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Is Self-employment and Micro-entrepreneurship a Desired Outcome?

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Summary. — This paper links employment dynamics to the business cycle in Argentina and examines the self-employed sector. We evaluate whether this sector resembles the industrialized countries view, where it is characterized as being creative and dynamic, or the dualistic view, where it is seen as stagnant and unproductive. We study transition patterns from salaried positions and unemployment, and the evolution of the sector in the period of analysis. We found a clear segmentation. Own-account workers (accounting for over two-thirds of the self-employed) show characteristics similar to what is predicted by the dualistic view; while self-employed with employees resembles the industrialized countries view.
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1. INTRODUCTION

The view of self-employment in industrialized countries is remarkably positive. Self-employed workers are generally regarded as creative and highly qualified individuals who have abandoned the comfort of salaried positions to invent new products, production process, and distribution methods. The self-employed sector is presumed to be dynamic and populated by "superstars" who obtain outstanding profits and social influence. Such "superstars" are thought to bring vitality to the economy and decisively contribute to economic expansion. [1] A quintessential example is the Silicon-Valley start up.

In attempting to emulate such dynamics, many countries develop public policies in an attempt to stimulate their own Silicon-Valley. Optimism over the benefits of self-employment finds support not only in the bulk of the theoretical literature but also in empirical evidence. Although some studies show that small business owners register lower median earnings growth than those in paid employment positions, some researchers consider this gap the result of non-pecuniary benefits, such as "being your own boss" (see Hamilton, 2000). In sum, a growing strand of the literature considers self-employment an optimal and voluntary decision.

Despite the scarcity of studies specific to developing countries, there exists a perspective in the academic literature which stresses the benefits of micro-entrepreneurial dynamism, voluntary entry, and job satisfaction for developing countries as well. In broad terms, such studies show that microenterprises in emerging economies (particularly in middle-income countries) exhibit patterns consistent with the entrepreneurial risk-taking framework that characterizes the industrialized world. [2] Such studies conclude that given the similarities between middle-income and the industrialized world, mainstream models of self-employment are useful guides for policymaking in developing countries (see Fajnzylber *et al.,* 2006).

Harris and Todaro (1970), however, present a competing view. These authors disaggregate urban employment into a modern sector, characterized by high productivity growth and job benefits, and a traditional (or informal) sector. These models assume a stagnant and unproductive informal sector, which serves merely as first, a refuge for the urban unemployed and second, a receiving station for newly arrived rural migrants. Here, the micro-entrepreneurship sector is associated with "disguised unemployment". We refer to the Harris and Torado model as the "dualistic" or "dual" hypothesis. [3]

Is the dynamic view an appropriate characterization of self-employment in middle-income economies, or is it more accurately explained by the dualistic view? For the policymaker, given that resources are scarce, governments and multilateral organizations may face a trade-off between devoting resources to support entrepreneurial activities and spending them elsewhere (e.g., promoting education). The answer our paper provides is that both views are correct if we consider that the sector is segmented. However, we find that the pessimistic view of "disguised unemployment" represents a greater share of the self-employed sector in middle-income economies.

In order to test our hypotheses, we analyze the labor market in Argentina over the period 1995–2003. Argentina is an appropriate case because it is a middle-income country with a sizeable self-employment sector. We employ a rotating household panel survey which is particularly suitable in analyzing self-employment dynamics. In addition, we propose an innovative approach that links employment transition dynamics *vis-à-vis* the business cycle. It is important to mention that even during such a short period of time, the Argentinean economy witnessed significant macroeconomic variability, namely, a short-lived

recession, a two-year period of extraordinarily high economic growth, a long-lasting economic depression followed by a dramatic economic crisis, and finally, a recovery.

Such a sizeable business cycle is used to judge the voluntary nature of employment transitions in terms of the "push" and "pull" factors of labor supply. To characterize the "push" factors, consider a macroeconomic downturn with high unemployment levels and no business opportunities. Under these conditions, transitions to self-employment may be of last resort or disguised unemployment. On the contrary, "pull" factors play a role when macroeconomic conditions are good. The prospects for business are better and qualified individuals with entrepreneurial ability may voluntarily select self-employment, knowing that if the venture fails, another job is not far away. We argue that such "revealed" evidence is more appropriate than surveys that directly address the voluntary nature of the transition. As shown in Blanchflower (2004), we argue that, when answering surveys, individuals tend to be unrealistically optimistic. Such optimism can bias the survey results, leading to unreliable estimates and inferences.

In answering our research question, we report the following key findings: (a) conditional on skill levels, self-employed workers earn on average 8.3% less than salaried workers and they also have 1.9% less income growth. (b) Economic recessions are associated with a monotonic increase in the amount of individuals (salaried and unemployed) who transition to self-employment. However, this trend sharply reverts when the economy starts growing again (the lowest transition point is at the peak of the macroeconomic activity). (c) Recessions improve the relative performance of salaried workers. (d) Years of economic booms are characterized by less-educated individuals becoming self-employed, and more educated self-employed individuals becoming salaried workers. This trend reverts when a recession begins. That is, as the recession hits, it expands the pool of workers looking for a job, and simultaneously increases the likelihood of more educated individuals starting their own micro-businesses. (e) When the recession deepens, and average unemployment duration increases, the proportion of unemployed workers that move to self-employment drastically rises. Besides, a transition to a salaried position is less likely if the unemployment spell is long. (f) On average, workers in large firms and with high salaries are less likely to start an entrepreneurial activity. (g) Finally, the self-employment sector is characterized by negative self-selection. As a result of our findings we argue that self-employment is unlikely to be the result of an optimal and voluntary decision taken by high-skilled individuals as the dynamic view suggests. Instead, in middle-income countries, self-employment better reflects the dualistic view.

Nevertheless, we also find a striking segmentation in the self-employment sector. Supplemental to the general conclusions above, results indicate that: (h) the proportion of individuals that become self-employed with employees show a secular decline. (i) The probability of becoming an entrepreneur with employees monotonically increases in both education and age. (j) Individuals that are currently employed and with higher conditional salaries are more likely to transition into this category. (k) Finally, self-employed with employees are characterized by positive self-selection. In other words, only when we focus on this category do we find patterns that are similar to the optimistic view discussed above. The evidence supports the existence of experienced and talented individuals who are able to start their own business projects and generate employment.

Unfortunately, such a positive phenomenon is limited: we estimate that two-thirds of the self-employed are actually own-account workers and for the remaining one-third, only if they manage to survive will they find themselves in the dynamic category. Therefore, we propose that for middle-income economies, there exists a segmented self-employed sector composed of those with entrepreneurial abilities (mostly self-employed with employees), and low-qualified individuals with little chance to find employment in the salaried job market (own-account workers).

The rest of the paper is organized as follows: Section 2 presents a short literature review. Section 3 shows descriptive statistics of the labor force in Argentina. Section 4 discusses employment transition dynamics. The micro-econometric analysis is presented in Section 5. Concluding remarks are presented in Section 6.

