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Constructing Labor Market Transitions Recall Weights in Retrospective Data: An Application to Egypt and Jordan

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Constructing Labor Market Transitions Recall Weights in Retrospective Data: An Application to Egypt and Jordan *

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Abstract

To be able to redress retrospective panels into random samples and correct for any recall and/or design bias the data might suffer from, this paper builds on the methodology proposed by Langot and Yassin (2015) and extends it to correct the data on the individual transaction level (i.e. micro level). It creates user-friendly weights that can be readily used by researchers relying on retrospective panels extracted from the Egypt and Jordan Labor Market Panel Surveys (ELMPS and JLMPS respectively). The technique suggested shows that it is sufficient to have population moments - stocks and/or transitions (for at least one point in time) to correct over- or under-reporting biases in the retrospective data. The paper proposes two types of micro-data weights: (1) naive proportional weights and (2) differentiated predicted weights. Both transaction-level weights i.e. for each transition at a certain point in time, as well as panel weights i.e. for an entire job or non-employment spell, are built. In order to highlight the importance of these weights, the paper also offers an application using these weights. The determinants of labor market transitions in Egypt and Jordan are analyzed via a multinomial regression analysis with and without the weights. The impact of these weights on the regressions estimations and coefficients is therefore examined and shown significant among the different types of labor market transitions, especially separations.

JEL classification: C83, C81, J01, J62, J64

Keywords: Panel Data, Retrospective Data, Measurement Error, Micro-data weights, Labor Markets, Transitions, Egypt, Jordan.

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1 Introduction

It has been well established in recent literature (such as Yassine (2015), Assaad et al. (2015), Langot and Yassin (2015)) that researchers, demographers and policy makers in the MENA region became increasingly interested in understanding employment histories or the worker's life course after schooling, with a focus on events, their sequence, ordering and transitions that people make from one labor market state to another. The Arab Spring countries, in particular, are currently continously debating on how to respond to the economic crises and also on how to provide more equitable opportunities through their labor markets. Consequently, policy-relevant research on labor market dynamics becomes particularly valuable.

The research conducted in this paper provides evidence from two developing MENA Arab countries, Egypt and Jordan. These are two MENA labor markets which share certain common characteristics with their neighboring Arab countries. In general, these are countries that are characterized by oversized public sectors, high rates of youth unemployment, very weak formal private sectors and high shares of informality. The educational level of the labor supply in these countries is rapidly growing on the one hand but highly distorted on the other (Assaad, 2014a). It has also been well established that these are countries with stagnant low female labor force participation rates when compared to other regions. The stylized facts and indicators provided by previous literature, not only show the key features of these two labor markets but even show more evidence to how it is crucial to study the flows driving their stocks.

Given that there are no official statistics on labor market dynamics in the MENA region, very little research has so far been done on the issue in the region. In order to be able to assess labor market dynamics in the two countries in question, namely Egypt and Jordan, annual panel micro-level data on labor market statuses is required. The only possible way to obtain such panel data is to extract longitudinal retrospective panel datasets from the Egypt Labor Market Panel Survey fielded in 2006 and 2012 (ELMPS 2006 and 2012), and the Jordan Labor Market Panel Survey fielded in 2010 (JLMPS 2010). Yassine (2015) and Assaad et al. (2015) explain that these datasets provide detailed labor market histories for those who ever worked as well as current employment/non-employment information for all interviewed individuals. This consequently allows the creation of retrospective longitudinal panels of the individuals' labor market states on an annual basis, going back in time from the year of the survey for each country. These retrospective panels suffer however from measurement errors. According to Langot and Yassin (2015) and Assaad et al. (2015), the retrospective information obtained from these surveys suffer from what is referred to as recall and design bias. Recall bias is defined as respondents mis-reporting their retrospective trajectory because they tend to forget some events or spells, especially the short ones. The design bias arises from the fact that different types of questions are being asked for current versus recall/retrospective statuses. There is therefore a question of salience/cognitive recognition by the respondents where by asking the questions differently, respondents, or even sometimes the enumerators, can interpret or record them differently. Yassine (2015) and Assaad et al. (2015) show for instance that due to the design of the questionnaires of the ELMPS and the JLMPS, statuses in the retrospective sections are sometimes being interpreted more of job statuses rather than labor market states.

Langot and Yassin (2015) proposes a methodology to correct for this bias producing corrected aggregate transition rates obtained from the retrospective data. This methodology assumes that the contemporaneous (panel data) aggregate transition rates, obtained from the ELMPS 1998, 2006 and 2012, are the correct ones [1]. The latter approach therefore limits to analyzing the macro aggregate indicators (time series) of the labor market transitions. Exploiting the micro-level individual information available on the workers' and jobs' characteristics underlying these transitions is however very important, especially if available in the data. Characterizing movements within the labor market, for instance, can help policy makers design various effective policies to address unemployment, informality or non-participation and reduce their adverse consequences. Tansel and Ozdemir (2015) provided an analysis of labor market dynamics in Egypt with an emphasis on formal/informal labor market states using contemporaneous panel data for the period 2006-2012, showing that increasing education levels can play an important role in reducing transitions into informal states of labor market. Their paper however studies labor market transitions over a period of six years. A lot of incidents and transitions can occur in between and these short-term labor market transitions need to be assessed on at least an annual basis.

This paper therefore builds on the methodology proposed by Langot and Yassin (2015) and extends it to correct the data on the individual transaction level (i.e. micro level). The model proposed in this paper creates user-friendly weights that can be readily used by researchers relying on the ELMPS and JLMPS retrospective panels. The recall and design bias in the data cannot be ignored. As has been clarified in Bound et al. (2001), errors (even if random) in categorical or binary variables (which is the case of labor market transitions) are problematic. Whether the mis-measured variable is the dependant or independent variable, the regression estimates would be biased downwards (attenuated). In Assaad et al. (2015), it was also shown that these errors are systematic i.e. related to covariates. Such relationships will bias any attempts to examine the relationship between covariates and mis-measured outcomes. Consequently, one can not ignore such measurement errors and the results of the applications shown at the end of this paper support this argument. Moreover, given the nature and the sample sizes of the datasets used, it's not possible to structurally estimate the bias, simultaneously with the estimation of any other model. First, the JLMPS is the first wave of the survey in Jordan. The retrospective responses can therefore not be overlapped with contemporaneous responses from another wave to identify whether an individual is mis-reporting a labor market state in the past. Even when other waves are available as in the case of Egypt, the number of individuals who were interviewed in both surveys and can therefore be identified for mis-reporting, provides small sized samples when classified by the type of transitions (see Yassin (2015)). These are even the sizes of the samples before categorizing them by observable charac-

[1] See Assaad et al. (2015) and Langot and Yassin (2015) for more details.

teristics, which means that estimations in that case would be based in some cases on only one observation, if not sometimes none.

The technique suggested by this paper shows that it is sufficient to have population, stocks and transitions, moments to correct over- or under-reporting biases in retrospective data. The true unbiased moments can be obtained from auxiliary information such as contemporaneous information from other waves of the same survey, or even external data sources, so long comparability between the varaibles' definitions is verified. Once the moments are matched on the aggregate level, a measurement error for each type of transition at a point in time t is estimated. The magnitude of this measurement error is then distributed among the sample's individual observations/transactions in the form of micro-data weights, such that observations which are being under-reported take higher weights and those over-reported take lower weights.

The paper proposes two types of weights: (1)naive proportional weights and (2)differentiated predicted weights. Naive proportional weights offer the advantage of being simple to calculate and handy. However, Assaad et al. (2015) show that not only retrospective data will under-report past unemployment but also distort its characteristics. The retrospective panels are therefore not random. In an attempt, to re-obtain random samples within these panels, the differentiated predicted weights are constructed. Following an accurate random sample (which in our case is the most recent year of the retrospective panels), one can estimate the probability for an individual to make a specific type of labor market transition as a function of observable characteristics. If the individual is more probable to transit, then it is more probable that he/she misreports. Distributing the estimated of the measurement error among the sample's observations according to these probabilities, via differentiated weights, allows to redress the retrospective panels into random samples readily used for micro-data analysis of labor market dynamics. Both transaction-level weights i.e. for each transition at a certain point in time, as well as panel weights, i.e. for an entire spell, are built. In order to highlight the importance of these weights, the last section of this paper offers an application using these weights. The determinants of labor market transitions are analyzed via a multinomial regression analysis with and without the weights. The impact of these weights on the regressions estimations and coefficients is therefore examined and shown significant among the different labor market transitions, particularly separations.

The application demonstrated in this paper using the recall weights allows to estimate the markov transition probabilities for labor market states over time as function of observable characteristics. On the one hand such analysis allows to point out the chances of transitioning between and within employment and non-employment states. On the other hand, the obtained estimations are suggestive of the roles of state dependence in these labor market transitions. The markov transition probabilities are mainly estimated between the three labor market states, namely employment, unemployment and inactivity, over time as function of observable worker's, firm's characteristics as well as macroeconomic indicators such as labor market tightness. The paper also provides desaggregated labor market transitions, when possible, namely public wage work, private formal wage work, private informal wage work, self-employment and non-employment. Although it was not possible, given the samples' sizes and the nature of transitions, to construct the recall weights for female workers, uncorrected transition probabilities using a gender-specific multinomial logit specification were predicted. The tansition matrices are conditioned on different individual characteristics like gender, age, region of residence...etc and firm/job characteristics such as the size of the firm, the sector of employment..etc.

The rest of the paper is structured as follows. The next section describes the data treatment and the creation of transitions and panel weights. Section 3 surveys corrected and uncorrected descriptive statistics, as well as a counting analysis of the transition matrices. Section 4 provides an application showing results from multinomial logit regression models. Section 5 concludes.

2 Creating Weights

2.1 Data and Sampling

Data from Egypt and Jordan are used. The three rounds of the Egypt Labor Market Panel Survey (ELMPS), fielded in 1998, 2006 and 2012 and the first round of the Jordan Labor Market Panel Survey (JLMPS) fielded in 2010 are exploited. The two surveys are nationally representative including both detailed current employment and nonemployment information as well as labor market histories that allow for an assessment of employment and nonemployment transitions and spells' durations. The surveys elicit information on detailed individual characteristics as well as job (or firm) characteristics. Following the methodology and assumptions adopted by (Yassine, 2015), a retrospective longitudinal panel dataset is extracted for each country, going back ten years from the year of the survey, i.e. 2001-2011 for Egypt, and 2000-2010 for Jordan [2].

The sample used in this paper includes male individuals between 15 and 49 years of age. The sample includes those who ever worked, the young unexperienced new labor market entrants and the individuals who are permanently out of the labor force. Female workers in this context are being excluded since their behaviour of entry and exit into/from the labor market is likely to be driven by personal motives such as marriage and child birth. Theory and steady-state assumptions made in the recall correction model can therefore be distorted and might not be fully applicable if female workers are included in the analysis. Female individuals between 15 and 49 years of age are also added to the analysis when non-corrected gender-specific regressions are estimated.

[2] As the surveys are fielded at the begining of the survey year, the last year's transitions are not captured fully and are therefore ommitted from the observation period. For Jordan, the case was exceptional, even though the survey was fielded from February to April 2014 i.e during the first semester of the year, whether 2009/2010 was included or not to the analysis, the same results are obtained. It has been therefore opted to keep 2009/2010 in the analysis for sample size reasons.

2.2 Matching Population Moments[3]

The first step adopted in correcting the recall and design bias observed in the data, is matching the stocks' and transitions' moments of the biased data with true auxiliary information to be able to estimate the associated error terms to each type of transition on the aggregate level. The way the model is estimated differs between Egypt and Jordan, because of differences in the auxiliary data availability and number of waves of Labor Market Panel Survey fielded in the country. For both countries, the model is over-identified and further work is needed to develop tests of fit for the model. The model is used to structurally estimate, using a Simulated Method of Moments (SMM), a function representing the "forgetting rate" conditional on the individual's state in the labor market.

2.2.1 Egypt

In Egypt, three waves of the ELMPS survey are available. Each providing the true unbiased stocks of the most recent year of the relevant longitudinal retrospective panel, i.e. the most accurate one[4]. The ELMPS 2006 and 2012 longitudinal retrospective panels provide as well the labor market transitions' rates over time. These rates, are the transitions moments, which decay as one goes back in time due to the recall and design bias. There exists however two unbiased moments of these for the most recent year of each panel i.e. 2004/2005 from the ELMPS 2006 and 2010/2011 from the ELMPS 2012.

Following Langot and Yassin (2015), a three-state model is built to correct for the aggregate labor market transitions between employment (E), unemployment (U) and inactivity (I). The vector of the true labor market state occupied at year t is

$$Y(t) = \begin{bmatrix} E(t) \\ U(t) \\ I(t) \end{bmatrix} \tag{1}$$

where $E(t)$, $U(t)$ and $I(t)$ represent the true proportion of employed, unemployed and inactive individuals respectively in year t (i.e. the unbiased moments of the population stocks). The vector

$$y(t) = \begin{bmatrix} e(t) \\ u(t) \\ i(t) \end{bmatrix} \tag{2}$$

denotes the observed empirical labor market state proportions at time t, with $e(t)$, $u(t)$ and $i(t)$

[3]This section draws heavily on the correction methodology developped in Langot and Yassin (2015), which derives in details the equations and the identifying methodology.

[4]See Assaad et al. (2015) and Langot and Yassin (2015) for the reason of this assumption

being the observed proportion of employed, unemployed and inactive in year t. With $\lambda_{lk}(t-1,t)$ being the transition rates from state l occupied in $t-1$ to the state k occupied in t, the matrix

$$N(t-1,t) = \begin{bmatrix} \lambda_{EE}(t-1,t) & \lambda_{EU}(t-1,t) & \lambda_{EI}(t-1,t) \\ \lambda_{UE}(t-1,t) & \lambda_{UU}(t-1,t) & \lambda_{UI}(t-1,t) \\ \lambda_{IE}(t-1,t) & \lambda_{IU}(t-1,t) & \lambda_{II}(t-1,t) \end{bmatrix} \tag{3}$$

gives the observed transition probabilities between the year $t-1$ and the year t. These are obtained by aggregating the expanded number of individuals making the transition lk from the year $t-1$ to year t in the constructed retrospective panels and dividing by the stock of l in the year $t-1$[5]. This resembles the methodology adopted by Shimer (2012) to extract macro time-series of labor market flows from individual transaction-level micro-data. There exists a restriction on these transition rates: the sum of the elements of each column must be equal to one. Thus, one obtains:

$$\lambda_{EI}(t-1,t) = 1 - \lambda_{EU}(t-1,t) - \lambda_{EE}(t-1,t) \tag{4}$$

$$\lambda_{UI}(t-1,t) = 1 - \lambda_{UE}(t-1,t) - \lambda_{UU}(t-1,t) \tag{5}$$

$$\lambda_{IU}(t-1,t) = 1 - \lambda_{IE}(t-1,t) - \lambda_{II}(t-1,t) \tag{6}$$

This transition matrix in equation 3 leads to

$$y(t) = N'(t-1,t)y(t-1) \tag{7}$$

As previously mentioned, the observed transition probabilities are biased due to recall or design issues. An error term $\varphi_z(t-1,t)$, for $z = E, U, I$, is therefore defined and associated to the z-type agents. These error terms vary in time and increase as one goes back in history, showing the loss of accuracy and memory as older events are being reported. The true matrix of transition probabilities between years $t-1$ and t can therefore be written as follows;

$$\begin{aligned} \Omega(t-1,t) &= \begin{bmatrix} \lambda_{EE} - \varphi_E & \lambda_{EU} + a_1\varphi_E & \lambda_{EI} + (1-a_1)\varphi_E \\ \lambda_{UE} + b_1\varphi_U & \lambda_{UU} - \varphi_U & \lambda_{UI} + (1-b_1)\varphi_g \\ \lambda_{IE} + c_1\varphi_I & \lambda_{IU} + (1-c_1)\varphi_I & \lambda_{II} - \varphi_I \end{bmatrix} \\ &= \begin{bmatrix} \lambda_{EE} - \varphi_E & \lambda_{EU} + a_1\varphi_E & (1-\lambda_{EE}-\lambda_{EU}) + (1-a_1)\varphi_E \\ \lambda_{UE} + b_1\varphi_U & \lambda_{UU} - \varphi_U & (1-\lambda_{UE}-\lambda_{UU}) + (1-b_1)\varphi_U \\ \lambda_{IE} + c_1\varphi_I & (1-\lambda_{IE}-\lambda_{II}) + (1-c_1)\varphi_I & \lambda_{II} - \varphi_I \end{bmatrix} \end{aligned} \tag{8}$$

[5]See (Yassine, 2015) for the way flows, such as job finding and separation rates, are being calculated

The above correction therefore allows to obtain:

$$Y(t) = \Omega'(t-1,t)Y(t-1) \tag{9}$$

where $\Omega'(t-1,t)$ is the transposed matrix of $\Omega(t-1,t)$. A parametric functional form is imposed on these error terms $\varphi_z(t-1,t)$:

$$\varphi_z(t-1,t) \quad = \quad \nu_z(1 - exp(-\theta_z(T-t)))$$

implying $\varphi_z(T-1,T) = 0$, i.e. assuming that the transition rates are correctly estimated for the most recent year T of the survey (see Langot and Yassin (2015) and Assaad et al. (2015)). For the correction of the transition rates obtained from the ELMPS 2012, this characteristic becomes very useful and allows one to write $\Omega(T-1,T) = N(T-1,T)$ for a given extracted retrospective panel data set. For the 2012 round, the assumption $\Omega(2010, 2011) = N(2010, 2011)$ is made and $\Omega(2004, 2005) = N(2004, 2005)$ for the 2006 round. This reflects that the most recent year of the retrospective panel extracted from a survey is the most accurate one. Given this three-state setting, one is able to estimate the parameters

$$\Theta_3 = \{\theta_E, \theta_U, \theta_I, \nu_E, \nu_U, \nu_I, a_1, b_1, c_1\}$$

where $dim(\Theta_3) = 9$, by solving the following system

$$\begin{aligned} g(x_T, \Theta_3) &= \left\{ \begin{bmatrix} Y(2011)_{ELMPS12} \\ Y(2005)_{ELMPS06} \\ \lambda_{EE}(2004, 2005)|_{2006} \\ \lambda_{UU}(2004, 2005)|_{2006} \\ \lambda_{II}(2004, 2005)|_{2006} \\ \lambda_{EU}(2004, 2005)|_{2006} \\ \lambda_{UE}(2004, 2005)|_{2006} \\ \lambda_{IE}(2004, 2005)|_{2006} \end{bmatrix} - \begin{bmatrix} \widetilde{\Omega}_1(\Theta_3) \\ \widetilde{\Omega}_2(\Theta_3) \\ \widetilde{\Omega}_3(\Theta_3) \\ \widetilde{\Omega}_4(\Theta_3) \\ \widetilde{\Omega}_5(\Theta_3) \\ \widetilde{\Omega}_6(\Theta_3) \\ \widetilde{\Omega}_7(\Theta_3) \\ \widetilde{\Omega}_8(\Theta_3) \end{bmatrix} \right\} \\ &= [\psi_T - \psi(\Theta_3)] \end{aligned} \tag{10}$$

where

$$
\begin{aligned}
\widetilde{\Omega}_1(\Theta_3) &= \left(\prod_{t=2006}^{2011} \Omega'(t-1,t)\right) Y(2005)_{ELMPS06} \\
\widetilde{\Omega}_2(\Theta_3) &= \left(\prod_{t=1998}^{2011} \Omega'(t-1,t)\right) Y(1997)_{ELMPS98} \\
\widetilde{\Omega}_3(\Theta_3) &= \lambda_{EE}(2004,2005)|_{2012} - \nu_E(1-\exp(-\theta_E(2011-2005))) \\
\widetilde{\Omega}_4(\Theta_3) &= \lambda_{UU}(2004,2005)|_{2012} - \nu_U(1-\exp(-\theta_U(2011-2005))) \\
\widetilde{\Omega}_5(\Theta_3) &= \lambda_{II}(2004,2005)|_{2012} - \nu_I(1-\exp(-\theta_I(2011-2005))) \\
\widetilde{\Omega}_6(\Theta_3) &= \lambda_{EU}(2004,2005)|_{2012} - \nu_E(1-\exp(-\theta_E(2011-2005))) \\
\widetilde{\Omega}_7(\Theta_3) &= \lambda_{UE}(2004,2005)|_{2012} - \nu_U(1-\exp(-\theta_U(2011-2005))) \\
\widetilde{\Omega}_8(\Theta_3) &= \lambda_{IE}(2004,2005)|_{2012} - \nu_I(1-\exp(-\theta_I(2011-2005)))
\end{aligned}
$$

Similar to the derivation done for the two and three state model in Langot and Yassin (2015), it is found out that the identification of Ω relies on restrictions laid out by equations that serve to guarantee the consistency of Ω with the evolution of stocks between 2005 and 2011 as well as 1997 and 2005. Since $1 = E + U + I$, these would yield 4 restrictions only allowing the identification of only four free parameters. Six more restrictions are therefore added and identified by

$$\Omega(2004, 2005)_{ELMPS06} = \Omega(2004, 2005)_{ELMPS12}$$

The relations between the transition rates in equations 4, 5 and 6 is the reason that yield six restrictions are yielded, given this equation. Given the structure imposed by the three-state model, ten restrictions and nine free parameters: the model is therefore over-identified. Further tests after estimation can therefore be developped to test for the goodness of fit of the model.

In order to estimate $\Theta = \{\theta_E, \theta_U, \theta_I, \nu_E, \nu_U, \nu_I\}$, one solves J, where J is

$$J = \min_{\Theta_3}[\psi_T - \psi(\Theta_3)]W[\psi_T - \psi(\Theta_3)]' = g(x_T, \Theta_3)Wg(x_T, \Theta_3)' \tag{11}$$

The estimated $\hat{\theta}_z$, $\hat{\nu}_z$, $\hat{a}_1$, $\hat{b}_1$ and $\hat{c}_1$, for $z = E, U, I$, are then used to reproduce the true transition probabilities $\Omega(t-1,t)$ between the years 1999 and 2005 using the retrospective panel extracted from the ELMPS 2006.

