Labor Market Dynamics in Romania During a Period of Economic Liberalization*

Benoit Dostie† and David E. Sahn‡

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Abstract

In this paper, we estimate a model of labor market dynamics among individuals in Romania using panel data for three years, 1994 to 1996. Our motivation is to gain insight into the functioning of the labor market and how workers are coping during this period of economic liberalization and transformation that began in 1990. Our models of labor market transitions for men and women examine changing movements in and out of employment, unemployment, and self-employment, and incorporate specific features of the Romanian labor market, such as the role of unemployment benefits. We take into account demographic characteristics, state dependence, and individual unobserved heterogeneity by modeling the employment transitions with a dynamic mixed multinomial logit.

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†Corresponding author. Address : Institute of Applied Economics, HEC Montréal, 3000, chemin de la Côte-Sainte-Catherine, Montréal, H3T 2A7; IZA, CIRPÉE and CIRANO; e-mail : benoit.dostie@hec.ca; fax : 514-340-6469; phone : 514-340-6453.

‡Cornell Food and Nutrition Policy Program, Cornell University, Ithaca, NY, 14853. david.sahn@cornell.edu

1 Introduction

During the 1990s, Eastern Europe and the former Soviet Union experienced a fundamental restructuring of their economic system toward a market economy. In Romania, prior to the reforms that began in the early 1990s, wages as well as the allocation of labor were heavily regulated.[1] It was only in 1991, then, within a broad-based reform package, that the government began to liberalize the labor market by allowing wage scales, hiring and promotion criteria to be determined by collective contracts between workers and managers. Still Romania's economic transition from a state-controlled to a market-oriented economy during the 1990s was slow, characterized by a lack of commitment to reform and weak economic performance (Organization for Economic Cooperation and Development (OECD) (2000)).

Svejnar (1999) surveys the principal applied labor market studies in the Central and Eastern European Countries as the countries launched the transitions from central planning to a market economies (see, also, Boeri and Terrell (2002)). The study of individual labor force histories can provide important insights into the effect of privatization and restructuring on the labor market. By measuring the effects of demographic characteristics, labor market conditions, and active labor market policies on individuals' labor market history, one can identify imbalances across socio-economic groups.

Most early work on labor market dynamics focused on the determinants of unemployment and, in particular, on the impacts of demographic characteristics and labor market policies on unemployment duration and the probability of finding a job. (See, for example, Ham, Svejnar, and Terrell (1998) on the Slovak and Czech Republics,[2] Bellmann, Estrin, and Lehmann (1995) on East Ger-

[1] See Paternostro and Sahn (1998).

[2] See, also, Ham, Svejnar, and Terrell (1999), Terrell and Storm (1999), Lubyova and van Ours (1997) for other works on those countries.

many, Micklewright and Nagy (1999) on Hungary, and Jones and Kato (1997) on Bulgaria.).

In this paper, we take a more disaggregated view of the labor market than previous studies. First, we examine transitions across four labor market categories: employed, self-employed, unemployed, and, in the case of the latter, distinguishing between those receiving and those not receiving unemployment benefits.[3] We also disaggregate our analysis by gender and by urban-rural differences.

This disaggregated perspective is important for several reasons. For example, distinguishing between self and wage employment is especially critical in transition economies. Earle and Sakova (2000) document the rising importance of self-employment in total employment for six transition economies, and Wu (2002) also finds that rates of entry into self-employment increased in China concurrent with market liberalization. Moreover, our broader perspective which distinguishes between those who are unemployed with and without benefits allows us to identify ways in which the social safety net – more specifically, unemployment benefits or public transfers – interact with, and affect employment status. This issue is particularly important since Romania, like most countries in Eastern Europe, has a generous package of social insurance and social assistance that is likely to have an impact on labor market transitions.[4] For example, Micklewright and Nagy (1999) in Hungary find that the "most likely way to exit unemployment insurance is not by getting a job but by exhausting entitlement to benefit." And finally, the disaggregated picture by gender and location captures the extent to which the patterns and behaviors observed differ for males

[3] Among those not receiving unemployment benefits, most have seen their benefits expire. Official policy involved the unemployed receiving benefits for nine months after losing a job at a level equal to the minimum wage. After this period, supplementary benefits were provided up to 18 months at a level of 40 percent of the minimum wage (Sahn and Younger (2000)).

[4] Romania also has a rather large set of state transfers, beyond unemployment benefits, as discussed by Sahn and Younger (2000) and Sahn and Gerstle (2004).

and females, while at the same time highlighting that social and labor market conditions differ greatly in urban and rural areas of Romania.

Studies of labor market dynamics usually use one of two methods. Duration models can be employed if one knows how much time individuals spend in the labor market state of interest. This is the approach taken by Micklewright and Nagy (1999), Earle and Pauna (1998), Ham, Svejnar and Terrell (1998), and Ham, Svejnar and Terrell (1999), for example. Since we have no such information, we model transition probabilities between different labor market states with a discrete choice model, a modeling option also chosen by Terrell and Sorm (2000), Bellmann et al. (1995), Jones and Kato (1997), and Voicu (2005), among others.

However, the particular model we use allows us to innovate in contrast to the aforementioned papers by modeling initial conditions. Thus, unlike most of the previous literature, we take into account both state dependence and individual unobserved heterogeneity through the inclusion of past labor market states as explanatory variables and individual specific random effects, two characteristics that are deemed to be important in the study of labor market dynamics. In fact, use of the dynamic mixed multinomial logit permits us to allow for correlation between different labor market states both across time and at the individual level.[5]

We use three successive years of panel data from a household survey that was conducted in Romania from 1994 to 1996. It is not typical to study labor market dynamics with a household survey. However, the Romania Integrated Household Survey contains detailed data about labor market activities and various forms of social security, in addition, to questions about jointly determined household

[5] Voicu (2005) also takes into account state dependence and individual unobserved heterogeneity but focuses only on employment, unemployment and non-participation. He finds, among other things, that personal characteristics have a strong influence on employment decisions, and that sequential employment decisions exhibit a strong but declining persistence.

production and consumption activities. It should be interesting to compare our results to those obtained with more traditional labor force surveys.

The plan of the paper is as follows. We first provide a brief description of the data and non-parametric estimation of labor market dynamics in the form of transition matrices. We follow with a description of the statistical model employed. We then discuss the empirical results, and then summarize and conclude.

2 Labor Market Transitions

2.1 Data

For decades under totalitarian rule, the National Commission of Statistics conducted a family budget survey. It was not representative of the population, both because the original sample frame was enterprise-based, not household-based, and because there was no serious attempt to update the permanent sample of households included from one year to the next. In the early 1990s, the Romanian Integrated Household Survey (RIHS) was designed by the National Commission of Statistics to respond to the deficiencies in the sampling and questionnaire design of the Family Budget Survey. Field testing took place in early 1994, and the survey officially went into the field in April 1994. The survey was thereafter repeated from 1995 through 1997. Each year's sample is nationally and regionally representative.[6]

The RIHS is thus the first large-scale nationally representative household survey ever administrated in Romania, and takes place during the height of the transition to a market economy. The survey involved a sample of 24,560 households randomly selected from all districts of Romania and the city of Bucharest.

[6] The survey was continued after 1997, but without the Labor Market module.

