Poverty and Entrepreneurship in Developing Countries

Chapter · September 2011

DOI: 10.1093/acprof:oso/9780199580866.003.0010

2 authors:

José Ernesto Amorós
Tecnológico de Monterrey
106 PUBLICATIONS **3,189** CITATIONS
SEE PROFILE

Oscar Cristi
Universidad San Sebastián, Santiago, Chile
15 PUBLICATIONS **243** CITATIONS
SEE PROFILE

The Dynamics of Entrepreneurship

Evidence from the Global Entrepreneurship Monitor Data

Edited by
Maria Minniti

OXFORD
UNIVERSITY PRESS

'ORD
ITY PRESS
ırendon Street, Oxford OX2 6DP
Jniversity Press is a department of the University of Oxford.
s the University's objective of excellence in research, scholarship,
ation by publishing worldwide in
New York
l Cape Town Dar es Salaam Hong Kong Karachi
mpur Madrid Melbourne Mexico City Nairobi
ni Shanghai Taipei Toronto
ces in
a Austria Brazil Chile Czech Republic France Greece
la Hungary Italy Japan Poland Portugal Singapore
rea Switzerland Thailand Turkey Ukraine Vietnam
s a registered trade mark of Oxford University Press
K and in certain other countries
d in the United States
d University Press Inc., New York
d University Press 2011

lished 2011

ibrary Cataloguing in Publication Data
ilable

of Congress Cataloging in Publication Data
ilable

by SPI Publisher Services, Pondicherry, India
in Great Britain
free paper by
oks Group, Bodmin and King's Lynn

'8–0–19–958086–6

10 8 6 4 2

Acknowledgments

Many people have contributed to this Volume in a variety of ways. I thank the twenty-six authors from eleven countries who provided excellent contributions for the Volume. Many thanks go to the anonymous reviewers who read the chapters and provided helpful comments and suggestions. Many thanks go also to the Global Entrepreneurship Research Association (GERA), Global Entrepreneurship Monitor's (GEM) founding and sponsoring institutions, the GEM coordination team, and the more than ninety-five GEM national and regional teams and their sponsors. Since GEM's inception in 1999, hundreds of researchers in over eighty countries have contributed, over the years, to collecting, harmonizing, and documenting the data used in this Volume. Their hard work and dedication make GEM possible. Roger Koppl provided excellent comments and advice. Emma Lambert at Oxford University Press provided competent and patient assistance. Jeanne Milazzo at the Cox School of Business of Southern Methodist University provided invaluable technical support. Finally, I am enormously grateful to the Cox School of Business at Southern Methodist University and, in particular, to Dr. Bobby B. Lyle, whose generosity and vision support and sustain my passion for entrepreneurship research.

List of Figures

9

Poverty and Entrepreneurship in Developing Countries

José Ernesto Amorós and Oscar Cristi

9.1 Introduction

More than 1.4 billion people live in poverty (World Bank 2008a). And even though the absolute number of poor people has significantly decreased in the last two decades (mainly in South and East Asia), policies and programs for poverty reduction are still the focus of social and economic development discussions.[1] Regions like Latin America and the Caribbean face sluggish economic growth and poverty reduction is proceeding slowly. Similarly, since 1990, poverty reduction in Sub-Saharan Africa has lagged far behind other regions and the trend shows no signs of change (Chen and Ravallion 2008; World Bank 2008b). Of course, poverty is also present in developed economies. The US Census Bureau, for example, reports that the official poverty rate in the United States in 2007 was 12.5 percent. That is, 37.3 million people in the US qualified as poor. Figures are similar for the European Union where approximately 16 percent of the population (79 million people) lives below the poverty threshold (Wolff 2009). Thus, poverty and inequality, albeit to different degrees, characterize all countries. These figures have led to discussions about the necessity of developing efficient mechanisms to combat and reduce poverty, and poverty reduction is considered the first objective among the Millennium Development Goals.[2] Within this context entrepreneurship has emerged

[1] In 2009, an estimated fifty-five million to ninety million more people will be living in extreme poverty than anticipated before the crisis (United Nations 2009).

[2] In September 2000, 189 countries signed the Millennium Declaration leading to the adoption of the Millennium Development Goals. These goals call for reducing by half the proportion of people living on less than a dollar a day by 2015. For more information on the Millennium Development Goals see http://www.developmentgoals.org.

increasingly as a possible tool to help in the fight against poverty and income inequality (Kimhi 2009).

Although there is extensive literature on poverty and on entrepreneurial dynamics, only a very small number of works have focused on the relationship between the two phenomena, in spite of increasing empirical evidence showing a connection between poverty and entrepreneurial activity. Banerjee and Duflo (2007: 151), for example, argue that: "All over the world, a substantial fraction of the poor act as entrepreneurs in the sense of raising capital, carrying out investment, and being the full residual claimants for the resulting earnings." In general, the poor have lower labor skills and capital and, as a result, the option to be self-employed is easier than finding a remunerated stable job. Unfortunately, these works have studied primarily developed economies (Naudé 2009), in spite of the fact that, in relative terms, "poor countries" have more entrepreneurs. As Scott Shane puts it " . . . if you want to find countries where there are a lot of entrepreneurs, go to Africa or South America" (Shane 2009: 143).

In this chapter we use data from the Global Entrepreneurship Monitor (GEM) project and poverty indicators from the UNDP, the UNU-WIDER and the World Bank to investigate the relationship between poverty and entrepreneurial activity at the country level. First, we hypothesize that poverty and income inequality are positively associated to the number of people who pursue entrepreneurial activities. That is, we expect higher levels of entrepreneurial activity in less developed countries. Second, we hypothesize that a country's total entrepreneurial activity, as well as its necessity-based entrepreneurial activity are associated to the reduction of poverty over time, and that a more unequal income distribution promotes entrepreneurship. Our goal is to contribute to our understanding of the relationship between entrepreneurial activity and poverty reduction, and to provide some evidence of the importance of entrepreneurship for developing economies.

In the next section we review definitions of poverty, and the relationship between poverty, entrepreneurship, and aggregate economic activity. In Section 9.3 we discuss our data and provide descriptive statistics. In Section 9.4 we present our empirical approach and discuss our results. Finally, in Section 9.5, we conclude by discussing implications for policy and future research.

9.2 Poverty, entrepreneurship, and economic development

Poverty is a complex phenomenon with multiple dimensions encompassing individual, social, and economic issues, as well as political and institutional settings (Shostak 1965; Narayan et al. 2000; Misturelli and Heffernan 2008). Samuel Johnson defined poverty as the "great evil experienced" (Boswell

Table 9.1. Themes and related topics common to most poverty definitions

1	Material factors	housing, clothing, standard of living
2	Physical factors	food, water, health, physical survival
3	Economic factors	poverty lines, low income, unemployment
4	Political factors	rights, lack of political participation (community-level), no voice (individual-level), references to the wider international setting
5	Social factors	lack of social esteem, lack of social life, inability to participate in community life
6	Institutional factors	lack of access to services and institutions such as education and health services
7	Psychological factors	feelings and beliefs associated with poverty

Source: Misturelli and Heffernan 2008: 670

1987). A World Bank statement on understanding poverty remarks: "Poverty is hunger. Poverty is lack of shelter. Poverty is being sick and not being able to see a doctor. Poverty is not having access to school and not knowing how to read. Poverty is not having a job, is fear for the future, living one day at a time. Poverty is losing a child to illness brought about by unclean water. Poverty is powerlessness, lack of representation and freedom" (World Bank 2009). The complex and multidimensional nature of poverty makes its definition and operationalization very difficult.[3] In an extensive review of 578 documents, Misturelli and Heffernan (2008) identified and analyzed 159 different definitions of poverty and, after reviewing them, they categorized seven main topics identified across the definitions and concluded that during the last three and a half decades, material, physical, and economic factors are the predominant themes, but that the presence of other social and psychological components reaffirms the multifaceted nature of poverty. Table 9.1 summarizes the seven common characteristics they identified.

