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Youth Employment Transitions in Latin America

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Abstract

Using panel data from labor force surveys in Argentina, Brazil, and Mexico, the paper maps out young people's paths from the classroom to the work place during the 1980s through the early 2000s. By decomposing transition matrices into propensity to move and rate of separation and estimating duration matrices, the authors follow young people's movements between school and work and between employment sectors to better understand the dynamics of youth employment, including where youth go upon leaving school, how long they spend in each state, and where they go upon leaving various employment states. The main conclusion of the study is that young people across all three countries follow a similar trend over their life cycle: they leave school to spend a short time in the informal sector, move to a formal position for longer spells, and finally become self-employed. The authors find evidence of decreasing segmentation between formal and informal sectors as workers age, a lower propensity for formal sector employees to return to school than workers in the same age cohort who are not in the

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Youth Employment Transitions in Latin America[1]

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1. Introduction

The transition process from school to the work place, and how to increase its efficiency, is a puzzle for researchers and policymakers. Youth unemployment rates across the world are more than double those of adults, which is often interpreted as a lack of decent work opportunities for youth (ILO, 2008). Short-term informal employment and high turnover are viewed as exploitative experiences that are inherent to modern labor markets that youth face (Weller, 2007; Schkolnik, 2005).

The scarce evidence of how young workers make their transitions into the labor market suggests a different story. For example, Bosch and Maloney (2010) find that informal jobs in Latin America are used as a stepping-stone in the school to work transition providing young workers with essential skills that allow them to advance on their employment path. In a similar way, high turnover among European youth demonstrates a prolonged job search process in which young entrants search for available opportunities, revealing to themselves and their employers their strengths and preferences for jobs (Topel and Ward, 1992).

This paper maps out young people's path from the classroom to the work place in three Latin American countries. We use panel data to follow young people's movement between school and work and between employment sectors to better understand the dynamics of youth employment, including where youth go upon leaving school, how long they spend in each state, and where they go upon leaving various employment states. The analysis differentiates between adolescents (15-18 years old) who are at the point of deciding to leave school and enter work and may still be dependent on parents, young adults (19-24 years old) who are settling into the labor force, and prime aged adults (age 25-44), who are used as a counterfactual. We consider the behavior in Brazil, Mexico and Argentina, which offer distinct labor market characteristics that may give us further insight into the school-to-work transition processes[2].

[2] Brazil has moderate unemployment rate, Mexico is characterized by low unemployment rates, and Argentina is a high unemployment economy.

The main conclusion of the paper is that young people across all three countries follow a similar trend over their early life cycle:[3] they leave school to spend a short time in the informal sector, move on to a formal position for longer spells, and finally become self-employed. Thus, the informal sector appears to play the role of informal job training, as suggested by Hemmer and Mannel (1989), where youth have the flexibility to continue in the labor market or return to school, while a formal job implies entering labor force for good and self-employment is a sector to enter once skills and connections have been accumulated through several years of working.

The next Section presents a literature review of the hypotheses to be explored in the paper. In Section 3, we describe the methodology and the data. Section 4 presents analysis and results. Section 5 concludes by drawing together the findings from specific transitions to sketch the school-to-work transitions process over the early life cycle.

2. Literature Review

Across the world, young people's (completed) employment tenure is of a shorter duration than that of adults. The OECD literature suggests that there is frequent job turnover among younger workers who engage in a search process of "shopping around" temporary jobs until they find a career path to follow (Quintini, 2006; 2007).[4] This phenomenon is not exclusive of developed economies. Balán, Browning and Jelin (1973) observe that young Mexican workers engage in a search process where they try out various possible life choices. In Chile, Fajnzylber and Reyes (2005) find greater job instability for young people than for adults, partly because a high percentage of their employment contracts were short-term. Chacaltana (2005) uses a Peruvian panel from 1998 to 2001 to show that 60 percent of young workers changed their work status while only 40 percent of adults did.

[3] Strictly speaking, the available data do not allow us to follow the same people for the entire time that it is necessary to build a complete life cycle pattern. However, separating transitional matrices into different age ranges permits us to estimate age-specific transition probabilities of moving between employment states to approximate such pattern.

[4] As Topel and Ward (1992) say, "job changing is a critical component of workers' movement toward the stable employment relations of mature careers".

If we look more closely at how workers integrate into the labor force, several studies suggest that the informal sector is a port of entry. Ziss and Dick (2003) discuss the importance of informal jobs for youth worldwide, especially poor youth, concluding that young people often enter the informal sector to acquire job skills and then move into the formal sector or continue in informality. Bosch and Maloney (2010) find similar results for 15-24 year old youth in Latin America. Wahba (2000) observes that the average duration of informal jobs in Egypt is shorter than for formal, and concludes that informal work may be used as a stepping-stone to formal employment. In this line, Hemmer and Mannel (1989) noticed that in many countries, informal small firms train more workers than the formal education system and the job-training schemes combined. As Cunningham et al (2008) posits, experience in the informal sector could be a substitute for technical schooling where "graduation" implies getting a formal job.

Young people, governments, and non-governmental organizations often view entrepreneurship as a viable path into the labor force in spite of contrary evidence from the analytical literature.[5] Evans and Jovanovic (1989) find that people with greater assets are more likely to switch to self-employment from other employment. Since youth have not had time to accumulate capital, they would therefore be less likely to become self-employed. Along the same line, Blachflower and Oswald (1998) report empirical results consistent with the hypothesis that entrepreneurs face capital constraints and reject other potential explanations as psychological characteristics. However, Dunn and Holtz-Eakin (2000) find that parental self-employment has a large and significant effect on the propensity to become self-employed, while financial assets exert a modest effect on the transition into self-employment.

Once youth enter the labor force, they do not necessarily give up their educational careers. Education increases the chances of getting better jobs and higher wages and young workers have lower "switching cost" of returning to school or college than prime age adults. Literature shows evidence of this pattern. Using a panel from 1989 to 1994 of urban adolescents in the city of Baltimore, US, Entwisle et al (2000) find that even though almost all students had begun work by age 17, only 23 percent worked every school year from age

[5] For example, see OECD (2001) or World Economic Forum (2009)

13 to 17.[6] Kerckhoff (2002) also observes that Americans are more likely than Europeans to shift back from full-time work to full-time school before settling into stable employment. Duryea, et al. (2003) shows the high incidence of working students in Latin America while UCW (2010) suggests that this dual activity is increasing across the world.

The degree to which labor markets are segmented seems to change over the lifecycle. A segmented labor-market perspective assumes that the informal sector is a disadvantaged one and all informal workers are really queuing for formal sector jobs. [7] However, several authors have found flows of comparable magnitudes between formal and informal jobs at different times of the life cycle: Gong et al (2004) can not reject the hypothesis that formal and informal sector jobs have the same entry and access rates, using 1999 – 2000 panel data in urban Mexico; Bosch and Maloney (2010) find similar conditional flows in Mexico, Argentina and Brazil, without separating young from adult workers; and Egel and Salehi-Isfahani (2008) observe that young men switch frequently between formal and informal sectors in Iran.[8] This suggests that the informal sector may play a transitory role for youth rather than being a dead-end career path.

3. Methodology and Data

Following the work of Bosch and Maloney (2007), three methodologies are used to understand the dynamics of youth employment. First, transition matrices[9] are estimated to understand the magnitude of turnover, namely the share of people who move into one state of employment or out of it every period. This allows us to determine, for example, if young people enter the informal sector or leave it at different rates than do adults at any one period of time.