Detailed information was collected on household incomes and expenditures, labor market activity, public transfers, and a wide range of living standard indicators. The yearly Romanian household surveys included a small rotating panel of households that remained in the survey from one year to the next. By matching individuals within households that were present for two consecutive years, we were able to construct panels containing labor market information for 6,168 individuals for 1994-1995 and 6,918 individuals for 1995-1996.

In order to analyze employment transitions, we restrict our sample to individuals between the ages of 15 and 65 who were in the labor force. Students and housewives who report not to be searching for employment are considered to be out of the labor force. We divide those in the labor market into four mutually exclusive labor market states: (1) employees, who are salaried and hourly workers for both private, and more importantly, state-run and operated enterprises, including workers on state-run and operated farms; (2) self-employed who are largely in small (often single person) and informal enterprises, including own-account agriculture; and the unemployed, distinguishing between (3) those receiving and (4) those not receiving unemployment benefits. Note that we thus exclude pensioners.

Labor market states frequencies for men and women, for urban and rural areas, are presented in Table 1 for the 1994-1995 and 1995-1996 panels. The employee category comprises between 80 and 90 percent of the potential labor force in urban areas, being slightly higher for men. In rural areas, the share of employed persons is around 60 percent for men, but only around half that for women. In contrast, the self-employed represent a far greater share of the working age population among rural women, generally, around 60 percent, as opposed to around half that for men. The proportion of women and men who are self-employed tends to increase over the three years for which data are available.

Among men, the rate of increase in the share of self-employed from the 1994-95 to the 1995-96 panel is greater than for women, both in rural and urban areas; although, the overall share of men who are self-employed remains far smaller than the share of women in self-employment.

This rise in self-employment is mirrored by a decrease in unemployment. This occurs for both men and women, in both urban and rural areas. Particularly large is the decline in unemployment among rural women from 10.3 to 5.9 percent between 1995 and 1996. This may be attributable an increase in self-employment, a question we address by examining the transition matrices in the next section.

2.2 Nonparametric Analysis

Trends in labor market status can be analyzed in the context of a simple four-states Markov chain model linking labor market status in different years. To get a better picture of how the unemployed are faring and how government interventions through the provision of benefits affect labor market dynamics, we have split the unemployed into two subcategories, distinguishing between those that do, and do not receive benefits. The estimates in Table 2 are average observed transition frequencies.

We find that employment seems to be relatively stable on a year-to-year basis, especially in urban areas with about 96% of both men and women being able to keep their job. Focusing on the role of self-employment and unemployment benefits as potential buffers for people coming out of employment, we find that among the women losing their job, more entered unemployment (3.3%), than self-employment (0.9%). Around two-thirds of women transitioning into unemployment received unemployment benefits. In contrast, a larger share of urban men who lose their job become self-employed. In addition, smaller shares

of those men who become unemployed receive benefits than do women in urban areas.

In rural areas, a larger percentage of employed individuals lose their job than in urban areas, just over 10 percent for women, and under 10 percent for men. In contrast, the majority of those leaving their wage jobs become self-employed, and this is particularly the case for women. This could be construed as suggesting that self-employment serves partly as a resting or interim stop for those who lose their job in rural areas. However, this may also reflect that there are more self-employment options in rural areas, particularly in agriculture. Recall that overall, the share of self-employed workers in urban areas is only a small fraction of those in rural areas, as well as that self-employment is relatively less important for men than women .

Over half of the men and women who were unemployed and receiving benefits are no longer unemployed one year later in rural areas. In urban areas, around half the men remain unemployed, and this applies to nearly 60 percent of the women. The big story here, however, is that those who leave unemployment with benefits are much more likely to become employed wage workers in urban areas, while in rural areas, they are much more likely to transition into self-employment. This applies to both men and women. The major difference among those who were unemployed without benefits is that they are more likely to become self-employed relative to employed. Self-employment is thus a more likely path out of unemployment for those without benefits, and this is particularly pronounced in rural areas, and for men. Overall, we also note that a smaller share of unemployed women find work. And while those with benefits are less likely to find work, the effect of not having benefits as an incentive for finding work is quite small. These results suggest that, especially for women, even if self-employment is an exit out of unemployment, it does not appear to

play a crucial role as a springboard toward employment.

Another point that we want to highlight is that, in urban areas, 19 percent of the unemployed men and nearly one-quarter of the unemployed women who were unemployed with benefits exhaust their benefits without being able to find a regular job or transition into self-employment. In rural areas, this only applies to 13 percent of men and women. Thus, many people are initially caught by the safety net, but then exhaust their benefits before finding a job, especially in urban areas.

Finally, Tables 4 to 7 present summary statistics for our sample divided by labor market status and gender for individuals in urban and rural areas (see Table 3 for variable definitions). Individuals who are employed or self-employed are older than the unemployed. The age differences are greater for women than men. This implies that unemployment tends to disproportionately afflict the young. There is also an interesting age difference in rural areas between unemployed men with and without benefits: younger rural men seem more likely to be unemployed without benefits. As for education, we note that the self-employed have less schooling than those in the other categories, including the unemployed. Those employed, have the highest education, with the mean levels being nearly the same for men and women, 11.5 and 11.6 years, respectively. This educational attainment is four years greater than for women who are self-employed. It is also noteworthy that while 12 percent of the employed have higher education degrees, this is the case for less than two percent of the persons in the three other categories, both for men and women. In contrast, nearly one-third of women and 23 percent of men who are the self-employed have less than a high school education. Interestingly, a much smaller share of men who are unemployed, both with and without benefits, as compared to women, are in the category of having low levels of education. This in part reflects the overall

lower levels of education of women than men. Education levels are also higher in urban areas.

Also, not surprisingly, we find the share of urban residents among those employed is greater than the other categories. The difference, however, is particularly dramatic for women where 76 percent of the employed are urban, in contrast to only eight percent being self-employed. Quite interestingly, if we look at the shares of unemployed with benefits and unemployed without benefits by region, we find a higher share of the latter in urban areas. This would seem to suggest that the safety net does a better job of reaching the rural unemployed than those in urban areas. While the descriptive findings are of interest, we next estimate the labor market dynamics using a discrete choice model to assess the robustness of the non-parametric analysis.

3 Statistical Model

Transition matrices give a complete picture of movements across different labor market states. While it is possible to decompose those matrices along variables of interest, this would be of limited use if we did not control for other factors that affect those transition probabilities. A preferred option, which we employ in this paper, is to use a reduced-form multinomial choice model explaining the labor market state of each individual during each time period. In this way, we have a complete decomposition of the transition probabilities along covariates of interest like age, education and family composition. It is usual to derive the multinomial logit model by defining the utility of individual i for being in labor market state j at time t as

$$\tilde{y}_{ijt} = X_{it}\beta_j + \sum_{l=1}^{J} \gamma_{lj} d^y_{i(t-1)l} + \epsilon_{ijt}, \quad i = 1, ..., N, \quad j = 1, ..., J, \qquad (1)$$

where J is the number of possible market states, X_{it} is a vector of explanatory variables for individual i at time t, and $d^y_{i(t-1)l}$, $l = 1, ..., J$, are a set of dummy variables equal to 1 if $y_{i(t-1)} = l$. We assume $\epsilon_{i1t}, ..., \epsilon_{iJt}$ are distributed type 1 extreme value so that the usual multinomial logit model results with

$$\Pr[y_{it} = j] = \frac{X_{it}\beta_j + \sum_{l=1}^{J} \gamma_l d^y_{i(t-1)l}}{1 + \sum_{m=2}^{J} \left(X_{it}\beta_m + \sum_{l=1}^{J} \gamma_{lm} d^y_{i(t-1)l} \right)}. \tag{2}$$

For model identification, we assume $\beta_1 = 0$ and $\gamma_1 = 0$, i.e., employment is taken to be the base category for both past and present labor market states. Note that in our case, we do not interpret the above probabilities as choices but as conditional probabilities, i.e., the probability that the individual will be in each of the labor market states conditional on observed characteristics and past labor market status.