A starting point to understand how entrepreneurial activities interact with poverty and the variables listed in Table 9.1 is to describe the relationship between entrepreneurship, economic activity, and a country's level of development. This

[3] The New Oxford American Dictionary (2005) defines poverty as "the state of being extremely poor; the state of being inferior in quality or insufficient in amount." Poor is defined as "lacking sufficient money to live at a standard considered comfortable or normal in a society." Very similar is the definition in the Encyclopaedia Britannica (2009): "the state of one who lacks a usual or socially acceptable amount of money or material possessions." Poverty is said to exist when people lack the means to satisfy their basic needs. In this context, the identification of poor people first requires a determination of what constitutes basic needs. These may be defined as narrowly as "those necessary for survival" or as broadly as "those reflecting the prevailing standard of living in the community." For more examples of definitions of poverty see World Bank's "A Collection of Poems and Personal Accounts of Poverty" http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTPOVERTY/0,,contentMDK:20158015isCURL:YmenuPK:373757pagePK:148956piPK:216618theSitePK:336992,00.html.

relationship is complex (Spencer and Gómez 2006), and modeling it is not easy because of the many factors affecting simultaneously both entrepreneurial activity and economic growth (Wennekers and Thurik 1999). Moreover, it is particularly difficult to determine the direction of causality between entrepreneurial activities and economic growth at the country level. While some studies emphasize the effect of entrepreneurial activity on national economic growth, others focus on the effect of economic growth on entrepreneurship rates. Carree et al. (2002, 2007) are among the few to have developed a simultaneous equations model for economic growth and entrepreneurship rate able to account for the existence of lags and two-way causality.

In the last ten years, an extended body of research has examined entrepreneurial activities as a factor contributing to economic growth (Wennekers and Thurik 1999; Acs and Storey 2004; Audretch and Keilbach 2004; Karlsson, Friis, and Paulsson 2004; Schramm 2004). Much of this research has provided empirical evidence of a positive effect of entrepreneurial activity on economic growth but only in developed and high-income countries (Tang and Koveos 2004; van Stel, Carree, and Thurik 2005; Wennekers et al. 2005; Acs and Amorós 2008). Some authors, for example, have argued that only a small number of innovative and high-growth entrepreneurs have a positive effect on economic growth (Wong, Ho, and Autio 2005; Autio 2007; Shane 2009). Other scholars, like Carree et al. (2007) and Hessels et al. (2008), instead, have argued that the relationship between business ownership rates and economic growth changes over time and may depend on the level of economic development. Finally, others have argued that the competitive impact, and consequently the contribution of the entrepreneurial efforts to economic growth, differ not only among countries (Grilo and Irigoyen 2006; Carree et al. 2007), but also among regions within countries (Audretsch and Keilbach 2004; Lee, Florida, and Acs 2004; Belso-Martínez 2005).

When causality is reversed and the effect of economic development on entrepreneurial activity is considered, Carree et al. (2002) have found that the relationship between the level of per capita income and the rate of self-employment (or business ownership) across twenty-three Organization for Economic Cooperation and Development (OECD) countries may be approximated by a U-shaped curve. Later, when revisiting this relationship with new data, Carree and his co-authors found evidence of an L-shaped curve (Carree et al. 2007). Wennekers et al. (2005), instead, using GEM data, confirmed Carree's original findings that a U-shaped relationship exists between entrepreneurship rates and level of economic development measured by income per capita, innovation capacity, and diverse associated socio-demographic variables. Acs and Amorós (2008) and Amorós and Cristi (2008) replicated the study by Wennekers et al. (2005) using longitudinal GEM data for Latin American countries and also found evidence of a U-shaped relationship.

Overall, in spite of significant heterogeneity in the literature, general agreement exists among scholars that the percentage of population involved in entrepreneurial activities is higher in developing regions or countries (Acs and Amorós 2008), and that the characteristics of entrepreneurship vary depending on the level of development (Minniti and Levesque 2010).

But why are there more entrepreneurs in developing countries? And do all entrepreneurs have the same impact on economic performance and, as a consequence, on poverty reduction? Empirical evidence shows that not all entrepreneurial activities contribute to economic growth, and that wealth creation does not necessarily involve substantial poverty reduction (Singer 2006; Naudé 2007). Schumpeter (1912[1934]) describes entrepreneurs as revolutionary innovators motivated by *pull* factors, that is people who desire independence, increased income, status, or recognition. These entrepreneurs are motivated by opportunities. However, there are also many individuals who are *pushed* into entrepreneurship because they do not have better job options. Reynolds et al. (2005: 217), for example, write that these entrepreneurs "cannot find a suitable role in the world of work" and "creating a new business is their best available option." These entrepreneurs are motivated by necessity and they are relatively more prevalent in developing countries.

Although many studies have shown that most entrepreneurial activity results from opportunities (Kolvereid 1996; Feldman and Bolino 2000; Carter et al. 2003; Bosma et al. 2008), we argue that necessity-motivated entrepreneurship is nonetheless significant in many developing countries.[4] The intuition is that entrepreneurs with low levels of education, resources, and social capital, generally are involved in low productivity activities. Consequently, their impact on economic growth is expected to be low. Also, in many developing countries, necessity entrepreneurship results from institutions and policies that cause lower productivity and investment, and higher unemployment rates (Caballero 2006). Many of these entrepreneurs operate in the informal sector and are survival entrepreneurs (Naudé 2007). They are usually self-employed or, in some cases, have a very small number of employees (Banerjee and Duflo 2007).

Baumol (1990) argues that the allocation of entrepreneurship in the economy is influenced by the structure of rewards in a country. Specifically, Baumol (1990: 899) argues that "entrepreneurial behavior changes direction from one economy to another in a manner that corresponds to the variations in the rules of the game." Many poor entrepreneurs operate in environments with institutions that are unreliable, with "rules of the game" that are not clear (or virtually

[4] Of course, the distinction between necessity and opportunity motives is somewhat ambiguous since business opportunities depend on their context. The opportunities available to a Sub-Saharan shepherd are different from those available to a Silicon Valley engineer. Both are valid business opportunities but they are both dependent on the context and position of the observer (Naudé 2007). Motivations, as well as innovations, exist only within a specific context (Minniti et al. 2007).

non-existing), and with "destructive uncertainty" (Wood 2003; Berner, Gómez, and Knorringa 2008). These weak institutional environments cause informal, lifestyle, and survivalist entrepreneurs (de Soto 1989). In Baumol's logic, many of these informal survival entrepreneurs could be viewed as unproductive. At the same time, however, as Banerjee and Duflo (2007) and Naudé (2007) point out, they can be crucial in developing and fragile regions.

Overall, we agree with the literature suggesting that higher rates of opportunity-based entrepreneurship are preferable to higher rates of necessity-based entrepreneurship (Acs et al. 2005; Acs and Varga 2005), but argue that necessity entrepreneurs are not necessarily less successful or less important. These entrepreneurs contribute to social and anti-poverty interests even though they may not have a substantial impact on economic growth. In some cases, they may prevent poverty from getting increasingly worse and, under certain circumstances, provide a base for future social mobility (Grosh and Somolekae 1996; Sandy 2004). In general, there is no a priori reason to qualify all necessity-based entrepreneurs as unproductive and, especially, in developing countries they may play the role of building blocks for more productive activities in the future as their businesses provide sufficient resources to improve the human capital of future generations.

