.041)	0.044	(0.035)	0.178***	(0.041)	0.063	(0.044)	0.064**	(0.030)
Technology sector (reference: No/ Low technology sector)														
Medium or high	-0.017*	(0.010)	0.019	(0.013)	0.041**	(0.017)	-0.010	(0.009)	-0.019	(0.015)	0.002	(0.016)	-0.042***	(0.012)
Sector (reference: Extractive sector)														
Transforming sector	-0.030***	(0.011)	0.001	(0.013)	-0.007	(0.016)	0.040***	(0.008)	-0.007	(0.013)	-0.044***	(0.016)	-0.032**	(0.013)
Business services	-0.030***	(0.011)	-0.009	(0.014)	-0.066***	(0.017)	0.013*	(0.008)	0.036**	(0.015)	-0.005	(0.018)	-0.020	(0.013)
Consumer oriented	-0.043***	(0.011)	0.049***	(0.013)	0.011	(0.016)	0.024***	(0.008)	-0.016	(0.012)	-0.086***	(0.016)	-0.037***	(0.012)
Year (reference: 2001)														
2002	-0.104***	(0.032)	-0.110***	(0.024)	-0.378***	(0.039)	0.022	(0.028)	0.251***	(0.045)	0.057	(0.046)	0.069**	(0.030)
2003	-0.197***	(0.032)	-0.072***	(0.024)	-0.139***	(0.040)	-0.131***	(0.035)	0.130***	(0.042)	0.118***	(0.045)	-0.018	(0.029)
2004	-0.054*	(0.032)	-0.101***	(0.023)	-0.309***	(0.039)	0.027	(0.028)	0.086**	(0.039)	0.151***	(0.045)	0.124***	(0.029)
2005	-0.090***	(0.032)	-0.136***	(0.024)	-0.092**	(0.039)	-0.054*	(0.029)	0.089**	(0.040)	0.084*	(0.045)	0.051*	(0.029)
2006	0.012	(0.031)	0.018	(0.023)	-0.181***	(0.039)	-0.031	(0.029)	0.103**	(0.041)	-0.009	(0.044)	0.190***	(0.031)
2007	-0.050	(0.032)	0.081***	(0.024)	-0.010	(0.039)	0.009	(0.030)	-0.042	(0.041)	-0.053	(0.045)	0.073**	(0.030)
2008	0.094***	(0.033)	-0.210***	(0.023)	-0.125***	(0.039)	0.004	(0.029)	0.153***	(0.040)	0.017	(0.043)	0.245***	(0.032)
Legal origin (reference: English)														
French	-0.584***	(0.008)	-0.234***	(0.012)	0.367***	(0.013)	0.205***	(0.006)	-0.342***	(0.011)	-0.417***	(0.015)	0.071***	(0.007)
Socialist/Communist	-0.297***	(0.016)	0.090***	(0.014)	-0.689***	(0.020)	0.057***	(0.007)	-0.253***	(0.012)	-0.160***	(0.011)	1.236***	(0.018)
German	-0.196***	(0.010)	0.356***	(0.022)	0.409***	(0.020)	0.068***	(0.006)	-0.389***	(0.014)	-0.577***	(0.018)	0.090***	(0.010)
Scandinavian	-0.316***	(0.010)	-0.099***	(0.013)	1.005***	(0.016)	-0.008	(0.006)	-0.214***	(0.011)	-0.848***	(0.025)	-0.139***	(0.010)
Colonial origin (reference: other colonial origins or never colonized by a western oversea)														
Spain	-0.028***	(0.008)	-0.425***	(0.008)	-0.541***	(0.010)	1.059***	(0.012)	0.122***	(0.007)	-0.099***	(0.006)	0.004	(0.006)
Blood pressure	-0.012***	(0.001)	-0.049***	(0.001)	0.058***	(0.002)	-0.009***	(0.001)	-0.060***	(0.002)	-0.011***	(0.001)	0.020***	(0.001)
Colestherol	0.436***	(0.019)	-0.702***	(0.019)	0.500***	(0.019)	0.184***	(0.012)	-0.060***	(0.012)	0.873***	(0.026)	0.477***	(0.015)
Constant	0.089	(0.104)	13.001***	(0.160)	-15.860***	(0.189)	0.761***	(0.078)	5.837***	(0.172)	2.515***	(0.177)	-4.628***	(0.127)
No. Observations	22,119		22,119		22,119		22,119		22,119		22,119		22,119	
R2	0.654		0.675		0.828		0.700		0.417		0.447		0.776	
Partial R2 of excluded instru	0.4664		0.5409		0.6715		0.6359		0.3438		0.3585		0.7125	
Shea R2	0.1596		0.1368		0.2216		0.2294		0.1577		0.1835		0.3205	
F statistic test excluded instruments	1654.21***		2501.37***		4193.59***		6516.38***		240.8***		193.72***		1118.16***	