The log-likelihood of the multinomial logit model is written

$$L = \sum_{i=1}^{N} L_i \tag{3}$$

with

$$L_i = \sum_{t=1}^{2} \sum_{j \in C_i} d_{ij} \ln \Pr[y_{it} = j] \tag{4}$$

where

$$d_{ij} = \begin{cases} 1 & \text{if individual } i \text{ choose an alternative } j \\ 0 & \text{otherwise} \end{cases} \tag{5}$$

The inclusion of past labor market states is done in order to take into account the individual's labor market history. It is well known that it is more likely that an

individual will be employed if he was employed in the last period, a phenomenon known as state dependence. Theoretically, we would like to model

$$P[y_{it} = j] = P[y_{it} = j|y_{it-1}, y_{it-2}, y_{it-3,}...] \tag{6}$$

but in what follows, we will assume

$$P[y_{it} = j] = P[y_{it} = j|y_{it-1} = k] \tag{7}$$

The implicit assumption is that transition probabilities follow a Markov process of order 1. Note also that the previous period's explanatory variables still have an indirect impact y_{it} on through their effect on y_{it-1}.

We can also make use of the panel structure of our data set by adding a random effect to the utility functions defined above. This allows us to take into account unobserved individual heterogeneity in labor market status. This also allows us to relax the Independence of Irrelevant Alternatives (IIA) assumption imbedded in the standard multinomial logit. More specifically, we have

$$\epsilon_{ijt} = u_{ij} + v_{ijt}, \quad i = 1, ..., N, \quad j = 1, ..., J \tag{8}$$

where u_{ij} are the individual-choice specific random effects. In order to make the model more tractable, we use the following simplifying assumption for u_{ij}:[7]

$$u_{ij} = \lambda_j \theta_i \tag{9}$$

We assume that θ_i is normally distributed with mean zero and variance equal to 1. Note that the load factor λ_j is also set to zero for the reference category. Thus, the unobservable component for choice j is given by $\lambda_j \theta_i$ where the covariance

[7] Heckman and Walker (1990) introduce unobserved heterogeneity in a similar way in a competing risk framework.

between different choices k ($\lambda_k\theta_i$)and l ($\lambda_l\theta_i$) is $\lambda_k\lambda_l$. It is even possible to test the IIA hypothesis by testing the hypothesis that all parameters λ_j are equal to zero. Since the θ_i are not given, the (unconditional) choice probabilities are obtained by integrating (7) over all values of u_{ij} weighted by the density of u_{ij}:

$$L_i() = \int L_i(u)f(u)du \tag{10}$$

We estimate this slightly more complicated form by maximizing the marginal likelihood, integrating out the heterogeneity components, assuming joint normality. Since a closed form solution to the integral does not exist, we use Gauss-Hermite Quadrature to approximate normal integrals (e.g., Abramowitz and Stegun (1972), pp. 890 and 924).

For the first year of our panel, we do not know the previous state. Moreover, it would be wrong to assume those initial states to be exogenous. This is the usual problem of initial conditions. This problem can be viewed as a problem of endogeneity of the lagged values of the labor market status in Equation (1). To solve this problem, we also estimate simultaneously a multinomial logit on the initial states where we specify the latent utility as:

$$\tilde{y}_{ijt} = X_{it}\beta_j + \epsilon_{ijt}, \quad i = 1, ..., N, \quad j = 1, ..., J \tag{11}$$

We also decompose the error term to include an individual specific effect in the same way as in Equation (8). Note that we obtain a different set of load factors λ_{ICj} for the initial conditions, but the individual specific effect θ_i is the same. We maximize the full likelihood where we assume that every labor market status and initial states are independent conditions on a vector of heterogeneity components u_{ij}.

Finally, note that we estimate the model separately for men and women in

urban and rural areas, something that is possible due to the relatively large size of our survey data. This allows the coefficients as well as the structure of unobserved heterogeneity to vary across four dimensions. Many models allow differences between men and women but the additional explicit distinction between urban and rural areas seems particularly important in the context of Romania, as highlighted by the descriptive statistics presented above. Similarly, we would expect the determinants of employment state to differ in urban and rural areas. In rural areas, for example, self-employment should be most closely related to the agricultural sector, whereas in urban areas, it is expected to be associated with work in the informal economy. The natures of transitions in and out of such activities are thus expected to be quite dissimilar.

4 Econometric Results

The base category in the econometric models we present in Appendix Tables 14 through 17 is being engaged as a wage worker (employed). In the remainder of the discussion of the results, however, we focus primarily on the predicted probabilities of being in each labor market state computed at the average characteristics of men and women in urban and rural areas, with only limited direct reference to the coefficient estimates found in the appendix. The reason for focusing on the predicted probabilities rather than the coefficients in the models is that the latter are difficult to interpret in and of themselves, in contrast to the marginal effects we derive from them and which are used to generate the predicted probabilities found in Tables 8 to 11.

4.1 Determinants of employment state

First focusing on the average predicted probabilities for men and women in urban areas, our models predict that the vast majority of the urban labor force,

especially among men, will be employed wage workers. This contrasts with the rural labor market where only two-thirds of the male rural labor force are predicted to be engaged in wage employment. What is quite striking is the low predicted probability of women in rural areas being employed, only 23 percent, versus 93 percent for urban women.

Beyond averages, we begin with highlighting the role of education. To illustrate the magnitude of the education effects, as shown in Tables 8 to 11, we find that the predicted probability of being in a state other than employed is nearly zero for both men and women living in urban areas with high school degrees and higher education. In rural areas, especially among women, the predicted probabilities among those with the same level of education are much different, with nearly one-third predicted to be self-employed. Among those who have only completed primary school or less, the predicted probability of being self-employed is also much higher for women than men and much higher in rural than urban areas. This stark contrast is illustrated by the fact that we would expect virtually all women in rural areas with only primary education to be self-employed, while in urban areas among men, this predicted probability is only 5 percent.

In terms of the predicted effects of education, another interesting finding is the gender and regional differences between the likelihood of being unemployed, as well as receving benefits conditional upon unemployment. Overall we observe that that urban dwellers, unlike those residing in rural areas, are less likely to be unemployed and that the overall probability of being unemployed in urban areas, unlike rural areas, is greater than self-employment. But focusing on the role of education, we observe first, that the predicted probability of being unemployed is highest for women with primary school or less in urban areas (31%), men with primary school or less in rural areas (19%), and women with professional degrees

or greater in rural areas (18%). More generally, it seems that greater schooling adds to the likelihood of being unemployed for women in rural areas and men in urban areas, while conversely lowering the probability of being unemployed for men in rural areas and women in urban areas. Beyond that story, however, is a dramatic difference in the probability of receiving unemployment benefits, if one is out of work. Specifically, we find that that the predicted probability or rural men with low levels of education (a high unemployment group) receiving benefits is markedly higher than the predicted probability of urban men or women with low education receiving benefits. This pattern whereby men with low education in rural areas are likely to receive benefits, conditional upon being unemployed, not being found in urban areas, is perhaps attributable to the fact that when benefits expire in the case of the former group, they readily move into self-employment, while no such easy option exists in urban areas, especially for men, but also for women. This point is reinforced by the figures about the high predicted probability of being self-employed in rural, relative to urban areas, for men, and especially women with low levels of education. Additionally, the gradient of the decline in the predicted probability of being self-employed with increasing education is especially dramatic for men, and less so for women in rural areas.