2.2.2 Jordan

The Jordan Labor Market Panel Survey (JLMPS) has a very similar questionnaire structure to the ELMPS and since retrospective information is required to construct the longitudinal panels, a similar bias with over-reported job findings and under-reported separations is observed. The available JLMPS 2010 is however the first and only round of the survey fielded in Jordan. The auxiliary information used to match the population stocks moments for Jordan is derived however from a comparable annual cross-sectional labor force surveys, the Employoment and Unemployment Surveys (EUS), conducted by the Jordanian department of Statistics (DOS)[6]. These provide the whole sequence of Y(t), in equation 1, for Jordan. To be able to match the transitions' moments as well, we obtain true unbiased non-employment to employment job finding rates and employment to non-employment separation rates for the years between 2007-2010, using the annual Job Creation Surveys (JCS). This of course adds to the over-identification of the correcting method with the Jordanian dataset. Given that using the JCS, one can only observe transitions between employment and non-employment, we build a two-state correction model for Jordan.

The true labor market histories are generated by a discrete-time Markov chain and the vector of the true labor market state occupied at year t now becomes

$$X(t) = \begin{bmatrix} E(t) \\ NE(t) \end{bmatrix} \tag{12}$$

where $E(t)$ and $NE(t)$ represent the true proportion of employed and non-employed respectively in the labor force in year t. These are therefore the unbiased true moments of the population stocks obtained from the data. The vector

$$x(t) = \begin{bmatrix} e(t) \\ ne(t) \end{bmatrix} \tag{13}$$

denotes the observed empirical labor market state proportions at time t, with $e(t)$ and $ne(t)$ being the observed proportion of employed and unemployed in the labor force in year t. These are the observed moments that decay, i.e. get biased due to the recall and design measurement errors as one goes back in time from the year of the survey. With $\lambda_{lk}(t-1,t)$ being the transition rates from state l occupied in $t-1$ to the state k occupied in t, the matrix

$$M(t-1,t) = \begin{bmatrix} \lambda_{E-E}(t-1,t) & \lambda_{E-NE}(t-1,t) \\ \lambda_{NE-E}(t-1,t) & \lambda_{NE-NE}(t-1,t) \end{bmatrix} \tag{14}$$

[7] gives the observed transition probabilities between the year $t-1$ and the year t. These are obtained

[6]Although the official yearly labor force surveys conducted by the Egyptian Central Agency of Public Mobilisation and Statistics (CAPMAS) are available, these could not provide auxiliary information to be used to correct for the bias in the Egyptian data. Assaad and Krafft (2013) show that what is captured as under-employment by the Egypt labor market panel survey (ELMPS 2012), is defined as unemployment in the official labor force surveys (LFS). This explains the difference in the levels of unemployment rates obtained from the two surveys in 2012. With different definitions of employment and unemployment, using two non-comparable datasets is impossible. This difference was however not observed between the Jordanian EUS official surveys and the JLMPS 2010, see (Assaad, 2014b).

[7]In other words, $\lambda_{E-NE} = s(t-1,t)$, with $s(t-1,t)$ being the separation rate, and $\lambda_{NE-NE} = f(t-1,t)$, with $f(t-1,t)$ being the job finding rate.

by aggregating the expanded number of individuals making the transition lk from the year $t-1$ to year t in the constructed retrospective panels and dividing by the stock of l in the year $t-1$. There exists a restriction on these transition rates: the sum of the elements of each column must be equal to one,

$$\lambda_{E-NE}(t-1,t) = 1-\lambda_{EE}(t-1,t) \tag{15}$$

$$\lambda_{NE-E}(t-1,t) = 1-\lambda_{NE-NE}(t-1,t) \tag{16}$$

The transition matrix in equation 14 leads to

$$x(t) = M'(t-1,t)x(t-1) \tag{17}$$

where $M'(t-1,t)$ is the transposed matrix of $M(t-1,t)$. The observed transition probabilities, as have been explained above, are biased due to recall and design measurement errors. To be able to correct this bias, an error term $\varphi_z(t-1,t)$, for $z = E, NE$, is defined and associated to the z-type agents. These error terms vary in time and increase as one goes back in history, showing the loss of accuracy and memory as older events are being reported, as observed in the descriptive statistics in Langot and Yassin (2015). The true matrix of transition probabilities between years $t-1$ and t can therefore be written as follows;

$$\begin{aligned}\Pi(t-1,t) &= \begin{bmatrix} \lambda_{E-E}(t-1,t)-\varphi_E(t-1,t) & \lambda_{E-NE}(t-1,t)+\varphi_E(t-1,t) \\ \lambda_{NE-E}(t-1,t)+\varphi_{NE}(t-1,t) & \lambda_{NE-NE}(t-1,t)-\varphi_{NE}(t-1,t)\end{bmatrix} \\ &= \begin{bmatrix} \lambda_{E-E}(t-1,t)-\varphi_E(t-1,t) & 1-[\lambda_{E-E}(t-1,t)-\varphi_E(t-1,t)] \\ 1-[\lambda_{NE-NE}(t-1,t)-\varphi_{NE}(t-1,t)] & \lambda_{NE-NE}(t-1,t)-\varphi_{NE}(t-1,t)\end{bmatrix}\end{aligned} \tag{18}$$

By correcting the observed transition matrix $M(t-1,t)$, in equation 14 and obtaining a true corrected one $\Pi(t-1,t)$, in equation 18, we obtain

$$X(t) = \Pi'(t-1,t)X(t-1) \tag{19}$$

where $\Pi'(t-1,t)$ is the transposed matrix of $\Pi(t-1,t)$. For simplicity, the error terms $\varphi_z(t-1,t)$, for $z = E, NE$, are assumed to have the same functional form as in Egypt[8] :

$$\varphi_z(t-1,t) = \nu_z(1-\exp(-\theta_z(T-t))) \tag{20}$$

implying $\varphi_z(T-1,T) = 0$. The worker flows are correctly estimated for the most recent year T,

[8] On-going work is carried out to expand on the role of this parametric assumption and to check to what extent this affects the results.

we therefore assume that $\Pi(T-1,T) = M(T-1,T)$ for a given retrospective panel data set. The assumption $\Pi(2009, 2010) = M(2009, 2010)$ is therefore made.

The parameters $\Theta = \{\theta_E, \theta_{NE}, \nu_E, \nu_{NE}\}$ are estimated given the above setting and available data, using a Simulated Method of Moments (SMM). We solve the following system, for $t = 1991, .., 2010$ and $n = 2007, .., 2010$

$$
\begin{aligned}
g(x_T, \Theta) &= \left\{ \begin{bmatrix} X(t)|_{EUS(t)} \\ \lambda_{E-E}(n-1,n)|_{JCS(n)} \\ \lambda_{NE-NE}(n-1,n)|_{JCS(n)} \end{bmatrix} - \begin{bmatrix} \widetilde{\Pi}_t(\Theta) \\ \widetilde{\Pi}_{n1}(\Theta) \\ \widetilde{\Pi}_{n2}(\Theta) \end{bmatrix} \right\} \\
&= [\psi_T - \psi(\Theta)]
\end{aligned} \tag{21}
$$

where

$$
\begin{aligned}
\widetilde{\Pi}_t(\Theta) &= \Pi'(t-1,t)\big|_{JLMPS10} X(t-1)|_{EUS(t-1)} \\
\widetilde{\Pi}_{n1}(\Theta) &= \lambda_{E-E}(n-1,n)|_{JLMPS10} - \nu_E(1 - \exp(-\theta_E(2010-n))) \\
\widetilde{\Pi}_{n2}(\Theta) &= \lambda_{NE-NE}(n-1,n)|_{JLMPS10} - \nu_U(1 - \exp(-\theta_U(2010-n)))
\end{aligned}
$$

This set of restrictions lead to $t + 2n$ identifying equations, i.e. 28 identifying equations for Jordan. As explained in details in Langot and Yassin (2015), this results from $E + NE = 1$ and from the restrictions on the transitions in equations 15 and 16.

This model for Jordan is therefore over identified with 4 free parameters and 28 restrictions. In order to be able to estimate $\Theta = \{\theta_E, \theta_{NE}, \nu_E, \nu_{NE}\}$, we solve J, where J is

$$
J = \min_{\Theta}[\psi_T - \psi(\Theta)]W[\psi_T - \psi(\Theta)]' = g(x_T, \Theta)Wg(x_T, \Theta)' \tag{22}
$$

Estimating the parameters θ_E, θ_U, ν_E and ν_U allows us to build up the macro time series of the true transition probabilities $\Pi(t-1,t)$ between the years 1991 and 2010 using the retrospective lingitudinal panel extracted from the JLMPS 2010 survey.

2.3 Micro-data Transitions and Panel Weights

The second step of the correcting technique suggested in this paper is distributing the estimated measurement error, by matching population moments, among the sample's individual observations/transactions in the form of micro-data weights, such as observations that are being under-reported take higher weights and those over-reported take lower weights. This shows that it is sufficient to have population (i.e. stocks) and transitions moments to correct over- or under-reporting biases in retrospective data. Once the moments are matched on the aggregate level, a measurement error for each type of transition at a point in time t is estimated. This measurement error can then be attributed among the sample's individual observations, reported for this specific type of transition in year t, in the form of micro-data transitions (per transition transaction per year) or panel (per spell per individual) weights. This can be done via two ways: a simple proportional attributing method or a differentiated predicting method. Both are discussed below in details.

2.3.1 Naive Proportional Weights

For the sake of simplicity, the error terms can be distributed proportionally in the form of an adjustment factor (r_{jt}) among the sample's individuals depending on the type of transition lk he/she undergoes between the years t and $t-1$, with $lk = EE, EU, EI, UE, UU, UI, IE, II, IU$. First, a total correction factor is calculated for each type of transition lk (from state l in year $t-1$ to k in year t). For a specific type of transition in a certain year, this is done by dividing the corrected transition rate by the observed transition rate and multiplying by the number of individuals who made this transition in that year. In simple words, this measures by how much the observed biased transition rate in year t need to be redressed on the aggregate level to obtain the true corrected rate. This can be written formally as follows;

$$R_{lk}(t-1,t) = \frac{\lambda_{lk}(t-1,t) \pm \Psi_z}{\lambda_{lk}(t-1,t)} \times n_{lk}(t-1,t) \tag{23}$$

where n is the number of individuals experiencing the transition lk from year $t-1$ to year t and Ψ_z is the associated error term estimated on the macro aggregate level (depending on the way it was estimated for each country). An individual ($r_{ilk}(t-1,t)$) adjustment factor is then calculated to be the attributed weight to the micro-data transitions lk. This is done here proportionally, i.e. assuming that all individuals mis-report the same way and hence they are all equiprobable and get the same weight, if they make the same type of transition between the year $t-1$ and the year t. This leads to :

$$\begin{aligned} r_{ilk}(t-1,t) &= \frac{1}{n_{lk}(t-1,t)} \times R_{lk}(t-1,t) \\ &= \frac{\lambda_{lk}(t-1,t) \pm \Psi_z}{\lambda_{lk}(t-1,t)} \end{aligned} \tag{24}$$

2.3.2 Differentiated Predicted Weights

The second method of attributing weights to the micro-data observations assumes that individuals mis-report differently. Assaad et al. (2015) show that not only retrospective data will under-report past unemployment but also distort its characteristics. The retrospective panels are therefore not random. In an attempt, to re-obtain random samples within these panels, the differentiated predicted weights are constructed. Following an accurate random sample (which in this case is the most recent year of the retrospective panels of each country), one can estimate the probability for an individual to make a specific type of labor market transition as a function of observable characteristics. If the individual is more probable to transit, then he is more probable to mis-report. Distributing the measurement error among the sample's observations according to these probabilities, via differentiated weights, allows to redress the retrospective panels into random corrected samples readily used for micro-data analysis of labor market dynamics. A 3-step procedure is therefore adopted:

1. First as in the naive proportional method, a total correction factor is calculated for each type of transition lk (from l in year $t-1$ to k in year t). For a specific type of transition in a certain year, this is done by dividing the corrected transition rate by the observed transition rate and multiplying by the number of individuals who made this transition. This can be written formally as follows;

$$R_{lk}(t-1,t) = \frac{\lambda_{lk}(t-1,t) \pm \Psi_z}{\lambda_{lk}(t-1,t)} \times n_{lk}(t-1,t) \tag{25}$$

, where n is the number of individuals experiencing the transition lk from year $t-1$ to year t and Ψ_z is the associated error term estimated on tha macro level.

2. The second step consists of determining the probability of individual i to transit from job l in year $t-1$ to job k in year t. This is done by predicting the probabilities of a transition lk after estimating a simple probit model (y=1 for making a certain transition, y=0 otherwise[9]) for each type of transition in the most recent year of each survey[10] as a function of a vector of observable characteristics/explanatory variables $\mathbf{X}$. The detailed results of these probit regressions are provided in the appendix A. These probabilities are denoted as follows $p_{ilk}(t-1,t)$. It is the probability that an individual i in the sample make a transition from state l in year $t-1$ to state k in year t in year t, given his observables in the most recent year of the retrospective panel.

3. An adjustment factor is then created for each individual i for each of his transitions lk from year $t-1$ to year t over the observation period of each country. This is calculated as follows:

$$r_{ilk}(t-1,t) = \frac{p_{ilk}(t-1,t)}{\Sigma_{i=1}^{n_{lk}(t-1,t)} p_{ilk}(t-1,t)} \times R_{lk}(t-1,t) \tag{26}$$

In simple words, if it is more probable for an individual to make a specific transition lk, it is more probable that he mis-reports. Consequently, the correction weight should be higher than for others who are less probable to make the transition. The aim of the $r_{ilk}(t-1,t)$ adjustment factor is to be able to redress the micro-data transitions of each individual not only to the corrected level, but also to give a higher weight to an individual, who according to

[9]A separate model is conducted for each type of transition.

[10]The most recent year of the survey is 2010/2011 for Egypt and 2009/2010 for Jordan. According to the correction model's main assumption, these most recent years are the most accurate and hence reflect the true random distribution of observable characteristics for each type of labor market transition.

the distribution of observable characteristics obtained from the probit regressions in (appendix A), is more probable to have gone through this type of transition. It is important to note that this correction methodology does not alter the trends in transitions, or the changes in the characteristics distribution over time, neither it replicates the distribution of observables in the most recent year of the retrospective panel of the country. It serves only to distribute the weights among individuals who are already recorded as having reported the transition, to be able to obtain random corrected retrospective panles. The adjustment factor $r_{ilk}(t-1,t)$ are referred to as ***transition recall weights*** through out the rest of the paper. These are used to weigh the data in estimations when only transitions are relevant and durations are not needed, for instance in the descriptive statistics of the counting method and the multinomial logit regressions. It is also important to note that the data attrition and expansion weights are rescaled such that representative expanded totals are not distorted by the recall weights. This was not a problem when proportional weights were created.

2.3.3 Panel Weights for Duration Analysis

The final step would be to create weights for the spells to be used in estimations when spells durations are needed such as survival analysis. For this purpose longitudinal panel recall weights for each spell s of each individual v are created, such that the weight is the product of all the adjustment factors $r_{vij}(t-1,t)$ from the start year t till the end year of the spell $t+k$. This is given by the following expression:

$$w_{is}(t,t+k) = \prod_{t=t}^{t+k} r_{ilk}(t-1,t) \tag{27}$$

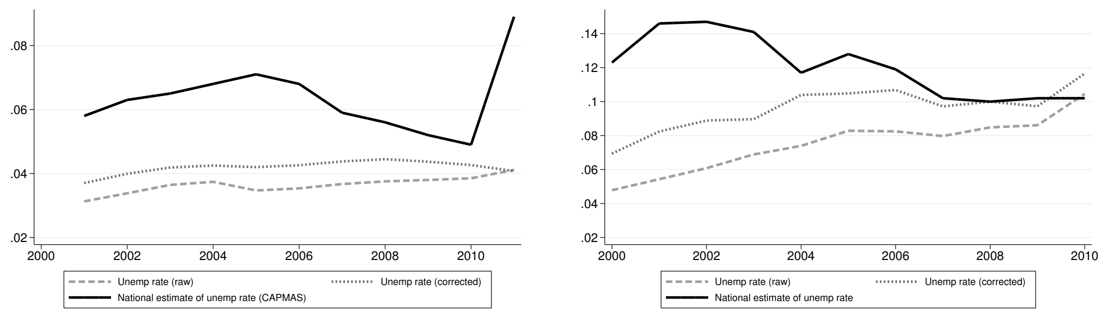
In appendix B, preliminary attempts are shown on how these panel weights can be used in non-parametric survival analysis estimations and how they correct the Kaplan-Meier and Cumulative Incidence estimators.

3 Corrected Versus Uncorrected Descriptive Statistics

3.1 Stocks and Flows

Figures 1 to 6 show how these transitions recall weights correct labor market flows and stocks obtained form the retrospective longitudinal panels. It is obvious from figures 1 and 2, how retrospective data biased both employment and unemployment where unemployment rates display a continously increasing trend over time and are under-estimated for early years and vice versa for employment to population ratios. Observing the official statistics based on contemporaneous annual labor force surveys (i.e. true unbiased), these trends are incorrect. The proposed weights not only manage to correct the levels of these estimates but also the trends to be as close as possible to reality. For Egypt the difference in levels between the unemployment rate obtained from the ELMPS and the LFSS is due to as explained previously to the different definitions adopted in these two surveys. As for Jordan, the correction appears to be satisfactory and fitting the trend and levels of the official statistics between 2004 and 2010. For earlier years, the estimates remain biased even though lower than before. A possible reason to this might be the sample sizes as one goes back in time. These are however the best possible correcting weights one could currently obtain given the availability of waves and auxiliary information, using the current parametric form of the bias. It is possible that if one expands on the role of this shape of the bias as well as with the availability of the forthcoming JLMPS 2016, this correction methodology can be ameliorated. Figure 3 shows how the transitions recall weights help to slightly adjust the shares of the different employment sectors over time. This however becomes more obvious as the detailed transitions are explored in the counting method. In general, it s important to note that the proposed correction significantly alters the separation and job finding rates but does not affect the job-to-job transitions on the aggregate level. In Assaad et al. (2015), it has been shown that overlapping the retrospective panels obtained from the different rounds of the ELMPS, the obtained job-to-job aggregate transition rates were reliable. The inside structure, i.e. composition of these job-to-job transitions differ however with the introduction of the differentiated predicted weights. This becomes clearer below, using a non-parametric counting method to construct the transition matrices.

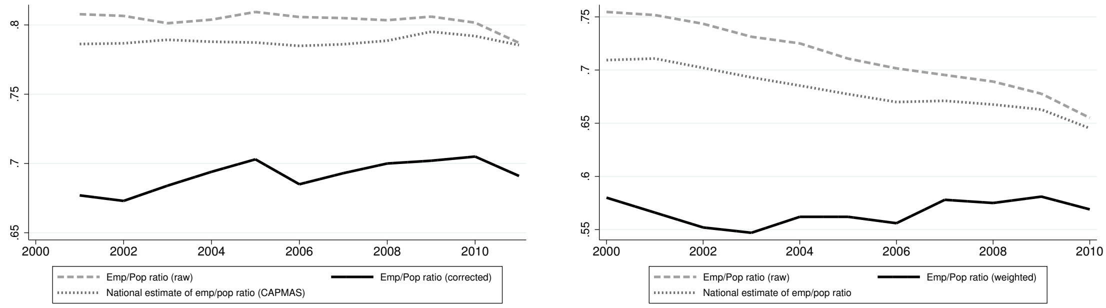
Figure 1: Evolution of official, corrected and uncorrected unemployment rate over time, Egypt 2001-2011 and Jordan 2000-2010, male workers, 15-49 years of age.



(a) Egypt (b) Jordan

Source: Author's own calculations from ELMPS 2012, JLMPS 2010, LFSS 2001-2011 and EUS 2000-2010.

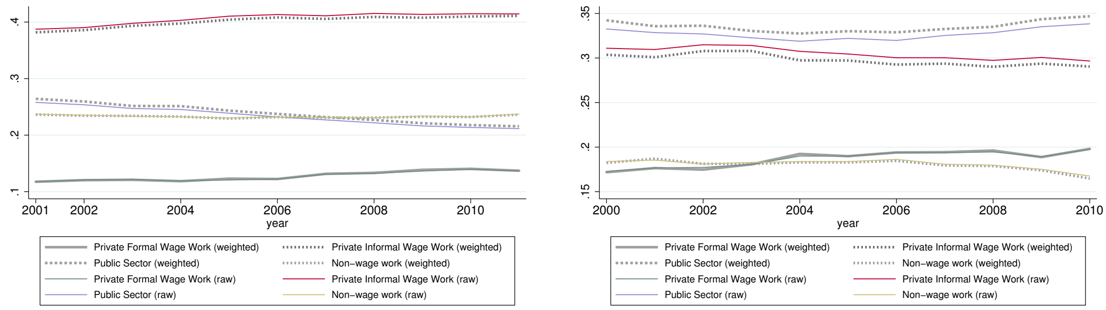
Figure 2: Evolution of official, corrected and uncorrected employment to population ratio over time, Egypt 2001-2011 and Jordan 2000-2010, male workers, 15-49 years of age.



(a) Egypt (b) Jordan

Source: Author's own calculations from ELMPS 2012, JLMPS 2010, LFSS 2001-2011 (CAPMAS) and EUS 2000-2010 (DOS).

