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Developing Economies: The Colombian Case

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Business Ownership and Self-Employment in Developing Economies: The Colombian Case

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January, 2008
First Draft

Abstract

We characterize entrepreneurship in developing economies through a case study for Colombia. We document self-employment and business ownership since the 1980s; while the relative size of these groups within the labor force is stable across time, they differ significantly in important observable dimensions such as education and business sector. We then study the motivations to become an entrepreneur. First, we analyze the transition into and out of potential forms of entrepreneurship by measuring the flows across occupations, and study the determinants of entry and exit into and out of self-employment and business ownership; there is surprisingly little transition between self-employment and business ownership. Second, we focus on the financial motivations by measuring the differences in earnings of self-employment and business ownership relative to salaried work, at the mean and along the distribution. There is a substantial earnings premium to become a business owner, but it is not financially attractive to become self-employed. The results of this paper suggest that while business ownership is what the literature associates with entrepreneurship, self-employment is basically a subsistence activity.

JEL Classification: M13, J24, J62, J82

KEYWORDS: Entrepreneurship, self-employment, business ownership, transition probability, earnings premium

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Empleadores y Trabajadores por Cuenta Propia en Economías en Desarrollo: El Caso Colombiano

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Primera versión

Resumen

En este estudio caracterizamos el emprendimiento en economías en desarrollo a través del caso Colombiano. Aunque la fracción de empleadores y trabajadores por cuenta propia dentro de la fuerza laboral a partir de 1984 ha permanecido relativamente estable, los dos grupos difieren de manera significativa en términos de características observables tales como educación y sector económico. En particular, exploramos las motivaciones de los agentes para convertirse en empresarios. Primero analizamos las transiciones desde y hacia las potenciales formas de emprendimiento midiendo los flujos entre ocupaciones. Posteriormente, estudiamos los determinantes de entrada y salida de las ocupaciones de empleadores y trabajadores por cuenta propia. Los resultados muestran por una parte, que los niveles de transición entre estas dos ocupaciones son muy bajos; y adicionalmente, que quienes pasan a ser empleadores requieren por lo general de mayores niveles de capital humano, y tienden a transitar en mayores proporciones por voluntad propia que los trabajadores por cuenta propia. Adicionalmente, exploramos las motivaciones financieras de cada grupo midiendo las diferencias de ingresos entre los trabajadores por cuenta propia y los empleadores, en relación con los trabajadores asalariados a lo largo de la distribución de ingresos. Los resultados indican que mientras los empleadores tienen diferenciales positivos de ingresos en relación con los trabajadores asalariados; no es financieramente atractivo ser trabajador por cuenta propia. Los resultados de esta investigación sugieren que mientras los empleadores pertenecen al grupo que la literatura tradicional asocia con emprendimiento; la mayor parte del trabajo por cuenta propia está relacionado con una actividad de subsistencia.

Clasificación JEL: M13, J24, J62, J82

Palabras Clave: Emprendimiento, trabajador por cuenta-propia, empleador, probabilidad de transición, diferencial de ingresos

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1 Introduction

There has been an increasing interest in the developing world to promote entrepreneurship as a crucial component of their policy agenda towards job creation, economic development and growth. However, very little has been documented about entrepreneurs in these countries. In contrast, the establishment of stylized facts in the developed world in regards to this group's income participation, wealth accumulation, firm size and job creation has generated a dynamic and growing literature in the area. Understanding entrepreneurial behavior in these countries is key for the design of appropriate economic policy. Our main goal is to characterize entrepreneurship in developing economies with substantial informal markets presence through a case study for Colombia. In particular, we explore the question of *whether "pure" self-employment (defined by those who work just by themselves) in this environment is a form of, or a path to entrepreneurship.* We define entrepreneurs as individuals whose primary occupation is to run a business (working alone or employing others) and who *are engaged in this occupation looking forward to grow, or at least sustain their business in time.* Thus, this definition excludes individuals engaged in some kind of activity to generate income while waiting to become a paid worker.

There is no consensus around a precise definition of entrepreneurship in the literature. For example Evans and Leighton (1989), Evans and Jovanovic (1989), Blanchflower and Oswald (1998), among others, focus on self-employment. Cagetti and De Nardi (2001), Hurst and Lusardi (2004) and others define entrepreneurs as business owners. Quadrini (1999) and Akyol and Athreya (2007) consider both of these groups in their definition. The distinction across these two groups doesn't seem to be critical in the U.S. economy; given that sensitivity analysis in some of these studies shows no significant differences in their main results across definitions.¹ Furthermore, calculations using SCF data indicate that roughly 70% of those that declare to be self-employed are also business owners. In contrast, our analysis shows that business owners and the self-employed in Colombia differ in important ways. For example self-employment is more prevalent than business ownership: while the fraction of business owners within the employed remained at around 5% during the period of study, self-employment is much higher (25% to 35% in 1984-2006).² Therefore, not only

¹See for example Hurst and Lusardi (2004).

²While the Colombian data categorizes individuals as either *employers* or *self-employed who works alone*. using a single question about primary occupation, widely used surveys for the U.S. such as SCF and PSID ask separate questions to determine occupation and business ownership. Given that we assume *employers* to be self-employed individuals who own some kind of business that hires paid workers, the fraction of business owners to the total self-employed figure in Colombia doesn't include those self-employed who own single-worker businesses. Hence, one of the issues this paper tries to address is if the typical self-employed in these economies is running some kind of firm.

do business ownership and self-employment need to be characterized separately, but also the relationship between them calls for clarification in this environment. Thus, what this paper tries to determine is if individuals in developing economies who declare to work by themselves tend to have the same characteristics, motivations and occupational dynamics as those who clearly run firms that employ others.

The Colombian case has all the ingredients of the typical Latin American country. Entrepreneurial activity (taking SMEs as a proxy) accounts for about 40% of total output, 48% of industrial employment and 70%-75% of employment in the retail and services sectors.³ Colombia has a similar level of self-employment as other Latin American countries and displays similar informality levels measured by the percentage of the labor force not covered by a pension scheme.⁴ Moreover, self-employment and informality are highly correlated in Colombia, given that this group shows the lowest access/contribution to social security. On the other hand, less than half of business owners have their firms registered while only 5% of the self-employed register their business activities. In addition, the micro data for Colombia is remarkable. Despite the lack of panel data, the existence of retrospective questions including previous job characteristics (including occupation, economic sector and firm size among others), allow for a detailed analysis of transitions across occupations.⁵

We start by characterizing the different categories of "non-wage earners" (business owners and the self-employed) in section 2. While the relative size of business owners within the labor force has been relatively stable at around 5% since the 1980s, the fraction of those self-employed increased from roughly 20% to 30% with the recession of the late 1990s and has maintained this higher level despite the economic recovery cycle of the last 4 years. We also document differences across these groups in several dimensions such as education, business industry, gender, age, hours worked and informality. Business owners tend to be more educated than their self-employed peers. For example, 30% of business owners have college education, compared to 11% for the self-employed (and 20% for wage earners). In regards to business industry, about 3/4 of the self-employed work in services sector (of which almost half are engaged in trade). Business owners on the other hand, show a higher participation in manufacturing and construction (40% in total, distributed in 2/3 and 1/3 respectively). Finally, we show that the level of informality among the self-employed, measured by either social security coverage or pension contribution, is higher than that of business owners (which

³According to ANIF, the National Association of Financial Institutions

⁴Note that self-employment is frequently considered as a form of entrepreneurship by the entrepreneurship literature while at the same time it is used as a proxy for informality levels in the informality literature.