2. SELF-EMPLOYMENT DYNAMICS IN DEVELOPING COUNTRIES

In the last decades there has been an intense debate about whether self-employment and micro-firms in developing countries can be studied with the same set of assumptions used to study the industrialized world. Literature reviews on this topic can be found in Pisani and Pagán (2004a) and Fajnzylber et al. (2006) among others. In summary, the subject of study is whether self-employment in developing economies corresponds to the voluntary entry pattern that characterizes developed countries or whether it corresponds more closely with the Harris–Todaro model of "disguised unemployment".

Self-employment is a risky employment in both views. Jovanovic (1982) assumes that entrepreneurial skills are uncertain and that individuals can only gradually learn their skills upon starting a business project. Firms with consistently lower-than-expected profits tend to contract and eventually go bankrupt. Successful firms exhibit declining exit rates but also moderate expansions. Survivors manage to identify their true entrepreneurial abilities as their firms converge to a steady-state size. Liquidity constraints distort the optimal level of investment and increase the likelihood of firm failure. Evans and Jovanovic (1989) find that binding financial constraints lead individuals to postpone profitable business opportunities, reduce entry rates and increase exit rates among those with low personal assets—disproportionately the young.

A related issue is that of informality, that is, firms that operate with low levels of participation in formal institutions (paying taxes, access to credit). Following the work of Henley, Arabsheibani, and Carneiro (2006) there are several definitions of informality. Here we follow the usage of the International Labor Office and Pisani and Pagán (2004a, 2004b). According to this definition, own-account workers (excluding professionals) and owners of firms with less than 5 employees belong to the informal sector. High levels of informality and low productivity in the salaried sector reduce the entrepreneurial ability threshold for entering self-employment. This thus leads to higher entry and exit rates. Moreover, high informality rates exacerbate liquidity constraints.

There are some variables that can be used to judge the nature of self-employment. In a segmented labor market, the unemployed, young individuals, those with less schooling and low wages are more likely to be self-employed, as they would be worse positioned for finding good salaried jobs. In contrast, older, better-educated, and well-paid workers with experience in the salaried sector should have a lower probability of entering the self-employment sector. However, in line with the liquidity constraints hypothesis, they should also be more likely to have accumulated the assets required to start a business and be better positioned to assess good business

opportunities, and therefore, we may find that the best-salaried workers have in fact a higher likelihood of becoming self-employed. Finally, during severe recessions, workers that remain unemployed for relative long periods of time may encounter self-employment as a temporary refuge while job searching in the salaried sector of the economy. Therefore, unemployment duration can be used to evaluate the nature of self-employment.

3. DESCRIPTIVE STATISTICS AND EMPLOYMENT DYNAMICS

We use the *Encuesta Permanente de Hogares* (EPH), an urban household survey which tracks individuals for two years, in May and October, from 1995 to 2003. The survey covers most Argentinean metropolitan areas and is one of the most representative databases of urban employment available of this frequency in Latin America. We consider individuals in the age range 20–65 years old, which comprise the active labor force (in Argentina, retirement age is between 60 and 65, although slightly lower for public employees). Preliminary analysis shows that there is strong seasonality; therefore we only consider annual transitions (both May–May and October–October). As such our sample is May 1995–May 2002 with the last annual transition being May 2002–May 2003. The appendix provides a definition of some of the variables used in this paper as well as comments on the construction of the EPH panel.

Table 1 presents summary statistics for the pooled EPH sample. Some stylized facts emerge. On average, 27% of the labor force is self-employed, which is a relatively large proportion of the total labor force. For instance, self-employment encompasses approximately 6% of urban employment in the United States (see Blanchflower, 2004). Individuals in the Argentinean self-employed sector are relatively older and less educated than their salaried counterparts. We also observe a high dispersion and a large number of workers occupying the tails of the skill level distribution. Average income of those self-employed is 20% greater than that of salaried workers. However, when controlling for observable skills, salaried workers earn on average 8.3% more than the self-employed.[4] Unfortunately, the EPH provides no information indicating the reasons for being self-employed. For example, this difference in income may either be due to the increased flexibility

of self-employment[5] that could make it preferable to salaried work (e.g., women with children), or to the fact that self-employment is a disadvantaged sector as in the dualistic hypothesis. Entrepreneurs have an average annual hourly income growth of −4.8% which contrasts with −1.9% of salaried workers. Such differences are robust to control variables, showing an average income growth difference of 1.9%.[6] Finally, we also find that household heads and men are more likely to be self-employed.

Table 2 shows the distribution of workers in each sector by firm size. Notice that two-thirds of those self-employed are own-account workers, whereas 50% of salaried employees (in non-public sector jobs) work in firms with less than 15 employees. This matches with other Latin American countries that exhibit similar distributions (see for instance tabulations in De Ferranti, Perry, Lederman, and Maloney (2002)). Table 3 presents the distribution of workers in each sector by industry. In particular, we note that half of those self-employed work in three main sectors: retail trade, construction, and repair services.

In order to understand how many individuals change from one status to another, we compute transition dynamics of moving in or out the self-employment sector. In Table 4A we present transition dynamics from three sectors: self-employment, salaried, and unemployment. For simplicity we exclude individuals out of the labor force. We observe that about 71% of self-employed workers stay in that sector, while roughly 20% go to (and come from) the salaried sector. The remaining 9% move to (and from) unemployment. The salaried sector shows the least mobility among the three sectors – around 85% of workers stay from one year to the next. Also note that self-employed workers are more likely to be unemployed one year later than salaried workers (9.4% vs. 7.3%). Finally, it is worth noting that of those workers who begin as unemployed, around 40% of them is absorbed by the salaried sector, this is about twice as much as the self-employed sector. Nonetheless, if we acknowledge the relative size of each sector, the unemployed who move to the salaried sector represent 7% of salaried workers while the unemployed absorbed by the self-employed represent for 9% of self-employed.

Table 4B shows firm size dynamics for those that start and end up as self-employed. The vast majority (around 82%) of the own-account workers who manage to survive remain in this category and do not hire employees. However, those firms that start with at least with one employee most likely remain with at least one employee. The more employees a firm possesses, the lower the probability the employer has of becoming an own-account worker. Similarly, the likelihood of hiring additional employees is monotonically related with the size of the firm. For instance only 4.9% of firms with 1–4 employ-

Table 1. *Basic descriptive statistics*

	Self-employed	Salaried
Percentage of working people (self-employed + salaried = 100%)	27.5%	72.5%
Age	43.0 (11.0)	37.9 (11.5)
Years of schooling	10.28 (4.40)	10.74 (4.12)
No schooling	2.12%	1.79%
Primary Inc.	9.48%	6.64%
Primary Comp.	28.14%	24.49%
High sch. Inc.	17.47%	16.72%
High sch. Comp.	18.40%	20.29%
Some college	10.02%	17.47%
College	14.37%	12.60%
Hourly income[*]	4.83 (6.92)	4.04 (3.64)
Hourly income annual growth	−4.77% (76.6%)	−1.86%(51.4%)
Percentage of household heads	63.4%	51.4%
Percentage of females	33.2%	41.4%

Notes: Pooled EPH data (1995–2002). Standard deviations in parentheses.
[*] Pesos 2001, 1 Peso = 1 USD.

