Grogan, Louise

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Louise Grogan[1]

[1] *Tinbergen Institute*

Tinbergen Institute
The Tinbergen Institute is the institute for economic research of the Erasmus Universiteit Rotterdam, Universiteit van Amsterdam and Vrije Universiteit Amsterdam.

Tinbergen Institute Amsterdam
Keizersgracht 482
1017 EG Amsterdam
The Netherlands
Tel.: +31.(0)20.5513500
Fax: +31.(0)20.5513555

Tinbergen Institute Rotterdam
Burg. Oudlaan 50
3062 PA Rotterdam
The Netherlands
Tel.: +31.(0)10.4088900
Fax: +31.(0)10.4089031

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Louise Grogan

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Abstract

This paper investigates worker flows in Russia. Information on elapsed durations of job tenure from the 1994-1996 Russian Longitudinal Monitoring Survey (RLMS) and from retrospective work history responses to the Institute for Labor Relations Research (ISITO) 1998 household survey is used. Competing risks models for durations of job tenure with multiple destination states are estimated. Patterns of transitions between sectors and to non-employment are identified for different demographic groups. Rates of worker flows and direct job-to-job transitions are found to be very high in comparison with Western European and other transition countries. These results contradict the commonly-accepted proposition that substantial declines in real wages have substituted for the reallocation of workers in Russia.

Keywords: worker flows, duration models, Russia
JEL codes: J60, J63, C41

Correspondence to: Louise Grogan, Tinbergen Institute Amsterdam and University of Amsterdam, Keizersgracht 482, 1017 EG Amsterdam, The Netherlands, tel. 31 20 551 35 48, fax. 31 20 551 35 55.

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1 Introduction

In 1991 it was expected that the collapse of the Soviet Union, privatisation of state-owned enterprises, and deregulation of prices, would lead to large-scale labour shedding and to the quick bankrupcy of non-profitable enterprises. The workers made redundant by these bankrupcies were expected to flow through a transitional unemployment pool and then be absorbed into surviving profitable enterprises, new firms, and self-employment. Instantaneous deregulation of wages and prices was seen as the quickest way to break the bonds of workers with unproductive Soviet enterprises, and to allow them to reallocate themselves across the labour market according to their skills. Speedy privatisation of state-owned enterprises in Russia was deemed to be the quickest way of enforcing rationalisation of the labour forces of enterprises.

Despite the deregulation of wages and prices in January 1992, the legalisation of unemployment, and the privatisation of the majority of state-owned enterprises, the Russian labour market still suffers from allocational inefficiencies. The Russian statistical agency Goskomstat reports that GDP fell by 40% between 1992 and 1995, while employment fell by only 7% (RET (1995)). In 1994, only 2% of the Russian labour force was made redundant. The shedding of excess labour that was expected by Western-trained economists at the beginning of the Russian transition largely failed to materialise. Slack labour demand instead facilitated a general decline of real wages in Russia, and a simultaneous growth in wage arrears.[1]

A commonly accepted proposition about the Russian labour market is that a fall in real wages has substituted for the shedding of excess labour from monolithic old Soviet factories. The lack of longitudinal information on job and worker flows in Russia has contributed to a vision of a stagnant, oversized labour pool as a stylised fact amongst labour economists. In the absence of longitudinal micro-level data, job and worker flow information from other transition economies is often extrapolated to the Russian context, with scarce regard for the specificity of the Russian situation. In fact, little information exists with which to distinguish between inflexibility in

[1] According to Lehmann et al. (1998), less than 50% of employees in mining, agriculture, and manufacturing received their wages in full and on time in March, 1996. Still, unemployment remained under 10 percent. Goskomstat reported average real wages in Russia in 1995 to be just 34% of those in 1991.

labour supply and inflexibility in labour demand. There is little longitudinal evidence to support a proposition that Russian labour supply is inflexible, although there are a several explanations for labour demand appears to be so.

Residual distortions in the incentives facing firms have been put forward as a reason for the failure of Russian unemployment to rise to a level commensurate with output falls.**?**) suggest that the corporate tax structure in Russia encouraged firms to keep on surplus labour in the first years of reform. Until late 1996, a so-called "excess profit tax" was applicable at a threshold of six times the minimum wage. Roxenburgh and Shapiro argue that enterprises had strong incentives to maintain surplus employees on their books to keep the average wage in the firm below this taxation threshold. However, since the alteration of the profit taxes at the end of 1996 to make them independent of the average wage bill, redundancies in Russian firms have not increased markedly.

The form which privatisation efforts took in Russia is also cited as a cause of continued, high labour demand of firms. Using a 1995-96 survey of Russian manufacturing firms, **?**) find evidence that worker shareholder schemes are a possible factor in the apparent failure of enterprises to shed excess labour. Workers who obtained shareholder rights in the privatisation of their enterprises have incentives to vote for managers and enterprise plans which preserve the security of their employment, and the firm would continue to hoard labour.

Regulations regarding worker redundancies appear to favor continued labour hoarding in Russia. Firms can avoid 2-3 months of statutory severance pay by sending workers on leave rather than dismissing them. As well, firms seem to be able to maintain their workforces, and even to continue hiring, without paying their workers. In a 1995-96 survey of St. Petersburg firms, managers justified continued labour hoarding in their firms in terms of the low wages paid, their expectations of a recovery in product demand, and high hiring costs.(Brown (1998)).[2]

Acquisti and Lehmann (1998) look at job creation and job destruc-

[2]The results obtained by Standing (1996) using the Russian Labour Flexibility Survey (RLFS) show that sending workers on unpaid leave was the preferred measure of reducing surplus labour amongst firms, aside from dismissal, during the 1992-1993 period. Sending workers on partially-paid leave, allowing wage arrears to accumulate, and reducing working hours were also popular cost-reducing strategies of enterprises.

tion in the Russian Federation using an enterprise panel data set from Moscow, Krasnoyarsk, Chuvashia, and Chelyabinsk. The data set contains 6000 medium and large establishments and 5000 small firms, and was collected in 1996 and 1997. Acquisti and Lehmann (1998) find that Russian manufacturing and mining firms are making very sluggish labour adjustments. As well, newly privatised firms do not appear to reduce their total labour forces more quickly than firms that remain in state control. The finding that privatisation of firms has not led to significant reductions in labour hoarding is one which is substantiated by several firm-level surveys.

A priori, there are several reasons why labour hoarding may be attributable to inflexibility of labour supply. Russian workers have incentives to remain on temporary leave rather than become unemployed. Even when such leaves are unpaid, workers retain access to the fringe benefits of being associated with an enterprise, avoid any social stigma of being classified as unemployed, and retain some hope of recall. [3]

Analysis of worker flows using micro-survey data complements existing work which look has looked at aggregate flows within firms. Data on the labour market histories of individuals allows determination of the extent to which labour hoarding implies that worker flows in and out of such firms are low. Despite the ready availability of summary labour market statistics from the national statistical office Goskomstat, complete longitudinal information on worker transitions did not exist until 1998.

Thus, while there is a growing body of evidence pointing to continued labour hoarding in Russian firms, and suggesting possible explanations, there is less evidence about the reactions of workers to labour hoarding strategies. As well, little is known about the level of worker transitions between firms of different ownership types. Worker flow data allows a distinction to be made between labour hoarding which results because workers remain with a single employer, and labour hoarding because firms find it optimal to recruit such that they maintain a pool of surplus labour.