Our model results indicate an asymmetrical impact of marriage for men and women in rural areas. Unlike men, the predicted probability of married women being employed is only 19 percent. In contrast, it is 46 percent for women who are not married. Likewise, the predicted probability of being self-employed is far greater than that of women who are not married, although, they are not more likely to be unemployed. In urban areas, gender differences are quite small, although, the predicted probability of married men working is 98 percent versus 93 percent for women.

Simulating the effects of age on the predicted probability of working, we find that, for both men and women in urban and rural areas, the probabilities of being employed are highest among 40-year olds. Likewise, there is generally an inverted U relationship between age and the predicted probability of employment. In contrast, there is a U-shaped relationship between age and the probability of being self-employed in rural areas for men and women, as well as for women in urban areas. We also find that the size of the household has only a trivial effect on the predicted probabilities of employment state. This applies to men and women, in both rural and urban areas.

Finally, our estimates in Appendix Tables 14 to 17, as well the predicted probabilities in Tables 8 to 11 underscore the importance of taking into account individual unobserved heterogeneity and state dependence when estimating labor market transition probabilities. The null hypothesis that the load factors (λ) in Equation (7) are equal to zero is rejected, and we find statistically significant effects for lagged labor market status. In rural areas where unemployment is predicted to be a much more likely outcome than in urban areas, once we control for observable and unobservable characteristics, our results indicate that it much more likely to see both men and women who are unemployed remaining in that state, relative to the employed and self-employed. In addition, among those that were unemployed without benefits, as expected, the probability of finding themselves receiving benefits is much lower than in the case where the initial state was being unemployed with benefits. In rural areas, both for men and women, there is a slightly higher predicted probability of the unemployed without benefits moving into self-employment than the unemployed with benefits. The predicted probabilities also indicate that women engaged in self-employment in rural areas are far more likely to remain in that state than any other, especially unemployment. Rural men, in contrast, have a 74 per-

cent predicted probability of being employed in the wages sector, conditional upon being self-employed in the previous period. They are also considerably less likely to transition into unemployment without benefits than remain self-employed. Furthermore, the self-employed in general appear to be much more likely to transition into employment than the unemployed who are more likely to remain in that state rather than transition into employment.

4.2 Predicted transition rates

In the previous tables we discussed the predicted probabilities of employment state that are derived from estimating marginal effects of the coefficients in the model. However, there is also an important limitation of focusing on marginal effects: since they are averaged over all individuals in the sample, they hide important differences due to the fact that average observable characteristics of individuals in different labor market states are markedly different, and often dramatically so, as shown in the descriptive statistics presented in Tables 4 to 7.

To get a better grasp of the role of explained characteristics in the model, the simulation results in Tables 12 and 13 answer the following hypothetical question: how would transition probabilities change for the currently unemployed and self-employed if their observed characteristics were at the same level as of those currently employed.

4.2.1 Transitions into employment

Focusing first on education, and the more striking results in the tables, we find, for example, that if a self-employed man in a rural area was given the average education of an employed individual, his probability of transition into employment across periods would increase by 19 percent. The role of education is also

important in determining transitions into employment among rural women, although, far less so than men, with the increase in the probability being only 5.5 percentage points. In contrast, for urban women, education is far more important in affecting the likelihood of transitioning from self-employment to employment. Specifically, a self-employed woman in an urban area is 13.3 percent more likely to transition into being employed if she has the mean education of those already employed. The corresponding figure for urban men is only 5.5 percentage points.

Another important factor in explaining transitions from unemployment to employment is age. For example, remember that unemployed urban men are on average about five years younger than employed men. Increasing the age of urban men by these five years raises their probabilities of moving into a job as an employee by 3.1 and 6.6 probability points, respectively, for the unemployed with and without benefits. Among women in urban areas, the impact of age is even more important in determining the predicted transition rates. For example, if a women's age was increased by four years, which is the difference in the mean age of women who are employed and unemployed with benefits in urban areas, the predicted transition rates into employment would be 9.6 percentage points higher.

The probability of transitioning from self-employment into employment is also greatly influenced by age. For example, there would be an increase of 6.9 percentage points in the probability of transitions from self-employment into employment if the age gap of only 1.5 years between these two groups was closed. An even larger increase in the probability of women in urban areas transitioning into employment, that of 8.6 percent, if the age gap of more than four years was closed between rural women who are self-employed and employed.

Finally, state dependence is clearly of great importance in predicting transi-

tions into employment, especially in rural areas. For the rural unemployed with benefits, for example, eliminating state dependence would raise the probability of becoming employed by 16.9 and 24.3 percentage points for men and women, respectively. Interestingly, state dependence works in the opposite direction for the self-employed for men. If there was no state dependence, the probability that self-employed men would transition into employment would decrease by 10.6 percent.

4.2.2 Transitions into unemployment

While education is most effective in reducing the probability of staying unemployed (with benefits) for men (-4.7 relative to the base probability of 8.9), for women, state dependence and age play the most important role (-5.7 and -5.3, respectively, relative to the base probability of 13.7). In the case of unemployment without benefits, the most important determinant is age for both genders. Because those unemployed without benefits are on average four years younger than employed individuals, their predicted probability of staying in this state is double what it would be if they were older (6.4 instead of 3.4 for men and 8.2 instead of 4.3 for women). Finally, looking at the unemployed receiving benefits transitioning into not receiving benefits, we see, not surprisingly, that state dependence plays an important role. But among other characteristics, we see a meaningful impact of household composition on the probability of keeping benefits for men (picking up the fact that employed individuals are more likely to be married).

The simulations also show the particularly important role state dependence plays for unemployed men and women without benefits in rural areas. Eliminating state dependence would diminish the probability of staying unemployed with no benefits by 19.7 and 25.6 probability points for men and women, respectively. The role of state dependence of being unemployed with benefits on

staying unemployed with benefits is of a smaller magnitude, likely in keeping with the fact that benefits are eventually exhausted. In terms of the role of education and age, they are generally much smaller in determining transitions into unemployment than in terms of transitions into employment.

4.2.3 Transitions into self-employment

The most important finding is that the model predicts that rural women are generally more than twice as likely to transition from unemployment to self-employment as are men. Age and education also play an important role for both men and women in terms of the probability of transitioning into self-employment. If, for example, unemployed women with benefits had the same education characteristics of the older and more educated women who are employed, it would increase by 9.8 percentage points the probability of their transitioning into self-employment. The comparable number for women without benefits is 3.2 percentage points.