In this chapter we also explore the importance of income inequality on entrepreneurial decisions. Kimhi (2009) points out that this relationship is not straightforward to predict. He notes that the "rise in inequality almost always leads to a rise in poverty" (Kimhi 2009: 81). Also, Deininger and Squire (1998) suggest that initial asset inequality hurts the poor via credit-rationing and inability to invest thereby contributing to further poverty. Within this context, some theoretical and empirical research has suggested that factors like start-up costs, access to capital, and some regulations increase income inequality and push some people into starting businesses (although primarily out of necessity) (Lindh and Ohlsson 1998; Mesnard and Ravallion 2006; Fonseca, Michaud, and Soraseuth 2007; Naudé 2008, 2009). This is also consistent with Rapoport (2002), and Naudé (2008) who argue that inequality encourages entrepreneurship in developing countries. To account for this evidence, we hypothesize that total and necessity-based entrepreneurial activity are associated to poverty reduction over time and that a more unequal income distribution promotes entrepreneurial activity.

9.3 Data and descriptive statistics

Given the scope of the concepts under study, the operationalization of the variables is the main challenge in this chapter.

Data on entrepreneurial activity are obtained from the Global Entrepreneurship Monitor (GEM) project. GEM provides harmonized and internationally

comparable data that allow us to measure aggregate entrepreneurial activity at the country level. By the end of 2008, sixty-six countries had participated in GEM. Among them, thirty-seven countries could be classified as low and middle-income developing economies. GEM data provide information on early-stage entrepreneurial activity, that is, the percentage of adult population (people between eighteen to sixty-four years old) that is actively involved in starting a new venture. The data also include measures of entrepreneurial activity according to motivation, namely whether individuals are opportunity-based entrepreneurs, or necessity-based entrepreneurs. Opportunity entrepreneurs are people who take actions to create a new venture following a perceived business opportunity; necessity entrepreneurs are people who become involved in entrepreneurial activities because they have no other way to earn a living. More details about GEM data and methodology can be found in Reynolds et al. (2005) and Minniti et al. (2007).

Figure 9.1 shows the percentage of necessity-motivated entrepreneurship against GDP per capita.

Given the multidimensional nature of poverty, measuring and comparing poverty rates across countries is also a complex task. In many countries, primarily developing ones, consumption rates (the minimum expenditure made by people in order to subsist) are the preferred welfare indicators. For example, developed countries define their own poverty thresholds generally based on individual or family income equality (or inequality). However, in many academic studies, a commonly accepted definition uses an income-based approach

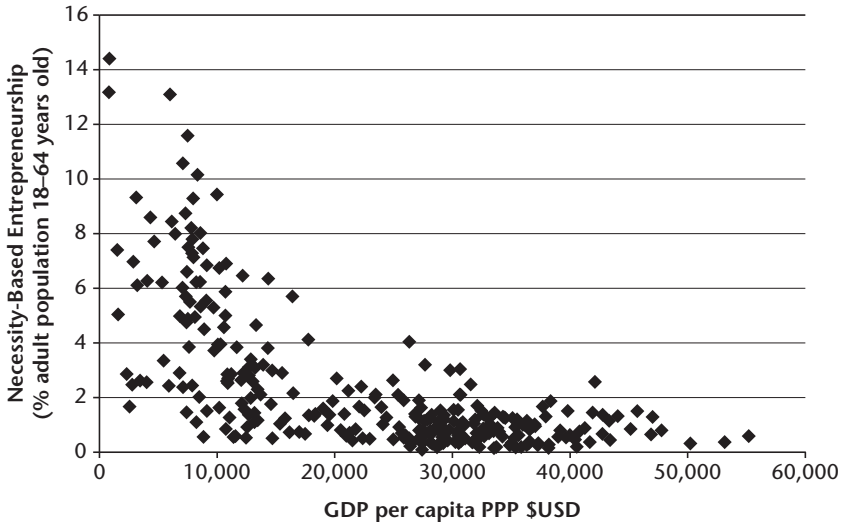

Figure 9.1 Necessity-based entrepreneurship and country per capita GDP (2001–8)
Sources: GEM database and IMF.

according to which poverty is the lack of income or financial resources necessary to satisfy the individuals' basic needs, and/or to achieve a minimum standard of living (Sharp, Register, and Grimes 2003; Singer 2006; Misturelli and Heffernan 2008).

In 1990, following the income-based approach, the World Bank provided a common standard to operationalize poverty empirically by introducing the international poverty line. Poverty lines are calculated from survey sources with several methods (Ravallion, Chen, and Sangraula 2008), and represent an attempt to account for a social perception of relative deprivation that emerges with income (World Bank 2008a: 2).[5] Other indexes take a more comprehensive approach and also include health, education, and estimates of purchasing power parities (PPP), in an attempt to capture the different degrees of development between rich and poor countries. Among such aggregate indexes is the Human Development Index (HDI), calculated by the United Nations Development Programme (UNDP) and published in the Human Development Reports.[6] We use HDI data as our measure of poverty.

HDI is a composite index capturing the average achievement of a country by evaluating three dimensions of human development: life expectancy at birth, adult literacy rate, and gross domestic product (GDP) per capita in purchasing power parities. HDI is among the few measures available over the period 2001–6 for which GEM data are also available. Moreover, it includes most of the major themes and topics related to poverty definitions described by Misturelli and Heffernan (2008) and summarized in Table 9.1. The HDI takes values from 0 to 1, where 1 stands for the highest attainment.

Figures 9.2 and 9.3 depict the relationship between HDI and early-stage and necessity entrepreneurship respectively and show that, in relative terms, poorer countries tend to exhibit higher entrepreneurship rates.

In its Human Development Report 2007–2008, the UNDP also publishes the short-term annual growth rate in HDI (%) calculated over the period 2000–6 with 2000 as base. This indicator captures improvements in human development over that period of time and takes values from −1 to 1, with a negative value representing a worsening trend in the country's poverty as measured by the HDI. We use HDI short-term trends to analyze the lagged effects of entrepreneurial activity on poverty reduction.

Figures 9.4 and 9.5 depict the relationship between HDI short-term trends and the country's average rates of early-stage and necessity entrepreneurship

[5] The international poverty line is adjusted and recalculated periodically to reflect changes over time. Recently, it was recalculated in 2008 and it is set at US$1.25 a day measured in 2005 prices. For a detailed explanation of the methodology of the new poverty lines see Word Bank (2008a) and Ravallion, Chen, and Sangraula (2008).

[6] For more information on the methodology of HDI, see Human Development Report 2007–2008, technical notes (UNDP 2007: 355).