Establishing basic facts about job and worker flows between and within sectors is prerequisite to designing effective labour market policies. In this

[3] Given the large number of Russian communities that were constructed around a single monolithic enterprise, and the primitive nature of the housing market, workers have few outside employment options. Thus it is economically rational for workers stay at jobs in which their real wages continue to fall, their salaries are not paid for months on end, and they are engaged for less work-time than they would prefer.

paper I analyse two Russian household panels: the Russian Longitudinal Monitoring Survey (RLMS) and Institute for Labour Relations Research (ISITO) household surveys. These data sets provide information on the transitions of workers between labour market states and industrial sectors over time. I estimate models for durations of job tenure with multiple destination states. These models allow for the identification of demographic groups that move relatively rapidly through job cycles and those that tend to stay in jobs they have held since the Soviet era. The rapidity of worker turnover between sectors, and the relative importance of direct job to job transitions to the overall transition rate can be analysed.

The paper is organised as follows. In section 2 the RLMS panels and the ISITO household survey data used in the empirical analysis are introduced. In section 3 theories of job and worker flows are briefly outlined. Section 4 is devoted to the discussion of descriptive statistics from the RLMS on individuals in new jobs and from ISITO on the frequency of job transitions. In section 5 I discuss the application of multiple-spell multiple destination-state duration models to our data. Section 6 is devoted to the results of estimation. Section 7 concludes.

2 Data

The RLMS is a panel survey, while the ISITO survey is a cross-sectional survey containing extensive work history data. Each survey is discussed in turn, and key differences in sample frames are summarised.

2.1 The Russian Longitudinal Monitoring Survey

The one nationally-representative Russian household panel, the RLMS, has been used by labour economists studying such problems as wage arrears, unemployment durations, job creation and destruction, and gender wage differentials (see for example Acquisti and Lehmann (1998)). It is a household-based survey that was designed to capture the effects of economic transformation on the welfare of households and individuals. The survey was designed primarily to answer policy-related questions regarding poverty, health, nutrition, and economic status.

During the initial phase of the RLMS project, in 1992-94, four rounds of data were collected. The first of the four rounds was collected between July

and October 1992, and the last between October 1993 and January 1994. In the second phase of the RLMS survey, a new panel was drawn. In the 1994 survey, 4718 households took part, and individual interviews were conducted with as many adult members of each household as possible. The household response rate was above 80% in the first wave (1994). Information about individual characteristics and working lives was gathered for all household members aged 18 or older.

The individual-level survey contains information about occupation, gender, education levels and type, owed wages, unpaid leave, and income from secondary jobs. For working individuals, information is available on job tenure, wages, hours of work, firm size and ownership structure. The introductory descriptive analysis of worker flows is based on individual data of the second RLMS panel.

Occupations are defined in the RLMS according to standard ISCO-88 codes. The one-digit ISCO-88 categories are (in general order of skill ranking) Legislators, Senior Managers and Officials; Professionals; Technicians and Associate Professionals; Clerks; Service Workers and Market Workers; Skilled Agricultural and Fishery Workers; Craft and Related Trades Workers; Plant and Machine Operators and Assemblers; and Unskilled Workers.

The RLMS sample may be divided into eight distinct regions: Moscow and St. Petersburg Metropolitan Areas; the North North-West Region; the Volga Vyatski and Volga Basin Region; the Urals; Eastern Siberia and the Far East; the North Caucasus; Western Siberia; and the Central and Central Black Earth Region.

2.2 The ISITO April/May 1998 Household Survey

My second source of worker flow information is a 4000 household survey carried out jointly by the University of Warwick Centre for Comparative Labour Studies and the Institute for Labour Relations Research (ISITO) in Moscow. Interviews were made with individuals in non-institutionalised households in the cities of Moscow, Kemerovo, Samara, and Syktyvkar in April and May 1998. The ISITO household survey avoids clustering of sampled households by drawing local samples from computerised databases of the populations of each city. Thus, at the city level, the ISITO data contain a random sample of local populations.

Information is collected on demographic characteristics, educational and

training, jobs and entrepreneurial activities, remuneration, and satisfaction with life. As well, adults are asked to complete a work history questionnaire covering the January 1987-April 1998 period. For each labour market spell, ISITO interviewers record beginning and end dates, employment status, the sector (for job spells), the level of skill of the work, and how well the job was paid relative to previous employment.

The response rate of households ranges from 53.1 to 79 percent amongst the cities included in the ISITO survey. Amongst responding households, the response rate to the individual level questions ranged from 88.4 to 91.5 percent in the ISITO surveys.

Unlike the RLMS, the four cities chosen for the ISITO Household Survey are not representative of the Russian population. They are all relatively prosperous centers. The fall in living standards and real wages in these cities has been lower than the Russian average (Clarke (1999)). Nevertheless, these cities are very different from each other, and as such provide information on the relative importance of local factors in determining labour market dynamics.

A brief introduction to the four cities in the ISITO household survey is in order. Kemerovo is the capital of an industrial region of Western Siberia that has traditionally relied on coal-mining, metallurgy and chemicals (Clarke (1999)). Its population is approximately 500 000 individuals. At the time of the ISITO surveys, registered unemployment in Kemerovo was less than three percent. Samara is a city of one million that has undergone rapid restructuring from the days where it was one of the linchpins of the Soviet military-industrial complex. Lyubertsy is a small city in the Moscow oblast, and about half of its workers commute daily to Moscow. Syktyvkar is the capital city of the northern Komi Republic, and is home to approximately 250 000 individuals. It has benefited from a construction boom in the North and from the robustness of timber and paper industries to which it is home (Clarke (1999)).

2.3 Comparing the RLMS and ISITO surveys

One advantage of the ISITO is that it provides more detailed information on labour market transitions than does the RLMS. Interviewers obtained information about labour market transitions dating back to 1987. Unlike in the RLMS, it is known when and to which state a job ends. As such it is

possible to estimate duration models of job tenure where individuals may end job spells by making job-to-job transitions or becoming unemployed.

The ISITO data are more suitable for duration analysis than the RLMS but there are several reasons for caution in interpreting results. The ISITO sample is one of four medium-sized Russian cities, and thus excludes individuals living in rural areas. Although the cities are different from each other, they are all relatively economically dynamic ones.

A more important caveat to the ISITO data that they are drawn at a single point in time. In addition to the known problems of recall error there is the problem that time-varying characteristics (such as those relating to household composition) may well have changed between the time of a labour market spell and the interview date. As well, at least some of the participation changes may be the result of household compositional changes.

Still, there is some information on household composition. Individuals in the ISITO survey are described according to their relation to a head of the household in which they reside at the time of interview. In the multistate analysis of job flows we assign the dummy variable "head" to heads of households.

The ISITO survey contains less-detailed information on occupational status and work-seeking activities than does the RLMS. It contains information on the sector of industry of jobs held since 1987, but no variable relating to marital status, or wage data for completed job spells. This may be an important problem, particularly given evidence that being married lowers the hazard of exit for females from the unemployment pool, while raising the hazard of exit for males (see ,for example, Grogan and van den Berg (1999)).

The RLMS and ISITO surveys differ fundamentally in their sampling frame. Whereas the RLMS is designed to be representative of Russian households, the ISITO survey is designed to be representative at the local level of each of the four cities. The RLMS does not contain a full record of individual labour market transitions between subsequent interviews. Given these differences, it is important to have an idea of how similar or different the composition of individuals is across the two surveys.