⁵It is important to mention that the evidence for Colombia presented in the World Bank's "Informality: Exit and Exclusion" flagship report differs in important ways from other Latin American countries such as Argentina and the Dominican Republic.

at the same time is below that of wage earners). In addition, the levels of firm registration and registration renewal for business owners tend to be low. The differences across these groups of non-wage earners in education and business industry are key dimensions in determining the type of entrepreneurship they are engaged in. ⁶

We then characterize transitions across occupations and analyze the financial motivations of business owners and the self-employed. In section 3 we construct transition matrices across the different states and occupations (for 1 year periods) of agents within the labor force: unemployed, wage-earner, self-employed and business owner. The analysis of these matrices across time shows that the high persistence that characterizes the employed (wage earners, self-employed and business owners) is less sensitive to the business cycle for the non-wage earners. Moreover, while the majority of the new self-employed and business owners in the economy come from the pool of wage earners rather than from unemployment, the transitions between self-employment and business ownership (and vice-versa) are extremely low. This last fact can be interpreted as evidence against the idea of self-employment as a primary phase towards business ownership. Another interesting finding is that the flow of unemployment to self-employment is about 8 times that of unemployment to business ownership. This argues in favor of the idea that self-employment is a temporary activity carried out by those who fail in the search for a paid job. In addition to the analysis of the transition matrices, we also characterize each of the flows involving self-employment or business ownership through the estimation of probit regressions on demographics, labor history and business characteristics. The results imply that entry to self-employment (either from paid work or unemployment) is characterized by low human capital (defined by age and education) and a strong survival motive (those with families to support). Entry to business ownership on the other hand, is characterized by higher human capital and weaker survival motives. Exit flows show in general higher voluntary motivations for the self-employed, who return to a better job in paid work or end some temporary activity, than for business owners who in general tend to exit due to the failure of their business ventures. These results argue once again against the idea of self-employment as a form of or first step towards entrepreneurship. ⁷

In section 4 we study the financial motivations of each of these groups of non-wage earners. The main findings show that while there are clear financial motivations for business owners that justify the risk involved in running their own business, the self-employed's earnings are

⁶Mondragon (2005) shows these observable characteristics are highly correlated in the case of the U.S. economy, and determine different types of entrepreneurship in terms of earnings, returns, wealth and transitional dynamics.

⁷Thus, the evidence related to the transition flows and determinants to self-employment reinforce the findings of the World Bank's "Informality: Exit and Exclusion" study in regards to the involuntary nature of self-employment in the case of Colombia.

in general lower than those of their wage earners' peers. We show that while the distribution of earnings for business owners has higher mean, median and right-skewness than that of wage earners; the earnings distribution of the self-employed shows lower levels for the same moments relative to the wage earners. Furthermore, while the earnings gap between wage earners and entrepreneurs is positive and increases along the distribution, that between wage earners and the self-employed is negative and decreases along the distribution.

Altogether, the findings of this paper suggest that self-employment in this economy is in general neither a form or initial phase towards entrepreneurship. Thus, further studies are required to explore these issues in other developing economies, that also develop new datasets, perform alternative estimations, and construct theoretical models that explain the behavior of this group of agents in such an environment.

2 Characterizing Entrepreneurship in Colombia

The literature considers alternative ways to define an individual as an entrepreneur including self-employed, business owner or both. Given the structure of the data, we work with 3 separate categories of non-wage earners: business owners, self-employed, and self-employed*.

⁸ Figure 1 shows the fraction and composition of non-wage earners together with the unemployment rate between 1984 and 2006. First, note that the fraction of non-wage earners in the economy tends to be stable over long periods of time. The average fraction of non-wage earners increased permanently in the late 1990s from nearly 30% in 1984-98 to about 40% after year 2000. This structural change coincided with the biggest recession of the Colombian economy in the last decades. However, while the average fraction of business owners has remained relatively stable around 5%, the self-employed increased from around 20% in 1984-1996 to over 30% in the subsequent period. Similarly, the self-employed* went from 4% until 1996 to 7% between 1998 and 2006. ⁹ Interestingly, the fraction of self-employed is responsive to the unemployment rate only when it increases. That is, when the unemployment rate increases, so does the fraction of self employed; however when unemployment decreases, the fraction of self-employed remains at the same level.

⁸The Colombian questionnaire divides the population as either employed, unemployed, student, disabled and inactive. Among the employed it distinguishes between wage earners (in the private or public sectors); housekeepers, maids, cooks or other servants; self-employed; business owners or employers; and non-paid workers of family businesses. We consider housekeepers, maids or servants as wage earners, unless they declare to be self-employed in these type of occupations (which means that they work for other households as independent contractors); case in which they are classified within our third non-wage earning category self-employment*. See Appendix A for a description of the Colombian data.

⁹Given that our sample covers the 7 main cities, it is important to note that the behavior of this group is related to internal migration to urban areas due to the situation of violence concentrated in rural areas.

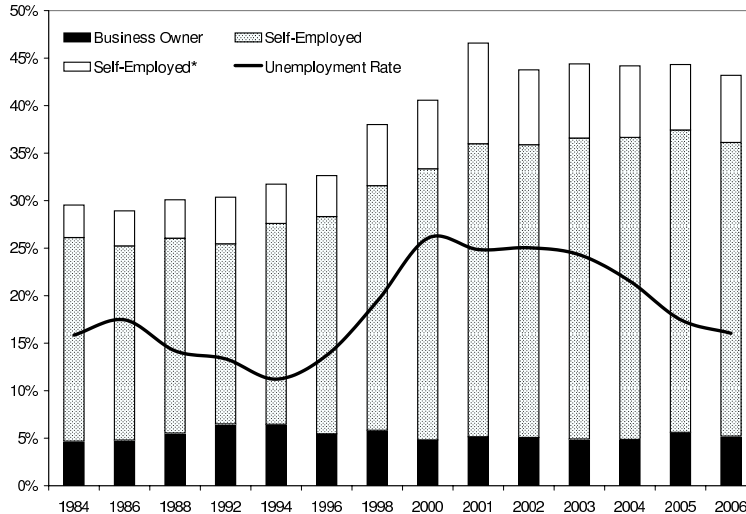


Figure 1: Fraction of Non-Wage Earners within the Employed (1984-2006)

Thus, the occupational structure in Colombia for the past 20 years has been relatively stable with 30% to 45% of the employed characterized as non-wage earners; a group mainly dominated by the self-employed. There was, however, a structural break in the composition of the employed associated to the economic recession of the late 1990s that resulted in a higher participation for all kinds of self-employment, and a reduction of wage earners in the economy. In order to assess the impact of these dynamics of entrepreneurial activity in the economy, the next subsection characterizes the different groups of non-wage earners on several dimensions to understand the types of entrepreneurship they are involved in and the kind of entrepreneurs they are.¹⁰

2.1 Educational Differences

We start by documenting the education composition of the Colombian workforce. Over the period of study, the country has been undergoing a successful transformation, where the overall education level of the workforce have steadily increased. The Colombian workforce, including the unemployed, passed from having 7.26 years of schooling on average (with a standard deviation of 3.93) in 1984 to 9.62 (with a standard deviation of 4.26) in 2006.

We consider four education categories: incomplete primary, completed primary, completed secondary and completed tertiary education. Non-wage earners are more common at lower than at higher levels of education. The fraction of non-wage earners observed at the lowest levels of education increased steadily in the period 1984-2006 from 41% to 63% for those with less than primary, and from 39% to 49% for those with completed secondary edu-

¹⁰The information available doesn't allow for the analysis of differences in the access to credit.

Occupations as Percentage of Education Levels (2006)					
	Wage	Business	Self-	Cleaning	Total
	Earners	Owners	Employed	Contractors	(Employed)
<Primary	37%	4%	40%	19%	100%
Primary+	51%	4%	33%	12%	100%
Secondary+	70%	5%	22%	4%	100%
Tertiary+	73%	9%	17%	0%	100%
Total	62%	5%	26%	7%	100%

Education Composition by Occupations (2006)					
	Wage	Business	Self-	Cleaning	Total
	Earners	Owners	Employed	Contractors	(Employed)
<Primary	5%	6%	13%	23%	9%
Primary+	27%	27%	41%	54%	33%
Secondary+	48%	37%	35%	22%	42%
Tertiary+	20%	30%	11%	0%	17%
Total	100%	100%	100%	100%	100%

Figure 2: Educational Composition of the Employed (2006)

education. The behavior at the highest levels of education is somewhat different. The proportion of high school graduates in non-wage earning activities increased from 19% in 1984 to 30% in 2006, while the fraction college graduates in non-wage earning activities has remained fairly stable at around 27% throughout the period of study. Figure 2 shows the figures for 2006. Today more than half of the low educated who are employed and about 1/3 of those with more than a high school degree are either self-employed or business owners. Given that non-wage earners are about 43% of all the employed, low educated individuals tend to be non-wage earners more than paid workers.

The variation in the education composition by occupation is sizeable. Despite the overall increase in the education level of the workforce, the differences in education composition across occupations remained fairly stable over time. Thus, in Figure 2 we present figures for 2006 only. The occupations with highest education are business owners and wage earners. The main difference in education levels between the two lies in the composition of the two top education levels: for both groups at least 67% has completed secondary and above. However, business owners have the highest proportion of individuals with completed college education (30%), while the same figure is only 20% for wage earners. Thus, business owners are the most educated group. The self-employed and self-employed* are less educated than the average of the employed. The latter group in particular, shows the lowest education levels. Taking into account that business owners are about 5% of the employed; the contribution of business ownership is proportional to its size for all education levels except college graduates. Thus, those with the highest education that choose to be non-wage earners tend to be business owners rather than self-employed.