Second, as proposed in Bosch and Maloney (2007), we decompose the transitions matrix into two separate components. The first component represents the transition probabilities independent of the rate at which different age groups leave any sector, and is

[6] Entwisle et al (2000) also found that the majority of African Americans either worked inconsistently or did not work at all, as an indicator of how less advantage groups face their transition to adulthood.
[7] Here we define an informal job as a salary job where the employer does not pay into the social security system on behalf of the employee.
[8] Using retrospective life stories collected as part of the 2005 Iranian School to Work Transition Survey, the authors define formal jobs as those in the public sector or those with a contract of unlimited or fixed duration.
[9] Transition matrices are referred to as "intensity matrices" in Bosch and Maloney (2007).

called the *propensity matrix*. The second is the rate of transition, and is referred to as the *rate of separation matrix*. By decomposing the transition matrix into the propensity matrix and the rate of separation matrix, we can determine if movements to employment states observed in the transition matrix are reflecting greater entry of certain age groups into certain employment states or if the observed transitions are simply due to greater turnover by certain age groups in general.

Finally, elements of the propensity matrix allow us to estimate the duration of each state of employment.

All three methodologies take advantage of the panel nature of the three data sets utilized in this paper. In particular, we can follow the labor market status of young people at discrete moments in time over a one month (Brazil), three month (Mexico), and six month (Argentina) period.

Transition Matrices

Transition matrices are generated using panel data, where each cell denotes the probability of moving between an initial labor market state i to a final labor market state j. Each cell of the transition matrix is a simple probability where:

$$p_{ij} = n_{ij}/n_i \qquad (1)$$

Where p_{ij} is the probability that a person moved from some initial state i into a final state j for i=1, …, K and j=1, …, K. The term n_{ij} is the number of people who were in state i and moved to state j between periods t and t+1 and n_i is the number of people who were in state i in period t. The transition matrix is denoted by:

$$Q = \begin{pmatrix} p_{11} & \cdots & p_{1K} \\ \cdots & \cdots & \cdots \\ p_{K1} & \cdots & p_{KK} \end{pmatrix}$$

This matrix will be used in three ways. First, we are interested in the share of people transition into employment; i.e. transition from any out of employment state i into any

employment state j. Second, we are interested in the share of people who transition between employment states, for example transitions from initial state i=informal into state j=formal. Third, we can use Q to understand what sector those in period t+1 came from and where those in period t go upon leaving their sector i.

Since we have access to discrete panel data, rather than continuous time data, equation (1) can be interpreted as the transition probability if we assume that the discrete-time mobility process captured by our data is generated by a continuous-time homogenous Markov process.[10] In other words, if we assume that transitions between states occur at random points in time, then a random draw of a transition in one point in time has the same probability (within a confidence interval) of a draw at any other point in time.

Decomposing the Transition Matrix into the Propensity to Move and the Rate of Separation

The transition matrix can be decomposed into the rate of separation matrix (λ) and the propensity (to move) matrix (M) as denoted by $Q= \lambda(M-I)$, where I is the identity matrix. The rate of separation during any period is one minus the probability of staying in a sector, calculated as

$$s_{ii} = 1-p_{ii} = 1- n_{ii}/n_i$$

If we have K sectors, this can be expressed as $(I + \lambda)$ where

$$\lambda = \begin{pmatrix} -p_{11} & 0 & \dots & 0 \\ 0 & -p_{22} & \dots & 0 \\ 0 & 0 & \dots & 0 \\ 0 & 0 & \dots & -p_{KK} \end{pmatrix}$$

The period of duration in each state can then be generated as $1/p_{ii}$.

Finally, the propensity to move out of a certain sector can be calculated as the number who leave the sector as a share of the total number who move in or out of the sector:

$$r_{ij} = n_{ij}/(n_{ij} + n_{ji})$$

[10] See Bosch and Maloney (2007, 2010) for a discussion of this assumption and the broader literature that argues that this assumption is reasonable.

and the associated matrix is:

$$M = \begin{pmatrix} 0 & r_{12} & \dots & r_{1K} \\ r_{21} & 0 & \dots & r_{2K} \\ \dots & \dots & \dots. & \dots \\ r_{K1} & r_{K2} & \dots & r_{KK} \end{pmatrix}$$

where each r_{ij} is the transitional probability if we assume that all workers were to leave their initial sector at the same rate.

Data

Panel labor force surveys from Argentina, Brazil, and Mexico allow us to follow the behavior of individuals over time. These three countries have different labor market histories that are instructive to understanding youth employment in Latin America. For example, Mexico has the lowest unemployment rates in Latin America while Argentina has some of the highest rates and Brazil has moderate levels of unemployment. The structure of each country's data provides us with some lessons, as well.

The Argentine *Encuesta Permanente de Hogares* (EPH) for 1995-2003 is used. The national survey is carried out in urban areas and is designed such that a sample is selected in period t and its labor market status is observed. Six months later, the same sample is interviewed again. This process is repeated two more times which gives us, in the end, the labor market status at four points in time over a one and a half year period (t, t+6, t+12, t+18). In each period, there are four consecutive cohorts at different phases of the interview process. To limit attrition bias, we only track one transition. Further, we only track May to October transitions to avoid the summer vacation which falls during the October to May period. We pool the data, giving us a sample size of 368,453 over the eight years of data. While these data are useful since they show a long-term dynamic process, they are also limited in that it is unlikely that we are capturing short-run movements between labor market states.

The Brazilian *Pesquisa Mensual de Emprego* (PME) for 1982-2002 is designed similarly to that in Argentina, but the same sample is interviewed once a month for four

consecutive months.[11] Since, this is the only of our three surveys that allows for observations over a very short time period, i.e. month by month, we limit our panel to monthly transitions. Again, to avoid summer vacations, we do not include observations that make the transition in the December to March period. This gives us a sample size of more than 340,000,000 over the 20 year period. We primarily focus on the first month that the observation is included in the sample, but later in the paper we take advantage of a three or four month transition window. The structure of this data set is particularly useful to our analysis since the time between observations is so short that it is unlikely that there are intermediate transitions between states that we are not observing. Thus, we are likely capturing all the movements that people make in the short run.

The Mexican *Encuesta Nacional de Empleo Urbano* for 1987-2003 is designed similarly to those in Brazil and Argentina, but there is a three month period between each interview, for a total of five interviews per cohort. We do not include transition from the second to the third quarter or the third to the fourth quarter since those overlap with the school "summer vacation" period, leaving us with a sample size of 952,664.

We define three different age groups for analysis. *Youth* are defined as those age 15-18 years of age. They are still of secondary school age, so they are the newest entrants to the labor force of any age group and they are more tied to school than any other group. *Young adults* are those who are age 19-24 years of age. They are beyond secondary school age (though, due to grade repetition, they still may be attending secondary school) and are, as a group, the most likely to be new entrants to the labor market. Finally, we consider *prime age adults*, who are age 25-44, and are in the prime of their working life. We choose to only include those younger than age 45 to avoid the age when retirement starts becoming an option. This last group is included in our analysis to serve as a counterfactual against which we can compare youth and young adult transition patterns.

The analysis disaggregates the youth population by gender and poverty status. The gender disaggregation is necessary due very different time use patterns by men and women,

[11] The full panel has a 4-8-4 structure, where the sample is interviewed for four consecutive months, not interviewed for the following eight months, and then interviewed in another four consecutive months. Due to attrition bias arising after the eight month hiatus, we choose to only use the information from the first four months.

including women's greater propensity to spend significant periods out of the labor force and women's higher unemployment rates. The sex variable is used to proxy gender.

The poverty disaggregation is intended to identify if the poor have more difficulty than the non-poor in transitioning from school-to-work or between employment states. Since the three surveys do not include consumption data, we use a crude measure to proxy poverty level of the individual. We calculate total labor income for each household, and we divide the sample into household income quintiles. Once the quintile is assigned to a household, we assign the corresponding quintile level to each individual in our sample.

