SEGMENTATION AND MOBILITY OF WOMEN IN ARGENTINE LABOR MARKETS

MARÍA DEL PILAR CASAL Y BRADFORD L. BARHAM

RESUMEN

Este trabajo analiza la movilidad laboral de las mujeres en la Argentina en 1995-2003 en 4 sectores: formal, informal, desempleo e inactividad. Incorporamos medidas alternativas de movilidad laboral, y estimamos un modelo logístico multinomial para la elección del sector. Los resultados son consistentes con la hipótesis de mercados laborales segmentados. Mujeres con estudios superiores, incluso casadas y con hijos, acceden más fácilmente al sector formal que mujeres menos educadas. No madres experimentan menos obstáculos para moverse del sector informal al formal. Tener más hijos aumenta la probabilidad de transición del sector formal al informal y del informal a salir del mercado de trabajo.
Clasificación JEL: J13, J16, J21, J60, O17
Palabras Clave: Segmentación del mercado laboral, Género, Movilidad laboral, Penalidad por maternidad, Argentina

ABSTRACT

This paper examines women's labor mobility in Argentina in 1995-2003 across 4 sectors: formal, informal, unemployment, and inactivity. We incorporate alternative measures of labor mobility, and estimate a multinomial logit model of sector choice. The results support the hypothesis of segmented labor markets. Highly educated women, even those married with children, more easily access the formal sector than less educated women. Non-mothers experience fewer barriers to movement from informal to formal. Having more children raises the probability that women will transition from the formal to the informal sector and from the informal sector to exiting the labor market.
JEL Classification: J13, J16, J21, J60, O17
Keywords: Labor market segmentation, Gender, Labor mobility, Motherhood penalty, Argentina

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I. Introduction

This article addresses the possibility that segmented labor markets are prevalent for women in Argentina given the presence of legal institutions protecting maternity rights. We focus on the ways in which segmentation of the labor market into formal and informal sectors, and labor mobility between sectors, may lead to disparate experiences for women. While formal sector law establishes that pregnant women employed cannot be fired, women from richer households may also not need to be absent from the labor market during their pregnancy or to work part-time once they have children due to their capacity to hire domestic help. Moreover, ongoing help with domestic duties might also allow these women to be less tired at home and more productive at work. For them, the formal sector could be a relatively safe harbor, in the sense that once a woman belongs to this segment she has a low probability of exit and she can balance work and family demands more readily than women who work in the informal sector.

During the 1990s and early 2000s, the Argentine economy experienced important transformations and structural changes: trade liberalization, privatization, labor flexibility reforms, and a major economic meltdown in 1999-2002 and a recovery from 2003 to the present (Pastor and Wise, 1999; Cerutti, 2000). These processes affected segmentation, making informality more common and formality contract in some sectors. Notwithstanding the government's rhetoric of flexibility and its practice of weak labor law enforcement, the reforms did not have a widespread positive effect on employment and wages. But, there was a remarkable increase in unregistered employment. Those changes may have affected the way the labor market

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functions, including potentially important changes in the consolidation of segmented labor markets using distinct rules. The degree to which a labor market divides into formal and informal sectors could be essential to explaining the existence of distinctive motherhood wage penalties (Casal and Barham, forthcoming), and could shed light on factors that enable women to balance better-paid jobs and domestic responsibilities. Different institutional and social barriers might prevent women (especially mothers) in the informal sector from accessing employment in the formal sector.[1]

Methodological challenges to measure and test for segmentation include incorporating a number of alternative measures of labor mobility and designing an appropriate econometric model for sector choice in Argentina during an era of significant economic structural adjustment and democratic transition. We evaluate the evidence on labor market segmentation mostly through an analysis of labor mobility, based on the magnitude of the transitions across the different labor market states and the characteristics of women making those transitions. For these characterizations of segmentation, we consider four types of female workers: formal (F), informal (I), unemployed (U) and out of the labor market (O). We use diverse measurement methods such as the differences between means, the gross probability of transition, transition tendencies, and the effect of individual and household characteristics on women's labor market situation through the estimation of multinomial logit regressions. To address the impacts of liberalization and the crisis, we mostly examine changes in transition tendency matrices, dividing the sample in a period before and after the negative shock.

The empirical results are consistent with the hypothesis of segmented labor markets. Key factors shaping women's labor market mobility include education, motherhood and age, all of which can prevent informal, unemployed and inactive women from getting a job in the formal sector. On average, women with lower education and more children are more likely to work in the informal sector or to be looking for a job. The negative and significant relationship between having a college degree and transition from any other sector to out of the labor market shows that there are almost no

[1] Rules and norms of behavior are key elements to explain the performance of the different segments. Most of the article does not delve deeply into the logic of these institutional differences, but they are recognized as key factors driving the potentially distinctive experiences of Argentinean women in labor markets.

barriers to employment for the most educated women. Having more children raises the probability that one will transition from the formal to the informal sector and from the informal sector to exiting the market. In addition, having more children reduces the likelihood a mother will transition from informal sector to unemployment. Finally, there is a higher likelihood of transition from formal to being out of the market, and from informal to unemployment or inactivity when women are younger. Overall, segmentation outcomes between formal and informal sector jobs stem to a significant degree from initial differences in education and family class background that shape women's choices and opportunities, both in labor market and potentially in husbands.

The reminder of this article is organized as follows: Section 2 describes the labor market segmentation literature. Section 3 presents country background information and data. Sections 4 and 5 describe the empirical tests and the main results. Section 6 provides conclusions.

II. Literature review

Our approach to the segmentation literature is original because, as far as we know, no other research examines labor market segmentation outcomes in developing countries based on women's motherhood condition. Our focus on this issue in Argentina is noteworthy because while the formal sector has strong legal rights regarding maternity relative to most developing countries and many developed countries, the informal sector is larger and is not subject to institutional regulations. Our analysis of segmentation focuses mostly on labor mobility; that is, job changes experienced by workers related to the creation and destruction of jobs and opportunities caused by vacancies. Limitations in mobility may exclude people from work, interrupting the accumulation of individual and collective skills (Castillo et al., 2006) and preventing them from gaining access to better jobs.

Factors such as 'class' (e.g., women's education and/or husband's situation) as well as motherhood status may shape mobility into the privileged sector. Our empirical objective is to explore the patterns of mobility, taking into account not only women but also mothers versus non-mothers. Note that while this article focuses on women's mobility across different sectors as a way to study segmentation, Casal and Barham (forthcoming) explore wage differentials, considering not only the earning penalty in the case of informal

versus formal, but also the differences between mothers and non-mothers in each segment. As expected, the experiences faced by mothers versus non-mothers changes from the formal to the informal sector. In particular, formal sector working mothers do not seem to experience wage penalties for being mothers, while informal sector female workers do. This finding means that limits to mobility are costly for those who cannot access the formal sector.

Over the past two decades, labor market segmentation theory has been the subject of much debate in economic research, because it challenges the conventional neoclassical human capital and labor market analyses. This dualistic view proposes that workers and jobs are not matched smoothly by a universal market mechanism. Instead, jobs differ in quality, and jobs and workers are divided into labor market segments or sectors. Labor market segmentation exists if first jobs for individuals of a given skill level differ in terms of their pay or other characteristics, and second if the access to the more attractive jobs is limited and not all who want the better jobs can secure them (Fields, 2009). Jobs in the formal segment are often seen as rationed because government rules impose rigidities that push the cost of labor above the market-clearing wage. One consequence, given that the formal sector has barriers to entry and exit, is the emergence of a large informal sector earning lower wages; another is that some workers lack access to the formal sector or jobs of any kind. In this traditional segmentation view, unregulated wage employment and self-employment are considered as a free-entry residual sector that is informal.

