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Does entrepreneurship increase the chances of the poor?
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DOES ENTREPRENEURSHIP INCREASE THE CHANCES OF THE POOR?

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ABSTRACT

This paper investigates how entrepreneurship affects the likelihood of households graduating out of poverty. It analyses the effect of entrepreneurship in the outcomes of the households enrolled in the Colombian poverty reduction programme. A contribution to the Capability Approach is proposed with the inclusion of entrepreneurship as a 'functioning' linked to overcoming poverty. Entrepreneurship presents a great potential given its multidimensional nature. In its more basic conception, it is connected to income-generation, and in its more complex conception, it is related to the concept of agency. Using the Colombian UNIDOS programme (which is a programme focused on helping poor graduating out of poverty) as a case study, we employ a Probit Regression model with sample selection to model this mechanism. The results present a positive, statistically significant impact of entrepreneurial households in their probability of graduating out of poverty. The results confirmed that entrepreneurial households show a higher likelihood of escaping from poverty.

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1 INTRODUCTION

This paper analyses the effect of entrepreneurship in the graduation out of poverty of the households enrolled in the Colombian poverty reduction programme. In an effort to overcome poverty, the Colombian government implemented in 2007 a multidimensional poverty index (CMPI) adjusting its social policy orientation to fit these new multidimensional, multiagency requirements. The purpose of the paper is to study the *graduation* mechanism of the Colombian Poverty Reduction Strategy (UNIDOS) and the effects of entrepreneurship in the outcome of households.

The complex nature of the labour market and especially of labour market policies –ranging from design to implementation to monitoring— makes it difficult to incorporate the Employment dimension into the analysis of multidimensional poverty. Instability, informality, poor working conditions and low productivity characterise the labour market participation of the population living under poor conditions. The difficulty in its measurement –especially for this bracket of the population- and in keeping track of its dynamics has earned it the label of one of the missing dimensions (Lugo, 2007) within the multidimensional approach of poverty. In this sense, incorporating the analysis of entrepreneurship into the analysis of poverty complements the progress made by the Colombian Poverty Reduction Agency (ANSPE).

By incorporating the entrepreneurial component of this *missing* dimension into the analysis, we attempt to answer the question: Do entrepreneurship (and entrepreneurship interventions) increase the chances of the poor population of escaping from poverty? Entrepreneurship as a way out of poverty has been widely discussed and has become topical in the narrative of international institutions (IADB, World Bank, OECD). Within the entrepreneurship literature, this strand deals mainly with micro and small-scale enterprises and entrepreneurs. Its policies are related to basic training skills or, more general, business development programs (BDPs).

Employability and entrepreneurship interventions, especially those oriented to human capital accumulation –skills mainly-, could be said to enhance functionings (Gries & Naudé, 2011) as defined by Sen (1992). From the public policy perspective, employability appears as a more demanding intervention given that its outcomes tend to be long-term oriented, and being hired depends importantly on macroeconomic conditions and, to a certain extent, remains out of the locus of control of the individual. On the other hand, entrepreneurship appears to be more straightforward,

its outcomes can be validated even in the short term and depend to a greater extent on the individual and their traits –grit, self-control, and motivation-.

The UNIDOS strategy core foundation is to foster agency of both households and individuals. This is reflected in the joint responsibility principle that guides the intervention process, making households responsible in their way out of poverty. In line with this, entrepreneurial traits are linked with characteristics such as self-control, determination, and autonomy. In this sense, the analysis of entrepreneurship can contribute to the analysis of poverty reduction.

Using information about the *graduation* mechanism of the UNIDOS strategy, we propose a binary outcome model as a latent model approximation of the fulfilment of (basic) capabilities. The outcome of each household (graduated or not graduated) is our dependent variable. It is explained by their performance within the strategy that includes both a welfare component (income-based measure) and a counting approach component (multidimensional index), operationalized through the use of the MPI and the income poverty line. Thus, poverty reduction is seen as a reflection of a specific achieved functionings bundle. Our hypothesis that entrepreneurial households show better being promoted from the programme is confirmed by the econometric results.

The remainder of this papers is organized as follows. Section 2 introduces the conceptual framework and discusses the role of the labour market in the analysis of multidimensional poverty. Section 3 presents the institutional background, introducing briefly the Colombian UNIDOS safety net and extensively the graduation mechanism. The methodological approach is presented in section 4. The main results are presented and discussed in section 5. The final section concludes with a summary of the findings, policy recommendations and suggestions for further research.

2 CONCEPTUAL FRAMEWORK

We set out this study with the question of whether entrepreneurship increases the likelihood of escaping from poverty. This section presents an intuitive framework drawing from some elements of the capability approach.

Entrepreneurship is connected to both approaches to welfare. For one, entrepreneurship serves as a means of subsistence and income generation. It is a direct "vehicle for material gain" (Gries and

Naudé, 2011, p. 217). Furthermore, it involves several other elements that go beyond the pursuance of material gain. It also involves non-pecuniary benefits such as being one's boss, a sense of achievement, of identity, and of control of one's life; it helps to gain independence and, thus, achieving a satisfactory lifestyle (Gries & Naudé, 2011; Tamvada, 2010).

Entrepreneurship can be directly connected to the set of skills and abilities that best reflect the autonomy required to overcome poverty. Being entrepreneurial depends to a greater extent on the individual and their traits –grit, self-control, ambition, and motivation-. Even though it is true that entrepreneurs cannot control individually the market, their performance remains in their locus of control and their ability to recognise and exploit opportunities is at the core definition of entrepreneurship.

The exclusion from the formal labour market is an important factor to keep in mind when studying population living under poor conditions. By definition necessity entrepreneurship would clash with the principles of the capability approach, in the sense that people might not be choosing to be entrepreneurs but being pushed to it by survival motivation. They are simply rationed out of jobs in the formal sector (Tamvada, 2010). Notwithstanding this fact, the comparison should be made with their employed counterparts. The labour market insertion of the poor population is characterised by low-productivity, low-skilled jobs, most of the time paid jobs below the minimum wage.