Seven different sectors are defined in order to better understand where young people were before getting a job and where they go upon leaving it. Three non-working sectors are identified. The "unemployed" are those who are not working, not studying, and report having searched for a job for at least an hour in the week prior to the interview.[12] Those who are "out of the labor force" are not in school, not working, and not looking for a job. "Students" are in school and not working. Three labor market sectors are considered. Those who own a firm and do not have any paid employees are identified as "self-employed". Those who work for pay are divided into two categories: "formal wage employees" are employees who receive a wage and whose employer also pays into the social security system on their behalf and "informal wage employees" earn a wage but the employers do not contribute to the social security system on the workers behalf.[13]

Summary Statistics

The samples are relatively similar across countries in spite of the different structure of the data sets. In Argentina we have around 90,000 observations of workers under 25 years old, 44 percent of which are age 15-18, while for Mexico there are around 400,000 (43 percent under the age of 19) and for Brazil, around 90 million (Table 1) with 43 percent age 15-18. Young men and women are equally represented across countries. The sample has

[12] Although we define this category and include it in our transition matrices, we do not analyze the unemployment state in this paper. For a full discuss of transitions into and out of unemployment, see Cunningham (2009).

[13] Individuals who self-identify as "employers" are dropped from the sample since few 15-18 and 19-24 year olds identify themselves as such. The "unpaid" are those who state that they work but do not receive remuneration; they are dropped from the analysis since there are too few of them to estimate meaningful transition patterns.

proportionally more poor people under 25 and more non poor over 25 years old; this is unsurprising since youth are over-represented among the poor (World Bank, 2006).

The distribution of workers across employment states before the transition is very similar across countries. Figures 1, 2 and 3 present the distribution of individuals in Argentina, Brazil and Mexico across initial states. Separating by age, individuals younger than age 19 are mainly studying before a transition is made, as would be expected. Between 19 and 24, they are mostly working in the formal sector, studying or out of the labor force. The only difference between countries is in the case of Argentina, where the informal sector is relatively more important vis-a-vis the formal sector as an initial state. Above 25, pre-transition workers are mainly self-employed, with a formal job or out of labor force. Overall the non-working population exceeds the working population for age 24 and younger in Argentina but that is only the case for those ages 18 and younger in Brazil and Mexico.

The three countries in the study demonstrate similar sectoral "life-cycle" profiles. Among workers in all three countries, the youngest workers are primarily informal wage employees (Figures 4-15). But by the late-teens/early 20s, the formal wage sector takes over as the primary employment state. Finally, we see the propensity of self-employment to monotonically increase with age, peaking in the late 40s, or into the late 60s in some country-gender cases. These patterns emerge for men and women and for poor (1st income quintile) and non-poor (5th wage quintile), though the levels differ across these groups. For example, the non-poor have a much lower participation in the informal wage sector than the poor and the poor never reach levels of formality that surpass those of informal wage employment. Nonetheless, the general pattern persists.

4. Transition and Duration Results

For each age group-country, we estimate the transition matrix, propensity to move matrix, and the duration matrix. We also estimate these three matrices for each age group-country-gender and age group-country-wealth level, giving us a total of 45 matrices per country. Rather than presenting 135 matrices, we limit the presentation to key transition

patterns that characterize youth employment movements in the sample countries, with a particular focus on those issues discussed in Section 2 above.

The importance of turnover: "shopping around" behavior

Similarly to the OECD, we find evidence of high turnover among the young in Latin America. The propensity to change sector, as summarized in Table 2, shows that in all three countries, the highest propensity to move is among workers between 19 and 24 years old. Argentina has the highest turnover for young adults with 37.7 percent (as compared to 27.8 percent among prime-aged adults and 22 percent among youth), followed by Mexico with 29.4 percent and Brazil with 19.9 percent. There is not a consistent pattern across the three countries for the second highest turnover. Prime-aged adults are more likely than youth to change jobs in Argentina while the opposite emerges in Mexico and the propensities are equal in Brazil.

Young people from poor families seem to change sectors more often than non-poor youth. Table 2 shows that on average poor workers have a higher number of people who leave a sector as a share of the total number who move. In Argentina, for example, young adults in the first quintile have a turnover rate of 43.7 percent compared to 28.8 percent of those in the fifth quintile. In Brazil, turnover among poor young adults is 23.6 percent and among non-poor young adults is 19.6 percent and in Mexico is 32.8 percent versus 28.3 percent. The same pattern can be found in workers under age 19.

Women's turnover is significantly lower than that of young males. Within gender, young adults still have the highest turnover rates, and overall, young men have the highest rate of turnover of all age-gender groups. For example, the propensity for young males in Argentina to change jobs is 41.5 percent, 21.6 percent in Brazil and 32.1 percent in Mexico versus young females where propensity is 34 percent, 18.1 percent and 26.8 percent respectively.

Informal sector as the entry point to the labor market

There are different ways for a worker to leave school and start working, though several patterns emerge across the three countries analyzed.[14] First, transition matrices show that workers who leave school and enter work primarily enter the informal wage sector (Table 3). More than half of Brazilian youth (54 percent), 28 percent of Argentine youth and 36 percent of Mexican youth move into the informal sector as compared to 32 percent, 11 percent, and 20 percent moving into formal jobs or self-employment. Young adults are similarly more likely to join the informal sector after leaving school with 39 percent in Brazil, 34 percent in Argentina and 33 percent in Mexico, which exceed entrance into any other single sector.

A similar pattern emerges for youth and young adults who are out-of-the labor force and not studying in period 1: A higher proportion enters informal employment than any other employment sector. The probability of moving to an informal job, conditional on changing sectors, is 34 percent in Brazil, 21 percent in Argentina, and 25 percent in Mexico for youth; while for young adults is 24 percent in Brazil, 27 percent in Argentina and 26 percent in Mexico. Similarly to the transition patterns observed of students, we find that youth who are out of the labor force have a higher transition to informality than to all other employment states, while the young adult transition to informality is more likely than moving to any single other employment state, besides moving to formal jobs in Mexico.

Young men are more likely to enter the informal sector than are young women (age 15-18). Young men are about 5 percentage points more likely than young women to enter informal wage employment upon leaving school in Argentina and Brazil but 20 percentage points more likely in Mexico. The gaps range from 3 (Argentina) to 7 (Mexico and Brazil) percentage points for male and female youth leaving an out-of-the labor force state. The gap still emerges, though it is only 3 percentage points in all countries, for young male and female adults (age 19-24) who leave school or leave an out of the labor force state.[15]

Poor and non-poor youth both move more from school or non-working into the informal sector than into any other sector. This is relevant because it shows that non poor

[14] A large share of students leave the labor force. For example, in Argentina, these conditional transitions for young students are around 40 percent, in Brazil 11 percent and in Mexico 30 percent. Our sample is limited to the school year so this is not due to "summer breaks" when youth necessarily leave school.
[15] Not in the case of Argentina where female's proportion is higher than in males.

under 25 also use informal jobs as an entry to the labor market, although the poor do so proportionally more if they came from out of labor force. Interestingly, non-poor students between 19 and 24 years old have higher chances of entering an informal job than poor ones in Argentina (45 percent versus 31.9 percent), and similar chances in Brazil (33.2 percent versus 38.3 percent) and Mexico (32.8 percent versus 34.5 percent). The importance of the informal sector as a step into labor market after studying is lower among prime aged students than that of those younger than age 25 for any range of income.[16]

There are some country specific school-to-work features to highlight. It seems that getting a formal job in Argentina for young people is comparatively more difficult that in the other Latin American countries under analysis. In Argentina, only 15 percent of students age 19-24 who make a transition start in the formal sector, as compared to 31 percent in Brazil and 30 percent in Mexico. Also patterns by income differ across countries. Poor Argentine workers move proportionally more from studying to unemployment (Figure 16) while in Brazil and Mexico the difference by income quintile is negligible.

