MOVING IN AND MOVING UP:
LABOR MARKETS DYNAMICS OF WOMEN AND MEN IN NICARAGUA
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ABSTRACT

We use individual and household level panel data to study labor market dynamics, with a focus on what factors help men and women to achieve advantageous jobs in the labor market and whether those factors differ between men and women. Specifically, we examine the influence of personal characteristics (such as education), family characteristics (such as the number of children), and job characteristics (such as the industry sector of employment) in determining whether a women (or man) moves up into an advantageous labor market state from an unfavorable state. We consider three labor market states to be "advantageous" ("favorable" in Spanish): (1) formal salaried employees, (2) non-agricultural self-employed workers and employers with a decent income (defined as a household consumption above the poverty line) or an employer with a successful and growing firm (defined as employers with more than 5 employees or an employer of firms with fewer than 5 employees whose firm increased the number of employees last year), and (3) agricultural self-employed workers or employer with a decent income or an employer of a successful and growing firm. We examine the transitions into and out of these advantageous labor market states and other labor market and non-labor market states including informal salaried employment, unfavorable non-agricultural self-employment, unfavorable agricultural self-employment, unemployment and out of the labor force (distinguishing between those going to school and those not).

Our work sheds light on the answers to two key questions: (1) what are the characteristics of the men and women who move up to an advantageous labor market state from an unfavorable one?; (2) what are the characteristics of the men and women who fall out of an advantageous labor market states into unfavorable ones? The answers to these questions contribute to the appropriate design and targeting of public policy interventions to promote success in the labor market. Our work also sheds light on whether the characteristics correlated with success in the labor market differ between women and men, and therefore whether the appropriate design and targeting of policies is different for men and women.Our findings suggest that education is the most important personal characteristic promoting transitions into non-agricultural advantageous labor market states and reducing transitons from advantageous labor market states. In particular, a tertiary (post-secondary) education is a stong predictor of whether a man or women is found in, and stays in, the most advantageous labor market state, formal salaried employment. Along with a tertiary education, a secondary education also promotes advantageous non-agricultural self-emloyment. Other ways of accumulating skills, such as post-schooling training, also make it more likely that a man or women will obtain advantageous self-employment or remain as a formal salaried employee. For women, dependent children or elderly members in a household reduces the probability of a transition into an advantageous labor market state. This is likely because unpaid domestic care is still largely the responsibility of women in Nicaragua (especially for a wife/spouse, grandmother or oldest daughter). This suggests that a key policy intervention to promote advantageous employment for women would be to make it easier and cheaper to care for children outside of the home while women are working.

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1. Introduction

Economic empowerment of women, defined as the "capacity to participate in, contribute to and benefit from growth processes in ways that recognize the value of their contributions, respect their dignity and make it possible to negotiate a fairer distribution of the benefits of growth" (OECD, 2011). In the context of this paper, we consider economic empowerment to occur when women are employed in jobs which provide them with a good salary and/or the possibility of improving their economic status. In our research we study the job, personal and institutional characteristics that promote the entry of men and women into the labor force and the ability of men and women to obtain better jobs once they enter. In particular, a focus of our research is an examination of the characteristics of women who become empowered and successful in the labor market.

The Government of Nicaragua considers that economic growth and poverty eradication cannot be achieved without the contribution of women and that in the design and implementation of public policies for sustainable human development is necessary to incorporate a focus on equal rights for women and men, as well as opportunities and participation in decision-making. Therefore it has committed to improving the economic status of women, as demonstrated by the 2008 Law of Equality of Rights and Opportunities (*Ley de Igualdad de Derechos y Oportunidades*), which commits the Government of Nicaragua to "establish plans, programs and projects that contribute to the active participation in decisions related to, and control of, the means of production by women and men in a way that permits equal access to the opportunities to benefit from economic growth" (Article 14). In particular, the law commits the government to "establish special lines of credit that facilitate the ability of women to develop small and micro-enterprises" (article 16). Following this legislation, the government of Nicaragua has expanded a micro-lending program focused on female entrepreneurs called *Usura Cero* consisting mainly on giving women credit with favorable interest rates. Also, the Ministry of Labor has implemented a program to promote self-employment and provide technical and marketing skills to potential female entrepreneurs called *Proyecto de Auto Empleo.* The focus of programs to promote the labor market prospects of low-income women in Nicaragua is on self-employment and small enterprises because the owners of medium and large firms are unlikely to start as low-income workers.

For these programs to be effective at reducing poverty and improving the participation of women in the process of economic growth, it is important that those designing and running these programs know the characteristics of the women who could benefit from the programs, as well as the sectors of the economy where self-employed women or men who are employers in small firms are most likely to be successful. Many have argued that self-employment in developing countries is not an indicator of economic empowerment, but rather that workers in developing countries become self-employed because they are rationed out of formal sector jobs (Fields, 1975; Tokman, 2007, de Mel, et al, 2010). On the other hand, some point to other self-employed who are innovative and, successful entrepreneurs (de Soto, 1989; Bennet and Estrin, 2007). In

our study of whether the labor market has contributed to the inclusion of women in the benefits of growth, it is important to distinguish "successful," "favorable" or "advantageous" self-employment and small-scale entrepreneurship, which can promote the inclusion of women in the benefits of development, from self-employment that exists only because women cannot find the jobs they want in the formal sector. We consider three labor market states to be "advantageous"("*favorable*" in Spanish): (1) formal salaried employees, (2) non-agricultural self-employed workers and employers with a decent income (defined as a household consumption above the poverty line) or an employer with a successful and growing firm (defined as employers with more than 5 employees or an employer of firms with fewer than 5 employees whose firm increased the number of employees last year), and (3) agricultural self-employed workers or employer with a decent income or an employer of a successful and growing firm. We believe that these states are advantageous because they contribute to meeting basic needs of workers and their households, while providing them with the ability to respond to adverse situations and in the case of women contribute to the process of economic empowerment.

Our definition of "advantageous" labor market states is similar to the International Labor Office (ILO) concept of "decent work." Two key components of the ILO concept of "decent work" are remunerative employment and social security (Ghai, 2003). "Social security serves to meet people's urgent subsistence needs and to provide protection against contingencies, and as such is an important aspect of decent work" (Ghia, 2003, p.122). Our first advantageous labor market state is formal salaried employment, defined as paid employment where workers are insured by social security. Remunerative employment is work that pays sufficiently to allow a worker's family to live at an adequate level. "For developing countries, a good indicator of remunerative work is provided by data on absolute poverty" (Ghia, 2003, p. 119). The ILO suggests that a good indicator of whether workers do not have remunerative employment is the proportion of the working population earning below the household poverty line (Ghia, 2003, p. 118). Our definition of advantageous self-employment includes those who live in a household with an income above the poverty line.[1]   We do not use the term "decent work" in this paper because our measure of advantageous labor market states does not take into account other components that the ILO considers when defining decent work, such as basic worker rights and social dialogue (i.e. access to collective bargaining).

Our study sheds light on the answers to two key questions: (1) what are the characteristics of the men and women who move up to an advantageous labor market state from an unfavorable one? and (2) what are the characteristics of the men and women who fall out of an advantageous labor market states into unfavorable ones? The answers to these questions contribute to the appropriate design and targeting of public policy interventions to promote success in the labor market. Our work also sheds light on whether the characteristics correlated with success differ between women and

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[1] In a companion study of El Salvador, we also use an alternative definition of advantageous self-employment where the labor income of the worker is greater than the legal minimum wage.

men, and therefore whether the appropriate design and targeting of policies is different for men and women. Combined with the qualitative study[2] of female employees and self-employed workers, this paper will inform the debate on the following questions: (1) What public policies would support the ability of women to benefit from growth? (2) What is the role of formal wage and salaried employment and small-scale entrepreneurship in supporting the ability of women to benefit from economic growth? and (3) What public policies would best support the ability of women to become successful formal sector employees or successful small-scale entrepreneurs?

In the empirical work presented in this paper we use panel data to study the determinants of job mobility for women into and out of the labor force (distinguishing between those going to school and those not), into and out of unemployment, and into and out of formal salaried employment,[3] informal salaried employment, self-employment, and employer/owner. We also conduct a similar analysis for men and compare whether the determinants of job mobility differ between men and women in Nicaragua. We extend the existing literature on labor market mobility in Latin America by separating self-employment into "advantageous" self-employment and "unfavorable" self-employed.

We focus our study on what factors help women to achieve advantageous jobs in the labor market. Specifically, we examine the influence of personal characteristics (such as education), family characteristics (such as the number of children), and job characteristics (such as the industry sector of employment) in determining whether a women (or man) moves up into an advantageous labor market state from an unfavorable state. Because we have panel data on individuals, we will also be able to pay particular attention to the timing of the transition process. For example, Cunningham and Bustos Sakvagno (2011) suggest that many successful self-employed workers and entrepreneurs first spend a short time as informal sector employees acquiring job-relevant skills, then move on to formal jobs or return to school, and only then start their own small businesses. Even then, they may spend short periods of time in informal wage paying jobs or more education on their way to long-term successful employment states. This suggests that to understand what makes a woman successful in the labor market and as a small-scale entrepreneur it is important to simultaneously study the movement of women between formal employment, informal employment, advantageous self-employment, education and other non-employment states. For example, if informal or formal employment is an important stepping stone to becoming a successful entrepreneur, then public policies to promote entrepreneurship might actually need to promote wage and salaried employment for those workers (at least when they first enter the labor force), rather than enact policies that encourage women to move directly from non-employment to self-employment or ownership of small-scale

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[2] We have also conducted a qualitative study based on in-deph interviews with relevant cases selected according to the type of labor market transition experienced. This allow us to collect information on other important aspects that the household surveys can´t capture given the rigidity of their format.

[3] Originally we had separeted part-time and full-time salaried formal employment. However, we found that the few part-time salaried formal employees had earnings and other characteristic similar to full-time salaried employees and so decided to combine part-time and full-time into one salaried formal sector.

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firms. This type of study can only be done with panel data that follows individuals over time. Firm level enterprise surveys, which follow enterprises (and not people) over time, would not allow the researcher to examine these transitions between informal employment, formal employment, unpaid domestic work, schooling and self-employment.

We find that there is substantial mobility of workers between the informal sector and self-employment. For women, there is also substantial mobility between unpaid domestic care and these two states. On the other hand, we find very little mobility into formal salaried employment. Those who work as formal salaried employees tend to enter this sector soon after graduating from school, and then remain in this sector. For older workers, the most likely transition into an advantageous labor market state is into advantageous non-agricultural self-employment. Most advantageous non-agricultural self-employed are older workers who gained experience working as informal salaried workers or unfavorable self-employment before succeeding as self-employed.

Our findings suggest that education is the most important personal characteristic promoting transitions into non-agricultural advantageous labor market states and reducing transitons from advantageous labor market states. In particular, a tertiary (post-secondary) education is a stong predictor of whether a man or women is found in, and stays in, the most advantageous labor market state, formal salaried employment. Along with a tertiary education, a secondary eduation also promotes advantageous non-agricultural self-emloyment. Other ways of accumulating skills, such as post-schooling training, also make it more likely that a man or women will obtain advantageous self-employment or remain as a formal salaried employee.

Access to public services such as utilities (electricity, water, etc.) and health care significantly increases the probability that men or women will transition into advantageous non-agricultural self-employment. This suggests another policy to promote advantagesou non-agricultural self-employment is for the government to provide these ervices to poor families.