Table 2. *Self-employment and salaried by firm size*

Firm size	Self-employed (%)	All salaried (%)	Salaried (non-public sector) (%)
1	65.8	11.3	13.5
2–5	30.2	21.0	23.6
6–15	2.8	17.3	17.3
16–25	0.5	10.2	10.1
26–50	0.4	11.9	11.5
51–100	0.2	10.8	9.9
101–500	0.1	12.1	10.2
501 and more	0.0	5.4	3.9
Total	100.0	100.0	100.0

Notes: Pooled EPH data (1995–2003).

Table 3. *Self-employment and salaried by industry*

Industry	Self-employed (%)	Salaried (%)	Total (%)
Primary sector	1.9	2.0	1.9
Food, beverage, and tobacco	2.4	3.2	3.0
Textiles, textile products, and footwear	2.3	2.2	2.2
Chemical, ref. petroleum and nuclear fuel	0.4	1.5	1.2
Metal products, machinery, and equipment	2.8	2.9	2.8
Manufacture not elsewhere classified	3.1	2.8	2.9
Electricity, gas, and water supply	0.1	1.6	1.2
Construction	16.7	6.1	8.9
Wholesale trade	4.2	3.7	3.9
Retail trade	25.5	8.0	12.7
Restaurants and hotels	2.5	2.1	2.2
Transportation and related services	5.6	4.6	4.9
Financial intermediation	0.3	2.6	1.9
Real estate and rental and leasing	7.7	3.6	4.7
Public administration and military	0.1	19.0	13.9
Teaching	1.5	12.1	9.3
Social services and health	3.3	7.1	6.1
Other social services	2.0	4.0	3.5
Repair services	8.1	1.5	3.3
Households with domestic services	5.5	8.9	8.0
Other personal services	4.1	0.7	1.6
Total	100.0	100.0	100.0

Notes: Pooled EPH data (1995–2003).

Table 4A. *Sector transitions (in %)*

From	To			
	Self-Employed	Salaried	Unemployed	Total
Self-employed	70.6	20.0	9.4	100
	69.7	7.3	18.4	23.4
Salaried	7.6	85.0	7.3	100
	20.9	85.7	39.9	64.9
Unemployed	19.1	38.6	42.4	100
	9.4	7.0	41.8	11.7
Total	23.7	64.4	11.9	100
	100	100	100	100

Notes: Pooled EPH data (1995–2003).

ees expand, while 21.5% of firms with 15–24 employees move to the category that comprises firms with more than 25 employees.

Overall, these dynamics are compatible with the small firm sizes found in Table 2. Moreover, our results match nicely to those found in Fajnzylber *et al.* (2006). These authors explore transitions in urban Mexico from 1987 to 2001. For instance, from the total sample of self-employed individuals, 70.6% do not transition in Argentina, while 71.4% do not transition in Mexico. However, in Argentina, only 20% transition to the salaried sector compared to 26.9% in Mexico. Also in Argentina, 9.4% of the population becomes unemployed compared with 1.65% in Mexico. The difference in unemployment transition rates is certainly due to the economic crisis in Argentina. Additionally, Mexico has higher turnover rates and lower average unemployment generally. However, as suggested in Pagés and Stampini (2007, p. 17), the fact that Argentina has steadily increasing unemployment during the

1990s suggests that this matrix may not be considered near the steady-state transition matrix.

4. BUSINESS CYCLE AND TRANSITION DYNAMICS

Figure 1 shows the evolution of real gross domestic product (GDP) and unemployment in Argentina for the years 1994–2003. Although this is a short period of time, the variety of macroeconomic scenarios and the size of the business cycle generate significant variation, which makes Argentina ideal for study. The Mexican economic crisis of 1994 had an impact on Argentina, also known as the Tequila effect, and the Argentinean economy had a short-lived recession during 1995. Thereafter, the economy recovered strongly until 1998, reporting GDP growth of 8% in 1997. Following the successive negative external shocks from East Asia, Russia, and Brazil, Argentina again entered into a long-lasting recession in 1998, and reports GDP falling 3%. Meanwhile, the issue of Argentina's massive public debt became controversial, capital out-flights increased, and the government became unable to meet its debt obligations. An all-out financial crisis exploded in 2001 after an almost complete freezing of bank deposits. In 2002, Argentina's GDP sunk by 10.9% with respect to the previous year. The economy finally recuperated in 2003.

Unemployment follows a similar path. Unemployment falls when the Tequila effect is over, but rises again during the four-year recession. The crash of the economy in 2001 brings a clear spike in the jobless rate. Figure 2 depicts the evolution of hourly wages for the period 1995–2003 both in levels and in annual differences (left scale and right scale, respectively). The figure shows a deterioration of real wages with a 30% fall in average hourly wages in the aftermath of the 2001 economic crisis. [7]

The evolution of total self-employment, own-account, and self-employed with employees rates as a proportion of the

Table 4B. *Firm dynamics (in %)*

	Own-account	1–4 employees	5–14 employees	15–24 employees	>25 employees	All firm sizes
				To		
From						
Own-account	81.8	16.9	0.5	0.1	0.7	100
	81.5	30.2	8.8	8.2	27.7	60.3
1–4 employees	30.8	64.3	3.8	0.4	0.7	100
	17.2	64.4	34.6	18.5	15.3	33.7
5–14 employees	9.9	35.3	47.3	4.1	3.5	100
	0.6	4.0	48.5	22.3	8.7	3.8
15–24 employees	15.6	19.4	17.3	26.3	21.5	100
	0.2	0.4	3.1	25.4	9.5	0.7
$k > 25$ employees	19.2	21.1	11.8	11.2	36.8	100
	0.5	1.0	5.1	25.6	38.7	1.6
All firm sizes	60.5	33.4	3.7	0.7	1.5	100
	100	100	100	100	100	100

Notes: Pooled EPH data (1995–2003). Individuals who start as self-employed and end up as self-employed one year later.
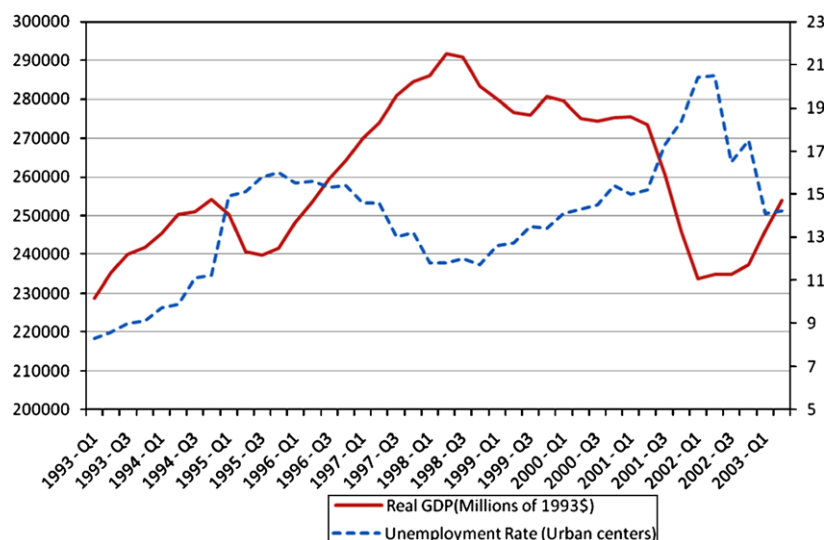

Figure 1. *Real GDP and unemployment rate. Source: INDEC.*

total active labor force is shown in Figure 3. First, total self-employment and own-account rates significantly increase after the Tequila effect and decline after. When the economy expands, overall self-employment increases, but the own-account sector is non-reactive. The situation changes when the recession begins in 1999. During this period, the growth rate of own-account employment surpasses the growth rate of aggregate self-employment, and the growth rate gap continues to increase in the aftermath of the economic crisis. Self-employed with employees shows a secular decline over the period of analysis, with a significant drop in the 2001–02 recession.

