

Bernabè, Sabine; Stampini, Marco

Working Paper

Labour mobility during transition: evidence from Georgia

LICOS Discussion Paper, No. 206

Provided in Cooperation with:

LICOS Centre for Institutions and Economic Performance, KU Leuven

Suggested Citation: Bernabè, Sabine; Stampini, Marco (2008) : Labour mobility during transition: evidence from Georgia, LICOS Discussion Paper, No. 206, Katholieke Universiteit Leuven, LICOS Centre for Institutions and Economic Performance, Leuven

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LICOS Centre for Institutions and Economic Performance

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LICOS Discussion Paper Series

Discussion Paper 206/2008

Labour Mobility during Transition: Evidence from Georgia

Sabine Bernabè and Marco Stampini



Katholieke Universiteit Leuven

LICOS Centre for Institutions and Economic Performance
Huis De Dorlodot
Deberiotstraat 34 – mailbox 3511
B-3000 Leuven
BELGIUM

TEL: +32-(0)16 32 65 98

FAX: +32-(0)16 32 65 99

<http://www.econ.kuleuven.be/licos>

**LABOUR MOBILITY DURING TRANSITION:
EVIDENCE FROM GEORGIA**

Sabine Bernabè - Marco Stampini*

05 May 2008

Sabine Bernabè

LICOS Centre for Institutions and Economic Performance
K.U. Leuven
E-mail: sabine.bernabe@econ.kuleuven.be

Marco Stampini

African Development Bank
E-mail: m.stampini@afdb.org

Abstract – This paper deals with labour mobility in Georgia during economic transition. We use quarterly 1998-99 panel data to examine mobility across six labour market statuses (inactivity, unemployment, formal wage employment, informal wage employment, self-employment and farming). Our findings are consistent with the hypothesis of labour market segmentation. Formal employment is preferred to informal employment. Unemployment is largely a queuing device for individuals with higher education waiting for formal jobs. Some self-employment is subsistence activities and consistent with a segmented labour market, while other is high risk and potentially high return activities. Age, gender and education are significant determinants of labour mobility. Finally, informal employment serves as a buffer in times of recession –with farming and informal wage employment absorbing labour shed by other statuses during the Russian financial crisis.

Keywords – labour mobility, informal labour, transition, Georgia.

JEL Classification: J21, P23.

*Sabine Bernabè is Senior Economist at LICOS Centre for Institutions and Economic Performance at K.U. Leuven; E-mail: sabine.bernabe@econ.kuleuven.be. Marco Stampini is Senior Research Economist at the African Development Bank, Temporary Relocation Agency, Tunis, Tunisia; E-mail: m.stampini@afdb.org. We are grateful to Pierella Paci, Carmen Pages, Stefano Paternostro, Stefano Scarpetta and two anonymous referees for useful comments. We would also like to acknowledge financial support from the Italian Trust Fund of the World Bank. This paper reflects the opinions of the authors and not those of the African Development Bank, its Board of Directors or the countries they represent.
Corresponding author: Sabine Bernabè.

1. Introduction

This paper deals with labour mobility in Georgia during the period of transition from a centrally planned to a market economy. It aims to assess whether the patterns of mobility are consistent with a segmented labour market.

Labour market segmentation theory assumes that the labour market is not a homogenous entity, but rather composed of two or more segments. More specifically: (1) the labour market consists of distinct segments within which wages and employment are determined by idiosyncratic rules and processes and (2) in at least some segments of the labour market jobs are rationed because wages are kept above market-clearing levels and workers queue for jobs in these sectors (Dickens and Lang, 1992, Fields, 2005).

One approach to labour market segmentation has been dual labour market theory, which sees the overall labour market as divided into two non-competing sectors (Fei and Ranis, 1964, Fields, 1975, Fields, 1990, Harris and Todaro, 1970, Lewis, 1954). Jobs in the primary sector offer high wages, returns to human capital and job security. Secondary-sector jobs tend to be low-wage, unstable with poor working conditions and practically no returns to human capital. Mobility between sectors is thought to be limited (Ehrenberg and Smith, 1996). Multi-sector labour market models extend dualism to take more than two sectors into account. In some of these models unemployment serves as a queuing device for formal sector employment for those with higher education (Fields, 2005).

Dualism implicitly assumes that workers are involuntarily employed in the secondary sector. Critics argue that employment in the secondary or informal sector is voluntary and that the decision is determined by a worker's level of human capital and potential productivity in the formal sector (Maloney, 2003).

We examine whether there is evidence of labour market segmentation in Georgia during the period 1998-99 and how the pattern of labour mobility is influenced by individual characteristics. Proving labour market segmentation is not simple. In particular, determining whether the transition from one labour market status to another is voluntary or not involves disentangling demand and supply factors, which may not always be possible.

We tackle the issue indirectly, by searching for signs of preference for some statuses over others and of exclusion of certain types of individuals from the best statuses – both of which we take as consistent with the existence of segmentation. We use rarely available household and labour force panel data and apply four analytical tools, analyzing the evidence that they jointly provide. We look at: 1) turnover rates; 2) shares of temporary

mobility; 3) transition tendencies, and; 4) effect of negative exogenous shocks on mobility. We then perform a multivariate analysis of how individual characteristics affect the likelihood to move across labour market statuses.

The literature estimating and analyzing transition probabilities across labour market states in post-communist economies is considerable (see for example Bukowski and Lewandowski, 2005, Lauerová and Terrell, 2007, Lehmann and Wadsworth, 2000, Orazem et al., 2005, Pages and Stampini, 2007). However our approach is novel in that: (1) it analyses mobility not only between employment and non-employment, but also across several employment statuses (namely formal, informal, self-employment and farming); and (2) it uses a new and clean index of transition tendency, which accounts for the number of jobs created by each status.¹

Our findings are consistent with a segmented labour market. In both urban and rural areas, formal employment is clearly preferred to informal employment. Unemployment, which is almost exclusively in urban areas, acts as a queuing device for individuals with higher education waiting for formal jobs. The evidence on self-employment is mixed. Some is less desirable, short-term in nature and consistent with a segmented labour market, while other types of self-employment are higher risk and potentially higher return activities. After the Russian financial crisis, farming absorbs labour shed by other statuses in rural areas, whereas in urban areas the same function is performed by informal wage employment. Finally, our findings suggest that there are considerable barriers to non-agricultural employment, as there is very little mobility into non-agricultural employment from unemployment, inactivity and farming.

The remainder of the paper is organized as follows. Section 2 provides a brief background to Georgia. Section 3 describes data, definition of main variables and methodology. The results are presented in section 4, and section 5 draws some conclusions and implications for policy.

2. Country Background

When the Soviet Union was dismantled at the end of the 1980s, it was followed by an unprecedented collapse in output throughout the region. Georgia experienced one of the sharpest declines; in part due to a civil war and two territorial conflicts (in Abkhazia and South Ossetia). By 1994, GDP had dropped to 28 per cent of its 1990 level. The collapse in

output was accompanied by a massive shedding of labour from the state sector, as well as a sharp decline in real wages and an accumulation of wage arrears.² Public employment shrank from 86 to 35 per cent between 1990 and 1999 (Bernabè, 2002b).

At the same time, the decline in output also resulted in a severe fiscal crisis that led to the virtual collapse of social security provision. By 1999, tax revenue still amounted to only 14 per cent of GDP, amongst the lowest levels in the world (EBRD, 1999). With external debt servicing absorbing more than half of government revenue, total spending on unemployment, pensions, family allowance, assistance to internally displaced people, health, education and food security amounted to a meagre 8 per cent of GDP in 1999 (World Bank, 2004). Indeed unemployment and pension benefits –if paid at all- were extremely low; GEL14 (US\$7) per month each in 1999, while the minimum consumption basket for a family of four was GEL104 (\$52) per month (IMF, 2001). Moreover, the very slow resumption of growth meant that by 1999 there had been virtually no creation of formal private sector firms capable of absorbing the labour shed from the state sector. With limited formal job creation and no adequate social security, labour shifted mainly into agricultural self-employment and informal labour market activities (Bernabè, 2005).³

In terms of the human costs of transition, Georgia has gone from having one of the highest standards of living in the USSR to one of the lowest. By 1999, 53 per cent of the population was living below the national poverty line and inequality levels had increased dramatically, with a gini coefficient for income inequality at 0.5 and 0.4 for consumption inequality (World-Bank, 2002). In 1998, Georgia ranked 108th out of a total of 174 countries according to the UNDP Human Development Index, which takes into account longevity, education and the standard of living as measured by real GDP per capita at purchasing power parity prices in U.S. dollars (UNDP, 1999).

Since the period covered by this paper (1998-99) growth has resumed and poverty has declined. In 2001-2002, GDP grew by roughly 5 per cent per year and up to 9 per cent in 2005-2006 (TACIS, 2006). Poverty headcount (using national poverty line) remained high at around 54 per cent until 2004 and when it began to decline to 39 per cent in 2005-2006 (TACIS, 2006). At the same time, labour force participation has declined sharply, reflecting both the continued decline in the participation of women as well as the dropping out of the labour force of the so-called “discouraged unemployed” (those who have lost hope of finding a job). Moreover, agriculture continued to increase its share of employment - 53 per cent in 2002 (World Bank, 2008) and informal employment is

presumed to be extensive, although not measurable since the discontinuation of the Labour Force Survey after 1999.