2.2 Sector Composition

Now we explore the industry sector composition of the non-wage earners. For this purpose, we constructed 10 sector categories from the reported 2-digit economic sectors: Primary sector (agriculture, farming and extracting activities), Manufacture I (food, beverages, textiles, clothing and shoes), Manufacture II (intermediate goods), Manufacture III (furniture and capital goods), Construction (construction and distribution of gas, water, electricity), Trade (wholesale and retail trade), Entertainment (hotels, restaurants, bars and other entertainment services), Transportation, Financial, Real Estate and Business Services (finance, insurance, business, telecommunications, courier, information technology, equipment rental, real estate), and Other Services (education, health, security). We present the sector composition in the Industry (Primary, Manufacturing and Construction) and the Services sectors focusing on the business owners and self-employed, given that all the self-employed* are in the same sector.¹¹ Business ownership and self-employment in Colombia have not only been dominated by the services sectors, but these occupations have gradually increased their share in these sectors since the 1980s. However, business owners are more concentrated on industry than the self-employed. The share of business owners in the industry and services sectors are around 40% and 60%, respectively; whereas for the self-employed the proportions are 25% to 75%, respectively. As shown in figure 3, within the Industry sectors, Primary and Manufacture III have compensated the cyclicality of Construction and Manufacture I. Manufacturing II faced a sharp decline passing from around 12% in the period 1984-2001 to around 5% in the last years while Manufacture III went from less than 1% at the beginning of the period around 4% in the final years. Regarding Services, Trade accounts for an important share of business owners, explaining half of the activity in the services sectors.

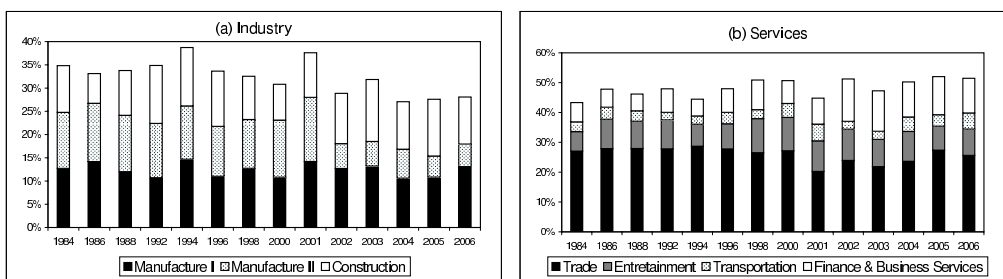


Figure 3: Business Owners Sector Composition

¹¹The Primary, Manufacture III and Other Services sectors are not included in the graphs, for simplification purposes, but included in the aggregate analysis.

For self-employed, within Manufacturing, the activity in construction increased in the late 1980s into the mid 1990s, decreased in the late 1990s and has maintained a level of over 10% since 2000; the activity in Manufacturing I declined gradually from 15% in the mid 1980s to a level below 10% in recent years. The activity in Manufacture II dropped from almost 5% for the period 1984-2001, to just below 3% in the last 4 years. Thus, the recession of the late 1990s reduced self-employment in the manufacturing sectors.¹² Regarding the services sectors, even though trade dominates this group, its participation has declined from around 40% until the mid 1990s to 32% in the last 5 years. Entertainment and transportation increased their participations from 5% and 8% up to the late 1990s to 9% and 14% since year 2000, respectively. Finally, the finance, business and other services industry increased its participation from around 5% until 2001 to around 9% in the past 5 years. In sum, while business owners are relatively more concentrated in the manufacturing sectors, the self-employed are concentrated in the services sectors (especially trade).

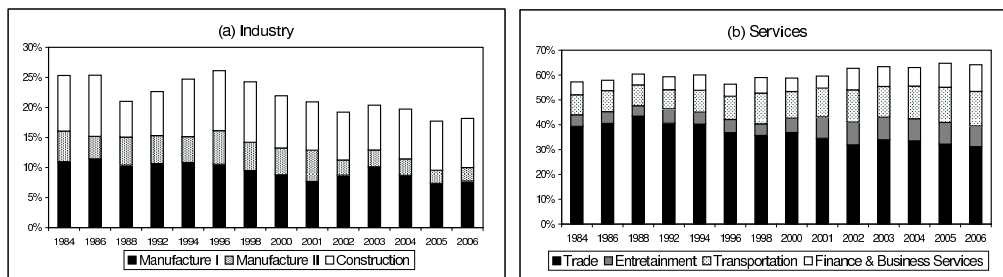


Figure 4: Self-Employed Sector Composition

2.3 Gender, Age and Hours Worked

The self-employed and business owners differ also in regards to other covariates. For example, there is great variation in the gender composition across occupations, which is fairly constant through time. For instance, whereas women comprise 47% of wage earners; they account for 33% of business owners, 36% of the self-employed and 91% of the self-employed*. Thus, despite the fact that their participation rate is lower than that of men, women are the majority of self-employed* and they are under-represented in the remaining non-wage earning categories. In addition, non-wage earning groups tend to be slightly older than wage earners. In 2006 the average age of wage earners was 34.5, while the comparable figures for business

¹²Manufacture III increased its participation from levels below 1% in the late 1990s and early 2000s, to around 2.5% since 2002.

owners, self-employed and self-employed* are 43.9, 40.8 and 39.7, respectively. Finally, business owners work on average more hours per month than any other group, followed by wage earners, the self-employed and finally the self-employed*.

2.4 Informality and the Non-Wage Earner Occupations

To understand the nature of entrepreneurship in the presence of a sizeable informal sector it is important to disentangle the relationship between non-wage earning activities and informal markets at the micro level. However, there are several distinct conceptual understandings of informality and each one entails a different definition of the phenomenon. For this purpose we use alternative definitions of informality and explore how they interact with the non-wage earning categories defined above.¹³

The Informality Module in the survey allows for several empirical definitions of informality from the worker's perspective. The "official" definition of the Colombian government, adopted by the National Statistics Department (DANE) is largely driven by firm size. This definition states that informal workers are those who: (i) work in firms with 10 or fewer employees; (ii) are unpaid family aids and housekeepers; (iii) are self employed (except for independent professionals); or (iv) are business owners of firms with 10 or less employees. Note that it does not include any criteria regarding compliance with labor market regulations. Under this definition, the informal activity has been steadily increasing its share in Colombia from about 50% in 1984 to over 56% in 2006. This increase in informality is considered high, and frequently quoted in the domestic debate. Alternative definitions of informality are given by social security coverage and contribution. In contrast with the official definition, informality drops throughout the period of study under every social security related definition. The first of these definitions is given by *access to health insurance*. According to this criterion the percentage of informal workers decreased from nearly 50% in 1984 to 15.7% in 2006. This is a success story of the innovative health reform undergone by Colombia. *Pension contribution* is another alternative way to define informality. The percentage of workers do not contribute to the pensions system has an inverted u-shape: it increased from 58.6% in 1996 to 61% in 2000, and then decreased steadily to reach 54.7% in 2006. Overall, pension contribution is more volatile and follows the economic cycle closer than the previous measures. Informality is higher if measured through pension contributions than if measured through health coverage, suggesting either that agents value health over old-age insurance, or the existence of informal insurance mechanisms (such as the subsidized

¹³By defining informality as the non-compliance with labor market regulations such as social security provision, workers have no formal insurance against illness, unemployment and/or old age. From the firms perspective, informality is undesirable because it is associated with low productivity levels. The causality of this relationship, however, is an empirical question out of the scope of this paper.

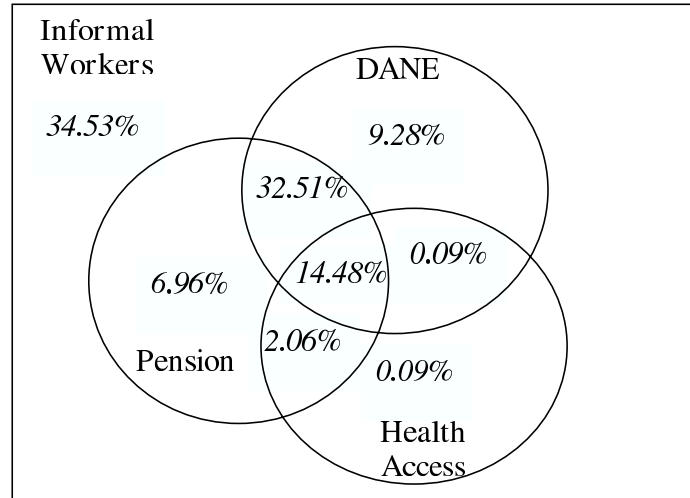


Figure 5: Dimensions of Informality: Venn Diagram (2006)

health coverage program for low income families currently in place, or the contribution of one member of the household which provides coverage to other non-contributing members of the household). The relationship between the alternative definitions of informality is summarized in figure 5. The data corresponds to year 2006, though the relationship portrayed is similar during all the period of interest.