Empirical evidence on sector choice, segmentation, and mobility are diverse, and many papers examine Latin America and transition economies. Some authors find evidence consistent with segmentation in the labor market. In their investigation of employment in urban Mexico, Gong, Soest, and Villagomez (2004) find that the probability of formal sector employment increases with educational level, and the probability of choosing unemployment instead of informal sector increases with the income of other members of the family. Moreover, married women with children have a higher likelihood to be in the informal sector. Likewise, Bernabe and Stampini (2009) study labor mobility in Georgia during an economic transition, and their findings are consistent with the hypothesis of segmentation: formal employment is preferred to informal, and unemployment in urban areas acts as a transitory sector for highly educated workers waiting for formal work. Sorm and Terrell (2000) find that in the Czech labor market the less educated are

less likely to stay employed. Also, young people are more mobile and are driving the employment restructuring during the transition process.

There is also literature that finds limited evidence of the dualistic view. Maloney (1999) is one of the first studies to find that the informal sector in Mexico is not residual, and seems to be a desirable destination. Pagés and Stampini (2007) study labor market segmentation for skilled and unskilled workers using panel data from some Eastern European, Central Asian and Latin American countries. They find evidence of extensive mobility in all countries, mostly from informal to formal sector, with no statistical difference across skill levels.

Finally, some studies offer mixed findings. Using panel data from Chile, Packard (2007) finds little evidence that self-employment is the residual sector; however, employment without a contract does exhibit many of the features of the free-entry employment safety net depicted in the dualistic literature. Bosch and Maloney (2007) find many common patterns of worker mobility among sectors of work and inactivity in Argentina, Brazil and Mexico. They suggest that a significant part of the informal sector, particularly the self-employed, offer evidence of voluntary entry. Although their results also suggest that lower informal wages correspond more closely to the standard segmentation view, especially for younger workers. A recent paper from Nordman, Rakotomanana, and Roubaud (2012) using a rich panel dataset in Madagascar (2000, 2001, 2003 and 2004) concludes that formal sector wage jobs are the most stable, followed by self-employment while the informal sector wage workers are the most mobile. Considering the flows between segments, informal sector wage workers move to formal sector wage and (informal) self-employed jobs. In the case of formal sector wage workers, movers privilege self-employment, but a considerable flows exit to informal sector wage jobs. On the contrary, self-employed change more often for formal sector wage jobs than they do for informal.

Most literature regarding segmented labor markets and gender compare differences between men and women. Gong and van Soest (2002) analyzed wage differentials and the transition patterns between the formal sector, informal sector, and non-employment (for women only) in urban Mexico. They conclude the probability of formal sector employment strongly increases with the wage differential. While in the case of men, the probability of working in the informal sector decreases with the level of income of other

family members; for women, other family income increases the probability of not working.

Cunningham (2001) examines labor force entry and choices between sectors in periods of economic fluctuation also in urban Mexico. She concludes that labor patterns might be more similar for those with the same role in the household than those who are of the same gender; thus it seems important to consider household structure to better understand labor force entry patterns. On one hand, women without spouses or children behave more similarly to men than to married women, as they show higher likelihood of participating in the higher-paying formal sector jobs. On the other hand, married women are responsive to the second shift at home.

In line with Cunningham (2001), Gong, Soest, and Villagomez (2004) find the number of children does not have a strong effect on male's behavior; while for females having young children considerably reduces the likelihood of working in the formal and informal sector, and also makes formal work less probable than informal work. Pignani (2010) studies labor market segmentation in Ukraine. He finds different probabilities to move across states and higher propensity to go to the formal sector from the informal sector than vice versa. This effect is stronger for females than for males. The author concludes that women seem not only to have characteristics making them more likely to stay in formal employment than men, but also a strong preference for that form of employment. Whether this is related to maternity rights or other conditions is not identified.

Bardasi and Monfardini (2009) research how the transition to a market economy affected the relationship between motherhood and labor force outcomes in Poland. Contrary to their expectations, employment was more responsive to motherhood before rather than during transition. During transition, the need for a second earner in the household, the great uncertainty in the labor market, and the new opportunities offered by a rapidly developing private sector- for highly educated women- were dominant explanations for mothers to increase their participation in employment. Similarly, using Argentine data, Cerutti (2000) concludes that the significant increase of female labor force participation in Buenos Aires in the 1990s is due to labor supply factors, with rising unemployment and job instability related to the implementation of structural adjustment policies in Argentina. Cerutti (2000)

highlights women looking for jobs as a way to reduce households' economic uncertainty.

Argentina has few studies about labor market mobility. Fernández, Maurizio, and Monsalvo (2007) analyze the occupational instability of the young through duration models. They evaluate turnover of young workers in the Argentinean labor market; specifically if younger workers face higher risks of leaving a given occupation in relation to older workers. They consider the movements from a job to any other state: another job, unemployment and inactivity. They find that younger workers experience lower occupational survival rates than older workers, plus when they are dismissed or quit; they also experience higher probabilities of moving to inactivity or unemployment than to another occupation. Meanwhile, Tornarolli and Conconi (2007) study occupational mobility between different categories of employment, taking into account the possibility of informality in Argentina for the period 1998-2006. They find that the informal segment represents a large proportion of the labor market, and that movements there are mainly involuntary and related to the business cycle. Informal sector employment increases during recessionary episodes, and reaches it maximum during the crisis of 2001-2002. Formal sector work tends to be the most stable. During the expansive period 2005-2006, they find a visible increment in the mobility from informal to formal occupations. None of the aforementioned studies compare mobility patterns across mothers and non-mothers to address the role of motherhood and other socio-economic variables that might shape segmentation outcomes for women.

III. Data and Argentina background information

Argentina's labor market background

The legislative sources of the basic labor legal rights in Argentina come from the 1976 Law 20.744 on Contract of Employment (Ley de Contrato de Trabajo, LCT). The LCT was modified several times more recently in deregulation efforts.[2] Three of those were the 1991 Law 24.013 on National Employment (Ley Nacional de Empleo), the law 25.013 on Labor Reform (Ley de Reforma Laboral) in 1998, and the New Labor Law 25.250 (Nueva Ley de Empleo) in 2000. The original LCT is a complete law which deals with

[2] Source: http://www.ilo.org/public/english/dialogue/ifpdial/info/national/arg.htm

issues such as the contract of employment, rights and commitments of employers and employees, particular contracts of employment (part-time, fixed-term contracts, seasonal employment), wages and protections, hours of work, public holidays and paid leave, suspension and termination of the contract of employment, and maternity protection. Under this law, all Argentinean women were granted the same rights, and mothers were entitled to 90 days of paid maternity leave before and/or after the childbirth. In addition, LCT made it illegal for an employer to finish the employment of a woman during her pregnancy or absence on maternity leave, with the exception of reasons not related to the pregnancy or birth.[3] Although by law all women have these same rights, lack of enforcement across all sectors of the economy is the main explanation for why many women do not enjoy these rights.

Labor reforms during the 1990s were numerous, especially concerning temporary contracts and their associated social security costs, firings, and non-wage labor costs in general. Despite the government's rhetoric of flexibility, the reforms were largely associated with increases in unregistered employment. The unemployment rate decreased from 8.5 per cent in 1989-90 to 6.9 per cent in 1991-92, before a rapid increase to around 18 percent in 1995-96. In part, these high levels of unemployment are explained by the increase of women labor force participation (De Pablo, 2005). On October 1997, national unemployment dropped below 14 per cent, and Pastor and Wise (1999) suggest half of the new jobs created were temporary. Between 1991 and 2000 unregistered employment grew from 29 to 37 per cent; by the year 2005 almost 55 per cent of the urban labor workforce was employed in the informal sector (Beccaria and Groisman, 2007; Castillo et al., 2006).