Table 1 compares of the age characteristics of the two samples. There are slightly more individuals over 40 in the ISITO sample. In both the RLMS and the ISITO samples, the largest fraction of workers is in the above 40

age group, and the smallest in the under 30 group. In the RLMS sample, 25.5 percent have completed higher education, while 23.2 percent of the ISITO April/May 1998 sample have. Due to differences in the educational classification systems of the two surveys,a more detailed comparison of the education types of individuals is not possible.[4]

Given the complex nature of employment relations in Russia, it is important to be clear about how work status is defined in each of the surveys. Interviewers for the ISITO survey administered different individual-level questionnaires to individuals who self-reported that they were "working" than to those who reported that they were "not working". Individuals who reported that they were working were allowed to have been absent from their main jobs in the month prior to the ISITO interview for the following reasons: maternity leave, self-requested holiday without pay, unpaid or partially-paid administrative leave, sick leave, other work commitments, or normal holidays. Thus the principal definition of "working" in the ISITO questionnaire is having a formal employment relationship with an enterprise.

In the RLMS, individuals are asked to qualify their labour force status at three points in the questionnaire. The first question of the interview, "Tell me please, do you work now?", can be answered with "yes", " maternity leave or leave for caring for a child under three", "other paid leave", "unpaid leave" or "no". This is the question I use to determine if an individual is officially working. As well, individuals are asked in the middle of the questionnaire if they are "currently working", and at the end to describe their primary occupation. I use the initial work status question from the RLMS because it corresponds most closely to the work status question in the ISITO survey.

The work status questions in the two surveys result in similar summary statistics. As table 2 shows, paid work participation rates in the ISITO survey are close to those observed in the RLMS in 1996. In the ISITO survey higher educated individuals of both sexes are more likely than individuals with no qualifications or those with only secondary education to be in

[4]In the ISITO survey the following responses are permitted to the question "What is your education?": Below middle, middle, middle special, unfinished higher, higher, and scientific degree. In the RLMS individuals are asked the question "What did you complete? You completed: professional courses; professional/technical training or without secondary education; technical, musical, pedagogical, art or medical school; institute, university, or academy; or graduate school/ residency. Unlike in the ISITO, individuals in the RLMS are permitted to report more than one type of completed training.

paid employment in April/May 1998. Amongst workers under age forty, men of a given education level are much more likely to be in paid employment than similarly-educated women. This difference virtually disappears amongst older workers. In general, it appears that more educated workers are more likely to be in paid employment.

2.4 Assembling Information on Job Spells

The work history section of the ISITO April/May 1998 survey was the basis for the creation of spell files containing information to be used in the duration analysis. In the work history section of the ISITO interview, individuals were asked to give start and end dates of all labour market spells since January 1987, as well as information on the sector in which the job was held. Retrospective questions can result in larger errors in recall of dates and spells than in frequent longitudinal surveys, and recall errors are much more likely for individuals who have made many transitions. However, the other available source of information on worker flows, the RLMS, does not ask participants for a full history of transitions made between interviews, and thus is not suitable.

The ISITO work history questionnaire asks respondents to classify the sector of all reported job spells. Individuals may report that a job was in the government/budgetary sector, a privatised (formerly state owned) enterprise, a de novo firm (new enterprise), or self-employment. In the duration analysis to follow, I will distinguish between privatised former state firms and de novo enterprises in the same manner.

There are significant sectoral differences in lengths of completed job spells. Completed job spells in the government sector are nearly twice as long as those observed in the new private sector, at 3.21 and 1.78 years mean respectively. The mean length of completed spells in the private sector is 2.49 years, while in self-employment it is 2.68. Given these sharp distinctions in flows by sector, transitions to each sector are considered separately in the the econometric analysis that follows.

3 Theories of Job and Worker Flows

The dominant micro-econometric model of worker flows is the general equilibrium job search model of Burdett and Mortensen (1999). In the most

simple version of the model, homogeneous workers in the unemployment pool receive job offers according to a Poisson process. Workers accept job offers if the offered wage is at least equal to their reservation wage. Individuals who are employed may also receive job offers, that they accept if the offered wage exceeds that currently being received.

While structural estimation of a model of job search is attractive in the sense that it allows for unambiguous interpretation of parameters such as job offer arrival and job destruction rates, it is perhaps not appropriate to the Russian context. Full structural estimation of the Burdett-Mortensen model (and extensions to include exits to non-participation) require general equilibrium assumptions that are far from the Russian reality. In particular, flows into and out of non-employment are assumed to be equal, and the unemployment rate to be constant.

Another obstacle to structural estimation of job search models using Russian data is the absence of longitudinal wage data for individuals. Wage data are necessary for the identification of reservation wages and the parameters governing job-to-job transitions. According to standard job search theory, job tenures are relatively long for individuals at the upper end of the wage offer distribution, since it is less likely that any received on-the-job wage offer will be higher than the currently obtained wage. Unfortunately, it is not possible to investigate the validity of this proposition using existing Russian worker flow data, as wage information is not collected for spells completed at the time of the RLMS or ISITO household interviews.

Despite the infeasibility of estimating a full structural model of worker flows for Russia, existing data can provide substantial information about underlying dynamics. Results obtained in cross-sectional analysis using the RLMS and count data from the ISITO work history survey (discussed above) can be compared to a multivariate examination of job transitions. Given the infeasibility of full structural estimation of labour market flows, a reduced-form specification is chosen. I use information on durations of job spells and their start dates, personal and household characteristics, the local situation, and the state to which the job is exited to estimate the hazard of exits of individuals from their jobs and expected durations of job tenures.

The work history information from the ISITO April/May 1998 household survey is used to estimate the hazard of exit from jobs taken up after January 1991. Given the limitations of the data (discussed previously), and

the known sensitivity of covariate effects to model specifications (see for example van den Berg (1999)), several different specifications of the hazard function are compared.

Prior to estimating reduced-form models of worker flows in Russia, some of the features of Russian worker flows are compared using the RLMS and ISITO surveys. Although the RLMS is not suitable for estimation of multivariate models of job tenure, it does contain information on elapsed job tenures of individuals at work at the time of the RLMS interview. As such, it allows a first glimpse at the rapidity of worker transitions in Russia.

4 Descriptive Statistics on Worker Transitions

The data on which the empirical analysis of this section are based comes from the second round of the RLMS, the ISITO survey, and similar data from the 1994 Hungarian Household Panel.

The relative prevalence of new jobs amongst different population subgroups in the RLMS is examined first. New jobs are defined as jobs that have been held for less than one year at the time of interview. The proportion of individuals in each subgroup reporting a new job is calculated.

Results for each subgroup are then compared to those calculated using similar data from the Hungarian Household Panel for 1994. Hungary is generally regarded to be one of the most successful transition economies. Given the generally accepted view that high worker flows are an indicator that labour is reallocating itself to areas of greatest productivity in transition economies, the Hungarian data can be viewed in some sense as a yardstick measure the fluidity of the Russian labour supply.

Table 3 shows that entry into new jobs was at a stable and high level during the 1994-1996 period in Russia. By this measure, much more labour movement into jobs is occurring in Russia than in Hungary, a relatively successful transition economy.

The highest rate of entry into new jobs in both Russia and Hungary is amongst those under 25. As table 4 shows, in both countries, the majority of new jobs are in service and market work. Male workers are far more likely than female workers to be in new jobs. Technical and trades people are more likely than university graduates to be in new jobs. In Russia, unlike Hungary, a relatively large fraction of those engaged in unskilled jobs are new hires.