We hypothesize that entrepreneurial households have greater chances of overcoming poverty. Specifically, we argue that there is a marked difference between entrepreneurial intention (business conception, business idea, business plan) and entrepreneurial *effectuation* (business operation). Entrepreneurship in this context can also be understood as the way people transform the resources at hand, again not only material transformation but, and probably more importantly, information and support. A more entrepreneurial household can show higher chances of *graduation* because of better performance as beneficiaries within the UNIDOS Strategy, taking into account that an important part of the work has to be done by the households. So, we would expect more entrepreneurial households to transform institutional resources into realities.

2.1 Labour market outcomes in the analysis of poverty

The complex nature of the labour market and labour market policies makes it challenging to incorporate this dimension into the analysis of poverty. 'Traditional' indicators of the labour market

do not provide enough information in the context of the developing countries (Lugo, 2007). A case in point is the unemployment rate that even at low levels can hide pervasive low working standards, irregular spans of employment or unstable income presenting an incomplete picture of the labour situation of the overall population.

Historically, Latin American economies have been recognised by their dual labour markets, where low-skilled, -productive sectors coexist with high-skilled, -productive ones. This phenomenon has been accentuated by the re-configuration of labour relations at the beginning of the XXI century reshaping labour markets around the world, and in particular affecting labour markets in developing countries (Boyer & Saillard, 2005). This has meant declining working standards reflected in high turnover rates and instability affecting to a greater extent low-skilled workers. Usually associated with stability, wage employment is progressively becoming scarce.

From the income perspective, having a job can be seen as an end to assure the means of subsistence. Instability, informality, low-quality working conditions, and low productivity characterise the insertion in the labour market of the population living under poor and near-poor conditions. For the poor, unemployment is not an option pushing them to "engage in activities that may be low in productivity, paid poorly, with no contract, and/or in extremely unsafe conditions." (Lugo, 2007, p. 364).

From a multidimensional perspective, having a job is not only important because it provides the means of subsistence but also because having a job provides dignity and a sense of hopefulness to individuals. Employability and entrepreneurship interventions especially those oriented to human capital accumulation –skills accumulation mainly- could be said to enhance functionings (Gries & Naudé, 2011) as defined by Sen (1992).

2.1.1 Labour market outcomes in the Colombian MPI

The difficulty in the measurement of labour market outcomes –especially for the poorest bracket of the population- and in keeping track of its dynamics has earned it the label of one of the missing dimensions (Lugo, 2007) within the multidimensional approach of poverty. The CMPI includes two indicators to measure the employment situation of the households. The first one measures the percentage of EAP household members that are employed and affiliated to a pension fund, as a

proxy for formal employment. The second one counts the percentage of economically active population (EAP)[1] household members not facing long-term (over 12 months) unemployment.

Behind the *formal employment* milestone is a long-standing debate on the very definition of informality. Before 2006, the Colombian Bureau of Statistics (DANE) defined informal employment as those workers working in firms with 10 employees or less. From 2010, the number of employees was redefined to 5 employees or less. Contrastingly, the Colombian microenterprise survey shows that 60% of microenterprises between 3 and 5 employees cover health and pension wage costs of their payroll.[2] Yet, the microenterprise survey covers only those businesses that are recognizable from the outside, i.e., that enumerators can recognize as a productive unit from its façade leaving outside those productive units inside the habitational unit, which is the case of most of our population of interest.

The definition of informality used in the CMPI is related to employment associated with pension payment. Although it may be argued that there is a link between microenterprises and formal affiliation of employees to the pension system, the relation is not straightforward. Using this definition of formal employment seems unrealistic considering the high levels of informality in Colombia. It has barely changed in the past 15 years, from 53.6% in the period 2001-2005 to 50.2% in the period 2010-2014.

More importantly, it renders the analysis of the labour situation of the poor population incomplete. Given the degree of exclusion from the formal labour market suffered by poor population measuring formal employment is not likely to show some improvement in the short or even medium term. From 2010 to 2013, the proportion of households in which one of its members (over 12 years) worked in informal conditions, fell by 2.8 percentage points, at 78.1% last year (DNP, 2014). Furthermore, whereas the proportion of people in households with informal employment presented significant reductions in the 4 and 5 quintiles; in the most deprived households -where the proportion of people with informal employment exceeded 95%- there was no statistical variation in the same period (DNP, 2014).

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[1] DANE defines the economically active population as household members 12 years old and over that are employed or actively seeking for a job.

[2] Reported figure from the 2014 survey. Period October 2013 to September 2014. The longitudinal microenterprise survey is not fully representative at the national level due to government decisions.

Contrasting with the high incidence of informal employment, long-duration unemployment remained virtually constant moving from 9.9% to 9.7% in the same period (DNP, 2014). The proportion of people in households with long-term unemployment achieved significant reductions in the poorest households (quintiles 1, 2, and 4 sorted upwards from most number of deprivations); contrariwise, it increased for the third quintile (DNP, 2014). The low incidence of long-term unemployment confirms that unemployment is not an option for the population living in poor conditions. Oftentimes, they are pushed into low paid jobs, or to run subsistence entrepreneurial endeavours.

From the public policy perspective, the Basic Milestones were defined providing that there was a government agency accountable for them (DNP, 2008). Given that there is no agency in charge of employability and/or entrepreneurship plus the abovementioned difficulty in measurement, the Employment dimension was dropped since the outset. Notwithstanding its importance, the variables are neither monitored by the UNIDOS Strategy nor included in the *Household Plan* (see Box 1 in Appendix AError! Reference source not found.).

Lugo (2007) discusses the necessity of broadening the set of questions to capture more specific information on the employed and self-employed (entrepreneurial) activity. Angulo et al. (2015) recognise the difficulty of including variables of job quality in the Employment dimension yet also recognise the need to widen the set of information to capture different aspects of the productive activities of the population.

3 INSTITUTIONAL BACKGROUND

3.1 The Graduation Mechanism

The *graduation* mechanism is a novel approach to poverty reduction implemented by the Colombian government comprising both approaches to welfare, i.e. income poverty and multidimensional poverty. Understanding that income cannot capture the essence of poverty and deprivation (Ruggeri Laderchi, 1997) means understanding poverty from a wider perspective, thus it is a key step towards poverty reduction. Yet, realising its importance as a means to achieve certain goals, and ensure subsistence is unavoidable. This mechanism realises the tension between the two approaches but more importantly, it builds on its complementarity.