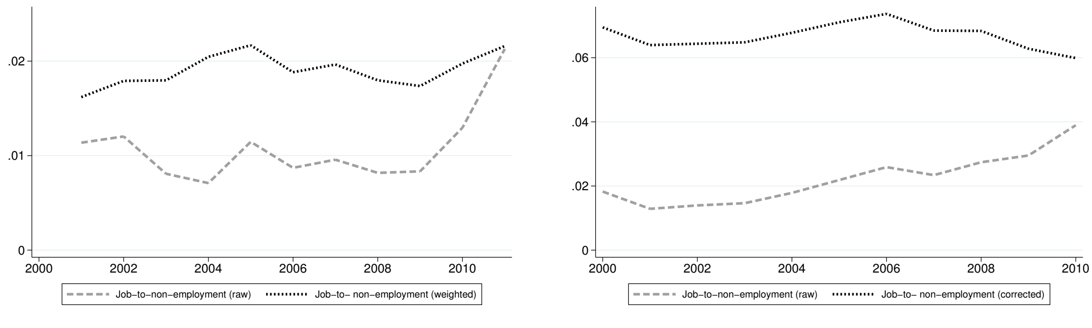
Figure 3: Evolution of corrected and uncorrected employment sectors' shares in the market over time, Egypt 2001-2011 and Jordan 2000-2010, male workers, 15-49 years of age.



(a) Egypt (b) Jordan

Source: Author's own calculations from ELMPS 2012, JLMPS 2010, LFSS 2001-2011 (CAPMAS) and EUS 2000-2010 (DOS).

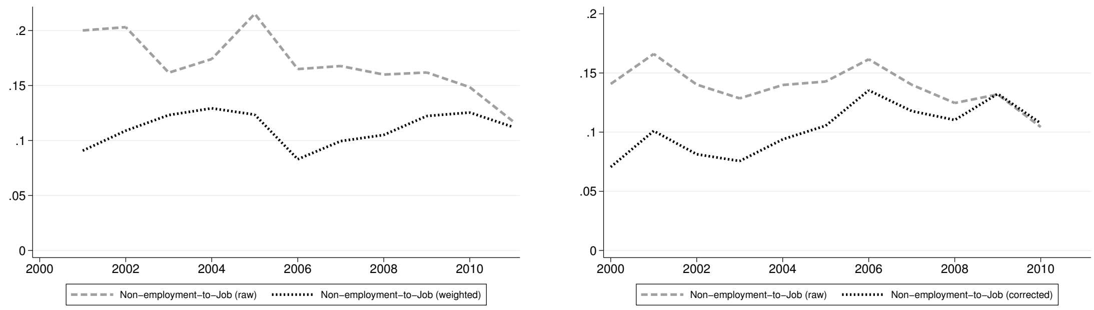
Figure 4: Evolution of corrected and uncorrected job to non-employment separation rate over time, Egypt 2001-2011 and Jordan 2000-2010, male workers, 15-49 years of age.



(a) Egypt (b) Jordan

Source: Author's own calculations from ELMPS 2012 and JLMPS 2010.

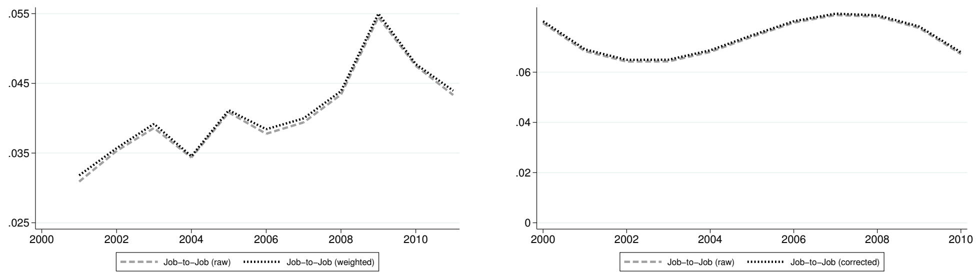
Figure 5: Evolution of corrected and uncorrected non-employment to employment job finding rate over time, Egypt 2001-2011 and Jordan 2000-2010, male workers, 15-49 years of age.



(a) Egypt (b) Jordan

Source: Author's own calculations from ELMPS 2012 and JLMPS 2010.

Figure 6: Evolution of corrected and uncorrected job-to-job transition rate over time, Egypt 2001-2011 and Jordan 2000-2010, male workers, 15-49 years of age.



(a) Egypt (b) Jordan

Source: Author's own calculations from ELMPS 2012 and JLMPS 2010.

3.2 Counting

In this section, to be able to point out changes in the samples and their structure as the recall weights are introduced, average transition probabilities between labor market states are claculated via a simple non-parametric counting method. All types of annual transitions are pooled over the constructed longitudinal panel of 10 years for each country. An individual can therefore for example be at time t in one of five states namely public wage work, private formal wage work, private informal wage work, self-employment and non-employment. An individual can contribute up to 10 transitions (over 10 years). It's important to note that an individual who has reported being in the public sector for the 10 years contribute to 10 transitions of type $Public \rightarrow Public$. The same methodology applies when transitions are being considered between employment, unemployment and inactivity, except that I choose to differentiate in that case between individuals staying in the same job (SJ) and those who move to another job (JJ). This distinction is interesting in how its estimates might be suggestive of how mobile the labor market in question is.

The tables 1-4 group these transitions (obtained from raw data) by gender for Egypt and Jordan. For males, these transitions are re-tabulated with both proportional and predicted transition recall weights, to point out the difference and the advantage of using a characteristics-specific weighting method. The realization of a particular transition as follows. Given a random variable of a labor market state realization at time t as $Y(t)$ where the realizations of this variable is $y(t) \in \{1, 2, 3, 4, 5\}$. The realization of a particular transition from state l to state k is therefore defined as follows:

$$N_{lk} = \Sigma_{i=1}^{N} \Sigma_{t=0}^{T} I(y_i(t) = k, y_i(t-1) = l) \tag{28}$$

where i counts for all individuals and t counts for the time periods over the 10 year panel specific for each country. $y_i(t)$ is therefore the realization of the labor market state of individual i in year t. The average transition probability is then calculated over the 10 year panel from state l to state k as P_{lk} as follows:

$$P_{lk}(t) = P(Y_t = k | Y_{t-1} = l) = \frac{N_{lk}}{\Sigma_{i=1}^{N} \Sigma_{t=0}^{T} I(y_i(t-1) = l)} \tag{29}$$

For each country these transitions are first reported for the total sample as well as for males and females in both transition probabilities and actual frequencies (expanded counts). The labor market states defined in this analysis are public wage (G) work, private formal wage work (F), private informal wage work (I), self-employment (NW) and non-employment (NE). Aggregated labor market states are classified as follows: Employed(E), Unemployed (U) and Out of Labor Force (O).

In order to make the paper reader friendly and to the point, the analysis is divided below into two main comparisons: (i) comparisons between gender-specific transitions and (ii) camparisons between the estimated transitions before and after correcting the bias.

1. Males Versus Females:

In both countries, job-to-job transitions rate is higher for male than for female workers. Given that the latter stay for a shorter period in the labor market and are more likely to exit faster, they do not experience a lot of movements from one job to another. Another possible explanation would be since its already more difficult for females to find a job than males (job finding probability whether from unemployment or inactivity is much lower for females in both Egypt and Jordan), it's very unlikely that a female worker would still for another job if she has got already one. Yassine (2015) shows that in Egypt almost 80% of the job transitions are voluntary.

Both countries share a much higher job exit probability for females than for males. Intuitively, these are more likely females exiting the labor market i.e. moving to inactivity most likely after getting married or child birth. This becomes clarified and supported as one goes through the multinomial regressions' estimations below. Two rates strongly support this argument, the females' formal sector separation rate (F–>NE) and the females' informal sector separation rates (I–>NE). These rates are strikingly high and show how the private sector does not provide a flexible program in terms of working hours, vacations..etc as the public sector

Going through the more detailed transitions, unsurprisingly the females highest job finding rates are transitions towards the public sector. The public sector provides a stable flexible job position for a female in the MENA region . Females in Jordan however seem to access jobs in the formal private sector much easier than their Egyptian peers though. In Egypt, evidence about the informal private sector being at a second resort after the public is noted.

Discussing employment dynamics in general, the Jordanian labor market is more mobile than the Egyptian labor market with much more churning as in higher job-to-job transition rates and higher separation rates. However the Jordanian labor market is much more segmented; inter-sectorial transitions for instance between the formal private and informal private wage work is much lower than in Egypt. A possible explanation to this might be the fact that Jordan has introduced flexibility in terms of contracts and employers' rights to laying off workers much earlier than Egypt. On the one had, this tends to boost mobility in the labor market pushing to more high productivity jobs being created and more low-productivity jobs beng destroyed. Moreover, this flexibility scales down the difference between the formal and informal sector which is clear in the Jordanian case. Not only that the size of the informal sector is lower than the Egyptian labor market but the transitions between these sectors are minimized.

2. Adding transitions recall weights:

In general adding the transition recall weights corrects the over-estimated job finding rates and the under-estimated separation rates. Using proportional or predicted weights does not make a difference when correcting aggregated labor market transitions i.e. between the states E, U and O[11]. However, it is obvious how the detailed labor market transitions are modified once we introduce the predicted transition recall weights. This shows that these weights do make a difference and emphasize the importance of characterizing these weights according to the distribution of observed characteristics among the transitions if one wants to characterize labor market flows later on or study a more detailed level of transitions. Going back in time, the individuals who are more probable to make a certain type of transition mis-report it, the structure and the characteristics of the sample therefore get distorted. Since the retrospective samples are in this case not random, adding the differentiated predicted weights, these samples are redressed to become random, under the assumption that the determinants of the probability of labor market transitions in the most recent year of the survey are the determinants of mis-reporting back in time. The next section confirms how the predicted recall weights are crucial if one needs to study labor market transitions by observable characteristics.

[11]Expansion weights are re-scaled with the prediction weights in order to preserve the national representativity of the sample.

Table 1: Count of Labor Market Transition Probabilities (obtained from raw data - ELMPS 2012), Male and Female workers, Ages 15-49 years old, Egypt 2001-2011

Males

	G	F	I	NW	NE	Total
G	3.45E+07	73136.25	92173.25	41416.84	153018.3	3.49E+07
F	181675.9	1.81E+07	239673.1	215920	128636.5	1.89E+07
I	559075	712592.3	5.93E+07	673075.7	1009761	6.23E+07
NW	210394.9	151851.1	337294.7	3.43E+07	275904.9	3.53E+07
NE	765374.2	866283.2	3484579	1121628	3.66E+07	4.28E+07
Total	3.62E+07	1.99E+07	6.35E+07	3.64E+07	3.82E+07	1.94E+08

	E	U	O	Total
E	1.50E+08	500631.5	1066689	1.52E+08
U	1446242	4259803	66169.39	5.77E+06
O	4791622	1160618	3.11E+07	3.71E+07
Total	1.56E+08	5.92E+06	3.22E+07	1.94E+08

	same job	new job	NE	Total
E	1.44E+08	6050821	1567321	1.52E+08
NE	6237864		3.66E+07	4.28E+07
Total	1.56E+08		38167321	1.94E+08

Females

	G	F	I	NW	NE	Total
G	1.67E+07	2.94E+04	2.03E+04	1.04E+04	2.54E+05	1.70E+07
F	1.67E+04	2.00E+06	5.06E+03	1.68E+03	1.78E+05	2.20E+06
I	3.14E+04	2.71E+04	4.07E+06	3.97E+04	5.58E+05	4.72E+06
NW	5.91E+03	0.00E+00	2.18E+04	1.02E+07	1.76E+05	1.04E+07
NE	1.03E+06	3.01E+05	6.40E+05	4.93E+05	1.62E+08	1.64E+08
Total	1.78E+07	2.36E+06	4.76E+06	1.07E+07	1.63E+08	1.99E+08

	E	U	O	Total
E	3.33E+07	257071.9	908325.6	3.45E+07
U	675243.7	9686185	16712.45	1.04E+07
O	1785958	1278017	1.51E+08	1.54E+08
Total	3.58E+07	1.12E+07	1.52E+08	1.99E+08

	same job	new job	NE	Total
E	3.27E+07	565217.8	1165397	3.45E+07
NE	2461202		1.62E+08	1.64E+08
Total	3.58E+07		163165397	1.99E+08

Males (%)

	G	F	I	NW	NE	Total
G	98.97%	0.21%	0.26%	0.12%	0.44%	100.00%
F	0.96%	95.94%	1.27%	1.14%	0.68%	100.00%
I	0.90%	1.14%	95.25%	1.08%	1.62%	100.00%
NW	0.60%	0.43%	0.96%	97.23%	0.78%	100.00%
NE	1.79%	2.02%	8.13%	2.62%	85.44%	100.00%
Total	18.66%	10.25%	32.69%	18.73%	19.66%	100.00%

	E	U	O	Total
E	98.97%	0.33%	0.70%	100.00%
U	25.06%	73.80%	1.15%	100.00%
O	12.93%	3.13%	83.94%	100.00%
Total	80.37%	3.05%	16.58%	100.00%

	same job	new job	NE	Total
E	94.97%	3.99%	1.03%	100.00%
NE	14.56%		85.44%	100.00%
Total	80.37%		19.63%	100.00%

Females (%)

	G	F	I	NW	NE	Total
G	98.15%	0.17%	0.12%	0.06%	1.49%	100.00%
F	0.76%	90.87%	0.23%	0.08%	8.06%	100.00%
I	0.66%	0.57%	86.12%	0.84%	11.80%	100.00%
NW	0.06%	0.00%	0.21%	98.04%	1.70%	100.00%
NE	0.62%	0.18%	0.39%	0.30%	98.50%	100.00%
Total	8.94%	1.19%	2.39%	5.40%	82.07%	100.00%

	E	U	O	Total
E	96.62%	0.75%	2.64%	100.00%
U	6.51%	93.33%	0.16%	100.00%
O	1.16%	0.83%	98.01%	100.00%
Total	17.98%	5.64%	76.38%	100.00%

	same job	new job	NE	Total
E	94.98%	1.64%	3.38%	100.00%
NE	1.50%		98.50%	100.00%
Total	17.98%		82.02%	100.00%

Table 2: Count of Labor Market Transition Probabilities (obtained from corrected weighted data - ELMPS 2012), Male workers, Ages 15-49 years old, Egypt 2001-2011

Predicted Weights						
	G	F	I	NW	NE	Total
G	3.50E+07	38952.07	5.06E+04	17257.23	92075.99	3.52E+07
F	218926.5	1.77E+07	239669.3	1.93E+05	2.63E+05	1.86E+07
I	6.20E+05	856441.4	5.82E+07	623274.4	2051949	6.24E+07
NW	182146.9	1.41E+05	2.93E+05	3.41E+07	351098.4	3.51E+07
NE	676054.4	719916.3	2316746	756191.4	3.83E+07	4.28E+07
Total	3.67E+07	1.95E+07	6.11E+07	3.57E+07	4.11E+07	1.94E+08
	E	U	O	Total		
E	1.48E+08	1149816	1608351	1.51E+08		
U	1172505	4483965	45109.12	5.70E+06		
O	3296403	1156815	3.26E+07	3.71E+07		
Total	1.52E+08	6.79E+06	3.43E+07	1.94E+08		
	same job	new job	NE	Total		
E	1.42E+08	5999967	2758167	1.51E+08		
NE	4468908		3.83E+07	4.28E+07		
Total	1.52E+08		41058167	1.94E+08		

Proportional Weights						
	G	F	I	NW	NE	Total
G	3.42E+07	72485.36	91434.57	41067.42	268685	3.47E+07
F	180231.9	1.79E+07	237755.7	214098.8	233337.1	1.88E+07
I	554438	706544.5	5.88E+07	667504.6	1786911	6.25E+07
NW	208637	150487.1	334348.1	3.40E+07	469233.4	3.52E+07
NE	552968.7	617960	2495886	802093.7	3.83E+07	4.28E+07
Total	3.57E+07	1.94E+07	6.20E+07	3.57E+07	4.11E+07	1.94E+08
	E	U	O	Total		
E	1.48E+08	1149816	1608351	1.51E+08		
U	1172505	4483965	45109.12	5.70E+06		
O	3296403	1156815	3.26E+07	3.71E+07		
Total	1.52E+08	6.79E+06	3.43E+07	1.94E+08		
	same job	new job	NE	Total		
E	1.42E+08	5999967	2758167	1.51E+08		
NE	4468908		3.83E+07	4.28E+07		
Total	1.52E+08		41058167	1.94E+08		

Predicted Weights (%)						
	G	F	I	NW	NE	Total
G	99.43%	0.11%	0.14%	0.05%	0.26%	100.00%
F	1.18%	95.09%	1.29%	1.04%	1.41%	100.00%
I	0.99%	1.37%	93.34%	1.00%	3.29%	100.00%
NW	0.52%	0.40%	0.84%	97.24%	1.00%	100.00%
NE	1.58%	1.68%	5.42%	1.77%	89.55%	100.00%
Total	18.92%	10.03%	31.49%	18.40%	21.16%	100.00%
	E	U	O	Total		
E	98.17%	0.76%	1.07%	100.00%		
U	20.56%	78.64%	0.79%	100.00%		
O	8.90%	3.12%	87.98%	100.00%		
Total	78.79%	3.51%	17.70%	100.00%		
	same job	new job	NE	Total		
E	94.19%	3.98%	1.83%	100.00%		
NE	10.45%		89.55%	100.00%		
Total	78.78%		21.22%	100.00%		

Proportional Weights (%)						
	G	F	I	NW	NE	Total
G	98.63%	0.21%	0.26%	0.12%	0.77%	100.00%
F	0.96%	95.39%	1.27%	1.14%	1.24%	100.00%
I	0.89%	1.13%	94.06%	1.07%	2.86%	100.00%
NW	0.59%	0.43%	0.95%	96.69%	1.33%	100.00%
NE	1.29%	1.44%	5.84%	1.88%	89.55%	100.00%
Total	18.41%	10.03%	31.96%	18.43%	21.18%	100.00%
	E	U	O	Total		
E	98.17%	0.76%	1.07%	100.00%		
U	20.56%	78.64%	0.79%	100.00%		
O	8.90%	3.12%	87.98%	100.00%		
Total	78.79%	3.51%	17.70%	100.00%		
	same job	new job	NE	Total		
E	94.19%	3.98%	1.83%	100.00%		
NE	10.45%		89.55%	100.00%		
Total	78.78%		21.22%	100.00%		

Table 3: Count of Labor Market Transition Probabilities (obtained from raw - JLMPS 2010), Male and Female workers, Ages 15-49 years old, Jordan 2000-2010

Males

	G	F	I	NW	NE	Total
G	3074467	19899.69	21188.6	21172.84	69435.24	3.21E+06
F	57645.7	1725089	6716.838	4275.642	26166.57	1.82E+06
I	7976.269	15226.04	2844811	79832.32	88348.96	3.04E+06
NW	18982.46	14066.94	35359.2	1671810	28391.76	1.77E+06
NE	159661.9	126229.2	182187.8	54693.81	3954051	4.48E+06
Total	3.32E+06	1.90E+06	3.09E+06	1.83E+06	4.17E+06	1.43E+07

	E	U	O	Total
E	9618520	140610.4	71732.09	9.83E+06
U	237352.8	526357.9	2115.21	7.66E+05
O	285419.8	172624.7	3252953	3.71E+06
Total	1.01E+07	8.40E+05	3.33E+06	1.43E+07

	same job	new job	NE	Total
E	8.90E+06	723167.1	212342.5	9.83E+06
NE	522772.7		3.95E+06	4.48E+06
Total	1.01E+07		4166393.5	1.43E+07

Females

	G	F	I	NW	NE	Total
G	789017.7	1841.363	2739.765	194.4097	29388.27	8.23E+05
F	11969.96	460233.2	1606.858	0	33037.73	5.07E+05
I	977.6423	2601.778	324181.6	3393.248	55331.87	3.86E+05
NW	1178.608	512.367	2205.729	132473	7600.271	1.44E+05
NE	66082.19	73912.28	57439.91	17143.98	1.22E+07	1.24E+07
Total	8.69E+05	5.39E+05	3.88E+05	1.53E+05	1.23E+07	1.43E+07

	E	U	O	Total
E	1735127	25768.38	99589.76	1.86E+06
U	73816.87	262359.8	2151.17	3.38E+05
O	140761.5	102750.6	1.18E+07	1.20E+07
Total	1.95E+06	3.91E+05	1.19E+07	1.42E+07

	same job	new job	NE	Total
E	1.64E+06	94712.55	125358.1	1.86E+06
NE	214578.4		1.22E+07	1.24E+07
Total	1.95E+06		12325358.1	1.43E+07

Males (%)

	G	F	I	NW	NE	Total
G	95.89%	0.62%	0.66%	0.66%	2.17%	100.00%
F	3.17%	94.79%	0.37%	0.23%	1.44%	100.00%
I	0.26%	0.50%	93.70%	2.63%	2.91%	100.00%
NW	1.07%	0.80%	2.00%	94.53%	1.61%	100.00%
NE	3.57%	2.82%	4.07%	1.22%	88.32%	100.00%
Total	23.20%	13.28%	21.60%	12.80%	29.12%	100.00%

	E	U	O	Total
E	97.84%	1.43%	0.73%	100.00%
U	30.99%	68.73%	0.28%	100.00%
O	7.69%	4.65%	87.66%	100.00%
Total	70.88%	5.87%	23.25%	100.00%

	same job	new job	NE	Total
E	90.48%	7.36%	2.16%	100.00%
NE	11.68%		88.32%	100.00%
Total	70.88%		29.12%	100.00%

Females (%)

	G	F	I	NW	NE	Total
G	95.85%	0.22%	0.33%	0.02%	3.57%	100.00%
F	2.36%	90.80%	0.32%	0.00%	6.52%	100.00%
I	0.25%	0.67%	83.88%	0.88%	14.32%	100.00%
NW	0.82%	0.36%	1.53%	92.01%	5.28%	100.00%
NE	0.53%	0.60%	0.46%	0.14%	98.27%	100.00%
Total	6.09%	3.78%	2.72%	1.07%	86.34%	100.00%