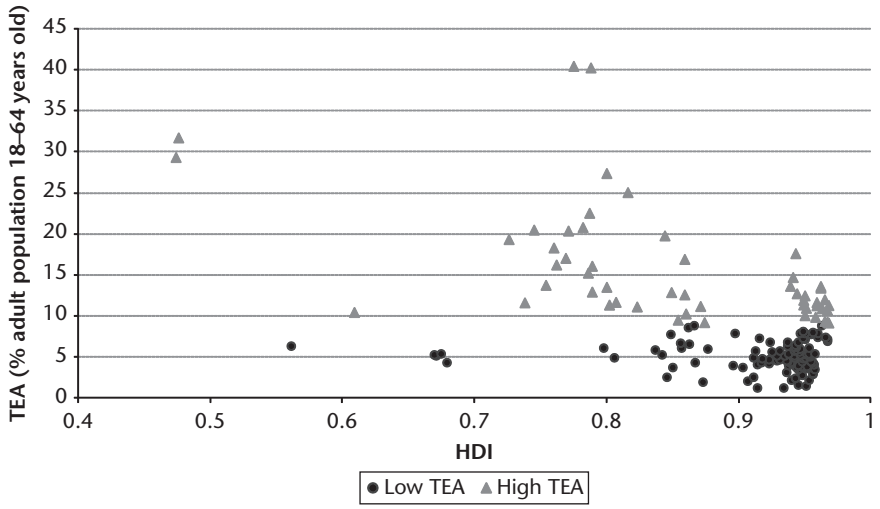

Figure 9.2 Early-stage entrepreneurial activity versus HDI using thresholds (2001–6)
Note: Low TEA are values below TEA sample mean = 8.9

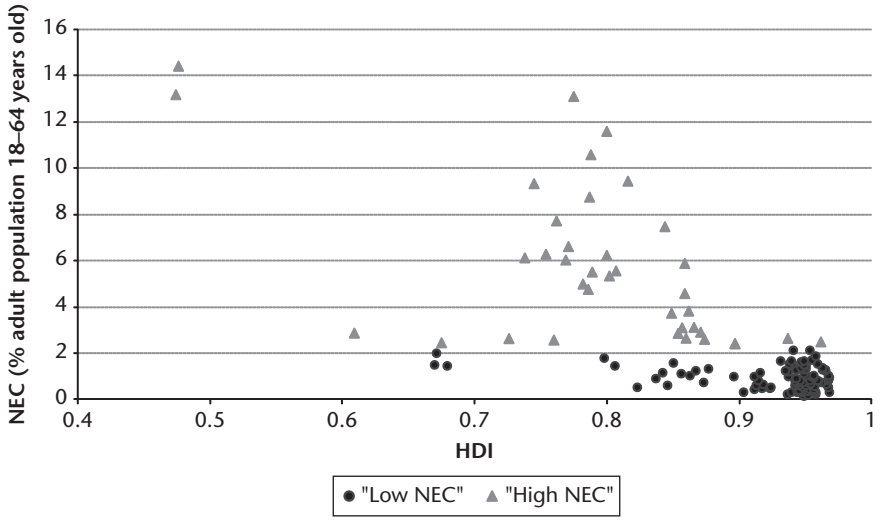

Figure 9.3 Necessity-based entrepreneurial activity versus HDI using thresholds (2001–6)
Note: Low NEC are values below NEC sample mean = 2.3

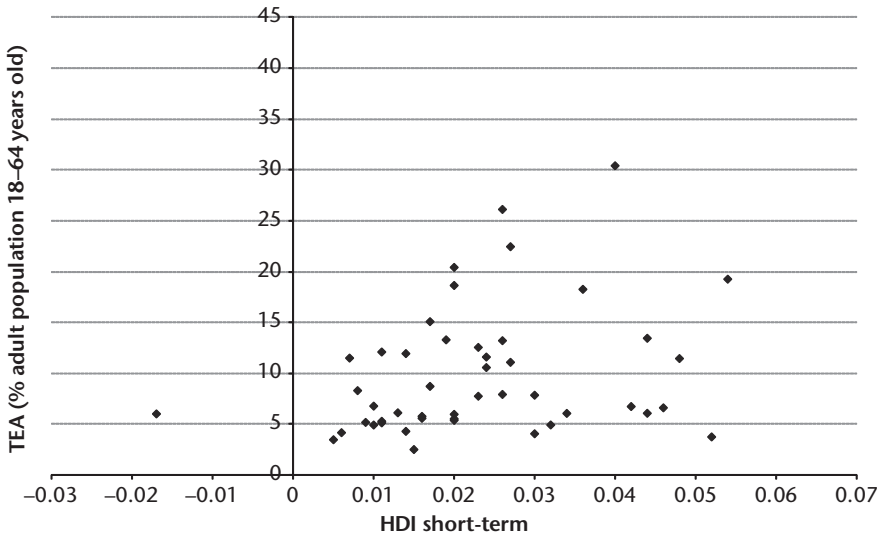

Figure 9.4 Country's mean early-stage entrepreneurial activity versus HDI short-term

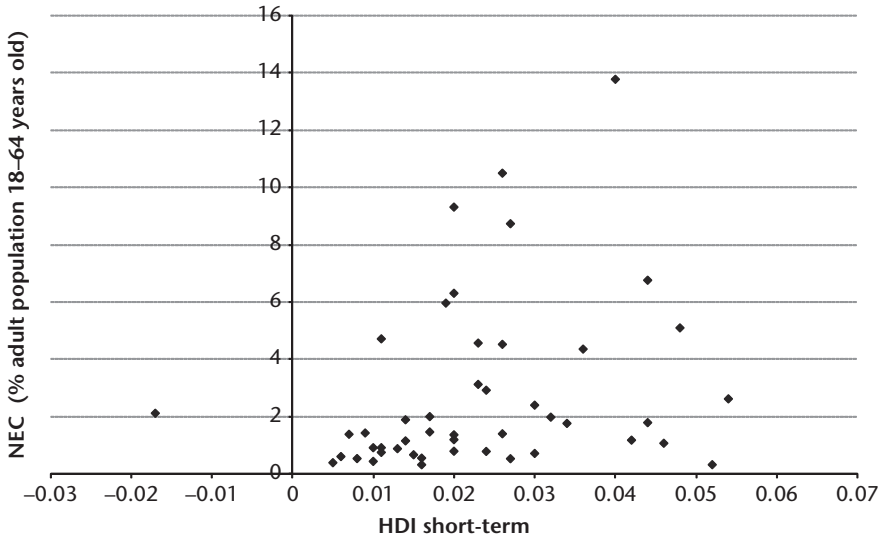

Figure 9.5 Country's mean necessity entrepreneurial activity (NEC) versus HDI short-term

Table 9.2. Variables description

Variable	Description	Source	Mean	Max.	Min.	SD.
TEA	Early-stage entrepreneurship activity; percentage of 18–64 population involved in setting up a business they will own or own and manage up to 3.5 years old.	GEM	8.99	40.34	1.25	6.14
NEC	Percentage of 18–64 population who are involved in TEA (as defined above) and manifest necessity-based motivations to be entrepreneurs (no other ways of earning incomes).	GEM	2.33	14.4	0.09	2.57
HDI	Human Development Index.	UNDP	0.842	0.968	0.45	0.114
HDI short-term	Progress (or decrease) of a specific country's HDI trend over 2000–6.	UNDP	0.025	0.061	−0.017	0.015
GINI	Gini coefficients of countries' income equality (inequality).	World Bank and UN-WIDER	36.56	62.83	22.00	10.08

respectively over time.[7] Our data suggests that higher mean levels of early-stage and necessity entrepreneurship improve human development trends, that are positively related to higher HDI short-term trends.

As a measure of inequality we use the Gini coefficient because it can be used to compare income distributions across different countries. This coefficient takes values from 0 (absolute equality) to 100 (absolute inequality).[8] In this chapter, Gini coefficient data were taken from the World Income Inequality Database published by UNU-WIDER and from the World Development Indicators published by the World Bank.

Descriptive statistics for the variables used in this chapter are presented in Table 9.2.

[7] NEC indicators are 2001–2006 averages.