Notes: Robust standard errors in parentheses. * p<0.1, ** p<0.05, *** p<0.01

Table A.5.3
IV first stage pseudo-panel regression: Impact on job creation in established firms.

	Log (IndexCredit Protection)		Asia* Log (IndexCredit Protection)		Western Europe* Log (IndexCredit Protection)		Latin America* Log (IndexCredit Protection)		North America* Log (IndexCredit Protection)		Oceania* Log (IndexCredit Protection)		Eastern Europe* Log (IndexCredit Protection)	
Initial conditions														
Log (Ratio 90/10)	-0.030***	(0.007)	-0.487***	(0.010)	0.096***	(0.012)	0.140***	(0.006)	0.045***	(0.007)	-0.161***	(0.007)	0.287***	(0.011)
Log (GDPpc1800)	0.184***	(0.005)	-0.165***	(0.007)	0.940***	(0.009)	-0.121***	(0.004)	0.305***	(0.008)	-0.697***	(0.012)	-0.193***	(0.006)
Individual characteristics														
% of individuals with high school or more (at cohort level)	0.105***	(0.008)	0.094***	(0.010)	-0.414***	(0.011)	-0.058***	(0.007)	0.254***	(0.009)	-0.078***	(0.011)	0.217***	(0.008)
Cohort (Male aged 16-28 reference group)														
Male 29-38	0.009	(0.007)	-0.010	(0.010)	0.003	(0.012)	0.004	(0.006)	0.005	(0.010)	0.014	(0.010)	-0.009	(0.008)
Male 39-48	0.016**	(0.007)	0.001	(0.010)	-0.021*	(0.012)	0.007	(0.006)	0.017*	(0.010)	0.009	(0.010)	0.008	(0.008)
Male 49-58	0.025***	(0.007)	0.007	(0.011)	-0.053***	(0.012)	-0.009	(0.006)	0.028***	(0.010)	0.013	(0.010)	0.030***	(0.008)
Male 59-64	0.017*	(0.010)	0.026*	(0.016)	-0.155***	(0.017)	-0.020**	(0.008)	0.055***	(0.014)	0.059***	(0.015)	0.067***	(0.010)
Female 16-28	0.009	(0.009)	-0.013	(0.013)	0.017	(0.017)	0.009	(0.008)	0.016	(0.013)	0.017	(0.015)	-0.021*	(0.012)
Female 29-38	0.006	(0.008)	-0.026**	(0.011)	0.014	(0.013)	0.006	(0.007)	0.016	(0.011)	0.020*	(0.011)	-0.013	(0.009)
Female 39-48	0.013	(0.008)	-0.030***	(0.010)	-0.025*	(0.013)	-0.005	(0.007)	0.058***	(0.011)	0.023**	(0.011)	-0.004	(0.009)
Female 49-58	0.015	(0.011)	-0.023*	(0.012)	-0.063***	(0.015)	-0.010	(0.008)	0.068***	(0.012)	0.021*	(0.012)	0.013	(0.013)
Female 59-64	0.026**	(0.011)	0.011	(0.017)	-0.186***	(0.019)	-0.018*	(0.009)	0.083***	(0.015)	0.096***	(0.016)	0.048***	(0.011)
Technology sector (reference: No/ Low technology sector)														
Medium or high	-0.018**	(0.007)	-0.007	(0.012)	0.046***	(0.013)	-0.021***	(0.006)	-0.016	(0.011)	-0.005	(0.011)	-0.003	(0.009)
Sector (reference: Extractive sector)														
Transforming sector	-0.045***	(0.005)	0.003	(0.007)	-0.063***	(0.009)	0.028***	(0.004)	0.002	(0.007)	-0.048***	(0.008)	0.011*	(0.006)
Business services	-0.052***	(0.006)	-0.027***	(0.008)	-0.115***	(0.010)	0.015***	(0.004)	0.042***	(0.008)	-0.012	(0.009)	0.021***	(0.007)