	E	U	O	Total
E	93.26%	1.39%	5.35%	100.00%
U	21.82%	77.55%	0.64%	100.00%
O	1.17%	0.85%	97.98%	100.00%
Total	13.69%	2.74%	83.57%	100.00%

	same job	new job	NE	Total
E	88.17%	5.09%	6.74%	100.00%
NE	1.73%		98.27%	100.00%
Total	13.66%		86.34%	100.00%

Table 4: Count of Labor Market Transition Probabilities (obtained from corrected weighted - JLMPS 2010), Male workers, Ages 15-49 years old, Jordan 2000-2010

Predicted Weights

	G	F	I	NW	NE	Total
G	3083520	6883.494	7979.121	7419.83	189640	3.30E+06
F	78273.09	1639251	8912.464	5696.656	45374.46	1.78E+06
I	8823.079	17414.73	2620413	78337.65	296877	3.02E+06
NW	15802.08	11148.19	29494.53	1602657	59344.29	1.72E+06
NE	131417.4	118343.4	146522.5	51074.26	4072086	4.52E+06
Total	3.32E+06	1.79E+06	2.81E+06	1.75E+06	4.66E+06	1.43E+07
	E	U	O	Total		
E	9222027	380089.9	211145.9	9.81E+06		
U	210814.6	541675.3	2146.938	7.55E+05		
O	236542.9	177679.5	3350584	3.76E+06		
Total	9.67E+06	1.10E+06	3.56E+06	1.43E+07		
	same job	new job	NE	Total		
E	8.53E+06	693952.3	591235.8	9.81E+06		
NE	447357.5		4.07E+06	4.52E+06		
Total	9.67E+06		4663321.8	1.43E+07		

Proportional Weights

	G	F	I	NW	NE	Total
G	2948064	19097.32	20335.01	20265.81	206777	3.21E+06
F	55326.61	1654437	6415.231	4077.998	74156.59	1.79E+06
I	7657.484	14530.63	2727062	76556.48	237406.4	3.06E+06
NW	18191.77	13485.27	33948.66	1602575	72895.82	1.74E+06
NE	137517.4	108053.2	156032.2	45754.73	4072086	4.52E+06
Total	3.17E+06	1.81E+06	2.94E+06	1.75E+06	4.66E+06	1.43E+07
	E	U	O	Total		
E	9222027	380089.9	211145.9	9.81E+06		
U	210814.6	541675.3	2146.938	7.55E+05		
O	236542.9	177679.4	3350584	3.76E+06		
Total	9.67E+06	1.10E+06	3.56E+06	1.43E+07		
	same job	new job	NE	Total		
E	8.53E+06	693952.3	591235.8	9.81E+06		
NE	447357.5		4.07E+06	4.52E+06		
Total	9.67E+06		4663321.8	1.43E+07		

Predicted Weights (%)

	G	F	I	NW	NE	Total
G	93.57%	0.21%	0.24%	0.23%	5.75%	100.00%
F	4.40%	92.22%	0.50%	0.32%	2.55%	100.00%
I	0.29%	0.58%	86.72%	2.59%	9.82%	100.00%
NW	0.92%	0.65%	1.72%	93.26%	3.45%	100.00%
NE	2.91%	2.62%	3.24%	1.13%	90.10%	100.00%
Total	23.15%	12.51%	19.63%	12.18%	32.54%	100.00%
	E	U	O	Total		
E	93.98%	3.87%	2.15%	100.00%		
U	27.94%	71.78%	0.28%	100.00%		
O	6.28%	4.72%	89.00%	100.00%		
Total	67.46%	7.67%	24.87%	100.00%		
	same job	new job	NE	Total		
E	86.90%	7.07%	6.02%	100.00%		
NE	9.90%		90.10%	100.00%		
Total	67.46%		32.54%	100.00%		

Proportional Weights (%)

	G	F	I	NW	NE	Total
G	91.71%	0.59%	0.63%	0.63%	6.43%	100.00%
F	3.08%	92.20%	0.36%	0.23%	4.13%	100.00%
I	0.25%	0.47%	89.03%	2.50%	7.75%	100.00%
NW	1.04%	0.77%	1.95%	92.04%	4.19%	100.00%
NE	3.04%	2.39%	3.45%	1.01%	90.10%	100.00%
Total	22.09%	12.63%	20.54%	12.20%	32.54%	100.00%
	E	U	O	Total		
E	93.98%	3.87%	2.15%	100.00%		
U	27.94%	71.78%	0.28%	100.00%		
O	6.28%	4.72%	89.00%	100.00%		
Total	67.46%	7.67%	24.87%	100.00%		
	same job	new job	NE	Total		
E	86.90%	7.07%	6.02%	100.00%		
NE	9.90%		90.10%	100.00%		
Total	67.46%		32.54%	100.00%		

4 Determinants of Labor Market Transitions in Egypt and Jordan: An Application Using Transitions Weights

Why are the transitions' recall weights important? As an application to the transitions' recall weights, created in the previous section, this paper estimates the labor market transition probabilities in the two MENA countries Egypt and Jordan as a function of the workers' and firms' observable characteristics, with a focus on the employment dynamics. This section therefore aims mainly at estimating the turnover patterns and at exploring differences in the mobility behaviour. Although, this can be done empirically by duration models[12], it was suggested previously by Royalty (1998) that the interpretation of the estimated coefficients on event probabilities using discrete choice models is easier and the results are more accessible to policymakers[13]. I therefore choose to estimate the transition probabilities in this section using a multinomial logit (MNL) specification. The labor market transitions are modeled as a function of individual, household and job characteristics. Tansel and Ozdemir (2015) provided similar estimations of detailed sectorial transitions over a six-year using the ELMPS 2006 and 2012. A lot of short term transitions can however take place in between six years. Given the nature and type of data available for the countries in question, this paper chooses to pool all annual transitions from year t to year $t+1$ over a period of 10 years, for each country, using the retrospective information[14]. The methodology used in this section resembles that adopted by Theodossiou and Zangelidis (2009). They choose to focus on employment dynamics as in transitions from employment only and use a multinomial probit specification [15]. It might also be interesting at a further step to pool data as done in Theodossiou and Zangelidis (2009) from all countries in question to obtain regional-level estimates. The MNL model is specified as follows.

$$Pr(X_{i,t+1} = j | X_{i,t} = k) = \frac{exp(Z_i' \beta_{j|k})}{\Sigma_{l=0}^{K} exp(Z_i' \beta_{j|k})} \tag{30}$$

Z_i are the explanatory covariates for an individual i. $X_{i,t}$ is the individual's labor market state at time t. To identify the MNL model, we take individuals who maintain their state between year t and $t+1$ as the base or reference group with zero coefficients. The MNL model is estimated by

[12] This work is currently extended to estimate a multi-state multi-spell model using the proposed panel weights to test for the duration dependence of the labor market transitions in these countries.

[13] A principle objective of this paper in general is to address the importance of studying the dynamism of the labor market to policymakers. It is aimed to be perceived as a guide in countries where even official statistics fail to provide indicators about the labor market basic transitions (job finding and separations). Looking through the labor market transitions not only delivers a thorough idea (more than stocks) about the labor market's status quo but also gives hints on how to adjust stocks to targeted levels via flows going into and out of these stocks.

[14] Currently a test to the robustness of the proposed correction methodology is being prepared to compare transitions probabilities and coefficients obtained from retrospective and contemporaneous panel datasets, by re-running the MNL regressions for Egypt for transitions between 2005 and 2011 (i.e. the closest 6 year period available from the retrospective data to the transitions discussed in Tansel and Ozdemir (2015).

[15] Previous works by Dow and Endersby (2004) show very little difference between the predictions of both models for voting research. Moreover, Kropko (2007) and Kropko (2011) show through simulations that MNL nearly always provides more accurate results than MNP, even when the IIA assumption is severely violated.

the maximum likelihood estimation method. The marginal effects of the explanatory variables are given as usual by the following expression.

$$\frac{\partial Pr(X_i = j)}{\partial z_m} = Pr(X_i = j|Z).[\beta_m^j - \Sigma_{l=0}^K \beta_m^j Pr(X_i = j|Z)] \tag{31}$$

For computational reasons and due to sample sizes, it was only possible to run the MNL model for each country for initially employed individuals, lumped in aggregate categories. These individuals have the choice of maintaining their job the next year (stay in the job-SJ, the reference group), moving to another job (job-to-job JJ), leave to unemployment (EU) or to inactivity (EO). For this group of MNL regressions, I include in the explanatory variables the origin type of job to show how being employed in a certain employment sector affects the turnover and mobility decisions, also the firm size (only available for Egypt) and the economic activity. The employment sectors defined in this study are public wage work (G), private formal wage work (F), private informal wage work (I) and self-employment (NW). Informal wage work is defined as a private wage worker who neither has a contract nor social security. Self-Employment includes unpaid family workers as well as employers (whether hiring or not hiring other workers). This is the group of regressions I choose to focus on in this paper since no previous research works according to my knowledge have tackled the determinants of employment dynamics neither in Egypt nor Jordan.

In a second and third class of regressions, I estimate the MNL for unemployment (U) and inactivity (O) as the states of departure respectively. The results of these are reported in the appendix C. These individuals have the choice of staying in the same state, whether (U or O) or transiting to one the other two labor market states. Since this paper does not provide structural estimations and is only estimating the transition probabilities via a reduced form model, it was not possible to include among the covariates of transitions from unemployment and out of the labor force, the characteristics of the destination job of the job finders, more precisely the employment sector, the firm size..etc. In order to get a sense of the type of jobs which transitioners from unemployment or out of the labor force end up with, an extra multinomial logit is carried out in the appendix C showing transitions from non-employment (NE) to the four sectors of employment as opposed to the reference or base choice, staying non-employed. The sample had to lump both intitally unemployed and initially inactive, otherwise the number of transitions would have been too few for the estimation to converge. I refer to the latter regression as the MNL of detailed transitions.

All the above MNL regressions are first estimated using the raw data for both males and females to obtain gender-specific estimations. They are then estimated at a second step only for Egyptian and Jordanian male workers first adding the proportional transition recall weights and second adding the differentiated predicted transition recall weights. The aim of these regressions is to show to what extent the recall and design measurement errors might bias our estimations of predicted probabilities, and if conclusions about the determinants of the transitions will change or not. Also, these estimations aim to show the importance of distributing these weights according to the distribution of observable characteristics of individuals. I provide below the results of these MNL regressions in the form of determinants of transitions from each labor market state. Table 9 in appendix A show the list of definitions used for the covariates of these regressions. These are also the same definitions adopted for the explanatory variables of the probit regressions estimated in the correction section.

Determinants of employment dynamics

The paper defines employment dynamics as the transitions from employment to another job in employment, to unemployment or to out of the labor force as opposed to staying in the same job. Tables 5, 6, 7 and 8 show the marginal effects and their standarad errors of these transitions. These are calculated at the means of continous variables and at the base categories for the categorical variables. Since it's hard to comment all covariates, this section tries to summarize the main important observations.

Age plays an important role in determining transitions out of one's job. Obviously all mobility in terms of job-to-job transitions and workers leaving their jobs occurs among the younger age groups whether males or females. This is significant (at different levels) for the JJ transitions in both Egypt and Jordan. For the employment to unemployment or inactivity transitions, the negative marginal effects are only significant for Egypt. Strikingly Jordanian male workers within the age group 35-49 years old are more probable to leave their jobs to inactivity than their younger peers. This effect is even more pronounced as one adds the proportional and predicted transition recall weights. This effect might be suggestive of trends of early retirement of male workers in the Jordanian market. For the Jordanian male workers, ages 25-34, raw data provided insignificant marginal effects. Adding the predicted weights showed a negative marginal effect at the 10% level of significance. For Egypt, adding the weights changes the magnitude and even the significance levels of the marginal effects. For instance, the effect becomes more pronounced among the age group 35-49 years old going through job-to-job transitions and the two old age groups (25-34 and 35-49) exiting their jobs to inactivity. The marginal effects of male workers leaving their jobs to unemployment become however insignificant.

As expected and anticipated in the counting section, marriage is crucial when it comes to discussing gender differentials. Married women are significantly more probable to leave their jobs to inactivity in both countries. In Jordan, married women are also less likely to move from one job to another. Possibly, these women are helping out their husbands with their income, either that they do not have the luxury to search on-the-job or even if they do, it's not that easy to find a job that accepts a married woman with all potential maternity leaves and housework obligations. For men, it's the total opposite. In both countries, married men seems to be continously on the move i.e. more probable to go through job-to-job transitions. This can be explained by the fact that a married man is always looking for better jobs or maybe does not have the luxury to stay unemployed or inactive if he leaves his job (whether voluntarily or involuntarily). This is confirmed in both Egypt and Jordan, by the negative marginal effects associated with the employment to unemployment and inactivity transitions of married men. These effects are even more pronounced as one adds the transitions recall weights in both countries especially the predicted weights.

Higher mobility patterns and job exits to unemployment are observed significantly among the more educated groups of individuals for both males and females in Egypt. In Jordan, these marginal effects are only significant for job-to-job transitions among male university graduates and job to unemployment transitions among female university graduates. Higher levels of education including intermediate and university levels also lowers the probability that male workers exit the labor market (EO). In general the effect of education gets more pronounced for Egypt as one adds the transition recall weights. For Jordan, it becomes significantly less probable to exit the labor market as a male university graduate. Also, literate males who do not have a formal education are less probable to move from one job to another than their illiterate peers. This effect becomes after being totally insignificant without weights to significant at the 10% level after using weights.

One of the very interesting determinants providing common grounds between both countries is the effect of time spent in the job before one transits to another job or state. This provides an indication to the duration dependence, that will thoroughly be examined through the next section. In both countries, the longer one stays in a job, the less probable he/she leaves this job in search for another i.e. job-to-job transitioners. This negative duration dependence is also significant for Egyptian workers moving to unemployment and inactivity. It only becomes significant for the Jordanian workers as the predicted transition recall weights are added to the estimation process.

Another major determinant of transitions in both countries is the type of employment occupied in the orgin status of the initially employed individuals. Intuitively, higher job-to-job mobility patterns are observed among the private male wage and non-wage workers than their peers employed in the public sector. This is also true for the informal female wage workers. Evidence of higher probability to exits to unemployment, in both countries among both males and females employed in the informal sector. This reflects the instability and flexibility of this sector as opposed to its formal counterpart. Confirming what has been previously discussed in the first non-parametric section, females employed in the formal and informal private sector are generally more likely to exit the labor market and become non-participants than when employed in the public sector.

Having a child below the age of six revealed as an insignificant determinant of all types of employment transitions except for the female jordanian workers. This is actually in line with what has been discussed previously in an unpublished manuscript by Hendy (2012) that Egyptian females tend to have an unpaid work for family or become self- employed after marriage and child birth contrarily to their Jordanian counterparts who mostly become housewives. Interestingly, adding the predicted transition recall weights reveals significant positive marginal effect of male workers having a child at home to exit the labor market. This might be suggestive to male workers helping the mothers of taking care of the children.

Table 5: Marginal Effects of Multinomial Regression of Transitions from Employment, by Gender , Ages 15-49 years old, Egypt 2001-2011.

	EE		**JJ**		**EU**		**EO**	
	Males	**Females**	**Males**	**Females**	**Males**	**Females**	**Males**	**Females**
Age group (15-24 ommit.)								
25 - 34	0.009***	0.018***	0.004	-0.005	-0.001	-0.004*	-0.012***	-0.009*
	(0.002)	(0.005)	(0.002)	(0.003)	(0.001)	(0.002)	(0.001)	(0.004)
35-49	0.028***	0.029***	-0.015***	-0.006*	-0.002**	-0.010***	-0.011***	-0.013**
	(0.002)	(0.005)	(0.002)	(0.003)	(0.001)	(0.002)	(0.001)	(0.004)
Marital St. (Single ommit.)								
Marital St. (Married)	-0.003	-0.013**	0.010***	-0.008*	-0.003**	0.001	-0.004***	0.019***
	(0.002)	(0.005)	(0.002)	(0.003)	(0.001)	(0.002)	(0.001)	(0.003)
Education (Illiterate ommit.)								
Read & Write	-0.010**	-0.002	0.009*	0.008	0.001	0.000	0.000	-0.006
	(0.004)	(0.009)	(0.003)	(0.006)	(0.001)	(0.002)	(0.002)	(0.006)
Below Intermediate	-0.009***	-0.010	0.005*	0.002	0.002**	0.002	0.003*	0.005
	(0.002)	(0.008)	(0.002)	(0.004)	(0.001)	(0.002)	(0.001)	(0.006)
Intermediate & above	-0.017***	-0.017***	0.017***	0.007*	0.002***	0.005***	-0.002*	0.004
	(0.002)	(0.005)	(0.002)	(0.003)	(0.000)	(0.001)	(0.001)	(0.004)
University & above	-0.025***	-0.014*	0.025***	0.012**	0.003**	0.005*	-0.004**	-0.003
	(0.003)	(0.006)	(0.003)	(0.004)	(0.001)	(0.002)	(0.001)	(0.005)
Experience in job	0.008***	0.007***	-0.006***	-0.003***	-0.000***	-0.001***	-0.001***	-0.003***
	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)
Experience Squared	-0.000***	-0.000***	0.000***	0.000***	0.000***	0.000***	0.000***	0.000*
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Region (Rural areas ommit.)								
Greater Cairo	-0.009**	-0.002	0.003	0.001	0.000	-0.004*	0.006***	0.005
	(0.003)	(0.006)	(0.003)	(0.003)	(0.001)	(0.002)	(0.002)	(0.004)
Alex & Suez	-0.004	-0.002	0.001	-0.003	0.003*	-0.003	0.000	0.008
	(0.003)	(0.006)	(0.003)	(0.003)	(0.001)	(0.002)	(0.001)	(0.005)
Urban areas	0.006**	-0.003	-0.006***	0.001	0.001	0.002	-0.001	0.000
	(0.002)	(0.004)	(0.002)	(0.003)	(0.000)	(0.002)	(0.001)	(0.003)
Public Sector ommit.								
Formal Private WW	-0.020***	-0.031***	0.024***	-0.000	0.002*	0.005*	-0.006*	0.026***
	(0.004)	(0.007)	(0.002)	(0.003)	(0.001)	(0.002)	(0.003)	(0.006)
Informal Private WW	-0.027***	-0.069***	0.029***	0.015**	0.003***	0.016***	-0.005	0.037***
	(0.003)	(0.008)	(0.002)	(0.005)	(0.001)	(0.004)	(0.003)	(0.006)
Self-Employment	-0.031***	-0.017*	0.034***	0.002	0.002*	0.007	-0.005	0.008
	(0.004)	(0.008)	(0.003)	(0.004)	(0.001)	(0.005)	(0.003)	(0.005)
Manufacturing ommit.								
Agriculture	0.004	0.021**	-0.004	-0.007	-0.002*	-0.006**	0.002	-0.008
	(0.003)	(0.008)	(0.002)	(0.004)	(0.001)	(0.002)	(0.001)	(0.006)
Services	0.007**	0.014	-0.004	-0.005	-0.000	0.002	-0.003*	-0.011*
	(0.003)	(0.007)	(0.002)	(0.004)	(0.001)	(0.002)	(0.001)	(0.005)
Construction	0.002	0.017	-0.001	-0.009	-0.001	0.010	-0.001	-0.018
	(0.003)	(0.019)	(0.003)	(0.009)	(0.001)	(0.015)	(0.001)	(0.012)
Firm Size (1-4 ommit.)								
Firm Size (5-50)	-0.004	-0.005	0.004*	-0.006	0.000	0.003	-0.001	0.008
	(0.002)	(0.005)	(0.002)	(0.003)	(0.001)	(0.002)	(0.001)	(0.004)
Firm Size (50+)	0.002	-0.002	0.001	-0.004	0.000	0.003	-0.003**	0.003
	(0.003)	(0.006)	(0.003)	(0.004)	(0.001)	(0.002)	(0.001)	(0.005)
No child below 6 (ommit.)								
Child below 6	-0.004	-0.007	0.002	0.001	0.001	-0.000	0.002	0.007
	(0.003)	(0.005)	(0.002)	(0.003)	(0.001)	(0.002)	(0.001)	(0.004)
Household size	0.003***	0.005**	-0.002***	-0.000	-0.000	-0.001	-0.000*	-0.004***
	(0.000)	(0.002)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)	(0.001)
Unemp. Rate	0.001	0.002	-0.002**	0.000	0.000	-0.001	0.001*	-0.001
	(0.001)	(0.002)	(0.001)	(0.001)	(0.000)	(0.001)	(0.000)	(0.001)
N(Obs.)	92250	20476	92250	20476	92250	20476	92250	20476

Table 6: Marginal Effects of Multinomial Regression of Transitions from Employment, Male Workers , Ages 15-49 years old, Egypt 2001-2011.