Changes in the informal sector were both quantitative and qualitative. Self-employment had traditionally been considered a relatively prosperous sector in Argentina[4], but after the 1980s the number of individuals who were low income, with fewer skills and uneducated grew in this sector. Although self-employed workers have to contribute to the social insurance system by law,

[3] Consequently, any release within a period of seven and a half months before and seven and a half months after childbirth is assumed to be due to maternity; and if the employer is unsuccessful in proving that the reason for dismissal is unconnected to maternity, the employer must pay an indemnity.

[4] Torrado (1992) points out that between the middle of 1940 and 1970 almost half of the increase in self-employment was related with entrepreneurs of middle income families.

the precarious monitoring and enforcement capacity allowed many of them to evade social security insurance (Packard, 2007). The market reforms created winner and losers. Argentina reduced the size of the industrial and public sector, showed a notable increase in unemployment, and expanded rapidly the informal sector and people working under precarious conditions. Argentina also experienced distributional deteriorations shown by the relative concentration of earnings in the top income deciles (Levitsky and Murillo, 2005, Pastor and Wise, 1999).

Data details

The data analyzed here come from a series of consecutive *Encuesta Permanente de Hogares: EPH* (Permanent Household Survey), a nationally representative survey carried out on 31 urban areas by the *Instituto Nacional de Estadísticas y Censos:* INDEC (National Statistics and Census Institute). Argentina has twenty-four states, but given that the city of Buenos Aires and the 24 urban zones that surround it constitute nearly a third of Argentina's population, this article includes only Greater Buenos Aires in order to simplify the empirical analysis. We use May and October surveys between the years 1995 and 2003.[5]

Following Casal (2011), we exclude women who are owners/employers[6], younger than 18, or older than 50 since our main focus is on segmented labor market dynamics and motherhood status. Because of data limitations that prevent clean identification of which women are mothers in households with multiple adult women, we limit the sample to four types of women: those who live alone, those who live with their husbands without children, those who live with their husbands and children, and women who live with their children without a husband.[7] One important limitation of these exclusions is that low-income women might be under-represented in the survey since they often live

[5] In 2003 the EPH changed from being discrete to continuous. Comparing the discrete and continuous surveys there are some changes in the questionnaire, and some essential variables relating to the mother have disappeared in the new continuous version.

[6] 1,453 owner/bosses are omitted. This number is quite small compared with the final group under study, and none of them work in small firms.

[7] Working daughters older than 18 years old and extensive families are excluded from the sample. Since the individual survey does not contain information about which individual is the mother, we mapped the household and the individual survey to determine if the women were mothers and the number of children younger than 15 years old.

in households with extended family members. Based on this criterion and taking into account all women in the sample, the real monthly household income of the excluded sample is $992, while in the case of the final sub-sample it is $1,126. The average real hourly wage per women for the excluded sample is $8.42 while for the final sub-sample is $11.28. Note that we have excluded 1,445 of a total female sample of 9,122.[8]

An additional problem is that the EPH is not a longitudinal survey. Each household is interviewed in 4 consecutive waves. 25 per cent of the sample is replaced each wave; consequently, it is only possible to compare 75 per cent of the sample between two successive waves. The transitions to be considered in this research result from comparing two successive waves: October and May. A further practical limitation lies in the fact that the real proportion of individuals actually matched in two successive waves is lower than the study design proportion, i.e. on average 47 instead of 75 per cent of the sample could be matched from October to May each year.[9] Finally, in order to have enough observations, the complete period October 1995- May 2003 is pooled. The result is a sample size of 7,677 women. In the October semesters from 1995 to 2002, 1,526 women are formal employees, 1,979 are informal workers, 661 are unemployed, and 3,511 are out of the labor market. In the May semesters between 1996 and 2003, 1,523 are formal workers, 1,979 are informal workers, 671 are unemployed, and 3,504 are inactive.

There are many ways to define employment in terms of formality and informality. In this article, the sector of employment includes three categories: *formal, informal and unemployed*. To define informality, we follow the ILO criteria and consider the enterprise-based (firm size) and the job-based (lack of registration) definitions. In the case of employees, we utilize the job-based definition, and the formal sector includes employees who have all forms of legislated benefits[10]: pensions, paid vacations, work insurance, health insurance, and/or Christmas bonuses. The informal sector consists of employees who lack some or all of the legislated benefits and all self-

[8] The numbers are in real Argentinean pesos. The exchange rate dollar-Argentinean peso is before 2002: 1 peso-1 dollar; in 2002: 3,40 pesos-1 dollar; and 2,95 pesos-1 dollar in 2003 (Source: Central Bank of Argentina CBRA).

[9] Many reasons could explain the difference; households who leave the panel, households moving, field work problems, etc.

[10] All legislated benefits included in the Law 20.744 on Contract of Employment (Ley de Contrato de Trabajo, LCT),

employed workers. Since the EPH survey does not request a question about benefits to the self-employed, we base their inclusion in the informal sector on firm size definition and take account of all from firms with less than 5 employees. In this sample, 80 per cent of the self-employed work by themselves, and 20 per cent work in firms of 2 to 5 employees.[11]

IV. Methodology

The main task is to identify whether the mobility of the women and mothers in the informal sector and their employment stability differs from those in the formal sector, and secondarily whether patterns of women's occupational mobility differ across other sectors. We use three types of methods: simple differences between means, transition probabilities, and multinomial logit regressions. These methodologies are similar but progressively give us more insights and validation on the segmentation issue.

Testing Differences between Means

An initial measure of the likelihood of moving from one state to the other is to compare differences between the mean statistics of some important variables considering the transition or permanence in the same state from *t-1* to *t*. We take into account human capital variables (age and years of education), and family restriction variables that influence sector choices (dummy variable for motherhood, husband's education, or head of household status). According to duality theory, if informal female workers are biding their limited time queuing for formal jobs with unemployed women, we expect no significant differences between informal and unemployed women. At the same time, if the formal sector rations jobs, we might find notable differences between formal sector female workers and informal or unemployed female workers. But if the

[11] As a consistency check, we compared both ILO definitions. In the firms with less than six employees, roughly 10 per cent of employees obtained all legislated benefits. By contrast, only 21 per cent of female employees working in firms with more than five employees indicated that they lacked one or more than one legislated benefit. In other words, while 90 per cent of women in firms with less than six employees lacked full benefit packages, 80 per cent of women in firms with more than six employees received full benefits. It appears that our use of small firms as an indirect measure for informal employment is a reasonable assumption for Argentinean women's labor market experience.

informal sector is more than a residual sector, and it acts as a source of transitory employment, we might expect significant differences in individual characteristics between informal workers and the unemployed. In that case, we might expect individual endowments of human capital, and other social and physical variables, to shape the probability of transition from one state to other.

Gross Probability of Transition[12]

The next step is to compare the percentage of women transitioning from state *"i"* to state *"j"* over time. We compute the transition matrix *(P)*, whose elements *Pij* characterize the gross probability of transition in *"t"* to state *"j"*, conditional on being in state *"i"* in the previous semester *"t-1"*. Supposing the probability of transition between two labor market states depends only on the current state, and given the 4 state groups (formal, informal, unemployed and inactive), the probability of transition can be set by:

$$P_{ij} = P(S_t = j \setminus S_{t-1} = i) = \frac{N_{ij}}{N_{i\bullet}} \qquad \textbf{(1)}$$

where N_{ij} is the number of women in state *i* at time *t-1* that flow to state *j* at *t*, and $N_{i\bullet}$ is the stock of individuals in state *i* at *t-1*. Note that the rate of turnover of state *i* is given by $1\text{-}P_{ii}$ and P_{ii} is the rate of persistence or the probability of remaining in the same state *i*. To make the transition matrix *(P)*, we pool the individuals independently of the year, but given that we consider only the transitions from October to May, and attrition in the panel is substantial, it is highly possible that each individual contributes to the matrix only once.[13]

The movement of the sectoral shares could give us an idea about the dynamics of the female labor market. The dualistic view predicts that formal

[12] This methodology has been employed by many authors such as: Bernabe and Stampini (2009), Gong and van Soest (2002), Maloney (1999), and Sorm and Terrell (2000).