3. Data and Methods

3.1. Data and definitions

We use data from the Labour Force Survey (LFS) and the Survey of Georgian Households (SGH) for 1998 and 1999.

The SGH began in 1995 and was co-designed by a team of Georgian statisticians and a team from Statistics Canada with financing from the World Bank. It is still ongoing and covers the entire territory of Georgia, with the exception of two regions: Abkhazia and South Ossetia. Interviews are quarterly and are administered to a rotating panel of households. Each household is surveyed five times – a baseline in which only the roster is filled and four follow-ups. In each quarter, because of the rotation, 25 per cent of the sample is replaced by new families. The SGH questionnaire is in nature quite similar to a Living Standard Measurement Study (LSMS) survey and collects information on household expenditure, income and assets, basic employment characteristics as well as housing conditions.

In 1998 and 1999 only, more detailed information on the labour market was collected through the LFS. For the data to be representative at the regional level, the size of the SGH sample was doubled for the LFS. In each quarter, the latter reached adults in about 5,400 households (accounting for more than 14,000 individuals) – out of about 1,240,000 households in Georgia. For half of them, the SGH was also filled out for all members (including children). Pooling all data from 1998 and 1999, we can count on 116,695 observations.

We focus on labour mobility, defined as movement across different labour market statuses. We consider six statuses: inactive, unemployed, formal employees, informal employees, self-employed and farmers. The definition of each category is provided in Table 1. In our categorization, we are forced to omit employers, cooperative members and the residual status (“others”), as the number of observations is not sufficient to perform a sensible dynamic analysis.⁴

As regards the definition of informal employment, there is no real consensus over what it constitutes. There have been, broadly speaking, two sets of operational definitions. The first and most commonly used is the ILO definition, which consists of employment in household enterprises with certain characteristics. According to the 1993 “resolution concerning statistics in the informal sector”, it includes (1) household enterprises that are owned and operated by own-account workers, either alone or in partnership with members of the same or other households, which may employ contributing family workers and employees on an occasional basis, but do not employ employees on a continuous basis; and (2) household enterprises owned and operated by employers, either alone or in partnership with members of the same or other households, which employ no more than a certain number of employees (usually 5) on a continuous basis (ILO, 1993, para 8,9).

The second set of definitions sees informal employment as unregistered wage-employment, for which the employer does not pay social security contributions (see Bosch and Maloney, 2005). This can be either in household enterprises or in larger formal enterprises. Although in many cases these definitions overlap, they are not identical (for a review of concepts and definitions of informal employment see Bernabè, 2002a). In order to be consistent with both these definitions, we create two informal employment categories: (1) *informal employees*, who are wage employees working without a written agreement- as a proxy for payment of social security contributions, and; (2) *self-employed*, which is a restricted version of the ILO informal employment, as they include own account workers and unpaid family workers in household enterprises but not employers with paid employees (see table 1).

Table 1 here

Overall, the quality of the data from both the SGH and the LFS is reasonably good, although some issues are worth mentioning.

Informal activities - There could be an issue of under-reporting as regards data on informal wage and self-employment, particularly in urban areas. It is conceivable that informal wage employed, working without a written agreement, and unregistered self-employed may be reluctant to report their activities, as they may not be certain as to the legality of their status. In contrast, unpaid family workers and individuals engaging in subsistence agriculture are unlikely to consider their activities as illegal and are more likely to report them. The low rates of informal employment, and indeed total employment in urban areas, may be a reflection of this fact.

Attrition - When we study mobility in the labour market, we consider each individual more than once depending on how many consecutive times she has been interviewed. In theory, each person should be surveyed four times. However, this was not possible for households already belonging to the sample in 1997 (before the LFS started), and for those entering the sample in late 1999. For the individuals belonging to these households, less than four observations are available. Furthermore, despite the contradiction with the survey design, a few individuals are observed more than four times (up to eight). Analysis of mean characteristics of individuals observed four times (as per survey design) and individuals observed less than four times, shows that attrition looks random and unlikely to produce bias.

3.2. Methodology

We aim to verify whether there is evidence of segmentation in Georgia's labour market and, in the case there were, determine which individual characteristics are associated with the different labour market statuses and what are the implications for policy. Proving segmentation is not trivial. It is difficult to determine if the transition from one labour market status to another makes the worker better or worse off. Some information is recovered by understanding if the change of status is voluntary. However, this requires disentangling demand and supply factors: did the worker decide to leave, or was she laid off? Did the worker transit to the most preferred status, or rather chose the easiest one to access?

We have no direct information on these questions, so we tackle the problem indirectly. We search for signs of preference for some statuses over others, and of exclusion of certain types of individuals from the best statuses, as both facts are consistent with the existence of segmentation. We proceed with four analytical tools, and analyse the evidence that they jointly provide. In turn, we look at: 1) turnover rates; 2) shares of temporary mobility; 3) transition tendencies, and; 4) effect of negative exogenous shocks on mobility. Finally, we study how individual characteristics affect the likelihood of performing each transition, conditional on the status of departure.

3.2.1. Turnover rates

We begin with the analysis of turnover –defined as the quarterly probability of transition to a different labour market status. Turnover may be due to workers’ choices, firms’ decisions or business volatility. In any case, we argue that for risk adverse workers – *ceteris paribus* – statuses with high turnover rates are less desirable than more stable ones.

Information on job stability is found on the main diagonal of the transition matrix (P), whose elements p_{ij} represent the probability of transiting to status j in period t , conditional on being in status i in the previous quarter ($t-1$). Formally, this conditional probability can be written as:

$$p_{ij} = p(S_t=j|S_{t-1}=i) = p(S_{t-1}=i \cap S_t=j) / p(S_{t-1}=i) \quad (1)$$

The rate of turnover of state i is equal to $1-p_{ii}$. As the data does not allow distinguishing transitions that occur within a given status, $1-p_{ii}$ is actually the net rate of turnover. In fact, p_{ii} reflects the probability that an individual remains in a given status either because the job remains the same, or because the transition occurs within the status.

To build the matrix, we pool all individual transitions, regardless of the period in which they occur. All individuals for whom at least one quarterly transition is observed are considered. Each individual can contribute to the matrix more than once, and appear in different cells at different times. At this stage, we consider observed probabilities of transition.⁵

The magnitudes of the numbers off the main diagonal of P depend on the size of the statuses and on the number of jobs opened in each of them. We will come back to this problem in Section 3.2.3, and we will define a cleaner index of mobility.

3.2.2. Share of temporary mobility

The amount of temporary mobility provides insight on the desirability of a labour market status. Statuses with high turnover rates offer in principle a higher chance of returning after leaving. Were there no segmentation, we would expect to find that high turnover be associated with high temporary mobility. If a status with high turnover shows low temporary mobility, this may be due to workers not wanting to return. Therefore, low shares of temporary mobility (relative to total turnover) suggest a negative preference for the particular status and the existence of segmentation.

For most individuals, we observe more than one transition. We can therefore examine how many individuals leave a labour market status and return to it. We focus on individuals

observed four times. We define as movers those workers that, at any time, are found in a labour market status different from the one of the first interview. Temporary movers are a subgroup of them, i.e. those who perform the same labour activity at the time of the first and the last interview, but have moved to at least one other status in-between. The amount of temporary mobility relative to total mobility provides insight into the desirability of each labour market status.

3.2.3. Transition tendencies

If the labour market is not segmented, transitions across statuses follow random-like patterns. After leaving a status, workers move to other statuses indifferently. Non-random moves – high or low tendencies of transition - signal preference of workers or firms, or the existence of a good match. When due to workers' preferences, non-random moves suggest labour market segmentation.

Conditional probabilities of transition (p_{ij}) do not provide a clean indicator of the tendency to move from one status to another - hence they do not say much regarding the desirability of each change. In fact, the probability of moving from i to j depends on the number of jobs created by j . This, in turn, is a function of the size, of the rate of job renewal and of the rate of growth (with respect to other statuses) of status j –the larger the share of the population accounted for by status j and the share of jobs destroyed and recreated in it (or newly created because of status growth), the larger is the probability that a worker randomly moves from any given status to j . For this reason, we follow Pages and Stampini (2006) and construct measures of the probability of transiting from status i to j that account for the share of jobs destroyed by status i , and for the share of jobs created in each status of possible destination, i.e. all but i . This index can be formally expressed as:

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

where N_{ij} is the number of individuals moving from status i to j ; $N_{i\bullet}$ is the initial size of i ; $N_{\bullet j}$ is the final size of j ; $N_{i\bullet} - N_{ii}$ is the number of people exiting i ; $N_{\bullet j} - N_{jj}$ is the number of positions opened by j . The numerator is the observed probability of joining j , conditional on having left i . The denominator is the ratio between the number of jobs

offered by j and the total number of jobs opened by statuses accessible to individuals who left i – i.e. all but i . In other words, the denominator is the probability of joining j for a worker who left i , in a world where (post-expulsion) assignment is random.

In a labour market characterized by random transitions, all indexes T (for $i \neq j$) are equal to one. Segmentation, on the contrary, implies values of T s different from one. An index T above one indicates a positive tendency to make the transition. Values below one indicate lack of tendency.⁶ As we focus on net flows, no index of tendency can be built for mobility within a given initial status. The main diagonal of matrix T is therefore empty.