These results agree with those of Foley (1997), who looks at year-on-year transitions between labour market states using the RLMS.[5]

Rates of new hires appear to vary substantially between firms of varying sizes. Firms of 25 employees or less have the largest fractions of new employees in each of the three years (see table 5). This result may reflect a preference for short-term contracts and high employee turnover amongst smaller firms, as well as the newness of a firm. The largest firms represented in our household sample are also taking on significant numbers of new employees.

Another question of relevance regarding flows into jobs is the relative quality of new jobs. Table 6 suggests that, in the RLMS, a substantial proportion of individuals in new jobs are not paid in full and on time. Firms appear to systematically hire workers that they cannot pay properly, and individuals accept such positions. For many workers in Russia, then, a change of job does not bring financial security or an end to marginalisation. From the Western perspective it may appear puzzling that firms would accept new workers that they cannot afford to pay. Partly these enterprises may be practicing Soviet-style paternalism by "keeping them off the streets;" however the acceptance of voluntary labour can be explained also by rational self-interest.

The ISITO April/May 1998 survey provides additional evidence on the relative speed with which workers of different characteristics flow through the Russian labour market in the 1987-1998 period. Table 7 suggests that, in the four cities of the ISITO sample, there are no statistically significant differences in completed spell durations by type of exit (job-to-job or to non-employment) within sex and education groups. Amongst individuals who have completed higher education, there are no significant differences between men and women in spell durations. However, amongst those who have completed only secondary school education or less, women have significantly longer completed job spell durations. This implies a similar result to that found in table 3: women in Russia appear to make relatively few labour market transitions.

[5] An exact breakdown of the labour force composition implied by the 1987-1998 ISITO work history responses can be found in Appendix A.

4.1 Comparing Characteristics of Stayers and Movers

This section compares the characteristics of individuals who were of working age in 1987 and have made at least one labour market transition before the ISITO interview, and those who have made no transitions.

Thirty-three percent of individuals of working age in January 1987 report no changes in their labour force position since that date. Table 9 shows that younger individuals and males appear to be significantly more likely to have made at least one transition. Those with only secondary education or no qualifications are also relatively likely to have made at least one transition.

Summary measures of the number of work spells reported by individuals in the work history data reflect the differential speeds with which individuals move through job spells, and support the descriptive statistics presented using the RLMS (See table 10). Amongst those aged 18-24 in January 1987, the modal number of job spells is two. Seventy-three percent of individuals have had more than one job spell. Amongst those aged forty or more, only 38 percent have had more than one job, including the one in which they were employed in January, 1987. A larger fraction of men than of women have had more than one job in this interval. Of those with no qualifications, a relatively large fraction have only worked for one employer since 1987.

The count data for the number of non-employment spells undergone by individuals since 1987 also suggests substantial differences by demographic group. Thirty-six percent of individuals aged 18-24 in January 1987 report at least one spell of non-employment in the work history information, while 43 % of those who were over forty reported at least one spell. Amongst those in the 25-39 age range in 1987, only 19 percent reported having had at least one non-employment spell during transition.

4.2 Transition Probabilities, 1992-1998

In the following subsection summary statistics regarding employment across sectors and transitions between labour market states for the period following price liberalisation in Russia are presented. The relative prevalence of different transition types between sectors and non-employment is examined.

Using the retrospective work history information from the ISITO survey it is possible to look at employment trends across sectors during the reform period. Table 11 shows the fraction of employed individuals engaged in each sector of the labour market at January of each year since the transition

began. As expected, there is a substantial drop in the fraction of individuals employed in the government sector over time, to just over half of those employed in January 1998. As a complement, over the period in which the majority of state-run industrial enterprises were privatised, it is found that the fraction of those employed in privatised enterprises rose to just over 20 percent in January 1998. Growth in the fraction of employment in the de novo sector and self-employment has been quicker than that in privatised enterprises over the period.

A note of caution is in order in interpreting table 11, that is especially relevant to privatised enterprises. Individuals were asked to recall the sector of previous employment dating back to 1987. As such, individuals can be expected to report the sector according to their enterprise's status at the end of the job spell. For this reason, it is not surprising that we find that 13% of job spells underway in January 1992 were reported to be in in privatised enterprises. Likely they were not privately owned in January 1992, but became so later in the individual's job spell.

Another note of caution in interpreting table 11 relates to the fact that many individuals in Russia juggle several jobs, and that an individual's "official" job may bear little relevance to an individual's every-day activity. The interviewers are instructed "...to begin from the position occupied by the respondent in 1987 and to include all periods, including when he or she...had no basic place of work". The question focuses on time-accounting, rather than on whether or not the respondent should report the employer at which the labour book[6] was held, or the job at which the individual spent the most time. In practise, this work history accounting did not collect information on the durations of supplementary jobs. As well, it is not known whether jobs ended due to quits or layoffs.

Table 12 presents the probability that jobs which individuals began in the January 1992 - January 1994 period ended in each of the transition types considered (to non-employment, to the government/budgetary sector, to the privatised sector, to the de novo sector, or to the entrepreneurial

[6]In the Soviet times, each worker had a labour book that was held by the enterprise at which he or she was currently employed. When leaving an enterprise the individuals would collect the labour book. The period of employment and reason for leaving would be written in the book. This system is still the basis for official records on numbers of individuals employed at an enterprise.

sector).[7] From the government sector, transitions are predominantly to the non-employment pool or to other government sector jobs. As well, most observed job ends in the private sector and in self-employment, are to the non-employment pool. The exception to this rule are job ends in the de novo sector, which are most likely to end in transitions to other de novo sector jobs.

A surprising finding in Table 12 is the large fraction of total transitions made into government/budgetary sector jobs; larger than the fraction of total transitions made into de novo enterprises. Despite the fact that such enterprises were widely considered to need to shed large amounts of excess labour, and the deteriorating financial situation of the government, large worker inflows were taking place in the first years of transition. By this measure, the fraction of job ends in transitions to privatised enterprises is less than half of that to the government sector.

Perhaps the biggest surprise in Table 12, however, is the very high fraction of jobs from the 1992-1994 inflow that are observed to end in direct job-to-job transitions. Again bearing in mind that individuals may well forget short spells of non-employment between jobs (so biasing our job-to-job transition rate upward), this rate is high in comparison with both transition and Western European countries. For example, British Household Panel Data show that the fraction of jobs begun between January 1992 and January 1994 which were observed to ended in job-to-job transitions by September 1998 is 24%. Such high rates of job-to-job transitions do not support the story of the Russian labour market as a stagnant pool and, in contrast, support the previous descriptive analysis using the RLMS and Hungarian Household Panel data.

There is evidence from several post-communist countries that large fractions of the workforce make direct job-to-job transitions, thus implying a high quit rate relative to the firing rate. Blanchard (1997) finds that the fraction of new employees that have made direct job-to-job transitions was 40 percent in Poland and 71 percent in Hungary in 1992.

The last descriptive table on job ends from the ISITO survey data is a comparison amongst demographic and educational categories for the 1992-1998 period. Amongst jobs that began after January 1992, there appear to

[7]The 1992-1994 subgroup was chosen because spells which took place at the beginning of transition are relatively unlikely to be censored at the 1998 interview.

be very large differences in end types by education group. For all age and education, and amongst men and women, there appears to be a relatively even number of job-to-job transitions and transitions to the non-employment pool. Also of note is that the fraction of transitions of individuals with no highschool diploma to the de novo sector is relatively high.