Figure 4 presents the evolution of salaried premium in levels. This premium is obtained by running a regression of wages/income on a set of observable characteristics, plus a dummy variable for salaried workers. We do this separately for each year over the period of analysis. We also distinguish between own-account workers and self-employed with employees. The figure shows that only entrepreneurs with employees register a positive income premium with respect to salaried workers. It also shows that the deterioration of the economy improves the relative performance of salaried workers. In fact, in 2002, own-account workers make on average 20% less than salaried workers. One possible interpretation is nominal wage rigidities in the salaried sector.[8] Another explanation is given in McKenzie (2004), who argues that the crisis weakened the demand for product and services of the self-employment. The reverse pattern does not hold, however. During periods of economic expansion, only the self-employed with employees experience an income improvement relative to salaried workers.

The timing and characteristics of those who change their labor status provide information about the nature of employment transitions. Figure 5 plots the proportion of salaried workers that make the transition from salaried to self-employ-
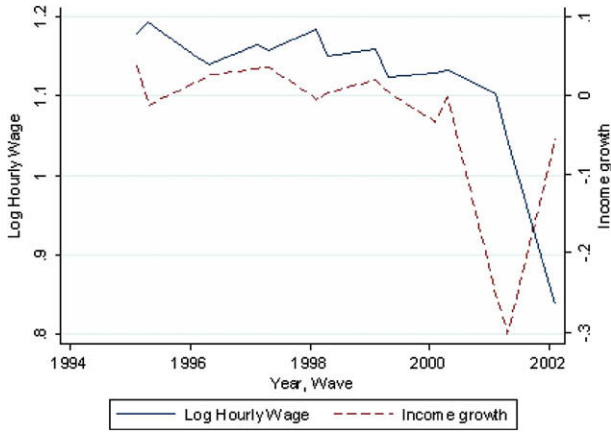
Figure 2. *Wages and income growth. Note: Pooled EPH data (1995–2003). Variables expressed in real terms.*
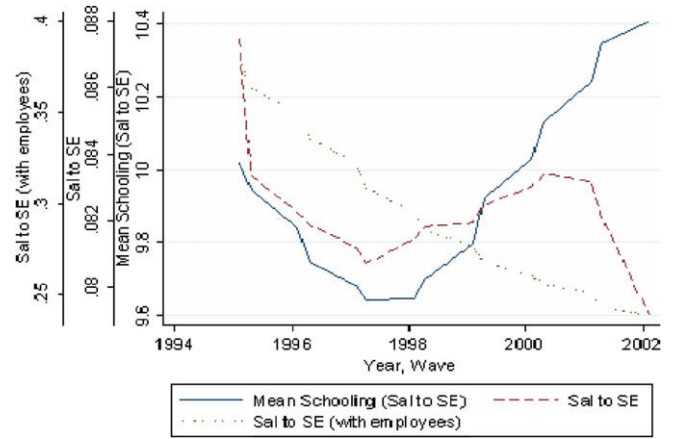

Figure 3. *Self-employment rates. Note: Pooled EPH data (1995–2003). Rates expressed as a proportion of the total active labor force.*

Figure 5. *Transition from salaried to self-employment. Note: Pooled EPH data (1995–2003). SE: self-employed workers and Sal: salaried workers.*
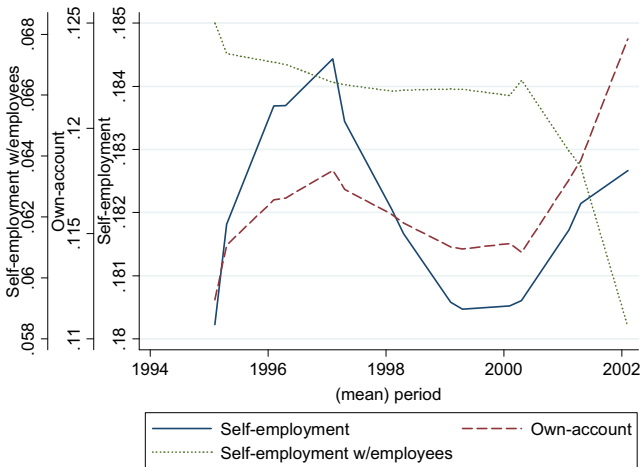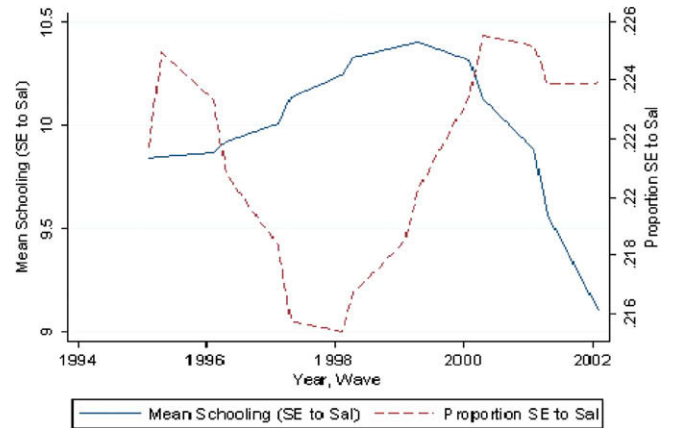

Figure 6. *Transition from self-employment to salaried. Note: Pooled EPH data (1995–2003). SE: self-employed workers and Sal: salaried workers.*

ment, as well as the mean years of schooling. This is the *entry* analysis of self-employment. In years of economic expansion (1996–97), the rate of salaried workers that become self-employed (dashed line) decreases, reaching its lowest point at the peak of economic activity. This trend reverts at the start of the recession at the end of 1998. However, it goes down
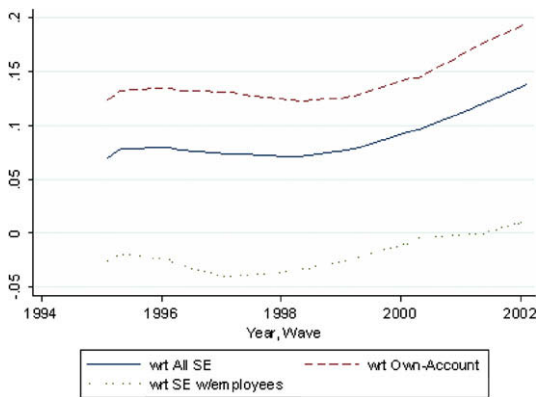

Figure 4. *Salaried wage premiums. Note: Pooled EPH data (1995–2003). Premiums in levels are obtained as in Section 3(a).*

again in the last transition of our period of analysis (May 2002–May 2003). Boom years are characterized by (on average) less-educated individuals becoming self-employed (solid line). Nonetheless, this trend reverts once the recession begins. In fact, the average years of schooling for new self-employed reaches its maximum when the recessive outlook becomes more pronounced. Finally, entry into the self-employed sector with employees declines over the period of analysis.