[8] Specifically, Gini coefficients measure the area between the Lorenz curve and a hypothetical line of absolute equality, expressed as a percentage of the maximum area under the line. The Lorenz curve, in turn, shows the cumulative distribution of total households income going to the lowest percentiles of families (Sharp, Register, and Grimes 2003). About Gini and Lorenz curve calculation see also Gastwirth (1972).

9.4 Empirical Analysis

The goal of this chapter is to conduct an exploratory investigation aimed at establishing whether higher levels of poverty and income inequality are associated to higher levels of entrepreneurial activity, and whether total and necessity-motivated early-stage entrepreneurship are positively associated to poverty reduction trends.

To provide a formal analysis of whether higher levels of poverty and income inequality are associated to higher levels of entrepreneurial activity we test for the effect of the HDI and Gini coefficients on total early-stage entrepreneurial activity (TEA in the rest of the chapter) and on necessity entrepreneurship (NEC in the rest of the chapter). This is consistent with the existing literature discussed in Section 9.2 but, unlike existing works that have only used GDP measures, we use broader indicators of development to better capture aspects of poverty not necessarily reflected in average per capita GDP. The proposed model for TEA or NEC is:

$$EA_{it} = \alpha_0 + \alpha_1 HDI_{it} + \alpha_2 HDI^2 + \alpha_3 GINI_{it} + \epsilon_{it} \quad (1)$$

With $i=1 \ldots, n$ and $t=1 \ldots, T$, and where n is the total number of countries, T is the total number of years, EA_{it} represents TEA (or NEC) in country i in year t, HDI_{it} measures poverty, $HDI^2{}_{it}$ denotes the squared value of HDI_{it}; $GINI_{it}$ is the Gini coefficient in country i in year t; and ε_{it} is a random error term with 0 mean and constant variance. Consistently with existing evidence on the relationship between per capita GDP levels and entrepreneurship rates (Carree et al. 2002; Wennekers et al. 2005; Acs and Amorós 2008), our hypothesis is that while HDI and entrepreneurship move in opposite directions up to a critical threshold level of development, they vary in the same direction once that threshold is reached. In the model, this is captured by introducing both *HDI* and HDI^2.

We estimate equation (1) by pooling the data in the sample.[9] Consistency of the estimators in this equation requires that *HDI* and HDI^2 not be endogenous. For this we use a modified Haussmann test proposed by Wooldridge (2002: Chapter 6.2), and the test does not reject the hypothesis of exogeneity of those regressors.[10] We also need to check for the possibility of a spurious

[9] We do not perform panel data estimation because, unfortunately, no sufficient information is available for several countries.

[10] Specifically, we use a residual-based form of the Haussmann test that is asymptotically equivalent to the original form of the Haussmann test. The test involves estimating auxiliary reduced-form regressions for the "regressors" suspected to be endogenous, namely HDI and HDI^2. Those reduced forms include a constant, all the exogenous variables of the model, and regressor-specific instruments. Equation (1) is then estimated including the reduced-form residuals as additional explanatory variables. Next, the joint statistical significance of the coefficients associated with the residuals is evaluated. If those coefficients are jointly not significant then the Haussmann test does not reject the hypothesis of exogeneity of the

relationship between entrepreneurial activity, *HDI*, and Gini coefficients. To do so, we test for the presence of serial autocorrelation since lack of serial autocorrelation among the residuals ensures that no spurious relationship is present (Pindyck and Rubinfeld 1991: section 15.4). We test for serial autocorrelation using the method proposed by Wooldridge (2002: 282–3). The result of the test supports the hypothesis that no spurious relationship among entrepreneurial activity and *HDI* and *GINI* is present.

Table 9.3 shows the parameter estimates for equation (1) using ordinary least squares (OLS).

Results suggest that all parameters are significant at the one percent significance level and support our hypothesis that the relationship between poverty levels and entrepreneurial activity measured as TEA or NEC takes the form of a U-shaped curve. Figures 9.6 and 9.7 illustrate the result using fitted values of TEA and NEC from the estimated models.

As expected, more income inequality is associated to more people starting new businesses. This is consistent with Bosma et al. (2009) and Shane (2009) who have suggested that more entrepreneurs are found in developing countries characterized by greater income inequality. Also, a comparison of

Table 9.3. Regression model for early-stage entrepreneurial activity (TEA) and necessity-based entrepreneurial activity (NEC)

	TEA model	NEC model
HDI	−1174	−347
	(269)	(97)
HDI^2	657	184
	(153)	(55)
Gini	0.27	0.07
	(0.07)	(0.02)
Cons.	521	163
	(118)	(43)
	~~*Values*~~	
F	24.73	46.60
R^2	0.43	0.63
Adj. R^2	0.41	0.61
n	103	87

Notes: (Standard Errors); all estimates are significant at 1% level.

regressors. As regressor-specific instruments for HDI and HDI^2 we use countries' institutional context (North 1990), proxies by measures of political stability, government effectiveness, rule of law, and control of corruption from the World Bank's Worldwide Governance Indicators (WGI). Baumol (1990), Boettke and Coyne (2007), Minniti (2008), and Amorós (2009) provide theoretical and empirical support for our choice of instrumental variables. Also, for more information on the WGI methodology and descriptions of the variables see Kaufmann, Kraay, and Zoido-Lobatón (1999) and, Kaufmann, Kraay, and Mastruzzi (2008).

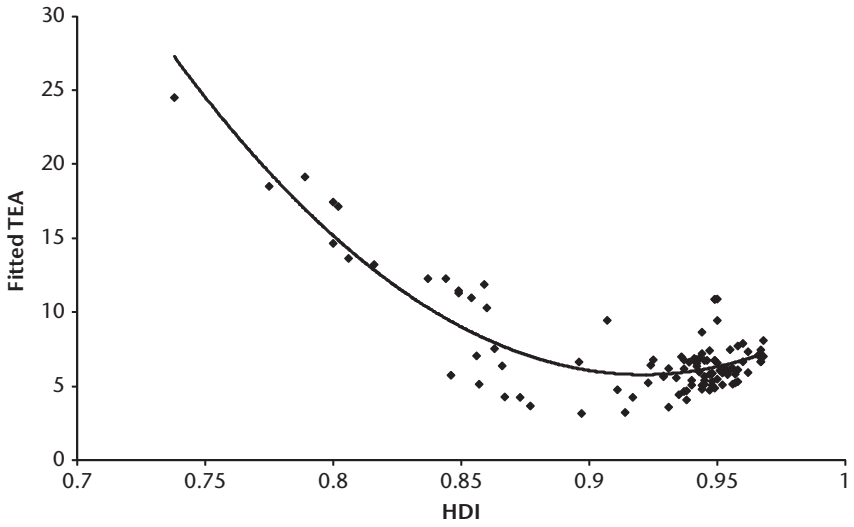

Figure 9.6 Country's conditional expected value for TEA (fitted value) against GDP per capita

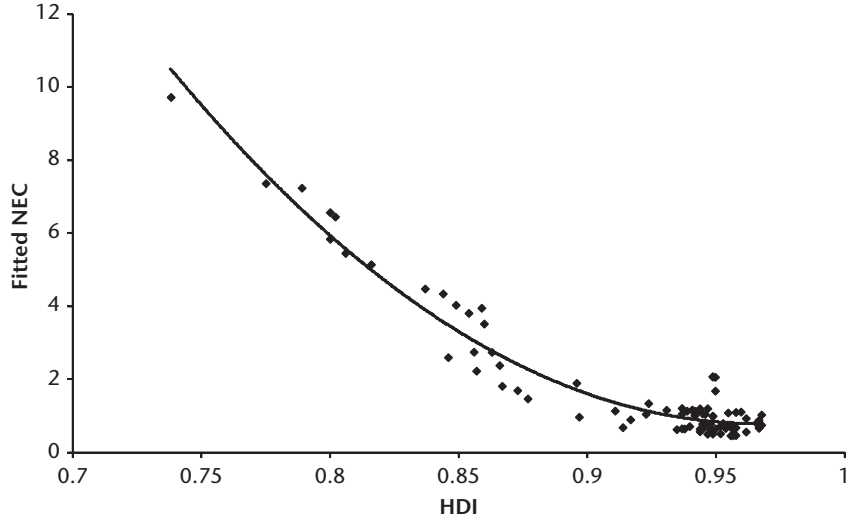

Figure 9.7 Country's conditional expected value for NEC (fitted value) against GDP per capita

the R^2 for the TEA and NEC models shows that poverty and income inequality play a larger role on the explanation of NEC than of TEA.