Consumer oriented	-0.059***	(0.005)	0.031***	(0.007)	-0.033***	(0.008)	0.006	(0.004)	-0.006	(0.007)	-0.088***	(0.008)	0.017***	(0.006)
Year (reference: 2001)														
2002	-0.070***	(0.008)	-0.136***	(0.009)	0.047***	(0.013)	-0.004	(0.005)	0.010	(0.015)	0.053***	(0.013)	-0.078***	(0.009)
2003	-0.138***	(0.009)	-0.107***	(0.010)	0.290***	(0.015)	-0.130***	(0.010)	-0.106***	(0.014)	0.134***	(0.014)	-0.200***	(0.011)
2004	-0.041***	(0.007)	-0.126***	(0.009)	0.050***	(0.012)	-0.002	(0.006)	-0.099***	(0.012)	0.124***	(0.013)	-0.011	(0.008)
2005	-0.064***	(0.008)	-0.182***	(0.010)	0.296***	(0.013)	-0.083***	(0.007)	-0.110***	(0.012)	0.086***	(0.013)	-0.096***	(0.008)
2006	0.021***	(0.007)	-0.027***	(0.010)	0.104***	(0.012)	-0.024***	(0.005)	-0.091***	(0.013)	0.019	(0.012)	0.038***	(0.010)
2007	-0.012	(0.009)	-0.001	(0.011)	0.339***	(0.013)	-0.009	(0.007)	-0.208***	(0.012)	-0.014	(0.012)	-0.077***	(0.008)
2008	0.134***	(0.008)	-0.238***	(0.011)	0.268***	(0.013)	0.011**	(0.006)	-0.059***	(0.013)	0.017	(0.010)	0.071***	(0.009)
2009	0.060***	(0.010)	-0.171***	(0.014)	0.462***	(0.017)	0.029***	(0.008)	-0.120***	(0.015)	0.001	(0.014)	-0.148***	(0.010)
Legal origin (reference: English)														
French	-0.629***	(0.005)	-0.210***	(0.009)	0.277***	(0.009)	0.165***	(0.003)	-0.329***	(0.008)	-0.413***	(0.009)	0.051***	(0.004)
Socialist/Communist	-0.298***	(0.011)	0.014	(0.012)	-0.859***	(0.014)	0.045***	(0.005)	-0.231***	(0.008)	-0.166***	(0.008)	1.328***	(0.013)
German	-0.194***	(0.006)	0.563***	(0.014)	0.202***	(0.013)	0.053***	(0.003)	-0.375***	(0.009)	-0.565***	(0.011)	0.050***	(0.006)
Scandinavian	-0.283***	(0.005)	-0.060***	(0.008)	0.966***	(0.010)	0.006*	(0.003)	-0.202***	(0.007)	-0.798***	(0.014)	-0.140***	(0.006)
Colonial origin (reference: other colonial origins or never colonized by a western oversea)														
Spain	-0.009	(0.007)	-0.477***	(0.006)	-0.557***	(0.007)	1.098***	(0.009)	0.096***	(0.005)	-0.098***	(0.004)	0.030***	(0.003)
Blood pressure	-0.015***	(0.001)	-0.048***	(0.001)	0.056***	(0.001)	-0.007***	(0.001)	-0.052***	(0.001)	-0.014***	(0.001)	0.022***	(0.001)
Colestherol	0.417***	(0.013)	-0.859***	(0.016)	0.451***	(0.014)	0.157***	(0.008)	-0.051***	(0.009)	0.944***	(0.018)	0.403***	(0.012)
Constant	0.650***	(0.071)	13.199***	(0.103)	-15.395***	(0.126)	0.725***	(0.057)	5.085***	(0.111)	2.690***	(0.103)	-4.236***	(0.099)
No. Observations	53,067		53,067		53,067		53,067		53,067		53,067		53,067	
R2	0.645		0.685		0.817		0.713		0.387		0.463		0.815	
Partial R2 of excluded instruments	0.5023		0.5688		0.6787		0.6563		0.3249		0.3823		0.7674	
Shea R2	0.1616		0.1533		0.1763		0.2154		0.1406		0.1959		0.2178	
F statistic test excluded instruments	4580.40***		4786.64***		11390.30***		12558.59***		441.32***		511.07***		4015.29***	