	EE			JJ			EU			EO		
	raw data	proportional weights	predicted weights	raw data	proportional weights	predicted weights	raw data	proportional weights	predicted weights	raw data	proportional weights	predicted weights
Age group (15-24 ommit.)												
25 - 34	0.009***	0.017***	0.017***	0.004	0.004	0.001	-0.001	-0.004*	0.002	-0.012***	-0.018***	-0.020***
	(0.002)	(0.003)	(0.003)	(0.002)	(0.002)	(0.002)	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)	(0.001)
35-49	0.028***	0.035***	0.044***	-0.015***	-0.015***	-0.030***	-0.002**	-0.006**	0.004	-0.011***	-0.015***	-0.018***
	(0.002)	(0.003)	(0.005)	(0.002)	(0.002)	(0.002)	(0.001)	(0.002)	(0.004)	(0.001)	(0.002)	(0.002)
Marital St. (Single ommit.)												
Marital St. (Married)	-0.003	-0.000	0.013*	0.010***	0.010***	0.015***	-0.003**	-0.005**	-0.017***	-0.004***	-0.005***	-0.011***
	(0.002)	(0.003)	(0.005)	(0.002)	(0.002)	(0.002)	(0.001)	(0.002)	(0.005)	(0.001)	(0.001)	(0.002)
Education (Illiterate ommit.)												
Read & Write	-0.010**	-0.009*	-0.013**	0.009*	0.008*	0.008**	0.001	0.001	0.002	0.000	-0.000	0.004
	(0.004)	(0.004)	(0.004)	(0.003)	(0.003)	(0.003)	(0.001)	(0.002)	(0.001)	(0.002)	(0.003)	(0.004)
Below Intermediate	-0.009***	-0.012***	-0.015***	0.005*	0.005*	0.008***	0.002**	0.004*	0.005*	0.003*	0.003	0.003
	(0.002)	(0.003)	(0.003)	(0.002)	(0.002)	(0.002)	(0.001)	(0.002)	(0.002)	(0.001)	(0.002)	(0.002)
Intermediate & above	-0.017***	-0.017***	-0.035***	0.017***	0.017***	0.031***	0.002***	0.003**	0.009***	-0.002*	-0.004**	-0.005**
	(0.002)	(0.003)	(0.003)	(0.002)	(0.002)	(0.002)	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)
University & above	-0.025***	-0.024***	-0.038***	0.025***	0.025***	0.043***	0.003**	0.005*	0.006**	-0.004**	-0.006**	-0.011***
	(0.003)	(0.004)	(0.004)	(0.003)	(0.003)	(0.003)	(0.001)	(0.002)	(0.002)	(0.001)	(0.002)	(0.002)
Experience in job	0.008***	0.009***	0.010***	-0.006***	-0.006***	-0.007***	-0.000***	-0.001***	-0.001***	-0.001***	-0.002***	-0.002***
	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Experience Squared	-0.000***	-0.000***	-0.000***	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Region (Rural areas ommit.)												
Greater Cairo	-0.009**	-0.012***	-0.033***	0.003	0.003	0.019***	0.000	0.001	0.007**	0.006***	0.008**	0.007*
	(0.003)	(0.004)	(0.004)	(0.003)	(0.003)	(0.003)	(0.001)	(0.002)	(0.003)	(0.002)	(0.002)	(0.003)
Alex & Suez	-0.004	-0.007	-0.008	0.001	0.001	0.003	0.003*	0.006**	0.012***	0.000	0.000	-0.007***
	(0.003)	(0.004)	(0.004)	(0.003)	(0.003)	(0.003)	(0.001)	(0.002)	(0.004)	(0.001)	(0.002)	(0.001)
Urban areas	0.006**	0.004	0.007**	-0.006***	-0.006***	-0.007***	0.001	0.002	0.004**	-0.001	-0.000	-0.005***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.000)	(0.001)	(0.002)	(0.001)	(0.001)	(0.001)
Public Sector ommit.												
Formal Private WW	-0.020***	-0.019***	-0.031***	0.024***	0.025***	0.031***	0.002*	0.003	0.006**	-0.006*	-0.008*	-0.006
	(0.004)	(0.004)	(0.005)	(0.002)	(0.002)	(0.002)	(0.001)	(0.002)	(0.002)	(0.003)	(0.004)	(0.005)
Informal Private WW	-0.027***	-0.028***	-0.050***	0.029***	0.029***	0.042***	0.003***	0.005**	0.010***	-0.005	-0.005	-0.002
	(0.003)	(0.004)	(0.005)	(0.002)	(0.002)	(0.002)	(0.001)	(0.002)	(0.002)	(0.003)	(0.004)	(0.004)
Self-Employment	-0.031***	-0.031***	-0.037***	0.034***	0.033***	0.040***	0.002*	0.003	0.001*	-0.005	-0.006	-0.004
	(0.004)	(0.005)	(0.005)	(0.003)	(0.003)	(0.003)	(0.001)	(0.002)	(0.001)	(0.003)	(0.004)	(0.004)
Manufacturing ommit.												
Agriculture	0.004	0.005	0.003	-0.004	-0.003	-0.005	-0.002*	-0.005**	-0.002	0.002	0.003	0.004
	(0.003)	(0.003)	(0.004)	(0.002)	(0.002)	(0.003)	(0.001)	(0.002)	(0.003)	(0.001)	(0.002)	(0.002)
Services	0.007**	0.008**	0.003	-0.004	-0.004	-0.002	-0.000	-0.000	0.000	-0.003*	-0.004*	-0.001
	(0.003)	(0.003)	(0.003)	(0.002)	(0.002)	(0.002)	(0.001)	(0.002)	(0.002)	(0.001)	(0.002)	(0.002)
Construction	0.002	0.003	0.000	-0.001	-0.000	-0.000	-0.001	-0.001	-0.001	-0.001	-0.001	0.001
	(0.003)	(0.004)	(0.004)	(0.003)	(0.003)	(0.003)	(0.001)	(0.002)	(0.003)	(0.001)	(0.002)	(0.002)
Firm Size (1-4 ommit.)												
Firm Size (5-50)	-0.004	-0.004	-0.004	0.004*	0.004*	0.004*	0.000	0.001	0.001	-0.001	-0.001	-0.001
	(0.002)	(0.003)	(0.003)	(0.002)	(0.002)	(0.002)	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)	(0.001)
Firm Size (50+)	0.002	0.003	-0.003	0.001	0.001	0.004	0.000	0.000	0.004	-0.003**	-0.004*	-0.004
	(0.003)	(0.004)	(0.004)	(0.003)	(0.003)	(0.003)	(0.001)	(0.002)	(0.003)	(0.001)	(0.002)	(0.002)
No child below 6 (ommit.)												
Child below 6	-0.004	-0.005	-0.009**	0.002	0.002	0.005	0.001	0.001	0.002	0.002	0.002	0.002
	(0.003)	(0.003)	(0.003)	(0.002)	(0.002)	(0.002)	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)	(0.002)
Household size	0.003***	0.003***	0.005***	-0.002***	-0.002***	-0.003***	-0.000	-0.000	-0.001	-0.000*	-0.001*	-0.001*
	(0.000)	(0.001)	(0.001)	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)
Unemp. Rate	0.001	0.002*	0.002*	-0.002**	-0.002**	-0.002**	0.000	-0.000	-0.000	0.001*	0.000	0.000
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)
N(Obs.)	92250	92250	92250	92250	92250	92250	92250	92250	92250	92250	92250	92250

Table 7: Marginal Effects of Multinomial Regression of Transitions from Employment, by Gender , Ages 15-49 years old, Jordan 2000-2010.

	EE		**JJ**		**EU**		**EO**	
	Males	**Females**	**Males**	**Females**	**Males**	**Females**	**Males**	**Females**
Age group (15-24 ommit.)								
25 - 34	0.033***	0.028	-0.031***	-0.014	-0.001	0.006	-0.001	-0.019
	(0.006)	(0.015)	(0.005)	(0.011)	(0.002)	(0.004)	(0.002)	(0.011)
35-49	0.040***	0.055***	-0.043***	-0.037**	-0.002	-0.001	0.005*	-0.017
	(0.007)	(0.016)	(0.006)	(0.011)	(0.003)	(0.004)	(0.002)	(0.012)
Marital St. (Single ommit.)								
Marital St. (Married)	0.010	-0.029**	0.010*	-0.014	-0.012***	-0.000	-0.008**	0.044***
	(0.006)	(0.010)	(0.004)	(0.008)	(0.003)	(0.004)	(0.003)	(0.006)
Education (Illiterate ommit.)								
Read & Write	0.009	0.028	-0.003	-0.026	-0.002	0.001	-0.004	-0.003
	(0.009)	(0.028)	(0.008)	(0.017)	(0.004)	(0.006)	(0.003)	(0.021)
Below Intermediate	-0.004	-0.023	0.008	-0.015	0.001	0.010	-0.005	0.028
	(0.008)	(0.023)	(0.007)	(0.015)	(0.004)	(0.006)	(0.003)	(0.015)
Intermediate & above	-0.004	-0.015	0.008	-0.008	-0.001	0.005	-0.003	0.018
	(0.009)	(0.022)	(0.007)	(0.015)	(0.004)	(0.005)	(0.003)	(0.013)
University & above	-0.014	-0.015	0.022**	0.015	-0.003	0.014**	-0.005	-0.014
	(0.009)	(0.023)	(0.008)	(0.015)	(0.004)	(0.005)	(0.003)	(0.013)
Experience in job	0.003**	0.008**	-0.003***	-0.005**	-0.000	-0.002	0.000*	-0.002
	(0.001)	(0.003)	(0.001)	(0.002)	(0.000)	(0.001)	(0.000)	(0.002)
Experience Squared	-0.000***	-0.000**	0.000***	0.000**	0.000***	0.000	0.000	0.000*
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Region (Middle ommit.)								
North	-0.004	0.003	-0.002	-0.011	0.004*	0.008	0.002*	-0.001
	(0.004)	(0.009)	(0.003)	(0.007)	(0.002)	(0.004)	(0.001)	(0.007)
South	0.015**	0.043***	-0.015***	-0.015	0.002	-0.003	-0.002	-0.026***
	(0.005)	(0.011)	(0.004)	(0.008)	(0.002)	(0.004)	(0.001)	(0.007)
Public Sector ommit.								
Formal Private WW	-0.060***	-0.060***	0.064***	0.028***	0.002	0.015***	-0.006***	0.016*
	(0.005)	(0.011)	(0.005)	(0.008)	(0.002)	(0.004)	(0.001)	(0.008)
Informal Private WW	-0.060***	-0.129***	0.050***	0.027**	0.009***	0.030***	0.000	0.071***
	(0.005)	(0.015)	(0.004)	(0.009)	(0.002)	(0.006)	(0.001)	(0.011)
Self-Employment	-0.025***	-0.034	0.027***	0.023	0.002	0.005	-0.003*	0.006
	(0.005)	(0.018)	(0.004)	(0.014)	(0.002)	(0.005)	(0.001)	(0.010)
Manufacturing ommit.								
Agriculture	-0.006	0.022	0.013	0.000	-0.004	-0.004	-0.003	-0.018
	(0.008)	(0.019)	(0.008)	(0.014)	(0.003)	(0.005)	(0.002)	(0.013)
Services	0.004	-0.010	-0.006	0.016*	0.001	0.005	0.001	-0.011
	(0.005)	(0.012)	(0.004)	(0.008)	(0.002)	(0.004)	(0.002)	(0.009)
Construction	0.003	0.019	-0.003	-0.025	0.001	0.013	-0.001	-0.007
	(0.007)	(0.037)	(0.006)	(0.014)	(0.003)	(0.019)	(0.002)	(0.028)
No child below 6 (ommit.)								
Child below 6	0.013	-0.022	-0.012	-0.001	-0.004	-0.004	0.003	0.028***
	(0.007)	(0.012)	(0.007)	(0.010)	(0.004)	(0.005)	(0.002)	(0.008)
Household size	0.001	0.008***	-0.002*	-0.002	0.000	-0.002	0.000	-0.004*
	(0.001)	(0.002)	(0.001)	(0.002)	(0.000)	(0.001)	(0.000)	(0.002)
Unemp. Rate	0.009***	0.003	-0.006***	0.002	-0.002***	-0.001	-0.000	-0.004*
	(0.001)	(0.003)	(0.001)	(0.002)	(0.000)	(0.001)	(0.000)	(0.002)
N(Obs.)	41101	7801	41101	7801	41101	7801	41101	7801

Table 8: Marginal Effects of Multinomial Regression of Transitions from Employment, Male Workers , Ages 15-49 years old, Jordan 2000-2010

	EE			JJ			EU			EO		
	raw data	**proportional weights**	**predicted weights**	**raw data**	**proportional weights**	**predicted weights**	**raw data**	**proportional weights**	**predicted weights**	**raw data**	**proportional weights**	**predicted weights**
Age group (15-24 ommit.)												
25 - 34	0.033***	0.043***	0.037***	-0.031***	-0.028***	-0.043***	-0.001	-0.011	0.012	-0.001	-0.004	-0.006*
	(0.006)	(0.009)	(0.008)	(0.005)	(0.005)	(0.006)	(0.002)	(0.008)	(0.006)	(0.002)	(0.005)	(0.003)
35-49	0.040***	0.042***	0.036***	-0.043***	-0.040***	-0.067***	-0.002	-0.016	0.006	0.005*	0.014*	0.025***
	(0.007)	(0.011)	(0.010)	(0.006)	(0.006)	(0.006)	(0.003)	(0.009)	(0.007)	(0.002)	(0.007)	(0.006)
Marital St. (Single ommit.)												
Marital St. (Married)	0.010	0.029**	0.094***	0.010*	0.012**	0.014***	-0.012***	-0.023**	-0.064***	-0.008**	-0.017*	-0.044**
	(0.006)	(0.010)	(0.015)	(0.004)	(0.004)	(0.004)	(0.003)	(0.008)	(0.010)	(0.003)	(0.008)	(0.014)
Education (Illiterate ommit.)												
Read & Write	0.009	0.018	0.048**	-0.003	-0.002	-0.022*	-0.002	-0.001	-0.023	-0.004	-0.014	-0.003
	(0.009)	(0.015)	(0.015)	(0.008)	(0.007)	(0.009)	(0.004)	(0.010)	(0.012)	(0.003)	(0.009)	(0.006)
Below Intermediate	-0.004	0.004	0.011	0.008	0.008	-0.014	0.001	0.004	-0.002	-0.005	-0.016	0.006
	(0.008)	(0.014)	(0.014)	(0.007)	(0.007)	(0.009)	(0.004)	(0.009)	(0.012)	(0.003)	(0.009)	(0.006)
Intermediate & above	-0.004	0.001	0.015	0.008	0.007	-0.014	-0.001	0.003	-0.013	-0.003	-0.011	0.012
	(0.009)	(0.014)	(0.014)	(0.007)	(0.007)	(0.009)	(0.004)	(0.010)	(0.012)	(0.003)	(0.009)	(0.006)
University & above	-0.014	-0.002	0.040**	0.022**	0.021**	-0.003	-0.003	-0.003	-0.022	-0.005	-0.016	-0.015**
	(0.009)	(0.015)	(0.015)	(0.008)	(0.008)	(0.010)	(0.004)	(0.011)	(0.013)	(0.003)	(0.009)	(0.005)
Experience in job	0.003**	0.002	0.005***	-0.003***	-0.003***	-0.004***	-0.000	-0.000	-0.005***	0.000*	0.001	0.003***
	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)	(0.001)	(0.000)	(0.001)	(0.001)	(0.000)	(0.001)	(0.001)
Experience Squared	-0.000***	-0.000***	-0.000***	0.000***	0.000***	0.000***	0.000***	0.000**	0.000***	0.000	0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Region (Middle ommit.)												
North	-0.004	-0.017**	-0.037***	-0.002	-0.003	0.013***	0.004*	0.012**	0.018***	0.002*	0.007*	0.007*
	(0.004)	(0.006)	(0.006)	(0.003)	(0.003)	(0.003)	(0.002)	(0.005)	(0.005)	(0.001)	(0.003)	(0.003)
South	0.015**	0.013	0.014	-0.015***	-0.014***	-0.022***	0.002	0.006	0.019*	-0.002	-0.005	-0.011***
	(0.005)	(0.007)	(0.008)	(0.004)	(0.004)	(0.004)	(0.002)	(0.006)	(0.008)	(0.001)	(0.003)	(0.003)
Public Sector ommit.												
Formal Private WW	-0.060***	-0.053***	-0.104***	0.064***	0.062***	0.123***	0.002	0.009	0.010*	-0.006***	-0.018***	-0.029***
	(0.005)	(0.008)	(0.007)	(0.005)	(0.005)	(0.005)	(0.002)	(0.006)	(0.004)	(0.001)	(0.004)	(0.004)
Informal Private WW	-0.060***	-0.069***	-0.120***	0.050***	0.047***	0.077***	0.009***	0.024***	0.054***	0.000	-0.003	-0.011*
	(0.005)	(0.008)	(0.008)	(0.004)	(0.004)	(0.004)	(0.002)	(0.006)	(0.006)	(0.001)	(0.004)	(0.005)
Self-Employment	-0.025***	-0.016*	-0.033***	0.027***	0.026***	0.041***	0.002	0.001	0.018**	-0.003*	-0.011**	-0.027***
	(0.005)	(0.007)	(0.007)	(0.004)	(0.004)	(0.003)	(0.002)	(0.006)	(0.006)	(0.001)	(0.004)	(0.004)
Manufacturing ommit.												
Agriculture	-0.006	0.003	-0.007	0.013	0.014	0.017*	-0.004	-0.007	0.004	-0.003	-0.010	-0.014
	(0.008)	(0.011)	(0.014)	(0.008)	(0.008)	(0.007)	(0.003)	(0.008)	(0.009)	(0.002)	(0.005)	(0.009)
Services	0.004	0.001	0.010	-0.006	-0.005	-0.004	0.001	0.003	0.005	0.001	0.001	-0.012
	(0.005)	(0.008)	(0.010)	(0.004)	(0.004)	(0.004)	(0.002)	(0.006)	(0.006)	(0.002)	(0.005)	(0.008)
Construction	0.003	-0.000	0.009	-0.003	-0.003	0.000	0.001	0.005	0.004	-0.001	-0.001	-0.013
	(0.007)	(0.013)	(0.012)	(0.006)	(0.006)	(0.005)	(0.003)	(0.010)	(0.008)	(0.002)	(0.007)	(0.009)
No child below 6 (ommit.)												
Child below 6	0.013	0.021	-0.004	-0.012	-0.011	-0.013	-0.004	-0.020	-0.001	0.003	0.009	0.018***
	(0.007)	(0.014)	(0.010)	(0.007)	(0.007)	(0.007)	(0.004)	(0.014)	(0.009)	(0.002)	(0.006)	(0.003)
Household size	0.001	-0.000	0.003*	-0.002*	-0.002*	-0.004***	0.000	0.001	0.002**	0.000	0.001	-0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.000)	(0.001)	(0.001)	(0.000)	(0.001)	(0.001)
Unemp. Rate	0.009***	0.004*	0.003	-0.006***	-0.006***	-0.007***	-0.002***	0.001	0.003*	-0.000	0.001*	0.001
	(0.001)	(0.002)	(0.002)	(0.001)	(0.001)	(0.001)	(0.000)	(0.001)	(0.001)	(0.000)	(0.001)	(0.001)
N(Obs.)	41101	41101	41101	41101	41101	41101	41101	41101	41101	41101	41101	41101

5 Conclusion

Given that there are no official statistics on labor market dynamics in the MENA region, the only way to study short-term labor market transitions in Egypt and Jordan is by extracting longitudinal retrospective panels. These panels were shown to suffer from recall and design measurement errors. This paper suggests a correction technique that shows that it is sufficient to have population, stocks and transitions, moments to correct over- or under-reporting biases in retrospective data. The true unbiased moments can be obtained from auxiliary information such as contemporaneous information from other waves of the same survey, or even external data sources, so long comparability between the varaibles' definitions is verified. Once the moments are matched on the aggregate level, a measurement error for each type of transition at a point in time t can be estimated. This measurement error is then distributed among the sample's individual observations/transactions in the form of micro-data weights, such as observations that are being under-reported take higher weights and those over-reported take lower weights. The paper proposes two types of weights: (1)naive proportional weights and (2)differentiated predicted weights. The paper shows significant different results as these weights are added showing how crucial correcting recall and design measurement errors is to be able to obtain unbiased estimations for labor market transition probabilities. These weights, especially the differentiated predicted weights, make significant changes to the levels and composition of the labor market transitions obtained from the retrospective data since now the samples are redressed to become random under the assumptions of the model. The correction methodology proposed in this paper alters significantly the rates of separations and job findings in Egypt and Jordan which have been shown to be under-estimated and over-estimated respectively.

The paper also shows the importance of these weights via an application by exploring the determinants of labor market transitions in general in two MENA region countries, Egypt and Jordan. The methodology discussed explores in particular the employment turnover patterns among the different groups of individuals in the market as well as their job-to-job mobility behaviour. The analysis is also done, even though for using uncorrected data, on a gender-specific basis to be able to make conclusions about gender differentials in transitions.

The main findings of this paper show that Jordan has a much more mobile labor market than that of Egypt. For both male and female workers, job-to-job transitions rates and job to non-employment separation rates are higher. Age and gender play important roles as determinants to job turnover and mobility in both markets. More educated male workers are more mobile and prone to leaving to unemployment than their less educated/illiterate peers, especially in Egypt. The public sector in both countries is very stagnant as opposed to the private wage and non-wage employment. Public wage workers tend to remain employed during their entire careeer and only leave to inactivity as they wish to retire. The public sector also provides a flexible employer for the female workers in both Egypt and Jordan otherwise these workers are found to leave the labor market after their marriage or as they have a child (as in the case of Jordan for instance). The significant effects of the type of employment in the origin job are suggestive to the extent of state dependence of these labor market/state transitions.

Preliminary evidence from both the multinomial logit regressions and the non-parametric survival analysis show obvious negative duration dependence of these employment transitions. In both countries, Egypt and Jordan, for male workers, employment to unemployment transitions appear to accelerate at the early years of a job and then flatten out over time. The same pattern is observed for the job-to-job transitions, however these transitions tend to decelerate a bit later than the job leaves. For the Egyptian job to out of the labor force transitions, one observes a similar behavior to that of the job to unemployment. However, for Jordan, the pattern is a bit surprising where quits out of the labor market starts accelerating substantially between 10 years after appointment up to around 25 years after appointment. Female workers exhibit more or less similar patterns to those of the male workers except that they tend to leave employment much earlier and their job-to-job transitions are much less probable.

This paper is a preliminary milestone in a bigger project, where first the correction methodology is aimed to be developped. Given the over-identification of the model, tests of goodness of fit are currently carried out to prove how reliable the obtained estimates are. Expanding on the role of the parametric form of the recall and design bias is crucial to explore to what extent the obtained results rely on it. Among the applications of the weights, a multi-state multi-spell model is built and estimated for the transitions in Egypt and Jordan and estimated using panel weights. Finally, cross-country comparisons are usually problematic if one ignores contextualizing the analysis to the nature of the market and institutions of each country. A country where flexible employment protection laws have been implemented long ago, such as Jordan, would definitely be expected to be more flexible in terms of job-to-job transitions and separations than another where short term contracts have just been introduced and allowed in the market. In order to be able to conclude some policy implications for each of the countries analyzed in this paper, the reduced form transitions estimated in this paper serve as a tool for a further step which would be pluging these estimates into a job search equilibrium model to simulate for the wage dispersion among the different soci-economic groups, the different labor market policies and hence conclude robust policy recommendations.