While about 1/3 of the employed are considered formal under all definitions, 14.5% belong to the intersection of the three categories and are thus considered informal under every criteria. As shown in figure 5 the official definition captures most of those considered informal under the other definitions. This is because non-compliance with social-security regulations is a small-firm phenomenon. Small firms find it easier to stay below the government radar and evade contributions. Thus, although the official definition doesn't include any criteria regarding social-security coverage, it captures the phenomenon indirectly. Those considered informal by lack of health access are almost a subset of those who don't contribute to pensions; and most of these are also captured by the official definition. However, there are larger differences between those informal in pension contributions and those informal under the government's definition. To examine the variation of informality across time and occupation we focus on access to health insurance. Figure 6 shows that there are big differences between occupations regarding access to Health Insurance. While wage earners have the lowest informality rates followed by business owners, both the self-employed and self-employed* very low access levels. Under this criterion the differences in informality rates across occupations have decreased considerably since the 1980's.

An alternative way to define informality is business registration. For the firms registration to be valid in Colombia, it has to be renewed on a yearly basis; the adopted definition of

firm formality is registered businesses that have renewed their registry within the last year.¹⁴ There is a stark difference in registration levels for business owners and self-employed. The fraction of registered self-employed individuals is less than 5%, whereas 38% and 47% of business owners were registered in 2002 and 2006, respectively. However, even for business owners, registration levels are low.

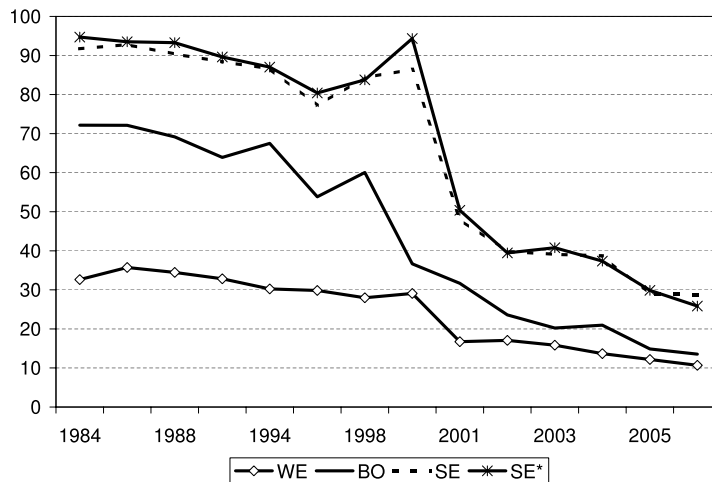


Figure 6: Informality (% without Health Coverage) by Occupation

3 The Transition into and out of Self-Employment and Business Ownership

In this section we study the flows of agents within the labor force across different states and occupations. We start by measuring these flows through the construction of transition matrices for each of the available cross-sections during the period 1988 to 2006. Next, we characterize each of the flows involving entry or exit to either self-employment or business ownership. This is done through the estimation of transition probabilities as functions of demographics, occupation-specific and other idiosyncratic labor-history characteristics. As an example, figure 7 describes the average flows (within 12-month periods) into and out of business ownership and self-employment, as well as the relative size of each group within the labor force for the period 2003-2006. While 12% of individuals in our sample were unemployed and about 2/3 of the employed were paid workers, the self-employed and business owners represented 25% and 5% of the employed respectively. On the other hand, and given the relative sizes of each of these groups, about half of the *new* business owners and self-employed came from paid work, with 35% to 45% (respectively) coming from unemployment.

¹⁴Information about firm registration is only available for the years 2002 and 2006.

On the other hand, cross flows between self-employment and business ownership, as well as exit flows from these two groups to paid work or unemployment are relatively low. In the rest of the section, we describe these dynamics relative to the macroeconomic conditions in the past 20 years, and then characterize in detail each of these transitions.

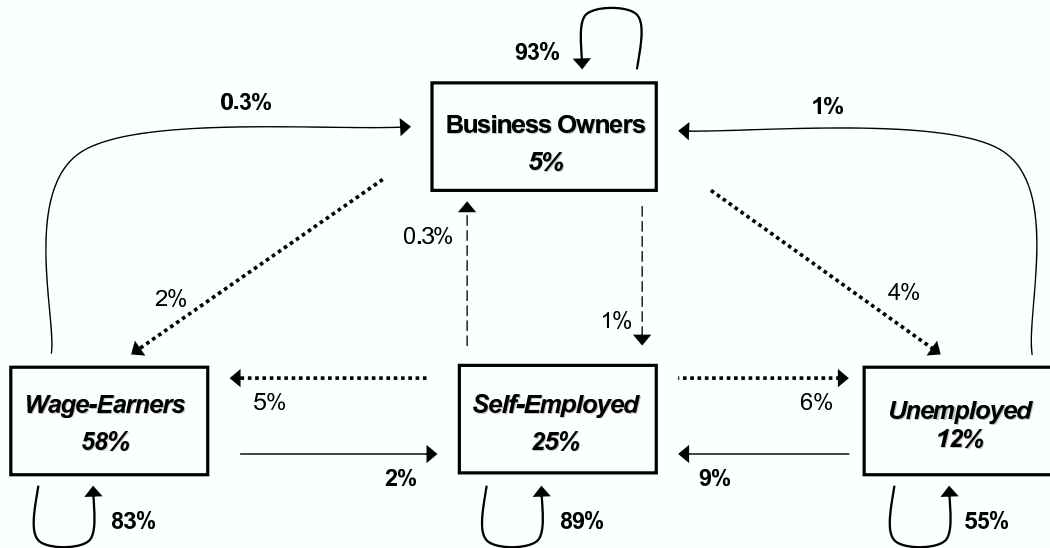


Figure 7: Occupation groups within the Labor Force and Transition Flows into and out of Self-Employment and Business-Ownership (2003-2006)

3.1 Measuring the Flows: Transition Matrices

To construct transition matrices we compare the state/occupation of each individual within our sample at time t with that at time $t - \tau$.¹⁵ This estimation only includes agents who were part of the labor force at both t and $t - \tau$.¹⁶ At each point in time, agents within this group are defined as either wage earners (WE), self-employed (SE), business owners (BO) or unemployed (UN). The inclusion of the unemployed is of particular importance to understand the motivations and drivers of the transition into and out of self-employment and business ownership. For example, by including unemployment we aim at determining whether self-employment is an intermediate state towards business ownership, or an alternative to unemployment towards a future paid job. We considered five alternative transition

¹⁵These data is available for all individuals within each cross-section through retrospective questions included in the informality module of the household survey, which ask about previous occupation, unemployment spell between jobs, occupation change motives, as well as previous job and firm characteristics.

¹⁶Maids, household workers/servants and all others in the SE* category described before are excluded, given that there is not enough information about their previous occupation to determine if they were wage earners or self-employed in $t - \tau$.

periods for each of the 12 cross-sectional samples available in the period 1988-2006.¹⁷ We discuss results for 12-month transitions, which can be directly related to macroeconomic conditions of the time period in question.¹⁸ We divide the period of study into three sub-periods that characterize different moments of the economy's business cycle in the past 20 years. The first period (1988-1994) is characterized by a stable economic performance above the past 20-year average (with growth rates above 4.5% for all years included in the sample); the subsequent period (1996-2002) is one of declining growth and recession years (growth rates of 2.5%, 1.2%, 3.7%, 1.2% and 2.4% for years 1996, 1998, 2000, 2001 and 2002, respectively); and finally, the period 2003-2006 is a recovering phase with an increasing growth trend towards a 20-year high performance in 2006 (from 3.4% in 2003 up to 6.8% in 2006). There is little variation of the estimates across different years within each of these sub-periods.