Notes: Robust standard errors in parentheses. * p<0.1, ** p<0.05, *** p<0.01

Table A.6
IV second stage pseudo-panel regression: Impact on firm's life cycle excluding self-employed.

	(1) Nascent IV		(2) Young IV		(3) Established IV		(4) Closed IV	
Initial conditions								
Log (Ratio 90/10)	-0.175***	(0.005)	-0.151***	(0.005)	-0.091***	(0.004)	-0.176***	(0.011)
Log (GDPpc1800)	-0.747***	(0.006)	-0.746***	(0.007)	-0.498***	(0.006)	-0.681***	(0.009)
Institutional environment								
Log (IndexCreditProtection)	1.066***	(0.011)	0.829***	(0.012)	0.224***	(0.011)	0.734***	(0.011)
Region (reference group: Africa)								
Asia	0.197***	(0.011)	1.141***	(0.012)	1.616***	(0.010)	0.749***	(0.021)
Western Europe	0.163***	(0.010)	0.722***	(0.011)	1.323***	(0.010)	-0.002	(0.011)
Latin America	1.497***	(0.012)	1.623***	(0.012)	1.474***	(0.011)	1.348***	(0.012)
North America	0.859***	(0.010)	0.998***	(0.011)	1.440***	(0.010)	0.429***	(0.016)
Oceania	0.119***	(0.010)	0.537***	(0.010)	1.384***	(0.009)	-0.212***	(0.010)
Eastern Europe	0.292***	(0.011)	0.515***	(0.011)	0.879***	(0.010)	0.013	(0.013)
Individual characteristics								
% of individuals with high school or more (at cohort level)	-0.095***	(0.006)	-0.319***	(0.006)	-0.307***	(0.005)	-0.126***	(0.027)
Cohort (Male aged 16-28 reference group)								
Male 29-38	0.151***	(0.004)	0.199***	(0.004)	1.142***	(0.004)	0.317***	(0.004)
Male 39-48	-0.082***	(0.004)	-0.094***	(0.004)	1.354***	(0.004)	0.288***	(0.004)
Male 49-58	-0.551***	(0.005)	-0.477***	(0.005)	1.234***	(0.005)	0.248***	(0.006)
Male 59-64	-1.440***	(0.007)	-1.414***	(0.007)	0.451***	(0.005)	0.095**	(0.038)
Female 16-28	-0.621***	(0.004)	-0.623***	(0.004)	-0.637***	(0.004)	-0.392***	(0.004)
Female 29-38	-0.477***	(0.004)	-0.339***	(0.004)	0.367***	(0.004)	-0.122***	(0.004)
Female 39-48	-0.679***	(0.004)	-0.682***	(0.004)	0.594***	(0.004)	-0.190***	(0.005)
Female 49-58	-1.148***	(0.005)	-1.157***	(0.005)	0.368***	(0.005)	-0.383***	(0.007)
Female 59-64	-2.181***	(0.009)	-2.116***	(0.009)	-0.333***	(0.005)	-0.551***	(0.013)
Year (reference: 2001)								
2002	-0.214***	(0.005)	-0.092***	(0.005)	0.106***	(0.005)	-0.312***	(0.016)
2003	0.008	(0.006)	0.129***	(0.006)	0.257***	(0.005)	-0.085***	(0.021)
2004	-0.466***	(0.006)	-0.115***	(0.005)	0.250***	(0.005)	-0.212***	(0.018)
2005	-0.157***	(0.005)	-0.033***	(0.005)	0.352***	(0.005)	-0.290***	(0.019)
2006	-0.112***	(0.005)	0.106***	(0.006)	0.415***	(0.005)	-0.211***	(0.036)
2007	-0.112***	(0.005)	0.055***	(0.005)	0.436***	(0.005)	-0.215***	(0.023)
2008	-0.123***	(0.005)	0.114***	(0.005)	0.688***	(0.005)	-0.095***	(0.022)
2009	1.127***	(0.007)	1.378***	(0.008)	1.106***	(0.005)		
Constant	0.571***	(0.029)	0.252***	(0.029)	-1.651***	(0.027)	0.152**	(0.069)
No. Observations	929,305		913,781		937,281		889,726	
R-squared	0.497		0.506		0.594		0.464	
F-test	30162.72***		30154.75***		29253.65***		27052.57***	
K-P rk F statistic (weak identification test)	140,000***		130,000***		120,000***		150,000***	
Endogeneity test	5636.82***		3675.33***		779.85***		2451.33***	