We now turn to modeling whether total early-stage entrepreneurship (TEA) or, in an alternative, necessity-motivated early-stage entrepreneurship (NEC),

are positively associated to poverty reduction trends. In other words, we want to test whether lagged effects of early-stage entrepreneurship (and early-stage necessity entrepreneurship) on HDI are present. HDI trends for the period 2000–6 capture short-term improvements in human development in each country and are a good proxy for the above mentioned lagged effects. In order to formally analyze the effect of mean TEA and mean NEC on HDI short-term trends we propose the following two models for HDI short-term (*HDIS*):

$$HDIS_i = \beta_0 + \beta_1 TEA_i + \beta_2 TEADUMMY_i + \beta_3 NECPARTi + \beta_4 GINI_i + v_i \quad (2)$$

and

$$HDIS_i = \gamma_0 + \gamma_1 NEC_i + \gamma_2 NECDUMMY_i + \gamma_4 GINI_i + v_i \quad (3)$$

In equation (2), *TEADUMMY* is obtained by multiplying TEA by a dummy variable taking a value of 1 for developed countries and 0 otherwise.[11] *NECPART* is the ratio between NEC and TEA, and v is a random error with 0 mean and constant variance.

The intuition behind equation (2) is that higher country-average levels of early-stage entrepreneurship result in more pronounced poverty reduction with some lags and that this effect is relatively stronger in developing countries. This effect is captured by *TEADUMMY*. The variable *NECPART,* instead, is included to capture the possible effect resulting from the distribution of early-stage entrepreneurship between necessity and opportunity motives. The intuition is that, due to the strong link between poverty and NEC, the higher a country's value of *NECPART* is, the greater the effect of TEA on poverty reduction will be. Finally, the Gini coefficient (*GINI*) is included because it is expected that countries with lower income inequality perform better on poverty reduction.

Finally, in equation (3), *NECDUMMY* is obtained by multiplying NEC by the above mentioned dummy variable and v_i is a random error with 0 mean and constant variance. In this model, as in equation (2), we hypothesize that higher average levels of NEC are associated to stronger poverty reduction over time.

Importantly, in equation (2) and (3) we postulate that TEA and NEC may affect the level of short-term HDI. However, it is also true that HDI, in turn, can affect TEA and NEC. This suggests an endogeneity problem. Once again, we test for endogeneity by running a modified Haussmann test as proposed by Wooldridge (2002: Chapter 6.2).[12] The test indicates that we must reject the

[11] Countries were assigned a value of 0 or 1 following Bosma et al. (2009) and consistently with the World Economic Forum's Global Competitiveness Report 2008–2009 (Porter and Shwab 2008).

[12] For this test we proceed as explained in footnote 10. In this case we estimate auxiliary reduced-form regressions for NEC and TEA. The linear regression for TEA is performed over NECPART, GINI, a constant term, and a variable measuring political stability (PS). Boettke and Coyne (2007), Minniti (2008), and Amorós (2009) provide theoretical and empirical support for the use of political stability as an instrumental variable. The linear regression for NEC is performed over GINI, *PS*, and a constant term.

Table 9.4. Regression models for HDI using 2SLS. Depended variable: HDI short-term (all the variables correspond to the mean value for each country)

	Model of equation (2)		Model of equation (3)	
TEA	0.0016	***		
	(0.0006)			
TEADUMMY	−0.0017	***		
	(0.0006)			
NECPART	−0.0048			
	(0.0214)			
GINI	−0.0008	***	−0.0009	***
	(0.0003)		(0.0003)	
NEC			0.0046	***
			(0.0015)	
NECDUMMY			−0.0038	
			(0.0038)	
Constant	0.0440	***	0.0447	***
	(0.0096)		(0.0109)	
	~~Values~~			
F	4.29	***	3.95	**
N	45		45	

Notes: (Standard Errors),
*$p < 0.1$;
** $p < 0.05$;
*** $p < 0.01$

hypothesis of exogeneity of TEA and NEC. Thus, we estimate these two models using two-stage least squares (2SLS), where the mean value of TEA and NEC for each country are instrumented using the exogenous variables of the models and a proxy for political stability. Data on political stability are obtained from the World Bank's Worldwide Governance Indicators (WGI).

Table 9.4 shows parameters estimates for equations (2) and (3). Results support the hypothesis that higher mean values of TEA and NEC have a positive effect on countries' poverty reduction trend. Moreover, our results suggest that TEA has a relatively higher effect on poverty reduction in developing countries, whereas the effect of NEC is the same across all countries. With regard to *NECPART*, our results suggest that the composition of TEA has no significant effect on the contribution of TEA to poverty reduction. Finally, and as expected, a reduction in income inequality as measured by the Gini coefficient is associated to poverty reduction over time.

9.5 Conclusion

In this chapter we discuss the relationship between poverty, and entrepreneurial activities. We follow Naudé (2009: 11) who states that "...not only can the entrepreneur be formally modeled to address issues of concern to

development economics, such as structural change and growth, inequality and poverty, and market failures, but that such modeling importantly extends not only to our understanding of the development process but also of the accurate role of the entrepreneur in that process."

Unfortunately, we did not have access to data for very poor countries ranking in the bottom quartile of the World Bank's per-capita GDP distribution. Nonetheless, our data include a significant sample of economies with very different degrees of economic and human development, and, to our knowledge, is the largest attempt to date to measure the relationship between different types of early-stage entrepreneurship and poverty across countries. Our results confirm existing evidence showing that, up to a critical threshold level of development, developing countries have more "entrepreneurs" than richer ones (Shane 2009). This is explained, at least in part, by the fact that, as our results show, poverty and income inequalities push a relatively high number of people in developing countries into necessity entrepreneurship. Necessity-based entrepreneurs can be important to a country's development because they represent a form of human resourcefulness (Couyoumdjian and Larroulet 2009). This is confirmed by our results that indicate that entrepreneurship activities, both total and necessity-based, have a positive effect in reducing poverty over time.

Our study is exploratory and more work is needed, nevertheless, this result is important since it suggests that entrepreneurship even in its less glamorous forms is truly relevant, and perhaps necessary, for developing countries. Within this context, our empirical findings complement existing literature that has established that entrepreneurship activities are more relevant or have more relative impact in economic terms in highly developed countries (Tang and Koveos 2004; van Stel, Carree, and Thurik 2005; Wennekers et al. 2005; Acs and Amorós 2008). These works put emphasis on innovative entrepreneurship or high-expectation entrepreneurial activities that contribute to improve countries' competitiveness and economic development.