3.2.4. Labour market mobility in different macroeconomic conditions

Further insight into the existence of segmentation is provided by observing how tendencies change when the economy is hit by an exogenous macroeconomic shock. If a transition becomes more likely, it either means that the status of destination is less sensitive to external risk, or that it is associated with buffer activities – which are less desirable when the economy is growing.

The macroeconomic events characterizing the period of our analysis provide a unique opportunity to study the effect of shocks on mobility. In fact, it includes the so-called “Russian financial crisis” at the end of 1998, which had major economic repercussions in Georgia. It resulted in a decrease in real GDP growth (end of period) from 10.6 per cent per year in 1997 to 2.9 per cent in 1998 and 2 per cent in 1999, and to a fall in real wages and employment (World-Bank, 2002). Two other crises affected Georgia in 1998-99. A severe drought hit the eastern part of the country in the second and third quarters of 1998. Also, the unsettled conflict in the break away region of Abkhazia prompted an exodus of internally displaced people in early 1998, that affected most severely the neighbouring regions of Samegrelo and Imereti (World-Bank, 2002).

In order to compare labour mobility during and before the crisis, we consider two tendency matrices (T), one for the first two quarters of 1998, the other for the same period in 1999. Sensitivity analysis shows that our evidence does not change if the window is reduced in both years to the first quarter only, and if the regions affected by the Abkhazian crisis are excluded. It is worth reminding that T s are cleaned of the effect of changes in statuses size, including those due to seasonality, as they adjust for the number of jobs destroyed and created. Nevertheless, we safely compare similar periods of the two years.

3.2.5. Mobility and individual characteristics

Through the four tools described above, we expect to determine if the patterns of mobility in the Georgian labour market support the hypothesis of segmentation. We then study how individual characteristics affect the likelihood of performing each transition. We estimate six multinomial logit regressions, one for each status of departure. Each model can be formalised as follows:

$$\ln \Omega_{ji}(X) = \ln \frac{\Pr(S = j | X)}{\Pr(S = i | X)} = X\beta_{ji} \quad \text{for } j=1 \text{ to } 6 \quad (3)$$

where i is the labour market status of departure that we use as term of comparison (omitted category). The log odds of transiting to status j relative to remaining in status i are a linear function of individual characteristics X . From each regression, we obtain five vectors of coefficients (one for each $j \neq i$). The estimation is repeated six times, one for each status of departure. We estimate model (3) separately for urban and rural areas.

The vector X includes a set of dichotomous individual characteristics, namely: gender, age under 30, university education, household head status, civil status (married or not), and Georgian ethnicity. We also include three seasonal dummy variables and a dummy for the year 1999. Ideally, we would like to include a richer set of individual and household characteristics: for example, more categories for age and education (like for example in Bukowskiy and Lewandowski, 2005, Lauerová and Terrell, 2007), presence of young children, regional dummies (as in Lehmann et al., 2006), and some interactions between the previous variables. However, as we consider six labour market statuses, and estimate the model separately for urban and rural areas to account for the very different nature of the two labour markets, a richer specification of the model would complicate convergence to the maximum likelihood, as some cells of the transition matrix would be thin and would not guarantee enough variability in all considered characteristics. For the same reason, we consider as young those aged 15-30 instead of the standard 15-25. As some relevant variable may be omitted, the reader may look at our results in terms of correlation rather than causality.

The value added of the estimation of model (3) relative to a descriptive analysis of the characteristics of the individuals performing each transition, is that the multinomial logit coefficients isolate the effect of each characteristic, cleaning it from the correlation with the others.

By identifying the characteristics that increase the likelihood of transition towards less desirable statuses, we aim to determine which groups are excluded from the best statuses because of segmentation.

With this set of tools, we can now analyse the composition of the Georgian labour market, and the features of mobility across different jobs.

4. Results

We begin with a brief description of the composition of Georgian labour market in 1998-99. Table 2 presents the structure of labour market participation of the adult population by quarter. We use the adult population (aged 15 years and over) and not the working-age population (15-60 for females and 15-65 for males) because a very high share of individuals over the age of 65 years is employed. Overall, roughly 33 per cent of the adult population was inactive and 11 per cent unemployed. The vast majority of the employed were farmers (27 per cent of the adult population) or formal employees (20 per cent – 18 per cent in the public sector, and 2 per cent in the private sector). Only 4 per cent of the adult population was informal wage employed, and 4 per cent self-employed.

Although there are some signs of seasonality, as the share of farmers increases in the second and third quarters of both 1998 and 1999, overall the structure of employment is stable. However, as we will see, panel data reveal that this apparent stability masks high mobility across labour force statuses. Furthermore, part of this mobility is only temporary – a fact hidden in conventional yearly panel data.

Table 2 here

4.1. Turnover rates

We turn to the comparison of turnover rates for different labour market statuses – defined as the quarterly probability of transition out of the current labour market status, towards any other status. Table 3a presents quarterly probabilities of transition – i.e. the matrix P defined in section 3.2.1. First, we see that total mobility is much higher than that which would appear from the cross-sectional data presented in table 2. For instance, while the share of informal wage employed stayed stable at 4 per cent of the adult population throughout the eight quarters of 1998-99, roughly 44 per cent of workers that were informally employed changed status within each quarter. In other words, 44 per cent of

positions in this status are renewed every three months (through expulsion of an individual, who moves out, and the opening filled by another individual, previously employed in another status).

Table 3a here

Second, we see that there are considerable differences in the degree of mobility by labour force status. In particular, turnover rates are lowest amongst formal employees, with only 10 per cent of positions renewed every quarter, and among farmers and the inactive. By contrast, the informal wage employed, the self-employed and the unemployed experience high levels of mobility. Moreover, when we examine turnover rates amongst formal employees by public and private sector (not reported in the table), we find that they are considerably higher in the private sector; 33 per cent vs. 11 per cent in the public sector.

Third, tables 3b and 3c, which examine urban and rural probabilities of transition separately, show that with the exception of agricultural employment, turnover rates are much higher in rural areas than they are in urban areas. This is particularly the case for informal wage employment, self-employment and unemployment.

Tables 3b and 3c here

4.2. Temporary mobility

We now examine temporary mobility, or the likelihood to return to the state of origin once a transition has been made. First, table 4 shows that workers in the less stable statuses (those with the highest turnover rates), once they leave the initial status, are less likely to return to it. The share of temporary to total movers is 19 per cent for informal wage employment and 23 per cent for self-employment, compared to 32 per cent for formal wage employment. The higher turnover rates combined with the lower likelihood to return to the status of origin could be taken as an indication that informal wage and self-employment may be less desirable than formal employment.

Maloney (1999) argues that high turnover rates amongst the self-employed could be more an indication of the high-risk nature of these activities than of their undesirability. These findings could indeed be a reflection of the poor investment climate during the period considered (including poor legal and financial infrastructure, excess bureaucracy, corruption etc.), which made operating businesses very difficult. There could also be another reason. Qualitative research on Georgia shows that many self-employment activities may in fact be short-term “survival strategies” in nature. For example, shuttle

trading (the purchase of goods in neighbouring countries for re-sale in Georgia) is very common. A World Bank qualitative study based on in-depth interviews with 600 households across nine regions in Georgia explains how “women travel in small groups by bus, train or air to Russia, Turkey, Hungary, Poland and other Eastern European countries as often as once a month (they) sell poorer quality goods in open markets, better quality items in shops” (Dudwick, 1999). The short-term nature of these types of activities could in part explain the high turnover rates and low likelihood of returning to self-employment.

Table 4 here

Second, comparing urban and rural areas, we find that although overall mobility is considerably higher in rural areas, the share of temporary mobility is not higher – if anything it is slightly lower. This is surprising as one would expect the seasonal nature of farming to imply a considerable share of temporary mobility. These findings therefore suggest that during the period of observation there has been considerable “longer-term” movement into farming in rural areas, and as shown in table 3c this has been from all sectors except formal employment. Indeed, as discussed below the share of agriculture in total employment increased during the period of observation as agriculture acted as a buffer after the Russian financial crisis.

4.3. Transition tendencies

The probabilities of transition in table 3 are affected by the size and growth rate of given labour force statuses. We overcome this limitation with a cleaner index of tendency to move across categories. Table 5a shows the tendencies T, as defined in section 3.2.3. Tables 5b and 5c present the same matrices for urban and rural areas respectively.

Tables 5a, 5b and 5c here

The evidence on tendencies should be read jointly with that on turnover. First of all, we see that there is a very high tendency to move from informal wage employment to formal employment (3.17) and that this tendency is greater than that to move from formal to informal employment (2.63). This is also the case when we analyse the urban and rural transition matrices separately. Moreover, we saw that formal workers had very low turnover rates, with less than 10 per cent leaving their status within one quarter compared to 44 per cent of informal workers.

The low rates of formal sector turnover and the greater tendency to move from informal to formal employment than vice versa, are consistent with a dual labour market where formal jobs are preferred to informal jobs. As discussed by Maloney (1999) if there is labour market dualism, then formal sector work is preferred to informal work, and workers will queue up for formal sector jobs and relinquish them only in extreme cases such as downsizing. Although our findings do not prove the existence of a dual labour market, they are consistent with its existence.