5 Conclusion

In this paper we evaluate how employment transitions interact with the social safety net in Romania, particularly the benefits received through unemployment insurance. We use a three-year individual panel from 1994 to 1996, a period subsequent to the early stages of economic liberalization in Romania. We first compute transition matrices that give a complete picture of the mobility process between different labor market states, distinguishing the experience of men and women. We thereafter take into account demographic characteristics, state dependence, and individual unobserved heterogeneity by modeling the employment transitions with a dynamic mixed multinomial logit with endogenous initial conditions.

We find that both unobserved heterogeneity and state dependence are important determinants of transition probabilities. However, unobserved heterogeneity seems to play a much bigger role as observed characteristics, and past labor market states explain in many cases only one-third or sometimes even less of the difference in transition probabilities, the rest being picked up by unobserved heterogeneity. Moreover, our estimated variance-covariance structure between unemployment and self-employment seems to indicate that individuals going into self-employment differ in some unobservable way compared to individuals transitioning into unemployment.

Our analysis indicates a relatively stable labor market, especially among those employed as wage workers. Employed individuals tend to be older and are more likely to live in urban areas. Education is also paramount in terms of being employed. Among those who lose their jobs, most transition into being unemployed, and a large portion do so without receiving benefits. Those not receiving benefits are more likely to be younger, male, and living in urban areas, suggesting that the social safety net is functioning better in rural areas for workers with longer duration of employment.

Among those that find themselves unemployed, age, gender and education have a large impact on their probability of transitioning out of unemployment, especially in terms of moving into self-employment. Older and more educated women, for example, are much more likely to exit unemployed status for self-employment. It is also of interest that the unemployed receiving and not receiving benefits have a similar likelihood of becoming self-employed, relative to becoming employed. This seems to suggest that self-employment is not primarily a stopping point between unemployment and becoming employed. We also note that women are much more likely overall to transition out of unemployment into self-employment, and that a large share of those unemployed who do

receive benefits, exhaust them prior to finding work, either as a wage worker or being self-employed.

Like being unemployed, we find individuals with less education are more likely to be self-employed than employed. Among women, but not men, the self-employed also have less education than not just the employed, but the unemployed are less educated as well. Self-employment is also of greater importance in rural areas, especially among women, and education and age are particularly important in explaining transitions into employment.

An assumption we are unable to test within our model is the hypothesis that only the past labor market status has an impact on the current labor market status. To test this assumption would require a much longer panel or detailed information about the length of time spend in each labor market status.

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Table 1: Frequencies - Labor Market Status

	Urban							
	1994				1995			
	Men		Women		Men		Women	
Employed	1,515	87.6	1,263	84.0	1,521	88.0	1,271	84.6
Unemployed	149	8.6	191	12.7	126	7.3	171	11.4
Self-Emp.	65	3.8	49	3.3	82	4.7	61	4.1
	1,729	100.0%	1,503	100.0%	1,729	100.0%	1,503	100.0%
	1995				1996			
	Men		Women		Men		Women	
Employed	1,736	87.4	1,498	85.0	1,755	88.3	1,528	86.7
Unemployed	157	7.9	182	10.3	115	5.8	153	8.7
Self-Emp.	94	4.7	82	4.7	117	5.9	81	4.6
	1,987	100.0%	1,762	100.0%	1,987	100.0%	1,762	100.0%
	Rural							
	1994				1995			
	Men		Women		Men		Women	
Employed	988	60.6	409	31.3	964	59.1	406	31.1
Unemployed	187	11.5	170	13.0	154	9.5	133	10.2
Self-Emp.	455	27.9	727	55.7	512	31.4	767	58.7
	1,630	100.0%	1,306	100.0%	1,630	100.0%	1,306	100.0%
	1995				1996			
	Men		Women		Men		Women	
Employed	1,043	59.8	448	31.5	1,029	59.0	457	32.1
Unemployed	163	9.3	147	10.3	109	6.3	84	5.9
Self-Emp.	539	30.9	829	58.2	607	34.8	883	62.0
	1,745	100.0%	1,424	100.0%	1,745	100.0%	1,424	100.0%

Table 2: Average Transition Rates

	Current Status									
Urban	Men					Women				
Prev. Status	1	2	3	4		1	2	3	4	
1-Emp.	96.0	1.3	1.2	1.5	100	95.8	2.1	1.2	0.9	100
	95.3	*36.9*	*30.0*	*24.6*		*94.5*	*37.8*	*19.6*	*16.9*	
2-Unemp.	42.4	32.1	18.8	6.7	100	38.2	34.2	24.1	3.5	100
with ben.	*2.1*	*47.8*	*23.9*	*5.5*		*3.1*	*50.0*	*32.7*	*5.6*	
3- Unemp.	38.3	9.2	36.9	15.6	100	31.7	10.3	51.0	6.9	100
w/o ben.	*1.7*	*11.7*	*40.0*	*11.1*		*1.6*	*9.6*	*44.1*	*7.0*	
4-Self-Emp.	18.9	2.5	5.0	73.6	100	16.0	3.1	4.6	76.3	100
	0.9	*3.6*	*6.2*	*58.8*		*0.8*	*2.6*	*3.6*	*70.4*	
	100	*100*	*100*	*100*		*100*	*100*	*100*	*100*	
	Current Status									
Rural	Men					Women				
Prev. Status	1	2	3	4		1	2	3	4	
1-Emp.	91.1	2.7	0.6	5.6	100	88.6	3.2	0.8	7.5	100
	92.8	*32.7*	*13.3*	*10.2*		*88.0*	*20.0*	*8.5*	*3.9*	
2-Unemp.	15.2	31.2	12.5	41.0	100	14.5	33.9	12.8	38.8	100
with ben.	*2.0*	*48.5*	*32.7*	*9.4*		*4.1*	*60.7*	*37.8*	*5.7*	
3- Unemp.	18.1	11.7	21.3	48.9	100	20.0	8.0	29.3	42.7	100
w/o ben.	*0.9*	*6.7*	*20.4*	*4.1*		*1.7*	*4.4*	*26.8*	*1.9*	
4-Self-Emp.	8.8	2.0	3.3	85.9	100	3.5	1.3	1.4	93.8	100
	4.4	*12.1*	*33.7*	*76.3*		*6.3*	*14.8*	*26.8*	*88.5*	
	100	*100*	*100*	*100*		*100*	*100*	*100*	*100*	

Table 3: Variable Definitions

Name	Definition
Age	Age in years
Age squared	Age squared divided by 100
Less than middle school	Dummy variable: 1 if did not complete middle school
Completed middle school	Dummy variable: 1 if completed middle school
High school degree	Dummy variable: 1 if completed high school
Prof. deg. or higher	Dummy variable: 1 if has a prof. degree or higher
Married	Dummy variable: 1 if married
Separated	Dummy variable: 1 if separated or divorced
Household size	Number of individuals in household

Table 4: Summary Statistics - Men - Rural

Status	Employed (N=1993)		Unemployed with benefits (N=165)		Unemployed w/o benefits (N=98)		Self-Employed (N=1119)	
	Mean	Std.Dev.	Mean	Std.Dev.	Mean	Std.Dev.	Mean	Std.Dev.
Age	39.56	10.46	37.26	12.08	34.90	11.96	41.29	13.22
Completed middle school	0.28	0.45	0.30	0.46	0.20	0.41	0.40	0.49
High school degree	0.25	0.43	0.27	0.45	0.23	0.43	0.14	0.35
Professional degree or higher	0.37	0.48	0.30	0.46	0.43	0.50	0.21	0.41
Married	0.82	0.39	0.65	0.48	0.52	0.50	0.70	0.46
Separated	0.02	0.14	0.02	0.13	0.06	0.24	0.03	0.17
Household size	4.13	1.52	4.27	1.89	4.27	1.92	4.06	1.92