Notes: Robust standard errors in parentheses. * p<0.1, ** p<0.05, *** p<0.01

Table A.7

IV second stage pseudo-panel regression: Impact on job creation excluding self-employed.

	Nascent		Young		Established	
	IV		IV		IV	
Initial conditions						
Log (Ratio 90/10)	0.511***	(0.130)	-0.532***	(0.072)	-0.341***	(0.021)
Log (GDPpc1800)	-1.270***	(0.157)	0.076	(0.066)	-0.039**	(0.019)
Institutional environment						
Log(IndexCreditProtection) Total effect [1]	6.252***	(0.606)	1.984***	(0.284)	1.883***	(0.143)
*Ommited: Log(IndexCreditProtection)*Africa*						
Log(IndexCreditProtection)	0.158	(0.175)	0.318***	(0.080)	0.314***	(0.039)
Log(IndexCreditProtection)*Asia	1.278***	(0.165)	0.396***	(0.094)	0.127***	(0.033)
Log(IndexCreditProtection)*Western Europe	1.142***	(0.107)	0.163***	(0.059)	0.306***	(0.031)
Log(IndexCreditProtection)*Latin America	1.258***	(0.151)	0.333***	(0.070)	0.192***	(0.027)
Log(IndexCreditProtection)*North America	0.888**	(0.430)	0.248***	(0.093)	0.275***	(0.045)
Log(IndexCreditProtection)*Oceania	0.099	(0.125)	-0.063	(0.084)	0.198***	(0.032)
Log(IndexCreditProtection)*Eastern Europe	1.430***	(0.164)	0.589***	(0.055)	0.472***	(0.030)
Individual characteristics						
% of individuals with high school or more (at cohort level)	-0.327**	(0.134)	-0.109*	(0.056)	-0.110***	(0.016)
Male 29-38	0.457***	(0.089)	0.024	(0.040)	0.128***	(0.012)
Male 39-48	0.257**	(0.125)	-0.400***	(0.058)	0.011	(0.016)
Male 49-58	0.178	(0.228)	-0.155	(0.101)	-0.149***	(0.031)
Male 59-64	-0.280**	(0.116)	-0.467***	(0.039)	-0.301***	(0.016)
Female 16-28	-0.490***	(0.083)	-0.270***	(0.032)	-0.332***	(0.012)
Female 29-38	-0.614***	(0.080)	-0.466***	(0.043)	-0.300***	(0.015)
Female 39-48	-0.034	(0.280)	-0.654***	(0.056)	-0.465***	(0.018)
Female 49-58	-0.028	(0.380)	-0.752***	(0.106)	-0.450***	(0.031)
Female 59-64						
Technology sector (reference: No/ Low technology sector)						
Medium or high	-0.001	(0.070)	0.053	(0.037)	0.014	(0.014)
Sector (reference: Extractive sector)						
Transforming sector	0.055	(0.100)	0.082*	(0.045)	0.037***	(0.013)
Business services	0.227**	(0.106)	0.071	(0.047)	0.048***	(0.014)
Consumer oriented	0.138	(0.098)	0.041	(0.044)	0.002	(0.012)
Year (reference: 2001)						
2002	-0.529*	(0.306)	-0.358***	(0.109)	0.085***	(0.019)
2003	0.418	(0.326)	-0.214**	(0.102)	0.292***	(0.020)
2004	0.343	(0.300)	-0.605***	(0.102)	0.035**	(0.018)
2005	0.067	(0.317)	-0.298***	(0.105)	0.128***	(0.018)
2006	-0.175	(0.329)	-0.411***	(0.105)	0.260***	(0.018)
2007	-0.250	(0.274)	-0.205**	(0.104)	0.266***	(0.018)
2008	-0.836***	(0.312)	-0.403***	(0.106)	0.121***	(0.018)
2009					0.440***	(0.031)
Constant	7.128***	(1.277)	1.694***	(0.573)	1.841***	(0.155)
No. Observations	5,432		19,691		85,057	
R-squared	0.63		0.78		0.89	
F test	587.4***		1581.86***		5222.46***	
K-P Wald rk F statistic (weak identification test)	18.08***		92.39***		563.33***	
Endogeneity test	24.02***		44.04***		420.48***	