Second, workers that exit formal and self-employment have a stronger tendency to move to informal wage employment than to any other sector. Table 5a shows that the share of formal and self-employed workers moving to informal employment is respectively 2.63 and 1.84 times the share of jobs created by this sector. This holds in both urban and rural areas (see tables 5b, 5c). This finding suggests that (1) for those who leave formal or self-employment, informal employment may be preferred to other alternatives either because (a) expected returns are higher and/or (b) expectations of finding a job are higher as informal sector is perceived to be low-barrier easy-entry sector and/or (c) job characteristics are perceived to be better suited to worker characteristics; (2) informal employers have a preference for the types of employees that leave formal sector or self-employment because they are better suited for the jobs available. We will explore some of these reasons when we examine the characteristics associated with each type of transition.

Finally, there may be barriers to non-agricultural employment as there is a stronger tendency to move between inactivity, unemployment and farming, than there is between these statuses and non-agricultural employment. Table 5a shows that the unemployed have a particularly high tendency to move to inactivity (1.56), while the inactive have a particularly high tendency to move to unemployment (1.37) and farming (1.41), and farmers have a high tendency to move to inactivity (1.45) and to some extent self-employment (1.20). By contrast, tendencies to move from inactivity, unemployment or farming to non-agricultural employment are mostly low (indices below one).

Comparing table 5b and 5c, we note that in rural areas there is a stronger tendency to move from inactivity and unemployment to farming whereas in urban areas the tendency is stronger to move between inactivity and unemployment and vice versa. This suggests that farming is absorbing some unemployment and inactivity in rural areas thereby disguising the true level of unemployment.

4.4. Labour market mobility in different macroeconomic conditions

Informal wage employment and self-employment are characterized by high turnover and low shares of temporary mobility, suggesting that they are less desirable than other employment statuses. In addition, tendencies show that mobility is far from random-like. Opening positions tend to be filled by selecting individuals coming from one or two other statuses. Further evidence on the existence of segmentation can be obtained from the change in the patterns of mobility during the Russian financial crisis, which started in the second half of 1998. The effects on the Georgian economy are evident in the sharp reduction in growth rates, from about 10 per cent of the first half of 1998, to about 2 per cent one year later – as shown in table 6. Repercussions can also be observed in the labour market, with a change in the structure of employment. Whereas before the crisis agriculture accounted for 50 per cent of employment, after the crisis its share was 54 per cent. This was mainly compensated by a decline in the share of service sector employment (from 40 to 37 per cent), while the share of industrial employment declined by just 1 per cent.⁷

Table 6 here

As urban and rural labour markets exhibit different patterns of mobility, we analyse them separately. Tables 7a and 7b present tendencies before and after the crisis for the urban population only. The main diagonals report information on turnover – i.e. $1-p_{ii}$.

Tables 7a and 7b here

A few results are worth noting. First, it is evident that *after the crisis mobility decreases*. People are more likely to stay in their labour force status – whatever it is. The change is higher in unemployment – confirming that the crisis makes employment opportunities more rare – informal and self-employment. The differential in turnover rates across statuses narrows, though the general picture presented in section 4.1 is not altered.

Second, the tendency to move to self-employment decreases (fifth column of T) from all the statuses of employment and from unemployment –increasing only for individuals who were inactive. This may be due to individuals fearing the risk associated with starting a business -not being able to afford the loss associated with failure. Access to credit and other sources of financing (remittances from workers in Russia, for instance) may also be constrained or more expensive. It is worth recalling that the self-employed include only own account workers with unpaid family workers and not employers with paid employees, so these are mainly small scale household enterprises.

Third, informal wage employment seems to work as buffer during crisis. In fact, the tendency to move into informal employment increases for all statuses but unemployment. This – jointly with the above paragraph – suggests that informal employment may be an alternative to self-employment during recession.

Fourth, tendencies to transit to formal wage employment do not grow in times of crisis. Rather, informal wage employees become relatively more likely to transit to farming and inactivity – and less likely to take on a formal wage job. Self-employed become more likely to move to farming and informal wage employment – and less likely to become unemployed, maybe because they cannot afford this option.

Tables 8a and 8b report evidence for rural areas. We find less evidence of an impact of the Russian financial crisis on the labour market, reflecting the fact that the majority of the rural labour force is employed in agriculture and that most agricultural production is for own consumption or local trade, thereby making rural areas less vulnerable to external shocks.

Tables 8a and 8b here

Nevertheless, we do note some significant changes. First, as in urban areas, mobility decreases. Individuals are less likely to change status, whatever the status – with changes in turnover more marked in informal and self-employment. Lower rates of turnover in inactivity and unemployment confirm that fewer opportunities are being created.

Second, the tendency towards agricultural activities increases from all other statuses of employment, suggesting that farming works as a buffer in bad times (as opposed to urban areas, where the buffer role is played by informal wage employment). This is reflected in the increased share of agriculture in total employment during this period. The increase in tendency towards farming is associated with a strong reduction of the tendency towards unemployment and self-employment – suggesting that households can no longer afford keeping members off work. Third, the tendency to move to self-employment decreases, from both formal and informal jobs – while the same does not happen from farming. In general, this seems to confirm that employed individuals do not wish to start a business in times of crisis, which is consistent with the evidence for urban areas. On the other hand, those who are already running one are less likely to abandon it. If they do so, they show lower tendency towards unemployment, and much higher tendency to move to informal jobs (increasing from 1.7 to 2.66).

A further noteworthy point is that the tendency to move from inactivity to farming is always greater than one, both before and after the crisis and in both urban and rural areas. This suggests that households cannot afford to have inactive individuals (mainly pensioners, but also youth and women in childbearing age) and that agriculture provides a safety net in the absence of adequate social protection. In fact, almost half of retirement-age individuals work, and four out of five of them are farmers. In addition, old-age workers are over-represented amongst those who make the transition from inactivity to farming. Finally, we analysed transition tendencies before and after the Russian crisis by gender and age group separately (results not reported in the tables) and found that, with a few exceptions the results were not significantly different from those of the population as a whole. One notable gender difference is that men seem to be more likely to lose formal jobs as a result of the crisis than women. After the crisis, the tendency for men to move from formal employment to unemployment increases, whereas for women it decreases. Overall, the analysis of the change in transition tendencies suggests that individuals are unlikely to start a business when the economy is hit by an external shock. A buffer is provided by informal wage employment in urban areas, and by farming in rural areas. In order to complete our analysis, we turn in the next section to the analysis of the individual characteristics associated with different transitions.

4.5 Labour market mobility and individual characteristics

We now turn to the analysis of the typology of individuals performing key transitions in order to evaluate whether certain individual characteristics are associated with specific patterns of mobility. In particular we wish to evaluate whether certain individuals are excluded from the more desirable statuses. We estimate two sets of dynamic multinomial logit models – one for urban and one for rural areas- in order to isolate the effect of each individual characteristic on the probability of moving from one labour market status to another while controlling for all other individual characteristics (see section 3.2.5 for details). Tables 9 and 10 report results for urban and rural areas respectively.

We begin with urban areas (Table 9). First, we find there is a strong and highly significant positive relationship between having a university education and remaining in or having access to formal employment. More specifically, we find that, everything else being equal, individuals with university education are significantly more likely to stay in formal

employment and to move to formal employment from any other status (except farming) than individuals with less than university education.

This may be due to both demand and supply factors, which we are not able to disentangle. One interpretation could be that individuals with lower education have a lower opportunity cost of working informally (Maloney, 1999). The opportunity cost could be lower because of very low earnings for low-skilled workers in the formal sector. It could also be because the negative stigma associated with working in low-skilled informal jobs may be higher for individuals with higher education. A second interpretation would be that low-skilled workers prefer more independence and may do better working on commission than in stable jobs (Maloney, 1999). Finally, a third interpretation would be that the sectors in which lower-skilled workers are employed (namely manufacturing and trade) are more vulnerable and more likely to lay workers off, leaving them no alternative but to work informally. Indeed, when we examine the sector of economic activity (not shown in tables), we find that formal workers who move to informal employment are more likely to be employed in manufacturing and trade (68 per cent of them are in these two sectors before moving), while those that remain in formal employment are more likely to be employed in public administration, health and education (53 per cent of those who stay).

Second, our results support the view that unemployment may be a queuing device for formal jobs for those with higher education. Having a university education significantly decreases the probability of leaving unemployment except to go to formal employment, *ceteris paribus*. It also significantly increases the probability of moving to unemployment from inactivity and farming. These findings suggest that individuals with higher education prefer and/or can afford to remain or become unemployed rather than take on low-skilled jobs and that a negative stigma is still associated with working informally or being self-employed. Dudwick (1999) explains that during the Soviet period money earned through the state sector was respectable while money earned privately (through the second economy) was questionable. She finds that “many still regard self-employment as quasi-legal and quasi-legitimate activity...”