Our results also help us rethink the effectiveness (or lack thereof) of policy and programs aimed at enhancing entrepreneurial activities in developing countries. Wennekers et al. (2005: 306) point out that "low-income nations should not consider the promotion of new business as a top priority on their policy agenda" and Shane (2009) remarks that entrepreneurship policy is not a good policy. Indeed, promoting entrepreneurship activities does not constitute a panacea for poor nations. However, entrepreneurship does matter for poverty, and developing economies should work to achieve solutions to structural problems like stability, basic infrastructure, and regulatory transparency in order to create an environment in which people may have incentives to be entrepreneurial (Amorós and Cristi 2008; Baumol 1990; Boettke and Coyne 2007).

Finally, we remark on the great power that entrepreneurship could have for the poorest people and as consequence for countries' development goals. The well known case of 2006 Nobel Peace Prize laureate Dr Muhammad Yunus and his micro-credit Grameen Bank is a heartening example of this power. Grameen is a real model of how very poor people from a poor country, Bangladesh, use entrepreneurial activities to eradicate extreme poverty situations (Powell 2008).

Although exploratory, this chapter has provided some new empirical evidence on the entrepreneurial dynamics of developing countries and, we hope, it will motivate others to continue exploring the relationship between entrepreneurship and human development. It is important that more work in this area be conducted so that future research on developing countries may help us to better understand how important entrepreneurship really is for poverty alleviation.

Acknowledgments

The authors would like to extend their gratitude to the GEM Consortium, the GEM Project Coordination team, and especially to Maria Minniti for her support and comments. Many thanks go also to an anonymous reviewer for helpful comments. Although GEM data were used in this study, their interpretation and use are the sole responsibility of the authors. All errors are ours.

References

Acs, Z. J. and Amorós, J. E. (2008), "Entrepreneurship and Competitiveness Dynamics in Latin America," *Small Business Economics,* 31(3): 305–22.

Acs, Z. J., Arenius, J. P., Hay, M., and Minniti, M. (2005), "Global Entrepreneurship Monitor: 2004 Executive Report," Babson Park, MA. and London, UK: Babson College and London Business School.

Acs, Z. J. and Varga, A. (2005), "Entrepreneurship, Agglomeration and Technological Change," *Small Business Economics,* 24(3): 323–34.

Acs, Z. J. and Storey, D. J. (2004), "Introduction: Entrepreneurship and Economic Development," *Regional Studies,* 38(8): 871–7.

Amorós, J. E. (2009), "Entrepreneurship and Quality of Institutions: A Developing-Country Approach," *WIDER Research Paper No. 2007/02.* Helsinki: UNU-WIDER.

Amorós, J. E. and Cristi, O. (2008), "Longitudinal Analysis of Entrepreneurship and Competitiveness Dynamics in Latin America," *International Entrepreneurship and Management Journal,* 4(4): 381–99.

Audretsch, D. and Keilbach, M. (2004), "Entrepreneurship and Regional Growth: an Evolutionary Interpretation," *Journal of Evolutionary Economics,* 14(5): 605–16.

Autio, E. (2007), "GEM 2007," *Global Report on High–Growth Entrepreneurship,* Babson Park, MA and London, UK: Babson College and London Business School.

Banerjee, A. V. and Duflo, E. (2007), "The Economic Lives of the Poor," *Journal of Economic Perspectives,* 21(1): 141–67.

Baumol, W. J. (1990), "Entrepreneurship: Productive, Unproductive and Destructive," *The Journal of Political Economy,* 98(5): 893–921.

Belso-Martínez, J. A. (2005), "Equilibrium Entrepreneurship Rate, Economic Development and Growth. Evidence from Spanish Regions," *Entrepreneurship & Regional Development,* 17(2): 145–61.

Berner, E., Gómez, G. M., and Knorringa, P. (2008), "Helping a Large Number of People Become a Little Less Poor: The Logic of Survival Entrepreneurs," *Paper presented at the conference UNU-WIDER Project Workshop on Entrepreneurship and Economic Development,* 21–23 August 2008. Helsinki: UNU-WIDER.

Boettke, P. and Coyne, C. (2007), "Entrepreneurial behavior and institutions," in M. Minniti (ed.), *Entrepreneurship: The engine of growth,* Vol. 1 perspective series Westport, CT: Praeger Press—Greenwood Publishing Group: 119–34.

Bosma, N., Jones, K., Autio, E., and Levie, J. (2008), "Global Entrepreneurship Monitor, 2007 Executive Report," Wellesley, MA., Babson Park MA. and London, UK: Babson College and London Business School.

Bosma, N., Acs, K. Z., Autio, E., Coduras, A., and Levie, J. (2009), "Global Entrepreneurship Monitor, 2008 Executive Report," Wellesley, MA., Babson Park, MA.: Babson College.

Boswell, J. (1987, first published in 1791), "Life of Samuel Johnson," in. R. W. Chapman (ed.), *Oxford.* Oxford: Oxford University Press: 312.

Caballero, R. (2006), "The Macroeconomics of Specificity and Restructuring," Cambridge, MA: MIT Press.

Carree, M., van Stel, A., Thurik, R., and Wennekers, S. (2007), "The Relationship between Economic Development and Business Ownership Revisited," *Entrepreneurship and Regional Development,* 19(3): 281–91.

Carree, M., van Stel, A., Thurik, R., and Wennekers, S. (2002), "Economic Development and Business Ownership: an Analysis Using Data of 23 OECD Countries in the Period 1976–1996," *Small Business Economics,* 19(3): 271–90.

Carter, N. M., Gartner, W. B., Shaver, K. G., and Gatewood, E. J. (2003), "The Career Reasons of Nascent Entrepreneurs," *Journal of Business Venturing*, 18(1): 13–39.

Chen, S. and Ravallion, M. (2008), "The Developing World Is Poorer Than We Thought, but No Less Successful in the Fight Against Poverty," *Policy Research Working Paper 4703*. Washington, DC: World Bank.

Couyoumdjian, J. P. and Larroulet, C. (2009), "Entrepreneurship and Growth: A Latin American Paradox?," *The Independent Review,* 14(1): 81–100.

Deininger, K. and Squire, L. (1998), "New Ways of Looking at Old Issues: Inequality and Growth." *Journal of Development Economics,* 57(2): 259–87.

De Soto, H. (1989), "The other path: The invisible revolution in the Third World," New York: Harper & Row.

Encyclopædia Britannica (2009), "Poverty." in Encyclopædia Britannica. Retrieved May 30, 2009, from Encyclopædia Britannica Online: http://www.britannica.com/EBchecked/topic/473136/poverty

Feldman, D. C. and Bolino, M. C. (2000), "Career Patterns of the Self-employed: Career Motivations and Career Outcomes," *Journal of Small Business Management*, 38(3): 53–67.

Fonseca, R., Michaud, P.-C., and Sopraseuth, T. (2007), "Entrepreneurship, Wealth, Liquidity Constraints, and Start-Up Costs," *Comparative Labor Law and Policy Journal,* 28: 637–74.

Gastwirth, J. L. (1972), "The Estimation of the Lorenz Curve and Gini Index," *The Review of Economics and Statistics,* 54(3): 306–16.

Grilo, I. and Irigoyen, J. M. (2006), "Entrepreneurship in the EU: To wish and not to be," *Small Business Economics,* 26(4): 305–18.

Grosh, B. and Somolekae, G. (1996), "Mighty Oaks from Little Acorns: Can Microenterprises Serve as the Seedbed of Industrialization?," *World Development,* 24(12): 1879–90.

Hessels, J., Van Gelderen, M., and Thurik, R. (2008), "Entrepreneurial Aspirations, Motivations and their Drivers," *Small Business Economics,* 31(3): 323–39.