For women, dependent children or elderly members in a household reduces the probability of a transition into an advantageous labor market state. This is likely because unpaid domestic care is still largely the responsibility of women in Nicaragua (especially for a wife/spouse, grandmother or oldest daughter). This suggests that a key policy intervention to promote advantageous employment for women would be to make it easier and cheaper to care for children outside of the home while women are working.

The next section of this paper describes the panel data used in this paper. Section 3 describes and compares the labor market characteristics of men and women into the Nicaraguan labor market differs between men and women. In this section we use multinomial logit analysis to identify the personal and job characteristics or men and women in each of the 10 labor market states, and how those characteristics differ between men and women. Section 4 uses the panel nature of our data to measure the degree to which men and women move from unfavorable states to advantageous labor

market states, and vice-versa, from one year to the next. Section 5 looks at the longer-term (from 2009 to 2011) paths that men and women take in order to end up in favorable labor market states. Finally, section 6 identifies the characteristics that determine whether or not men and women transition into or out of successful labor market states. Section 7 concludes and presents policy recommendations.

2. Data

To study the labor markets dynamics of women and men in Nicaragua, we use annual panel data collected by FIDEG between 2009 and 2012. This data set allows us to follow women and men as they change jobs or as the characteristics of their jobs change. The survey is based on a two stage probabilistic stratified sample of 1,700 households (50.5% from urban areas and 49.5% from rural areas) distributed across the whole

country. The sample was designed using as frame the cartography of the Population and Dwellings Census conducted in 2005 by the National Institute of Statistics (INEC), it is representative at national, urban and rural level. The primary sampling units were "segmentos censales" and the second stage units were dwellings within each segment. Eight dwellings were selected in each segment using systematic sampling with random start. The principal household in each of these dwellings was interviewed between the months of August and September from 2009 to 2012. The survey is a short version of the Living Standards Measurement Surveys (LSMS) and had the technical support of the World Bank.

Each household and each household member was carefully tracked during this period. For example, the interviewer first determined if the household was interviewed the previous year or if this is the first interview. From 2010 thru 2012 the questionnaires had printed the first and last names of each household member interviewed the previous year, with a designated line item for all years and that could never be occupied by any other household member. If a member was no longer in the household, questions were asked about that person's location in order to catch migration flows. On the other hand, new household members were designated in a line in the questionnaire with explanation about their origin in the household (by marriage, birth, etc.)

We have observations on 10,766 individuals (men and women 10 years of age or older). For 28.6% of these individuals we have four years of panel data (the maximum); for 15.7% we have three years of data; for 20.0% we have two years of data and for 35.8% we have only one year of data. Appendix Table A1 contains descriptive statistics on our analytical sample.

In order to check the representativeness of the sample, we compared some basic characteristics of the workforce with those of the Nicaraguan "*Encuesta de Medición de Nivel de Vida*" carried out by the National Institute of Statistics in 2009. The distribution of the workers by economic activity, the distribution by employment status and the unemployment rate are quite similar for the two samples. We find that the FIDEG´s sample presents a higher activity rate and higher percentage of employees working less

than 40 hours per week. Further detail can be found in Appendix Table A2

3.   Women in the Nicaraguan labor market

The Nicaraguan labor market is characterized by a high overall labor force participation rate, a low rate of unemployment, a high degree of underemployment and low level of formal sector employment (i.e only 11% of workers are insured by Social Security and more than 74% of workers are employed in firms with 5 or fewer employees). On average, women are disadvantaged in the labor market in Nicaragua. As shown in Table 1, while the labor force participation rate of women has increased, it is still substantially below that of men. In addition, women are more likely to be employed in precarious jobs than are men. For example, in 2012 60.5% percent of employed women were underemployed compared to only 35.4% of men; 12.1% of employed men are insured by Social Security while only 9.5% of employed women are insured by Social Security (and the proportion is declining over time); 39.0% of employed women are self-employed compared to 28.4% for men; and 23.2% of women are unpaid family workers compared to 17.7% for men.

The educational level of the labor force is low, on average a working age Nicaraguan has 5.9 years of schooling completed and only 8.1% has finished secondary schooling. On average, women in the labor force are slightly more educated than men (6.2 years of education for women compared to 5.9 for men). In particular, women are more likely to be secondary school graduates compared to men. The proportion of men and women who complete tertiary education does not differ.

The distribution of workers by economic sector indicates that men are concentrated in the agricultural sector while women tend to work in commerce, low complexity services and manufacturing.[4] Salaried employees represent less than half of the occupied population, while self-employment and unpaid work have a major role, particularly among women. Of every 10 employed women, 4 are self-employed and 2 are unpaid workers.

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[4] High complexity services include: utilities, transport, storage, telecommunications, financial services, public administration. Low complexity services include: communitarian, social and personal services, private domestic services.

TABLE 1

SELECTED LABOR MARKET INDICATORS AND LABOR FORCE CHARACTERISTICS, COMPARISON BY GENDER (2009-2012)

	All	Men				Women			
	Avg 2009-2012	2009	2010	2011	2012	2009	2010	2011	2012
Participation rate	63.4	78.9	80.2	78.6	79.6	45.4	48.3	47.2	50.1
Unemployment rate	3.4	4.5	3.1	3.3	3.3	5.1	2.8	2.7	2.5
Underemployment rate	42.7	29.9	36.4	35.1	35.4	46.2	58.3	57.6	60.5
Proportion working in firms with 5 or less employees	74.6	72.1	73.3	72.2	70.5	73.8	78.4	76.8	78.1
Proportion of workers insured by social security	11.2	13.3	11.4	12.5	12.1	11.5	10.0	10.1	9.5
Distribution of the labor force by economic sector:									
Agriculture and Mining	38.5	50.7	54.3	53.9	51.6	11.1	15.9	18.2	19.8
Manufacturing/Construction	16.9	16.1	13.8	14.4	16.9	23.2	18.7	18.5	17.2
Commerce	21.6	14.4	14.4	13.0	14.9	32.0	33.9	33.5	33.1
High complexity services	9.4	10.4	9.3	9.0	9.4	9.3	10.0	9.5	8.2
Low complexity services	13.7	8.5	8.2	9.7	7.2	24.3	21.6	20.3	21.7
Distribution of the labor force by employment status:									
Salaried	44.5	47.0	47.4	47.8	50.8	40.1	36.2	37.0	35.8
Owner	2.4	2.9	4.3	3.2	3.0	1.9	1.3	0.8	1.8
Self-employed	33.3	33.2	29.9	30.6	28.5	41.4	43.4	41.5	39.0
Unpaid	19.8	16.9	18.4	18.3	17.7	16.6	19.1	20.8	23.2
Distribution of the labor force by education level:									
No education	16.3	16.7	17.7	16.0	15.9	15.8	16.7	15.6	16.5
Primary Incomplete	30.8	31.1	32.9	32.7	30.8	29.2	31.6	29.7	28.6
Primary Complete	14.1	15.1	14.3	13.8	15.0	13.4	12.8	14.2	14.1
Secondary Incomplete	22.0	21.2	21.2	22.1	20.6	24.1	22.9	22.9	21.0
Secondary Complete	8.1	7.0	6.3	7.2	9.5	8.4	7.7	8.7	9.4
Tertiary Incomplete	3.8	3.6	3.2	3.2	2.7	4.4	4.3	3.9	4.7
Tertiary Complete	4.9	5.2	4.4	5.0	5.5	4.6	4.0	5.0	5.7
Average years of schooling of the labor force	5.9	5.8	5.5	5.7	5.9	6.1	5.8	6.1	6.2

To study the movement of women and men into and out of advantageous labor market states in Nicaragua we divide men and women into the following states; not in the labor force (divided between those in school and those engaged in work in the family—unpaid domestic work), unemployed, unpaid family work, employed in the informal sector, employed in salaried formal sector, non agricultural self-employed/employer, agricultural self-employed/employer. The last two states are also further divided into advantageous and not advantageous.

The category "salaried formal sector" is composed of wage and salaried workers who are benefiting from social security, either employed full time or part-time. All wage and salaried employees not benefiting from social security are classified as "informal".

The category "Advantageous Non Agricultural Self-employed/Employer" consists of self-employed workers who are not engaged in agriculture, with household per capita consumption above the poverty line. Also in this category are included employers of firms with 5 or more workers and employers of firms with fewer than 5 employees whose firm increased the number of employees last year. All self-employed workers and employers who are not engaged in agriculture and that do not meet the above conditions are classified as "Unfavorable Non Agricultural Self-employed/Employer".

The category "Advantageous Agricultural Self-employed/Employer" consists of self-employed workers who are engaged in agriculture, with household per capita consumption above the poverty line. Also in this category are included employers of firms with 5 or more workers and employers of firms with fewer than 5 employees whose firm increased the number of employees last year. All self-employed workers and employers who are engaged in agriculture and that do not meet the above conditions

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are classified as "Unfavorable Agricultural Self-employed/Employer".

The "Unpaid family worker" category includes any employed person who work without remuneration in a business, firm or family farm.

The category "Unemployed" includes people who over the past week or last month before the survey looked for work or made efforts to install their own business or company. Similarly those who did not work but already have jobs and start next month are included in this category.

The category "Not in the Labor Force - Student" includes persons 10 years of age or older who are not part of the labor force and who report to be exclusively devoted to studying.

The category "Not in the Labor Force – Unpaid Domestic Work/Any other State" includes persons 10 years of age or older who are not part of the labor force who report to be exclusively devoted to domestic work and those who report to be inactive because of any other reason.

Table 2 shows the proportion of men and women in each of the 10 labor market states.[5] Men are more likely than women to be salaried formal employees (9.7% vs. 6.6%), informal sector employees (26.9% vs. 9.6%), in agriculture, unpaid family workers and unemployed. Women are much more likely to be engaged in unpaid domestic work (35.5% vs. 6.6%). Women are also more likely to be self-employed in non-agricultural activities (advantageous and unfavorable). For example, 11.1% of women are advantageous non-agricultural self-employed compared to only 7.1% of men. These results suggest that it is possible for women to be advantageously self-employed and that there is scope for policies to promote advantageous self-employment among women. Note that because we define "advantageous" in terms of household income in Nicaragua, the higher proportion of women who are advantageous self-employed could be because they are spouses of high-paid and successful men rather than high earners themselves. The results also suggest that women have not fully benefitted from economic growth in Nicaragua because they are significantly under represented among salaried formal employees.

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[5] Table A3 in the appendix presents the mean per capita household consumption of the people in each of these states. The three labor market states that we consider to be "advantageous" have the hightest mean per capita household consumption.

TABLE 2

DISTRIBUTION OF THE WORKING AGE POPULATION ACCORDING TO THEIR
LABOR MARKET STATE, COMPARISON BY TYPE OF WORKING DAY AND GENDER

	Total		Full-time		Part-time	
	Men	Women	Men	Women	Men	Women
Salaried formal sector	9.7	6.6	17.2	31.1	3.0	2.2
Informal salaried employment	26.9	9.6	38.8	33.2	25.5	12.3
Advantageous non agricultural self-employed/employer	7.1	11.1	8.7	20.2	9.8	27.8
Unfavorable non agricultural self-employed/employer	3.1	5.6	3.8	5.8	4.3	17.5
Advantageous agricultural self-employed/employer	6.8	1.1	8.3	0.9	9.6	3.6
Unfavorable agricultural self-employed/employer	9.8	1.4	12.1	0.8	13.2	4.8
Unpaid family worker	14.9	9.7	10.8	7.6	34.6	31.8
Unemployed	2.6	1.5	-	-	-	-
Not in the labor lorce -- Student	12.5	17.8	-	-	-	-
Not in the labor lorce -- Trabajo Doméstico / Any other state	6.6	35.5	-	-	-	-

We examine the characteristics of men and women in each sector by estimating an equation where the probability that a man or women is found in status j can be captured using the multinomial logit technique:

$$P_{ij} = \exp(\Sigma_k B_{jk} X_{ik}) / \Sigma_j \exp(\Sigma_k B_{jk} X_{ik})$$

In this equation, P_{ij} is a multinomial variable that indicates if the individual i is found in status j. The X_{ik} is a vector of k personal and job characteristics. From the estimated coefficients, B_{jk}, we can calculate the marginal impact of each explanatory variable k on the probability of a being in each state, controlling for the other personal and job characteristics. This equation is estimated separately for men and women.