Also, we should note that a group of "hardcore unemployable" emerged in each country.[17] Tracking men[18] for the full duration of each survey instruments shows that in the month after leaving school, almost 20 percent of Brazilians are not working, but by three months after leaving school, 12.8% of students have still not held a job. Similarly, 40 percent of Mexican men who leave school are not in a job three months after being in school, but this fraction falls to 6.6 percent by a year after leaving school. Argentines, again, have the most difficult transition, with half of recent male school leavers not working six months after leaving school and, 16.2 percent have not reported working in the 6, 12, or 18 months since leaving school.

[16] Interestingly, prime-age workers coming from studying have higher chances of getting a formal job while those coming from out of labor force have more chances of self-employment in both Brazil and Mexico.
[17] Each person included in the sample reported his or her main activity as "studying" in the first period. In subsequent periods, we can only identify the person's employment status at the time of the interview. Given the periodicity of interviews, it is possible that the respondents hold jobs in between the interview periods. Thus, these results may be an overestimate of the number of the hardcore unemployable.
[18] The decision was made to only track men since the authors could not distinguish between women's "idleness" and their domestic work. Men's full time dedication to housework in Latin America is rare so the authors expect that nearly all men who are not working are idle.

A formal job discourages continued studying

The initial state of employment influences the probability of a young worker returning to school after having held a job. As the first panel of Table 4 illustrates, the probability of moving from a formal wage job to studying for youth and young adults is substantially lower than movements from self-employment and informal wage jobs to studying (less than half in Brazil and Mexico). This means that a younger worker who finds a job in the formal sector has a significantly lower chance of returning to school than do those who work in the more "precarious" informal wage or self-employment sectors.

However, probabilities that condition on moving show a different pattern since formal workers stay in the same state more than informal and self-employed ones (Table 4, panel 2). If we only consider those who leave their employment state, youth still have higher chances of moving back to school if they are working as informal workers, but there is very little difference between the formal works and self-employed in returning to school. For example, the probability of return to school for youth who are formally employed is 0.28 in Argentina, 0.34 in Brazil and 0.24 in Mexico, while those who are self-employed have return to school probabilities of 0.28 in Argentina, 0.31 in Brazil and 0.25 in Mexico. Thus, a formal job and self-employment appear as substitutes of the same quality in the job market, while informality would be a transitional phase for a young worker.

Females are more likely to return to school than males under 25 for any sector and country with the exception of informal males under 19 in Mexico (Table 4, panel 2). A potential explanation for this behavior is that females face higher transitional costs in moving from one job to another than do males given their weaker labor market connections due to competing home demands that crowd out social networking in the workplace or the scope of jobs that women may be able to accept. For women, then, returning to school is a relatively low cost way to continue advancing in the labor market.

Unsurprisingly, poor young workers have a lower probability of returning to school once they start working than do non poor workers (Table 4, panel 2). For example, 59 percent of non poor informal youth in Argentina return to studying compared with 29 percent of poor ones, 46 percent versus 34 percent in Brazil and 48 percent versus 32 percent in Mexico.

Self-employment is not a port of entry to the labor market for youth

In contrast to the declining pattern of informal employment with age, more people enter the labor market through self-employment as age increases (Table 3). The conditional transition from out of labor force to self-employment among youth is 11.8 percent in Brazil, 4.9 percent in Argentina and 3.1 percent in Mexico compared to 40.2 percent in Brazil, 21.4 percent in Argentina and 30 percent in Mexico for prime age workers. For those who were studying, the different propensities by age is not as large but still significant. Female odds of becoming self-employed are higher than males in Brazil and Mexico for workers over 18 years old and who are out of labor market. Such a result supports the hypothesis that women with household responsibilities may select a flexible employment state that is compatible with other activities (Cunningham, 2001) rather than more rigid formal work arrangements.

Although the transition pattern by age may be a consequence of credit constraints, our data suggest otherwise (Table 5). Evans and Jovanovic (1989) argue that older, more experienced workers would have more chances to launch a business than young workers, even taking into account that younger workers are less risk averse on average. However, youth and young adults classified as being poor (1^{st} income quintile) have higher conditional probabilities of becoming self-employed than do non-poor youth and young adults (5^{th} income quintile), regardless of initial sector or employment state. The only exception to the pattern is among Mexican young adults where the non-poor have greater transitions to self-employment from any sector than do the poor.

An alternative explanation to the credit constraints hypothesis is that a high chance of business failure that can discourage a young worker's choice. The data do not support this hypothesis. Considering where young workers come from when they exit the labor force or become unemployed can give us an idea of the entrepreneurship's failure rate. For those workers between 15 and 24 years old, the self-employed and informal wage workers have similar propensities to exit the labor force (Table 6), while a young formal wage worker has half the chance of leaving the labor force as compared to an informal wage or a self-employed one. Thus, self-employment does not seem to be riskier than informal wage employment. Further, the propensity to leave self-employment into a non-working state is

only slightly lower for young adults than for youth, and not dissimilar to the gap in exit rates for those who had been informal wage employees.

Short term jobs in the informal sector

The three main categories for employment have dissimilar spells.[19] Duration in informal jobs is almost constant as worker's age rises in each country, as shown by a ratio of age-specific worker tenure that is nearly equal to 1 in all three county cases (Table 7). In Mexico and Brazil spells slightly decrease as young adults become prime age workers, while in Argentina there is a slightly increase in the same range. The opposite result can be found in formal jobs and self-employment, where spells increase with age and are significantly longer than tenure in informal wage jobs[20]. Thus, although the informal sector is the main entry port of youth to the labor market, they do not languish there any longer than do any other age groups, with an average duration of two years.

Decreased labor market segmentation with age

The transition matrices suggest different degrees of labor segmentation by age. Workers between 15 and 19 years old have a significant greater propensity to move from formal to informal jobs than in the opposite direction. This particularly emerges in Argentina where the movement from formal wage to informal wage jobs is 4 times greater than informal to formal job (Table 8). However, the pattern differs as workers move along the life cycle. In Brazil and Mexico conditional probabilities of moving for older workers are almost equal in both directions. For example, among young adults the rate is 46 percent in Brazil and 51 percent in Mexico. Argentina is the exception, where changing from informal to formal sector is always less probable than the reverse transition. It is possible that, as Egel and Salehi-Isfahani (2008) found for young Iranian workers, informal jobs are providing skills that are transferable to the formal sector. This reinforces the idea that the informal sector

[19] In order to have an adequate comparison among countries it is necessary to consider we are following the labor market status of young people at discrete moments in time. The duration of the transition period differs by country, which may affect the state-duration estimates. We tested the sensitivity of the transition duration periods on the state-duration estimates for Brazil, where we could estimate the state-duration periods using one month transition period and a three month transition period. These data do not show a significant different pattern using monthly or quarterly data. However, to facilitate comparison across countries, we present the state-duration estimates of youth and of young adults relative to that of prime age adults.

[20] Egel and Salehi-Isfahani (2008) found the opposite pattern in Iranian youth where average duration of informal jobs is nearly twice that of formal jobs.

may be acting as a "job-training" stage for young adults, where they can start working for short time before jumping to a formal job and continue climbing the career ladder.

5. Conclusions

The evidence presented in this paper challenges many assumptions about the school-to-work transition process. First, young workers in the three sample countries enter the labor market through an informal wage paying job, spend a short time there while acquiring job-relevant skills, and then move to formal jobs or go back to school. Once young adults get a formal job, they do not change their sector for many years. However, there is evidence that they may spend short periods in informal wage paying jobs and return to long-term formal employment. As age increases, self-employment becomes an attractive alternative for workers. Youth generally do not become self-employed, not necessarily due to income constraints, as demonstrated by a greater propensity for self-employment among the poor, but for other reasons related to identifying a market, integrating into that market on both the supply and demand sides, and running a business.

Second, young women appear to be more cautious in building their employment path. For example, female turnover is significantly lower than that of males for young workers and they are quicker to return to school than males under the age of 25. Nevertheless, chances of moving from out of labor force or school to any employment sector is lower among women than men due to women's greater movement among non-working states rather than into employment (Cunningham, 2009).