Panel (a) of figure 8 describes the 12-month transition period average matrices. Each element in the matrix represents the fraction of agents that were in the state described by row i at time $t - \tau$, who are in the state described by column j at time t . For example, the first row of the 12-month transition matrix for the 1988-1994 period is interpreted as follows: of all the individuals whose occupation was wage earner, 89% remained as wage earners (either in the same job or at another wage earning position) one year later, 9% become unemployed and 0.4% and 1.6% transitioned into business ownership and self-employment, respectively. First, note the high persistence for the employed. At least 80% of wage earners, business owners and the self-employed stayed within the same occupation each year. Also, note the differences in the fractions of wage earners and unemployed who stayed in the same state across the three business-cycle periods. While 89% of wage earners stayed as paid workers in the high growth period (1988-1994), the figure drops to 83% for the recession (1996-2002) and recovery (2003-2006) periods; accordingly, while 51% of the unemployed didn't get jobs within 12 months during the high growth period, the figure jumps to 63% during the recession, dropping again to 55% in the recovery phase. In contrast, the fractions of self-employed and business owners keeping the same occupations are less sensitive to changes in macroeconomic performance. While the fraction of BOs staying in business varies only from 90% to 92.5%, that of SEs drops from 94% in the high growth period to 91% and 89% in the recession and recovery periods, respectively.

¹⁷That is $\tau = \{12, 24, 36, 48, 60\}$ months, and $t = \{1988, 1992, 1994, 1996, 1998, 2000, 2001, 2002, 2003, 2004, 2005, 2006\}$.

¹⁸Furthermore, due to the structure of the data and the way the responses to some of the retrospective questions regarding unemployment spell are truncated; complete matrices including the unemployment state can only be produced up to a 24-month transition period.

Entry flows to business ownership (on an annual basis) from other states/occupations are in general low and not sensitive to macroeconomic conditions. While 0.3% of wage earners and those self-employed who become BOs each year, only 1% of the unemployed start a business within a year. However, taking into account the size of each of these groups within the labor force, 4% to 5% of observed business owners were wage earners who started their business in less than one year (1% to 2% being either SE or UN). On the hand, while 83% of those exiting business ownership become unemployed during the high growth and recession periods (58% in the recovery period), around 13% return to paid work (28% in the recovery period). In all three periods, the flow from business ownership to self-employment tends to be very small. In regards to self-employment, entry flows are both higher and more sensitive to macroeconomic performance than those observed for business ownership. In this case, while only 0.5% to 1.1% of business owners transit to self-employment, that fraction ranges from 1.6% to 2.4% for wage earners and from 7% to 9% for the unemployed. Furthermore, 5.5%-6.0% of the observed self-employed each year were wage earners one year before, while 2%-4% transited from unemployment. In addition, the fractions of those exiting self-employment to paid work and unemployment are 51% and 44% for the high growth period. During the recession period these fractions become 33% and 64%; moving back to 44% and 53% in the last period.

The transition matrices corresponding to a 24-month period are shown in Panel (b) of figure 8. Compared to the 12-month transition figures, the persistence in each occupation drops, as expected: for wage earners by 5% to 8%, while that for business owners and self-employed by 3% to 5%.¹⁹ In general, the analysis of all other transition flows is consistent in this case as well. For longer transition periods, while persistence continues dropping, relative magnitudes of all other transition flows across the employed (WE, BO and SE) keep the same structure as the one described before for $\tau = 24$ months.

In sum, this analysis shows that there is in general high persistence for the employed; that this persistence is less sensitive to macroeconomic performance for business owners when compared to wage earners; that the flows between paid work and unemployment are much higher than those between each of these groups to either self-employment or business ownership; and also, that while the majority of new business owners and self-employed come from the pool of wage earners (5% on average), the flows from unemployment to self-employment are much higher than those to business ownership.

¹⁹As mentioned before, truncation of responses about unemployment spell may be affecting the figures for the unemployed in the case of the 24-month transition period.

$i \in WE, BO, SE$ we also include a dummy to characterize if the exit from occupation i was involuntary, as well as a dummy that describes the firm size associated to that previous occupation. Given the structure of the data (a set of cross-sections that include some retrospective questions about the previous occupation) we estimate the transition probability functions for each of the cross-sections available, and document the consistency of the estimated coefficients in terms of sign, level and significance across time. Figures 9 and 10 below summarize the results. In these tables, only the coefficients that are significant at the 5% and 10% levels are reported (** indicates significance at the 10% level). We now summarize and analyze our findings in regards to each one of these flows.

3.2.1 Entry Flows

Wage Earner to Self-Employed: Married men at the lowest levels of education show a higher probability of switching from paid jobs to self-employment. The transition probability is higher for small firm workers who were involuntarily separated from their jobs. Thus, this flow is associated to low skill workers who have unstable jobs in smaller firms. In addition, the probability increases with the unemployment spell between occupations. These findings support the idea of self-employment as a last resource alternative for low skill workers with dependent families, who were not able to find a new paid job within the period²¹. Age variables, on the other hand, are not significant²².

Wage Earner to Business Owner: In this case age and high education are in general significant. Thus, in contrast to self-employment, business ownership in this economy requires a higher level of human capital and experience.²³ While the transition from paid work to school but less than college; while in the case of transitions to or from business ownership, the comparison group is less than primary.

²¹In order to verify our interpretation of a "survival motive", we created an interaction term which equals the number of family members for individuals who report to be the household head, and is zero for all other individuals. We included this variable either as an additional covariate or as a substitute for the marital status dummy, and estimated these specifications for all the available cross-sections in our sample. The results show that in general, the interaction variable is a valid instrument for the marital status dummy. That is, whenever the marital status dummy is significant in the original specification; the interaction term is significant, has the same sign that the marital status it substituted, and delivers very similar results for all other covariates as well as for the overall regression. When both variables are included as covariates, only one of them is significant whenever the marital status dummy is significant in the original specification, or none of them are significant if the marital status dummy was not significant in the original specification. Therefore, positive effects of the marital status dummy can be associated not only with positive effects of household heads with dependents, but also with increasing effects in the number of dependents.

²²This is consistent with what Hurst and Lusardi (2004) find in their estimations for the U.S., associated to the life cycle human capital effects discussed in Mondragon (2005)

²³The notion of self-employment and business ownership in this type of economies could be in a sense related the concept of low-tech and high-tech entrepreneurship in the U.S. economy introduced in Mondragon (2005).

business ownership shows a stronger gender effect (with less significance across time) than that to self-employment, marital status effects are also higher in magnitude but only significant until the late 1990s. Thus, the "survival motive" in this case has a weaker support.²⁴ Business owners transiting from the paid workers population also tend to originate from an involuntary separation from jobs in small firms. However, the magnitude of the involuntary separation dummy is lower and less significant across samples in this case. Hence, the transition from paid work to business ownership seems to be driven less by involuntary decisions of high skilled and more experienced individuals than that of their low skilled peers moving in higher proportions to self-employment. Given the weaker effect of involuntary separations for business owners, the positive and puzzling effect of the unemployment spell (consistently significant across time) may indicate that some of the new business owners take some time off to prepare for the start-up of their businesses (rather than the additional job seeking interpretation for those transiting to self-employment).

Unemployed to Self-Employed: This flow shares the characteristic of being driven by low skilled married men, relative to the transition of wage earners to self-employment. However, age effects in this case are significant. This may be indicating that older low skilled workers (with families to support) face a tougher labor market than younger workers, and thus, may be willing to transit to self-employment more easily. The effect of the unemployment spell, which in this case refers to the total spell since the last job, is mixed across time (but in any case relatively small).

Unemployed to Business Owner: While the unemployed who transit to business ownership tend to be experienced married men (similar to their wage earner peers who also start businesses), the significance of high education across time is weaker in this case. Marital status coefficients are higher in magnitude and (cross-time) significance than the ones observed for the WE to BO transitions. Thus, the survival motive to start some business for those unemployed is stronger. The effect of the unemployment spell is mixed and relatively small in magnitude across time.

In sum, while entry to self-employment either from paid work or unemployment - is in general driven by individuals at lower levels of education who tend to exhibit some kind of survival motive (due to family support obligations); entry to business ownership is in general characterized by higher human capital (defined by education and experience) requirements, and in the cases of those coming from paid work, less by involuntary decisions (or at least weaker survival motives).

²⁴Similar estimations to support the interpretations associated to a "survival motive" described above were performed for this case, as well as for the transition flows from Unemployment to Self-Employment, and Unemployment to Business Ownership.