Tables 3 and 4 present the estimates of the marginal impact of each explanatory variable k on the probability of being in each state, calculated separately for men and women from the multinomial coefficient estimates.

For both men and women, older workers are more likely to be in an employed state (both advantageous and unfavorable) compared to a non-employed state. That is, younger workers are more likely to be unpaid family workers, students or in unpaid domestic work.

For both men and women, more education significantly increases the probability of formal salaried employment and advantageous non-agricultural self-employment. On the other hand, education does not increase the probability that either men or women are employed as advantageous agricultural self-employment. More education decreases the probability that men are in the informal sector, but increases the probability that women are in the informal sector. Our qualitative analysis suggests that informal sector employment has more flexibility in terms of hours of work, location, and other factors. Our qualitative analysis also suggests that women value this flexibility because it is consistent with child or elder care, which in traditional Nicaraguan family roles is the responsibility of women. More educated women, who are likely to be married to educated (and therefore high-earning) men, may be able to "afford" this

flexibility better than less educated women.

	Formal	Informal	Advantageous NASE	Unfavorable NASE	Advantageous ASE	Unfavorable ASE	Unpaid Worker	Unemployed	NLF - Student	NLF - Domestic
Age	0.0127 ***	-0.0068 **	0.0051 ***	0.0028 ***	0.0038 ***	0.0051 ***	-0.0141 ***	-0.0005	-0.0002	-0.0079 ***
Aged squared	-0.0002 ***	0.0000	0.0000 ***	0.0000 ***	0.0000	0.0000 ***	0.0001 ***	0.0000	0.0000	0.0001 ***
Years of schooling	0.0121 ***	-0.0141 ***	0.0030 ***	0.0011 **	0.0006	-0.0047 ***	0.0020 ***	0.0016 ***	0.0001	-0.0017 **
Job training	0.1185 ***	-0.0627 ***	-0.0087 *	-0.0124 ***	0.0071	-0.0002	-0.0143 **	-0.0011	-0.0001	-0.0262 ***
Household head	0.0313 ***	-0.0035	0.0374 ***	0.0281 ***	0.0766 ***	0.0674 ***	-0.1590 ***	-0.0075	-0.0003	-0.0705 ***
Spouse	0.0334 *	0.0437	0.0018	0.0138	-0.0089	-0.0328 ***	-0.0022	-0.0102	-0.0004 *	-0.0383 ***
High population density area	0.0301 ***	0.0265	0.0123 **	-0.0046	-0.0515 ***	-0.0692 ***	-0.0144 **	0.0179 ***	0.0002	0.0527 ***
Health	0.0188 ***	-0.0034	-0.0067 *	-0.0013	0.0060	-0.0234 ***	-0.0043	-0.0057	0.0000	0.0200 ***
Young children (0-6)	0.0111 ***	0.0150 **	-0.0015	0.0076 ***	-0.0173 ***	0.0075 ***	-0.0133 ***	0.0001	0.0000	-0.0092 ***
School age children (7-18)	-0.0040 *	0.0052	-0.0060 ***	0.0062 ***	-0.0127 ***	0.0091 ***	0.0050 ***	-0.0009	0.0000	-0.0017
Working age members (19-65)	0.0033 *	-0.0180 ***	-0.0029 **	0.0019	0.0039 **	0.0078 ***	0.0022	0.0013	0.0000	0.0006
Older members (Plus 65)	-0.0089	-0.0331 ***	0.0024	0.0084 **	0.0043	0.0148 ***	0.0123 ***	-0.0045	0.0000	0.0043
Distance to the health center	0.0000	0.0073 ***	-0.0094 ***	-0.0048 ***	0.0047 ***	0.0047 ***	0.0028 ***	-0.0032 ***	0.0000	-0.0022 *
Tubed water inside the dwelling	0.0089	-0.0391 **	0.0539 ***	0.0224 ***	-0.0176 ***	-0.0529 ***	-0.0175 ***	0.0043	0.0001	0.0376 ***
Tubed water outside the dwelling	0.0079	-0.0035	0.0353 ***	0.0257 ***	-0.0251 ***	-0.0361 ***	-0.0222 ***	0.0108 **	0.0001	0.0071
Electricity	0.0610 ***	-0.0108	0.0526 ***	0.0074	-0.0445 ***	-0.0714 ***	-0.0524 ***	0.0256 ***	0.0001	0.0324 ***
Total value of remittances	-1.0476 ***	1.0110	-0.0751	-0.5006 *	1.1105 ***	-1.3738 **	-0.3465	0.3554 ***	0.0061	0.8607 ***
Dummy 2010	-0.0025	0.0368 **	0.0057	-0.0061	-0.0001	-0.0215 ***	0.0026	-0.0092 **	0.0000	-0.0057
Dummy 2011	-0.0025	0.0197	0.0080	-0.0111 ***	0.0028	-0.0253 ***	0.0015	-0.0096 **	0.0000	0.0164 **
Dummy 2012	-0.0075	0.0631 ***	-0.0047	-0.0196 ***	0.0025	-0.0260 ***	-0.0042	-0.0127 ***	0.0000	0.0091

Having job training increases the probability that both men and women have formal sector employment, but the impact of job training on advantageous self-employment differs between men and women. Job training increases the probability that women have advantageous self-employment (both agricultural and non-agricultural), but has no statistically significant effect on the probability of advantageous self-employment for men. It may be that this "training" is primarily directed towards women and the types of employment that appeal to married women with child or elder care responsibilities such as part-time self-employment in the home.

For both men and women, household heads are more likely to be advantageous self-employed (both agricultural and non-agricultural). Male, but not female, household heads are significantly more likely to be formal sector employees. This may be because of the inflexibility of formal sector employment discourages female household heads from working in that sector. Female spouses are also more likely to be in advantageous non-agricultural self-employment, but male spouses are not. Once again, it may be that female spouses are attracted by the flexibility of non-agricultural self-employment, while male spouses, who are less likely to have child or elder care responsibilities, are less attracted to self-employment.

The number of children and dependent older members in the household has different impacts on men and women. A higher number of dependent members in the household (i.e. too young or too old to work) make it less likely that women are found in advantageous labor market states, while for men this is generally not true. For example, more young children in the household increases the probability that women are in unpaid domestic work, but decreases the probability that men are in unpaid domestic work. Having more young children increases the probability that men are formal sector employees but decreases the probability that women are formal sector employees. Similarly, more young children in the household increases the probability that men are are employed in advantageous non-agricultural self-employment, but not for women. For both men and women more school age children significantly decreases the probability of being found in an advantageous labor market state. Again, these patterns are consistent with the traditional role of women as the primary providers of child care. This suggests that support for child care while women are at work could have a positive

impact on the ability of women to obtain advantageous labor market states.

For both men and women, access to public services (tubed water, electricity and water) increases the probability that a person is found in the salaried formal sector and advantageous non-agricultural self-employment. This suggests that government provision of public services can contribute to the ability of both men and women to obtain advantageous labor market states.

Remittances do not make it more likely that either men or women are in advantageous labor market states. Specifically, remittances increase the probability that both men and women are out of the labor force, reduce the probability that men or women are found in formal sector employment, and has no statistically significant impact on the probability that men or women are found in advantageous self-employment. This result is consistent with economic theory, which suggests that an increase in non-labor income will cause people to substitute "leisure" for work.

TABLE 4
MARGINAL EFFECTS ON THE PROBABILITY OF BEING IN EACH LABOR MARKET STATE, WOMEN

	Formal	Informal	Advantageous NASE	Unfavorable NASE	Advantageous ASE	Unfavorable ASE	Unpaid Worker	Unemployed	NLF - Student	NLF - Domestic
Age	0.0067 ***	0.0107 ***	0.0130 ***	0.0068 ***	0.0009 ***	0.0008 ***	-0.0052 ***	0.0018 ***	-0.0014 ***	-0.0341 ***
Aged squared	-0.0001 ***	-0.0002 ***	-0.0001 ***	-0.0001 ***	0.0000 ***	0.0000 ***	0.0000 ***	0.0000 ***	0.0000 ***	0.0004 ***
Years of schooling	0.0065 ***	0.0040 ***	0.0023 ***	-0.0035 ***	0.0002	-0.0003 *	0.0023 ***	0.0014 ***	0.0005 ***	-0.0134 ***
Job training	0.0541 ***	0.0751 ***	0.0236 **	0.0021	0.0039 *	0.0020	-0.0100	0.0018	-0.0003	-0.1523 ***
Household head	0.0038	0.0372 **	0.0741 ***	0.0590 ***	0.0112 **	0.0176 ***	-0.1202 ***	-0.0053 **	0.0007	-0.0780 ***
Spouse	-0.0135 ***	-0.0674 ***	0.0322 ***	0.0090	0.0022	0.0041 *	-0.0298 ***	-0.0109 ***	-0.0019 ***	0.0760 ***
High population density area	0.0082 ***	0.0161	0.0223 ***	-0.0065	-0.0050 ***	-0.0067 ***	-0.0211 **	0.0014	0.0011 ***	-0.0099
Health	0.0092 ***	0.0087	0.0129 *	-0.0003	0.0017	-0.0013	0.0276 ***	-0.0004	0.0004 **	-0.0584 ***
Young children (0-6)	-0.0010	0.0071 *	-0.0238 ***	0.0152 ***	-0.0005	0.0004	-0.0175 ***	-0.0009	-0.0002	0.0213 ***
School age children (7-18)	-0.0023 ***	0.0018	-0.0139 ***	0.0101 ***	-0.0013 ***	0.0006 **	0.0048 **	-0.0004	-0.0001	0.0006
Working age members (19-65)	0.0023 ***	-0.0056 **	-0.0118 ***	-0.0031 *	-0.0008 **	0.0000	-0.0036	0.0006	0.0000	0.0220 ***
Older members (Plus 65)	-0.0068 ***	-0.0055	-0.0144 **	0.0039	0.0001	0.0012	0.0059	-0.0007	0.0001	0.0162
Distance to the health center	-0.0002	-0.0027 **	-0.0054 ***	-0.0021 ***	0.0001	0.0002 ***	0.0016 **	-0.0001	0.0000	0.0084 ***
Tubed water inside the dwelling	0.0108 **	-0.0128	0.0733 ***	-0.0055	-0.0029 **	-0.0054 ***	0.0036	-0.0009	0.0000	-0.0600 ***
Tubed water outside the dwelling	0.0163 ***	0.0182 **	0.0423 ***	0.0109 *	-0.0025 **	-0.0023 **	-0.0197 ***	-0.0009	-0.0004 *	-0.0619 ***
Electricity	0.0155 ***	0.0302 ***	0.0817 ***	0.0116 *	-0.0090 ***	-0.0079 ***	-0.0495 ***	0.0109 ***	0.0007 **	-0.0841 ***
Total value of remittances	-0.5519 ***	0.1047	0.1975	-2.0832 ***	-0.0309	-0.1040	-0.5786	0.0686	0.0152 **	2.9626 ***
Dummy 2010	-0.0004	0.0100	0.0074	0.0190 ***	0.0066 **	0.0030 *	0.0312 ***	-0.0034 *	0.0005	-0.0738 ***
Dummy 2011	-0.0035	0.0050	0.0058	0.0005	0.0092 ***	0.0015	0.0347 ***	-0.0059 ***	-0.0002	-0.0471 ***
Dummy 2012	-0.0054 *	0.0106	-0.0027	0.0066	0.0119 ***	0.0058 ***	0.0520 ***	-0.0074 ***	-0.0003	-0.0710 ***

4.   Probabilities of transition

A major focus of this study is on the factors that influence the degree to which men and women move from unfavorable states to advantageous labor market states, and vice-versa. Using panel data we calculate the probabilities of finding person i in status j at time t+k, conditional on being in status z at time t:

$$Pizj = Pr(Si,t+k = j \mid Sit = z)$$

Where Sit = the labor market state of individual i in time t. We estimated matrices of probabilities of transitions into and out of the following states; not in the labor force (divided between those in school and those engaged in unpaid domestic work), unemployed, unpaid family work, employed in the informal sector, employed in salaried formal sector, non agricultural self-employed/employer and agricultural self-employed/employer. The last two states are also further divided into advantageous and unfavorable. These 10X10 matrices were estimated separately for men and women. The results are shown on Table 5 and Table 6.