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A Appendix

Table 9: List of explanatory variables/ regressions' covariates

Age group	Age is a set of three dummies. Age 15-24 being the base category Age 25-34 Age 35-44
Married	is a dumy variable taking value one if the individual is married and 0 otherwise
Region	For Egypt: is a set of four dummies Rural areas being the base category Greater Cairo Alexandria and Suez Urban areas For Jordan: is a set of three dummies Middle area being the base category North area South area
Education	is a set of five dummies 1. The base category includes all illiterate individuals 2. A group of individuals who can read and write i.e. literate but never graduated from school 3. Below Intermediate education includes maily primary and prepartory education. 4. A group of individuals who got intermediate & above education. This includes Secondry and Post-Sec diplomas (General and Technical) 5. A group of individuals who attained university degrees and post graduate studies.
Experience	For initially employed workers, this is the number of years an individual has been in this specific job. This gives a sense of duration dependence. For initially unemployed and inactive, this is the number of years since entry into the labor market. i.e. since his/her date of start of first job. This is equal to zero if the individual has never worked. (Further work is considered to change this in later versions to the number of years the individual has been unemployed/inactive)
Origin Job	This is only applicable for the initially employed individuals. It's a set of four dummies showing the type of employment in the origin job 1. Public wage work as the base category 2. Private formal wage work 3. Private Informal wage work 4. Non-Wage work
Economic activity	This is only applicable for the initially employed individuals. is a set of four dummies. 1. Manufacturing as the base category 2. Agriculture 3. Services/ Tertiary sector 4. Construction
Child below 6	is a dummy variable taking the value of 1 if a child of age 6 or less is present in the individual's household, and 0 otherwise
Household size	a continous variable showing the number of individuals in the household.
Unemployment rate	The official unemployment rate in the country at the year of the transition. *The provincial unemployment rate is being considered for later versions of the paper.

Table 10: Coefficients of Probit Regressions, showing the distribution of observable characteristics of labor market transitions in the most recent i.e. most accurate year of the survey, 2011/2012 for Egypt

	EE (SJ)	EE(JJ)	EU	EO	UE	OE	UU	OE	OO
Age Group (15-24 ommitted)									
Age Group (25-34)	0.088	-0.018	0.170	-0.754***	-0.489***	-0.799***	-0.026	-0.650***	-0.877***
	(0.051)	(0.062)	(0.087)	(0.121)	(0.106)	(0.087)	(0.041)	(0.093)	(0.035)
Age Group (35-54)	0.214**	-0.257**	0.259*	-0.424*	-0.618***	-3.255***	-0.347***	-2.124***	-0.627***
	(0.076)	(0.089)	(0.131)	(0.169)	(0.180)	(0.666)	(0.067)	(0.282)	(0.063)
Marital Status (Single ommitted)									
Marital Status (Married)	0.093	0.095	-0.347***	-0.307**	-0.443***	-0.568***	-0.703***	-0.374***	-1.427***
	(0.053)	(0.061)	(0.097)	(0.115)	(0.099)	(0.112)	(0.047)	(0.110)	(0.047)
Education (Illiterate ommitted)									
Education (Read and Write)	-0.112	0.128	0.133	0.033	0.265	0.110	0.120	0.086	-0.363**
	(0.094)	(0.106)	(0.150)	(0.236)	(0.208)	(0.215)	(0.109)	(0.195)	(0.117)
Education (Less than Intermediate)	-0.059	0.115	-0.035	-0.055	0.129	0.096	-0.144*	-0.136	0.461***
	(0.069)	(0.075)	(0.130)	(0.155)	(0.173)	(0.123)	(0.073)	(0.117)	(0.044)
Education (Intermediate and above)	-0.176**	0.246***	0.105	-0.060	0.334*	0.279*	0.397***	0.154	0.029
	(0.059)	(0.068)	(0.106)	(0.130)	(0.148)	(0.116)	(0.064)	(0.110)	(0.045)
Education (University and above)	-0.154*	0.274***	0.041	-0.348	0.741***	0.755***	0.755***	0.584***	-0.495***
	(0.074)	(0.082)	(0.134)	(0.199)	(0.164)	(0.140)	(0.068)	(0.124)	(0.056)
exp	0.039***	-0.035***	-0.029**	-0.040**	-0.015	-0.074***	-0.011*	-0.022*	-0.159***
	(0.006)	(0.006)	(0.010)	(0.012)	(0.012)	(0.013)	(0.005)	(0.011)	(0.005)
exp_sq	-0.001***	0.001***	0.001	0.002***	0.001**	0.004***	0.001***	0.002***	0.006***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)
Region (Rural ommitted)									
Region (Greater Cairo)	-0.231***	0.163*	0.357***	0.127	0.005	-0.024	0.035	-0.123	0.158***
	(0.055)	(0.063)	(0.085)	(0.143)	(0.127)	(0.107)	(0.049)	(0.094)	(0.037)
Region (Alexandrain_Suez)	-0.075	0.017	0.322**	-0.296	0.115	-0.030	0.281***	-0.163	0.115**
	(0.064)	(0.070)	(0.109)	(0.158)	(0.108)	(0.111)	(0.048)	(0.098)	(0.038)
Region (Urban areas)	0.015	-0.010	0.144*	-0.290**	0.086	0.012	0.124***	-0.074	0.101***
	(0.043)	(0.051)	(0.071)	(0.096)	(0.082)	(0.072)	(0.033)	(0.065)	(0.024)
Origin Job (Public ommitted)									
Origin Job (Formal Private WW)	-0.435***	0.373***	0.492***	0.173	-0.048	-0.102			
	(0.068)	(0.076)	(0.126)	(0.172)	(0.137)	(0.146)			
Origin Job (Informal Private WW)	-0.463***	0.428***	0.475***	0.249	0.051	0.091			
	(0.059)	(0.068)	(0.107)	(0.148)	(0.127)	(0.130)			
Origin Job (Self-Employment)	-0.350***	0.373***	0.101	0.221	-0.087	0.047			
	(0.071)	(0.083)	(0.147)	(0.169)	(0.182)	(0.138)			
Without child (ommitted)									
With Child	-0.012	0.054	-0.051	0.003	-0.074	0.309***	-0.141***	0.160	0.465***
	(0.051)	(0.062)	(0.084)	(0.103)	(0.099)	(0.094)	(0.040)	(0.083)	(0.035)
household size	0.028*	-0.025*	-0.048*	0.000	-0.035	-0.036	-0.009	-0.033	-0.017**
	(0.012)	(0.012)	(0.023)	(0.024)	(0.022)	(0.024)	(0.008)	(0.022)	(0.006)
Constant	2.078***	-2.501***	-2.658***	-2.227***	-2.327***	-2.140***	-1.789***	-2.217***	-0.332***
	(0.104)	(0.119)	(0.186)	(0.247)	(0.240)	(0.221)	(0.073)	(0.155)	(0.058)
N(Obs.)	38050	38050	38050	38050	38129	38129	49227	49227	49227

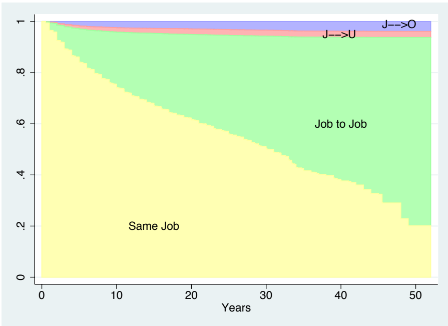
Table 11: Coefficients of Probit Regressions, showing the distribution of observable characteristics of labor market transitions in the most recent i.e. most accurate year of the survey, 2009/2010 for Jordan

	EE (SJ)	EE (JJ)	EU	EO	UE	OE	UU	OU	OO
Age Group (15-24 ommitted)									
Age Group (25-34)	0.026	-0.047	0.057	-0.222	-0.309***	-0.863***	-0.091	-0.375*	-0.817***
	(0.062)	(0.073)	(0.090)	(0.167)	(0.078)	(0.135)	(0.050)	(0.163)	(0.040)
Age Group (35-54)	0.032	-0.163	0.232*	0.412*	-0.759***	-0.772***	-0.418***	-0.199	-0.630***
	(0.078)	(0.091)	(0.113)	(0.177)	(0.133)	(0.176)	(0.079)	(0.237)	(0.080)
Marital Status (Single ommitted)									
Marital Status (Married)	0.102	0.022	-0.307***	-0.524***	-0.362***	-0.616***	-0.654***	-0.119	-0.725***
	(0.060)	(0.069)	(0.087)	(0.129)	(0.089)	(0.115)	(0.056)	(0.234)	(0.068)
Education (Illiterate ommitted)					0.000				
Education (Read and Write)	0.000	-0.044	-0.049	0.404	-0.027	0.080	-0.044	-0.185	-0.160
	(0.144)	(0.175)	(0.185)	(0.282)	(0.264)	(0.462)	(0.114)	(0.386)	(0.096)
Education (Less than Intermediate)	-0.028	-0.050	0.116	0.273	0.257	0.105	0.387***	0.211	-0.765***
	(0.134)	(0.162)	(0.164)	(0.276)	(0.218)	(0.407)	(0.104)	(0.358)	(0.086)
Education (Intermediate and above)	-0.013	-0.034	0.010	0.374	0.161	0.375	0.080	0.058	-0.401***
	(0.137)	(0.166)	(0.168)	(0.272)	(0.222)	(0.404)	(0.106)	(0.364)	(0.086)
Education (University and above)	0.058	-0.042	-0.106	-0.557	0.357	0.634	0.543***	0.828*	-1.046***
	(0.142)	(0.169)	(0.197)	(0.394)	(0.224)	(0.415)	(0.110)	(0.363)	(0.102)
exp	0.031***	-0.017	-0.050***	0.029	-0.055***	-0.158***	-0.005	-0.276***	-0.327***
	(0.009)	(0.010)	(0.014)	(0.019)	(0.015)	(0.034)	(0.007)	(0.066)	(0.015)
exp_sq	-0.001***	0.001	0.002***	-0.000	0.004***	0.006***	0.002***	0.008***	0.012***
	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.001)	(0.000)	(0.002)	(0.001)
Region (Rural Middle ommitted)					0.000				
Region (Rural North)	-0.107	0.069	0.168	0.150	0.027	0.119	0.029	0.243	-0.031
	(0.081)	(0.091)	(0.140)	(0.199)	(0.114)	(0.144)	(0.058)	(0.130)	(0.049)
Region (Rural South)	0.106	-0.109	0.043	-0.327	-0.291*	-0.566*	0.227***	-0.005	-0.352***
	(0.093)	(0.105)	(0.153)	(0.290)	(0.141)	(0.232)	(0.062)	(0.156)	(0.055)
Region (Urban Middle)	0.042	-0.107	0.150	0.005	-0.163	-0.127	-0.125*	0.045	-0.139***
	(0.064)	(0.073)	(0.108)	(0.159)	(0.096)	(0.116)	(0.049)	(0.115)	(0.039)
Region (Urban North)	-0.024	-0.034	0.178	0.004	-0.043	0.070	0.072	0.008	0.038
	(0.068)	(0.077)	(0.113)	(0.177)	(0.096)	(0.124)	(0.050)	(0.120)	(0.042)
Region (Urban South)	0.014	-0.187	0.337*	0.034	-0.095	-0.273	0.272***	0.154	-0.283***
	(0.090)	(0.107)	(0.143)	(0.210)	(0.135)	(0.170)	(0.059)	(0.144)	(0.058)
Origin/Dest. Job (Public ommitted)					0.000				
Origin/Dest. Job (Formal Private WW)	-0.381***	0.505***	-0.019	-0.236	0.155	0.155			
	(0.058)	(0.067)	(0.111)	(0.204)	(0.092)	(0.114)			
Origin/Dest. Job (Informal Private WW)	-0.461***	0.446***	0.370***	0.228*	0.165*	0.203			
	(0.054)	(0.065)	(0.082)	(0.115)	(0.084)	(0.109)			
Origin/Dest. Job (Self-Employment)	-0.315***	0.331***	0.255**	-0.020	-0.044	0.426***			
	(0.065)	(0.078)	(0.097)	(0.145)	(0.108)	(0.124)			
Without child (ommitted)									
With Child	-0.001	-0.010	0.013	0.177	0.021	-0.355	0.185*	0.571	-0.128
	(0.087)	(0.102)	(0.114)	(0.215)	(0.132)	(0.286)	(0.082)	(0.351)	(0.089)
hhsize	0.017	-0.024*	0.004	-0.004	0.014	0.018	0.012	0.018	0.011*
	(0.010)	(0.012)	(0.012)	(0.022)	(0.013)	(0.015)	(0.006)	(0.015)	(0.005)
Constant	1.618***	-1.717***	-2.405***	-3.268***	-1.943***	-1.547**	-1.951***	-3.064***	1.180***
	(0.186)	(0.224)	(0.234)	(0.365)	(0.272)	(0.473)	(0.141)	(0.488)	(0.120)
N(Obs.)	16858	16858	16858	16858	17036	17036	25925	25925	25925

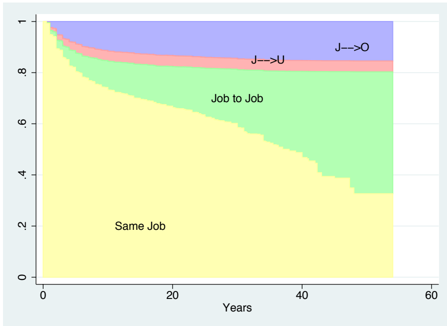
B K-M estimators and cumulative incidence curves

To show the impact of adding the panel weights on duration analysis, I carry out non-parametric estimations over a sample of individuals who were initially employed at the begining of a spell and follow them to one of their failure events, which in this case would be a job-to-job , a job-to-unemployment or a job to inactivity (i.e. out of the labor force).

Figure 7: Transitions of initially employed workers by years since appointment, Egypt Males Vs. Females, Ages 15-49, 2000-2011.

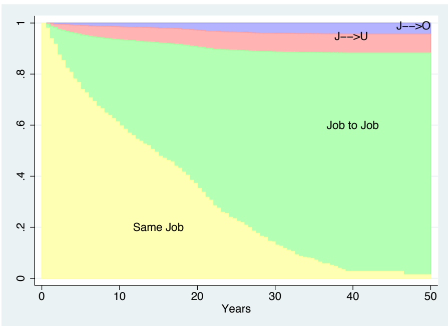


(a) Males

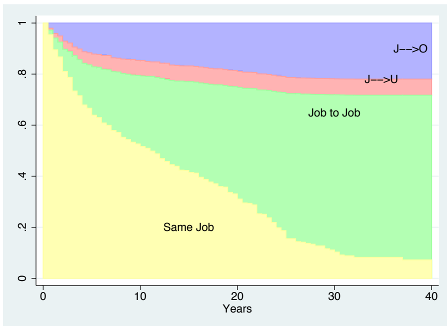


(b) Females

Figure 8: Transitions of initially employed workers by years since appointment, Egypt Males Vs. Females, Ages 15-49, 2000-2011.

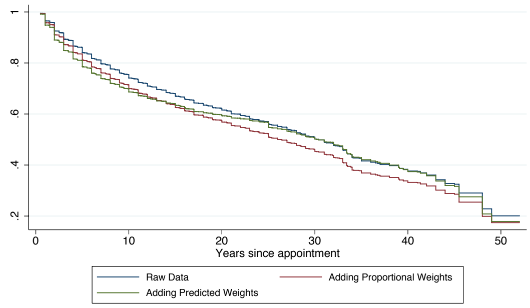


(a) Males

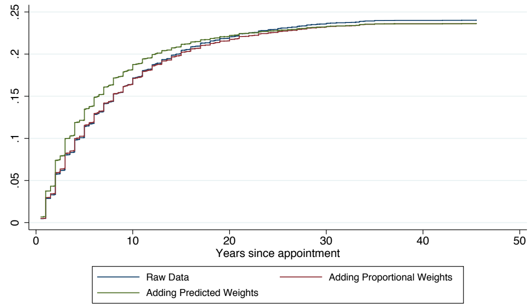


(b) Females

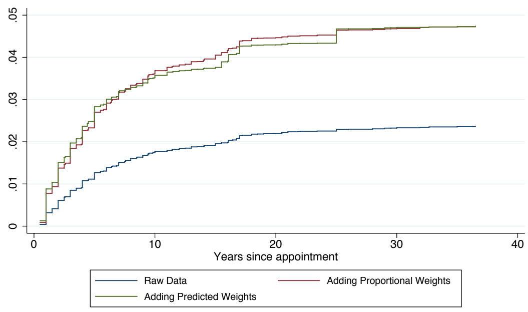
Figure 9: The impact of adding proportional and predicted longitudinal panel weights to the non-parametric Kaplan-Meier Survival and Cumulative Incidence Estimations, Male Workers, ages 15-49, Egypt.



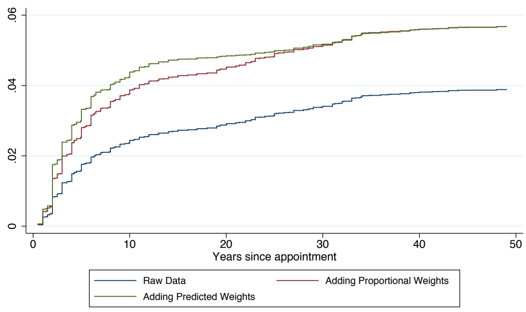
(a) KM Survival Function



(b) Job-to-job

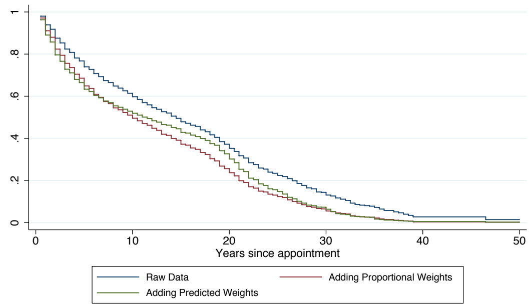


(c) Employment to Unemployment

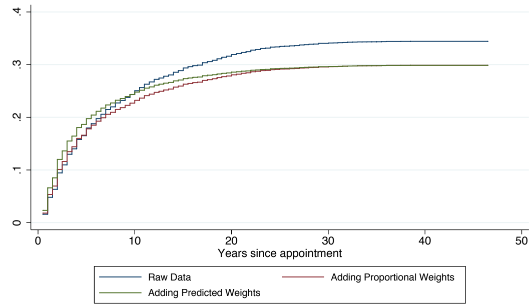


(d) Employment to Inactivity

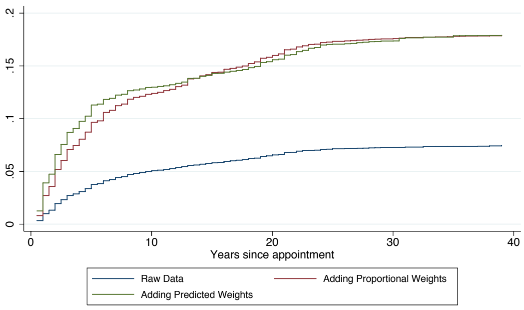
Figure 10: The impact of adding proportional and predicted longitudinal panel weights to the non-parametric Kaplan-Meier Survival and Cumulative Incidence Estimations, Male Workers, ages 15-49, Jordan.