Individuals in the ISITO survey are asked to compare the skill level involved in their new jobs to the skill level in their last job. As is shown in Table 15, there appears not to be a large change over time in the fraction of individuals for whom a job change means a move to more skilled work. As well, individuals who report an intermediate spell of non-work between jobs do not seem to be less likely to move to more skilled jobs than those who make direct job-to-job transitions. About one quarter or all job transitions are considered by individuals to have been moves to higher-skilled jobs.

Individuals are also asked to report whether or not a job change involved an improvement in wages. About half of individuals making direct job-to-job transitions report that their wages improved. This seems to indicate that factors other than wages play an important role in the decision to change jobs. Unfortunately, the job history section of the ISITO survey does not collect information on factors such as job security or ancilliary benefits.

In the multivariate analysis which follows, the robustness of these descriptive results is tested under several empirical specifications.

5 Estimation of Multi-State Duration Models

Investigations of durations exit time have long been popular in applied econometric work, and particularly in labour economics. Examinations of spell durations in a labour market state (unemployment, non-participation, or work for example) provide more information about the fluidity of the labour market than do cross-sectional analyses of the stock of individuals in a given state at a given point in time. As well, complete data on lengths of spells between interviews can provide more insights into underlying exit processes than can analyses of changes in an individual's labour market status from one year of a panel interview to the next.

A multiple destination state duration model framework allows examination of job durations and exits in a sector-specific way. Thus for individuals making job to job transitions, it is possible to assess the determinants of

exiting to a specific sector.[8]

The key interests of this analysis are the effect of time-invariant personal characteristics and the sector of an individual's current job on the likelihood that an individual makes certain types of transitions. In the results reported below, it is assumed that the unobservables affecting exit hazards to another job in a firm of a given ownership type are orthogonal to those affecting exit hazards to unemployment, or the event of censoring. A mixed proportional hazard specification is reported here (see Lancaster (1990) for a detailed discussion of these models).This specification is attractive because of its flexibility in fitting the data and tractability in the computation of expected durations of job tenure.

Five possible destination states following job spells are examined using a partial likelihood framework. In our case, the k states considered are transitions to government/budgetary sector jobs, to jobs in privatised enterprises, to jobs in de novo enterprises, to self-employment, and to non-employment. As well, individuals in the data may have transited to work in the military or to student status. This was a very small fraction of individuals, and as such is not considered here. It is also possible that no transition is observed (the spell is right censored).

For a given transition type, k, and m different individuals, the hazard of exit to that state may be expressed as:

$$\theta^k(t; x_t, u_m^k, \beta^k) = \theta_0^k(t)\theta_1(u_m^k)\theta_2^k(x_t; \beta^k) \tag{1}$$

The term u_m^k represents individual-specific characteristics that are unobserved by the researcher but affect the hazards of transitions to the k states. These unobserved characteristics are assumed to be be state-specific. For example, a person-specific trait as entrepreneurial zeal may affect the hazard of exit to self-employment differently than it affects the hazard of exit

[8]One complication with estimating a multi-state duration model with the inflow into jobs after 1991, is that 53% of individuals make no further transitions. While including spells underway in January 1987 (the stock) would undoubtedly lower the censoring rate in the data, this would introduce other data problems. A large fraction of jobs underway in January 1987 were erroneously coded by interviewers as beginning in January 1987, thus making it unadvisable to use the full computed durations of these job spells. Alternatively, left-censoring spells in the stock would require strong assumptions about the distribution of job spell durations.

to the government/budgetary sector. In a partial likelihood framework, the individual failure times for transition types may be treated as independent if it is assumed that all differences between individuals may be completely described by x_t and u_m^k.

I assume that the person-specific hazards, $\theta_2^k(x_t;\beta^k)$ take the form $exp(X*\beta)$.

where the variable δ_i^k equals one if spell i ends with transition type k, and zero otherwise.

The partial likelihood of a transition of type k is :

$$l_{pl}^k = \Pi_{i=1}^N \theta_2^k(x_i;\beta^k)\theta_1^k(u_{m(i)}^k) / \sum_j (\theta_2^k(x_j;\beta^k)\theta_1^k(u_{m(j)}^k)^{\delta_i^k} \quad (2)$$

Lancaster (1990) shows that, in the case of multiple destination state models where the functions governing each transition are independent, maximising partial likelihoods is equivalent to maximising the joint likelihood of the model.

Assuming that the unobservables affecting hazards for different exit types are orthogonal implies that a factor such as motivation affects the job offer arrival rate in the de novo sector in a way that is uncorrelated with how it affects the job offer arrival rate in the private sector. An alternative estimation strategy for the model would be to impose restrictions about how the unobservables in the five transitions are correlated. Certainly it is intuitively more plausible that factors (such as "motivation") that would affect the probability of transition to the de novo sector may be correlated with the likelihood of transiting to a privatised firm. However, given the finding that unobserved heterogeneity is insignificant in influencing the transitions considered individually, it is unlikely that other assumptions about relationships between the $u_{m(i)}$ will influence the signs, magnitudes, and significance of the coefficients.

While more elegant methods exist for accounting for unobserved heterogeneity in multiple destination state models, such methods introduce different problems for the analysis. Stratified partial likelihood estimation (SPLE) (see for example Ridder and Tunali (1997)) eliminates some of the problems due to unobservables in the data. However, in the SPLE approach, it is necessary to assume that these unobservables are individual-specific fixed effects in order to be able to cancel them from the likelihood. As in all

fixed-effect models, the effects of time-invariant regressors cannot be estimated. As time-invariant covariates are of primary interest in our analysis, this makes the approach unattractive for this analysis.

Prior to discussing the results, sample restrictions, which may be taken as caveats in the interpretation of our findings, are briefly discussed. Table 8 shows how sample restrictions on the ISITO spell file reduce the number of job spells used in estimation to 3078. In order to order to avoid correlations between multiple spells included for a single individual, only the first observed spell per person is included. Those who are under 18 or over retirement age (55 for women, 60 for men) at the time of the survey are excluded. Other restrictions come from data inconsistencies, and result in a further slight reduction of sample size.

6 Results

This section presents the results of estimation of the multi-spell, multiple destination state job duration model using a mixed proportional hazard specification with controls for unobserved heterogeneity and person-specific hazards. I distinguish between exits to different sectors of the economy (assumed to refer to the sector to which the firm belonged at the time of completion of the spell), to the non-employment pool, and to the censored state. These results are found in table 16.

In general, a substantial influence of local factors on the hazard of exit to the five states considered is found. A sensitivity analysis[9] is used to determine the extent to which the aggregate results hold true at the city level. It is found that, although the magnitude of coefficients varies considerably amongst the cities considered, the signs and significance of coefficients hold at the city level. Given that the four cities in the ISITO survey have the common factor of being relatively advanced reformers, it might be expected that variation between communities is even greater at the national level.

The results are robust with respect to assumptions about the distribution of durations. Similar results are obtained with respect to the sign and significance of coefficients when the model is estimated using piece-wise constant hazards, when unobserved heterogeneity terms are excluded, and when year-dummies or quadratic terms are used to control for calendar time ef-

[9]available on request from the author

fects[10].The influence of unobservables is generally found to be insignificant to the different types of hazards of exit considered.

In addition to the previously-mentioned caveats regarding the quality of retrospective work history data spanning a long period, is important reiterate that these results concern only individuals who report at least one transition into a job after January 1st, 1991. These estimates do not include any individuals who remained in their pre-1991 jobs. This group of individual represents the most inertial element of the Russian labour market.

The following subsections summarise the results using partial likelihood estimation for each transition type and a semi-parametric mixed proportional hazard specification.