4.1 Women

Workers in the salaried formal sector are the least mobile of any labor market state. For the period from 2009 to 2012, of the total number of women that at time t were in the salaried formal sector, almost 80% remained in that sector in time t+1, 7.9% made the transition to the informal sector and 5.5% went outside the labor force to engage in unpaid domestic work[6]. Of those women who entered salaried formal employment from other sectors, most came from unpaid domestic work or from informal salaried employment (see Figure 1).

For those that at time t who were advantageous non-agricultural self-employed/employer, 55% remained in that state at time t+1, 15.5% made the transition to domestic work, 10.5% became unfavorable non-agricultural self-employed/employer and 7.3% entered the informal sector. Of those who entered into advantageous non-agricultural self-employment from other sectors the largest number from unpaid domestic work, with a smaller but significant number coming from unfavorable self-employment/employer and informal employment (Figure 1).

Compared to men, a small number of women work as advantageous agricultural self-employed and we do not consider this an important source of advancement for women in Nicaragua. Of the total number women who were advantageous agricultural self-employed or employers in time t, 38.1% remained in that state in time t+1, 22.6% went out of the labor force to devote to domestic work and 16.6% made the transition to successful non-agricultural self-employment.

Of the total number of women that at time t were in the informal sector, 48% remained in that sector in time t+1, 19.2% left the labor force to engage in unpaid domestic work, 7.8% entered the salaried formal sector and 7.8% became advantageous non-agricultural self-employed/employer. For those that at time t were not advantageous non-agricultural self-employed/employers, 38.1% remained in this sector in time t+1, 25.5% went out of the labor force to engage in domestic work and 18.5% achieved success as non-agricultural self-employed or employers. Also, of all women who at time t were unfavorable agricultural self-employed/employer, 22.1% remained in that state, 40.3 % made the transition into domestic work, 11.5% became unpaid family workers and 10.5% became not advantageous agricultural self-employed/employer.

The results in Table 5 also indicate that 42.1% of women that at time t were unpaid family workers remained so at time t+1, 22.9% made the transition into domestic work 14.8% left the labor force to become students. Meanwhile, 10.8% of women that at time t were unemployed continued to be unemployed in t+1, 33.3% made the transition into domestic work, 17.1% went to the informal sector and 11.7% entered the salaried formal sector. With respect to women that at time t were out of the labor force working in domestic activities, 66.8% remained in that state in t+1, 7.4% joined the labor force as unpaid family workers, 6.2% became successful non-agricultural self-employed or

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[6] Women in the salaried formal sector are likely to be more educated, to have job training and not have young children in the household.

employers and 5.7% entered the informal sector.

Women who are in the salaried formal sector are very likely to remain in that advantageous state. In the case of women who started as advantageous (non-agricultural or agricultural) self-employed/employer, the probabilities of remaining in that advantageous state are lower. Women who transit out of an advantageous state tend to move into domestic work. In addition, the probability that women who are in an unfavorable initial state stays in it are moderate. Those women who leave an advantageous state usually move out of the labor force to engage in domestic work. The results indicate that it is unlikely that women who start as unemployed remains unemployed the following year. Rather it is more likely for them to leave the labor force, enter the informal sector or to move into the salaried formal sector.

Of particular interest to our study are women who transition into advantageous states from unfavorable states (see Figure 1). Advantageous self-employed women and salaried formal employees are most likely to come from unpaid domestic work (out of the labor force). For example, over 19% of women who are advantageous non-agricultural self-employed workers were working in unpaid domestic work the year before (this is not true for men). A smaller but non-trivial number of advantageous self-employed women also came from unfavorable non-agricultural self-employment/employer, informal salaried employment, and unpaid family work. Very few advantageous non-agricultural self-employed/employers come from the salaried formal sector or directly from school. These results suggest that policies designed to promote advantageous self-employment among women should target those who are engaged in unpaid domestic work. Our results also suggest targeting unfavorable self-employment, informal salaried employment and unpaid family work, possibly because women work in these sectors to gain experience before attempting self-employment.

Compared to men, women are much more likely to transition into and out of unpaid domestic work. In particular, there is substantial mobility of women between self-employment, the informal sector and unpaid domestic work, with some (but less) mobility between unpaid domestic work and formal sector employment. These patterns likely reflect the traditional roles of women as the primary providers of child and elder care; this makes it more likely that women are in this state (unpaid domestic work) and make it more likely that women will transition into labor market sectors with flexibility in hours and location of work (self-employment and the informal sector). Because women are more likely to transition between self-employment, unpaid domestic work and the informal sector it is particularly important that public policy focus on providing women in the informal sector or in unpaid domestic work with the ability to transition into advantageous self-employment.

TABLE 5

PROBABILITIES OF TRANSITIONS MATRIX FOR WOMEN, (SUM OF TRANSITIONS FOR THE PERIOD 2009-2012)

	1	2	3	4	5	6	7	8	9	10	Total in t
1-Salaried formal sector	365	36	11	6	0	0	3	12	0	25	458
	79.69	7.86	2.40	1.31	0.00	0.00	0.66	2.62	0.00	5.46	100
	73.74	5.00	1.29	1.32	0.00	0.00	0.39	12.63	0.00	0.99	6.22
2-Informal salaried employment	51	314	51	28	8	3	33	13	27	126	654
	7.80	48.01	7.80	4.28	1.22	0.46	5.05	1.99	4.13	19.27	100
	10.30	43.61	5.99	6.15	6.72	2.40	4.27	13.68	2.25	4.97	8.88
3-Advantageous non-agricultural self-employed / Employer	12	62	468	89	13	1	51	9	10	132	847
	1.42	7.32	55.25	10.51	1.53	0.12	6.02	1.06	1.18	15.58	100
	2.42	8.61	54.99	19.56	10.92	0.80	6.60	9.47	0.83	5.21	11.50
4-Unfavorable non-agricultural self-employed / Employer	7	26	82	169	2	11	23	3	7	113	443
	1.58	5.87	18.51	38.15	0.45	2.48	5.19	0.68	1.58	25.51	100
	1.41	3.61	9.64	37.14	1.68	8.80	2.98	3.16	0.58	4.46	6.01
5-Advantageous agricultural self-employed / Employer	0	3	14	3	32	5	7	0	1	19	84
	0.00	3.57	16.67	3.57	38.10	5.95	8.33	0.00	1.19	22.62	100
	0.00	0.42	1.65	0.66	26.89	4.00	0.91	0.00	0.08	0.75	1.14
6-Unfavorable agricultural self-employed / Employer	0	5	3	11	7	23	12	1	0	42	104
	0.00	4.81	2.88	10.58	6.73	22.12	11.54	0.96	0.00	40.38	100
	0.00	0.69	0.35	2.42	5.88	18.40	1.55	1.05	0.00	1.66	1.41
7-Unpaid family workers	3	46	35	22	14	10	281	3	99	153	666
	0.45	6.91	5.26	3.30	2.10	1.50	42.19	0.45	14.86	22.97	100
	0.61	6.39	4.11	4.84	11.76	8.00	36.35	3.16	8.26	6.04	9.04
8-Unemployed	13	19	11	7	0	0	6	12	6	37	111
	11.71	17.12	9.91	6.31	0.00	0.00	5.41	10.81	5.41	33.33	100
	2.63	2.64	1.29	1.54	0.00	0.00	0.78	12.63	0.50	1.46	1.51
9-Not in the labor force -- Student	11	57	13	13	4	0	161	15	965	131	1370
	0.80	4.16	0.95	0.95	0.29	0.00	11.75	1.09	70.44	9.56	100
	2.22	7.92	1.53	2.86	3.36	0.00	20.83	15.79	80.55	5.17	18.60
10-Not in the labor force -- Trabajo Doméstico / Any Other State	33	152	163	107	39	72	196	27	83	1757	2629
	1.26	5.78	6.20	4.07	1.48	2.74	7.46	1.03	3.16	66.83	100
	6.67	21.11	19.15	23.52	32.77	57.60	25.36	28.42	6.93	69.31	35.69
Total in t+1	495	720	851	455	119	125	773	95	1198	2535	7366
	6.72	9.77	11.55	6.18	1.62	1.70	10.49	1.29	16.26	34.41	100
	100	100	100	100	100	100	100	100	100	100	100

Notes: For each state, the first row shows the number of observations in each transition, the second row shows
the probabilities of finding an individual in status j at time t+k conditional on being in status z a time t, the third row
shows the probabilities that an individual in status j at time t+k was in status z a time t

Figure 1: The Origins of Workers found in Advantageous Labor Market States
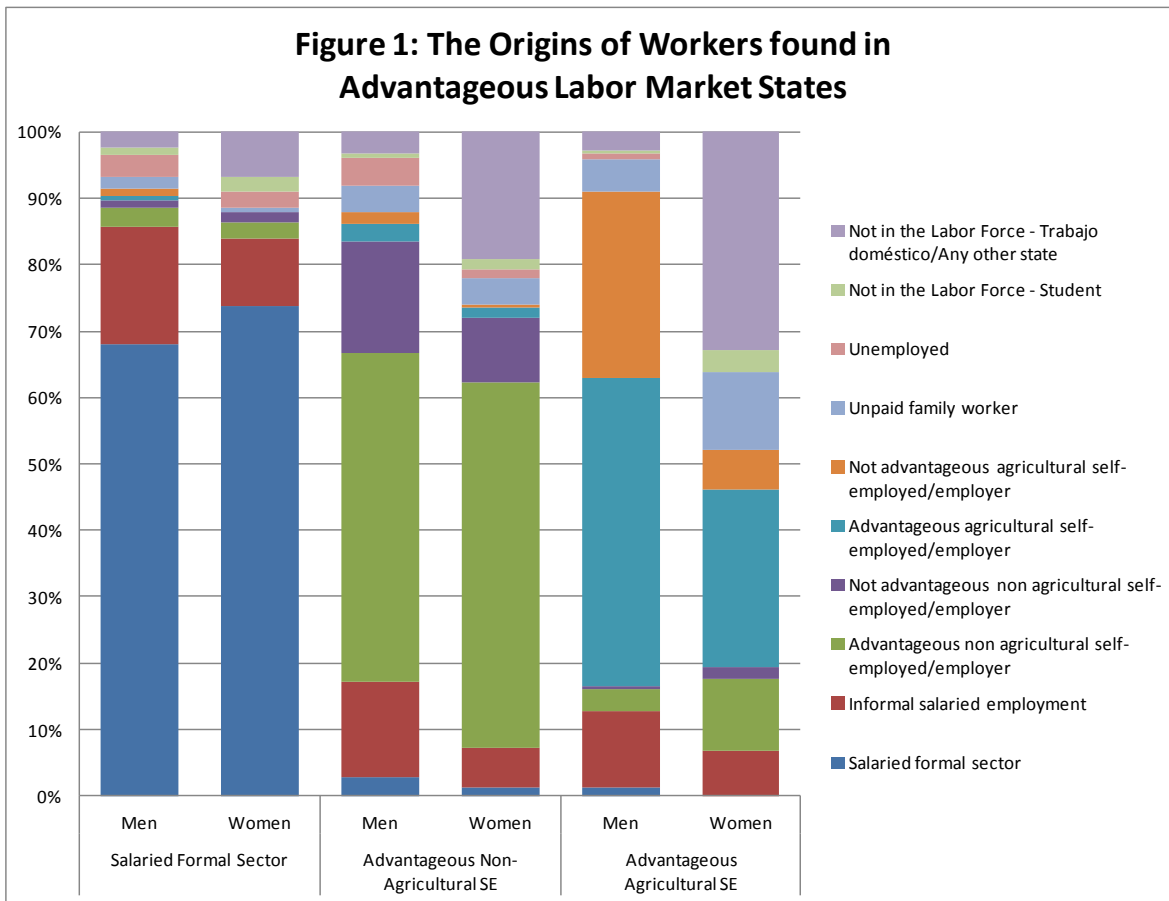
4.2 Men