Table 5: Summary Statistics - Men - Urban

Status	Employed (N=3276)		Unemployed with benefits (N=111)		Unemployed w/o benefits (N=130)		Self-Employed (N=199)	
	Mean	Std Dev.	Mean	Std Dev.	Mean	Std Dev.	Mean	Std Dev.
Age	39.75	9.09	34.92	11.01	35.62	10.62	37.91	10.90
Completed middle school	0.11	0.31	0.18	0.39	0.17	0.38	0.25	0.43
High school degree	0.27	0.44	0.30	0.46	0.32	0.47	0.28	0.45
Professional degree or higher	0.45	0.50	0.48	0.50	0.38	0.49	0.30	0.46
Married	0.88	0.32	0.67	0.47	0.61	0.49	0.77	0.42
Separated	0.02	0.13	0.02	0.13	0.05	0.21	0.04	0.18
Household size	3.69	1.24	4.02	1.76	3.93	1.64	4.25	1.78

Table 6: Summary Statistics - Women - Rural

Status	Employed (N=863)		Unemployed with benefits (N=135)		Unemployed w/o benefits (N=82)		Self-Employed (N=1650)	
	Mean	Std Dev.	Mean	Std Dev.	Mean	Std Dev.	Mean	Std Dev.
Age	37.05	9.40	32.27	10.62	31.83	9.81	43.25	11.66
Completed middle school	0.27	0.45	0.30	0.46	0.22	0.42	0.48	0.50
High school degree	0.44	0.50	0.48	0.50	0.39	0.49	0.13	0.33
Professional degree or higher	0.17	0.38	0.17	0.38	0.30	0.46	0.07	0.26
Married	0.77	0.42	0.64	0.48	0.80	0.40	0.90	0.30
Separated	0.04	0.20	0.04	0.19	0.00	0.00	0.02	0.14
Household size	4.00	1.55	4.17	1.66	4.39	1.99	4.02	1.77

Table 7: Summary Statistics - Women - Urban

Status	Employed (N=2799)		Unemployed with benefits (N=156)		Unemployed w/o benefits (N=168)		Self-Employed (N=142)	
	Mean	Std Dev.	Mean	Std Dev.	Mean	Std Dev.	Mean	Std Dev.
Age	38.46	8.24	34.40	10.02	31.56	8.51	42.94	11.77
Completed middle school	0.17	0.37	0.22	0.42	0.20	0.40	0.41	0.49
High school degree	0.42	0.49	0.44	0.50	0.54	0.50	0.20	0.40
Professional degree or higher	0.26	0.44	0.29	0.46	0.21	0.41	0.11	0.32
Married	0.80	0.40	0.61	0.49	0.63	0.49	0.81	0.39
Separated	0.08	0.27	0.13	0.34	0.09	0.29	0.07	0.26
Household size	3.49	1.21	3.62	1.27	4.00	1.44	4.16	2.07

Table 8: Predicted Probabillities

	4-States Model: Men - Rural			
Status	Empl.	Unemp.		Self-Emp.
		with ben.	no ben.	
Average	0.66	0.07	0.04	0.23
Previous state				
Empl.	0.65	0.09	0.02	0.25
Unemp. with ben	0.51	0.21	0.1	0.18
Unemp. no ben	0.56	0.07	0.14	0.23
Self-Emp.	0.74	0.01	0.04	0.21
Age				
25	0.67	0.07	0.04	0.22
40	0.78	0.05	0.03	0.14
60	0.30	0.15	0.05	0.51
Education				
Primary or lower	0.04	0.14	0.05	0.77
Middle school degree	0.63	0.09	0.03	0.25
High school degree	0.84	0.06	0.03	0.07
Prof. deg. or higher	0.89	0.03	0.04	0.04
Marital status				
Married	0.75	0.05	0.02	0.19
Separated	0.51	0.07	0.09	0.33
Not married	0.44	0.14	0.06	0.36
Household size				
2	0.68	0.06	0.03	0.23
4	0.66	0.07	0.04	0.23

Table 9: Predicted Probabillities

	4-States Model: Men - Urban			
Status	Empl.	Unemp.		Self-Emp.
		with ben.	no ben.	
Average	0.97	0.01	0.02	0.01
Previous state				
Empl.	0.97	0.01	0.02	0.01
Unemp. with ben	0.98	0.01	0.01	0.00
Unemp. no ben	0.95	0.00	0.04	0.00
Self-Emp.	0.99	0.00	0.00	0.01
Age				
25	0.92	0.02	0.03	0.03
40	0.98	0.00	0.01	0.00
60	0.98	0.01	0.01	0.00
Education				
Primary or lower	0.82	0.04	0.09	0.05
Middle school degree	0.98	0.01	0.01	0.00
High school degree	0.99	0.00	0.00	0.00
Prof. deg. or higher	0.99	0.00	0.00	0.00
Marital status				
Married	0.98	0.00	0.01	0.00
Separated	0.91	0.03	0.06	0.01
Not married	0.91	0.02	0.06	0.02
Household size				
2	0.99	0.00	0.01	0.00
4	0.97	0.01	0.02	0.01

Table 10: Predicted Probabillities

	4-States Model: Women - Rural			
Status	Empl.	Unemp.		Self-Emp.
		with ben.	no ben.	
Average	0.23	0.06	0.04	0.66
Previous state				
Empl.	0.25	0.06	0.01	0.68
Unemp. with ben	0.12	0.20	0.08	0.60
Unemp. no ben	0.16	0.05	0.16	0.64
Self-Emp.	0.26	0.03	0.06	0.66
Age				
25	0.15	0.08	0.05	0.72
40	0.34	0.05	0.04	0.58
60	0.01	0.03	0.00	0.96
Education				
Primary or lower	0.00	0.01	0.00	0.99
Middle school degree	0.04	0.06	0.01	0.90
High school degree	0.55	0.08	0.08	0.29
Prof. deg. or higher	0.50	0.07	0.11	0.32
Marital status				
Married	0.19	0.06	0.04	0.71
Separated	0.37	0.08	0.02	0.53
Not married	0.46	0.09	0.03	0.42
Household size				
2	0.26	0.07	0.05	0.62
4	0.23	0.07	0.04	0.66

Table 11: Predicted Probabillities

	4-States Model: Women - Urban			
Status	Empl.	Unemp.		Self-Emp.
		with ben.	no ben.	
Average	0.93	0.03	0.02	0.02
Previous state				
Empl.	0.92	0.03	0.03	0.02
Unemp. with ben	0.93	0.04	0.02	0.00
Unemp. no ben	0.96	0.01	0.03	0.00
Self-Emp.	0.98	0.00	0.00	0.01
Age				
25	0.76	0.08	0.11	0.06
40	0.98	0.01	0.01	0.01
60	0.81	0.04	0.01	0.13
Education				
Primary or lower	0.57	0.11	0.20	0.11
Middle school degree	0.92	0.04	0.03	0.01
High school degree	0.98	0.01	0.01	0.00
Prof. deg. or higher	0.98	0.01	0.00	0.00
Marital status				
Married	0.93	0.03	0.02	0.02
Separated	0.88	0.06	0.04	0.02
Not married	0.93	0.03	0.03	0.01
Household size				
2	0.96	0.02	0.01	0.01
4	0.92	0.03	0.03	0.02