6.1 Personal Characteristics

It is found that individuals under the age of 30 have relatively high hazards of exiting their jobs to new jobs in the government/budgetary sector, and to non-employment. Age effects do not appear to be important in the probability of transition to entrepreneurship or the private sector. Workers who are 40 or more are relatively unlikely to make transitions into the de novo sector.

Women are more likely than men to exit jobs to non-employment. They are less likely to flow into jobs in government/budgetary, privatised, or de novo enterprises, or into self-employment. These results are consistent with the descriptive statistics from the RLMS presented in Section 4.2, which suggest that women make relatively few transitions into new jobs.

With the exception of transitions to the de novo and self-employed sectors, higher educated individuals have very different employment trajectories to those with lesser qualifications. Those with higher educational qualifications are relatively unlikely to flow into jobs in privatised enterprises. Individuals with higher education are generally less likely to exit to the unemployment pool than those with a middle level of education, while those with no qualifications have higher hazards of making such exits. Grogan and van den Berg (1999) find that higher educated individuals exit unemployment in Russia relatively quickly. These findings imply that employment, for those with higher education, is relatively stable, and non-employment relatively short and infrequent.

[10]available on request from the author

Older individuals and women have a hard time obtaining jobs in de novo enterprises. Educational qualifications do not influence the probability that an individual will transit to a de novo enterprise. In this sector, it appears that "who you know" is more important than "what you know". Individuals who are long-time residents of their city appear to have relatively high hazards of exit to both de novo and privatised enterprises. If such factors hold at the national level, the importance of community attachment in obtaining jobs may be an important reason for the low geographical mobility of individuals observed in Russia.

6.2 Sectoral Characteristics

The likelihood of entering a government/budgetary sector job is strongly influenced by the individual's current sector. Individuals currently engaged in the government/budgetary sector are far more likely than those in privatised enterprises, de novo enterprises, or self-employment to take another job in this sector. This result may reflect the fact that the government/budgetary sector includes teachers and health care professionals, who have little opportunity to continue these professions in the private sector. However, some individuals may prefer the relative security of government sector employment, and be prepared to forgo opportunities for lucrative, but insecure, de novo sector work.

Individuals in de novo enterprises are far more likely than those in government enterprises to move to other de novo enterprises. This may reflect a preference of managers of de novo enterprises for individuals with de novo sector experience. However, individuals who have experienced working in de novo enterprises may be reluctant to go back to the pay and conditions of privatised or government/budgetary sector employment.

Individuals in privatised enterprises are less significantly likely than those in the government/budgetary sector to make transitions to de novo enterprises. However, individuals who have job spells in privatised enterprises are not more likely than those in the government/budgetary sector to transit to jobs in the private sector. Without information about quits and layoffs by sector, it is difficult to provide an explanation for these results.

Over the sample period individuals in privatised enterprises are significantly less likely than individuals in the government/budgetary sector to transit from their job to the non-employment pool. This result sits uneasily

with the early 1990's proposition that privatisation would be the key to letting go excess labour in Russia.

Those in de novo enterprises have higher hazards of exit to the non-employment pool than those in the government sector. This result likely reflects the high frequency of bankrupcy and sensitivity to macroeconomic conditions of the small firms which characterise this sector.

The current sector of an individual's employment does not appear to have a significant impact on the likelihood of this person making a transition to self-employment. Given the finding that educational attainment also has little influence on the hazard of exit to self-employment, it appears that this self-selected sector must be made up of individuals with diverse labour market backgrounds.

These results regarding the influence of the sector of an individual's current job on the hazard generally concur with the descriptive statistics of Table 13.

7 Conclusions

This paper is one of the first econometric studies of job durations and transitions in post-Soviet Russia. The results strongly reject the common characterisation of the Russian labour market as a stagnant pool in which labour reallocation has been pre-empted by a large fall in real wages. Worker flows in Russia are much higher than in Hungary, a relatively successful economy in which unprofitable firms were forced into bankrupcy at the beginning of transition.

While the fall in real wages has allowed many marginally-profitable firms in Russia to survive, thus keeping unemployment statistics low, this cannot be attributed to the attachment of workers to a single enterprise, whatever the compensation. Workers continue to flow into huge old Soviet enterprises, into jobs from which they experience non-payment and payment in the form of goods, and into government/budgetary sector firms. Firms which cannot maintain their wage commitments find it optimal to continue to hire workers.

High job turnover in the Russian context does not seem to be an indicator that excess labour is being shed from enterprises or that labour is moving from low productivity to high productivity work. In light of these findings, it appears that regulations which would keep workers at a firm, such as sev-

erance pay requirements, or supplementary benefits provided by old Soviet enterprises, are not the main reason for continued excess labour supplies within firms. As well, the finding of substantial worker movements into non-performing enterprises does not support the thesis that worker ownership of firms has discouraged firings. Rather than share-holding workers manipulating management decisions to preserve employment levels, it appears that other distortions facing firms make it optimal to keep workers they cannot afford.

While the prediction in the early 1990's was that labour would be shed from unprofitable enterprises, flow through the unemployment pool, and then reallocate itself into the emerging private sector, it appears that a large fraction of Russians make direct job-to-job transitions. This suggests that the high worker flow rate in Russia is primarily due to quits rather than fires. The substantial fraction of individuals making transitions into less-skilled and lesser paid jobs suggests that unobserved factors such as perceived job security and fringe benefits may be of considerable importance in governing transition behavior of workers.

The unemployment pool in Russia is not the key part of the labour reallocation mechanism that economists had predicted it would become. Given the findings of Clarke (1999) that well-paying de novo enterprises prefer to recruit workers from other jobs, workers may prefer to have even non-paying jobs that give them access to this exclusive section of the labour market.

This study has identified demographic groups that are relatively likely to make job exits to specific sectors and to unemployment. The findings of this study concur with those of Clarke (1999), using survey data from case studies of enterprises about the hiring preferences of enterprises. Responses from employers in Clarke's case studies indicated that employers had strong preferences for taking on males with higher education and under the age of 35, regardless of the actual skills required for the job.

The finding that long-time community residents are more likely to exit to jobs in the private and de novo sectors supports firm-level evidence from the four cities in the ISITO survey. Using data from a work history survey of employees of industrial enterprises in Moscow, Kemerovo, Samara, and Syktyvkar, Clarke (1997) finds that recruitment into the de novo sector generally occurs through informal contacts. Those who take jobs in the private

sector tend to take ones demanding lower professional skills or very different skills than those for which they originally trained.

The finding that job exit hazards have increased substantially since January 1991 concurs with studies of worker flows in other transition economies. Davis and Haltiwanger (1999) find that in Estonia there was a sharp jump in worker mobility associated with transition. Both hiring rates and quit rates were found to have increased substantially in transition, across a broad spectrum of firm types. Similarly for Poland, Davis and Haltiwanger find substantially increased hiring and firing rates since the beginning of transition, with the vast majority of turnover occurring in the private sector.

The evidence on worker flows in this study corroborates with evidence from other countries in finding that rapid ownership and price reforms result in high levels of turnover. In their study of Poland, Estonia, Slovenia, Bulgaria, and Romania for the years 1993-1997, Faggio and Konings (1999)find high levels of job creation and destruction within sectors and regions. They find gross job reallocation rates in countries where a rapid approach to reform was taken, such as Estonia, to be far higher than in countries such as Slovenia, where reform has been more gradual. However, in the Russian case it does not appear that high flow rates indicate success in the reallocation of human resources to areas of higher productivity.