Third, there may be barriers to employment for youth and - once employed - youth are more likely to work informally. Individuals aged less than 30 years that are inactive or unemployed are significantly less likely to move out of inactivity or unemployment into any form of employment than are those aged over 30 years, everything else being equal. Although the inactive youth can be students, those that are unemployed are not and they

are actively seeking employment. Youth that are employed are significantly more likely to move to informal employment than non-youth, *ceteris paribus* (except from self-employment where there is no significant difference and where very few youth are employed). Finally, employed youth are significantly more likely to drop out of the labour force than non-youth.⁸

Fourth, gender appears to play an important role in explaining the pattern of labour mobility. Most notably, women are significantly more likely to drop out of the labour force than men. Being female significantly increases the likelihood of moving into inactivity from any employment state as well as from unemployment, *ceteris paribus*. These findings support other research, which suggests that the transition has been accompanied by a return to a more traditional gender division of roles in the Georgian labour market (Dourglishvili, 1997). Amongst other reasons this is a result of the breakdown of previously widely available childcare facilities (Bernabè, 2005, Dourglishvili, 1997). However gender does not appear to play a role in terms of accessing formal employment. Our results show that in urban areas women are as likely to move to formal employment from any other labour market state as men. This reflects the Soviet heritage of gender equality in terms of education and access to formal jobs.

Table 9 here

Table 10 reports estimates for rural areas. By and large, they reflect those in urban areas with a few notable exceptions. First of all, the level of education is not as significant a correlate of mobility as it is in urban areas. This is probably because the level of educational attainment is generally lower in rural areas and the majority of the population is employed in agriculture. Nevertheless, having university education does significantly increase the likelihood of remaining in formal employment or moving into formal employment from all other labour market states, *ceteris paribus*. University education is also positively and significantly correlated with transitions from farming into unemployment, which is consistent with unemployment being a queuing mechanism for individuals with higher education waiting for formal jobs.

Second, in contrast to urban areas where age is not a determinant of unemployment, rural youth are significantly more likely to leave employment (mainly self-employment and farming) for unemployment, *ceteris paribus*. This may reflect the seasonal nature of rural employment. Moreover, as in urban areas, youth are significantly less likely to get formal jobs, everything else being equal (unless they are self-employed – then there is no

significant difference by age). However, unlike their urban counterparts, rural youth are not significantly more likely to work informally.

Third, as in urban areas, rural women are significantly more likely to drop out of the labour force and less likely to enter the labour force than men, *ceteris paribus*. Moreover, amongst formal employees and farmers (which make up the bulk of the employed), women are significantly less likely to change employment status than men.

Table 10 here

5. Conclusions and Implications for Policy

This paper examines labour mobility in Georgia during the period of economic transition, encompassing both times of economic growth and crisis. The findings can be summarized as follows.

First, informal wage employment is less desirable than formal wage employment. Informal employment is more volatile and characterized by lower temporary mobility, suggesting that individuals do not wish to return to it. Even once the number of jobs created by each sector is accounted for, the tendency to move from informal to formal employment is considerably greater than the one to move from formal to informal employment. Moreover, when an external shock hits the economy, the tendency to move into informal employment increases from all statuses, suggesting that informal jobs act as a buffer for misplaced workers. Overall these findings suggest that informal employment is a necessity rather than a preferred option. It provides easy-entry jobs, in which workers are easily hired and fired - given the absence of a written contract, registration and social security contributions.

Second, our results suggest that self-employment - which includes only own account workers without employees and unpaid family members - is a heterogeneous group. Some is short-term in nature (e.g. shuttle trading), some consists of subsistence activities, and some is higher risk and therefore potentially higher return activities. As with informal wage employment, turnover is high and temporary mobility is low, suggesting a lack of desire to return to self-employment after moving. However, during crises it does not provide a buffer. On the contrary, the tendency to move to self-employment from other statuses decreases, as people become more risk averse and access to credit and financing becomes more limited and expensive. However those who are already self-employed tend to move less than others.

Third, farming acts as a buffer both during economic transition and at times of crisis. In rural areas, we find that the tendency to move from any status to farming increases when the economy is hit by the Russian crisis. Moreover, farming is generating livelihoods for the unemployed and pensioners in the face of extremely low pension and unemployment benefits.

Fifth, in addition to pensioners, women, youth and individuals with lower education are more likely to be in or move to the less desirable labour market statuses. In particular, women are significantly more likely to drop out of the labour force than men. This may be due to the lack of previously widely available childcare facilities and to a return to a more traditional division of gender roles. Similarly, inactive and unemployed youth are less likely to find employment than older individuals and once they do find a job, they are more likely to work informally, everything else being equal. Finally, we find considerable returns to higher education in terms of quality of employment: having university education is positively and significantly correlated with having and retaining a formal job. Moreover, our findings suggest that individuals with university education may prefer to be and remain unemployed and wait for a formal job than take on a non-formal job.

Urban and rural labour markets exhibit surprisingly few differences in these respects with a few exceptions. In times of crisis farming acts as a buffer in rural areas, absorbing labour shed by other statuses, while this role is played by informal employment in urban areas. Moreover, during the period of observation, mobility has been higher in rural areas and of a more permanent nature. Most of this has been into farming.

Overall our findings are consistent with a segmented labour market. Formal jobs are preferred to informal jobs and unemployment serves as a queuing device for formal jobs for individuals with higher education. As regards self-employment, our evidence is inconclusive. The self-employed appear to be a heterogeneous group comprising both short-term survival strategies and higher risk activities.

It would be inappropriate to make specific policy recommendations here as we have not analysed existing policies in Georgia in any extensive way. However, we can discuss how our findings are relevant for policy formulation.

First, one area of priority is the creation of formal work in the private sector. In fact, in the period analysed, the private sector accounted for a meagre ten per cent of formal wage employment. The formalisation of existing jobs is certainly not straight forward. Given the size of the informal sector in Georgia (comprising both informal employees and self-

employed) and its importance in generating livelihoods in the absence of social security, a careful evaluation should be made of the types of activities that may be formalised. On the one hand, some unregistered self-employment activities which are survival strategies in nature may not stand the administrative and fiscal load associated with registration. Forcing them to formalise would destroy jobs and livelihoods without producing additional tax revenue. On the other hand, self-employment activities that are economically viable enterprises should be encouraged to formalise through favourable tax policies, access to credit, tax benefits and a reduction of bureaucratic obstacles. A similar evaluation should be made of enterprises hiring informal employees.

Particular attention should be placed on the creation of formal jobs in low-skilled sectors. At the moment formal jobs are almost exclusively reserved for workers with higher education. Lower-skilled workers should also have access to regular employment and social security.

Second, it is desirable that the social security system be expanded and that adequate pension and unemployment benefits be paid so as to integrate those individuals who are forced into informal subsistence work due to lack of social protection. As highlighted by the Government (see World Bank, 2004), this requires an improvement in tax administration and increased efforts to combat tax evasion.

Finally, policies should actively aim to reduce barriers to employment for youth and women. This includes improving the transparency in hiring of formal wage employees and introducing specific incentives for formal employers to hire youth and women. It should also include policies aimed at retaining women in the labour force such as the establishment of widely available and affordable childcare facilities as well as the provision of adequate maternity and parental leave. Again, the most critical policies, even in this respect will be the ones that stimulate private formal sector job creation.

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Tables and Figures

Table 1: Definition of labour force statuses

JOB CATEGORY	DEFINITION
1. Inactive	Not working in the last seven days AND NOT looking for a job in the last four weeks (unless “registered with the employment service as a job-seeker” or “lost any hope to find a job” (discouraged unemployed))
2. Unemployed	Not working in the last seven days AND [looking for a job in the last four weeks OR not looking for a job because “registered with the employment service as a job-seeker” or “lost any hope to find a job” (discouraged unemployed)]
3. Formal wage employed	Wage employed AND Employed on the basis of a written agreement AND Work is regular
4. Informal wage employed	Wage employed AND [Employed on the basis of an oral agreement OR Employed on the basis of a written agreement BUT work is casual / provisional / seasonal]
5. Self-employed	[Own-account workers without employees OR unpaid family workers] NOT in agriculture.
6. Farmer	[Own-account workers without employees OR unpaid family workers] in agriculture.

Table 2 - Composition of the Georgian labour market in 1998-99.