[13] We explored if the women who stayed the 4 waves, and contributed to the matrix twice, showed some specific characteristics that distinguished them from other individuals who were interviewed in less than 4 waves. We compared formality and education across the original sample, those who stayed in the sample 4 waves, and those who stayed in between, among different years. We found no significant differences among the groups.

work is preferable to informal, so that individuals queue up for formal sector jobs and obtain them under certain conditions (Maloney, 1999). If the formal sector is rationed, we would find more persistence for formal workers and important differences between the formal sector workers and the other sectors. Moreover, if the informal sector is a free-entry and residual segment, we would anticipate that informal and unemployed women move more frequently from one sector to the other.

Transition Tendencies

Although the transition probability matrix P_{ij} reports interesting patterns about mobility, the values of the probabilities increase with the size and growth rate of the different sectors. Therefore, following Bernabe and Stampini (2009), we calculate an index of transition that takes into account the share of jobs destroyed by state *i* and the share of jobs created in each state of possible destination. Focusing our attention on the net flows, each element of the transition tendency matrix (T) could be defined as:

$$T_{ij} = \frac{N_{ij} / (N_{i\bullet} - N_{ii})}{(N_{\bullet j} - N_{jj}) / \sum_{k \neq i} (N_{\bullet k} - N_{kk})} \quad \textbf{(2)}$$

where N_{ij} is the number of women in state *i* at time *t-1* that flow to state *j* at *t*, $N_{i\bullet}$ is the number of individuals in the state *i* at t-1, $N_{\bullet j}$ is the number of individuals in the state *j* at t. $(N_{i\bullet} - N_{ii})$ is the number of women leaving state I, $(N_{\bullet j} - N_{jj})$ is the number of positions opening by j, and the denominator is the random probability of joining j for a women who left i.

In a non-segmented labor market, transitions would follow random patterns (Bernabe and Stampini, 2009). Non-random moves indicate workers or firms' preferences, and thus possible presence of labor market segmentation. Given the matrix T, random mobility is characterized by values of T_{ij} equaling one. A number less than one indicate a low tendency towards and above one a positive tendency towards the transition. Following the idea of labor market segmentation, we would expect a low transition tendency in the case of the formal sector and a high tendency in the case of informal and unemployment segments.

Macroeconomic Conditions: The effect of a negative shock on mobility

Observing when mobility patterns are affected by a macroeconomic shock may provide important insights, and the degree of market segmentation and wage flexibility is essential for understanding the effect of macroeconomic shocks. If a transition becomes more likely, it means that the status of destination is less sensitive to external risk, or it is associated with buffer activities that are less desirable when the economy expands (Bernabe and Stampini, 2009). The period of analysis in this article is characterized by an expansive cycle followed by a recession. Argentina recovered from the effects of the Mexican crisis of 1995, and GDP growth resumed. After the 1998 international crisis of East Asia, Brazil and Russia, the GDP fell in 1999 and the country entered into a full recession until July 2002. With the idea of comparing labor mobility patterns before and after the crisis, we divide the sample in two sub-periods: pre-shock October 1995 to May 1998; and shock October 1998 to May 2003. We construct the same matrices explained in the previous sections before and after the beginning of the recession.

Individual factors and probabilities of transition

The hypothesis of segmentation is not easy to prove. Some scholars have used a multinomial logit analysis to assess the determinants of transition between sectors (Bernabè and Stampini, 2009; Bosch and Maloney, 2007; Bukowskiy and Lewandowskizx, 2005; Maloney, 1999), while others attempt to identify state dependence in sector choice (Bigsten, Mengistae, and Shimeles, 2007; Gong and van Soest, 2002; Gong, Soest and Villagomez, 2004). In these models, the probability of being in one state depends mainly on observed individual and household characteristics and on the previous period market state. One of the main critiques of the static multinomial logit estimation is that the model's estimates may be biased because the initial labor market state is correlated with unobserved characteristics. The state dependence models control for unobserved characteristics that may explain one's persistence in a sector (Gong, Soest and Villagomez, 2004).

Two issues deserve highlighting in the estimation of a multinomial logit model. First, a proper implementation of a dynamic multinomial logit model requires three observations per individual, but the dataset we utilize only contains two observations per individual. The second is that initial condition

variables, such as parents' education and occupation, are essential to estimate state dependence and, unfortunately, information about family background is not included in the EPH surveys. Given these two concerns, we choose to employ a simple approach and use the multinomial logit with recognition of the prospect of underlying state dependence.

Using a multinomial logit model of the labor market transitions, we estimate the influence of individuals' characteristics on the probability of transition to a given state. We calculate one multinomial logit regression for each state: formal, informal, unemployed, and out of the labor market. The probabilities are given by the following equation:

$$\Pr(Y_i = j \mid X_i) = \frac{\exp(\beta_j' X_i)}{1 + \sum_{k=1}^{4} \exp(\beta_k' X_i)} \quad \text{for } j = 1, \ldots, 4, \text{ and } \beta_0 = 0 \qquad \textbf{(3)}$$

Therefore, the log-odds ratios of going to state "j" relative to staying at state "i" are:

$$\ln\left[\frac{Pij}{Pik}\right] = X_i'(\beta_j - \beta_k) = X_i'\beta_j \qquad \text{if } k=0 \qquad \textbf{(4)}$$

where *i* is the state in *t-1* (formal, informal, unemployed, out of the labor market). This departure status is used as the omitted category in each regression. The log odds of the transition probabilities are expressed as linear functions of the vector of individual characteristics X_i in the period t-1: age, age squared, head of household, civil status, education, husband' education and motherhood[14]. We would like to include characteristics such as the age when the woman had her first baby or years of experience, but unfortunately those variables are not available in this survey. Given that the sample is pooled from 1995 to 2003, we also include as an explanatory variable a year measure. We estimate equation (4) for the different states mentioned above.

Finally, on one hand, an unattractive characteristic of this model is the assumption that P_j/P_k does not depend on the remaining probabilities (independence from irrelevant alternatives) which comes from the

[14] Table 7 in the Appendix show a detailed description of the variables used in the regressions.

independence of disturbances in the original equation. On the other hand, the value of the multinomial logit model is given by the fact that the coefficients identify the effect of each characteristic, isolating it from the correlation with the others factors (Bernabè and Stampini, 2009).

V. Main results

Testing Differences between Means

The first empirical comparison across labor segments is presented in Table 1. The columns represent the four labor segments, formal, informal, unemployed, and inactive, and breaks down the proportion of the sample in each segment by low, medium, and high education, their motherhood status, and average age. Perhaps the most telling statistic in the table is the number of observations in each cell and across the rows. As an example, of the nearly 3,000 observations of women with low education levels, only about 200 of them, or under 8%, are in the formal sector; most are inactive or in the informal sector. By contrast, of the nearly 1600 observations of women in the high education rows, more than half of them are in the formal sector. In other words, Table 1 shows the strong association between education status and formal sector employment. The other noteworthy observation from Table 1 is that motherhood status and age do not appear to explain much in terms of what segment of the labor market women are in except perhaps for a higher proportion of women in the 'inactive' segment being mothers.