Third, low income young workers face some favorable and other unfavorable labor market conditions relative to the non poor. On the positive side, the poorest youth (income quintile 1) have higher entry to work upon leaving school, the same duration in jobs as non poor youth, and equal entry rates to formal wage employment as do non poor. But they also have a higher propensity to change jobs and a lower probability of return to school once they start working. Also, the transition from the informal wage sector to formal wage employment is significantly lower for poor workers than for non poor. Thus, we might conclude that the poorest students are more attracted to a new job opportunity than the non-poor, thus being more likely to leave school to pursue that job. However, the jobs are short

term so these youth spend more time than non-poor bouncing around informal sector jobs and moving between school and work as job opportunities come and go.

The life cycle trend described above gives us several policy implications. First, young people find jobs quickly upon leaving school. So the "first job" programs directed to poor youth – whose labor force entry probabilities exceed those of the non-poor – may be misguided. Instead, it may be more effective to discourage early employment incentives, which particularly draws the poor out of school. Conditional cash transfers directed toward secondary school have been shown to increase school attendance of secondary-school aged youth and reduce their employment (Schady and Fiszbein, 2009). Or, as shown by Jensen (2010), simply providing good information to youth about returns to completing secondary school may discourage premature school exit for short-term job benefits. Alternatively, school-based apprenticeship programs may provide the type of learning that informal wage employment provides while still building the general (numeracy, literacy, logic) skills that secondary schools provide (Dionisius et al., 2008).

Second, facilitating youth access to formal jobs can reduce the inherent flexibility of a "stepping-stone" job. For example, it may reduce the chances of young workers going for a higher level of education or of pursuing the European model of trying out different types of jobs to reveal employment-related preferences. Thus, governments should carefully consider incentives behind efforts to formalize youth employment.

Third, encouraging entrepreneurship through a reduction in credit constraints may not be addressing the main constraints to youth entrepreneurship. Young people at the lowest quintile move proportionally more to self-employment than workers at the highest quintile. Thus, other constraints may be more pressing, such as developing business connections (supply chains, trade groups, a client base), or acquiring entrepreneurial and business management training (Cunningham et al, forthcoming).

Tables and Figures

Table 1: Number of Observations in each country by age, gender and income

		Argentina	Brazil	Mexico
All	15-18	41,503	37,155,527	172,607
	19-24	52,283	52,681,008	229,533
	25-44	136,788	149,431,179	550,524
Males	15-18	21,205	18,569,127	85,954
	19-24	25,799	26,028,747	111,725
	25-44	64,292	70,599,971	255,291
Females	15-18	20,298	18,586,399	86,653
	19-24	26,484	26,652,261	117,808
	25-44	72,496	78,831,208	295,233
Poor	15-18	11,700	9,275,816	45,943
	19-24	10,909	11,113,437	41,278
	25-44	19,457	25,438,919	91,206
Non poor	15-18	3,585	6,185,398	12,324
	19-24	5,332	9,266,013	26,032
	25-44	30,603	31,464,169	103,288

Note: The sum of "Poor" and "Non-poor" is not equal to the category "All" since "Poor" are only those in the 1st income quintiles and "Non-poor" are only those in the 5th income quintile while "All" are those in all five income quintiles.

Table 2: Propensity to move by income and gender, in percent

Argentina	Poor	Non poor	Male	Female	All
15-18	27.0	9.2	25.4	18.5	22.0
19-24	43.7	28.8	41.5	34.0	37.7
25-44	40.4	17.0	28.3	27.5	27.8
Brazil	Poor	Non poor	Male	Female	All
15-18	17.6	12.3	17.8	12.8	15.3
19-24	23.6	19.6	21.7	18.1	19.9
25-44	19.6	13.9	14.9	15.2	15.1
Mexico	Poor	Non poor	Male	Female	All
15-18	28.2	20.9	29.8	24.0	26.9
19-24	32.8	28.3	32.1	26.8	29.4
25-44	25.7	20.0	24.0	21.8	22.8

Table 3: Transitions from studying or out of labor force (OLF) to employment sector, conditional on moving, by gender and income, in percent

		Argentina			Brazil			Mexico		
Studying		**Self Employed**	**Formal**	**Informal**	**Self Employed**	**Formal**	**Informal**	**Self Employed**	**Formal**	**Informal**
All	15-18	5.6	4.8	28.5	10.9	21.4	53.9	3.4	17.1	36.0
	19-24	8.3	15.1	34.2	13.8	31.4	38.7	7.3	29.8	33.3
	25-44	12.0	15.1	24.9	19.7	23.2	21.2	12.3	26.4	18.6
Males	15-18	7.8	5.0	31.0	11.9	22.0	56.0	4.8	18.4	45.6
	19-24	10.9	15.7	35.6	16.8	32.2	40.4	9.6	31.4	38.4
	25-44	19.1	20.7	28.4	21.7	33.9	24.7	19.2	34.3	26.4
Females	15-18	3.0	4.5	25.5	9.6	20.8	51.2	1.7	15.7	24.3
	19-24	5.9	14.5	32.8	10.6	30.5	37.0	4.7	28.0	27.5
	25-44	8.3	12.1	23.1	18.7	18.0	19.4	7.1	20.3	12.6
Poor	15-18	5.6	2.7	26.2	15.2	15.9	54.8	4.1	16.2	39.5
	19-24	10.3	10.3	31.9	18.4	26.6	38.3	7.8	28.6	34.5
	25-44	13.9	14.8	27.5	23.9	22.4	22.1	10.7	26.5	25.7
Non poor	15-18	5.4	9.0	34.9	11.5	21.6	50.2	3.5	18.0	32.9
	19-24	6.9	18.8	45.0	15.1	33.1	33.2	8.4	30.6	32.8
	25-44	12.8	16.7	20.7	17.6	29.4	19.0	12.7	23.8	16.0
OLF		**Self Employed**	**Formal**	**Informal**	**Self Employed**	**Formal**	**Informal**	**Self Employed**	**Formal**	**Informal**
All	15-18	4.9	1.4	20.8	11.8	7.4	33.8	3.1	17.5	24.9
	19-24	8.1	6.4	27.2	17.4	13.0	24.3	9.5	28.0	26.0
	25-44	21.4	8.4	27.9	40.2	12.7	18.6	30.0	21.9	25.7
Males	15-18	5.5	1.5	22.0	14.4	6.3	36.7	4.2	13.4	29.6
	19-24	9.5	8.0	24.9	17.1	12.9	26.2	8.5	23.4	27.7
	25-44	26.7	10.4	19.1	32.3	16.3	17.5	30.0	21.3	27.4
Females	15-18	4.3	1.4	19.6	9.1	8.5	30.8	2.7	19.3	22.8
	19-24	7.4	5.6	28.3	17.5	13.1	23.3	9.6	28.9	25.7
	25-44	20.6	8.1	29.1	42.5	11.6	18.9	30.0	21.9	25.5
Poor	15-18	5.6	1.4	20.8	14.2	7.0	39.1	3.7	16.9	28.4
	19-24	8.8	5.3	27.9	18.3	11.2	27.9	9.2	26.1	29.4
	25-44	20.7	5.4	34.6	42.1	13.0	19.7	32.9	17.1	28.9
Non poor	15-18	3.8	3.8	9.6	10.4	7.3	29.7	2.8	12.7	12.7
	19-24	8.0	11.5	15.0	15.6	14.6	18.8	10.2	29.7	18.1
	25-44	23.1	13.1	15.1	39.8	13.3	16.5	27.5	28.2	20.5

Table 4: Transitions from employment states to studying by gender and income, in percent