Labour Force Status	Quarter 1/98	Quarter 2/98	Quarter 3/98	Quarter 4/98	Quarter 1/99	Quarter 2/99	Quarter 3/99	Quarter 4/99	Urban	Rural	Total
1 = Inactive	0.37	0.33	0.32	0.32	0.33	0.32	0.32	0.35	0.42	0.23	0.33
2 = unemployed	0.15	0.11	0.10	0.10	0.11	0.11	0.10	0.12	0.17	0.04	0.11
3 = Formal wage earners	0.19	0.20	0.21	0.21	0.20	0.20	0.20	0.20	0.27	0.13	0.20
4 = Informal wage earners	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.05	0.03	0.04
5 = Non-Ag self empl/unpaid	0.04	0.04	0.04	0.05	0.03	0.03	0.03	0.03	0.04	0.03	0.04
6 = Ag self empl/unpaid	0.20	0.27	0.29	0.27	0.28	0.30	0.30	0.26	0.05	0.55	0.27
Total	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Source: LFS 1998-99

Table 3a – Conditional probabilities of transition (P matrix) in the Georgian labour market in 1998-99, urban and rural

		S(t)=1	S(t)=2	S(t)=3	S(t)=4	S(t)=5	S(t)=6
S(t-1)=1 = Inactive	P[S(t)=j/S(t-1)=i] <i>std err.</i>	0.836 0.003	0.047 0.002	0.014 0.001	0.008 0.001	0.006 0.001	0.089 0.002
S(t-1)=2 = unemployed	P[S(t)=j/S(t-1)=i] <i>std err.</i>	0.164 0.005	0.671 0.006	0.033 0.002	0.033 0.002	0.025 0.002	0.074 0.003
S(t-1)=3 = Formal wage	P[S(t)=j/S(t-1)=i] <i>std err.</i>	0.021 0.001	0.015 0.001	0.904 0.003	0.030 0.001	0.007 0.001	0.023 0.001
S(t-1)=4 = Informal wage	P[S(t)=j/S(t-1)=i] <i>std err.</i>	0.050 0.005	0.056 0.004	0.187 0.008	0.560 0.009	0.049 0.004	0.098 0.006
S(t-1)=5 = Non-Ag self	P[S(t)=j/S(t-1)=i] <i>std err.</i>	0.072 0.005	0.050 0.005	0.049 0.005	0.079 0.006	0.618 0.011	0.132 0.008
S(t-1)=6 = Ag self-employed	P[S(t)=j/S(t-1)=i] <i>std err.</i>	0.076 0.002	0.018 0.001	0.015 0.001	0.013 0.001	0.017 0.001	0.860 0.003
TOTAL	P[S(t)=j]	0.32	0.10	0.21	0.04	0.03	0.29

Source: as for Table 2. Sample: all individuals with at least one transition (70,242 observations). Standard errors obtained by bootstrapping.

Table 3b – Conditional probabilities of transition (P matrix) in the Georgian labour market in 1998-99, urban

P[S(t)=j/S(t-1)=i]	S(t)=1	S(t)=2	S(t)=3	S(t)=4	S(t)=5	S(t)=6
S(t-1)=1 = Inactive	0.893	0.055	0.015	0.008	0.007	0.022
S(t-1)=2 = unemployed	0.160	0.721	0.034	0.035	0.024	0.026
S(t-1)=3 = Formal wage	0.021	0.017	0.925	0.025	0.008	0.005
S(t-1)=4 = Informal wage	0.055	0.066	0.182	0.611	0.055	0.032
S(t-1)=5 = Non-Ag self	0.071	0.063	0.048	0.089	0.691	0.037
S(t-1)=6 = Ag self-employed	0.142	0.069	0.018	0.031	0.036	0.705
TOTAL	0.418	0.164	0.272	0.052	0.042	0.052

Source: as for Table 2. Sample: all individuals with at least one transition (41,804 observations).

Table 3c – Conditional probabilities of transition (P matrix) in the Georgian labour market in 1998-99, rural

P[S(t)=j/S(t-1)=i]	S(t)=1	S(t)=2	S(t)=3	S(t)=4	S(t)=5	S(t)=6
S(t-1)=1 = Inactive	0.711	0.030	0.010	0.008	0.006	0.236
S(t-1)=2 = unemployed	0.182	0.413	0.029	0.027	0.027	0.321
S(t-1)=3 = Formal wage	0.021	0.010	0.851	0.043	0.006	0.069
S(t-1)=4 = Informal wage	0.042	0.036	0.196	0.460	0.037	0.229
S(t-1)=5 = Non-Ag self	0.073	0.028	0.050	0.063	0.493	0.295
S(t-1)=6 = Ag self-employed	0.070	0.013	0.015	0.011	0.015	0.876
TOTAL	0.209	0.034	0.127	0.030	0.026	0.575

Source: as for Table 2. Sample: all individuals with at least one transition (28,438 observations).

Table 4 - Temporary and total mobility in the Georgian labour market in 1998-99, by initial labour force status

Initial status on the labour market	All					Urban					Rural				
	Moved	Moved Temporarily	Share of temp. moves	N. observations		Moved	Moved Temporarily	Share of temp. moves	N. observations		Moved	Moved Temporarily	Share of temp. moves	N. observations	
1 = Inactive	0.31	0.09	0.30	4,716		0.207	0.073	0.35	3,398		0.501	0.125	0.25	1,000	
2 = unemployed	0.58	0.14	0.24	1,806		0.527	0.133	0.25	1,579		0.823	0.167	0.20	1,000	
3 = Formal wage	0.18	0.06	0.32	3,109		0.132	0.041	0.31	2,273		0.276	0.088	0.32	1,000	
4 = Informal wage	0.70	0.13	0.19	570		0.625	0.139	0.22	363		0.801	0.123	0.15	1,000	
5 = Non-Ag self employed	0.65	0.15	0.23	488		0.503	0.095	0.19	288		0.794	0.198	0.25	1,000	
6 = Ag self employed	0.26	0.10	0.37	3,937		0.44	0.183	0.42	459		0.243	0.089	0.37	3,000	
Total	0.32	0.09	0.29	14,626		0.285	0.085	0.30	8,360		0.365	0.105	0.29	6,000	

Source: as for Table 2. Sample: individuals with four consecutive observations of the labour market status.

Table 5a - Transition tendencies (T matrix) in the Georgian labour market in 1998-99, urban and rural

T(i,j)	S(t)=1	S(t)=2	S(t)=3	S(t)=4	S(t)=5	S(t)=6
S(t-1)=1 = Inactive		1.37	0.51	0.34	0.40	1.41
S(t-1)=2 = unemployed	1.56		0.71	0.82	0.87	0.68
S(t-1)=3 = Formal wage	0.70	0.90		2.63	0.91	0.76
S(t-1)=4 = Informal wage	0.38	0.74	3.17		1.38	0.71
S(t-1)=5 = Non-Ag self	0.64	0.80	0.99	1.84		1.14
S(t-1)=6 = Ag self-employed	1.45	0.63	0.65	0.63	1.20	

Source: as for Table 2. Sample: all individuals with at least one transition (70,242 observations).

Table 5b - Transition tendencies (T matrix) in the Georgian labour market in 1998-99, urban

T(i,j)	S(t)=1	S(t)=2	S(t)=3	S(t)=4	S(t)=5	S(t)=6
S(t-1)=1 = Inactive		1.59	0.67	0.41	0.54	1.29
S(t-1)=2 = unemployed	1.53		0.62	0.71	0.78	0.64
S(t-1)=3 = Formal wage	0.81	0.85		2.12	1.01	0.46
S(t-1)=4 = Informal wage	0.42	0.64	2.69		1.44	0.63
S(t-1)=5 = Non-Ag self	0.72	0.83	0.95	1.97		0.97
S(t-1)=6 = Ag self-employed	1.47	0.91	0.35	0.69	1.26	

Source: as for Table 2. Sample: all individuals with at least one transition (41,804 observations).

Table 5c - Transition tendencies (T matrix) in the Georgian labour market in 1998-99, rural

T(i,j)	S(t)=1	S(t)=2	S(t)=3	S(t)=4	S(t)=5	S(t)=6
S(t-1)=1 = Inactive		0.93	0.28	0.25	0.24	1.41
S(t-1)=2 = unemployed	1.13		0.49	0.55	0.70	1.16
S(t-1)=3 = Formal wage	0.50	0.73		3.33	0.63	0.97
S(t-1)=4 = Informal wage	0.28	0.73	3.66		1.04	0.90
S(t-1)=5 = Non-Ag self	0.53	0.62	1.00	1.48		1.26
S(t-1)=6 = Ag self-employed	1.26	0.73	0.75	0.65	1.12	

Source: as for Table 2. Sample: all individuals with at least one transition (28,438 observations).

Table 6 – Real GDP growth, Georgia 1998-99.

		GDP (annual % change)	
1996		10.5	
1997		10.8	
1998		2.9	
	Q1'98		11.2
	Q2'98		8.9*
1999		3.0	
	Q1'99		1.7
	Q2'99		2.4*

Source: (IMF, 2000, TACIS, 1998) * real GDP growth first half of 'year (H1) compared to same period previous year. During Q2 98, growth was higher than Q1 98 but overall 98 H1 was slightly lower than 97 H1 because of revision of 97 H1 output. All GDP figures must be handled with caution as size of shadow economy is expected to account for approximately 40per cent of GDP.

Table 7a - Pre-crisis turnover and transition tendencies in the Georgian labour market, urban

T(i,j)	S(t)=1	S(t)=2	S(t)=3	S(t)=4	S(t)=5	S(t)=6
S(t-1)=1 = Inactive	<i>0.12</i>	1.75	0.67	0.32	0.48	1.33
S(t-1)=2 = unemployed	1.51	<i>0.32</i>	0.53	0.93	0.87	0.71
S(t-1)=3 = Formal wage	1.01	0.68	<i>0.09</i>	1.81	1.13	0.58
S(t-1)=4 = Informal wage	0.23	0.67	3.05	<i>0.45</i>	1.43	0.30
S(t-1)=5 = Non-Ag self	0.67	1.13	0.90	1.79	<i>0.37</i>	0.82
S(t-1)=6 = Ag self-employed	1.62	0.83	0.28	0.60	1.38	<i>0.26</i>

Source: as for Table 2. Sample: all individuals with at least one transition, in the first two quarters of 1998 (15,279 observations).