The *graduation* mechanism can be understood as a stepping stone in a path out of poverty. This mechanism is the reflection of the fulfilment of a basic capability set. In this sense, it could be seen as the initial stage of a *'capability approach'*-based public policy. As discussed in Sen (1993), the selected *functionings*, as in the CMPI, recognise the most pressing social issues in society. The self-determination and context-awareness are two pivotal elements in this approach. Sen (1993) goes on to argue that achievement of basic capabilities –minimally acceptable level of said selected *functionings*- are linked with varying levels of minimally adequate incomes. Complementarily, Ruggeri Landerchi (1997, p. 210) highlights that at the core of the definition of basic capabilities lies the "idea that some minimal level is deemed to be of intrinsic importance". Thus, validating to a certain extent assessment approaches such as the multidimensional poverty index.

From the public policy perspective, the *graduation* mechanism serves a twofold objective. It seeks to ensure that households have the minimum monetary resources (means) for their subsistence; while at the same time, it seeks to ensure households, i.e. households and its members, to count with the skills and abilities required to walk through their path of prosperity on their own. In this case, this could be reflected in lower dependency on support schemes, and higher individual, and collective autonomy.

The policy document (CONPES, 2006) establishing the UNIDOS Strategy –initially JUNTOS- required the agency in charge[3] to define the exit conditions of the poor population. At its inception, each household had an explicit five-year deadline as beneficiary within the Strategy. The rationale behind this condition was to generate the proper incentives for the households receiving the support by avoiding an expectation of long-term support.

It is important to highlight that conditionality may have implications on the actual outcomes, especially in the case of assistance to the poor population. For the case of *Oportunidades*, a conditional cash transfer in Mexico, González-Flores et al. (2012), and Villa and Niño-Zarazúa (2014) show that among beneficiaries, the poorer the population, the more they fail to comply with the conditions to remain as beneficiaries for reasons associated to poverty, such as transport cost to attend either school, health check-ups, or both. This finding implies that the people that need the support the most are more likely to be dropped out of it.

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[3] At the moment, Acción Social (Presidential Agency for Social Action and International Cooperation).

Defining conditionality solely based on time implies that factors such as the severity of poverty, i.e. high number of deprivations in central dimensions, are not taken into consideration. Highly deprived households may take longer to overcome poverty given that they require to satisfy more severe deprivations. Thus, setting a deadline would imply, in practical terms, dropping out those households halfway of their processes. In consequence, those households that need it the most may not overcome their poverty condition within the period specified.

In 2010, Acción Social (2008) proposed a different approach for these exit conditions. The final mechanism defined is a reflection of the inclusion of some elements of the capability approach (Nussbaum, 2011; Sen, 1988, 1992, 1999) in the public policy process. This implied a reshaping in the public policy approach towards poverty as analysed by Angulo, Diaz and Pardo (2015). This turn highlights elements such as ensuring that the population are enabled with the appropriate skills set to be agents in their own path out of poverty.

These exit conditions area translated into this g*raduation* mechanism that takes into account two important elements, namely, the operation –at the local level- of the Strategy and the achievement of its purpose of poverty reduction. This is a two-step process defined by a set of conditions, labelled as necessary and sufficient conditions. In assessing the former, ANSPE relies on operational indicators (ANSPE, 2012a); in assessing the latter, ANSPE relies on the traditional poverty measures (ANSPE, 2012b).

3.1.1 Necessary conditions

The necessary conditions, the first phase of the process, are related to the fulfilment of five components. These components allow evaluating the performance of the households receiving the support and the assistance provided by the agency, they reflect the connection between input, outputs, and outcomes. The follow-up is a key element of the monitoring system.

The components are: *Component* 1: Follow-up session (Tracking milestones achievement); *Component* 2: Fulfilment of 50% of applicable milestones[4]; *Component* 3: Fulfilment of milestones

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[4] Applicable milestones mean that households with no children need not comply with the specific milestones related to children, for instance, "Children below 6 months receive exclusive breast feeding" (Milestone 23)

prioritised by the household[5]; *Component* 4: Fulfilment of the key milestones required by ANSPE[6]; and *Component* 5: Household does not show signs of risk[7] (ANSPE, 2012a). This phase relies importantly on the relationship built between each household and its designated caseworker. At this stage, the government makes sure household comply with a minimum of requirements not necessarily directly related to their poverty condition, in a theory of change, this is a way of ensuring that participating households received the outputs they are expected to receive. This stage defines the potential households to be *graduated*.

3.1.2 Sufficient conditions

Once the household has fulfilled this first step, they are eligible to start the second phase, namely, the revision of the sufficient conditions. In the second phase, a living conditions (LSMS-type) survey -*Graduation Survey* (*PS*) - is applied to households. This survey instrument allows calculating for each household both their income and their (Colombian) multidimensional poverty index (CMPI). Using categories for Non-poor, Poor and Extreme poor for both poverty indicators, households are ordered in a nine-grid ranking (Figure 1). Fulfilling sufficient conditions requires that each household is not ranked as extreme poor by the income-based measure, and is not ranked as poor by the multidimensional index (Angulo et al., 2015; ANSPE, 2012b).

Figure 1 Sufficient Conditions Grid (CMPI & Poverty line)

Poverty Index		MPI		
		Extreme poor	Poor	Non-poor
Poverty Line	Extreme poor	1	2	3
	Poor	4	5	6
	Non poor	7	8	9

Source: ANSPE (2013, p. 2)

Households ranked in position nine are directly '*promoted*'; those in position six are directed to income generation services (ANSPE, 2012b). One salient aspect is the higher weight assigned to the multidimensional measure in comparison to the income one. A household ranked in position 8 is a

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[5] Households are required to prioritise five milestones, and they know its fulfilment is required to move within the Strategy. Among the preferred ones are the related to the *Identification*, and *Nutrition* dimensions (ANSPE, 2012a).

[6] ANSPE sets seven key milestones to ensure basic conditions for children and housing conditions of households.

[7] This component refers specifically to issues such as Domestic violence; Sexual abuse, and Child labour.

case in point. This household is considered '*multidimensionally*' poor but not income poor, hence remaining on the Strategy.