Figure 6 shows the reverse transition, that is, from self-employment to salaried employment. This is the *exit* analysis of self-employment. The figure shows that exit rates increase in the 2001 recessionary period, as explained by weak demand conditions of the self-employment sector (McKenzie, 2004). In this case, years of economic expansion are associated with the transition of more educated individuals than in years of recession.

To complete the analysis, in Figure 7 we consider the proportion and average years of schooling for those who transit from unemployment to self-employment. We reach similar conclusions: the pool of workers that move into self-employment is significantly more educated as the recession deepens. Additionally, one year after the recession starts, the proportion of unemployed workers that transition to self-employment rises dramatically only to reach its peak during the economic crisis. Moreover, the 2001 recession is associated
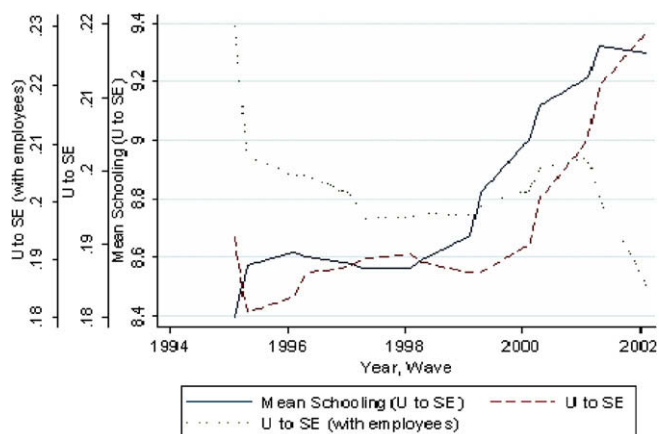
Figure 7. *Transition from unemployment. Note: Pooled EPH data (1995–2003). SE: self-employed workers; Sal: salaried workers, and U: unemployed.*

with a decline in the amount of unemployed or salaried workers that become self-employed with employees. To sum up, the cyclical pattern of own-account workers and self-employed with employees significantly differs.

Two complementary explanations can explain these patterns. First, self-employment is an employment of last resort: when the economy is performing well, self-employment is only a profitable alternative for those low-skilled individuals who are unable to find a job in the salaried sector. As the recession hits, it expands the pool of workers looking for a job, and in particular, it increases the likelihood of more educated individuals starting their own micro-business. Our results show that the self-employment rate is counter-cyclical, and therefore unfavorable economic conditions increase the pool of workers in the self-employed sector. Nevertheless, whether self-employment actually serves as an effective refuge is contested. McKenzie (2004) finds that self-employment does not provide a secure safety net or an outlet for surplus labor in terms of income and worked labor hours. This explanation is in line with the econometric analysis of *entry*. It shows that those who enter self-employment from salaried are, conditional on other human capital variables, those who had low wages (see Section 5(a)). Furthermore, it shows that the self-employment sector is associated with negative self-selection (see Section 5(d)).

Second, an alternative explanation given by an anonymous referee [9] is that this may be due to the fact that only well-educated individuals are able to survive in the self-employment sector. Moreover, the second explanation is compatible with the econometric results on *exit*: the likelihood of staying as self-employed one year later decreases both with education and with age (see Section 5(b)).

5. ECONOMETRIC ANALYSIS

As shown in Evans and Leighton (1989), labor status decisions can be analyzed in a Markov-chain structure, where the last period variables contain all the information to fully describe the stochastic nature of the sectoral transition. Suppose that an individual i can choose to be either: self-employed or salaried (denoted by SE and SAL, respectively). At any point in time t, the decision to be in one of these labor categories is given by the net value of the discounted future earnings and the preference for each sector. An empirical model of earnings,

y_{it}, for any individual i in period t could be defined as: $y(L_{it}, X_{it}, Z_{it}(L_{it-1}, L_{it-2}, \ldots), \theta_i, \varepsilon_{it})$. This function depends on the actual labor status, L (i.e., SE or SAL), and observable human capital variables which maybe exogenous, X, or endogenous, Z, the latter being path dependent. Additionally, θ captures non-observable entrepreneurial ability and intrinsic preferences for each status and ε represent other unobservable characteristics of the individual. An implicit Markov-chain structure assumption allows us to estimate the transitions from SAL to SE (entry) and SE to SAL (exit) by conditioning on observable characteristics.

There may still be a correlation between Z and θ. This identification problem can be solved if we have at hand a proxy or instrumental variable. Unfortunately, employment surveys in developing countries do not contain potential instrumental variables that can be used in this context. Our strategy is to control for unobserved ability using earnings in $t-1$ and an indicator of whether or not the transition (if any) from one sector to the other had an intermediate step in unemployment as proxies for the characteristics of the individual labor status decision which are not embodied in traditional human capital variables.

(a) Determinants of becoming self-employed: entry

We first study the determinants of entry in the entrepreneur sector from the salaried sector using a probit model (Table 5, column 1). Initially, the base population will be that of all salaried workers and the dependent variable will be constructed as equal to 0 if the individual remains salaried one year later, and 1 if the individual becomes self-employed (with or without employees). The set of explanatory variables includes education, age, gender, a variable identifying household heads, firm size, a public sector employment dummy, last period's wage (*Log Hourly Wage*) and a variable identifying those individuals who became unemployed in the survey in between (*Lost Job*).[10] In addition, the regression equations include several categorical variables (not presented in the table) for industry, region, and time.[11] We report the marginal effects of the probability of becoming self-employed.

The effect of formal education on the probability of becoming an entrepreneur is convex. The level of education that minimizes the probability of a salaried worker becoming an entrepreneur roughly corresponds to eight years of schooling (incomplete secondary school). Regarding the effect of age on the likelihood of becoming self-employed, we find that the probability of entry is increasing in age for most working years.[12]

We consider two hypotheses. Firstly, our results are compatible with a dynamic entrepreneurial sector in which successful individuals accumulate enough capital and experience then start their own business. For instance, Fajnzylber *et al.* (2006) obtain similar findings for Mexico and draw the same conclusion. Second, the transition dynamics discussed in the previous section, along with the stylized characteristics of middle-income countries, lead to a less optimistic explanation. Namely, middle-age individuals who lose their jobs in the public or private sector face serious difficulties finding similar earnings and benefits. This phenomenon is more evident during long recessions. The threat of long unemployment spells creates an incentive to start own-account projects which are not capital intensive and service related. The level of education is positively related to the degree of sophistication of the services. In developing countries, college-educated individuals usually develop profound social networks (Beccaria & López, 1996). In this scenario, part-time consultation and profes-