Table 7b - Post-crisis turnover and transition tendencies in the Georgian labour market, urban

T(i,j)	S(t)=1	S(t)=2	S(t)=3	S(t)=4	S(t)=5	S(t)=6
S(t-1)=1 = Inactive	<i>0.10</i>	1.55	0.48	0.55	0.74	1.22
S(t-1)=2 = unemployed	1.62	<i>0.26</i>	0.64	0.63	0.64	0.59
S(t-1)=3 = Formal wage	0.70	0.92	<i>0.06</i>	2.38	0.94	0.31
S(t-1)=4 = Informal wage	0.43	0.64	2.79	<i>0.38</i>	1.37	0.76
S(t-1)=5 = Non-Ag self	0.64	0.57	0.95	2.10	<i>0.26</i>	1.40
S(t-1)=6 = Ag self-employed	1.47	0.88	0.45	0.78	0.99	<i>0.24</i>

Source: as for Table 2. Sample: all individuals with at least one transition, in the first two quarters of 1999 (16,865 observations).

Table 8a - Pre-crisis turnover and transition tendencies in the Georgian labour market, rural

T(i,j)	S(t)=1	S(t)=2	S(t)=3	S(t)=4	S(t)=5	S(t)=6
S(t-1)=1 = Inactive	<i>0.24</i>	1.16	0.44	0.26	0.31	1.39
S(t-1)=2 = unemployed	1.48	<i>0.43</i>	0.55	1.09	0.97	0.88
S(t-1)=3 = Formal wage	1.03	0.99	<i>0.11</i>	2.67	1.26	0.58
S(t-1)=4 = Informal wage	0.37	1.01	3.95	<i>0.53</i>	1.34	0.45
S(t-1)=5 = Non-Ag self	0.61	1.47	1.12	1.70	<i>0.40</i>	0.89
S(t-1)=6 = Ag self-employed	1.49	0.50	0.66	0.73	1.19	<i>0.12</i>

Source: as for Table 2. Sample: all individuals with at least one transition, in the first two quarters of 1998 (13,721 observations).

Table 8b - Post-crisis turnover and transition tendencies in the Georgian labour market, rural

T(i,j)	S(t)=1	S(t)=2	S(t)=3	S(t)=4	S(t)=5	S(t)=6
S(t-1)=1 = Inactive	<i>0.18</i>	1.35	0.30	0.40	0.40	1.40
S(t-1)=2 = unemployed	1.64	<i>0.34</i>	0.82	0.62	0.75	0.68
S(t-1)=3 = Formal wage	0.76	0.78	<i>0.10</i>	2.59	0.75	0.84
S(t-1)=4 = Informal wage	0.31	0.63	3.34	<i>0.43</i>	1.06	0.83
S(t-1)=5 = Non-Ag self	0.45	0.88	1.07	2.66	<i>0.31</i>	0.98
S(t-1)=6 = Ag self-employed	1.38	0.59	0.66	0.74	1.24	<i>0.11</i>

Source: as for Table 2. Sample: all individuals with at least one transition, in the first two quarters of 1999 (14,762 observations).

Table 9 – Multinomial logit estimation of the probability of transition, conditional on the initial status – Urban households.

	Status of Departure					
	1 OLF	2 Unempl.	3 Formal wage	4 Informal wage	5 Self- employed	6 Farmer
1						
Female		0.833***	0.723***	0.385*	1.050***	0.384**
Age 15-29		0.055	0.453**	0.557**	-0.01	0.422**
University Education		-0.337***	-0.653***	-0.019	-0.157	-0.218
Household head		0.182**	0.033	0.205	-0.158	0.036
Married		0.154	-0.185	0.133	-0.327	-0.519***
Georgian ethnicity		-0.057	0.053	-0.32	-0.13	0.201
Season: spring to summer		-0.129	-0.634***	-0.459	-0.553	-0.26
Season: summer to fall		-0.167	-0.228	-0.131	-0.698**	0.135
Season: fall to winter		-0.131	-0.396*	0.338	-0.327	0.474**
Year 1999		-0.077	-0.579***	-0.033	-0.442**	0.143
Constant		-1.791***	-3.246***	-2.659***	-1.617***	-1.828***
2						
Female	-0.417***		-0.403**	-0.528**	-0.39	-0.633***
Age 15-29	-0.455***		0.102	0.191	0.264	0.429
University Education	0.310***		-0.472***	0.356	0.205	0.660***
Household head	-0.344***		-0.161	-0.262	-0.492**	-0.588**
Married	0.556***		0.640*	-0.038	-0.184	-0.223
Georgian ethnicity	0.031		0.195	-0.107	-0.44	0.472*
Season: spring to summer	-0.183*		-0.457*	-0.127	-0.638*	-0.596*
Season: summer to fall	-0.432***		-0.464*	-0.062	-0.331	-0.277
Season: fall to winter	-0.407***		-0.114	-0.053	-0.730*	0.451
Year 1999	-0.147*		-0.118	-0.528***	-0.695***	0.049
Constant	-2.436***		-3.960***	-1.599***	-0.85	-2.323***
3						
Female	-0.035	-0.151		0.11	0.061	0.127
Age 15-29	-0.670***	-0.1		0.081	0.001	0.786
University Education	0.702***	0.322**		0.744***	0.724***	0.396
Household head	0.075	0.172		0.144	0.14	0.791
Married	0.804***	-0.528***		0.553**	0.715	0.311
Georgian ethnicity	0.243	0.849***		0.426**	0.229	-0.332
Season: spring to summer	-0.083	-0.079		-0.092	-0.45	0.257
Season: summer to fall	-0.489**	0.03		0.249	-0.365	-0.142
Season: fall to winter	-0.051	0.12		-0.421*	-0.770*	0.626
Year 1999	-0.555***	-0.340**		-0.441***	-0.413	-0.112
Constant	-4.460***	-3.296***		-2.144***	-3.173***	-4.566***

4

Female	-0.214	-0.512***	-0.746***		0.405*	-0.950***
Age 15-29	-0.955***	-0.541***	0.567***		-0.266	1.013***
University Education	-0.225	-0.879***	-1.168***		-0.431*	-1.155**
Household head	-0.212	0.283*	0.002		-0.056	-0.144
Married	0.656**	-0.205	-0.279		0.112	0.582
Georgian ethnicity	-0.006	0.028	0.191		-0.376*	0.108
Season: spring to summer	0.182	-0.038	-0.346*		-0.497*	0.804*
Season: summer to fall	0.157	-0.035	-0.307		-0.743***	0.375
Season: fall to winter	-0.15	-0.659***	-0.167		-0.844***	0.972*
Year 1999	0.397**	-0.575***	0.192		-0.237	0.12
Constant	-4.927***	-1.850***	-2.690***		-1.120**	-4.076***

5

Female	-0.286	-0.528***	-0.333	-0.655**		-0.579**
Age 15-29	-0.818***	-0.675***	0.318	-0.438		-0.337
University Education	-0.592**	-0.722***	-1.005***	0.357		-0.061
Household head	0.499*	0.125	0.405	0.261		-0.095
Married	1.054***	0.252	0.659	0.393		-0.197
Georgian ethnicity	-0.459**	0.14	-0.109	-0.285		0.345
Season: spring to summer	-0.162	-0.098	-0.107	0.017		-0.887**
Season: summer to fall	-0.099	-0.375	-0.345	-0.303		-0.499
Season: fall to winter	-0.26	-0.105	0.059	-0.084		0.202
Year 1999	-0.333*	-0.806***	-0.672***	-0.566***		-0.469*
Constant	-4.627***	-2.579***	-4.572***	-2.036***		-2.270***

6

Female	-0.285**	-0.184	0.122	-0.177	0.293	
Age 15-29	-1.065***	-0.459**	-2.032**	-0.255	0.18	
University Education	-0.856***	-1.150***	-1.373***	-1.476***	-1.799***	
Household head	-0.098	-0.074	0.162	-0.158	-0.288	
Married	0.305**	-0.005	0.254	0.46	0.258	
Georgian ethnicity	-0.003	0.412*	-1.206***	-0.067	0.01	
Season: spring to summer	0.523***	0.535*	0.101	-0.622	0.316	
Season: summer to fall	0.049	0.316	-0.03	0.171	-0.462	
Season: fall to winter	-0.476**	-0.396	-0.515	-0.5	-0.800*	
Year 1999	-0.463***	-0.603***	-0.765**	0.043	-0.387	
Constant	-3.001***	-2.949***	-3.485***	-2.622***	-2.529***	

Number of observations	16613	7172	10925	2131	1716	2295
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Legend: * p<.1; ** p<.05; *** p<.01

Table 10 – Multinomial logit estimation of the probability of transition, conditional on the initial status – Rural households.