Non Conditional	Argentina		Brazil		Mexico	
All	15-18	19-24	15-18	19-24	15-18	19-24
Self employment	21.2	8.6	15.6	3.7	17.1	5.6
Formal	14.2	3.6	5.2	1.5	7.7	2.9
Informal	19.7	9.5	12.7	4.8	16.0	7.6
Conditional	**Argentina**		**Brazil**		**Mexico**	
All	15-18	19-24	15-18	19-24	15-18	19-24
Self employment	28.3	13.6	30.7	10.8	25.3	11.3
Formal	28.2	15.4	33.9	16.1	23.9	14.6
Informal	35.3	19.3	37.9	13.4	32.8	15.2
Males	15-18	19-24	15-18	19-24	15-18	19-24
Self employment	26.2	12.1	29.2	10.0	23.3	11.0
Formal	22.6	11.8	31.9	14.9	23.3	13.6
Informal	31.3	15.9	37.4	12.4	34.8	14.7
Females	15-18	19-24	15-18	19-24	15-18	19-24
Self employment	35.8	17.5	34.4	12.4	33.2	12.1
Formal	40.0	21.5	36.8	17.6	24.7	15.8
Informal	42.8	24.4	38.8	14.8	29.0	16.2
Poor	15-18	19-24	15-18	19-24	15-18	19-24
Self employment	20.6	11.8	24.0	9.0	20.4	8.7
Formal	18.5	8.1	23.9	10.9	21.0	10.1
Informal	28.6	15.4	33.8	9.9	31.9	13.7
Non poor	15-18	19-24	15-18	19-24	15-18	19-24
Self employment	43.8	21.6	41.8	15.9	40.2	15.8
Formal	42.1	22.6	43.3	20.9	37.0	20.4
Informal	58.6	25.6	45.9	21.4	48.0	20.1

*Non-conditional transition estimates are drawn from the transition matrix; Conditional transition estimates are drawn from the propensity matrix

Table 5: Transitions to self-employment by age and income, conditional on moving, in percent.

Argentina		OLF	Studying	Unemployed	Formal	Informal
15-18	Poor	5.6	5.6	9.0	3.7	16.3
	Non poor	3.8	5.4	5.3	5.3	10.3
19-24	Poor	8.8	10.3	13.0	7.4	21.8
	Non poor	8.0	6.9	3.8	7.2	11.5
Brazil		**OLF**	**Studying**	**Unemployed**	**Formal**	**Informal**
15-18	Poor	14.2	15.2	7.9	2.5	12.3
	Non poor	10.4	11.5	6.8	2.3	8.5
19-24	Poor	18.3	18.4	12.8	13.2	19.3
	Non poor	15.6	15.1	10.3	8.4	16.7
Mexico		**OLF**	**Studying**	**Unemployed**	**Formal**	**Informal**
15-18	Poor	3.7	4.1	2.3	3.7	7.3
	Non poor	2.8	3.5	2.5	2.1	4.8
19-24	Poor	9.2	7.8	4.1	8.5	13.9
	Non poor	10.2	8.4	5.3	9.8	13.4

Table 6: Non conditional Transitions from employment states to out of labor market and unemployment by age, in percent.

		Argentina		Brazil		Mexico	
Age		OLF	Unemployed	OLF	Unemployed	OLF	unemployed
15-18	Self-employed	9.2	14.0	9.1	2.4	8.1	2.2
	Formal wage	4.3	8.6	1.4	1.0	5.5	2.1
	Informal wage	9.8	12.9	4.9	2.1	7.3	2.7
19-24	Self-employed	7.5	13.0	7.6	3.5	6.6	1.5
	Formal wage	1.7	5.2	1.4	1.3	3.4	1.3
	Informal wage	6.3	11.8	4.5	3.4	5.9	2.4

Table 7: Duration ratio of employment states to prime age workers

	Self employed	Formal	Informal
Argentina			
Youth to Prime Age	0.46	0.23	0.85
Young Adults to Prime Age	0.54	0.50	0.97
Brazil (Quarterly)			
Youth to Prime Age	0.57	0.58	1.10
Young Adults to Prime Age	0.81	0.86	1.03
Mexico			
Youth to Prime Age	0.51	0.36	0.98
Young Adults to Prime Age	0.70	0.59	0.96

Table 8: Transitions between Formal and Informal states, conditional on moving, by age in percent.

Argentina	From Formal to Informal	From Informal to Formal	Difference
15-18	42.3	10.3	32.0%
19-24	46.4	27.8	18.6%
25-44	44.1	31.7	12.4%
Brazil			
15-18	48.3	30.5	17.8%
19-24	46.7	46.0	0.7%
25-44	47.5	44.6	2.8%
Mexico			
15-18	47.7	34.5	13.1%
19-24	51.4	50.2	1.1%
25-44	47.7	46.6	1.1%

Figure 1: Number of observations at each initial state before a transition is made in Argentina, by age

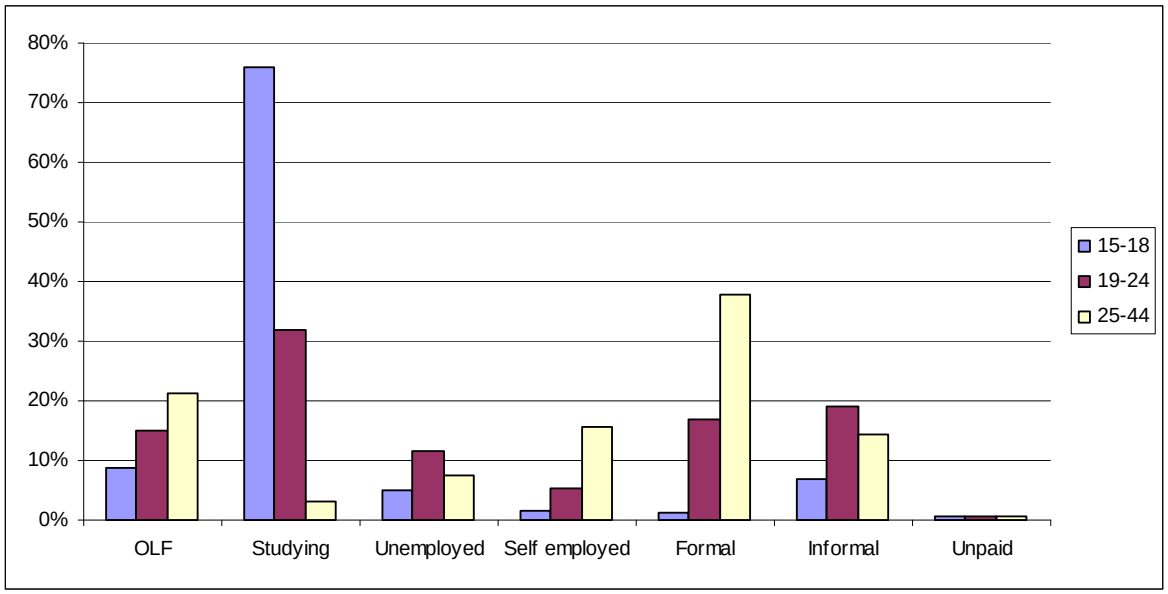


Figure 2: Number of observations at each initial state before a transition is made in Brazil, by age