Table 5. *Entry – different specifications*

	(1)	(2)	(3)	(4)	(5)
Log hourly wage	−0.0025 (0.0017)	−0.0033*** (0.0012)	0.0016** (0.0007)		
Education	−0.0062*** (0.0008)	−0.0028*** (0.0005)	−0.0016*** (0.0004)	−0.0064** (0.0037)	−0.0055 (0.0051)
Education²	0.0004*** (0.00004)	0.0002 (0.00003)	0.0001 (0.00002)	0.0004* (0.0002)	0.0003 (0.0003)
Age	0.0044*** (0.00060)	0.0025*** (0.0004)	0.0011*** (0.0003)	0.0245*** (0.0022)	−0.0042* (0.0027)
Age²/100	−0.0045*** (0.00070)	−0.0026*** (0.0005)	−0.0011*** (0.0003)	−0.025 (0.0026)	−0.0038 (0.0034)
Lost job	0.0752*** (0.00710)	0.0478*** (0.0052)	−0.0076*** (0.0024)	−0.0662** (0.0065)	−0.1639*** (0.0093)
Female	−0.0296*** (0.00240)	−0.0166*** (0.0019)	−0.0088*** (0.0012)	−0.0965*** (0.0075)	0.062*** (0.0114)
Head of household	0.0029 (0.00210)	0.0043*** (0.0015)	−0.0024*** (0.0009)	0.035*** (0.0088)	0.0221*** (0.0120)
Unempl. duration (months)				−0.0048*** (0.0009)	−0.0039*** (0.0011)
Unempl. duration² (months)				0.0076*** (0.0014)	0.0035* (0.0021)
Public adm.	−0.0335*** (0.00290)	−0.0186*** (0.0023)	−0.0113*** (0.0015)		
Firm size					
2–5	−0.0105*** (0.00390)	−0.0088*** (0.0022)	0.0025*** (0.0022)		
6–15	−0.0342*** (0.00300)	−0.0218*** (0.0018)	−0.004*** (0.0017)		
16–25	−0.0414*** (0.00240)	−0.0244*** (0.0016)	−0.0082*** (0.0013)		
26–50	−0.0443*** (0.00220)	−0.0276*** (0.0014)	−0.0074*** (0.0014)		
51–100	−0.0435*** (0.00220)	−0.0256*** (0.0015)	−0.0089*** (0.0012)		
101–500	−0.0504*** (0.00200)	−0.0309*** (0.0013)	−0.0104*** (0.0011)		
501 or more	−0.0462*** (0.0019)	−0.0281*** (0.0013)	−0.0099*** (0.0012)		
Pseudo-R²	0.1307		0.1256	0.0786	
Obs.	71,282		71,282	13,635	

Notes: Standard errors in parentheses.
(1) Entry probit specification (dependent variable 0 = salaried to salaried, 1 = salaried to self-employed); (2) and (3) entry – multinomial logit (dependent variable: 0 = salaried to salaried, 1 = salaried to own-account, 2 = salaried to entrepreneur with employees); (4) and (5) entry – multinomial logit (dependent variable: 0 = unempl. to unempl., 1 = unempl. to self-empl., 2 = unempl. to salaried).
All specifications include time, region, and industry dummies. *Source*: EPH.
* Significant at 10%.
** Significant at 5%.
*** Significant at 1%.

sional advice is a safe refuge when unemployment insurance is not widely available.

Consistent with this view is the effect of the variable *Lost Job* in Table 5, which captures those individuals who involuntarily left the salaried sector. Those individuals transitioning out of salaried employment are more likely to choose to start a micro-firm. Furthermore, the wage variable shows the expected negative impact on the likelihood of moving, as *ceteris paribus*, higher wages make individuals less interested in leaving the salaried sector. We also include firm size dummy variables to test whether individuals in any particular type of firm are more likely to start a micro-firm. As the firm size increases, the probability of moving to the self-employment sector decreases. This is probably due to non-pecuniary benefits offered by larger firms. Finally, public administration workers are less inclined to move to the self-employment sector; this is likely a consequence of greater job and higher wage compensation. In summary, our results suggest that those who move to the self-employment sector transition from the lowest paying and most insecure of salaried jobs.

Table 5, columns 2 and 3, expands the analysis of Table 5, column 1, and distinguishes whether entry into self-employment takes place as an own-account work or self-employment with employees. As before, the sample contains all salaried workers in the first period who are still employed one year later. We have already shown that the transition dynamics of both groups are significantly different. Now we estimate a multinomial logit model in which these two types of entry (with or without employees) are compared to the base category (remaining salaried). Overall, the effect of age and education is similar for both types of transition; however, we observe remarkable differences: both *Wage* and *Lost Job* show oppo-

site signs depending on whether entry occurs with or without employees. These results imply that the best-salaried workers are more likely to start a firm with employees.

The next step is to study the entry pattern of those individuals who are unemployed in order to check whether the patterns of entry found in the salaried population are also observed for the unemployed. In Table 5, columns 4 and 5, we present results for a multinomial logit specification where the dependent variable takes the value 0 if an unemployed remains in that condition from one year to the next, or 1 if he moves to the self-employed sector (column 4), or 2 if he becomes salaried (column 5).[13] In terms of formal education, we find that the patterns of entry from unemployment to self-employment are very similar to those from salaried, while education has no significant effect on the likelihood of finding a job as salaried (although it has a similar shape to that of becoming self-employed). The entry pattern of age shows that that the likelihood of getting a salaried position monotonically decreases as the individual gets older, and the contrary occurs for self-employed positions.

The multinomial model allows us to construct odds ratios that represent the relative probability of an unemployed individual becoming self-employed vs. salaried one year later. In order to do this, each transition probability is constructed for an individual with similar characteristics, for unemployment duration values between 1 and 36 months (there is a significant accumulation of responses in 1, 2, 3, 4, and 5 months as well as fractions of the year, i.e., 6, 12, 18, 24, 30, and 36 months). Finally, the ratio of the two is taken. In particular, we are interested in the effect of unemployment duration (again we choose a quadratic specification) on the probability of each type of transition. Let D be unemploy-

ment duration and X be other covariates. The odds ratio is constructed as

$$\frac{P[\text{unemp to self-emp}|D, X]}{P[\text{unemp to salaried}|D, X]} = \frac{e^{\alpha_{1SE}\cdot D + \alpha_{2SE}\cdot D^2 + \beta_{SE}\cdot X}}{e^{\alpha_{1SAL}\cdot D + \alpha_{2SAL}\cdot D^2 + \beta_{SAL}\cdot X}}$$

$$= e^{(\alpha_{1SE} - \alpha_{1SAL})\cdot D + (\alpha_{2SE} - \alpha_{2SAL})\cdot D^2 + (\beta_{SE} - \beta_{SAL})\cdot X}$$

$$\propto e^{(\alpha_{1SE} - \alpha_{1SAL})\cdot D + (\alpha_{2SE} - \alpha_{2SAL})\cdot D^2},$$

where $\propto$ means proportional to. For low duration levels, as unemployment duration increases, the odds ratio decreases (i.e., the chances of becoming salaried increase relative to self-employment). However, for duration greater than 24 months, the odds ratio increases. The regression coefficients imply that unemployment spells that are very long are more likely to culminate in self-employment. Nevertheless, the fact that for most of the duration levels, individuals look increasingly for a salaried job implies that salaried jobs are an entry place for the unemployed.