Table 12: Predicted transition rates by gender - Rural

Current Status	Empl.				Unemp. with ben.				Unemp. no ben				Self-Emp.			
	Men		Women		Men		Women		Men		Women		Men		Women	
Employed (base)	73.6	[91.1]	44.2	[88.6]	6.9	[2.7]	7.5	[3.2]	1.5	[0.6]	1.0	[0.8]	18.0	[5.6]	47.2	[7.5]
Unemp. with ben.	50.0	[15.2]	17.8	[14.5]	22.3	[31.2]	32.1	[33.9]	12.1	[12.5]	14.7	[12.8]	15.6	[41.0]	35.3	[38.8]
... state dep.	66.9	16.9	42.1	24.3	8.9	-13.4	11.2	-20.9	2.5	-9.6	1.8	-12.9	21.6	6.0	44.8	9.5
... age	51.9	1.9	27.4	9.6	22.9	0.6	25.2	-6.9	12.1	0.0	12.9	-1.8	13.1	-2.5	34.5	-0.8
... education	48.8	-1.2	7.3	-10.5	24.1	1.8	38.0	5.9	13.7	1.6	9.6	-5.1	13.4	-2.2	45.1	9.8
... hh composition	50.1	0.1	18.7	0.9	22.3	0.0	32.5	0.4	12.1	0.0	15.0	0.3	15.6	0.0	33.7	-1.6
Unemp. no ben.	42.3	[18.1]	19.6	[20.0]	9.9	[11.7]	6.5	[8.0]	22.2	[21.3]	27.4	[29.3]	25.6	[48.9]	46.5	[42.7]
... state dep.	66.9	24.6	33.9	14.3	8.9	-1.0	9.3	2.8	2.5	-19.7	1.8	-25.6	21.6	-4.0	55.0	8.5
... age	47.8	5.5	27.0	7.4	10.0	0.1	5.1	-1.4	21.6	-0.6	23.2	-4.2	20.5	-5.1	44.7	-1.8
... education	42.1	-0.2	14.6	-5.0	10.6	0.7	10.2	3.7	25.3	3.1	25.5	-1.9	21.9	-3.7	49.7	3.2
... hh composition	42.6	0.3	20.4	0.8	9.7	-0.2	6.3	-0.2	21.9	-0.3	27.6	0.2	25.8	0.2	45.7	-0.8
Self-employed	58.2	[8.8]	12.0	[3.5]	2.1	[2.0]	1.9	[1.3]	4.5	[3.3]	3.4	[1.4]	35.3	[85.9]	82.7	[93.8]
... state dep.	47.6	-10.6	11.3	-0.7	10.5	8.4	4.4	2.5	2.2	-2.3	0.6	-2.8	39.7	4.4	83.8	1.1
... age	65.1	6.9	13.8	1.8	2.1	0.0	2.0	0.1	4.9	0.4	3.2	-0.2	28.0	-7.3	81.0	-1.7
... education	77.5	19.3	17.5	5.5	1.8	-0.3	3.9	2.0	5.2	0.7	5.8	2.4	15.5	-19.8	72.8	-9.9
... hh composition	58.0	-0.2	12.2	0.2	2.1	0.0	2.0	0.1	4.5	0.0	3.4	0.0	35.4	0.1	82.4	-0.3

Observed transition rates in brackets

Table 13: Predicted transition rates by gender - Urban

Current Status	Empl.				Unemp. with ben.				Unemp. no ben				Self-Emp.			
	Men		Women		Men		Women		Men		Women		Men		Women	
Employed (base)	97.5	[96.0]	93.4	[95.8]	0.6	[1.3]	2.6	[2.1]	1.3	[1.2]	2.4	[1.2]	0.6	[1.5]	1.6	[0.9]
Unemp. with ben.	96.2	[42.4]	88.5	[38.2]	1.9	[32.1]	8.3	[34.2]	1.8	[18.8]	3.1	[24.1]	0.1	[6.7]	0.1	[3.5]
... state dep.	94.7	-1.5	87.7	-0.8	2.0	0.1	6.8	-1.5	2.1	0.3	4.5	1.4	1.1	1.0	0.9	0.8
... age	99.3	3.1	98.1	9.6	0.2	-1.7	1.3	-7.0	0.5	-1.3	0.6	-2.5	0.0	-0.1	0.0	-0.1
... education	93.6	-2.6	82.7	-5.8	3.2	1.3	11.5	3.2	3.0	1.2	5.6	2.5	0.2	0.1	0.1	0.0
... hh composition	97.9	1.7	90.3	1.8	1.0	-0.9	7.5	-0.8	1.1	-0.7	2.1	-1.0	0.1	0.0	0.0	-0.1
Unemp. no ben.	86.7	[38.3]	93.1	[31.7]	1.7	[9.2]	2.1	[10.3]	10.3	[36.9]	4.6	[51.0]	1.4	[15.6]	0.1	[6.9]
... state dep.	90.2	3.5	87.6	-5.5	3.3	1.6	6.5	4.4	4.0	-6.3	4.7	0.1	2.5	1.1	1.2	1.1
... age	93.3	6.6	99.2	6.1	0.4	-1.3	0.2	-1.9	5.8	-4.5	0.5	-4.1	0.5	-0.9	0.0	-0.1
... education	87.8	1.1	88.2	-4.9	1.8	0.1	3.6	1.5	9.3	-1.0	8.1	3.5	1.2	-0.2	0.1	0.0
... hh composition	89.8	3.1	94.7	1.6	1.2	-0.5	1.9	-0.2	8.2	-2.1	3.3	-1.3	0.8	-0.6	0.0	-0.1
Self-employed	95.5	[18.9]	84.2	[16.0]	0.2	[2.5]	1.2	[3.1]	1.1	[5.0]	1.4	[4.6]	3.2	[73.6]	13.2	[76.3]
... state dep.	91.0	-4.5	72.7	-11.5	2.6	2.4	6.3	5.1	3.7	2.6	6.6	5.2	2.7	-0.5	14.4	1.2
... age	97.0	1.5	92.8	8.6	0.1	-0.1	0.6	-0.6	0.9	-0.2	0.9	-0.5	2.0	-1.2	5.7	-7.5
... education	98.8	3.3	97.5	13.3	0.1	-0.1	0.5	-0.7	0.4	-0.7	0.4	-1.0	0.7	-2.5	1.6	-11.6
... hh composition	98.2	2.7	86.4	2.2	0.1	-0.1	1.0	-0.2	0.6	-0.5	1.2	-0.2	1.0	-2.2	11.4	-1.8

Observed transition rates in brackets

6 Appendix

Table 1: Coefficients - Dynamic Mixed Multinomial Logit with Endogenous Initial Conditions - Men - Rural