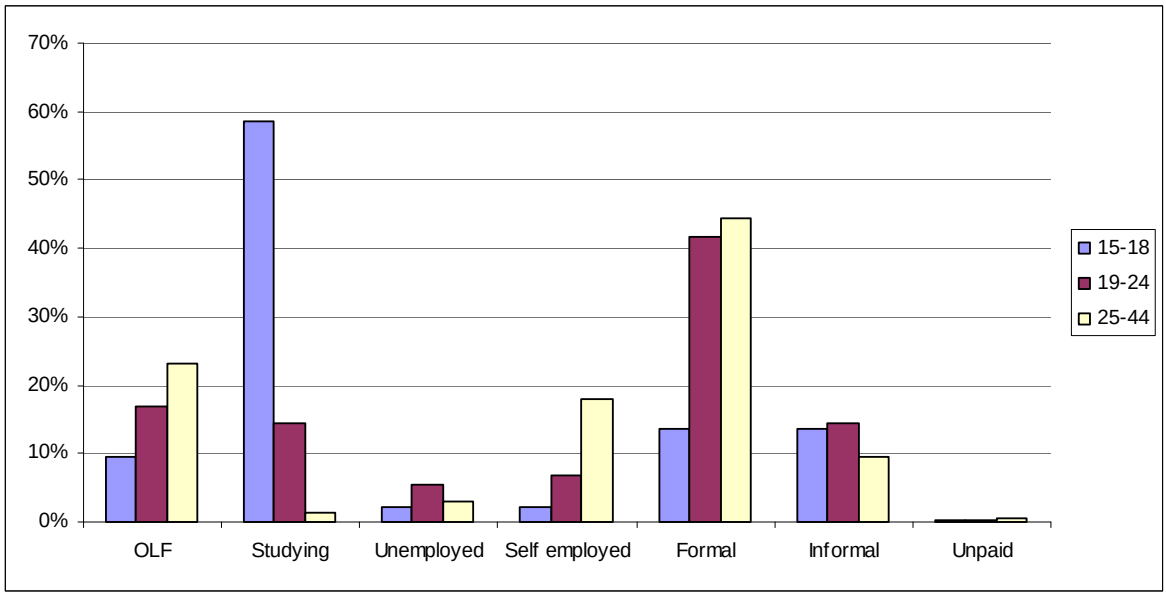


Figure 3: Number of observations at each initial state before a transition is made in Mexico, by age