Notes: Robust standard errors in parentheses. * p<0.1, ** p<0.05, *** p<0.01

Table A.8
IV second stage pseudo-panel regression: Impact on firm's life cycle using alternative historical inequality indicators.

	(1) Nascent IV	(2) Young IV	(3) Established IV	(4) Closed IV
Initial conditions				
Log (Gini)	-0.495***	0.036***	-0.401***	-0.237***
	(0.017)	(0.016)	(0.015)	(0.085)
Log (Top90)	-0.678***	-0.941***	-0.385***	-0.870***
	(0.010)	(0.010)	(0.009)	(0.019)
Log (Middle 50)	0.686***	0.358***	1.169***	1.052***
	(0.025)	(0.025)	(0.022)	(0.097)
Log (Bottom 10)	0.052***	0.014***	-0.008***	-0.012
	(0.004)	(0.004)	(0.004)	(0.008)
Log (Top20/Bottom20)	-0.083***	-0.018***	-0.061***	-0.033***
	(0.003)	(0.003)	(0.003)	(0.008)
Log(Middle)	1.830***	0.699***	1.746***	1.116***
	(0.034)	(0.035)	(0.031)	(0.153)
No. Observations	959,199	942,535	973,873	914,094

Notes: Robust standard errors in parentheses. * p<0.1, ** p<0.05, *** p<0.01
Top90 is the income share of the 9th decile relative to the income share of the 1st decile
Middle 50 is the income share of the 5th decile relative to the mean income
Bottom 10 is the income share of the 1st decile relative to the mean income
Top20/Bottom20 is the income share of the 8th decile relative to the 2nd decile
Middle is the income share of the middle class, defined as the income share of the 2nd to 4th quintiles-

Table A.9
IV second stage pseudo-panel regression: Impact on job creation using alternative historical inequality indicators.

	(1) Nascent IV	(2) Young IV	(3) Established IV
Initial conditions			
Log (Gini)	-1.385***	-1.402***	-0.989***
	(0.322)	(0.165)	(0.069)
Log (Top90)	3.441***	0.731***	0.703***
	(0.228)	(0.136)	(0.042)
Log (Middle 50)	-3.288***	2.688***	1.956***
	(0.601)	(0.267)	(0.136)
Log (Bottom 10)	0.382***	0.383***	0.321***
	(0.097)	(0.040)	(0.017)
Log (Top20/Bottom20)	0.105	-0.310***	-0.211***
	(0.082)	(0.039)	(0.016)
Log(Middle)	2.059***	2.687***	1.955***
	(0.001)	(0.267)	(0.135)
No. Observations	6,952	22,119	53,067

Notes: Robust standard errors in parentheses. * p<0.1, ** p<0.05, *** p<0.01
Top90 is the income share of the 9th decile relative to the income share of the 1st decile
Middle 50 is the income share of the 5th decile relative to the mean income
Bottom 10 is the income share of the 1st decile relative to the mean income
Top20/Bottom20 is the income share of the 8th decile relative to the 2nd decile
Middle is the income share of the middle class, defined as the income share of the 2nd to 4th quintiles

Table A.10
IV second stage pseudo-panel regression: Firm's life cycle using alternative instrumental variables.