Wage Earner → Self-Employed												
	1988	1992	1994	1996	1998	2000	2001	2002	2003	2004	2005	2006
age		0.032 **			0.04	0.02 **						
age ²		-0.0004			-0.0005							
male	0.18	0.18	0.2	0.23	0.35	0.21	0.17	0.17		0.11	0.08 **	0.08 **
married		0.12 **	0.14	0.16		0.11	0.17	0.11			0.12	0.13
< primary	0.2	0.38	0.34	0.3	0.27	0.36	0.28	0.23	0.23	0.16 **	0.18	
primary +	0.21	0.19			0.10 **	0.13	0.10 **	0.12	0.17	0.09 **	0.12	
college +		-0.25 **			-0.25						0.18	0.11 **
large firm	-0.18	-0.25	-0.19	-0.25	-0.22	-0.21	-0.13	-0.095 **	-0.15	-0.21	-0.25	-0.21
involuntary	0.69	0.78	0.78	0.62	0.97	0.58	1.01	0.92	0.93	0.98	0.88	0.91
unempl_spell	0.11	0.13	0.12	0.16	0.13	0.22	0.12	0.12	0.11	0.1	0.11	0.1
R ²	0.13	0.19	0.15	0.16	0.23	0.20	0.21	0.19	0.19	0.19	0.18	0.16

Wage Earner → Business Owner												
	1988	1992	1994	1996	1998	2000	2001	2002	2003	2004	2005	2006
age		0.072	0.096		0.07	0.07	0.05	0.12		0.075	0.06	0.04
age ²		-0.0009	-0.001		-0.001 **	-0.001	-0.0006 **	-0.002		-0.0009	-0.0009	
male	0.3	0.29	0.28	0.32		0.23	0.33		0.27		0.28	
married	0.44	0.2	0.35	0.36	0.21 **							0.17 **
primary +			0.30 **									
high school +		-0.23 **										
college +			.33 **			0.49	0.38 **	0.52	0.63		0.44	
large firm		-0.15 **	-0.31	-0.3		-0.29	-0.34	-0.24	-0.34	-0.25	-0.22	-0.38
involuntary	0.59	0.63	0.79	0.5	0.72			0.47	0.6	0.47		0.64
unempl_spell	0.07	0.09	0.08	0.13		0.14	0.13	0.11		0.063	0.08	0.07
R ²	0.11	0.12	0.16	0.13	0.09	0.10	0.10	0.12	0.08	0.08	0.05	0.14

Unemployed → Self-Employed												
	1988	1992	1994	1996	1998	2000	2001	2002	2003	2004	2005	2006
age	0.05 **		0.13	0.1	0.09	0.16	0.12	0.11	0.11	0.11	0.14	0.09
age ²			-0.002	-0.001	-0.001	-0.002	-0.001	-0.001	-0.001	-0.01	-0.002	-0.001
male	0.41	0.34	0.62	0.28	0.62	0.47	0.25	0.28	0.23	0.19	0.37	0.21
married	0.69	0.57	0.62	0.28 **	0.44	0.23	0.36	0.52	0.34	0.28	0.31	0.46
< primary	0.46									0.36		0.3
primary +	0.37			0.43	0.25		0.19		0.13 **		0.17	0.19
college +							-0.19 **		-0.26	0.21		
unempl_spell	0.03	0.035	0.03	0.03	0.03	-0.04	-0.009			-0.008		
R ²	0.23	0.22	0.25	0.20	0.19	0.12	0.10	0.10	0.08	0.09	0.11	0.08

Unemployed → Business Owner												
	1988	1992	1994	1996	1998	2000	2001	2002	2003	2004	2005	2006
age	0.091	0.11 **	0.28	-0.13	0.1	0.13	0.11	0.16	0.12	0.09	0.1	0.18
age ²	-0.001 **		-0.004		-0.001	-0.001	-0.001	-0.002	-0.001	-0.001 **	-0.001 **	-0.002
male	0.74	0.66		1.37	0.48			0.28 **	0.46	0.39		0.47
married	0.88	0.71	0.55	Failure 1.27		0.40 **	0.58	0.4	0.26 **		0.55	0.45
< primary												
primary +												
college +			Failure	1.91	0.71			0.43	0.51			
unempl_spell		0.03 **		0.03	0.04	-0.06		-0.02			-0.02	-0.03
R ²	0.24	0.25	0.14	0.37	0.24	0.15	0.13	0.18	0.11	0.10	0.15	0.20

Figure 9: Entry Transitions: Probit Regressions Estimates

3.2.2 Exit Flows

Self-Employed to Wage Earner: Involuntary exit from self-employment along with the duration of unemployment are the main drivers of this transition, with demographics having very low explanatory power. Given the nature of self-employment, involuntary exit in this case is directly associated to failure of the self-employment venture. This, in addition to the effect of unemployment spell duration between occupations, implies the transition is driven by those who fail in self-employment and then take some time to look for a paid job.²⁵ In addition, age is the only significant demographic variable (in 5 out of 12 years). Although relatively small in magnitude, the negative sign in all cases may be indicating that younger individuals (with no apparent strong survival motives or family support obligations) are more willing to exit self-employment to search for a paid job than older agents.

Self-Employed to Unemployed: In high contrast to the entry flows characterization, this transition is driven by low skilled young single females. This result reinforces the idea that younger agents with no apparent family support obligations are more willing (or have more flexibility, can take more risk) to exit self-employment in order to look for a paid job. The fact that the coefficient of gender is negative and that of the unemployment spell duration is positive, may be reflecting a tougher labor market for low skilled young females, who in general tend to stay unemployed after exiting self-employment (within a 1-year period).

Business Owner to Wage Earner: The only variables that are consistently significant across time in this case are the involuntary separation from the previous occupation dummy and unemployment spell duration. This suggests that the transition is driven by business owners who fail, close their businesses and look for paid jobs²⁶. The interesting fact is that this happens to all types of business owners in terms of experience and education.

Business Owner to Unemployed: The results prior and after year 2000 differ significantly in this case. For the period 1988-1998, the transition is characterized by low skilled and young single individuals. Although in these cases, there is no available information about the exit motive of the previous occupation, it may be the case that the exit rate of younger individuals with less experience (and education) is higher. On the other hand, the results after year 2000 don't show strong significance consistency for any of the demographic variables.

²⁵One of the answers that characterizes voluntary exit from the previous occupation indicates the individual finds a better occupation or job. Thus, it can be argued that people who fail in self-employment and move to paid work didn't find that job before exiting. However, for years 2001 to 2006, around 40% of those that move from self-employment to paid work, did so because they found a better job.

²⁶In fact, while 72% of those moving from business ownership to paid work report involuntary motives, only 15% report to move to a better job. This is in high contrast with the 40% figure of those self-employed effectively moving to paid work; which reinforces the idea of self-employment as a temporary state for individuals looking forward to paid job.

Self-Employed → Wage Earner												
	1988	1992	1994	1996	1998	2000	2001	2002	2003	2004	2005	2006
age			-0.07	-0.06				-0.04	-0.03 **	-0.03		
age ²			0.006 **	0.001								
male			0.48						0.12 **	0.14		
married			-0.26									
< primary			0.30 **		-0.31							-0.17 **
primary +	-0.24						0.15 **			-0.12 **		
college +					-0.43							
large firm				-1.07				-0.5	-0.32			
fired	2.28	2.06	2.06	2.16	1.66	0.98	1.56	1.27	1.82	1.31	1.36	1.3
unempl_spell	0.42	0.43	0.41	0.28	0.31	0.42	0.39	0.4	0.29	0.27	0.32	0.32
R ²	0.50	0.48	0.48	0.45	0.42	0.31	0.36	0.33	0.35	0.29	0.29	0.26

Self-Employed → Unemployed												
	1988	1992	1994	1996	1998	2000	2001	2002	2003	2004	2005	2006
age	-0.2	-0.09	-0.14	-0.15	-0.14	-0.03	-0.03 **	0.04	-0.054	-0.03	-0.05	
age ²	0.002		0.001	0.001	0.001			0.0003 **	0.0004		0.0005	
male	-2.75	-2.12	-1.98	-3.11	-3.07	-0.16		-0.12 **	-0.16	-0.19	-0.11 **	
married		-0.64	-0.26 **		-0.19 **	-0.19	-0.12 **	-0.22		-0.10 **	-0.14	-0.29
< primary	2.33	1.56	1.59	1.84	1.49	0.34	0.33	0.27	0.31	0.23	0.29	
primary +	1.63	0.77	1.01	1.02	0.87	0.22	0.28	0.16	0.22		0.14	
college +	<i>Failure</i>	<i>Failure</i>	<i>Failure</i>	<i>Failure</i>	<i>Failure</i>							
unempl_spell	0.81	0.78	0.72	0.78	0.66	0.59	0.85	0.8	0.83	0.71	0.76	0.75
R ²	0.69	0.66	0.64	0.70	0.67	0.47	0.60	0.57	0.58	0.53	0.54	0.50