This seemingly uneven importance between indicators is based on two elements. For one, it reflects the concern related to the possibility of manipulation of reported variables from beneficiaries. Given their incentives to remain in the Strategy, they may discretionally misreport their actual status. Comparatively, reported income is easier to manipulate because it involves one dimension –one figure- whereas MPI involves several dimensions that are not clearly connected by the household members to their index calculation.

More importantly, this is the reflection of the turn in the approach adopted by the government by recognising the importance of households as agents in their own path out of poverty, and its connection with the improvement of their living conditions (DNP, 2010). Thus, the thrust of the *graduation* mechanism must be linked with that of the Strategy, which is creating in households and individuals the skills and abilities to overcome poverty, and for them to remain in a path of prosperity.

4 EMPIRICAL STRATEGY

4.1 Data Overview

We use the UNIDOS *Graduation survey*, which is an exhaustive, LSMS-type of survey that captures information on socioeconomic characteristics, demographics, health, employment, education of the households and its members participating in the UNIDOS strategy. It is implemented by ANSPE and started being collected in 2012 after five years of the implementation of the Strategy.[8] Ever since it is collected on a rolling basis. ANSPE monitors permanently the fulfilment of necessary conditions (see section 3.1.1). The *Graduation survey* is conducted on those households that have fulfilled the necessary conditions (see section 3.1.2).

Our sample data comes from households located in the city of Cartagena, Colombia. Following Angulo et al. (2015) we use the household as the unit of analysis. In the case of poverty, deprivations

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[8] Following the recommendations of the 2006 policy document (CONPES, 2006)

are generally simultaneously experienced by all members within a household rather than by isolated members (Angulo et al., 2015, p. 4). On the other hand, in the case of entrepreneurial endeavours, the concept of household enterprise helps capture the close relationship between household and microenterprise.[9] These productive units are characterised by the use of common pooled resources, e.g. financial capital (no differentiation between business and household accounts); and human capital (not only the entrepreneur itself but household members participate in the operation of the business –sales, production[10]-). From the public policy perspective, the UNIDOS Strategy focuses on the household by design.

4.1.1   The Graduation Indicator

Our dependent variable, *Graduation* is a binary outcome variable defined as those households that satisfy the sufficient conditions (section 3.1.2). Recall that a household is considered *graduated* from the Strategy if it fulfils both the necessary and sufficient conditions defined by ANSPE (2012a, 2012b). Formally it is defined as $graduated = \begin{cases} 1 \ if \ sufficient \ conditions \ fulfilled \\ 0 \ otherwise \end{cases}$

Since our focus is on graduation from the poverty strategy, we make use of both the MPI-based and the income-based measures of poverty calculated using the *Graduation Survey*. For the income poverty, two thresholds are used: The Extreme Poverty Line (EPL) that measures the ability of a family to purchase a basic food basket –basic nutritional approach-; and the Poverty Line, that besides this nutritional component also includes aspects such as health, education and clothing.

The second indicator, CMPI, determines the poverty of a family based on 15 variables grouped into five dimensions: Income and Employment, Children and Youth, Education, Health, and Housing conditions. The cut-off points for poverty and extreme poverty according to this methodology are 5 and 7 deprivations, respectively in the set of variables. Thus, the indicators allow us to classify families as Non-Poor, Moderately Poor, and Extreme Poor (see Figure 1 in section 3.1.2).

Table 4.1 shows the distribution of households on the nine-grid ranking. Comparatively, Cartagena shows a larger proportion of *graduated* households (see Appendix A). This high concentration of

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[9] Vijverberg & Mead (2000) use the term household enterprises to capture two different types of enterprises, namely, survivalist enterprises and microenterprises. They define the former as those enterprises that generate only minimal income sufficient for subsistence; the latter as small scale units with growth potential. In most cases, yet not all, those subsistence enterprises are associated with entrepreneurs living in poverty conditions.

[10] By and large, these are non paid workers.

graduatted households may be explained by the fact that the pilots of the UNIDOS strategy and the income generation policy were implemented in this city. Like other department capitals in the country, Cartagena receives large amounts of forcedly displace population. This fact has meant increasing social demands, and, as a government response a wider public and private supply of social programmes.

Table 4.1 Number of households per poverty condition - Cartagena Metropolitan Area

Poverty Condition		CMPI		
		Extreme Poor	Poor	Non-Poor
PL	Extreme Poor	0.3%	2.2%	8.8%
		(12)	(86)	(338)
	Poor	0.3%	6.2%	33.1%
		(12)	(1,534)	(1.272)
	Non Poor	0.2%	3.3%	47.6%
		(6)	(834)	(1.830)

Note: In parenthesis number of households. Source: Graduation survey, ANSPE November 2012

4.1.2 Entrepreneurship variables

We define an entrepreneurial household (or household enterprise) if there is at least one household member that reports being self-employed or employer. From our dataset, we can differentiate between those entrepreneurs that are at the start-up process (nascent entrepreneurs)[11] as defined by Reynolds et al. (2005) and those entrepreneurs whose initiatives are operating.

Complementarily, we identify among those that have taken up the entrepreneurship support training. Given that the *Graduation survey* is conducted to the whole group of beneficiary households whose members are properly identified, this dataset can be merged with several other datasets. In our case, we are able to identify among our UNIDOS household members those that have also participated in the income generation support offered in Cartagena[12]. We expect a positive effect of this participation on our outcome variable. As already discussed, employment (including self-employment) was not included in the initial set of milestones.

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[11] "Once they have initiated some entrepreneurial start-up activities – and are doing more than just talking about it – individuals have completed the first transition; moving from conception into the gestation or start-up process. They can be considered nascent entrepreneurs." (Reynolds et al., 2005, p. 210)

[12] We include the metropolitan area of Cartagena

4.1.3 Covariates

Table 4.2 summarizes the selected covariates used to model the probability of being *graduated*. We employ as covariates characteristics at the household level and characteristics of the household members. We use demographical covariates such as household size, number of children and of elderly, and whether the household is couple-headed or single-headed. We use socioeconomic covariates such as the average education of the household, family dynamics and labour outcomes. Some of the characteristics of the household head are taken into account in recognition of the pivotal role of this member on the whole household dynamics. Some of these characteristics have been used in similar studies (see González-Flores et al., 2012; Villa & Niño-Zarazúa, 2014).