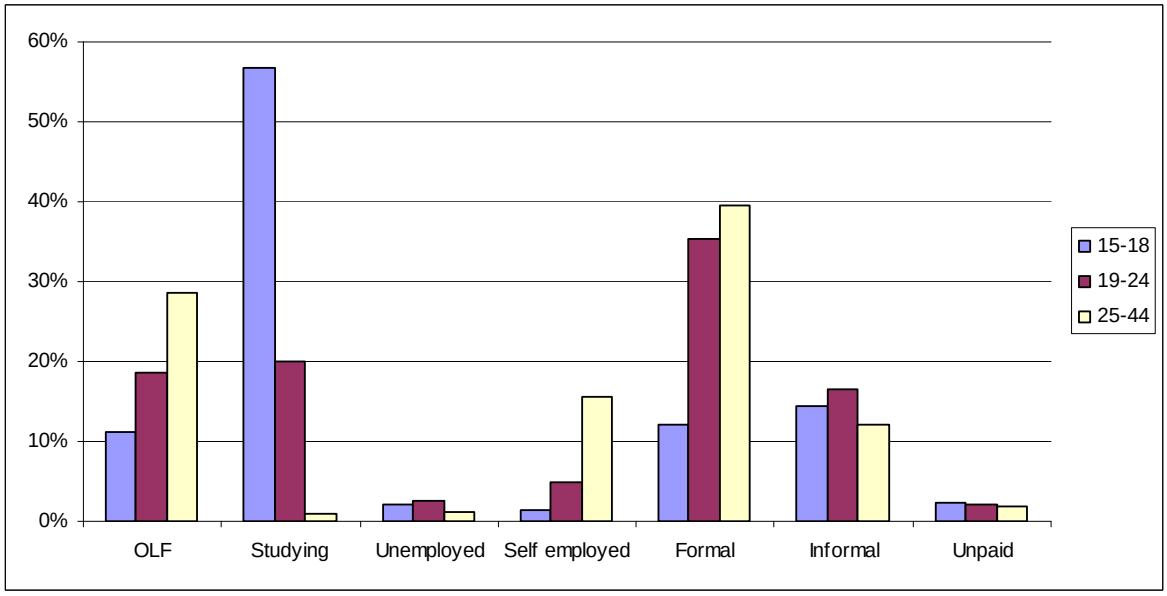


Figure 4: Age-Sector Profile, Male, Argentina

Figure 5: Age-Sector Profile, Female, Argentina

Figure 6: Age-Sector Profile, Poor (Income Quintile 1), Argentina

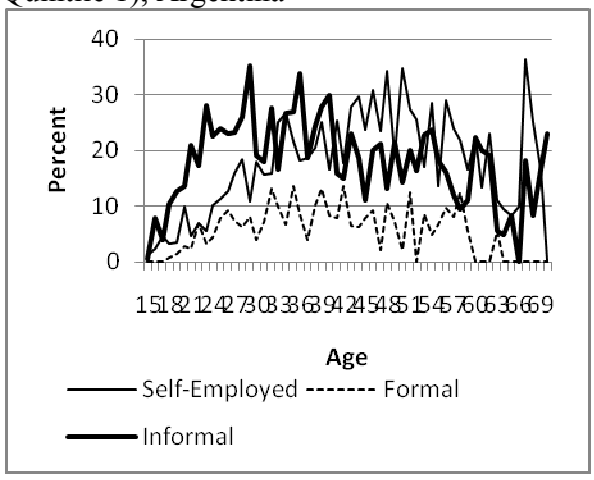


Figure 7: Age-Sector Profile, Non-Poor (Income Quintile 5), Argentina

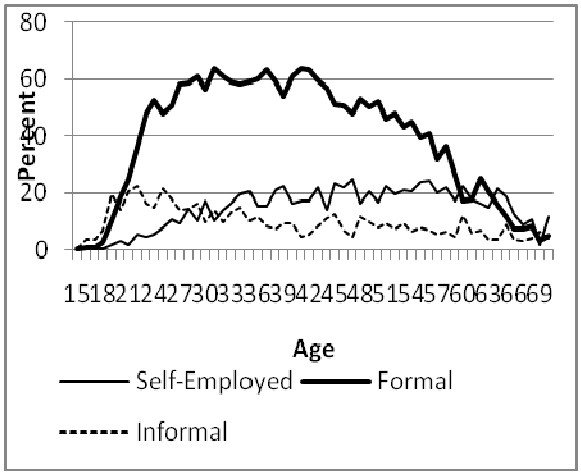


Figure 8: Age-Sector Profile, Male, Brazil

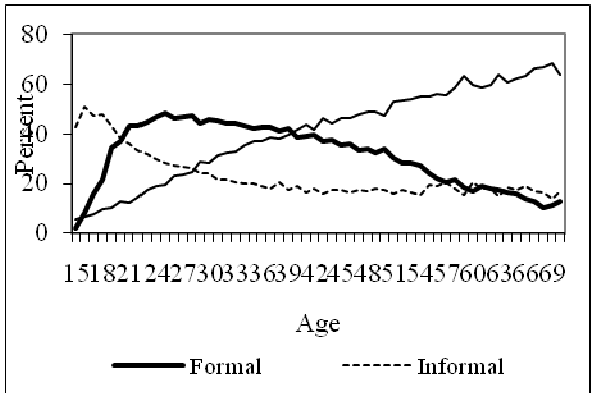


Figure 9: Age-Sector Profile, Female, Brazil

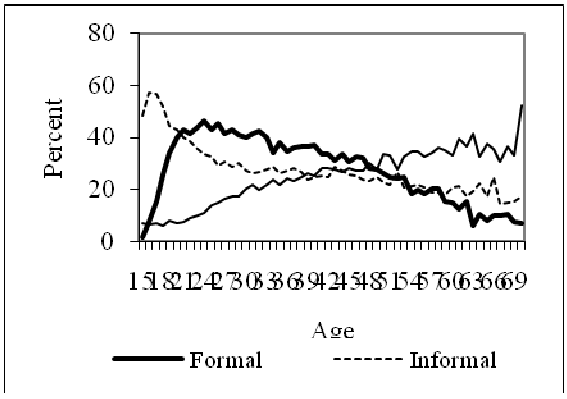


Figure 10: Age-Sector Profile, Poor (Income

Figure 11: Age-Sector Profile, Non-Poor

Quintile 1), Brazil

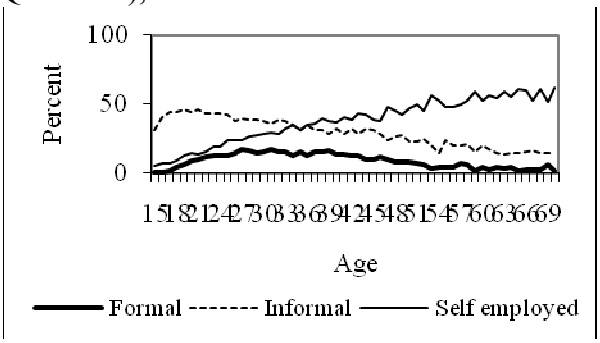


Figure 12: Age-Sector Profile, Male, Mexico

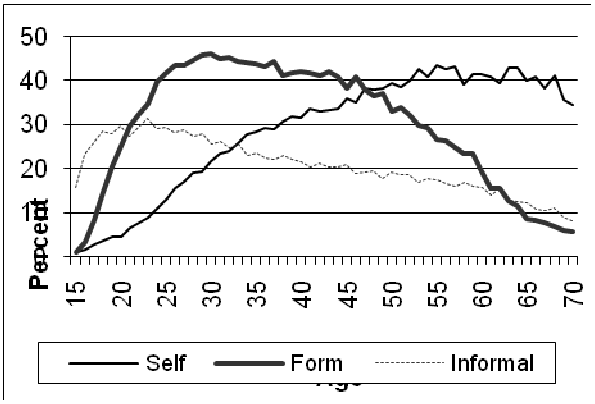
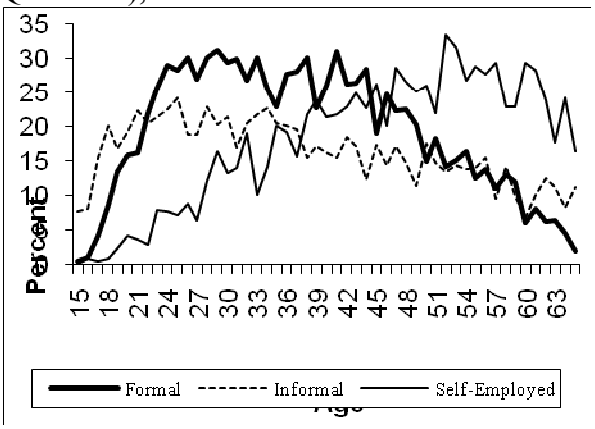


Figure 14: Age-Sector Profile, Poor (Income Quintile 1), Mexico



(Income Quintile 5), Brazil

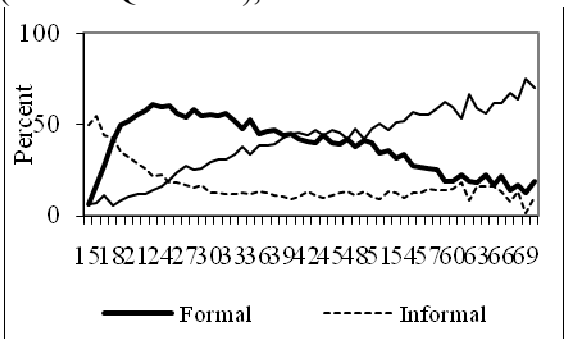


Figure 13: Age-Sector Profile, Female, Mexico

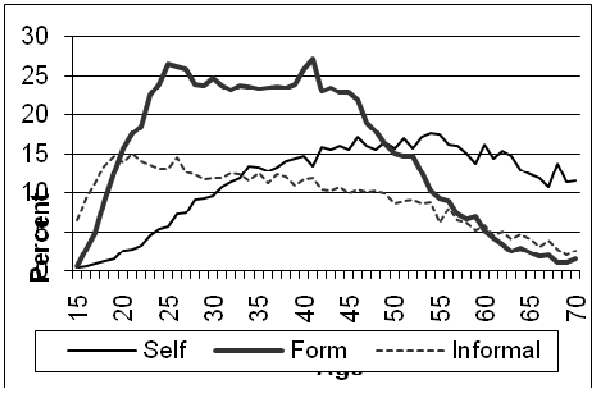


Figure 15: Age-Sector Profile, Non-Poor (Income Quintile 5), Mexico

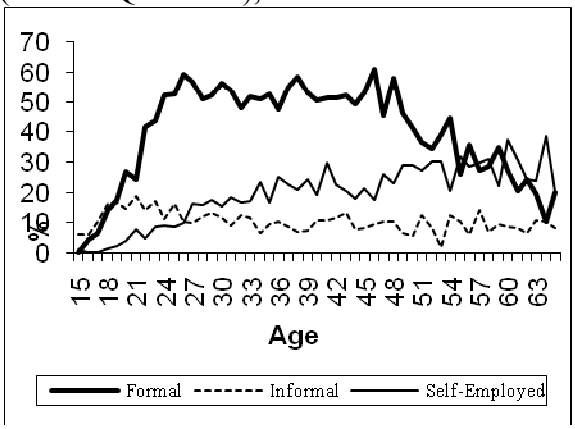


Figure 16: Transitions from studying to unemployment, conditional on moving, by income

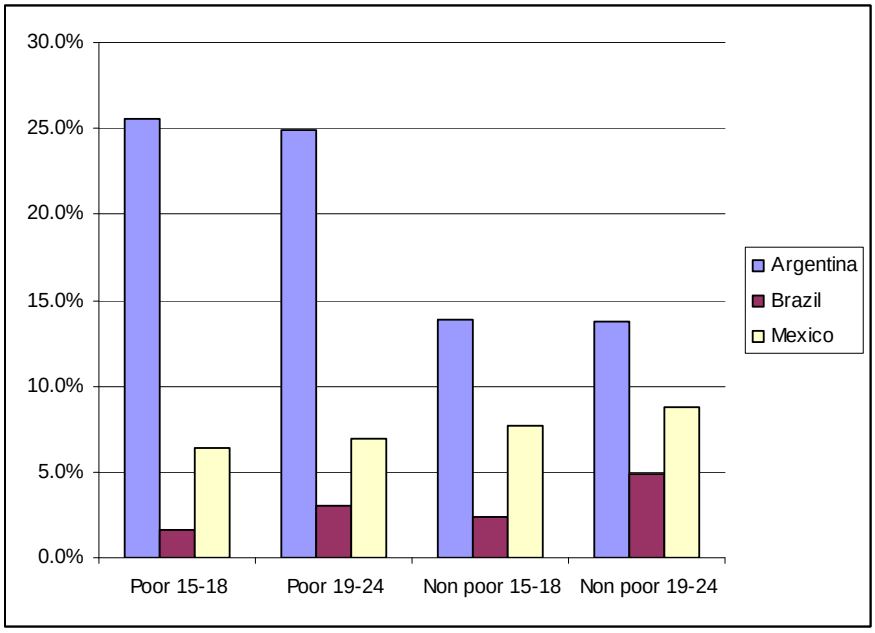


Figure 17. Share of Young Men Who Have Not Worked since Leaving School
(by number of months since leaving school)

Months out of school	2	3	4	5	6	9	12	18
Argentina					49.3%		26.5%	16.2%
Brazil	19.5%	15.1%	12.8%					
Mexico		40%			12.4%	6.61%		

Note: In Brazil, 8.9 percent of the sample left school during the month between the first and second observation; 16 percent of the Mexican sample left school during the three months between the first and second observation; 17 percent of the Argentine sample left school during the six months between the first and second observation. The percentages for the subsequent months are the share of those who left school who are not working by the time of the observation. The sample was observed monthly in Brazil for a total of four months (four observations), every trimester in Mexico for a total of one year (four observations), and every semester in Argentina for a total of two years (four observations).

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