Table 1.
Education and motherhood: Average age and percentages

Education	Final Status: S(t)							
	Formal (a)		Informal (b)		Unemployed (c)		Inactive (d)	
	%	Age	%	Age	%	Age	%	Age
Low education								
Non-mother	58%	39.61	44%	39.99	47%	36.51	29%	40.64
Mother one child	23%	38.21	24%	39.33	22%	38.61	24%	37.96
Mother two children	12%	35.92	16%	36.19	14%	34.18	21%	35.31
Mother three or more	8%	35.00	16%	35.07	17%	32.87	25%	33.42
Number of Observations	*208*		*879*		*277*		*1663*	
Medium education								
Non-mother	72%	30.98	65%	29.49	73%	26.92	49%	28.28
Mother one child	16%	36.37	16%	36.15	14%	36.39	19%	35.69
Mother two children	9%	35.50	12%	35.56	9%	34.76	20%	33.67
Mother three or more	3%	34.08	7%	33.85	4%	35.82	12%	33.57
Number of Observations	*1273*		*1361*		*782*		*2503*	
High Education								
Non-mother	58%	34.74	59%	33.97	67%	32.35	23%	43.86
Mother one child	22%	36.55	18%	36.88	19%	37.09	36%	37.66
Mother two children	14%	36.91	19%	37.50	12%	35.73	30%	35.41
Mother three or more	5%	37.20	3%	37.50	2%	42.00	11%	35.55
Number of Observations	*827*		*448*		*121*		*194*	

Source: Author's calculation using Encuesta Permanente de Hogares (EPH)
Notes: The sample pools 8 panels: 1995.2-1996.1 to 2002.2-2003.1.

Table 2 illustrates the mean values across the different states from "t-1" to "t" of age, woman's years of education, husband's years of education, motherhood status, and head of household status. The main findings are given by the significant differences in education between the formal workers and the others, and the fact that the chance of entering the formal sector is available almost exclusively to highly educated women. This mobility for highly educated women in Table 2 finding reinforces the association shown in Table 1 between high education and formal sector employment.

Further interpretation of Table 2 reflects the segmented nature of Argentine female labor markets. First, we compare the means of those women who persist in the same state from "t-1" to "t". In regards to the years of education,

there is a significant positive difference between the education of the formal and the other groups. There is no significant difference between the years of education on average of informal and unemployed women, while there is a significant positive difference between these two groups and inactive women. When the husband has higher education levels, women have a higher probability of being formal workers or out of the labor market.[15] Mothers and female heads of households are more likely to be informal and not make transitions to the formal sector. The mean of the motherhood dummy is significantly lower for formal workers compared to the others. The highest percentages of heads of household are informal women. Formal and informal workers are significantly older than inactive workers.

The second step is to compare the means of those who change from formal to other sectors. In the case of the women who leave the formal sector, the years of education are significantly lower for those who move to inactivity. The mean of husband's years of education is higher for those who stayed formal or transitioned to informal, compared to the women who moved to unemployment. Taking into account the means of those who continued in the formal sector and those who move to inactivity, inactive women in "t" are less educated, their husbands are more educated, and the percentage of women who are head of household is lower.

Comparing among workers who leave the informal sector, women who move to formal are the most educated. And, husbands' education is significantly higher for those who switch to formal compared to females who stayed informal or moved to unemployment. When we compare the means of workers who remained informal and those who transitioned to formal, the first are older (at the 10 per cent level), less educated, and their husband's education is higher. There are no significant differences between those who stayed informal and those who move to unemployment. In contrast, when we

[15] The phenomenon of women who leave the formal sector to inactivity because of their husband earnings or education seems relatively small. Those female who leave the formal sector are less educated than the one who stay formal, especially when we consider those who move to inactivity. Given that husband's education is zero in the case of those who do not have a husband, we estimated the transition mean for the variables education and husband' education considering only married women, and essentially, there are no significant differences between the education of wife and husband when women stay or transition to the formal sector; while the difference in education in the couple is higher in the case of those whose final stage is inactivity, and the husband are more educated.

compare the case of women who stayed informal and those who changed to inactivity, the former tend to be older, more educated, married to husbands with lower levels of education, less likely to be mothers, and more likely to be a head of household. It is apparent that differences in means are consistent with important patterns of segmentation. Moreover, the "inactivity" sector has significantly different means and there are no significant differences between the informal and unemployed.

Table 2.
Human capital variables and labor force transitions: Differences between Means

Initial Status: S(t-1)	Final Status: S(t)			
Age	**Formal (a)**	**Informal (b)**	**Unemployed (c)**	**Inactive (d)**
Formal	37.10 [2,4]	37.53	35.32	35.57
Informal	36.55	37.74 [d,4]	39.19 [d]	36.36
Unemployed	36.67	35.27 [c]	38.01 [d]	36.23
Inactive	34.87	36.40	36.61	36.05
Years of Education	**Formal**	**Informal**	**Unemployed**	**Inactive**
Formal	14.04 [d,2,3,4]	13.49 [d]	13.06	10.87
Informal	13.25 [b,c,d]	9.83 [d,4]	9.99 [d]	8.53
Unemployed	11.44 [d]	10.39 [d]	10.10 [d,4]	8.93
Inactive	12.18 [b,c,d]	8.77	9.14	8.59
Husband Education	**Formal**	**Informal**	**Unemployed**	**Inactive**
Formal	9.60[c,2,3]	9.83 [c]	6.93 [d]	11.40
Informal	8.67 [b,c]	7.47 [4,d]	6.04 [d]	8.40
Unemployed	9.35 [b]	6.33 [d]	7.10 [d,4]	8.33
Inactive	9.22	8.85 [d]	8.93 [d]	9.59
Motherhood	**Formal**	**Informal**	**Unemployed**	**Inactive**
Formal	0.54 [2,3,4]	0.57	0.47	0.52
Informal	0.56 [d]	0.62 [d,4]	0.58 [d]	0.76
Unemployed	0.42 [c,d]	0.57 [d]	0.65 [d,4]	0.74
Inactive	0.71	0.75 [d]	0.75	0.80
Head of Household	**Formal**	**Informal**	**Unemployed**	**Inactive**
Formal	0.27 [d,4]	0.28 [d]	0.39 [d]	0.09
Informal	0.31 [d]	0.28 [c,d,4]	0.39 [d]	0.12
Unemployed	0.25	0.35 [d]	0.27 [d,4]	0.14
Inactive	0.05	0.11 [d]	0.10 [d]	0.04

Source: Author's calculation using Encuesta Permanente de Hogares (EPH)
Notes: The sample pools 8 panels: 1995.2-1996.1 to 2002.2-2003.1. The superscripts b, c, and d denote whether the mean is significantly different (at the 5 per cent level) from the analogous statistic in another column. The superscripts 2, 3, and 4 denote whether the mean of those who stay in the formal sector is significantly different (at the 5 per cent level) than those who stay informal (2), unemployed (3), and inactive (4).

Probability of Transition[16]

Table 3 shows the gross probability of transition defined in equation (1) across the 4 sectors, and exhibits different degrees of mobility by sector.[17] Note first the difference in persistence tendencies across the different active labor market segments. Women in the formal sector have a very high persistence rate at 85%, as compared to 65% in the informal sector. This difference is not sensitive to motherhood status, as both mothers and non-mothers have identical persistence rates of 85% in maintaining their formal sector status across time periods. Moreover, only about 3% of mothers or non-mothers exit into inactivity. Meanwhile, in the informal sector, mothers both have a lower persistence rate than non-mothers (62% versus 68%), and they are also more likely than non-mothers to move to the inactive segment (24% versus 12%). Conversely, non-mothers are more likely to move from informal to formal (11% versus 7%). Combined, these probability data on persistence and labor mobility suggest that women employed in the formal sector are highly likely to stay put, and that mothers employed in the informal sector have about a one-in-four likelihood of exiting the labor market into inactivity across time periods. These patterns of labor mobility are quite distinctive.