	4-States Model		
Status	Unemp.		Self-Emp.
	with ben.	no ben.	
Unemp. with ben[t-1]	1.663 ***	2.457 ***	0.487
	(0.386)	(0.490)	(0.431)
Unemp. no ben.[t-1]	0.244	2.523 ***	0.338
	(0.524)	(0.654)	(0.588)
Self-Emp[t-1]	-2.537 ***	0.094	-1.157 ***
	(0.505)	(0.641)	(0.400)
Age	-0.529 ***	-0.459 ***	-0.706 ***
	(0.149)	(0.152)	(0.176)
Age squared	0.714 ***	0.606 ***	0.938 ***
	(0.190)	(0.194)	(0.222)
Middle school	-4.301 ***	-4.200 ***	-5.126 ***
	(0.822)	(0.862)	(0.931)
High school degree	-5.713 ***	-5.227 ***	-7.482 ***
	(0.912)	(1.053)	(1.083)
Professional degree	-6.554 ***	-5.361 ***	-8.292 ***
	(0.973)	(1.116)	(1.154)
Married	-2.828 ***	-2.560 ***	-2.981 ***
	(0.741)	(0.706)	(0.877)
Separated	-1.116	0.078	-0.583
	(0.935)	(0.965)	(1.054)
Household size	0.123	0.124	0.088
	(0.134)	(0.127)	(0.166)
Constant	13.092 ***	10.011 ***	18.148 ***
	(2.689)	(2.793)	(2.980)
λ	-6.431 ***	-5.291 ***	-8.380 ***
	(0.737)	(0.894)	(0.743)
λ_{IC}	-4.939 ***	-4.866 ***	-7.324 ***
	(0.441)	(0.510)	(0.473)

ln-L = -4069.96

NOTE: Huber Corrected Standard Errors in Parentheses

Statistical significance: *=10%; **=5%; ***=1%

Table 2: Coefficients - Dynamic Mixed Multinomial Logit with Endogenous Initial Conditions - Men - Urban

	4-States Model		
Status	Unemp.		Self-Emp.
	with ben.	no ben.	
Unemp. with ben[t-1]	-0.226	-0.281	-2.404 ***
	(0.566)	(0.527)	(0.621)
Unemp. no ben.[t-1]	-0.476	1.194 **	-0.359
	(0.513)	(0.528)	(0.535)
Self-Emp[t-1]	-3.011 ***	-1.788 **	-0.583
	(1.075)	(0.742)	(0.880)
Age	-0.593 **	-0.350	-0.533
	(0.301)	(0.256)	(0.354)
Age squared	0.644 *	0.355	0.547
	(0.377)	(0.326)	(0.442)
Middle school	-3.615 *	-3.876 **	-4.242 **
	(1.900)	(1.961)	(2.057)
High school degree	-5.037 ***	-5.210 **	-6.041 ***
	(1.943)	(2.152)	(2.172)
Professional degree	-5.043 **	-5.314 **	-6.163 ***
	(1.960)	(2.168)	(2.250)
Married	-2.214 **	-2.517 ***	-2.157 *
	(0.918)	(0.930)	(1.118)
Separated	-0.253	-0.042	-0.495
	(1.267)	(1.347)	(1.614)
Household size	0.532	0.498 *	0.674 *
	(0.360)	(0.289)	(0.393)
Constant	9.276 ***	5.759 *	7.949 **
	(3.354)	(3.199)	(3.841)
λ	-5.717 ***	-5.021 ***	-6.656 ***
	(0.997)	(0.801)	(1.101)
λ_{IC}	-4.322 ***	-3.679 ***	-6.255 ***
	(0.459)	(0.412)	(1.133)

ln-L = -2611.17

NOTE: Huber Corrected Standard Errors in Parentheses

Statistical significance: *=10%; **=5%; ***=1%

Table 3: Coefficients - Dynamic Mixed Multinomial Logit with Endogenous Initial Conditions - Women - Rural

	4-States Model		
Status	Unemp.		Self-Emp.
	with ben.	no ben.	
Unemp. with ben[t-1]	2.138 ***	3.402 ***	0.591
	(0.539)	(0.731)	(0.568)
Unemp. no ben.[t-1]	0.152	3.641 ***	0.076
	(0.814)	(0.818)	(0.828)
Self-Emp[t-1]	-1.058	2.010 **	-0.419
	(0.713)	(0.966)	(0.582)
Age	-0.876 ***	-0.534 **	-1.365 ***
	(0.223)	(0.232)	(0.204)
Age squared	1.136 ***	0.661 **	1.815 ***
	(0.295)	(0.313)	(0.269)
Middle school	-2.950 ***	-2.633 ***	-5.343 ***
	(1.009)	(1.014)	(0.867)
High school degree	-6.409 ***	-4.157 ***	-11.393 ***
	(1.535)	(1.509)	(1.212)
Professional degree	-6.417 ***	-3.714 **	-11.086 ***
	(1.555)	(1.490)	(1.306)
Married	1.934 ***	1.974 ***	4.612 ***
	(0.672)	(0.635)	(0.735)
Separated	0.464	-	1.488
	(0.890)	-	(1.010)
Household size	0.110	0.085	0.357 ***
	(0.119)	(0.104)	(0.129)
Constant	18.186 ***	8.419 *	28.453 ***
	(4.712)	(5.085)	(4.107)
λ	-4.085 ***	-1.886 **	-6.934 ***
	(0.889)	(0.943)	(0.755)
λ_{IC}	-4.966 ***	-4.654 ***	-8.174 ***
	(0.506)	(0.834)	(0.551)

ln-L = -2967.59

NOTE: Huber Corrected Standard Errors in Parentheses

Statistical significance: *=10%; **=5%; ***=1%

Table 4: Coefficients - Dynamic Mixed Multinomial Logit with Endogenous Initial Conditions - Women - Urban

	4-States Model		
Status	Unemp.		Self-Emp.
	with ben.	no ben.	
Unemp. with ben[t-1]	0.066	-0.594	-2.728 ***
	(0.467)	(0.489)	(0.749)
Unemp. no ben.[t-1]	-1.617 **	-0.681	-3.161 ***
	(0.644)	(0.900)	(0.923)
Self-Emp[t-1]	-2.945 ***	-3.317 ***	-1.844 *
	(0.852)	(0.772)	(0.984)
Age	-1.294 ***	-1.556 ***	-2.008 ***
	(0.267)	(0.380)	(0.333)
Age squared	1.487 ***	1.720 ***	2.372 ***
	(0.306)	(0.447)	(0.385)
Middle school	-3.419 ***	-5.336 ***	-6.436 ***
	(0.944)	(1.116)	(1.206)
High school degree	-6.176 ***	-8.928 ***	-10.819 ***
	(1.301)	(1.624)	(1.859)
Professional degree	-6.170 ***	-9.422 ***	-11.770 ***
	(1.254)	(1.504)	(1.788)
Married	-0.207	-0.139	0.668
	(0.450)	(0.636)	(0.817)
Separated	1.076 *	1.160	1.655
	(0.594)	(0.844)	(1.269)
Household size	0.511 ***	0.823 ***	1.115 ***
	(0.138)	(0.186)	(0.227)
Constant	23.829 ***	29.189 ***	34.242 ***
	(5.416)	(7.333)	(6.376)
λ	-4.937 ***	-6.665 ***	-8.216 ***
	(0.871)	(1.064)	(1.106)
λ_{IC}	-4.583 ***	-5.723 ***	-7.253 ***
	(0.550)	(0.674)	(0.737)

ln-L = -2482.31

NOTE: Huber Corrected Standard Errors in Parentheses

Statistical significance: *=10%; **=5%; ***=1%