As with women, male salaried formal sector employees are the least mobile of any state. For the period from 2009 to 2012, of the total number of men who at time t were in the salaried formal sector 75% remained in that sector in time t+1 and 14.7% made the transition to the informal sector (Table 6). Of those men who transition into the salaried formal sector from other labor market states, the largest number come from informal salaried employment, with smaller numbers from unemployment and advantageous self-employment (Figure 1). Unlike women, very few men transition into the formal sector from unpaid domestic work. In general, compared to women relatively few men move between unpaid domestic work and advantageous labor market states. This likely reflects the role of women as the primary providers of child and elder care and that women are more likely to temporarily leave the labor force to provide child or elder care compared to men. It is likely that these temporary transitions out of and into the labor force reduce the ability of women to return to advantageous labor market states, and reduce earnings ability if they do return.

For those who at time t were advantageous non-agricultural self-employed/employer, 50.2% remained in that state at time t+1, 16.3% made the transition to the informal sector and 13.9% became unfavorable non-agricultural self-employed/employer. Of the men who transitioned into advantageous non-agricultural self-employment, most came

from the informal sector or from unfavorable non-agricultural self-employment. As with women, very few transitioned from the salaried formal sector into advantageous non-agricultural self-employment. This is a key result and suggests that policies to promote advantageous self-employment should be focused on those who are currently self-employed or in the informal sector.

Of the total number men who were advantageous agricultural self-employed/employers in time t, 47.8% remained in that state in time t+1, while 26.1% became unfavorable agricultural self-employed or employer (a smaller number, 12.5%, made the transition to the informal sector). In addition, a large percentage of advantageous agricultural self-employed/employers, 26%, were unfavorable agricultural self-employed the year before. These results suggest that there is a lot of churning between advantageous and unfavorable self-employment, possible because of high variability in farm incomes from year to year.

Of the total number of men that at time t were in the informal sector, 60% remained in that sector in time t+1, 7.3% entered the salaried formal sector and 6.9% became unpaid family workers. For those that at time t were unfavorable non-agricultural self-employed/employers, 26% remained in this sector in time t+1, 34.7% achieved advantageous as non-agricultural self-employed or employers and 20.2% went to the informal sector. Also, of all men who at time t were unfavorable agricultural self-employed/employer, 55.1% remained in that state, 18.7% became advantageous agricultural self-employed or employer, 15.4% made the transition into the informal sector.

The results in Table 6 also indicate that 61.1% of men that at time t were unpaid family workers remained so at time t+1. Those who made the transition into the informal sector were 16.9%, and those that left the labor force to become students were 8.4%. Meanwhile, 13.2% of men that at time t were unemployed continued to be unemployed in t+1, 36.5% made the transition into informal sector, 12.7% went to the salaried formal sector and 11.1% became advantageous non-agricultural self-employed or employer. Regarding men that at time t were out of the labor force (some of them in domestic work), 52.3% remained in that state in t+1, 18.8% joined the informal sector and 5.6% became unpaid family workers.

In summary, men who are in the salaried formal sector are very likely to remain in that advantageous state. Men in the salaried formal sector are likely to be more educated, to have job training and not have young children in the household (see appendix). In the case of men who started as advantageous (non-agricultural or agricultural) self-employed/employer, the probabilities of remaining in that advantageous state are lower. Men who transit out of an advantageous state tend to move into the informal sector. Also, as with women, the results indicate that it is unlikely that men who start as unemployed remains unemployed the following year. Rather it is more likely for them to enter the informal sector.

Of particular interest to this study are the transitions into advantageous states. Our

results suggest that men who transition into advantageous self-employment or salaried formal employment are most likely to come from unfavorable self-employment or from the informal sector. Unlike women, very few men transition from unpaid domestic work into advantageous states.

TABLE 6

PROBABILITIES OF TRANSITIONS MATRIX FOR MEN, (SUM OF TRANSITIONS FOR THE PERIOD 2009-2012)

	1	2	3	4	5	6	7	8	9	10	Total in t
1-Salaried formal sector	484	95	14	2	7	7	4	13	1	17	644
	75.16	14.75	2.17	0.31	1.09	1.09	0.62	2.02	0.16	2.64	100
	68.17	5.06	2.79	0.87	1.32	0.94	0.37	8.02	0.13	3.46	9.07
2-Informal salaried employment	126	1036	72	41	61	94	119	60	35	81	1725
	7.30	60.06	4.17	2.38	3.54	5.45	6.90	3.48	2.03	4.70	100
	17.75	55.14	14.34	17.83	11.51	12.58	11.02	37.04	4.53	16.50	24.28
3-Advantageous non-agricultural self-employed / Employer	20	81	249	69	17	3	9	16	6	26	496
	4.03	16.33	50.20	13.91	3.43	0.60	1.81	3.23	1.21	5.24	100
	2.82	4.31	49.60	30.00	3.21	0.40	0.83	9.88	0.78	5.30	6.98
4-Unfavorable non-agricultural self-employed / Employer	8	49	84	63	3	6	10	4	4	11	242
	3.31	20.25	34.71	26.03	1.24	2.48	4.13	1.65	1.65	4.55	100
	1.13	2.61	16.73	27.39	0.57	0.80	0.93	2.47	0.52	2.24	3.41
5-Advantageous agricultural self-employed / Employer	5	64	13	3	245	134	24	4	2	18	512
	0.98	12.50	2.54	0.59	47.85	26.17	4.69	0.78	0.39	3.52	100
	0.70	3.41	2.59	1.30	46.23	17.94	2.22	2.47	0.26	3.67	7.21
6-Unfavorable agricultural self-employed / Employer	7	124	9	14	150	442	31	3	1	21	802
	0.87	15.46	1.12	1.75	18.70	55.11	3.87	0.37	0.12	2.62	100
	0.99	6.60	1.79	6.09	28.30	59.17	2.87	1.85	0.13	4.28	11.29
7-Unpaid family workers	12	189	20	9	25	47	680	5	94	32	1113
	1.08	16.98	1.80	0.81	2.25	4.22	61.10	0.45	8.45	2.88	100
	1.69	10.06	3.98	3.91	4.72	6.29	62.96	3.09	12.16	6.52	15.67
8-Unemployed	24	69	21	13	5	6	3	25	5	18	189
	12.70	36.51	11.11	6.88	2.65	3.17	1.59	13.23	2.65	9.52	100
	3.38	3.67	4.18	5.65	0.94	0.80	0.28	15.43	0.65	3.67	2.66
9-Not in the labor force -- Student	7	88	4	5	2	0	175	13	608	34	936
	0.75	9.40	0.43	0.53	0.21	0.00	18.70	1.39	64.96	3.63	100
	0.99	4.68	0.80	2.17	0.38	0.00	16.20	8.02	78.65	6.92	13.18
10-Not in the labor force -- Trabajo Doméstico / Any Other State	17	84	16	11	15	8	25	19	17	233	445
	3.82	18.88	3.60	2.47	3.37	1.80	5.62	4.27	3.82	52.36	100
	2.39	4.47	3.19	4.78	2.83	1.07	2.31	11.73	2.20	47.45	6.26
Total in t+1	710	1879	502	230	530	747	1080	162	773	491	7104
	9.99	26.45	7.07	3.24	7.46	10.52	15.20	2.28	10.88	6.91	100
	100	100	100	100	100	100	100	100	100	100	100

Notes: For each state, the first row shows the number of observations in each transition, the second row shows the probabilities of finding an individual in status j at time t+k conditional on being in status z a time t, the third row shows the probabilities that an individual in status j at time t+k was in status z a time t

5. Path to success

Using our panel data, we are able to follow the paths (from 2009 to 2011) by which women and men become salaried formal employees or advantageous self-employed. For example, are the newly advantageous self-employed likely to come from full-time formal sector employment, directly from school, from non-employment, etc? Table 7 presents the paths over these four years that men and women take into advantageous labor market states.

TABLE 7
DISTRIBUTION OF CASES THAT REPORTED TO BE IN A SUCCESSFUL STATE IN 2012, ACCORDING TO THEIR INITIAL STATE IN 2009. COMPARISON BY GENDER.

	Salaried Formal Sector		Successful Non-Agricultural SE		Successful Agricultural SE	
	Men	Women	Men	Women	Men	Women
Salaried formal sector in 2009, 2010 and 2011	36.4	40.9	0.0	0.0	0.8	0.0
Salaried formal sector in 2009, with movements in 2010 and 2011	15.0	11.4	2.2	2.3	1.6	0.0
Informal sector in 2009, 2010 and 2011	6.4	2.3	3.2	0.0	1.5	0.0
Informal sector in 2009, with movements in 2010 and 2011	17.9	10.2	12.9	4.0	6.9	2.8
Advantageous non-agricultural SE/E in 2009, 2010 and 2011	0.0	1.1	22.6	32.8	0.0	0.0
Advantageous non-agricultural SE/E in 2009, with movements in 2010 and 2011	5.7	4.6	23.6	14.7	3.1	8.4
Unfavorable non-agricultural SE/E in 2009, 2010 and 2011	0.0	0.0	1.1	1.7	0.0	0.0
Unfavorable non-agricultural SE/E in 2009, with movements in 2010 and 2011	1.4	5.7	15.0	6.8	0.0	2.8
Advantageous agricultural SE/E in 2009, 2010 and 2011	0.0	0.0	0.0	0.6	15.3	2.8
Advantageous agricultural SE/E in 2009, with movements in 2010 and 2011	0.7	0.0	3.3	0.6	29.7	5.6
Unfavorable agricultural SE/E in 2009, 2010 and 2011	0.0	0.0	0.0	0.0	8.4	0.0
Unfavorable agricultural SE/E in 2009, with movements in 2010 and 2011	0.7	0.0	2.2	1.1	25.2	8.4
Unpaid family worker in 2009, 2010 and 2011	0.0	0.0	0.0	0.6	1.5	5.6
Unpaid family worker in 2009, with movements in 2010 and 2011	3.6	1.1	4.2	1.7	3.1	8.3
Unemployed in 2009, 2010 and 2011	0.0	0.0	1.1	0.0	0.0	0.0
Unemployed in 2009, with movements in 2010 and 2011	6.4	10.2	5.4	2.3	0.8	0.0
NLF-Student in 2009, 2010 and 2011	0.0	0.0	0.0	2.3	0.0	0.0
NLF-Student in 2009, with movements in 2010 and 2011	4.3	4.5	2.2	1.7	0.8	2.8
NLF-Domestic Work/Any other state in 2009, 2010 and 2011	0.0	1.1	0.0	5.6	0.0	19.4
NLF-Domestic Work/Any other state in 2009, with movements in 2010 and 2011	1.4	6.9	0.0	21.0	1.5	33.4

In general, these longer-term transitions lead to similar conclusions to those derived from the year-to-year transitions described in the previous tables. That is, men who transition into advantageous states often start out as informal sector workers or unfavorable self-employed, while women who transition into advantageous states are most likely to start out as unpaid domestic workers (with a smaller yet significant percentage starting out as informal sector workers and unfavorable self-employed). Table 7 also reaffirms that those who start out as unemployed are unlikely to remain unemployed, and instead are likely to transition into an advantageous labor maket state.