	Status of Departure					
	1 OLF	2 Unempl.	3 Formal wage	4 Informal wage	5 Self- employed	6 Farmer
1						
Female		0.547**	0.995***	0.25	1.609***	0.729***
Age 15-29		0.222	0.45	-0.236	1.123**	0.840***
University Education		-0.013	-0.450*	0.795	-0.074	0.003
Household head		0.551*	0.751**	-0.816**	-0.52	0.212**
Married		-0.636	-0.278	-0.653	0.045	-0.382***
Georgian ethnicity		-0.352	0.313	-1.029	-0.385	0.062
Season: spring to summer		-0.322	0.114	-1.251**	-2.936***	-0.355***
Season: summer to fall		-0.717**	0.926**	-0.607	-2.805***	-0.082
Season: fall to winter		-1.139***	0.45	-1.149*	-2.432***	0.485***
Year 1999		-0.371*	0.673**	-0.198	-0.562	-0.013
Constant		0.349	-5.404***	0.333	-0.342	-3.021***
2						
Female	-0.391**		-0.899*	0.952	0.068	-1.198***
Age 15-29	0.029		0.672	0.747	1.958***	0.325*
University Education	0.274		-0.759*	0.136	0.049	0.555**
Household head	-0.925**		-0.3	0.551	1.104*	-1.181***
Married	0.422		-0.334	0.32	0.351	0.558
Georgian ethnicity	0.229		0.865	-0.877	0.042	0.824***
Season: spring to summer	-0.244		-1.003	-0.607	-0.596	-1.473***
Season: summer to fall	-0.601**		-0.325	-1.474	-2.529**	-1.074***
Season: fall to winter	-0.157		-0.304	-0.015	-0.22	-0.343*
Year 1999	0.493***		0.492	-0.423	-0.545	0.103
Constant	-3.469***		-4.452***	-2.074	-3.377**	-4.078***
3						
Female	-0.26	-0.981**		0.175	0.785	-0.535***
Age 15-29	-1.907***	-0.890*		-1.081***	0.582	-0.445**
University Education	1.571***	0.989**		1.776***	0.928**	1.765***
Household head	-0.366	0.28		-0.462*	0.808	-0.495***
Married	1.120**	-0.487		-0.099	1.428	0.465
Georgian ethnicity	-0.008	-1.843***		-0.051	0.02	-0.145
Season: spring to summer	0.793	2.089**		0.162	-0.851	-0.049
Season: summer to fall	0.397	0.595		0.192	-0.829	-0.487**
Season: fall to winter	0.246	0.554		-0.205	-0.483	-0.11
Year 1999	-0.402	-0.315		-0.265	-0.327	-0.286*
Constant	-4.894***	-1.132		-0.49	-3.671**	-3.857***

4

Female	-1.072***	-1.064**	-0.577***		0.045	-1.330***
Age 15-29	-1.160***	-0.212	-0.284		0.48	-0.28
University Education	-0.412	-0.668	-0.944***		-0.796	0.405
Household head	-0.769	1.616***	-0.078		0.413	-0.582***
Married	0.7	0.2	-0.253		1.181	0.158
Georgian ethnicity	0.567	-1.168	0.233		0.487	0.890***
Season: spring to summer	0.292	-0.352	-0.18		-0.269	0.023
Season: summer to fall	-1.419**	-0.724	-0.608**		-1.002*	-0.122
Season: fall to winter	0.064	-0.237	0.025		-0.552	-0.258
Year 1999	0.41	-0.832*	0.175		-0.321	-0.265
Constant	-4.530***	-0.886	-2.231***		-3.142***	-4.381***

5

Female	-0.489	-0.429	-0.732*	0.32		-0.587***
Age 15-29	-0.849*	-0.065	0.372	-0.206		-0.470**
University Education	-0.863	-0.667	-0.492	0.889		0.34
Household head	-0.575	0.925	-0.169	-0.548		-0.288
Married	0.526	-0.999	-0.704	1.152		0.545*
Georgian ethnicity	-0.067	-0.82	0.067	0.388		-0.276
Season: spring to summer	-0.902	0.335	-0.684	-0.842		-0.749**
Season: summer to fall	-0.713	0.855	0.218	-1.260**		-0.272
Season: fall to winter	-0.104	-0.038	-0.197	-0.845		0.082
Year 1999	-1.111**	-1.734***	-0.778*	-0.739*		-0.767***
Constant	-3.391***	-0.594	-3.176**	-2.461*		-3.391***

6

Female	-0.185**	-0.383**	-0.321**	-0.03	0.02	
Age 15-29	-0.989***	-0.472***	0.036	-0.228	0.027	
University Education	-0.472***	0.001	-0.314**	0.349	-0.298	
Household head	-0.063	0.266	-0.073	-0.297	0.11	
Married	0.624***	-0.064	-0.293	-0.309	-0.115	
Georgian ethnicity	-0.701***	-0.861**	-0.639***	-1.052***	-0.894***	
Season: spring to summer	0.276**	0.141	-0.344	-0.865***	-1.267***	
Season: summer to fall	0.058	-0.732***	-0.076	-0.721**	-1.957***	
Season: fall to winter	-0.581***	-1.387***	-0.062	-0.829***	-0.981***	
Year 1999	-0.241***	-1.232***	-0.002	-0.222	-0.664***	
Constant	-0.341	1.990***	-1.237***	1.641***	1.724***	

Number of observations 5951 1011 3511 802 747 15645

Legend: * p<.1; ** p<.05; *** p<.01

¹ For comparability with other countries, Pages and Stampini (2007) consider only yearly transitions, therefore losing a large number of observations and the possibility to look at temporary mobility. Furthermore, Pages and Stampini (2007) exclude agricultural self-employment, and do not analyse rural and urban labour markets separately.

² Although data on wage arrears is not readily available, the State Department of Statistics estimates that in 1998 and 1999, wage arrears amounted to approximately GEL 50m (US\$25m) per quarter (TACIS, 1999) – or 3 per cent of GDP.

Moreover, employers used unpaid leave as a solution for dealing with falls in production and lack of funds to pay wages. Official statistics report that in the third quarter of 1999, 36,000 people were on unpaid leave, many for indefinite periods (TACIS, 1999). Note that unpaid leave has no impact on our analysis, as individuals on unpaid leave are recorded as (formal or informal) employees.

³ Note that informal economic activities were not necessarily new in Georgia. In fact, Georgia was the Soviet Republic with the most extensive “second” economy (Grossman, 1977). Amongst other things, it included small-plot agricultural production for private gain, an extensive black market for trading of all sorts of consumer goods and moonlighting (working for “undeclared” private gain outside or even during regular working hours).

⁴ We acknowledge the relevance of mobility between the statuses of non-agricultural self-employed and employer, with the first potentially representing a stepping-stone towards the second. For this reason, we also examine mobility in and out of the status of employer. Employers are in non-agricultural activities in 87 per cent of observed cases (and are in agriculture in the remaining 13 per cent). We observe 575 cases of transition starting from the status of employer. Persistence in the status is 65 per cent. Among those who move, 24 per cent transit to non-agricultural self-employment, 24 per cent transit to agricultural self-employment, and a surprising 27 per cent transit to formal wage employment. Informal wage employment, unemployment and inactivity account respectively for 11, 8 and 5 per cent. As for those moving to the status of employer, 28 per cent come from non-agricultural self-employment, 28 per cent from agricultural self-employment, 19 per cent from formal wage employment, 10 per cent from informal wage employment, 10 per cent from unemployment and 6 per cent from inactivity. Therefore, we can say that employers are somewhat “privileged” self-employed who enjoy higher stability and a preferential channel of mobility towards (and from) formal employment. However, given the small size of the category, we feel confident that its exclusion does not bias the broad picture of labour dynamics in Georgia.

⁵ The most appropriate way to adjust for observed individual characteristics is the estimation of a dynamic multinomial logit model –see for instance Gong et al. (2004). Unfortunately, such estimation presents some difficulties, as the lagged labour force status is correlated with unobserved and unobservable individual characteristics. A proper econometric solution requires: a) the inclusion in the model of an individual random effect; b) the joint estimation of an initial condition controlling for selection at time zero; c) the availability of selection variables which can help identifying the initial condition, providing a good fit for participation in different labour force statuses. Within a companion research project, we tried the described correction, but the poor performance in the estimation of the initial condition turned out to have a strong and unrealistic effect on the prediction of mobility. At this stage, we focus on model-free observed mobility. Later in the paper, we will estimate a battery of multinomial logit regressions conditional on the status of departure. This will allow assessing the effect of individual characteristics on the likelihood to perform each transition. Nonetheless, this does not allow cleaning the entire transition matrix from individual characteristics. In fact, adjusted probabilities of transition may not be compatible across lines, given that each multinomial logit model is estimated separately.

⁶ An example will help understanding. Imagine a three-status economy, in which fifteen individuals leave status 1. Ten of them end up in status 2, five in 3. Therefore, 67 per cent of individuals leaving status 1 go to 2, and 33 per cent to 3. We also observe that status 2 created fifteen positions, and status 3 thirty five, so that 2 offered only 30 per cent of available positions (15 out of 50), while 70 per cent were offered by status 3. The T index is the ratio between the share of individuals who join status j and the share of positions offered by j . T_{12} is equal to 2.22 (0.67 divided by 0.3); T_{13} is equal to 0.48 (0.33 divided by 0.7). This suggests that individuals leaving 1 have a particular tendency to go to 2, rather than to 3.

⁷ Note that we compare the first two quarters of 1998 and 1999 so we are controlling for changes in the structure of employment which are due to seasonal factors.

⁸ Note that these findings are in contrast to those in other post communist countries which show that youth are more likely to become unemployed and once unemployed more likely to find a job and less likely to be pushed out of the labour force (see for example Sorm and Terrell, 2000).