The first group of covariates includes a demographic characterisation of the household. For instance, it is expected that the larger the household, the lower the likelihood of graduation. This is also the case for a large number of children, or of elderly people within the household, this covariate helps to capture dependent members. We include a variable that allows us to distinguish between couple-headed and single-headed households, among the former, we are able to differentiate between female and male-headed households.[13] It is expected that households headed by a couple have higher chances than single-parented ones. Regarding education, we identify the highest level of education attained among all household members expecting a positive effect on the likelihood of *graduation* out of poverty. Finally, we include the average age of the household.

The second group of covariates include variables of the household head. We identify the highest level of education attained by the household head, and his or her age. These characteristics are proxy indicators of the human capital endowment of the household.

The third group of covariates include labour market outcomes different from entrepreneurship, we include the number of employed persons defined as the number of reported employed members, from this number we subtract the number of reported self-employed to avoid double counting. We follow the Colombian Bureau of Statistics guidelines and calculate employment as those people that report having worked at least one hour in the last week.

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[13] Culturally, in Latin American countries males report to be household head whenever there is a couple even in cases when they are not the main breadwinner. Nevertheless, the appearance of conditional cash transfers changed the role of women within the household.

Table 4.2 Summary statistics

	Mean	Std. dev.
Graduated	0.81	(0.40)
Entrepreneurial Household	0.96	(0.59)
Entrepreneurship support	0.15	(0.36)
Ed. attainment Household Head	1272.26	(1.66)
Max. Educ. Attainment within Household	1273.80	(1.96)
couple==1 (Single female household head)	0.25	(0.43)
couple==2 (Single male household head)	0.03	(0.17)
Age Household Head	44.13	(11.45)
Average Age Household	28.57	(10.54)
Number of employed	0.78	(0.80)
Number of unemployed	0.23	(0.50)
Household Size	4.24	(1.44)
Number of children	1.32	(1.05)
Number of Elderly	0.12	(0.38)
Observations	3849	

Source: Graduation survey Nov. 2012, ANSPE. Educational attainment coding: 1272 = Secondary; 1273 = High School; 1274 Technical no degree

4.2 Estimation Strategy

A potential issue that might result in biased and inconsistent estimators occurs when unobserved factors affecting the response are correlated with unobserved factors affecting the selection process (Heckman, 1978, 1979; Miranda & Rabe-Hesketh, 2006). For the analysis at hand, this is bound to happen as the likelihood of being graduated and the likelihood of being selected into the second phase (fulfilling the necessary and sufficient conditions defined by the government) can be affected by unobserved factors, such as interest, agency capacity, or ability. Therefore, unobserved factors affecting both likelihoods may be correlated, consistent estimation requires modeling the sample selection process.

Heckman sample correction is used when the outcome variables are strictly continuous. However, for binary response sample selection is modelled nonlinearly. This is solved by employing a probit

regression model with sample selection. Thus, the sample selection model for a binary outcome variable can be written as a system of equations for two latent variables:[14]

$$y_i^* = x'_i\beta + \lambda\varepsilon_i + \tau_i \; ; \; y_i = \begin{cases} 1 \; if \; y_i^*>0 \\ 0 \; otherwise \end{cases}$$

$$S_i^* = z'_i\gamma + \varepsilon_i + \zeta_i \; ; \; S_i^* = \begin{cases} 1 \; if \; s_i>0 \\ 0 \; otherwise \end{cases}$$

If $\lambda = 0$ (so that $\rho = 0$), the individuals are randomly selected to the sample and consistent estimators of β are obtained by estimating an ordinary probit or logit regression.

Our main outcome variable y_i (*graduation*) is observed only if a selection condition ($S_i = 1; necessary\ conditions$) is met. In our case, we only observe households that have been selected to the sample ($S_i = 1$). y_i is the likelihood of a household being *graduated* from the Strategy.

We are interested in the effect of a household being entrepreneurial (see section 4.1.2) on the probability of *graduation*, holding other household characteristics constant. By construction, the CMPI does not include an *Employment* dimension, so no labour related variables are included in its calculation. Ideally, we would count with additional information on the household enterprise such as profitability, and the structure of the household enterprise, for instance, the number of employees so we can pinpoint which household members participate in the business and which are external to the household. We do not expect unpaid family workers to affect our analysis, given that their proportion in the sample is reduced (members in 60 households out of 3850 households). The covariates (section 4.1.3) are included because they might affect this probability and also can be correlated with entrepreneurship.

Recall that we can only observe a *graduated* household if they were selected by the agency to check their poverty indicators. This selection comes after fulfilling the necessary conditions, thus it is not a random selection and we have a truncated sample. Hence, if we concentrated exclusively on this subsample to calculate the effect of entrepreneurship, we would be ignoring this truncation. Ideally, we should count with information on household's performance within the Strategy previous to the *Graduation* Survey, that is, information on the satisfaction of necessary conditions (from a

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[14] Ruggeri Laderchi (1997) and Chiappero-Martinetti and Roche (2009) discuss the use of this type of econometric modelling for empirical analysis of the capability approach.

monitoring system), so we can take into account the characteristics of those households and some institutional and operational indicators.

Given that we can only observe those households selected into the second phase (truncated sample), we need to estimate a selection equation that models the probability of fulfilling the necessary conditions. We include in this equation one variable that reports signal risk of the household (section 3.1.1). This is captured by the enumerators and included in the *Graduation* survey. Another variable included in the selection equation is how decisions are taken within the household (head only, couple, with children) as a proxy of family dynamics. The intuition is that better-functioning households will have more chances of satisfying their household plan

Institutional information to capture operational variables such as the number of households per caseworker, time schedules or prioritisation areas within cities would ideally improve our selection equation. It remains an open question whether it would affect the likelihood of graduation and to what extent. Institutional information is hardly recorded systematically given that implementation is done at the local level. Means-tested score at entrance is also missing in the selection equation; we would expect poorer households to take longer to fulfil necessary conditions. Nevertheless, we would not expect it to affect the likelihood of graduation, since households selected into the second phase have already fulfilled the necessary conditions.