Table 7 suggests a slightly different story about the advancement of recent students than do tables 5 and 6. In tables 5 and 6 we found that it is not likely that workers transition into advantageous self-employment directly from school. For both men and women, most students who leave school enter the informal sector or work as unpaid

family workers the first year after leaving school (tables 5 and 6). After 3 years, however, those who left school are likely to have become formal salaried employees and advantageous self-employed (table 3). These former students show up in Table 7 as those who were students in 2009, then changed sectors in 2010 and 2011, finally ending up as salaried formal employees or advantageous self-employed by 2012. These results suggest that men and women who leave school may take a short period of time before transitioning into the salaried formal sector or advantageous self-employment. Table 7 suggests that both men and women may spend a short time unemployed and searching for work, as informal sector employees or as unpaid family workers before transitioning into the salaried formal sector or advantageous self-employment. Women are also likely to spend time out of the labor force directly following school. This is consistent with the key role of education in obtaining formal salaried employment, even though students may not find formal sector employment immediately upon graduation.

6. Determinants of the transitions into and out of a successful state

According to the literature, variables that measure human capital, family characteristics and the characteristics of the job are important determinants of labor market transitions.

Those with more human capital (i.e. education and experience) are more likely to be in the labor force, and if they work are more likely to be full-time formal sector employees (Duryea, Marqéz, Pagés and Sarpetta, 2006; Bosch and Maloney, 2010; Cunningham and Bustos-Salvagno, 2011). Workers with more experience (especially in the formal sector) are more likely to be successful entrepreneurs (Cunningham and Bustos-Salvagno, 2011). Some studies suggest that human capital is a more important factor in explaining the success in the case of women entrepreneurs compared to men (Bardasi, Sabarwal and Terrell, 2010). Age is also important in determining whether or where a person works. For example, younger workers are more likely to be informal sector workers while owners/employers are more likely to be older (Bosch and Maloney, 2010).

It has been argued that the reasons for becoming self-employed are different for men and women; specifically it has been argued that women become self-employed because they seek more flexible work schedules (Delman and Davidson, 2000). To examine this possibility, other explanatory variables will include some that describe the structure of the family, including the number of infant children and marital status.

It has been found that the selection of economic activity differs between men and women entrepreneurs. Women entrepreneurs are predominantly concentrated in service activities, while men tend to be owners of companies engaged in manufacturing and construction activities (Bardasi, Sabarwal and Terrell, 2010). It has also been shown that in developing economies, women are less likely to operate in high-technology activities (Anna, et al. 1999). Our data are consistent with these patterns. Table A4 presents the distribution of workers in each labor market state by industry sector, divided by gender. This table shows that in Nicaragua me who are advantageous non-

agricultural self-employed are more likely than women to work in high cmplexity services. Both men and women in advantageous non-agricultural self-employment are concentrated in commerce, manufacturing and construction and low complexity services. Men are also concentrated in high complexity services. Women who are advantageous non-agricultural self-employed are more likely to be in commerce than are men. To examine the role of the selection of economic activity as a determinant of advancement, the regressions will include economic activity dummies as explanatory variables.

Next, we will examine the determinants of the transitions into and out of each advantageous state by estimating probit models.

5.1 Entering an advantageous state

Using a sample of workers in unfavorable states in time t, we estimate a probit equation of the form:

$$Prob(INADVANT_{it} = 1) = \alpha_o + X'_{it}\beta + \sum_{t=1}^{T} \gamma_t YR_t + \mu_{it}, \quad (1)$$

In equation 1, $INADVANT_{it}$ equals one if the individual i is in an unfavorable state at time t but is in an advantageous state at time t+1, and zero if the individual i is in an unfavorable state at time t and stays in a unfavorable state at time t+1. *X_{it} is* the explanatory variables vector which includes; individual specific human capital variables (years of education and whether the individual had received job training), whether the individual lives in a high population density area, the relationship to the household head, change in the marital status, health status, industry sector, household characteristics (number of young children, number of school age children, number of working age household members, number of household members older than 65 years of age), whether the individual has access to public services (tube water and electricity), and the amount of remittances. Finally, to control for year-specific factors such as aggregate supply and aggregate demand changes or design changes in the household surveys, we include a dummy variable for each year, *YR_t*. From the estimated coefficients, β_{it}, we can calculate the marginal impact of each explanatory variable on the probability of a transition from a not advantageous state to each advantageous labor market state. Our estimates of these effects are reported on table 8.

A positive number in table 8 indicates that an increase in the corresponding explanatory variable increases the probability of transition from a unfavorable state to each advantageous state indicated by the column of the table.

6.1.a. Women

The results show that higher education level increases the probability of moving towards into the salaried formal sector. Tertiary education has by far the biggest impact

on the probability that a women transitions into the salaried formal sector. Having a tertiary education increases the probability of a transition by over 3 percentage points compared to a woman with a complete secondary education (and 4.7 percentage points compared to a woman with an incomplete education). The impact of a secondary education has a much smaller (and nearly statistically insignificant) impact on the probability of salaried formal employment. Unlike men, having job training has no significant effect on the probability of entering the salaried formal sector. Tables 8 and 9 provide no evidence that education is a more important determinant of transitioning into advantageous self-employment for women than men.

The results also show that age increases the probability of women entering the salaried formal sector, but at a decreasing rate. Living in an area with high population density and access to tube water outside the dwelling has a positive effect on probability of making this type of transition. Women who transition into the salaried formal sector were most likely working in high complexity services the year before, compared to manufacturing, commerce, low complexity services or agriculture and mining (the excluded sector in the regressions). As well, having older (65+) members in the household makes it less likely that they enter the formal sector. Having access to the electricity network turned out a positive determinant of the probability of entering the formal sector.

Age increases the probability that women transition into advantageous non-agricultural self-employed/employers. This suggests that experience is also an important precondition for advantageous non-agricultural self-employment. Having more young and school-age children in their households makes it less likely that women become advantageous non-agricultural self-employed. Similarly, having more working age members in their household makes it less likely that they become advantageous in non-agricultural self-employment. Women who got married or found a companion are more likely to become advantageous non-agricultural self-employed. The distance to the nearest health center has a negative and significant effect on the probability of transition to this state. Having access to the electricity network has a positive and significant effect on the probability of transition to advantageous non-agricultural self-employment state. The distance to a health center and access to electricity may also both be proxies for the availability of other public services; these two results suggest that access to public services is an important positive and significant factor promoting the transition of women into advantageous self-employment. Women who become advantageous non-agricultural self-employed are most likely to be working in commerce, followed by manufacturing. Women who work in agriculture or in services the past year are the least likely to be advantageous non-agricultural self-employed this year. Unlike men, being household head has no significant effect on the probability of transition to advantageous non-agricultural self- employment.

Having completed or at least some secondary schooling also increases the probability of women transitioning into advantageous non-agricultural self-employment. However, neither tertiary (university) education nor a completed primary education has a statistically significant impact on this transition.

With respect to advantageous agricultural self-employment, age also increases the probability that women become advantageous, but at a decreasing rate. Unlike men, having job training makes it more likely to become advantageous agricultural self-employed (as does having a primary education, although no other education level has a statistically significant impact). Being household head, living in areas of high population density, distance to the nearest health center, access to tube water and remittances, have no significant effect on the probability of transition to advantageous agricultural self-employment. In the case of women, having more school-age children in their households, makes it less likely that they enter that state.

6.1.b. Men

As with women, age and education increase the probability that a man will make the transition from an unfavorable state to salaried formal employment. Also similar to women, the biggest impact is from tertiary (university) education. Unlike for women, job training also increases the probability of this transition. As with women, access to public services (in the case of men electricity) increases the probability of a transition to salaried formal employment. Working in high complexity services also increases the probability of men transitioning to the salaried formal sector.

As with women, age increase the probability of transitioning to advantageous non-agricultural self-employment. Having incomplete secondary schooling or at least complete primary schooling makes it more likely to transition to advantageous self-employment. Also similar to women, a tertiary education is not important in determining whether men transition into advantageous non-agricultural self-employment. Being household head also increases the probability that men transition into advantageous self-employment. As with women, access to public services (health centers and electricity) has a positive impact on the probability of transitioning to advantageous non-agricultural self-employment. Similar to women, men who become advantageous non-agricultural self-employed are most likely to be working in commerce, followed by manufacturing and construction.

As with women, age increase the probability that a man transitions into advantageous agricultural self-employment. Neither education nor job training is a significant determinant of men transitioning into advantageous agricultural self-employment. Also similar to women, having school age children as well as having young children reduces the probability of transitioning to advantageous agricultural self-employment. In addition, male household heads are more likely to transition into advantageous agricultural self-employment. Surprisingly, remittances turn out to be a negative and significant determinant of the probability of entering advantageous agricultural self-employment.