	(1) Nascent IV	(2) Young IV	(3) Established IV	(4) Closed IV
Panel a) IV: Language				
Key independent variables				
Log (Ratio 90/10)	-0.258***	-0.292***	-0.263***	-0.178***
Log (IndexCreditProtection)	2.028***	2.334 ***	2.486***	0.676***
First stage summary results				
K-P Wald rk F statistic (weak identification test)	905.36***	971.81***	980.37***	582.48***
Endogeneity test	1072.696***	1412.251***	1965.14***	15.701***
Shea partial R2	0.0041	0.0045	0.0043	0.0057
Partial R2	0.0041	0.0045	0.0043	0.0057
Panel b) IV: Religion				
Key independent variables				
Log (Ratio 90/10)	-0.072***	-0.871***	-0.0797***	-0.135***
Log (IndexCreditProtection)	0.684***	0.871***	0.164***	0.0218***
First stage summary results				
K-P Wald rk F statistic (weak identification test)	8005.066***	8019.8***	7955***	4872.42***
Endogeneity test	1952.341***	1233.588***	143.8***	27.58***
Shea partial R2	0.0257	0.0268	0.0254	0.0246
Partial R2	0.0257	0.0268	0.0254	0.0246

Notes: Robust standard errors in parentheses. * p<0.1, ** p<0.05, *** p<0.01

Table A.11
IV second stage pseudo-panel regression: Impact on job creation using alternative instrumental variables.

	(1) Nascent IV	(2) Young IV	(3) Established IV
IV Language			
Log (Ratio 90/10)	-12.07	-11.9	-1.32***
Log (IndexCreditProtection)	1.88	5.92	2.45***
IV Religion			
Log (Ratio 90/10)	-0.160	-2.13***	-1.25***
Log (IndexCreditProtection)	4.8***	2.61***	2.43***

Notes: Robust standard errors in parentheses. * p<0.1, ** p<0.05, *** p<0.01

Table A.12
Summary results of using language as instrumental variable to assess impact on job creation.

IV- Language	Log (IndexCredit Protection)	Asia* Log (IndexCredit Protection)	Western Europe* Log (IndexCredit Protection)	Latin America* Log (IndexCredit Protection)	North America* Log (IndexCredit Protection)	Oceania* Log (IndexCredit Protection)	Eastern Europe* Log (IndexCredit Protection)
Nascent firms							
Shea partial R2	0.0001	0.0027	0.0012	0.0001	0.0005	0.0003	0.0004
Partial R2	0.6535	0.5708	0.7054	0.443	0.2106	0.5451	0.7644
F test excluded instruments	1259.43	782.57	1524.8	581.64	34.86	250.78	411.78
p-value	0.000	0.000	0.000	0.000	0.000	0.000	0.000
K-P Wald rk F statistic (weak identification test)	0.013						
Endogeneity test	47.05***						
Young firms							
Shea partial R2	0.0002	0.0009	0.0014	0.0009	0.0633	0.0004	0.0532
Partial R2	0.486	0.4802	0.631	0.3229	0.3374	0.3564	0.7437
F test excluded instruments	1547.47	2268.34	3513.56	907.55	236.86	206.85	1241.32
p-value	0.000	0.000	0.000	0.000	0.000	0.000	0.000
K-P Wald rk F statistic (weak identification test)	0.12						
Endogeneity test	89.67***						
Established firms							
Shea partial R2	0.0036	0.0199	0.0265	0.0179	0.0653	0.0092	0.1675
Partial R2	0.515	0.5096	0.6474	0.2788	0.3206	0.3804	0.7856
F test excluded instruments	4321.54	4282.36	8815.39	1401.52	444.34	524.48	4546.76
p-value	0.000	0.000	0.000	0.000	0.000	0.000	0.000
K-P Wald rk F statistic (weak identification test)	5.607						
Endogeneity test	226.05***						

Notes: Robust standard errors in parentheses. * p<0.1, ** p<0.05, *** p<0.01

Table A.13
Summary results of using religion as instrumental variable to assess impact on job creation.