Taking into account the *unemployed workers' transitions*, they exhibit the lowest persistence rate (31 per cent); and the majority move from being

[16] All of the differences of table 3 are tested for statistical significance at the 1 per cent level using the two-tailed test of significant differences, unpaired and unequal. Differences of approximately 5 per cent points between two elements of the matrices are usually significant at 1 per cent level.

[17] We also adapt the same set of hypotheses while considering different educational strata: workers with a low level of education (high school incomplete or less), a medium level of education (university without diploma or high school diploma), and highly-educated (college diploma) workers, asking if the segmentation is an exclusive attribute of the unskilled women. Formal workers do not frequently transition to other sectors, women who move to the formal sector are mainly the highly educated; and the persistence rate in this segment increases with education. The informal sector appears residual, and the most important observations are as follows: (a) A lower rate of persistence compared to the formal sector. (b) The transition from formal to informal is independent of education, while informal to formal transitions increase with educational level (20 per cent highly educated versus 4 per cent low educated). (c) The conditional probability of transition from the unemployment or inactivity sector to informal is always higher than the probability of transition to formal. There are almost no movements from inactivity or unemployment to the formal sector and vice versa. (d) Lastly, unemployment is a free-entry-residual sector, with just a few workers switching to formal jobs and the percentage switching to informal increases with education. Estimations are available upon request.

unemployed to being out of the market (43 per cent). When mothers change state, they mainly move to out of the market (49 per cent) and secondly to the informal sector (21 per cent), whereas, when non-mothers change, a smaller percentage move out of the market (33 per cent) and the highest to the informal sector (28 per cent). 22 per cent of women move to the informal sector and just 4 per cent move from unemployed to formal. These results support the idea of high mobility for the unemployed, but with almost no chance of transition to the formal sector for mothers or non-mothers. This is further evidence of segmentation. Finally, the *inactivity state* is highly persistent, and approximately 80 per cent women remain out of the labor market. The only nuance is that almost no workers move from inactivity to formal jobs (1per cent).

Table 3.
Conditional probabilities of semester transition

Pij	**Final Status: S(t)**			
	All Women			
Initial Status: S(t-1)	**Formal**	**Informal**	**Unemployed**	**Inactive**
Formal	0.85	0.10	0.03	0.03
Informal	0.09	0.65	0.08	0.18
Unemployed	0.04	0.22	0.31	0.43
Inactive	0.01	0.11	0.08	0.80
	Mothers			
Initial Status: S(t-1)	**Formal**	**Informal**	**Unemployed**	**Inactive**
Formal	0.85	0.10	0.02	0.03
Informal	0.07	0.62	0.07	0.24
Unemployed	0.02	0.21	0.28	0.49
Inactive	0.01	0.10	0.08	0.81
	Non-Mothers			
Initial Status: S(t-1)	**Formal**	**Informal**	**Unemployed**	**Inactive**
Formal	0.85	0.09	0.03	0.03
Informal	0.11	0.68	0.09	0.12
Unemployed	0.06	0.28	0.32	0.33
Inactive	0.01	0.13	0.09	0.77

Source: Author's calculation using EPH
Note: The sample pools 8 panels: 1995.2-1996.1 to 2002.2-2003.1 (7,677 observations for all women; 5,288 observations for mothers; and 2,389 observations for non-mothers.

Transition Tendencies

Like in the case of the transition probabilities, we estimate transition tendency matrices (T matrix) for women as a whole but also for mothers versus non-mothers. The first point to highlight is that all indices are different than one; thus, the transitions across states seem to be non-random and this is additional evidence of labor segmentation. Furthermore, although this new measure corrects for the dependence of transition probability on growth and size of each sector, the transition tendencies show similar results for mobility as the previous section. Thus, we largely confirm the transition probability results.

Table 4 shows transition tendencies as defined in equation (2). We can see there is a tendency to move from formal to informal and vice versa, but the tendency is greater for the transition from formal to informal (1.74) than informal to formal (1.49), and this is also true when we compare mothers versus non-mothers. The tendency of exiting the formal sector and moving to the informal is higher for mothers (1.88) than non-mothers (1.52).

We also find that women exiting the formal sector have the lowest tendencies to move to the unemployment sector or out of the market, independent of their motherhood condition. Nevertheless formal workers tend to transition mainly to unemployment, while informal workers move mainly to inactivity. These interesting patterns could be explained by the existence of unemployment insurance[19] and the idea that women who are formally employed are the most likely to have that kind of benefit. When we compare mothers versus non-mothers, the former have a higher tendency to move to out of the market and the latter to unemployment.

There are important barriers to move from unemployment or inactivity to the formal sector (all indices are less than one), and the propensity to move from inactivity or unemployment to the informal sector is higher, especially in the case of inactive-informal transitions where the values are greater than

[19] The National Employment Law N° 24,013 establishes the protection of unemployment workers thorough insurance. The unemployment insurance is administered by the Federal Social Security Management Agency (Administración Nacional de la Seguridad Social: ANSES) (Source: http://www.anses.gov.ar).

one.[20] All of these transition tendencies buttress the view of formal markets being hard to enter relative to the other labor market segments.

Table 4.
Transition tendencies

Tij	Final Status: S(t)			
	All Women			
Initial Status: S(t-1)	**Formal**	**Informal**	**Unemployed**	**Inactive**
Formal		1.74	0.66	0.50
Informal	1.49		0.67	1.05
Unemployed	0.35	0.76		1.46
Inactive	0.32	1.12	1.17	
	Mothers			
Initial Status: S(t-1)	**Formal**	**Informal**	**Unemployed**	**Inactive**
Formal		1.88	0.59	0.45
Informal	1.50		0.60	1.11
Unemployed	0.26	0.67		1.49
Inactive	0.35	1.10	1.14	
	Non-Mothers			
Initial Status: S(t-1)	**Formal**	**Informal**	**Unemployed**	**Inactive**
Formal		1.52	0.71	0.60
Informal	1.44		0.81	0.90
Unemployed	0.46	0.94		1.38
Inactive	0.30	1.18	1.21	

Source: Author's calculation using EPH
Note: The sample pools 8 panels: 1995.2-1996.1 to 2002.2-2003.1 (7,677 observations for all women; 5,288 observations for mothers; and 2,389 observations for non-mothers

The effect of a Negative Shock on the mobility

Tables 5 and 6 show the transition tendency matrices (T) for two sub-periods before and after the beginning of the recession. These are, respectively, pre-shock (October 1995 to May 1998) and shock (October 1998 to May

[20] We also illustrate the transition tendencies by educational level. The main pattern agrees with the findings in the probability of transition matrices. Estimations are available upon request.

2003). Following Bernabe and Stampini (2009), we construct the same matrix T defined in equation (2) and add the probability of remaining in the same state *i* in the principal diagonal for women, mothers and non-mothers. Here, it seems interesting that women as a whole are more likely to stay in the same sector, since the turnover rates do not vary so much before and after the macroeconomic shock. Although, when we consider mothers, the persistence rates slightly decrease during the recession, with the exception of the formal segment which appears to protect both non-mothers and mothers.

There is a high tendency to move from formal to informal and vice versa, and this mobility decreases during the crisis. These results could be explained by the fact that the formal sector insulates workers from the crisis. Moreover, it seems reasonable that during a recession voluntary movements from formal to informal might decrease because women need to shore up the income of the household, and this could also make it more difficult to access to the formal sector if you are informal. Mothers show a higher mobility from formal to informal but again in the recession their mobility decreases. The tendencies to move from the formal sector to unemployment or out of the market and vice versa are also low especially during the shock.

Unemployed women have a high propensity to move out of the market and vice versa, and the transition indices are greater than one in all cases. The probability of moving from unemployment to the informal sector is low; but it does increase during the recession in the case of non-mothers, and decreases in the case of mothers. Lastly, while transitioning from being out of the market to the informal sector is uncommon, nevertheless it tends to rise during the recession and change to a value greater than one.