	Salaried Formal Sector		Advantageous Non-Agricultural SE		Advantageous Agricultural SE	
	Men	Women	Men	Women	Men	Women
Number of obs	4548	5042	4548	5042	4548	4745
Pseudo R2	0.1310	0.2500	0.2410	0.1140	0.1520	0.1310
Log likelihood	-774.20	-453.30	-735.60	-1163.00	-774.40	-315.00
Age	0.0042 ***	0.0016 ***	0.0027 ***	0.0080 ***	0.0027 ***	0.0011 ***
Aged squared	-0.00005 ***	-0.00002 ***	-0.00003 ***	-0.00008 ***	-0.00002 ***	-0.00001 ***
Complete primary schooling	0.0077	0.0031	0.0145 *	0.0100	-0.0017	0.0093 *
Incomplete secondary schooling	0.0221 **	0.0071 *	0.0173 **	0.0213 *	-0.0085	0.0041
Complete secondary schooling	0.0364 **	0.0169 *	0.0059	0.0433 **	0.0120	0.0073
Some tertiary schooling	0.0899 ***	0.0472 ***	0.0262	0.0128	0.0030	dropped
Job training	0.0310 ***	0.0006	-0.0061 *	-0.0021	0.0016	0.0151 *
Household head	0.0058	-0.0033	0.0204 ***	0.0108	0.0201 **	0.0065
Spouse	0.0167	-0.0021	-0.0036	0.0105	-0.0228 ***	0.0048
Got married/found a companion	0.0337	0.0061	-0.0085	0.0705 *	-0.0126	0.0090
Got divorced/separated	0.0637	0.0050	0.0202	0.0261	-0.0031	0.0008
High population density area	0.0042	0.0022	0.0022	0.0158 *	-0.0158 **	-0.0024
Health	-0.0024	-0.0013	0.0005	0.0055	-0.0048	0.0014
Manufacturing or construction	0.0095	0.0093	0.0261 ***	0.0306 *	n.i	n.i
Commerce	0.0001	-0.0007	0.0870 ***	0.0867 ***	n.i	n.i
High complexity services	0.0757 ***	0.0738 **	0.0119	-0.0192	n.i	n.i
Low complexity services	0.0059	0.0035	0.0205	0.0262	n.i	n.i
Young children (0-6)	0.0014	0.0007	-0.0030	-0.0070 *	-0.0051 *	-0.0014
School age children (7-18)	0.0016	0.0004	-0.0009	-0.0070 ***	-0.0057 ***	-0.0022 ***
Working age members (19-65)	0.0017	0.0008	0.0011	-0.0055 **	0.0016	0.0002
Older members (Plus 65)	0.0021	-0.0040 *	-0.0038	-0.0064	-0.0044	0.0008
Distance to the health center	-0.0009	-0.0002	-0.0049 ***	-0.0026 **	0.0009 *	0.0002
Tubed water inside the dwelling	0.0118	0.0053	0.0064	0.0034	-0.0116	-0.0042
Tubed water outside the dwelling	0.0084	0.0085 **	0.0077	-0.0034	-0.0134 **	-0.0011
Electricity	0.0176 **	0.0038 **	0.0139 ***	0.0290 ***	-0.0201	-0.0140 **
Total value of remittances	-0.1650	-0.0225	-0.0454	-0.3870	-1.1580 *	0.0894
Dummy 2010	-0.0082	-0.0042 **	-0.0046	-0.0073	0.0081	0.0034
Dummy 2011	-0.0065	-0.0036 **	-0.0096 **	-0.0086	0.0094	0.0032
Dummy 2012	dropped	dropped	dropped	dropped	dropped	dropped

***Significant at 1%
**Significant at 5%
*Significant at 10%

6.2 Leaving a advantageous state

Using a sample of workers in advantageous states in time t, we estimate a probit equation of the form:

$$Prob(OUTADVANT_{it} = 1) = \alpha_o + X'_{it}\beta + \sum_{t=1}^{T} \gamma_t YR_t + \mu_{it}, \quad (2)$$

In equation 2, $OUTADVANT_{it}$ equals one if the individual i is in an advantageous state at time t but is not in a advantageous state at time t+1, and zero if the individual i is in a advantageous state at time t and stays in advantageous state at time t+1. X_{it} is the explanatory variables vector which includes the same variables as those in equation 1. As well, to control for year-specific factors such as aggregate supply and aggregate

demand changes or design changes in the household surveys, we include a dummy variable for each year, YR_t. From the estimated coefficients, β_{it}, we can calculate the marginal impact of each explanatory variable on the probability of a transition from each advantageous state to a not advantageous labor market state. Our estimates of these effects are reported on table 9.

A positive number in table 9 indicates that an increase in the corresponding explanatory variable increases the probability of transition out of an advantageous labor market state.

6.2.a.   Women

The results in table 9 show that women who have received job training are less likely to move out of the formal salaried sector. Age, being household head, changing marital status, living in an area with high population density, health status have no significant effect on the probability of women moving out of the salaried formal sector to a not advantageous labor market state. Working in activities other than agriculture and mining (the excluded sector in the regressions) and manufacturing reduces the probability of leaving the salaried formal sector.

Age decreases the probability that women leave advantageous non-agricultural self-employment. On the other hand, having more school-age children in the household increases the probability for women to move out of this state. Also working in high complexity services makes it more likely for them to transition out this state.

Since we have very few observations of women who transited out of advantageous agricultural self-employment, we cannot make any comments about the determinants of this type of transition and their marginal effects.

In summary, the results in Table 9 suggest that the probability that women move out of advantageous labor market states decreases with job training and, in the case of advantageous non-agricultural self-employment, it decreases with some tertiary schooling. Additionally, increasing the number of school age children in the household increases the probability of leaving advantageous non-agricultural self-employment.

TABLE 9

MARGINAL EFFECTS ON THE PROBABILITY OF LEAVING AN ADVANTAGEOUS STATE, COMPARISON BY GENDER

	Salaried Formal Sector		Advantageous Non-Agricultural SE		Advantageous Agricultural SE	
	Men	Women	Men	Women	Men	Women
Number of obs	622	446	455	820	494	59
Pseudo R2	0.1260	0.1110	0.0784	0.0816	0.0496	0.3600
Log likelihood	-286.30	-190.50	-289.70	-514.80	-325.30	-25.99
Age	-0.0171	-0.0074	-0.0267 **	-0.0269 ***	-0.0067	0.0492
Aged squared	0.0002	0.0001	0.0003 **	0.0003 ***	0.0001	-0.0007 *
Complete primary schooling	-0.0132	0.0672	-0.0440	-0.0221	-0.0662	-0.2100
Incomplete secondary schooling	-0.0427	-0.0408	0.0702	-0.0882	-0.1230	*dropped*
Complete secondary schooling	-0.0738	-0.0290	0.0878	0.0332	-0.1420	*dropped*
Some tertiary schooling	-0.1330 **	0.0015	-0.1590 *	-0.0949	0.0152	*dropped*
Job training	-0.0559	-0.0978 ***	-0.0211	-0.0654	-0.0178	0.4000 ***
Household head	-0.1310 **	-0.0709	-0.0565	-0.1160	-0.1900 **	-0.0618
Spouse	-0.0738	0.0191	-0.0343	-0.0802	0.0228	0.3570
Got married/found a companion	-0.1390 ***	-0.0085	-0.0340	0.0524	-0.0725	*dropped*
Got divorced/separated	-0.1690 ***	-0.0164	0.0268	0.2180	-0.1910	*dropped*
High population density area	0.0986 *	-0.0105	0.0604	0.0305	-0.0699	0.4410 **
Health	0.0574 *	0.0142	0.0808	0.0109	-0.0639	0.3990
Manufacturing or construction	-0.1440 ***	-0.1420	0.0320	0.0161	*n.i*	*n.i*
Commerce	-0.1020 *	-0.1300 *	-0.0915	-0.0110	*n.i*	*n.i*
High complexity services	-0.1680 ***	-0.3000 **	-0.0304	0.4960 ***	*n.i*	*n.i*
Low complexity services	-0.1520 ***	-0.1820 ***	0.0938	0.1630	*n.i*	*n.i*
Young children (0-6)	-0.0123	0.0136	-0.1080 **	0.0095	-0.0687	0.3230
School age children (7-18)	-0.0118	-0.0065	0.0316	0.0398 **	0.0434 **	-0.2640 ***
Working age members (19-65)	-0.0098	0.0013	0.0342	0.0108	0.0115	0.0549
Older members (Plus 65)	0.0182	0.0115	-0.0458	-0.0196	-0.0323	0.3420
Distance to the health center	-0.0037	0.0009	0.0196	0.0180 *	-0.0052	0.0534 *
Tubed water inside the dwelling	-0.1180 **	-0.0522	0.0159	-0.1100	-0.0534	-0.1290
Tubed water outside the dwelling	-0.0817 *	-0.0543	-0.0018	-0.0917	-0.0736	-0.0174
Electricity	0.1130 **	-0.1570	-0.0311	-0.0899	-0.0009	-0.1300
Total value of remittances	1.3180	3.0830	-0.8890	-1.3070	-0.9670	-3.2210
Dummy 2010	0.0775	-0.0043	0.0434	0.0181	0.0206	-0.0396
Dummy 2011	0.1030 **	-0.0047	0.0216	0.0415	0.0338	0.1070
Dummy 2012	*dropped*	*dropped*	*dropped*	*dropped*	*dropped*	*dropped*

Notes: Table reports marginal effects evaluated at the means of all variables, from estimates of itβ in Eq. (2) using probit regressions
for samples identified by column. A positive coefficient means that an increase in the related variable, increases the probability that
a person leaves a particular advantageous state.

dropped/ Dropped because of collinearity or beacause it predicts failure perfectly

n.i/ Not included in this model

***Significant at 1%

**Significant at 5%

*Significant at 10%

6.2.b. Men

Having some tertiary schooling reduces the probability that a man will leave salaried formal employment. Being a household head also makes it less likely that a man will leave salaried formal employment; this is not true for women and may reflect the pressure on women who are household heads to leave formal sector employment to care for children or parents. Similar to women, men working in activities other than agriculture and mining reduces the probability of leaving the salaried formal sector.

As with women, age reduces the probability that a man will leave advantageous non-agricultural self-employment. However, unlike for women, tertiary schooling has a negative impact on the probability of leaving this sector.

Unlike for women, more young children in the household decreases the probability of transitioning out of advantageous non agricultural self-employment for men. Again, this points to the role of women as the primary domestic care providers in families, and suggests that policies to support the care of family members while the care provider works will have a significant impact on the ability of women to obtain advantageous employment, but not significantly affect the ability of men to obtain advantageous employment.

Being a household head reduces the probability that men will transition out of advantageous agricultural self-employment to a not advantageous state. None of the other variables are significant.

In summary, the following reduces the probability that men transition out of advantageous states: having some tertiary schooling, being a household head, having fewer school-age children and having access to public services.

7.   Conclusions and Policy Implications

Our work sheds light on the answers to two key questions: (1) what are the characteristics of the men and women who move up to an advantageous labor market state from an unfavorable one? and (2) what are the characteristics of the men and women who fall out of advantageous labor market states into unfaithful ones? The answers to these questions can contribute to the appropriate design and targeting of public policies interventions to promote success in the labor market. Our work also sheds light on whether the characteristics correlated with success in the labor market differ between women and men, and therefore whether the appropriate design and targeting of policies is different for men and women

Key results:

7.1.   Which workers in unfavorable states are more likely to enter advantageous labor market states?:

7.1.a.   Who is more likely to transition from an unfavorable state into advantageous non-agricultural self-employed?
   i.   What did advantageous non-agricultural self-employed workers do before they became successful?
   •   For both men and women, there is substantial mobility into advantageous non-agricultural self-employment/employer; more than 40% of the advantageous non-agricultural self-employed/employers were not in an advantageous labor market state the year before. The fact that it is possible to transition from a non-advantageous labor market state into advantageous non-agricultural self-employment that there is a role for policies that promote the ability of workers in non-advantagous states to transition into advantageous non-agricultural self-employment.

- For men, those who transition into advantageous non-agricultural self-employment tend to come from unfavorable non-agricultural self-employed(16.7% of the advantageous non-agricultural self-employed) and from informal salaried employment (14.3%).
- For women, those who transition into advantageous non-agricultural self-employment tend to come from a wider range of previous states: almost half of those who enter advantageous non-agricultural self-employment come from unpaid domestic work (out of the labor force). Very few men enter an advantageous labor market state after unpaid domestic work. Women who transition into advantageous non-agricultural self-employment also come from unfavorable non-agricultural self-employment/employer, informal salaried employment, but to a lesser extent than for men.
- Advantageous non-agricultural self-employed/employers do not generally come from the salaried formal sector nor directly from school. This is true for both men and women.

ii. Characteristics of those who transition from unfavorable states into advantageous non-agricultural self-employment?
- *Older*: For both men and women, the probability that someone moves up from an unfavorable state to advantageous non-agricultural self-employed increases with age, but at a decreasing rate
- *More Education*: For both men and women, a secondary education increases the probability that someone moves up from an unfavorable state to advantagous non-agricultural self-employed. For men, a completed primary education also helps. On the other hand, obtaining additional tertiary (university) education does not increase the probability of moving up into advantageous non-agricultural self-employment.
- *Household heads:* are more likely to transition into advantageous non-agricultural self-employment (although this variable is not statistically significant for women)
- *Fewer young and school-age children*: For women but not men, the number of school-age children significantly reduces the probability of becoming an advantageous self-employed/employer. For women, more school-age children also increases the probability of losing advantageous non-agricultural self-employment, while for men more school-age children decreases the probability of losing advantageous self-employment.
- *Access to public services*: increases the probability that a worker transitions from an unfavorable state to advantageous non-agricultural self-employed. This is one of the key policy-related results from our study. It suggests that improving access to public services can promote transitions into advantageous non-agricultural self-employment.
  - Access to electricity and a close-by health center all increase the probability of transitioning into advantageous non-agricultural self-employment for both men and women. Access to tubed water is also significant for men.