5 RESULTS

We present the results in Table 5.1. We find a positive effect of entrepreneurship on the probability of graduating out of poverty. The model is successful, indicating that satisfaction of sufficient conditions, i.e. *graduation* from the UNIDOS Strategy, is more likely to take place for those households that undertake entrepreneurial endeavours. An important finding is that the effect is significant only in the case when the business is effectively operating. For policymakers, the message would be to concentrate efforts on policies that make sure entrepreneurs complete the start-up process (from business idea to business operation). This implies putting in place differentiated interventions at each stage of this process (training, financing, technical support). This also means revising the current offer that not surprisingly is overcrowded with programs that focus only on the training that usually ends with the submission of a business plan.

Our variable *entrepreneurship support* is not statistically significant. It is important to remark that given that we do not have information on whether the entrepreneur participating in the training actually started operating, we coded all participants as (intention) entrepreneurial households. Relating to the previous finding, we would expect to confirm that those businesses that effectively started operating would show a significant correlation with the likelihood of *graduation*.

The likelihood-ratio test of independent equations conclusively rejects that null hypothesis with an estimated rho of -0.98 between the two equations' errors (τ_i, ζ_i), indicating that ignoring the selection into the satisfaction of necessary conditions would render the estimates of a univariate probit equation for *graduation* equation biased and inconsistent. In our case, we would be overestimating the effect of entrepreneurship on the likelihood of graduation. The marginal effect is adjusted from 9% to 5.1% (Table 5.1).

The probability is affected positively by education variables (household head education level and maximum level of education attained among household members). Maximum education level attained shows a slightly higher coefficient than household head education attainment. Because this is usually attained by younger members of the family, this represents an incentive to keep investing in increases in human capital accumulation. The number of occupied members shows a significant coefficient and a higher marginal effect that that of entrepreneurship. Nevertheless, as already mention because we do not have information on the actual structure of the business, we cannot rule out that those members that report being employed carry out their productive activity as paid family workers.

On the other hand, the probability is affected negatively when the household is single-headed – either by a female or a male-, with a slightly worse prospect for single females. This probability is also negatively affected by all '*dependency*' variables, namely, household size, number of unemployed, number of children and number of elderly. The rest of covariates are not statistically significant, namely: Age of household head and average age of the household are not statistically significant.

In the selection equation, few covariates appear to be significant. Mono-parental households headed by women affect positively the probability of selection. This is likely related to the preferential entrance of female household head to specific programmes, and fewer chances of showing signal of risks. Nevertheless, this covariate enters the main equation negatively. In contrast,

it appears that in those cases where the household head centralises the decisions, the probability of selection (fulfilling necessary conditions) reduces.

Table 5.1 Probability of Graduation

	Marginal effects (dy/dx) at mean						Regression output	
	LPM*		Probit		Probit with SS		Probit with SS	
Main								
Entrepreneurial household (1 intention)	0.054*	(0.024)	0.047*	(0.023)	0.001	(0.022)	0.007	(0.103)
Entrepreneurial household (2 operating)	0.127***	(0.027)	0.089***	(0.019)	0.051*	(0.022)	0.270*	(0.130)
Entrepreneurship support (dummy)	0.052*	(0.021)	0.042*	(0.020)	0.027	(0.019)	0.132	(0.095)
Ed. attainment Household Head	0.015*	(0.006)	0.027**	(0.009)	0.022**	(0.008)	0.104**	(0.040)
Max. Educ. Attainment within Household	0.032***	(0.004)	0.035***	(0.006)	0.027***	(0.005)	0.129***	(0.026)
Couples==1 (d) (Female headed)	0.012	(0.019)	0.011	(0.021)	-0.011	(0.021)	-0.053	(0.096)
Couples==2 (d) (Single female)	-0.126***	(0.024)	-0.107***	(0.025)	-0.131***	(0.026)	-0.544***	(0.099)
Couples==3 (d) (Single male)	-0.127**	(0.048)	-0.121*	(0.062)	-0.113	(0.063)	-0.435*	(0.204)
Age Household Head	-0.001	(0.001)	-0.000	(0.001)	-0.000	(0.001)	-0.001	(0.006)
Average Age Household	-0.002	(0.002)	0.000	(0.001)	0.000	(0.001)	0.002	(0.007)
Number of employed	0.088***	(0.010)	0.083***	(0.012)	0.067***	(0.012)	0.315***	(0.056)
Household Size	-0.077***	(0.009)	-0.049***	(0.009)	-0.041***	(0.009)	-0.328***	(0.067)
Number of unemployed			-0.079***	(0.015)	-0.069***	(0.014)	-0.193***	(0.041)
Number of children			-0.013	(0.013)	-0.021	(0.012)	-0.101	(0.059)
Number of Elderly			-0.074**	(0.023)			-0.322**	(0.110)
Select								
Entrepreneurial household (1 intention)							0.035	(0.256)
Entrepreneurial household (1 intention)							-0.338	(0.282)
Ed. attainment Household Head							0.117	(0.075)
Max. Educ. Attainment within Household							-0.016	(0.044)
Couples==1 (d) (Female headed)							-0.060	(0.186)
Couples==2 (d) (Single female)							0.863*	(0.352)
Couples==3 (d) (Single male)							0.093	(0.397)
Average Age Household							-0.000	(0.010)
Number of employed							0.145	(0.107)
Number of unemployed							-0.102	(0.153)
Household Size							-0.045	(0.065)
Number of children							0.070	(0.130)
Number of Elderly							0.193	(0.212)
Signs of risk							-0.145	(0.153)
Head decide (d)							-0.357	(0.200)
Couple decides (d)							0.083	(0.195)
R^2	0.123680							
AIC	1857.156		1818.533		1817.346			
BIC	1930.877		1909.268		2007.878			
F	24.568							
athrho							-2.483**	(0.788)
Observations	2145		2145		2006		2006	

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Notes: Marginal effects; Standard errors in parentheses; (d) for discrete change of dummy variable from 0 to 1.
* p < 0.05, ** p < 0.01, *** p < 0.001

6 CONCLUDING REMARKS

This paper analysed the effect of entrepreneurship in the outcomes of the households enrolled in the Colombian poverty reduction programme. We find a positive effect of entrepreneurship on the probability of graduating out of poverty. We also find that satisfaction of sufficient conditions, i.e. *graduation* from the UNIDOS Strategy, is more likely to take place for those households that undertake entrepreneurial endeavours. An important finding is that the effect is significant only in the case when the business effectively operates, that is for nascent entrepreneurs that overpass the gestation process. We also find an adjusted effect explained by selection into the second phase, which captures the satisfaction of the operational objectives of the social support. Aggregated education of the household shows a positive effect on being graduated because this aggregate is pulled attained by younger household members, this represents an incentive to keep investing in increases in human capital accumulation.