To sum up, we cannot reject the hypothesis of women being affected in a different way during the recession, and it appears as if the formal sector may have served as a safe harbor in terms of providing more stability than the other segments during Argentina's most severe macroeconomic downturn in decades. This may be an important insurance mechanism that is often overlooked in static efficiency analyses of segmented labor markets.

Table 5.
Transition tendencies and persistence pre-shock 1995.2-1998.1

Pij (diagonal) & Tij	Final Status: S(t)			
	All Women			
Initial Status: S(t-1)	**Formal**	**Informal**	**Unemployed**	**Inactive**
Formal	0.85	1.86	0.65	0.43
Informal	1.59	0.68	0.59	1.07
Unemployed	0.40	0.79	0.34	1.40
Inactive	0.32	1.01	1.33	0.83
	Mothers			
Initial Status: S(t-1)	**Formal**	**Informal**	**Unemployed**	**Inactive**
Formal	0.85	1.97	0.73	0.34
Informal	1.67	0.67	0.49	1.11
Unemployed	0.17	0.73	0.35	1.48
Inactive	0.39	1.02	1.27	0.84
	Non-Mothers			
Initial Status: S(t-1)	**Formal**	**Informal**	**Unemployed**	**Inactive**
Formal	0.85	1.69	0.56	0.58
Informal	1.46	0.71	0.77	0.98
Unemployed	0.76	0.88	0.31	1.24
Inactive	0.17	1.00	1.48	0.79

Source: Author's calculation using EPH
Note: The sample pools 3 panels: 1995.2-1996.1 to 1997.2-1998.1 (2,985 observations for all women; 2,060 observations for mothers; and 925 observations for non-mothers)

Table 6.
Transition tendencies and Persistence Shock 1998.2-2003.1

Pij (diagonal) & Tij	Final Status: S(t)			
	All Women			
Initial Status: S(t-1)	**Formal**	**Informal**	**Unemployed**	**Inactive**
Formal	0.85	1.67	0.66	0.53
Informal	1.44	0.64	0.71	1.04
Unemployed	0.31	0.75	0.29	1.49
Inactive	0.32	1.18	1.07	0.79
	Mothers			
Initial Status: S(t-1)	**Formal**	**Informal**	**Unemployed**	**Inactive**
Formal	0.84	1.84	0.51	0.51
Informal	1.42	0.62	0.65	1.11
Unemployed	0.34	0.63	0.27	1.50
Inactive	0.32	1.13	1.07	0.80
	Non-Mothers			
Initial Status: S(t-1)	**Formal**	**Informal**	**Unemployed**	**Inactive**
Formal	0.85	1.42	0.79	0.61
Informal	1.42	0.67	0.84	0.87
Unemployed	0.27	0.99	0.33	1.47
Inactive	0.36	1.28	1.04	0.75

Source: Author's calculation using EPH
Note: The sample pools 5 panels: 1998.2-1999.1 to 2002.2-2003.1 (4,692 observations for all women; 3,228 observations for mothers; and 1,464 observations for non-mothers)

Individual factors and probabilities of transition

Table 7 illustrates the results of the multinomial logit regressions on the probability of transition conditional on the initial status defined in equation (4) for women as a whole.[21] Considering the *transitions to the formal sector*, there

[21] Notice all the results should be interpreted with respect to this base category: non-mother and non-married women, who are not heads of the household, have finished elementary education or some high school courses, and remain in the same labor market status. Results from alternative specifications involving more interaction terms between motherhood and education status are available upon request. The qualitative results are the same as those shown in Table 7.

is a positive likelihood to move from informal or inactivity to formal when women have a college or high school degree. Married women leaving the informal sector or inactivity are significantly less likely to go to formal employment than single women; additionally, when their husbands are more educated, there is a positive likelihood of moving from unemployment to the formal sector. It seems there are barriers for mothers because when women have more children, the likelihood to transition from out of the market to formal is negative. Nevertheless, this could also be evidence of mothers' preferences to remain out of the labor market to take care of their families.

Taking into account *transitions to the informal sector*, education appears to play a less important role, as the coefficient is not significant in most transitions. Even so, there is a significant negative likelihood of transition from formal to informal when a woman has completed high school. Those women who are the head of their families show a positive likelihood towards movement from inactivity sector to the informal sector. Mothers, independently of the number of children, are significantly less likely to switch from out of the market to the informal sector.

Studying the *transitions to the unemployment sector*, there is a positive likelihood to move from inactivity or informal segment when they have high school completed. Additionally, those women who have a highly educated husband are less likely to move from the formal sector. In the *transitions to inactivity sector*, to have a college degree significantly decreases the likelihood of transitioning from any state to out of the market. To have more children or to be married increases the chances of moving from informal or unemployment sector to inactivity. On the contrary, being a mother does not significantly affect the movements from formal to out of the market. Finally, there is a positive likelihood of moving from the informal sector when husbands are more educated.

The age variable seems to indicate that there are more barriers in the labor market for young women, because there is a higher probability of them moving to unemployment or inactivity. The variable for age squared is significant in all the cases were age is significant but it has the opposite sign compared to it, illustrating the u-shape or diminishing effects of the age on mobility in the life cycle of women.

We also estimated the same regressions for mothers and non-mothers and the tables are available upon request. The findings support the idea that female

heads of household, and also those with many children, struggle to access formal sector employment. This is probably because of their multiple roles as single parent and the need for a more flexible work day, plus the lack of time to keep studying.[22]

Finally, evaluating the role of individual characteristics, the most interesting discovery is given by the fundamental way in which education shapes access to formal sector jobs from other sectors. Indeed, there is a positive likelihood of transition from any state to the formal state for women who have a college or high school degree. Likewise, there is a significant negative relationship between having a college degree and transitioning from any sector to exiting the market. Independent of the motherhood condition, more education increases the probability of moving to the formal sector. Nevertheless, non-mothers are more likely to move from formal or informal employment to inactivity when they are less educated, while mothers are more likely to move from any state to out of the market when they do not have a college degree.

[22] On one side, to be the head of the household, to have more children or less education increases the probability of mothers moving from the formal to the informal sector. On the other hand, more educated non-mothers are less likely to transition from formal to inactivity and more likely to move from informal, or from out of the market, to formal. In addition, to be married increases the chances to switch from formal to unemployment and from informal to inactivity.

Table 7.
Multinomial logit-labor market transition

	Initial Status (t-1)			
Final Status (t)	**FORMAL**	**INFORMAL**	**UNEMPLOYED**	**OUT**
FORMAL				
Age		0.044	-0.09	0.736
		[0.104]	[0.239]	[0.220]***
Age^2		-0.001	0.001	-0.011
		[0.001]	[0.003]	[0.003]***
Head Household		0.028	0.944	-1.396
		[0.331]	[0.871]	[0.924]
Dummy Married		-0.754	-0.745	-1.77
		[0.448]*	[1.234]	[0.855]**
Edu 2		0.875	0.571	1.205
		[0.231]***	[0.611]	[0.465]***
Edu 3		1.388	-0.855	2.44
		[0.277]***	[0.994]	[0.674]***
dmother_one		-0.012	-0.429	-0.704
		[0.038]	[0.563]	[0.487]
dmother_two		-0.074	-0.524	-0.798
		[0.206]	[0.660]	[0.491]
dmother_more		-0.353	-35.297	-1.543
		[0.249]	[21288359]	[0.639]**
Edu-husband		-0.061	0.164	-0.065
		[0.315]	[0.078]**	[0.051]
Year		0.048	-0.055	0.061
		[0.027]*	[0.102]	[0.078]
Constant		21.353	108.193	-136.941
		[76.537]	[203.464]	[156.233]
INFORMAL				
Age	-0.04		0.095	0.138
	[0.119]		[0.128]	[0.063]**
Age^2	0.001		-0.002	-0.002
	[0.002]		[0.002]	[0.001]**
Head Household	0.578		0.547	0.899
	[0.362]		[0.463]	[0.264]***
Dummy Married	0.61		-0.381	-0.063
	[0.507]		[0.569]	[0.320]
Edu 2	-0.685		0.074	-0.014
	[0.270]**		[0.258]	[0.127]
Edu 3	-0.423		-0.215	0.36
	[0.294]		[0.404]	[0.270]
dmother_one	-0.169		-0.215	-0.424
	[0.223]		[0.292]	[0.165]**
dmother_two	0.229		-0.511	-0.34
	[0.248]		[0.343]	[0.175]*
dmother_more	0.077		-0.489	-0.322
	[0.365]		[0.381]	[0.185]*
Edu-husband	0.005		0.033	-0.021
	[0.028]		[0.036]	[0.016]
Year	-0.004		0.033	0.11
	[0.041]		[0.050]	[0.026]***
Constant	6.216		-66.358	-222.877
	[82.448]		[99.999]	[51.553]***
Number of observations	1523	1979	671	3504
Log likelihood	-826	-1856	-744	-2258
Pseudo R2	0.041	0.062	0.059	0.028