- *Sector of employment*: For both men and women, those who transition into advantageous non-agricultural self-employment work in the industry sectors of manufacturing and construction, and commerce. Unlike in previous studies, we find no evidence that advantageous non-agricultural self-employed originate in the services sector.
- Job training does not increase the probability of transitioning into advantageous self-employment. This is true for both men and women. However, job training does help women maintain formal sector wage employment.
- Receiving remittances does not matter; receiving remittances does not affect the probability of transitioning into advantageous self- employment/employer.
    - Rather, more remittances increase the probability of leaving employment (both advantageous or unfavorable) and becoming a student or unpaid domestic worker.

7.1.b.   Who is more likely to transition from an unfavorable state into the salaried formal sector?
i. What did salaried formal employees do before they became successful?
- Most salaried formal sector employees remain salaried formal sector employees from one year to the next (75% of men and 77% of women). Even over a longer period formal sector employment is the most stable state; the majority of workers who are salaried formal sector employees today were salaried formal sector employees 3 years ago.
- For both men and women, those who enter formal salaried employment are most likely to come from informal sector salaried employment or from advantageous non-agricultural self-employment.
- For women, a substantial number also transition from unpaid domestic work (not in the labor force) into salaried formal employment. This is not true for men.

ii.   Characteristics of those who transition from unfavorable states into salaried formal employment?
- *Older*: For both men and women, age increases the probability of transitioning into salaried formal employment (although at a decreasing rate with age).
- *More education*: For both men and women, more education increases the probability of transitioning into salaried formal employment. For both men and women, having some tertiary (university) education has by far the biggest positive impact on the probability of transitioning into salaried formal employment.
- *Job training*: has a significant and large positive impact on the probability of transitioning into salaried formal employment for men, but not for women.
- *Fewer elderly members in households*: For women, a larger number of elderly household members (65+) reduces the probability of transitioning into salaried formal employment, while a larger number of working age household members increases the probability of such a transition.
- *Sector of Employment*: A large proportion of both men and women who

transition into salaried formal employment are most likely to have worked in high complexity services. Generally, those who transition into salaried formal employment do not come from manufacturing or construction, commerce, agriculture or low complexity services.

7.1.c. Who is more likely to transition from an unfavorable state into advantageous agricultural self-employed/employer?

i. What did advantageous agricultural self-employed workers do before they because successful?

- For both men and women, there is substantial mobility into advantageous agricultural self-employment/employer; more than 50% of the successful agricultural self-employed/employer were not in a advantageous labor market state the year before. This likely reflects the volatility of agricultural prices, and therefore in agricultural self-employed incomes.
- Men who transition into advantageous agricultural self-employment tend to come from unfavorable agricultural self-employed/employer and from informal salaried employment.
- Most women who enter advantageous agricultural self-employment from an unsuccessful state come from unpaid domestic work (out of the labor force). Very few men become successful after unpaid domestic work.

ii. Characteristics of those who transition from unsuccessful states into successful agricultural self-employment?

- *Older*: For both men and women, the probability that someone moves up from an unsuccessful state to successful agricultural self-employed increases with age, but at a decreasing rate.
- *Job training*: For men but not women, job training increases the probability of a transition into successful agricultural self-employment.
- *Fewer young and school-age children*: For both men and women, an increase in the number of young and school-age children makes the transitio*n into successful agricultural self*-employment less likely.
- Unlike transitions into other advantageous states, education does not promote the transition into advantageous agricultural self-employment.

7.2. Which workers are more likely to transition into unfavorable labor market states?

7.2.a. Who is likely to move out of advantageous non-agricultural self-employment into an unfavorable state?

- For both men and women, there is substantial mobility out of advantageous non-agricultural self-employment/employer; more than 40% of the advantageous non-agricultural self-employed/employer in one year were not in an advantageous labor market state the next year.
- *Not having a tertiary education*: although education is only statistically significant for men.
- *More school-age children*: is significant only for women. On the other hand, for

men having more young children reduces the probability of transitioning out of advantageous non-agricultural self-employment.

- *Secondary family workers*: Being a household head reduces the probability that an advantageous non-agricultural self-employed worker will move out of that state, although this is statistically significant only for men.

7.2.b. Who is likely to move out of salaried formal employment into an unfavorable state?

- For both men and women, most salaried formal employees (over 70%) remain in an advantageous state (most as salaried formal employees) from year to year. Of those who do move out, most men (and a significant number of women) become informal salaried employees. A large percentage of women also leave for unpaid domestic work.
- *Younger workers*: especially the youngest workers are more likely to fall out of salaried formal employment.
- *Not having a tertiary education*: although education is only statistically significant for men.
- *No job training*: although job training is only statistically for women.
- *Secondary family workers*: For men, being a household head reduces the probability that male salaried formal employee will move out of that sector.
- *Sector of employment*: for both men and women, those in high complexity services are the least likely to leave salaried formal employment.

7.3 Policy implications of the results

This paper informs the debate on the question: What public policies would best support the ability of women and men to become successful formal sector employees or successful small-scale entrepreneurs? Our results suggest that these policies include the following:

The most advantageous labor market state is formal sector salaried employment. Those in this state are the highest paid, have pensions and have access to Social Security medical care. Most people enter this sector soon after graduating from school and remain in this sector for a long time; very few older workers transition from non-advantageous labor market states into formal salaried employment.

Our results suggest that skills (i.e. formal education and job training) are the most important factor promoting salaried formal employment. A post-secondary education is particularly useful for obtaining formal salaried employment. Tertiary education substantially increases the probability of a transition into salaried formal employment and significantly reduces the probability of transitioning out of salaried formal employment.

Education is also important in promoting success for both men and women in other labor market states (at least those outside of agriculture). For advantageous non-

agricultural self-employment, a secondary education is most important; a secondary education (but not a tertiary education) significantly increases the probability of a successful transition into advantageous non- agricultural self-employment.

The focus of any policy to increase education levels will be on the young. Our results suggest that it is not likely that older people who are in informal salaried employment, self-employed or are in unpaid family care will transition into formal salaried employment, even if they obtain more education. This suggests that most progress towards expanding "advantageous" employment, especially formal salaried employment, will be intergenerational. That is, those currently self-employed will not become formal sector employees, but their children may. We know that education is the key to obtaining formal sector employment. This is especially true for girls, who need to obtain education before they have children or get married. Once they are married or have children, it becomes very difficult to complete education or to obtain advantageous employment.

Adults, especially the currently self-employed, do receive short-term benefits from educating children. For example, educated children can provide financial support for self-employment or in non-labor market states. To me, this suggests that a policy of promoting the education of children can also be thought of as a policy of promoting the welfare of their parents (who might be currently self-employed), not only as a policy of promoting the welfare of the children. To me, this suggests that allocating public funds to educating children, and especially to making sure that girls stay in school, may be the most effective use of public funds if the goal is to expand the number of adults in "advantageous" labor market states. For example, a policy promoting the education of poor children may be more effective than policies to "entrepreneurship" skills to adults. To me, this also suggests that it is counterproductive to promote "entrepreneurship" training to children in primary or secondary schools, especially if these programs encourage children to leave school early in order to start their own businesses (which are not likely to succeed). In order to expand advantageous employment, it is more important to keep children in school (especially to obtain some post-secondary education) than to train them to leave school to start their own businesses.

Education does not matter in agricultural self-employment. That is, it does not promote advantageous agricultural self-employment. However, education children in rural areas will make it more likely that these children find better employment as formal salaried employees or non-agricultural self-employment.

There is substantial year-to-year movement up from less successful labor market states into advantageous non-agricultural self-employment. The fact that it is possible to transition from a non-advantageous labor market state into advantageous non-agricultural self-employment suggests that there is a role for policies that promote the ability of workers in non-advantageous states to transition into advantageous non-agricultural self- employment. Below we discuss some policies suggested by our results.

Both men and women are more likely to transition into advantageous non-agricultural

self-employment when they are older and have more working experience. Our results suggest that older workers are most likely transition into advantageous self-employment; young workers are not likely to transition into advantageous self-employment. Our results suggest that policies to promote advantageous self-employment should be targeted towards older workers who already have some relevant work experience.

While a tertiary education is an important prerequisite for success as a salaried formal employee and secondary education is an important prerequisite for advantageous non-agricultural self-employed/employer, our results suggest that policy interventions targeted to current students that are designed to promote advantageous self-employment are not likely to be effective. Very few students move directly from school to self-employment, and younger workers are not likely to be advantageous self- employed workers. Our results suggest that programs designed specifically to teach the skills needed to be successful entrepreneurs are better targeted to older workers currently working as informal sector employees, non-advantageous self-employed workers or as unpaid family workers.

For both men and women, policies to promote advantageous non-agricultural self-employment should target those currently working as informal sector employees or unfavorable non-agricultural self-employed (especially those working in commerce, manufacturing and construction), and not salaried formal sector employees.

Providing access to public services (electricity, water, access to health care and education) promotes the transition into advantageous non-agricultural self-employment/employer and salaried formal employment. This is true for both men and women.

For women, there is also scope for policy intervention to promote the transition from unpaid domestic work (not in the labor force) into advantageous self-employment. This suggests the policy interventions could target women who are currently engaged not in the labor force who are engaged in unpaid domestic work.

Young and school-aged children in the household reduce the probability that women move up into advantageous labor market states. The same is not true for men. Our results suggest that one important policy to promote the transition of women into successful self-employment/employer is subsidized child care for young and school-aged children. This same policy will also reduce the probability that a woman loses advantageous self-employment.

Our results suggest that women, especially those with domestic care responsibilities, value the flexibility of informal jobs and self-employment. This suggests that policies allowing more flexibility in formal salaried employment might encourage more female employment in that sector. In particular, it may reduce the number of women who leave formal salaried employment once they have children or obtain other domestic care responsibilities. Policy reforms might include making it easier for formal sector

employees to hire workers part-time or for non-standard working hours.

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APPENDIX

Table A1: Descriptive statistics on our analytical sample.

Table A2: Comparison of FIDEG sample with Encuesta de Medición de Nivel de Vida.

Table A3: Mean percapita household consumption according to labor market state, comparison by gender.

Table A4: Distribution of the occupied population according to their labor market state, comparison by economic sector and gender.

Table A5: Distribution of cases who enter an advantageous state, according to their proceding state, comparison by gender.

Table A6: Selected marginal effects on the probability of entering and leaving the salaried formal sector, comparisons by gender.

Table A7: Selected marginal effects on the probability of entering and leaving successful non-agricultural self-employment, comparisons by gender.

Table A8: Selected marginal effects on the probability of entering and leaving successful agricultural self-employment, comparisons by gender.

Table A9: Description of the explanatory variables used in the estimated models.