The novelty of the *graduation* mechanism leaves opens the question to whether those *graduated* can sustain their situation, that is to say if once they overcome their poverty condition they can remain out of poverty. As mentioned already, this could be understood as an initial stage of a prosperity path for deprived households. Some questions remain open: Do they distance far enough from their poverty condition? Do they remain vulnerable to economic shocks? Do their chances to fall back into poverty reduce considerably? From the public policy viewpoint, this needs to be done through devising a follow-up mechanism to check the evolution of households over time.

A broader question is whether this graduated population is included in their society in a capability enhanced manner. In this sense, design and implementation of active labour market policies should look into broadening the skills sets of the population beyond human capital, measurement of soft skills, solving-problem skills or the ability to spot a market opportunity and run a business should be part of the employment dimension within a capability set.

Following the Colombian standards of measurement of employment presents a methodological challenge to the multidimensional measurement of poverty, this challenge could be generalized to low and middle income countries that follow the same ILO measurement standards. It seems unfitting when applied to the analysis of multidimensional poverty considering the dual character

of Latin American labour markets –Colombia included- with a percentage of informality –typically around 50%- and a marked divide between low-skilled and high-skilled workers. It is required to think about employment indicators that reflect the nature of labour markets, the insertion of the population in this market and that also allows monitoring the advance of the population in employment terms, in particular of the poor population.

One of the main messages is to potentiate those entrepreneurship programmes that foster start-ups up to the operation phase of the business. This comes with a caveat, high rates of business closure are reported during the first three years (Reynolds et al., 2005; Vesga et al., 2015), entrepreneurship support policies need to internalize this to reduce the risk of failure among entrepreneurs living under poverty conditions; for them, failure can mean the difference between poverty and destitution.

Refinement of survey instruments that allows capturing in more depth the structure of household enterprises –profitability, working household members, and time dedicated to enterprise- and shed light on the inner mechanisms between household members and businesses are necessary. This would inform and improve entrepreneurship support interventions to also enhance the effects on existing businesses, start-ups and finally households. In understanding the mechanisms household – business entrepreneurship policies can serve as a channel to potentiate poverty reduction policies.

BIBLIOGRAPHY

Angulo, R., Díaz, Y., & Pardo, R. (2015). The Colombian Multidimensional Poverty Index: Measuring Poverty in a Public Policy Context. *Social Indicators Research*. https://doi.org/10.1007/s11205-015-0964-z

ANSPE. (2012a). *Cifras UNIDOS. Boletín 001* (Policy report Núm. 001; Cifras UNIDOS, p. 6). ANSPE.

ANSPE. (2012b). *Cifras UNIDOS. Boletín 002* (Policy report Núm. 002; Cifras UNIDOS, p. 5). ANSPE.

ANSPE. (2013). *Cifras UNIDOS. Boletín 005* (Policy report Núm. 005; Cifras UNIDOS, p. 6). ANSPE. http://anspe.gov.co/sites/default/files/documentos/cifras_unidos_-_enero2013.pdf

Boyer, R., & Saillard, Y. (2005). *Régulation Theory: The state of the art*. Routledge.

Chiappero-Martinetti, E., & Roche, J. M. (2009). Operationalization of the Capability Approach, from Theory to Practice: A Review of Techniques and Empirical Applications. En *Debating Global Society: Reach and Limits of the Capability Approach*. Fondazione Feltrinelli. http://www.ophi.org.uk/wp-content/uploads/Chiappero-Martinetti-Roche-2009.pdf

CONPES. (2006). *Red de Protección Social contra la Extrema Pobreza*. Departamento Nacional de Planeación: Santa Fe de Bogotá.

DNP. (2008). *Evaluación de la Gestión y Operación de la Prueba Piloto de la Red JUNTOS* (Sinergia Evaluaciones, p. 92) [Informe Final]. Departamento Nacional de Planeación.

DNP. (2010). *Evaluación de Impacto de JUNTOS - Red de Protección Social para la Superación de la Pobreza Extrema. Condiciones de salida* (p. 32) [Evaluación de Impacto]. Agencia Presidencial para la Acción Social y la Cooperación Internacional.

DNP. (2014). *Análisis resultados Pobreza Multidimensional 2008-2013* (p. 29) [Dirección de Desarrollo Social – Subdirección de Promoción Social y Calidad de Vida Report]. Departamento Nacional de Planeación.

González-Flores, M., Heracleous, M., & Winters, P. (2012). Leaving the Safety Net: An Analysis of Dropouts in an Urban Conditional Cash Transfer Program. *World Development*, *40*(12), 2505–2521. https://doi.org/10.1016/j.worlddev.2012.05.020

Gries, T., & Naudé, W. (2011). Entrepreneurship and human development: A capability approach☆. *Journal of Public Economics*, *95*(3–4), 216–224. https://doi.org/10.1016/j.jpubeco.2010.11.008

Heckman, J. J. (1978). Dummy Endogenous Variables in a Simultaneous Equation System. *Econometrica*, *46*(4), 931–959.

Heckman, J. J. (1979). Sample selection bias as a specification error. *Econometrica: Journal of the econometric society*, 153–161.

Lugo, M. A. (2007). Employment: A Proposal for Internationally Comparable Indicators. *Oxford Development Studies*, *35*(4), 361–378. https://doi.org/10.1080/13600810701701889

Miranda, A., & Rabe-Hesketh, S. (2006). Maximum likelihood estimation of endogenous switching and sample selection models for binary, ordinal, and count variables. *Stata Journal*, *6*(3), 285–308.