Business Owner → Wage Earner												
	1988	1992	1994	1996	1998	2000	2001	2002	2003	2004	2005	2006
age						-0.15						-0.18
age ²						0.002						0.002
male			-0.6	<i>Failure</i>		0.55				-0.31 **		
married				2.05								
< primary				<i>Failure</i>								
primary +						0.52 **			0.68 **			
college +						-0.98 **	0.54 **		0.40 **			
large firm						1.08	<i>Failure</i>					0.41 **
fired	2.22	3.04	2.87	1.67	2.33	1.24	2.97	3.66	3.05	2.06	3.13	2.51
unempl_spell		1.47	0.37	1.02	0.56	0.5				0.26		
R ²	0.35	0.69	0.59	0.57	0.57	0.56	0.60	0.66	0.60	0.48	0.59	0.50

Business Owner → Unemployed												
	1988	1992	1994	1996	1998	2000	2001	2002	2003	2004	2005	2006
age	-0.08	-0.09	-0.14	-0.08	-0.12							
age ²	0.0006 **	0.001	0.001		0.001							
male			-0.5		-0.24	-0.42 **	0.80 **		0.68 **	0.43		
married	-0.3	-0.28 **	-0.27	-0.49	-0.35							-0.36
< primary	0.94	0.57	1.36	1	1.02		1.09 **		1.31			
primary +	0.5		0.9	0.63	0.46			0.38	1.38		0.43	
college +	-0.60 **	-0.67			-0.64							
unempl_spell	0.97	2.23	1.04	3.13	1.34	0.88	2	0.73	1.44	0.89	0.81	0.82
R ²	0.49	0.66	0.54	0.71	0.61	0.69	0.80	0.47	0.73	0.52	0.56	0.46

Figure 10: Exit Transitions: Probit Regressions Estimates

3.2.3 Cross-Flows

In general, the estimations for the *Self-Employed to Business Owner* and *Business Owner to Self-Employed* transitions fail. This is mainly due to very small sample sizes, consistent with the very low flows reported in the transition matrices. The only consistent result in both regressions is that those who fail in their self-employment or business-ownership ventures, are the ones who switch to business-ownership and self-employment. This implies first, that self-employment is not an initial phase towards business ownership; and second, that a very small fraction of failing business owners not willing to return to paid work or being unemployed, take self-employment as an alternative instead of looking for a paid job. Results don't provide strong evidence regarding individual characteristics.

4 Financial Motivations

Another important dimension in which self-employment and business ownership differ is the earnings level associated to these occupations. A central issue in the analysis of the transition to entrepreneurship is the potential earnings premium over paid work. Several studies using data for developed countries, and based on the usual cross-section motivating facts, suggest that entrepreneurs enjoy higher average income levels compared to those of workers. In addition, there are increasing shares of entrepreneurs and entrepreneurial capital in the top deciles of the income and wealth distributions, as well as the higher savings rates and upward social mobility trends.²⁷ To better understand the earnings differences between wage earners and non-wage earners we analyze different measures. We first compare means and medians. These are informative measures but hide interesting facts about the underlying distributions. Thus, we then compare earnings densities. Finally we calculate earnings gaps for the self-employed and business owners relative to wage earners along the distribution. Alternative measures of entrepreneurial income are used in the literature to compare their earnings against paid work. These include net profit, a *draw* or periodic transfer from the firm to the entrepreneur - similar to a regular wage, and the draw plus changes in the firm's equity value.²⁸ Given limitations in our dataset, we cannot distinguish between returns to capital and the entrepreneurs' *draw*. Therefore, we compare the reported hourly earnings for both wage earners and non-wage earner categories.

²⁷see for example Quadrini (1999), and Moskowitz and Vissing-Jrgensen(2002).

²⁸See Hamilton (2000), Moskowitz and Vissing-Jrgensen (2002).

Following the literature, we compare earnings between occupations by comparing means. For example, according to Mondragón (2007) the most successful entrepreneurs in the U.S. earn much more than the most successful workers and this difference in mean earnings increases at higher education levels. Figure 11 shows the mean income of business owners and the self-employed relative to that of workers. While the mean earnings of the business owners are more than twice those of wage earners without college education in year 2006, the ratio is around 1.4 for college graduates. This is in contrast to findings for the U.S. where the ratio is higher for the college educated category. Similarly, the mean earnings of the self-employed relative to wage earners are smaller for the highly educated. Hence, in Colombia there is a very high opportunity cost for those with higher education in the salaried sector, which decreases the incentives to become a business owner. We also find a deterioration of the earnings of the self-employed relative to wage earners over the period of study at all education levels.²⁹

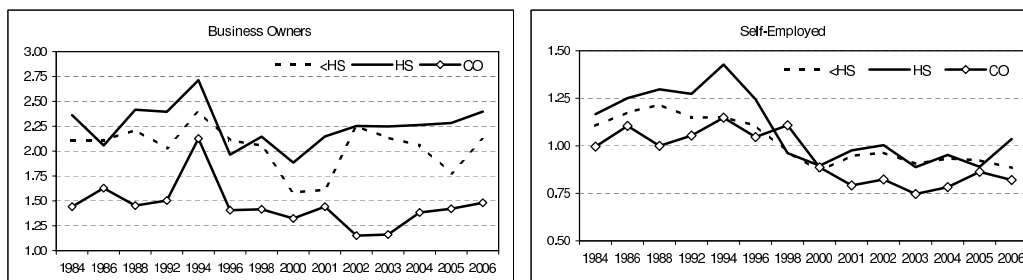


Figure 11: Mean Earnings Ratio relative to Wage Earners

The comparisons of mean earnings are informative but hide interesting features regarding the occupation-specific earnings densities. Thus, we follow a distributional approach. Figure 12 shows that there are big differences between the kernel densities of hourly earnings for occupations in 2006. The earnings distribution of the self-employed* is the most skewed to the left, with the bulk of the group showing earnings below the minimum wage (represented by the vertical line). The self-employed have a similar behavior with slightly higher earnings, but still peaking below the minimum wage level. The wage earners' density peaks just above the minimum wage level and has the lowest standard deviation. Finally, business owners show the highest right-skewness as well as the highest spread. Interestingly, there is no clear effect of the minimum wage on any of the non-wage earning categories.³⁰

²⁹The analysis performed with medians shows similar results.

³⁰Maloney and Nuez (2001), who use a similar approach to reveal how the distribution is distorted by the minimum wage, state that Colombia provides an extreme example *given the dramatic cliffs in the figures, the*

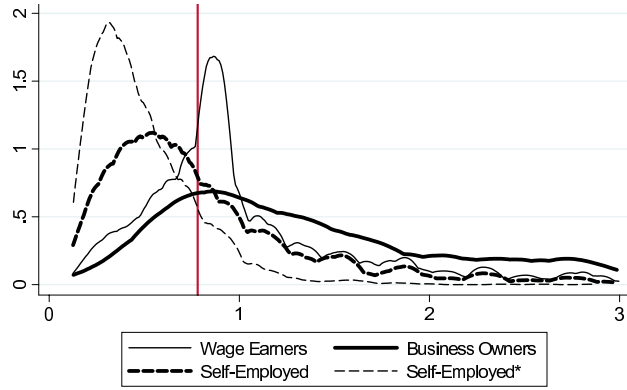


Figure 12: Earnings Distribution by Occupation (\$USD per hour)

There is a remarkable stability in the densities of the occupation types across time: the ordering is maintained throughout the period of study, and across education levels, except for the college educated (see Figure 13). Note that for this group, a sizeable fraction of business owners (more than half) show earnings below their wage-earner peers, and relatively small differences in the mass of business owners with higher earnings (at the highest earnings levels) than wage earners. In other words, the financial motivations to become an entrepreneur are smaller for the highly educated agents. As other studies find (see for example World Bank, 2005), the differences in earnings distributions across occupations are smaller for college educated agents. In our case, the densities of wage earners and the self-employed move closely, while that of business owners is more skewed to the right with a higher variance.



Figure 13: Earnings Distribution for the College Educated by Occupation (\$USD per hour)

low standard deviation, and high skewness. However, the differences they find between informal and formal sector workers are less stark than what we find between wage earners and entrepreneurs: the minimum seems to have a strong effect on wage earners but not on other occupations.