	Log (Index Credit Protection)	Asia* Log (Index Credit Protection)	Western Europe* Log (Index Credit Protection)	Latin America* Log (Index Credit Protection)	North America* Log (Index Credit Protection)	Oceania* Log (Index Credit Protection)	Eastern Europe* Log (Index Credit Protection)
Nascent firms							
Shea partial R2	0.0226	0.2565	0.5256	0.0806	0.0501	0.0509	0.2264
Partial R2	0.6616	0.6466	0.707	0.3622	0.2272	0.7039	0.7465
F test excluded instruments	1356.44	1634.28	1501.46	402.36	36.8	524.48	386.8
p-value	0.000	0.000	0.000	0.000	0.000	0.000	0.000
K-P Wald rk F statistic (weak identification test)	8.39						
Endogeneity test	112.553***						
Young firms							
Shea partial R2	0.0056	0.0488	0.0636	0.0199	0.1554	0.0131	0.2274
Partial R2	0.4981	0.5336	0.6312	0.2493	0.3696	0.4997	0.7233
F test excluded instruments	2032.3	2670.9	3471.06	869.56	264.88	370.33	1047.77
p-value	0.000	0.000	0.000	0.000	0.000	0.000	0.000
K-P Wald rk F statistic (weak identification test)	5.88						
Endogeneity test	68.16***						
Established firms							
Shea partial R2	0.0041	0.037	0.0452	0.0116	0.0906	0.0113	0.2621
Partial R2	0.5256	0.5571	0.6396	0.2281	0.3493	0.5185	0.777
F test excluded instruments	4597.68	4558.24	9061.98	1668.55	489.86	932.3	4128.77
p-value	0.000	0.000	0.000	0.000	0.000	0.000	0.000
K-P Wald rk F statistic (weak identification test)	7.52						
Endogeneity test	189.66***						

Notes: Robust standard errors in parentheses. * p<0.1, ** p<0.05, *** p<0.01

Últims documents de treball publicats

NUM	TÍTOL	AUTOR	DATA
14.10	The good, the bad and the ugly: The socio-economic impact of drug cartels and their violence in Mexico	Roxana Gutiérrez Romero, Mónica Oviedo León	Octubre 2014
14.09	Estimating the impact of Mexican drug cartels on crime	Roxana Gutiérrez Romero, Alessandra Conte	Setembre 2014
14.05	Real unit labour costs in Eurozone countries: Drivers and clusters	Javier Ordóñez, Hector Sala, José I. Silva	Juny 2014
14.04	The determinants of capital intensity in Japan and the U.S.	Dario Judzik, Hector Sala	Maig 2014
14.03	EFFECTS OF INSTITUTIONAL ENVIRONMENT AND TECHNOLOGY DEVELOPMENT ON PAYMENT CHOICE	Francisco J. Callado-Muñoz, Jana Hromcová, Natalia Utrero-González	Maig 2014
14.02	The causal factors of international inequality in CO2 emissions per capita: A regression-based inequality decomposition analysis.	Juan Antonio Duro, Jordi Teixidó-Figuerasa, Emilio Padilla	Abril 2014
14.01	Energy Intensity in Road Freight Transport of Heavy Goods Vehicles in Spain	Lidia Andres Delgado, Emilio Padilla	Abril 2014
13.06	The materiality of the immaterial. Services sectors and CO2 emissions in Uruguay	Matías Piaggio, Vicent Alcántara, Emilio Padilla	Setembre 2013
13.05	Empirics of the international inequality in CO2 emissions intensity: explanatory factors according to complementary decomposition methodologies	Juan Antonio Duro, Jordi Teixidó-Figueras, Emilio Padilla	Juny 2013
13.04	Empirical Welfare Analysis: When Preferences Matter	Jean-François Carpantier, Christelle Sapata	Juny 2013
13.03	How effective are policies to reduce gasoline consumption? Evaluating a quasi-natural experiment in Spain	Javier Asensio, Andrés Gómez-Lobo, Anna Matas	Febrer 2013
13.02	Performance in Post-compulsory Education: Evidence from Vocational and Academic Tracks	Cristina Lopez-Mayan	Febrer 2013
13.01	The Impacts of Social Networks on Immigrants' Employment Prospects: The Spanish Case 1997-2007	Luciana Méndez Errico	Gener 2013
12.12	Tax Incentives and Direct Support for R&D: What do Firms Use and Why?	Isabel Busom, Beatriz Corchuelo, Ester Martinez Ros	Desembre 2012
12.11	An Ex-post View of Inequality of Opportunity in France and its Regions	Jean-François Carpantier, Christelle Sapata	Desembre 2012