Table 7.
Multinomial logit-labor market transition (continued from previous page)

	Initial Status (t-1)			
Final Status (t)	**FORMAL**	**INFORMAL**	**UNEMPLOYED**	**OUT**
UNEMPLOYED				
Age	-0.032	0.177		0.133
	[0.208]	[0.111]		[0.072]*
Age^2	0	-0.002		-0.002
	[0.003]	[0.002]		[0.001]*
Head Household	1.04	0.264		0.508
	[0.644]	[0.339]		[0.322]
Dummy Married	2.433	-0.011		-0.472
	[0.875]***	[0.420]		[0.370]
Edu 2	0.044	0.605		0.286
	[0.514]	[0.201]***		[0.150]*
Edu 3	-0.12	-0.172		0.259
	[0.593]	[0.332]		[0.348]
dmother_one	0.37	0.013		-0.028
	[0.376]	[0.041]		[0.186]
dmother_two	-1.201	0.075		-0.355
	[0.769]	[0.212]		[0.211]*
dmother_more	-1.411	-0.442		-0.427
	[1.074]	[0.276]		[0.227]*
Edu-husband	-0.162	-0.546		-0.021
	[0.055]***	[0.352]		[0.019]
Year	-0.029	-0.026		-0.007
	[0.078]	[0.028]		[0.030]
Constant	54.933	-30.597		9.2
	[156.802]	[81.445]		[60.309]
OUT				
Age	-0.075	-0.241	-0.116	
	[0.202]	[0.073]***	[0.110]	
Age^2	0.001	0.003	0.001	
	[0.003]	[0.001]***	[0.002]	
Head Household	-0.215	-0.469	-0.179	
	[0.779]	[0.268]*	[0.456]	
Dummy Married	1.095	0.924	0.503	
	[1.020]	[0.326]***	[0.515]	
Edu 2	-1.529	0.139	-0.029	
	[0.413]***	[0.140]	[0.215]	
Edu 3	-2.06	-0.598	-1.086	
	[0.525]***	[0.257]**	[0.378]***	
dmother_one	-0.459	0.051	0.45	
	[0.403]	[0.028]*	[0.256]*	
dmother_two	-0.22	0.379	0.436	
	[0.476]	[0.172]**	[0.285]	
dmother_more	0.397	0.705	0.099	
	[0.557]	[0.187]***	[0.336]	
Edu-husband	0.043	1.102	0.017	
	[0.049]	[0.208]***	[0.029]	
Year	0.077	-0.018	0.066	
	[0.076]	[0.018]	[0.042]	
Constant	-155.055	-100.565	-129.016	
	[150.932]	[56.698]*	[84.514]	
Number of observations	1523	1979	671	3504
Log likelihood	-826	-1856	-744	-2258
Pseudo R2	0.041	0.062	0.059	0.028

Source: Author's calculation using EPH

Notes: Standard errors are between brackets. Statistically significant at *** 1%, **5%, *10%

VI. Conclusions

This article investigates women's labor market experiences in Argentina between 1995 and 2003 and the ways in which segmentation of the labor market into formal and informal sectors may lead to disparate transition patterns between the different labor market states. This study is original in the sense that most of the available literature on labor market segmentation focuses on the entire labor workforce, without looking specifically at women, or at mothers and non-mothers. On the whole, the empirical estimation results are consistent with the hypothesis of segmentation, and illustrate how distinctive women's labor market experiences are in the different sectors: formal, informal, unemployment and inactivity.

Education and motherhood are key determinants of labor mobility. Highly educated women, even those married with children, face lower barriers to access and stay in the formal sector. In addition, female workers in this segment are likely to have fewer children, and they are more likely to have them later. The transition from unemployment, inactivity or the informal sector to formal employment is easier for women with college or high school degrees. However, non-mothers experience fewer barriers to movement from informal to formal, while having more children raises the probability that one will transition from the formal to the informal sector and from the informal sector to exiting the market. On the other side, women with less education are more likely to have more children, to work in the informal sector or be looking for a job. Moreover, it appears young women face more barriers because there is a higher likelihood of them moving to unemployment or inactivity.

Interestingly, the chance of transitioning from the formal sector to unemployment is greater than transitioning to inactivity. In contrast, the probability of transitioning from the informal sector to inactivity is higher than the probability of transitioning to unemployment, and both probabilities decrease with more education. This behavior may be explained by the existence of unemployment insurance and the fact that formal workers are more likely to receive that incentive, particularly when women are well-educated. Further, unemployment seems to be a free-entry-residual sector given the low level of persistence in this state. Unlike unemployment or the informal sector, the "out of the market" state shows high persistence. Women have a high likelihood of moving from inactivity to unemployment or informal

sector. When a woman's husband is more educated, these women have a greater likelihood of being in the formal sector or out of the market.

Overall, this study of mobility provides insight into why motherhood might primarily affect the most vulnerable segment of the society: those who are not in the formal sector. The degree to which labor markets divide into formal and not-so-formal sectors seems to be an essential aspect in explaining the existence of distinctive labor market experiences of mothers and non-mothers in Argentina, and to shed light on factors that reduce or increase women's ability to balance better jobs with domestic responsibilities. In Casal and Barham (forthcoming), we explore the wage effects of motherhood in the formal and informal sector and show that they differ significantly across these two apparently distinctive segments of the labor market, with no motherhood wage penalty evident for formal sector mothers and significant ones for informal sector mothers. Those results, too, are consistent with labor market segmentation predictions.

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Appendix

Table A.1.
Explanation of Variables

Variable	*Description*
dmother_one	Dummy: 1 if the mother has one child younger than 15 years old living at home and zero otherwise in period t-1.
dmother_two	Dummy: 1 if the mother has two children younger than 15 years old living at home and zero otherwise in period t-1.
dmother_more	Dummy: 1 if the mother has more than two children younger than 15 years old living at home and zero otherwise in period t-1.
age	Age of the woman in years in period t-1.
agesq	The square of the age of the woman in years in period t-1.
dmarried	Dummy: 1 if the women is married and zero otherwise in period t-1.
head	Dummy: 1 if the woman is the head of her family and zero otherwise in period t-1.
education1	Dummy: 1 if the woman has incompleted high school or less and zero otherwise in period t-1.
education2	Dummy: 1 if the woman has completed high school or some college courses and zero otherwise in period t-1.
education3	Dummy: 1 if if the woman has completed a college degree and zero otherwise in period t-1.
education_husband	Number of years of education of the husband. If the women does not have husband is zero in period t-1.
year	Specific year of the observation i. Could it any value between 1995 and 2002