The preceeding results are of relevance to efforts to eliminate labour hoarding and wage arrears. Likely results of continued large flows of workers into low-quality jobs will be the prolongation of inefficient resource use within firms, the continued existence of unprofitable firms, and the failure of the wage mechanism to lure workers into jobs where their productivity is the highest. Yet workers will not be able to reject such jobs so long as a survival level of unemployment benefits is absent and most communities have no profitable private sector.

My results suggest that continued labour hoarding is not primarily a result of extreme attachment of workers to a single enterprise, but rather of distorted incentives of firms to continue labour hoarding. Certainly there appears to be a need to introduce disincentives for poorly-performing government enterprises to continue to take on new workers, and to force unprofitable ones into bankrupcy. Paradoxically, it appears that many problems of the deregulated Russian labour market can be traced to the weakness of the federal government in enforcing bankrupcy regulations and elimating wage

and trade arrears, rather than to workers being stuck in their ways.

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Table 1: Comparing the ISITO and RLMS samples, by age, sex and education level

	Completed Higher Education (fractions of individuals of age group)		Completed Secondary/Vocational Education (fractions of individuals of age group)		No Qualifications (fractions of individuals of age group)	
	Males RLMS	Males ISITO	Males RLMS	Males ISITO	Males RLMS	Males ISITO
Aged less than 30	.186	.175	.256	.287	.243	.267
Aged 30-39	.322	.338	.339	.274	.274	.081
Aged more than 40	.491	.487	.406	.439	.483	.652
Total	574	612	614	1940	650	273

Sources: ISITO April/May 1998 Household Survey, RLMS 1994-1996

	Completed Higher Education (fractions of individuals of age group)		Completed Secondary/Vocational Education (fractions of individuals of age group)		No Qualifications (fractions of individuals of age group)	
	Females RLMS	Females ISITO	Females RLMS	Females ISITO	Females RLMS	Females ISITO
Aged less than 30	.234	.223	.329	.313	.290	.313
Aged 30-39	.365	.314	.418	.258	.277	.082
Aged more than 40	.401	.463	.252	.432	.433	.603
Total	991	739	428	2122	520	146

Sources: ISITO April/May 1998 Household Survey, RLMS 1994-1996

Note: The large differences in numbers of individuals having completed "middle" levels of education amongst the two data sets is attributable to differences in reporting formats between the two surveys. See footnote 3 for more details.

Table 2: Percentages of individuals working at ISITO interview, by age, sex and education level

	Completed Higher Education		Completed Secondary Education		No Qualifications	
	Male	Female	Male	Female	Male	Female
Aged less than 30	93.5	77.6	81.0	66.9	56.1	39.1
Aged less than 40	94.7	85.3	81.4	76.7	77.3	50
Aged more than 40	86.2	86.6	77.8	78.6	64.0	63.6
Total	612	739	1940	2122	273	146

Source: ISITO April/May 1998 Household Survey

Table 3: The Incidence of New Jobs amongst Sample Subgroups, RLMS 1994-1996

	RLMS 1994	RLMS 1995	RLMS 1996	Hungary 1994
Highest education				
Institute/ university	14.1	19.0	16.2	3
Technical/medical	16.2	16.4	16.3	9
Trade school with secondary school	19.1	22.9	19.0	9
Trade school without secondary	20.2	22.5	19.0	6
Professional courses	20.3	18.3	18.9	-
Less than 9 years school	17.7	21.1	19.3	-
Age Group				
Under 25	32.5	35.3	33.2	21
Age 25-29	25.4	23.2	21.3	12
Age 30-39	15.3	19.8	17.1	6
Age 40-49	12.6	14.4	13.7	5
Age 50 to retirement	12.3	8.4	12.2	3
Gender				
Males	20.1	21.4	19.4	9
Females	13.3	16.6	16.7	6

Source: RLMS 1994-1996

Table 4 : The Incidence of New Jobs amongst Sample Subgroups, RLMS 1994-1996

	RLMS 1994	RLMS 1995	RLMS 1996	Hungary 1994
ISCO-88 Occupation				
Senior legislator, official, manager	23.2	18.9	4.4	5
Professional	11.0	11.8	13.3	5
Technicians and associate professional	14.8	16.2	15.7	8
Clerk	11.5	18.7	16.2	7
Service and market worker	29.7	28.3	25.4	15
Skilled agricultural and fishery work	8.7	8.3	35.3	3
Craft and related trades	20	21.8	20.9	7
Plant, machine operators/assemblers	13.7	18.1	12.0	10
Unskilled work	26.6	23.0	30.8	8
Total	17.1	18.9	18.0	7.6

Source: RLMS 1994-1996

Table 5: Proportion of New Jobs amongst enterprises of varying sizes, RLMS 1994-1996

Firm size	1994 stock	1995 stock	1996 stock
25 employees or less	.25	.23	.19
26-100 employees	.16	.17	.18
101-500 employees	.15	.15	.12
501-1000 employees	.08	.09	.04
More than 1000 employees	.07	.20	.09
Number of observations	2368	2881	1900

Source: RLMS 1994-1996

Note: The RLMS a representative sample of Russian households, but not of Russian firms. As such, the RLMS likely contains a disproportionate number of individuals engaged in large Russian firms.

Table 6: Incomplete Payments in Primary Jobs, new jobs compared to full sample, RLMS 1994-1996

	1994 Stock		1995 Stock		1996 Stock	
	New recruits	All workers	New recruits	All workers	New recruits	All workers
Owed money from enterprise	.35	.45	.38	.46	.52	.63
Received goods as payment last month	.09	.10	.09	.09	.13	.13
Number of observations	473	2902	473	2571	425	2733

Source: RLMS 1994-1996

Table 7: Completed Job Spell Durations by Destination State, 1987-1998

Type of transition	Completed Higher Education		Completed Secondary Education		No Qualifications	
	Male	Female	Male	Female	Male	Female
Transition to non-employment	3.70 (.35)	3.33 (.25)	3.10 (.14)	3.48 (.13)	3.44 (.38)	3.35 (.56)
Transition to another job	3.41 (.16)	3.27 (.09)	2.95 (.07)	3.27 (.09)	2.64 (.24)	3.36 (.43)
Overall	3.47 (.14)	3.32 (.12)	2.99 (.065)	3.35 (.075)	2.94 (.21)	3.81 (.35)
Number of observations	266	339	1188	1002	152	74

Source: ISITO April/May 1998 Household Survey

Table 8: Effect of Sample Restrictions ISITO April/May 1998 Work History Data

Original Spell Observation File size	**15509**
(1) Omitted start date of spell	- 15
(2) Spell began before January 1991	-5703
(3) Individual's previous spell has no end date	-91
(4) Spell does not refer to work	-3665
(5) Individual outside age range (18-55 for women, 18-60 for men)	-849
(6) Implied duration of spell is negative	-482
(7) Spell is not the first work spell of individual in data	-1626
TOTAL	**3078**

Source: ISITO April/May 1998 Household Survey

Table 9: Comparing characteristics of individuals with and without labour force transitions