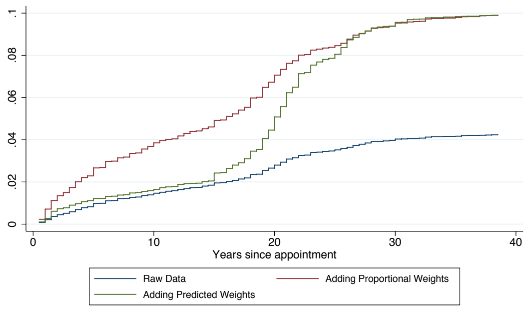
(a) KM Survival Function



(b) Job-to-job



(c) Employment to Unemployment



(d) Employment to Inactivity

C Appendix

C.1 Determinants of transitions from unemployment

Table 12: Marginal Effects of Multinomial Regression of Transitions from Unemployment, by Gender , Ages 15-49 years old, Egypt 2001-2011

	UU		UE		UO	
	Males	**Females**	**Males**	**Females**	**Males**	**Females**
Age group (15-24 ommit.)						
25 - 34	0.029	0.019*	-0.013	-0.017*	-0.015***	-0.002
	(0.022)	(0.008)	(0.022)	(0.008)	(0.003)	(0.001)
35-49	0.177***	0.005	-0.160***	-0.002	-0.016***	-0.002*
	(0.034)	(0.016)	(0.034)	(0.016)	(0.003)	(0.001)
Marital St. (Single ommit.)						
Marital St. (Married)	-0.104***	-0.000	0.092***	-0.002	0.012*	0.002**
	(0.022)	(0.013)	(0.022)	(0.013)	(0.005)	(0.001)
Education (Illiterate ommit.)						
Read & Write	-0.011	0.047	0.019	-0.002	-0.008	-0.045
	(0.056)	(0.050)	(0.055)	(0.042)	(0.008)	(0.029)
Below Intermediate	-0.039	0.075*	0.035	-0.030	0.004	-0.045
	(0.038)	(0.035)	(0.038)	(0.023)	(0.010)	(0.029)
Intermediate & above	-0.048	0.065*	0.043	-0.022	0.005	-0.043
	(0.033)	(0.033)	(0.032)	(0.021)	(0.008)	(0.028)
University & above	-0.074*	-0.026	0.072*	0.070**	0.001	-0.044
	(0.036)	(0.035)	(0.035)	(0.024)	(0.008)	(0.029)
Experience in job market	-0.012**	-0.011***	0.013**	0.009**	-0.000	0.002**
	(0.004)	(0.003)	(0.004)	(0.003)	(0.002)	(0.001)
Experience Squared	0.000*	0.001**	-0.000*	-0.000*	-0.000	-0.000*
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Region (Rural areas ommit.)						
Greater Cairo	-0.049	-0.052**	0.057	0.048*	-0.009	0.005
	(0.031)	(0.020)	(0.031)	(0.019)	(0.005)	(0.005)
Alex & Suez	-0.008	-0.038*	0.010	0.035*	-0.001	0.003
	(0.027)	(0.015)	(0.026)	(0.015)	(0.006)	(0.002)
Urban areas	0.026	0.005	-0.021	-0.007	-0.005	0.002
	(0.019)	(0.007)	(0.019)	(0.007)	(0.004)	(0.002)
No child below 6 (ommit.)						
Child below 6	-0.007	0.011	0.018	-0.012	-0.011	0.001
	(0.024)	(0.014)	(0.023)	(0.014)	(0.007)	(0.001)
Household size	0.006	0.003	-0.005	-0.002	-0.000	-0.001
	(0.005)	(0.003)	(0.005)	(0.003)	(0.001)	(0.000)
Unemp. Rate	0.010	0.002	-0.010	-0.001	0.000	-0.001
	(0.008)	(0.003)	(0.008)	(0.003)	(0.001)	(0.001)
N(Obs.)	3762	6420	3762	6420	3762	6420

Table 13: Marginal Effects of Multinomial Regression of Transitions from Unemployment, Male Workers , Ages 15-49 years old, Egypt 2001-2011

	UU			UE			UO		
	raw data	**proportional weights**	**predicted weights**	**raw data**	**proportional weights**	**predicted weights**	**raw data**	**proportional weights**	**predicted weights**
Age group (15-24 ommit.)									
25 - 34	0.029	0.017	0.177***	-0.013	-0.006	-0.168***	-0.015***	-0.011***	-0.009***
	(0.022)	(0.020)	(0.020)	(0.022)	(0.020)	(0.020)	(0.003)	(0.003)	(0.002)
35-49	0.177***	0.139***	0.251***	-0.160***	-0.127***	-0.241***	-0.016***	-0.012***	-0.010***
	(0.034)	(0.031)	(0.020)	(0.034)	(0.031)	(0.020)	(0.003)	(0.003)	(0.002)
Marital St. (Single ommit.)									
Marital St. (Married)	-0.104***	-0.061**	-0.141***	0.092***	0.055**	0.119***	0.012*	0.006	0.021**
	(0.022)	(0.020)	(0.025)	(0.022)	(0.020)	(0.025)	(0.005)	(0.003)	(0.007)
Education (Illiterate ommit.)									
Read & Write	-0.011	-0.010	-0.036	0.019	0.016	0.049	-0.008	-0.005	-0.013
	(0.056)	(0.048)	(0.049)	(0.055)	(0.048)	(0.048)	(0.008)	(0.006)	(0.012)
Below Intermediate	-0.039	-0.036	-0.080*	0.035	0.032	0.063*	0.004	0.004	0.017
	(0.038)	(0.033)	(0.034)	(0.038)	(0.032)	(0.031)	(0.010)	(0.008)	(0.019)
Intermediate & above	-0.048	-0.042	-0.074**	0.043	0.039	0.077**	0.005	0.003	-0.003
	(0.033)	(0.028)	(0.027)	(0.032)	(0.027)	(0.025)	(0.008)	(0.006)	(0.012)
University & above	-0.074*	-0.073*	-0.129***	0.072*	0.071*	0.137***	0.001	0.002	-0.009
	(0.036)	(0.031)	(0.033)	(0.035)	(0.031)	(0.031)	(0.008)	(0.006)	(0.013)
Experience in job market	-0.012**	-0.012**	-0.024***	0.013**	0.011**	0.023***	-0.000	0.001	0.001
	(0.004)	(0.004)	(0.005)	(0.004)	(0.004)	(0.004)	(0.002)	(0.001)	(0.001)
Experience Squared	0.000*	0.000*	0.001**	-0.000*	-0.000*	-0.001**	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Region (Rural areas ommit.)									
Greater Cairo	-0.049	-0.045	-0.100**	0.057	0.049	0.105**	-0.009	-0.004	-0.005
	(0.031)	(0.029)	(0.035)	(0.031)	(0.028)	(0.035)	(0.005)	(0.004)	(0.004)
Alex & Suez	-0.008	-0.007	0.044	0.010	0.003	-0.042	-0.001	0.004	-0.001
	(0.027)	(0.024)	(0.028)	(0.026)	(0.023)	(0.028)	(0.006)	(0.007)	(0.005)
Urban areas	0.026	0.019	0.028	-0.021	-0.016	-0.024	-0.005	-0.002	-0.004
	(0.019)	(0.017)	(0.021)	(0.019)	(0.016)	(0.021)	(0.004)	(0.003)	(0.003)
No child below 6 (ommit.)									
Child below 6	-0.007	-0.015	-0.020	0.018	0.020	0.023	-0.011	-0.006	-0.002
	(0.024)	(0.021)	(0.024)	(0.023)	(0.021)	(0.024)	(0.007)	(0.005)	(0.004)
Household size	0.006	0.007	0.013	-0.005	-0.006	-0.012	-0.000	-0.001	-0.001
	(0.005)	(0.005)	(0.007)	(0.005)	(0.005)	(0.007)	(0.001)	(0.001)	(0.001)
Unemp. Rate	0.010	0.006	0.007	-0.010	-0.004	-0.006	0.000	-0.001	-0.001
	(0.008)	(0.008)	(0.010)	(0.008)	(0.008)	(0.010)	(0.001)	(0.001)	(0.001)
N(Obs.)	3762	3762	3762	3762	3762	3762	3762	3762	3762

Table 14: Marginal Effects of Multinomial Regression of Transitions from Unemployment, by Gender, Ages 15-49 years old, Jordan 2000-2010
[16]

	UU		UE	
	Males	**Females**	**Males**	**Females**
Age group (15-24 ommit.)				
25 - 34	0.045	0.041	-0.045	-0.041
	(0.033)	(0.028)	(0.033)	(0.028)
35-54	0.166***	-0.061	-0.166***	0.061
	(0.048)	(0.050)	(0.048)	(0.050)
Marital St. (Single ommit.)				
Marital St. (Married)	-0.045	-0.015	0.045	0.015
	(0.029)	(0.030)	(0.029)	(0.030)
Education (Illiterate ommit.)				
Read & Write	-0.061	0.430	0.061	-0.430
	(0.058)	(0.322)	(0.058)	(0.322)
Below Intermediate	-0.120*	0.365	0.120*	-0.365
	(0.052)	(0.319)	(0.052)	(0.319)
Intermediate & above	-0.143**	0.441	0.143**	-0.441
	(0.054)	(0.314)	(0.054)	(0.314)
University & above	-0.209***	0.362	0.209***	-0.362
	(0.059)	(0.317)	(0.059)	(0.317)
Experience in job market	-0.023***	-0.031*	0.023***	0.031*
	(0.005)	(0.012)	(0.005)	(0.012)
Experience Squared	0.001***	0.002*	-0.001***	-0.002*
	(0.000)	(0.001)	(0.000)	(0.001)
Region (Middle ommit.)				
Region (North)	0.043*	0.054	-0.043*	-0.054
	(0.020)	(0.029)	(0.020)	(0.029)
Region (South)	0.068**	0.118***	-0.068**	-0.118***
	(0.023)	(0.029)	(0.023)	(0.029)
No child below 6 (ommit.)				
Child below 6	-0.068	-0.006	0.068	0.006
	(0.041)	(0.046)	(0.041)	(0.046)
Household size	0.006	-0.003	-0.006	0.003
	(0.004)	(0.006)	(0.004)	(0.006)
Unemp. Rate	0.022***	0.008	-0.022***	-0.008
	(0.006)	(0.008)	(0.006)	(0.008)
N(Obs.)	3544	1599	3544	1599

[16]Only 6 male transitions were observed for Jordan from Unemployment to inactivity. I therefore chose to drop this category from the analysis.

Table 15: Marginal Effects of Multinomial Regression of Transitions from Unemployment, Male Workers , Ages 15-49 years old, Jordan 2000-2010

	UU			**UE**		
	raw data	**proportional weights**	**predicted weights**	**raw data**	**proportional weights**	**predicted weights**
Age group (15-24 ommit.)						
25 - 34	0.045	0.044	0.130***	-0.045	-0.044	-0.130***
	(0.033)	(0.031)	(0.030)	(0.033)	(0.031)	(0.030)
35-49	0.166***	0.153***	0.273***	-0.166***	-0.153***	-0.273***
	(0.048)	(0.045)	(0.045)	(0.048)	(0.045)	(0.045)
Marital St. (Single ommit.)						
Marital St. (Married)	-0.045	-0.021	-0.045	0.045	0.021	0.045
	(0.029)	(0.027)	(0.029)	(0.029)	(0.027)	(0.029)
Education (Illiterate ommit.)						
Read & Write	-0.061	-0.049	-0.100	0.061	0.049	0.100
	(0.058)	(0.053)	(0.113)	(0.058)	(0.053)	(0.113)
Below Intermediate	-0.120*	-0.111*	-0.058	0.120*	0.111*	0.058
	(0.052)	(0.048)	(0.089)	(0.052)	(0.048)	(0.089)
Intermediate & above	-0.143**	-0.125*	-0.112	0.143**	0.125*	0.112
	(0.054)	(0.050)	(0.090)	(0.054)	(0.050)	(0.090)
University & above	-0.209***	-0.193***	-0.141	0.209***	0.193***	0.141
	(0.059)	(0.055)	(0.093)	(0.059)	(0.055)	(0.093)
Experience in job market	-0.023***	-0.023***	-0.013*	0.023***	0.023***	0.013*
	(0.005)	(0.004)	(0.005)	(0.005)	(0.004)	(0.005)
Experience Squared	0.001***	0.001***	0.000	-0.001***	-0.001***	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Region (Middle ommit.)						
Region (North)	0.043*	0.041*	0.062*	-0.043*	-0.041*	-0.062*
	(0.020)	(0.019)	(0.024)	(0.020)	(0.019)	(0.024)
Region (South)	0.068**	0.068**	0.207***	-0.068**	-0.068**	-0.207***
	(0.023)	(0.021)	(0.022)	(0.023)	(0.021)	(0.022)
No child below 6 (ommit.)						
Child below 6	-0.068	-0.060	-0.014	0.068	0.060	0.014
	(0.041)	(0.038)	(0.043)	(0.041)	(0.038)	(0.043)
Household size	0.006	0.006	0.006	-0.006	-0.006	-0.006
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Unemp. Rate	0.022***	0.038***	0.039***	-0.022***	-0.038***	-0.039***
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
N(Obs.)	3544	3544	3544	3544	3544	3544

C.2 Determinants of transitions from out of the labor force

Table 16: Marginal Effects of Multinomial Regression of Transitions from Inactivity, by Gender , Ages 15-49 years old, Egypt 2001-2011

	OO		**OE**		**OU**	
	Males	**Females**	**Males**	**Females**	**Males**	**Females**
Age group (15-24 ommit.)						
25 - 34	-0.040**	0.015***	0.039**	-0.005***	0.001	-0.009***
	(0.015)	(0.001)	(0.014)	(0.001)	(0.007)	(0.001)
35-49	0.117***	0.019***	-0.084***	-0.008***	-0.033***	-0.011***
	(0.024)	(0.001)	(0.024)	(0.001)	(0.002)	(0.001)
Marital St. (Single ommit.)						
Marital St. (Married)	-0.140***	0.005***	0.129***	-0.003*	0.011**	-0.002*
	(0.008)	(0.002)	(0.008)	(0.001)	(0.004)	(0.001)
Education (Illiterate ommit.)						
Read & Write	-0.088**	-0.006	0.069*	0.006	0.019	0.001
	(0.031)	(0.004)	(0.029)	(0.004)	(0.014)	(0.001)
Below Intermediate	-0.039***	0.001	0.033**	-0.001	0.005	0.000*
	(0.011)	(0.001)	(0.011)	(0.001)	(0.005)	(0.000)
Intermediate & above	-0.095***	-0.012***	0.070***	0.002*	0.025***	0.010***
	(0.010)	(0.001)	(0.010)	(0.001)	(0.004)	(0.001)
University & above	-0.059***	-0.041***	0.024*	0.019***	0.035***	0.022***
	(0.011)	(0.002)	(0.010)	(0.002)	(0.004)	(0.001)
Experience in job market	-0.023***	0.000	0.029***	0.001*	-0.006**	-0.001*
	(0.005)	(0.001)	(0.004)	(0.000)	(0.002)	(0.001)
Experience Squared	0.001***	-0.000	-0.001***	-0.000	0.000*	0.000**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Region (Rural areas ommit.)						
Greater Cairo	0.010	0.003	-0.010	0.002	0.000	-0.005***
	(0.009)	(0.002)	(0.008)	(0.001)	(0.004)	(0.001)
Alex & Suez	0.009	0.003	-0.009	0.002	0.000	-0.005***
	(0.009)	(0.002)	(0.009)	(0.001)	(0.004)	(0.001)
Urban areas	0.010	0.001	-0.013*	-0.000	0.002	-0.001
	(0.006)	(0.001)	(0.006)	(0.001)	(0.003)	(0.001)
No child below 6 (ommit.)						
Child below 6	0.030***	0.002	-0.024***	0.000	-0.006	-0.002*
	(0.008)	(0.002)	(0.007)	(0.001)	(0.004)	(0.001)
Household size	-0.000	0.001**	0.002	-0.000	-0.001	-0.000
	(0.002)	(0.000)	(0.001)	(0.000)	(0.001)	(0.000)
Unemp. Rate	0.007*	0.001	-0.006*	-0.001*	-0.001	0.000
	(0.003)	(0.001)	(0.003)	(0.000)	(0.002)	(0.000)
N(Obs.)	23921	95337	23921	95337	23921	95337

Table 17: Marginal Effects of Multinomial Regression of Transitions from Inactivity, Male Workers , Ages 15-49 years old, Egypt 2001-2011

	OO			OE			OU		
	raw data	**proportional weights**	**predicted weights**	**raw data**	**proportional weights**	**predicted weights**	**raw data**	**proportional weights**	**predicted weights**
Age group (15-24 ommit.)									
25 - 34	-0.040**	-0.035**	-0.099***	0.039**	0.032**	0.019	0.001	0.003	0.079***
	-0.015	(0.013)	(0.019)	-0.014	(0.012)	(0.013)	-0.007	(0.007)	(0.018)
35-49	0.117***	0.093***	0.119***	-0.084***	-0.061***	-0.089***	-0.033***	-0.032***	-0.031***
	-0.024	(0.013)	(0.003)	-0.024	(0.013)	(0.003)	-0.002	(0.002)	(0.001)
Marital St. (Single ommit.)									
Marital St. (Married)	-0.140***	-0.093***	-0.297***	0.129***	0.081***	0.193***	0.011**	0.012**	0.104***
	-0.008	(0.007)	(0.012)	-0.008	(0.006)	(0.011)	-0.004	(0.004)	(0.011)
Education (Illiterate ommit.)									
Read & Write	-0.088**	-0.067**	-0.139**	0.069*	0.047*	0.095*	0.019	0.020	0.043
	-0.031	(0.026)	(0.047)	-0.029	(0.022)	(0.044)	-0.014	(0.015)	(0.027)
Below Intermediate	-0.039***	-0.028**	-0.008	0.033**	0.022**	0.004	0.005	0.005	0.004
	-0.011	(0.009)	(0.007)	-0.011	(0.008)	(0.006)	-0.005	(0.004)	(0.004)
Intermediate & above	-0.095***	-0.073***	-0.069***	0.070***	0.048***	0.046***	0.025***	0.025***	0.023***
	-0.01	(0.008)	(0.006)	-0.01	(0.007)	(0.006)	-0.004	(0.004)	(0.004)
University & above	-0.059***	-0.049***	-0.158***	0.024*	0.015*	0.116***	0.035***	0.035***	0.042***
	-0.011	(0.008)	(0.009)	-0.01	(0.007)	(0.009)	-0.004	(0.004)	(0.005)
Experience in job market	-0.023***	-0.016***	-0.032***	0.029***	0.021***	0.031***	-0.006**	-0.005*	0.001
	-0.005	(0.004)	(0.008)	-0.004	(0.003)	(0.009)	-0.002	(0.002)	(0.002)
Experience Squared	0.001***	0.001**	0.001	-0.001***	-0.001***	-0.001	0.000*	0.000	-0.000
	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)
Region (Rural areas ommit.)									
Greater Cairo	0.01	0.011	0.035***	-0.01	-0.011	-0.030***	0.000	-0.000	-0.005
	-0.009	(0.007)	(0.007)	-0.008	(0.006)	(0.006)	-0.004	(0.004)	(0.004)
Alex & Suez	0.009	0.007	0.023**	-0.009	-0.008	-0.020**	0.000	0.000	-0.003
	-0.009	(0.008)	(0.008)	-0.009	(0.006)	(0.007)	-0.004	(0.004)	(0.004)
Urban areas	0.01	0.008	0.022***	-0.013*	-0.011*	-0.020***	0.002	0.002	-0.001
	-0.006	(0.005)	(0.006)	-0.006	(0.004)	(0.005)	-0.003	(0.003)	(0.003)
No child below 6 (ommit.)									
Child below 6	0.030***	0.020**	0.031***	-0.024***	-0.013*	-0.010	-0.006	-0.006	-0.022***
	-0.008	(0.006)	(0.007)	-0.007	(0.005)	(0.006)	-0.004	(0.004)	(0.004)
Household size	-0.000	0.001	0.002	0.002	0.001	-0.002	-0.001	-0.001	-0.001
	-0.002	(0.001)	(0.002)	-0.001	(0.001)	(0.001)	-0.001	(0.001)	(0.001)
Unemp. Rate	0.007*	0.002	0.002	-0.006*	-0.001	-0.001	-0.001	-0.001	-0.001
	-0.003	(0.003)	(0.003)	-0.003	(0.002)	(0.003)	-0.002	(0.002)	(0.002)
N(Obs.)	23921	23921	23921	23921	23921	23921	23921	23921	23921

Table 18: Marginal Effects of Multinomial Regression of Transitions from Inactivity, by Gender , Ages 15-49 years old, Jordan 2000-2010

	OO		**OE**		**OU**	
	Males	**Females**	**Males**	**Females**	**Males**	**Females**
Age group (15-24 ommit.)						
25 - 34	0.037*	0.008***	-0.048***	-0.008***	-0.048***	-0.000
	(0.016)	(0.002)	(0.010)	(0.002)	(0.010)	(0.001)
35-49	0.084***	0.017***	-0.058***	-0.011***	-0.058***	-0.006***
	(0.012)	(0.002)	(0.009)	(0.002)	(0.009)	(0.001)
Marital St. (Single ommit.)						
Marital St. (Married)	-0.086***	0.009***	0.070***	-0.002	0.070***	-0.008***
	(0.013)	(0.002)	(0.011)	(0.001)	(0.011)	(0.001)
Education (Illiterate ommit.)						
Read & Write	-0.027*	-0.000	0.008	0.000	0.008	-0.000
	(0.011)	(0.002)	(0.008)	(0.002)	(0.008)	(0.001)
Below Intermediate	-0.135***	-0.004	0.067***	0.001	0.067***	0.003***
	(0.009)	(0.002)	(0.008)	(0.002)	(0.008)	(0.001)
Intermediate & above	-0.067***	-0.012***	0.043***	0.005*	0.043***	0.007***
	(0.008)	(0.002)	(0.007)	(0.002)	(0.007)	(0.001)
University & above	-0.101***	-0.061***	0.051***	0.028***	0.051***	0.033***
	(0.010)	(0.004)	(0.008)	(0.003)	(0.008)	(0.003)
Experience in job market	-0.018***	-0.003***	0.023***	0.004***	0.023***	-0.001
	(0.004)	(0.001)	(0.004)	(0.001)	(0.004)	(0.000)
Experience Squared	0.001***	0.000**	-0.001***	-0.000***	-0.001***	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Region (Middle ommit.)						
Region (North)	0.008	-0.002	-0.016***	-0.002*	-0.016***	0.004***
	(0.006)	(0.002)	(0.004)	(0.001)	(0.004)	(0.001)
Region (South)	-0.012	-0.010***	-0.013*	-0.003*	-0.013*	0.013***
	(0.008)	(0.002)	(0.005)	(0.001)	(0.005)	(0.002)
No child below 6 (ommit.)						
Child below 6	-0.002	0.015**	-0.006	-0.013**	-0.006	-0.003
	(0.018)	(0.005)	(0.014)	(0.004)	(0.014)	(0.003)
Household size	0.001	0.000	-0.001	-0.000	-0.001	-0.000
	(0.001)	(0.000)	(0.001)	(0.000)	(0.001)	(0.000)
Unemp. Rate	0.004*	0.003***	-0.003*	-0.000	-0.003*	-0.003***
	(0.002)	(0.000)	(0.001)	(0.000)	(0.001)	(0.000)
N(Obs.)	16280	52191	16280	52191	16280	52191

Table 19: Marginal Effects of Multinomial Regression of Transitions from Inactivity, Male Workers , Ages 15-49 years old, Jordan 2000-2010