Karlsson, C., Friis, C., and Paulsson, T. (2004), "Relating Entrepreneurship to Economic Growth," *CESIS Electronic Working Papers Series No. 13.*

Kaufmann, D., Kraay, A., and Zoido-Lobatón, P.(1999), "Governance Matters," *World Bank Policy Research Working Paper 2196,* Washington, DC: World Bank.

Kaufmann, D., Kraay, A., and Mastruzzi, M. (2008), "Governance Matters VII: Aggregate and Individual Governance Indicators, 1996–2007," *World Bank Policy Research Working Paper 4654,* Washington, DC: World Bank.

Kimhi, A. (2009), "Entrepreneurship and income inequality in southern Ethiopia," *Small Business Economics,* 34(1): 81–91

Kolvereid, L. (1996), "Organizational Employment versus Self-Employment: Reasons for Career Choice Intentions," *Entrepreneurship Theory & Practice,* 20(3): 23–31.

Lee, S. Y., Florida, R., and Acs, Z. J. (2004), "Creativity and Entrepreneurship: A Regional Analysis of New Firm Formation," *Regional Studies,* 38(8): 879–91.

Lindh, T. and Ohlsson, H. (1998), "Self-Employment and Wealth Inequality," *Review of Income and Wealth,* 44(1): 25–42.

Mesnard, A. and Ravallion, M. (2006), "The wealth effect on new business startups in a developing economy," *Economica,* 73(291): 367–92.

Minniti, M. (2008), "The Role of Government Policy on Entrepreneurial Activity: Productive, Unproductive, or Destructive?," *Entrepreneurship: Theory & Practice,* 32(5): 779–90.

Minniti, M. and Levesque, M. (2010), "Entrepreneurial Types and Economic Growth," *Journal of Business Venturing,* 25(3): 305–314.

Minniti, M., Bosma, N., and Quill, M. (2007), *The 2006 Global Entrepreneurship Monitor Technical Assessment.* London, U.K. and Wellesley, MA: London Business School and Babson College.

Misturelli, F. and Heffernan, C. (2008), "What is Poverty? A Diachronic Exploration of the Discourse on Poverty from the 1970s to the 2000s," *European Journal of Development Research,* 20(4): 666–84.

Narayan, D., Patel, R., Schafft, K., Rademacher, A., and Koch-Schulte, S. (2000), "Voices of the Poor: Can anyone hear us?," Oxford: The World Bank and Oxford University Press.

Naudé, W. A. (2007), "Peace, Prosperity, and Pro-Growth Entrepreneurship," *WIDER Research Paper 2007/02*, Helsinki: UNU-WIDER.

Naudé, W. A. (2008), "Entrepreneurship in Economic Development," *WIDER Research Paper 2008/20,* Helsinki: UNU-WIDER.

Naudé, W. A. (2009), "Entrepreneurship, Developing Countries, and Development Economics: New Approaches and Insights," *Small Business Economics,* 34(1): 1–12.

North, D. C. (1990), "Institutions, institutional change and economic performance," Cambridge: Cambridge University Press.

Oxford American Dictionary (2005), "The New Oxford American Dictionary," 2nd. Edition, New York: Oxford University Press.

Pindyck, R. S. and Rubinfeld, D. L. (1991), "Econometric Models and Economic Forecast," New York: McGraw-Hill.

Porter, M. E. and Schwab, K. (2008), "The Global Competitiveness Report 2008–2009," Geneva: World Economic Forum.

Powell, B. (2008), "Making Poor Nations Rich: Entrepreneurship and the Process of Economic Development," Stanford: Stanford University Press.

Rapoport, H. (2002), "Migration, Credit Constraints and Self-Employment: A Simple Model of Occupational Choice, Inequality and Growth," *Economics Bulletin,* 15(7): 1–5.

Ravallion, M., Chen, S., and Sangraula, P. (2008), "Dollar a Day Revisited," *Policy Research Working Paper No. 4620,* Washington, DC: World Bank.

Reynolds, P., Bosma, N., Autio, E., Hunt, S., De Bono, N., Servais, I., Lopez-Garcia, P., and Chin, N. (2005), "Global Entrepreneurship Monitor: Data Collection Design and Implementation 1998–2003," *Small Business Economics,* 24(3): 205–31.

Sandy, D. M. (2004), "Determinants of Successful Entrepreneurship in Sierra Leone," in K. Wohlmuth, A. Gutowski, T. Knedlik, M. Meyn, and S. Pitamber (eds.), *African Development Perspectives Yearbook 2002/2003, African Entrepreneurship and Private Sector Development.* Munster: Lit Verlag.

Schramm, C. J. (2004), "Building Entrepreneurial Economies," *Foreign Affairs, 83*(4): 104–15.

Schumpeter, J. A. (1912, reedit 1934), "The Theory of Economic Development," Cambridge, MA: Harvard University Press.

Shane, S. (2009), "Why Encouraging more People to Become Entrepreneurs is Bad Public Policy," *Small Business Economics,* 33(2): 141–9.

Sharp, A., Register, C., and Grimes, P. (2003), "Economics of Social Issues," 16th Edition. New York: McGraw-Hill/Irwin.

Shostak, A. (1965), "New Perspectives on Poverty," New York: Prentice Hall.

Singer, A. E. (2006), "Business Strategy and Poverty Alleviation," *Journal of Business Ethics,* 66(2): 225–31.

Spencer, J W. and Gómez, C. (2006), "The Relationship among National Institutional Structures, Economic Factors, and Domestic Entrepreneurial Activity: a Multicountry Study," *Journal of Business Research,* 57(10): 1098–1107.

Tang, L. and Koveos, P. E. (2004), "Venture Entrepreneurship, Innovation Entrepreneurship and Economic Growth," *Journal of Development Entrepreneurship,* 9(2): 161–71.

United Nations (2009), "The Millennium Development Goals Report," New York: Department of Economic and Social Affairs of the United Nations Secretariat.
United Nations Development Programme (2007), "Human Development Report 2007/2008," New York: Palgrave Macmillan.
Van Stel, A., Carree, M., and Thurik, R. (2005), "The Effect of Entrepreneurial Activity on National Economic Growth," *Small Business Economics,* 24(3): 311–21.
Wennekers, S. and Thurik, R. (1999), "Linking Entrepreneurship and Economic Growth," *Small Business Economics,* 13(1): 27–55.
Wennekers, S., van Stel, A., Thurik, R., and Reynolds, R. (2005), "Nascent Entrepreneurship and the Level of Economic Development," *Small Business Economics,* 24(3): 293–309.
Wolff, P. (2009), "Population and Social Conditions," *EUROSTAT, Statistics in focus—46/2009,* Luxemburg: Office for Official Publications of the European Communities.
Wong, P. K., Ho, Y. P., and Autio, E. (2005), "Entrepreneurship, Innovation and Economic Growth: Evidence from GEM Data," *Small Business Economics,* 24(3): 335–50.
Wood, G. (2003), "Staying Secure, Staying Poor: The Faustian Bargain," *World Development,* 31(3): 455–71.
Wooldridge, J. M. (2002), "Econometric Analysis of Cross Section and Panel Data," Cambridge MA.: MIT Press.
World Bank (2008a), "Global Monitoring Report 2008," Washington DC: The International Bank for Reconstruction and Development/The World Bank.
World Bank (2008b), "World Development indicators: Poverty data," Washington DC: The International Bank for Reconstruction and Development/The World Bank.
World Bank (2009), "PovertyNet," Washington DC: The International Bank for Reconstruction and Development/The World Bank.