We now look at the earnings gap between non-wage earners and wage earners along the earnings distribution. This is relevant since it has been documented that entrepreneurs are over-represented at in the top deciles of the income and wealth distributions. Are there strong financial incentives to become an entrepreneur in Colombia? The *unconditional earnings gaps* calculated as the difference in log earnings at different points in the distribution. As before, there are big differences between business ownership and self-employment. Figure 14 shows the earnings gap between business owners and wage earners, as well as self-employed and wage earners. For business owners, in the bottom third of the distribution the earnings premium is around 40%, while in the top third it doubles to 80% of the hourly wage.

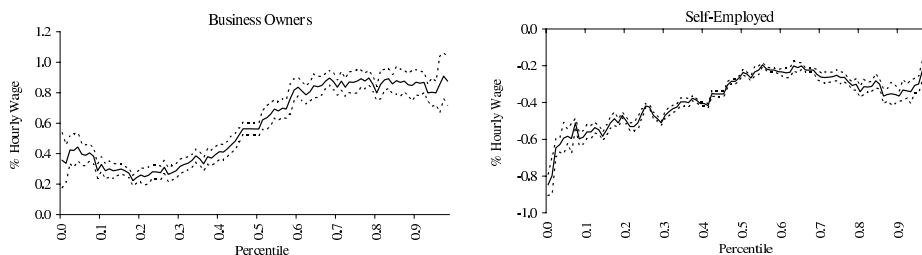


Figure 14: Unconditional Earnings Gap relative to Wage Earners (2006)

For the case of self-employment there is a negative gap of around 50% in the bottom half and nearly 30% in the top half. Therefore, there are stronger financial motivations to become a business owner, but not to become self-employed. Replicating this analysis by education levels shows that the financial motivations to become business owners are higher for agents with less than college education, reaching levels of 150% hourly wage at the top of the distribution. This is consistent with the kernel density analysis: highly educated workers are still relatively scarce and face a high wage profile in the salaried sector. Therefore, the opportunity cost of becoming an entrepreneur is very high. This is in high contrast with findings for the U.S. where the differences are monotonic in education attainment. The earnings gap between self-employed and wage earners on the other hand, is very similar across education levels.

In sum, it is financially attractive to become a business owner. The mean income for business owners with less than college education is twice that of wage earners. The wage earning sector poses a high opportunity cost for the college educated business owners, even though there is a positive premium. Not only does the business owners' earnings cumulative distribution function first order stochastically dominates that of all other occupations, but there is also a positive wage gap between business owners and wage earners. On the other hand, we find no financial motivations to become self-employed. Conditional on education

level, the earnings of self-employed individuals were on average 10% higher than wage earners until 1998, but 10% lower after year 2000. Note that the latter period saw a secular increase in self-employment from 20% to over 30% of the working population. In addition, there is a negative and sizeable wage gap, both conditional and unconditional, between the self-employed and wage earners. Therefore, this analysis suggests that self-employment is either a survival activity or that there are other non-pecuniary motivations affecting this decision.

5 Conclusions

Our characterization of entrepreneurship in Colombia suggests that (unlike what the literature finds for the U.S.) there are important differences between self-employment and business ownership. These two commonly used definitions of entrepreneurship differ in important dimensions such as education and economic sector in the Colombian case. In addition, there is surprisingly little transition between self-employment and business ownership. Finally, there is a substantial earnings premium to become a business owner, but it is not financially attractive to become self-employed.

The analysis suggests that while business ownership shares the main characteristics of what the literature associates with entrepreneurship, self-employment in the Colombian context is more associated to a subsistence activity. In other words, self-employment in this environment is neither a form or initial phase towards entrepreneurship. Thus, when studying entrepreneurship in a developing economy it is critical to define and determine with caution the characteristics of different types of non-wage earners. Further studies should explore these issues in other developing economies, develop new datasets, perform alternative estimations, and construct theoretical models that explain the behavior of these different groups of agents in such an environment.

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Appendix A: Data and Sample Selection

In this study we use the Colombian Household Survey 1984-2006 (*Encuesta Nacional de Hogares - ENH*), a repeated cross-section carried out by the National Statistics Department (DANE). The (unweighted) sample size in terms of the number of individuals within the labor force increased from 12,660 in 1977 to more than 40,000 in 1984 and nearly 110,000 in 2005. We work with surveys starting in March/84 because this is the period for which the survey has been most consistent in regards to coverage, frequency and sample design. The survey collects quarterly information through four basic chapters: (i) identification variables; (ii) household characteristics; (iii) education and (iv) labor force information. In addition, special modules are run in some quarters, including migrations and informality. Some particular aspects are worth mentioning. First, there is information on basic job characteristics for all individuals and thus we are not restricted to formal enterprises. Second, we can characterize agents across different types of occupations and identify entrepreneurs working alone from those who employ others. Net business income questions for entrepreneurs are asked separately from labor earnings for workers; and information on past occupation, including past entrepreneurial activities, are made to those currently unemployed or out of the labor force. Dictated by data availability our analysis focuses on the eleven main cities between 1984 and 2000, and the thirteen main ones for the period 2001-2006; Colombias 7 main cities account for 40% of the population and 63% of GDP.

We use observations with a complete set of covariates and restrict the sample to individuals between 15 and 70 years of age who work (other than unpaid family aids), who report working between 16 and 84 hours per week. The size of the weighted samples ranged from 1,662,066 workers in 1984 to 6,467,395 in 2006. The analysis is based on the information contained in the informality module, a special set of questions that is run within the 2nd quarter wave since 1984, every 2 years up to year 2000 with the exception of 1990, and annually afterwards. It includes data on firm size, tenure, work location and access (and contribution) to social security. There are some retrospective questions about previous job characteristics including type of work, economic activity and firm size. Particular information is available on specific waves such as whether the worker has a written job contract, whether the firm is registered and/or has formal accounting. Since (idoneous) indirect reporting is used for the period under study in the Household Survey, non-response and underreporting are important issues in this dataset. ³¹ In official labor market indicators and poverty calculations DNP

³¹Starting July 2006 important changes were introduced in the Household Survey, again. For example, there were changes in the sampling composition. In addition, reporting of income and other variables changed from idoneous indirect reporting to direct reporting, which increased non-responsiveness greatly. It is unclear as of now how to make the information before and after compatible given these changes, despite big efforts

applies three correction steps that involve earnings imputation and adjustment to national accounts. However, this study uses the raw data as reported by the individuals. In 2000 DANE changed both the survey questionnaire and the collection methodology of the ENH, in response to recommendations from the International Labor Organization (ILO) to allow for full comparability with other country's indicators.³² To make the survey information before and after 2000 compatible we adopt the more recent labor market definitions and perform an adjustment in the spirit of Lasso (2002) to account for seasonal effects in the pre-2000 shifts. Table 1 Portrays the sample sizes both in terms of the total number of households included in the survey, and the (weighted) number of individuals represented in the sample.

Table 1: Colombian Household Survey Sample Sizes

	1984	1986	1988	1992	1994	1996	1998
No. Observations	34,878	27,379	30,175	26,548	28,347	26,950	28,726
Sample Size (weighted)	3,093,445	3,194,115	3,679,701	4,342,593	4,834,214	4,809,700	4,762,081
	2000	2001	2002	2003	2004	2005	2006
No. Observations	24,855	30,562	30,155	31,123	31,748	35,490	36,561
Sample Size (weighted)	4,611,664	4,668,929	4,761,522	4,871,997	5,260,193	6,250,359	6,458,583

There are other relevant changes in the ENH survey. For example, economic sector information, which used ISIC second revision between 1984 and 2001, changed starting 2002 to ISIC 3rd revision. Therefore, additional work is needed to make the categories directly comparable. Additionally, starting 2004 information about sector of economic activity becomes available at ISIC 4 digits, and is used where relevant. Finally, data from the minimum wage is taken directly from the Resolutions establishing it for each year. The number of hours per month is take to be 5 days * 8 hours/day * 4.285714 weeks/month, that is, 171,42856 hours per month.

from the DANE and the National Planning Department (DNP). This implies that even though more recent information is available, the period of study ends in June 2006.

³²The first is a change in composition of the Working Age Population which implied reductions in the unemployment and participation rates, and an increase in the occupation rate. In particular, unpaid family aids working between 1 and 15 hours per week, who used to be considered either unemployed or inactive, are now considered employed. In addition, the survey passed from collecting the information over the last two weeks per quarter, to spreading the sample size in a continuous fashion throughout the whole year. This does not affect the labor market indicators but rather the serial structure since the continuous sampling captures seasonal variations absent from previous analysis.