	OO			OE			OU		
	raw data	**proportional weights**	**predicted weights**	**raw data**	**proportional weights**	**predicted weights**	**raw data**	**proportional weights**	**predicted weights**
Age group (15-24 ommit.)									
25 - 34	0.037*	0.037*	-0.012	-0.048***	-0.048***	-0.022*	-0.048***	0.012	0.034
	(0.016)	(0.016)	(0.019)	(0.010)	(0.010)	(0.010)	(0.010)	(0.013)	(0.018)
35-54	0.084***	0.084***	0.145***	-0.058***	-0.058***	-0.101***	-0.058***	-0.026***	-0.044***
	(0.012)	(0.012)	(0.004)	(0.009)	(0.009)	(0.002)	(0.009)	(0.008)	(0.003)
Marital St. (Single ommit.)									
Marital St. (Married)	-0.086***	-0.086***	-0.129***	0.070***	0.070***	0.041***	0.070***	0.015	0.088***
	(0.013)	(0.013)	(0.017)	(0.011)	(0.011)	(0.010)	(0.011)	(0.008)	(0.016)
Education (Illiterate ommit.)									
Read & Write	-0.027*	-0.027*	0.002	0.008	0.008	-0.004	0.008	0.019**	0.001
	(0.011)	(0.011)	(0.012)	(0.008)	(0.008)	(0.012)	(0.008)	(0.007)	(0.001)
Below Intermediate	-0.135***	-0.135***	-0.107***	0.067***	0.067***	0.052***	0.067***	0.068***	0.055***
	(0.009)	(0.009)	(0.012)	(0.008)	(0.008)	(0.011)	(0.008)	(0.005)	(0.003)
Intermediate & above	-0.067***	-0.067***	-0.043***	0.043***	0.043***	0.033**	0.043***	0.024***	0.010***
	(0.008)	(0.008)	(0.011)	(0.007)	(0.007)	(0.011)	(0.007)	(0.004)	(0.001)
University & above	-0.101***	-0.101***	-0.215***	0.051***	0.051***	0.075***	0.051***	0.050***	0.140***
	(0.010)	(0.010)	(0.016)	(0.008)	(0.008)	(0.012)	(0.008)	(0.006)	(0.012)
Experience in job market	-0.018***	-0.018***	-0.012	0.023***	0.023***	0.149***	0.023***	-0.005**	-0.137***
	(0.004)	(0.004)	(0.025)	(0.004)	(0.004)	(0.012)	(0.004)	(0.002)	(0.021)
Experience Squared	0.001***	0.001***	-0.000	-0.001***	-0.001***	-0.003***	-0.001***	0.000*	0.003***
	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)
Region (Middle ommit.)									
Region (North)	0.008	0.008	0.000	-0.016***	-0.016***	-0.010*	-0.016***	0.007	0.010*
	(0.006)	(0.006)	(0.006)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.005)
Region (South)	-0.012	-0.012	-0.008	-0.013*	-0.013*	-0.022***	-0.013*	0.025***	0.030***
	(0.008)	(0.008)	(0.008)	(0.005)	(0.005)	(0.005)	(0.005)	(0.006)	(0.007)
No child below 6 (ommit.)									
Child below 6	-0.002	-0.002	0.032	-0.006	-0.006	-0.062*	-0.006	0.008	0.030***
	(0.018)	(0.018)	(0.025)	(0.014)	(0.014)	(0.025)	(0.014)	(0.012)	(0.008)
Household size	0.001	0.001	-0.003	-0.001	-0.001	0.001	-0.001	-0.000	0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Unemp. Rate	0.004*	0.004*	0.008***	-0.003*	-0.003*	0.000	-0.003*	-0.001	-0.008***
	(0.002)	(0.002)	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)
N(Obs.)	16280	16280	16280	16280	16280	16280	16280	16280	16280

C.3 Detailed Transitions

Table 20: Marginal Effects of Multinomial Regression of Detailed Transitions from Non-Employment (stays in non-employment and transits to the formal and public sectors), by Gender, Ages 15-49 years old, Egypt 2001-2011

	NE–>NE				NE –> G				NE –> F			
	Females	Males No weights	Males Prop. Weights	Males Pred. Weights	Females	Males No weights	Males Prop. Weights	Males Pred. Weights	Females	Males No weights	Males Prop. Weights	Males Pred. Weights
Age group (15-24 ommit.)												
25 - 34	0.004**	-0.027**	-0.031***	0.065***	-0.001	0.031***	0.027***	-0.002	-0.001	0.012**	0.011**	-0.008***
	(0.001)	(0.010)	(0.009)	(0.006)	(0.001)	(0.005)	(0.004)	(0.003)	(0.001)	(0.005)	(0.004)	(0.002)
35-54	0.008***	0.092***	0.061***	0.107***	-0.002*	-0.002	0.001	-0.014***	-0.001*	-0.009	-0.007*	-0.014***
	(0.001)	(0.015)	(0.011)	(0.005)	(0.001)	(0.006)	(0.005)	(0.002)	(0.001)	(0.005)	(0.003)	(0.001)
Marital St. (Single ommit.)												
Marital St. (Married)	0.004**	-0.128***	-0.082***	-0.183***	0.001	0.024***	0.016***	0.035***	-0.001*	0.026***	0.018***	0.031***
	(0.001)	(0.007)	(0.006)	(0.010)	(0.001)	(0.003)	(0.002)	(0.005)	(0.001)	(0.003)	(0.002)	(0.005)
Education (Illiterate ommit.)												
Read & Write	-0.007*	-0.067**	-0.048*	-0.086*	0.004*	0.002	0.002	0.002	0.000	0.008	0.006	0.008
	(0.004)	(0.025)	(0.020)	(0.034)	(0.002)	(0.004)	(0.003)	(0.003)	(0.000)	(0.005)	(0.004)	(0.005)
Below Intermediate	-0.000	-0.027*	-0.019*	-0.002	0.000	0.004	0.003	0.000	0.000	0.007**	0.005**	0.001
	(0.001)	(0.011)	(0.008)	(0.006)	(0.000)	(0.002)	(0.002)	(0.001)	(0.000)	(0.003)	(0.002)	(0.001)
Intermediate & above	-0.006***	-0.061***	-0.044***	-0.049***	0.004***	0.011***	0.008***	0.005***	0.002***	0.015***	0.011***	0.006***
	(0.001)	(0.009)	(0.007)	(0.006)	(0.000)	(0.002)	(0.001)	(0.001)	(0.000)	(0.002)	(0.001)	(0.001)
University & above	-0.031***	-0.022*	-0.017*	-0.123***	0.028***	0.026***	0.019***	0.035***	0.004***	0.027***	0.019***	0.032***
	(0.002)	(0.010)	(0.008)	(0.009)	(0.002)	(0.003)	(0.002)	(0.005)	(0.001)	(0.003)	(0.002)	(0.003)
Experience in job market	-0.003***	-0.025***	-0.019***	-0.031***	0.001**	0.001	0.001	0.002**	0.001***	0.006***	0.005***	0.008***
	(0.001)	(0.003)	(0.002)	(0.005)	(0.000)	(0.001)	(0.001)	(0.001)	(0.000)	(0.001)	(0.001)	(0.002)
Experience Squared	0.000***	0.001***	0.001***	0.001**	-0.000	-0.000	-0.000	-0.000	-0.000**	-0.000***	-0.000***	-0.001*
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Region (Rural areas ommit.)												
Greater Cairo	-0.001	0.004	0.005	0.019**	-0.002*	0.000	-0.001	-0.007**	0.003***	0.014***	0.009***	0.010***
	(0.002)	(0.008)	(0.006)	(0.007)	(0.001)	(0.003)	(0.002)	(0.002)	(0.001)	(0.003)	(0.002)	(0.003)
Alex & Suez	-0.001	0.007	0.006	0.024**	0.000	0.011**	0.006*	0.007	0.002**	0.012**	0.008**	0.004
	(0.001)	(0.008)	(0.006)	(0.008)	(0.001)	(0.004)	(0.003)	(0.004)	(0.001)	(0.004)	(0.003)	(0.004)
Urban areas	0.001	0.011*	0.009*	0.018**	0.001	-0.001	-0.001	-0.002	-0.000	-0.003	-0.002	-0.001
	(0.001)	(0.006)	(0.004)	(0.005)	(0.001)	(0.002)	(0.002)	(0.003)	(0.000)	(0.002)	(0.001)	(0.002)
No child below 6 (ommit.)												
Child below 6	0.001	0.025***	0.014**	0.018**	0.000	-0.001	-0.001	-0.003	-0.002*	-0.005	-0.004*	-0.007*
	(0.001)	(0.007)	(0.005)	(0.007)	(0.001)	(0.002)	(0.002)	(0.003)	(0.001)	(0.003)	(0.002)	(0.003)
Household size	0.001**	-0.000	0.000	0.003	-0.000	0.001	0.000	0.001	0.000	-0.001*	-0.001	-0.001
	(0.000)	(0.001)	(0.001)	(0.002)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.001)	(0.001)	(0.001)
Unemp. Rate	0.001*	0.008**	0.003	0.003	-0.000	-0.002	-0.001	-0.002	0.000	-0.003*	-0.002	-0.004
	(0.000)	(0.003)	(0.002)	(0.003)	(0.000)	(0.001)	(0.001)	(0.002)	(0.000)	(0.001)	(0.001)	(0.002)
N(Obs.)	101757	27683	27683	27683	101757	27683	27683	27683	101757	27683	27683	27683

Table 21: Marginal Effects of Multinomial Regression of Detailed Transitions from Non-Employment, Cont'd, (transits to the informal and non-wage work sectors), by Gender, Ages 15-49 years old, Egypt 2001-2011

	NE –> I				NE –> NW			
	Females	Males No weights	Males Prop. Weights	Males Pred. Weights	Females	Males No weights	Males Prop. Weights	Males Pred. Weights
Age group (15-24 ommit.)								
25 - 34	-0.002**	-0.012	-0.004	-0.040***	0.000	-0.004	-0.002	-0.015***
	(0.001)	(0.008)	(0.006)	(0.004)	(0.001)	(0.004)	(0.003)	(0.002)
35-54	-0.004***	-0.071***	-0.048***	-0.061***	-0.000	-0.008	-0.007	-0.019***
	(0.001)	(0.008)	(0.006)	(0.004)	(0.001)	(0.010)	(0.006)	(0.002)
Marital St. (Single ommit.)								
Marital St. (Married)	-0.003**	0.058***	0.036***	0.090***	-0.001	0.020***	0.012***	0.028***
	(0.001)	(0.006)	(0.004)	(0.008)	(0.001)	(0.003)	(0.002)	(0.004)
Education (Illiterate ommit.)								
Read & Write	0.001	0.044	0.030	0.067*	0.001	0.013	0.010	0.009
	(0.002)	(0.023)	(0.018)	(0.033)	(0.002)	(0.008)	(0.006)	(0.005)
Below Intermediate	0.001	0.003	0.001	-0.003	-0.001	0.012**	0.010**	0.005**
	(0.001)	(0.009)	(0.007)	(0.005)	(0.001)	(0.004)	(0.003)	(0.002)
Intermediate & above	0.001	0.018*	0.013	0.027***	-0.001	0.016***	0.012***	0.012***
	(0.001)	(0.009)	(0.007)	(0.005)	(0.001)	(0.003)	(0.002)	(0.001)
University & above	0.001	-0.038***	-0.027***	0.032***	-0.002***	0.007*	0.005*	0.024***
	(0.001)	(0.009)	(0.006)	(0.007)	(0.001)	(0.003)	(0.002)	(0.003)
Experience in job market	0.001**	0.013***	0.010***	0.016***	0.000	0.004***	0.003***	0.004***
	(0.000)	(0.002)	(0.002)	(0.004)	(0.000)	(0.001)	(0.001)	(0.001)
Experience Squared	-0.000	-0.001**	-0.000***	-0.001	-0.000	-0.000***	-0.000***	-0.000**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Region (Rural areas ommit.)								
Greater Cairo	0.003***	0.002	0.002	-0.003	-0.003***	-0.020***	-0.015***	-0.020***
	(0.001)	(0.007)	(0.005)	(0.006)	(0.001)	(0.003)	(0.002)	(0.002)
Alex & Suez	0.003**	-0.009	-0.005	-0.016**	-0.003***	-0.021***	-0.015***	-0.019***
	(0.001)	(0.006)	(0.005)	(0.006)	(0.000)	(0.003)	(0.002)	(0.002)
Urban areas	0.001	-0.006	-0.004	-0.012**	-0.002***	-0.001	-0.001	-0.003
	(0.000)	(0.004)	(0.003)	(0.004)	(0.000)	(0.003)	(0.002)	(0.003)
No child below 6 (ommit.)								
Child below 6	-0.000	-0.010	-0.004	-0.003	0.001	-0.009*	-0.006*	-0.004
	(0.001)	(0.005)	(0.004)	(0.005)	(0.001)	(0.004)	(0.003)	(0.003)
Household size	-0.001***	-0.001	-0.001	-0.003**	0.000	0.002***	0.001***	0.001
	(0.000)	(0.001)	(0.001)	(0.001)	(0.000)	(0.001)	(0.000)	(0.001)
Unemp. Rate	-0.000	-0.002	0.001	0.003	-0.000*	-0.001	-0.000	0.000
	(0.000)	(0.002)	(0.002)	(0.002)	(0.000)	(0.001)	(0.001)	(0.001)
N(Obs.)	101757	27683	27683	27683	101757	27683	27683	27683
No. of transitions								

Table 22: Marginal Effects of Multinomial Regression of Detailed Transitions from Non-Employment (stays in non-employment and transits to the formal and public sectors), by Gender, Ages 15-49 years old, Jordan 2000-2010

	NE–>NE				NE –> G				NE –> F			
	Females	Males No weights	Males Prop. Weights	Males Pred. Weights	Females	Males No weights	Males Prop. Weights	Males Pred. Weights	Females	Males No weights	Males Prop. Weights	Males Pred. Weights
Age group (15-24 ommit.)												
25 - 34	0.007**	0.017	0.017	0.053***	0.001	-0.004	-0.004	-0.015**	-0.005***	0.002	0.002	-0.003
	(0.002)	(0.013)	(0.013)	(0.014)	(0.001)	(0.005)	(0.005)	(0.005)	(0.001)	(0.007)	(0.007)	(0.008)
35-54	0.012***	0.069***	0.069***	0.115***	-0.002*	-0.022***	-0.022***	-0.029***	-0.006***	-0.015***	-0.015***	-0.023***
	(0.002)	(0.011)	(0.011)	(0.015)	(0.001)	(0.004)	(0.004)	(0.006)	(0.001)	(0.005)	(0.005)	(0.005)
Marital St. (Single ommit.)												
Marital St. (Married)	0.006***	-0.068***	-0.068***	-0.050***	0.001	0.045***	0.045***	0.026***	-0.004***	0.012*	0.012*	0.015*
	(0.002)	(0.010)	(0.010)	(0.011)	(0.001)	(0.007)	(0.007)	(0.007)	(0.001)	(0.005)	(0.005)	(0.006)
Education (Illiterate ommit.)												
Read & Write	-0.001	-0.021*	-0.021*	0.003	0.000	0.003	0.003	-0.003	0.001	0.002	0.002	-0.008
	(0.002)	(0.010)	(0.010)	(0.015)	(0.001)	(0.004)	(0.004)	(0.004)	(0.001)	(0.004)	(0.004)	(0.008)
Below Intermediate	-0.004*	-0.093***	-0.093***	-0.084***	0.001*	0.028***	0.028***	0.027***	0.001	0.015***	0.015***	0.007
	(0.002)	(0.008)	(0.008)	(0.014)	(0.001)	(0.003)	(0.003)	(0.005)	(0.001)	(0.003)	(0.003)	(0.008)
Intermediate & above	-0.009***	-0.057***	-0.057***	-0.034*	0.003***	0.022***	0.022***	0.014**	0.004***	0.014***	0.014***	0.004
	(0.002)	(0.008)	(0.008)	(0.013)	(0.001)	(0.003)	(0.003)	(0.005)	(0.001)	(0.003)	(0.003)	(0.008)
University & above	-0.045***	-0.083***	-0.083***	-0.120***	0.023***	0.034***	0.034***	0.047***	0.018***	0.041***	0.041***	0.053***
	(0.004)	(0.009)	(0.009)	(0.015)	(0.002)	(0.004)	(0.004)	(0.006)	(0.002)	(0.005)	(0.005)	(0.010)
Experience in job market	-0.007***	-0.024***	-0.024***	-0.031***	0.002***	0.007***	0.007***	0.009***	0.003**	0.005***	0.005***	0.009***
	(0.001)	(0.002)	(0.002)	(0.003)	(0.000)	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)
Experience Squared	0.000***	0.001***	0.001***	0.001***	-0.000*	-0.000***	-0.000***	-0.000**	-0.000	-0.000***	-0.000***	-0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Region (Middle ommit.)												
Region (North)	0.001	0.018***	0.018***	0.010	0.002**	0.022***	0.022***	0.026***	-0.003**	-0.016***	-0.016***	-0.018***
	(0.001)	(0.005)	(0.005)	(0.006)	(0.001)	(0.003)	(0.003)	(0.003)	(0.001)	(0.002)	(0.002)	(0.003)
Region (South)	-0.000	0.011	0.011	0.039***	0.007***	0.042***	0.042***	0.026***	-0.003**	-0.017***	-0.017***	-0.023***
	(0.002)	(0.006)	(0.006)	(0.006)	(0.001)	(0.004)	(0.004)	(0.004)	(0.001)	(0.003)	(0.003)	(0.003)
No child below 6 (ommit.)												
Child below 6	0.017***	-0.009	-0.009	0.069**	-0.004	-0.002	-0.002	-0.030*	-0.009**	0.007	0.007	-0.015
	(0.005)	(0.013)	(0.013)	(0.022)	(0.002)	(0.006)	(0.006)	(0.012)	(0.003)	(0.005)	(0.005)	(0.013)
Household size	0.000	0.003*	0.003*	0.000	0.000	0.001*	0.001*	0.002**	-0.000	0.000	0.000	0.001
	(0.000)	(0.001)	(0.001)	(0.001)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)	(0.001)
Unemp. Rate	0.001*	0.011***	0.011***	0.011***	-0.000	-0.005***	-0.005***	-0.005***	-0.001*	-0.004***	-0.004***	-0.005***
	(0.000)	(0.002)	(0.002)	(0.002)	(0.000)	(0.001)	(0.001)	(0.001)	(0.000)	(0.001)	(0.001)	(0.001)
N(Obs.)	53790	19824	19824	19824	53790	19824	19824	19824	53790	19824	19824	19824

Table 23: Marginal Effects of Multinomial Regression of Detailed Transitions from Non-Employment, Cont'd, (transits to the informal and non-wage work sectors), by Gender, Ages 15-49 years old, Jordan 2000-2010

	NE –> I				NE –> NW			
	Females	Males No weights	Males Prop. Weights	Males Pred. Weights	Females	Males No weights	Males Prop. Weights	Males Pred. Weights
Age group (15-24 ommit.)								
25 - 34	-0.002*	-0.014	-0.014	-0.034**	0.000	-0.002	-0.002	-0.002
	(0.001)	(0.008)	(0.008)	(0.011)	(0.001)	(0.007)	(0.007)	(0.011)
35-54	-0.004**	-0.026***	-0.026***	-0.046***	0.000	-0.005	-0.005	-0.017
	(0.001)	(0.007)	(0.007)	(0.013)	(0.001)	(0.007)	(0.007)	(0.015)
Marital St. (Single ommit.)								
Marital St. (Married)	-0.002*	0.001	0.001	0.002	-0.000	0.009**	0.009**	0.007*
	(0.001)	(0.006)	(0.006)	(0.006)	(0.001)	(0.004)	(0.004)	(0.004)
Education (Illiterate ommit.)								
Read & Write	-0.001	0.011	0.011	-0.001	0.000	0.006**	0.006**	0.009
	(0.002)	(0.008)	(0.008)	(0.009)	(0.001)	(0.002)	(0.002)	(0.006)
Below Intermediate	0.001	0.039***	0.039***	0.040***	0.000	0.011***	0.011***	0.010***
	(0.001)	(0.007)	(0.007)	(0.009)	(0.001)	(0.001)	(0.001)	(0.003)
Intermediate & above	0.001	0.011	0.011	0.008	0.000	0.011***	0.011***	0.008*
	(0.001)	(0.006)	(0.006)	(0.009)	(0.001)	(0.002)	(0.002)	(0.003)
University & above	0.004*	-0.000	-0.000	0.005	0.001	0.009***	0.009***	0.016**
	(0.002)	(0.006)	(0.006)	(0.009)	(0.001)	(0.002)	(0.002)	(0.005)
Experience in job market	0.002***	0.010***	0.010***	0.012***	0.000*	0.002**	0.002**	0.002
	(0.001)	(0.001)	(0.001)	(0.002)	(0.000)	(0.001)	(0.001)	(0.001)
Experience Squared	-0.000*	-0.000***	-0.000***	-0.000***	-0.000	-0.000**	-0.000**	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Region (Middle ommit.)								
Region (North)	-0.002**	-0.021***	-0.021***	-0.014***	0.001	-0.003	-0.003	-0.005
	(0.001)	(0.003)	(0.003)	(0.003)	(0.001)	(0.002)	(0.002)	(0.003)
Region (South)	-0.003**	-0.028***	-0.028***	-0.030***	-0.001**	-0.008***	-0.008***	-0.012***
	(0.001)	(0.003)	(0.003)	(0.003)	(0.000)	(0.002)	(0.002)	(0.002)
No child below 6 (ommit.)								
Child below 6	-0.005*	0.006	0.006	-0.015	0.001	-0.002	-0.002	-0.010
	(0.002)	(0.007)	(0.007)	(0.011)	(0.001)	(0.005)	(0.005)	(0.012)
Household size	-0.000	-0.004***	-0.004***	-0.003***	0.000	-0.000	-0.000	0.000
	(0.000)	(0.001)	(0.001)	(0.001)	(0.000)	(0.001)	(0.001)	(0.001)
Unemp. Rate	0.000	-0.002	-0.002	-0.002	-0.000	-0.000	-0.000	0.001
	(0.000)	(0.001)	(0.001)	(0.001)	(0.000)	(0.000)	(0.000)	(0.001)
N(Obs.)	53790	19824	19824	19824	53790	19824	19824	19824