The effect of duration is compatible with the effect of *Lost Job*. This variable shows that individuals unemployed in the survey *in between* have a greater chance of finding a job as self-employed rather than as salaried when compared to individuals with a job. If we extrapolate the analysis of unemployment duration, from the initial period to the survey *in between* this is the sign we expect.

(b) *Determinants of exit from self-employment*

We extend the analysis of entry to exit. The base population is self-employed (with or without employees) and the dependent variable is equal to 0 if the individual remains self-employed one year later, and 1 if the individual becomes salaried. We use a probit model with the same set of covariates as in the entry analysis. The marginal effects on the probability of exit are reported in Table 6.

First, the likelihood of exit decreases both with education and age. Therefore, observable human capital contributes to survival in micro-entrepreneurship. Second, those self-employed that perform better (i.e., generate higher income) have less chances of exit. Surprisingly, the probability of exit also increases with firm size. However, taken together with income and noting that firm sizes among self-employment are heavily concentrated in small firms, the former effect dominates firm size. Third, the sign of the variable *Lost Job* is positive indicating that previous failure in the sector increases the chances of becoming salaried. Overall, these findings suggest that although entry into self-employment does not correspond to mainstream models, conditional on being on the sector, the best entrepreneurs are more likely to survive.

(c) *Income growth*

If self-employment is truly a tactic of last resort, individuals that become self-employed should have income losses. We regress annual income growth for all individuals who are employed both years, controlling for the same set of individual characteristics used above, and include a set of dummy variables for whether the individual is salaried or self-employed, and for the nature of the transition if any (i.e., salaried to self-employed, self-employed to salaried). We report these findings in Table 7, column 1. We observe that on average and controlling for skill level, salaried workers have higher income growth than self-employed workers. Moreover, those who move from a salaried job to self-employment experience an additional 3.6% annual income loss. [14]

Table 6. *Exit – probit specification. dependent variable: 0 = self-employed to self-employed, 1 = self-employed to salaried)*

	(1)
Log Hourly Wage	−0.0200[***] (0.0038)
Education	−0.0055[**] (0.0026)
Education^2	0.0001 (0.0001)
Age	−0.0185[***] (0.0018)
Age^2/100	0.0141[***] (0.0021)
Lost job	0.0828[***] (0.0141)
Female	0.0133 (0.0082)
Head of household	0.0004 (0.0068)
Firm Size	
2–5	−0.0096 (0.0059)
6–15	0.0191 (0.0161)
16–25	0.0569[*] (0.0365)
26–50	0.0704[*] (0.0426)
51–100	0.1174[*] (0.0604)
101–500	0.3622[***] (0.1027)
501 or more	0.4986[**] (0.2132)
Pseudo R^2	0.0961
Obs.	25,295

Notes: Standard errors in parentheses. All specifications include time, region, and industry dummies. *Source*: EPH.
[*] Significant at 10%.
[**] Significant at 5%.
[***] Significant at 1%.

In column 2, we add the interaction of the *SAL to SE* transition variable with education, as well as the interaction of the latter with the *Salaried* dummy variable. The coefficient of the transition indicates that those moving to self-employment with low levels of education will experience the greatest income losses.

(d) *Self-selection*

Up to this point we have studied the characteristics of those who become self-employed (with and without employees) in terms of observable human capital variables. However, an unexplored issue is whether those who self-select into self-employment have low or high entrepreneurial ability. As stated in Pisani and Pagán (2004a), this self-selection process "determines the degree of desirability of the self-employment sector *vis-á-vis* other types of employment (such as waged and salaried employment)" (p. 336). In order to explore this, we follow Pisani and Pagán (2004a, 2004b) and apply Borjas and Bronars' (1989) methodology.

Let us assume that each individual has two potential earning functions that correspond to self-employment (SE) and salaried work (SAL). Moreover, we assume that selection into each sector is given by a third equation (a probit model). For each equation we have a set of observable characteristics, X, and unobservable components, ε_{SE}, ε_{SAL}, and u, for the first, second, and third equation, respectively:

$$\ln Y_{iSE} = X_i\beta_{SE} + \varepsilon_{iSE},$$

$$\ln Y_{iSAL} = X_i\beta_{SAL} + \varepsilon_{iSAL},$$

$$SE_i = X_i\gamma + u.$$

Our main interest is given by the unobservable components; in particular, in the correlation between ε_{SE} and u. If $\rho_{SE,u} = \text{corr}(\varepsilon_{SE}, u) > 0$, then those individuals more likely to self-select into self-employment (i.e., those with higher u) and are those with high entrepreneurial ability (i.e., those with higher ε_{SE}). This corresponds to positive self-selection. The contrary occurs if $\rho_{SE,u} = \text{corr}(\varepsilon_{SE}, u) < 0$, which corresponds to a negative self-selection.

Table 7. *Income growth (dependent variable: log hourly income growth)*

	(1)	(2)
Salaried	0.0654*** (0.0138)	0.0512*** (0.0190)
Salaried to self-employed	−0.0362*** (0.0138)	−0.0836*** (0.0304)
Self-employed to salaried	0.0089 (0.0147)	0.0083 (0.0147)
Salaried × education		0.0017 (0.0014)
Sal to SE × education		0.0050* (0.0029)
SE to Sal × education		0.0000 (0.0000)
Public administration	0.0060 (0.0068)	0.0052 (0.0068)
Education	−0.0026 (0.0023)	−0.0041 (0.0026)
Education^2/100	0.0001 (0.0001)	0.0001 (0.0001)
Age	−0.0043*** (0.0014)	−0.0042*** (0.0014)
Age^2/100	0.0043** (0.0017)	0.0042** (0.0017)
Lost job	−0.0246 (0.0155)	−0.0246 (0.0155)
Female	0.0076 (0.0056)	0.0072 (0.0056)
Head of household	−0.0016 (0.0051)	−0.0016 (0.0051)
Firm size (salaried)		
2–5	−0.0213 (0.0140)	−0.0236* (0.0141)
6–15	−0.0450*** (0.0140)	−0.0481*** (0.0141)
16–25	−0.0437*** (0.0144)	−0.0468*** (0.0146)
26–50	−0.0404*** (0.0144)	−0.0436*** (0.0146)
51–100	−0.0479*** (0.0146)	−0.0512*** (0.0148)
101–500	−0.0528*** (0.0153)	−0.0562*** (0.0155)
501 or more	−0.0548*** (0.0155)	−0.0585*** (0.0157)
Obs.	88,896	88,896

Notes: Standard errors in parentheses. All specifications include time, region, and industry dummies. *Source*: EPH.
* Significant at 10%.
** Significant at 5%.
*** Significant at 1%.

Estimates from the model imply negative self-selection into self-employment, and positive self-selection into salaried jobs.[15] In other words, our findings complement our previous results: those in self-employment are not the best in terms of entrepreneurial ability ($\rho_{SE,u} = -0.185 < 0$, std. err. 0.038). In fact, the model implies that those who have a greater change of working in the self-employment sector could do relatively better as salaried ($\rho_{SAL,u} = 0.209 > 0$, std. err. 0.015).