Nussbaum, M. C. (2011). *Creating capabilities: The human development approach*. Belknap Press.

Reynolds, P., Bosma, N., Autio, E., Hunt, S., De Bono, N., Servais, I., Lopez-Garcia, P., & Chin, N. (2005). Global entrepreneurship monitor: Data collection design and implementation 1998–2003. *Small Business Economics*, *24*(3), 205–231.

Ruggeri Laderchi, C. R. (1997). Poverty and its many dimensions: The role of income as an indicator. *Oxford Development Studies*, *25*(3), 345–360. https://doi.org/10.1080/13600819708424139

Sen, A. (1988). *The Standard of Living*. Cambridge University Press.

Sen, A. (1992). *Inequality reexamined*. Russell Sage Foundation ; Harvard University Press.

Sen, A. (1993). Capability and well-being. En *The Quality of Life* (p. 453). Clarendon Press ; Oxford University Press.

Sen, A. (1999). *Development as freedom*. Oxford University Press.

Tamvada, J. P. (2010). Entrepreneurship and welfare. *Small Business Economics*, *34*(1), 65–79.

Vesga, R., Rodríguez, M., Schnarch, D., & García, O. (2015). *Emprendedores en crecimiento* (Emprendedores en Crecimiento, p. 129). Universidad de los Andes, Facultad de Administración, Centro de Estrategia y Competitividad. https://cec.uniandes.edu.co/images/pdf/Emprendedores_en_crecimiento_3.pdf

Vijverberg, W., & Mead, D. (2000). Household enterprises. En *Designing Household Survey Questionnaires for Developing Countries: Lessons from 15 years of the Living Standards Measurement Survey, vol. 2.* (Vol. 15, pp. 105–137). The World Bank.

Villa, J. M., & Niño-Zarazúa, M. (2014). Poverty dynamics and programme graduation from social protection. A transitional model for Mexico's Oportunidades programme. *WIDER Working Paper*, *2014/109*, 1–21.

Appendix A

Table A.1 Number of households per poverty condition - Colombia

Poverty Condition		CMPI		
		Extreme Poor	Poor	Non-Poor
PL	Extreme Poor	2.0% (2.891)	13.3% (19.086)	38.8% (55.776)
	Poor	0.3% (433)	3.5% (5.041)	21.6% (31.050)
	Non Poor	0.1% (169)	1.7% (2,398)	18.8% (27.040)

Source: Graduation survey, ANSPE, November 2012

Table A.2 Number of households per poverty condition - Bolívar

Poverty Condition		CMPI		
		Extreme Poor	Poor	Non-Poor
PL	Extreme Poor	2.1% (128)	7.9% (481)	16.3% (987)
	Poor	0.4% (27)	5.5% (336)	27.4% (1.660)
	Non Poor	0.2% (14)	3.1% (186)	37.0% (2.239)

Source: Graduation survey, ANSPE, November 2012

Table A.3 Variables included

Variables	Definition
Graduated (prom)	1 if household is graduated 0 otherwise
Entrepreneurial Household (entrep)	1 if there is at least one entrepreneur in the household but the household enterprise is not operating (Entrepreneur reports to have a business idea or business plan done) 2 if there is at least one entrepreneur in the household and the household enterprise is operating 0 otherwise (if no members are interested in pursuing entrepreneurial endeavours.
Entrepreneurship support (entreptr)	1 if the entrepreneur participated in the entrepreneurship support provided by CEMPRENDE 0 otherwise
Ed. attainment Household Head (edhead)	1269 if household head has none education. 1270 if household head attained Preschool 1271 if household head attained Primary education 1272 if household head attained Secondary education 1273 if household head attained High School education 1274 if household head attained Technical but no degree 1275 if household head attained Technical degree 1276 if household head attained College but no degree 1277 if household head attained College degree 1278 if household head attained Graduate but no degree

	1279 if household head attained Graduate degree 1280 if household head attained Postgraduate but no degree 1281 if household head attained Postgraduate degree
Max. Educ. Attainment within Household *(maxed)*	1269 if none education has been attained by any household member 1270 if Preschool is the highest educational attainment among household members 1271 if Primary education is the highest educational attainment among household members 1272 if Secondary education is the highest educational attainment among household members 1273 if High School education is the highest educational attainment among household members 1274 if Technical but no degree is the highest educational attainment among household members 1275 if Technical degree is the highest educational attainment among household members 1276 if College but no degree is the highest educational attainment among household members 1277 if College degree is the highest educational attainment among household members 1278 if Graduate but no degree is the highest educational attainment among household members 1279 if Graduate degree is the highest educational attainment among household members 1280 if Postgraduate but no degree is the highest educational attainment among household members 1281 if Postgraduate degree is the highest educational attainment among household members
Couple *(couples)*	0 if household is couple-headed, and the household head is a male 1 if household is couple-headed, and the household head is a female 2 if household is single-headed by a female 3 if household is single-headed by a male
Age Household Head *(agehead)*	Age of household head
Average Age Household *(avage)*	Average age of household members
Number of employed *(nocup)*	Number of household members that reported to work at least an hour in week of the interview
Number of unemployed *(ndeso)*	Number of household members that reported not having worked for at least an hour in the week of the interview,
Household Size *(hhsize)*	Number of household members
Number of children *(agemin)*	Number of household members younger than or 14 years old
Number of elderly *(agemax)*	Number of household members older than or 65 years old

Box 1 Household Plan

The Household Plan is a bespoke action plan concerted between the caseworker and the family at the outset of the household's participation. It functions as a guiding route that helps the caseworker accompany each assigned household through the fulfilment of the different dimensions, prioritizing their current conditions and expectations. The satisfaction of the diagnosed deprivations is expected to improve the chances of households to overcome and remain out of their poverty condition.

One of the pillars of the policy is the '*joint responsibility*' principle which requires households, and individuals to be key agents in their own way out of poverty, that is, they have an active role all through their process alongside the government support. This coincides with the agency's principle of the capability approach where enhancing the set of opportunities is as important as the freedom individuals have to choose from this set. Making each household agent and accountable for their own performance within the strategy is expected to enhance the autonomy of households. This means an improvement from the previous orientation of the social protection system from paternalistic to a more transformative-type of social protection.

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