The negative self-selection result, however, applies only to own-account workers. If we consider the switching regression model above, taking the sub-sample of salaried and self-employed with employees (SEw/e) we find: $\rho_{SEw/e,u} = 0.551 > 0$, std. err. 0.079 and $\rho_{SAL,u} = 0.0064 > 0$, std. err.

0.025. These results imply that there is segmentation in the self-employment sector when we take into account unobserved ability of the individuals.

6. CONCLUSION

This paper examines the self-employment sector in Argentina. Because of extreme macroeconomic fluctuations occurring in Argentina over the past 15 years, we are able to examine multiple business cycles over a relatively short span of time. Our objective is to determine whether the self-employed sector is populated by highly motivated individuals with outstanding entrepreneurial abilities, or whether the self-employed sector serves merely as a refuge for the urban unemployed.

Our study shows that the self-employed sector in Argentina is segmented. Results suggest that the vast majority of those self-employed are own-account workers and they will most likely remain within this category. During recessions, transition into this category is common, a trend that reverses itself in expansionary periods. This finding supports the pessimistic belief that being own-account worker is a form of disguised unemployment. Controlling for skill level, they earn much less than salaried workers and they are characterized by negative self-selection. However, when we focus exclusively on self-employed with employees, we find that the employment transitions resemble those of the "superstars" considered in the industrialized view of self-employment. Recessions are associated with a decline in the number of individuals that enter this category. People that are currently employed and receive higher salaries (and thus have more capital), are more likely to become entrepreneurs with employees. The more experience and the more education the individual has, the higher the likelihood to transition into this category. Finally, self-employed with employees are characterized by positive self-selection.

Our evidence suggests that policymakers must be cautious when extrapolating mainstream models that describe worker and firm decision in industrialized economies to the same worker and firm decisions in emerging economies. Failure to address the segmented characteristics of self-employment in middle-income countries would result in poor incentives and perhaps even policy failure.

NOTES

1. Rosen (1981) discusses the "superstar" theory. For a survey on the literature see Blanchflower (2004). Classic contributions include: Lucas (1978), where individuals are endowed with a given and known entrepreneurial ability. Those with a sufficiently high level of managerial ability become entrepreneurs, while the rest become wage workers. Jovanovic (1982) adds dynamic and uncertainty about these skills.

2. This literature has roots in Hart (1972). Examples include: De Soto (1990), Maloney (1999), Maloney (2004), Bhattacharya (2002), Fajnzylber, Maloney, and Montes-Rojas (2006) and Ñopo and Valenzuela (2007).

3. Of course, both views correspond to a stylized simplification of reality. There is some parallel with the industrialized country sociological literature that sees the numerous self-employed among certain ethnic minorities as recruited from among "misfits"—individuals who lack access to salaried employment, for instance, because of language barriers, a

history of unemployment, or limited labor market experience (see Evans & Leighton, 1989; and Carrasco, 1999, and the references they cite).

4. We run a regression where the dependent variable is the logarithm of hourly wage and we use a dummy variable for salaried as an independent variable, controlling for years of schooling, age, gender, an indicator for household head, and year and regional dummies. Regression coefficients are not reported but are available upon request.

5. We are grateful to an anonymous referee for this hypothesis.

6. Here the dependent variable is the annual hourly income growth rate, and we use the same controls as before. Regression coefficients are not reported but are available on request.

7. McKenzie (2004) provides a comprehensive analysis of the 2001 aggregate shock and its impact on the labor market.

8.   We abstract from discussing labor market distortions (e.g., changes in minimum wages or firing costs) which would cause some workers to be rationed out of the formal sector. Overall, the 1990s have been a period of labor market deregulation in Latin America. Labor reforms have reduced the cost of dismissing a worker in a number of countries of the region. However, this cost only decreased slightly in Argentina (Galiani, 2002). Interestingly, this author also shows that payroll contributions decreased substantially during this decade. He also indicates that, to a large extent, the emphasis on decreasing payroll taxes in Argentina was the response to the unprecedented rise in unemployment in the aftermath of the Tequila crisis. In this way, the government tried to stimulate labor demand. That is, ceteris paribus, a decrease in payroll contributions in the mid 1990s should have led to an increase in salaried openings in detriment to existent own-account job positions. To the contrary, our results indicate that despite this regulatory reform, the opposite happened. This provides additional support to the hypothesis that highlights the countercyclical nature of self-employment.

9.   We are grateful to an anonymous referee for this point.

10.   Although it would be desirable to capture all the individuals who became unemployed at any point during the year, the survey only allows us to identify those unemployed at the moment of the survey in-between our analyzed periods leaving out those who temporarily became unemployed before or after that survey. Besides, the EPH does not provide any information about the reason for being unemployed.

11.   Individual's financial situation and wealth are not available in our data set. In the liquidity constraints literature (see Evans and Jovanovic (1989), for instance) these variables play an important role in the propensity to be an entrepreneur. Therefore, in our context, the age profile should not be interpreted only as experience in the Mincerian sense, but as a proxy for both experience and past financial accumulation.

12.   Carrasco (1999) and Moore and Mueller's (2002) research on Spain and Canada, respectively, show that the hazard of becoming self-employed has a maximum for middle-aged individuals (35–45 years old for Spain, 45–54 years old for Canada).

13.   The number of unemployed individuals who become entrepreneurs with employees from one period to the other is negligible. Thus, we do not report multinomial specifications that distinguish different transitions to self-employment (i.e., with and without employees) from unemployment, but a similar pattern can be obtained in this case. Results are available on request.

14.   Unfortunately, the panel data structure of the EPH does not allow us to track individuals for more than one year. Therefore, transitory and permanent income losses may not be separated. Evidence on this matter shows that individuals who start a micro-business may have negative profits for the first years and only later earn positive gains. The goal of this sub-section is to rule out the possibility that those entering self-employment actually experience income gains.

15.   The results of the regression coefficients are not reported, but can be available from the authors upon request.

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APPENDIX A. PANEL STRUCTURE AND VARIABLE DEFINITIONS

The EPH panel is constructed by matching first households and then individuals across waves. For the first match, on average about 70% of the households can be matched from the first wave to the second one, but more than 90% can be matched to the third one. A general discussion about the quality of the matched-households EPH can be found in McKenzie (2004, p. 754). Individuals are matched using the codes given by the EPH, but they are checked for accuracy by comparing gender and age across waves (i.e., individuals with different gender or age difference bigger than two years are dropped). Considering both missing and misclassified individuals we lose another 15% of the sample.

A.1 Variables definition (selected variables)

Log Hourly Wage: logarithm of real hourly wage for salaried workers or income for self-employed.

Log Hourly Income Growth: annual difference in log hourly wage.

Education: calculated years of schooling using information about reported schooling levels (i.e., complete or incomplete primary school, secondary school, tertiary education, college).

Lost Job: dummy variable for individuals that report being unemployed in the survey *in between*. For instance, for a transition May 2002 to May 2003, we construct this variable using the October 2002 survey.

Public Adm.: dummy variable for salaried workers working for the government or state enterprises.