Fractions of individuals in each demographic group	Individuals making no transition since January 1987	Individuals making at least one transition since January 1987
Aged 18-24	.0932 (.008)	.197 (.007)
Aged 25-29	.169 (.010)	.194 (.007)
Aged 30-39	.414 (.013)	.358 (.009)
Aged 40 and above	.324 (.012)	.252 (.008)
Resident of town since childhood	.467 (.013)	.494 (.009)
Completed higher education	.272 (.012)	.244 (.008)
Completed ordinary secondary education	.206 (.011)	.253 (.008)
Completed specialised secondary education or incomplete higher	.425 (.013)	.405 (.009)
No qualifications	.0967 (.008)	.098 (.005)
Male	.418 (.0013)	.46 (.009)
Female	.582 (.013)	.54 (.009)
Number of observations	1458	2943

Source: ISITO April/May 1998 Household Survey
Note: standard errors in parentheses

Table 10: Comparing characteristics of individuals with and without multiple work, non-work spells

Fractions of individuals in each demographic group	Individuals having had more than one work spell since January 1987	Individuals having at least one non-employment spell since January 1987	Total number of observations
Aged 18-24	.729 (.017)	.364 (.018)	715
Aged 25-29	.629 (.017)	.289 (.016)	816
Aged 30-39	.552 (.012)	.284 (.011)	1656
Aged 40 and above	.383 (.014)	.429 (.014)	1214
Completed higher education	.562 (.015)	.240 (.013)	1116
Completed ordinary secondary education	.570 (.015)	.400 (.015)	1044
Completed specialised secondary education or incomplete higher	.554 (.012)	.326 (.011)	1812
No qualifications	.436 (.024)	.504 (.024)	429
Male	.586 (.011)	.313 (.010)	1960
Female	.518 (.010)	.358(.010)	2441
Resident of Samara	.500 (.012)	.322 (.012)	1607
Resident of Kemerovo	.625 (.015)	.390 (.015)	1099
Resident of Lyubertsy	.548 (.017)	.304 (.016)	859
Resident of Syktyvkar	.541 (.017)	.335 (.016)	836
Total over full sample	.548 (.008)	.338 (.007)	4401

Source: ISITO April/May 1998 Household Survey
Note: standard errors in parentheses

Table 11: Fractions of employed individuals engaged in each sector, 1992-1998

Date	**Jan 92**	**Jan 93**	**Jan 94**	**Jan 95**	**Jan 96**	**Jan 97**	**Jan 98**
Sector of Activity							
Government sector	.800	.769	.725	.687	.644	.607	.574
Privatised enterprise	.143	.159	.179	.195	.210	.220	.219
De novo sector	.046	.059	.077	.096	.117	.141	.169
Self-employed	.021	.014	.019	.022	.029	.032	.038
Total	1	1	1	1	1	1	1

Source: ISITO April/May 1998 Household Survey

Table 12: Fractions of Observed job ends of demographic groups from employment, January 1992- January 1994

Destination state	non-work	gov't/budgetary sector	privatised enterprise	de novo enterprise	self-employment
Demographic Characteristic					
Higher education	.056 (.013)	.040 (.011)	.016 (.007)	.025 (.009)	.012 (.006)
Middle education	.108 (.010)	.043 (.006)	.025 (.005)	.049 (.007)	.0049 (.002)
No school diploma	.282 (.051)	.064 (.028)	0	.064 (.028)	0
Aged 18-24	.124 (.016)	.046 (.010)	.016 (.006)	.050 (.010)	.0092 (.005)
Aged 25-29	.082 (.019)	.058 (.016)	.014 (.006)	.072 (.018)	.0048 (.005)
Aged 30-39	.102 (.016)	.032 (.009)	.019 (.007)	.048 (.011)	.0080 (.005)
Aged 40 plus	.103 (.015)	.044 (.010)	.033 (.009)	.018 (.007)	.0026 (.003)
Female	.094 (.011)	.042 (.008)	.009 (.004)	.046 (.008)	.0015 (.001)
Male	.117 (.012)	.045 (.008)	.033 (.007)	.042 (.007)	.011 (.004)

Source: ISITO April/May 1998 Household Survey

Table 13: Transition Probabilities of Jobs begun between January 1992 and January 1994

Destination State	Gov't/ Budgetary	Privatised	De Novo	Self-employment	**Fraction of direct Job-to Job transitions**	Non-employment
Origin State						
Gov't/budgetary	.223 (.015)	.072 (.010)	.111 (.012)	.026 (.006)	**.674**	.209 (.015)
Private	.07 (.018)	.09 (.020)	.095 (.021)	.01 (.007)	**.609**	.170 (.027)
De novo	.152 (.024)	.061 (.016)	.312 (.031)	.030 (.01)	**.74**	.195 (.026)
Self-employment	.089 (.043)	.067 (.038)	.089 (.043)	.089 (.043)	**.715**	.133 (.051)
Total	.176 (.011)	.074 (.008)	.147 (.01)	.027 (.005)	**.684**	.195 (.011)

Source: ISITO April/May 1998 Household Survey.

Note: Due to the fact that some spells are censored, the total number of direct job-to-job transitions is calculated as the fraction of observed transitions to either the government/budgetary, privatised, de novo, or self-employed sector.

Standard errors in parentheses.

Table 14: Changes in skill level of work resulting from job transitions

Year of Starting job	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Percentage of individuals in each category											
Job-to-job transition with intermediate non-employment spell											
Higher skill level than previous work	-	24.2	23.5	22.1	21.6	28.2	19.3	29.0	26.4	22.9	53.5
Similar skill level to previous work	-	51.5	52.9	41.9	39.6	40.5	45.8	37.2	34.6	34.4	31.6
Lower skill level than previous work	100	3.03	11.8	9.3	12.6	12.2	15.1	11.7	11.3	17.8	14.9
Incomparable work	-	21.2	11.8	26.7	26.1	19.1	19.9	22.1	27.7	24.8	-
Total obs	1	33	51	86	111	131	166	145	174	159	157
Direct job to job transition											
Higher skill level than previous work	27.6	31.94	26.2	27.4	26.6	25.2	25.7	21.8	28.4	24.8	25.4
Similar skill level to previous work	50.9	41.4	41.6	46.1	45.7	43.1	39.6	42.6	34.8	41.4	32.1
Lower skill level than previous work	8.62	11.0	19.8	9.77	9.25	15.1	17.3	17.6	17.4	15.3	20.9
Incomparable work	12.9	15.7	12.4	16.7	18.5	16.5	17.3	18.1	19.4	18.5	21.6
Total obs	116	191	202	215	173	218	202	188	155	157	134

Source: ISITO April/May 1998 Work History Survey

Table 15: Changes in pay level of work resulting from job transitions

Year of Starting job	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Percentages of individuals in each category											
Job-to-job transition with intermediate non-employment spell											
Higher pay level than previous work	-	39.4	43.1	55.8	57.8	43.9	45.7	44.1	52.9	55.1	41.7
Similar pay level to previous work	-	42.4	41.2	19.8	25.7	33.9	32.3	28.7	23.0	22.4	18.0
Lower pay level than previous work	100	18.2	15.7	24.4	16.5	22.3	21.9	27.3	24.1	22.4	40.4
Total obs	1	33	51	86	109	130	164	143	174	156	156
Direct job to job transition											
Higher pay level than previous work	53.5	50.5	52.0	49.3	56.1	48.4	48.3	51.9	65.4	54.8	50.8
Similar pay level to previous work	31.6	32.5	27.5	31.8	24.3	28.1	25.9	24.6	20.9	19.8	21.6
Lower pay level than previous work	14.9	17.0	20.5	19.0	19.7	23.5	25.9	23.5	13.7	25.5	27.6
Total obs	114	188	200	211	173	217	201	187	153	157	134

Source: ISITO April/May 1998 Work History Survey

Table 16: Mixed Proportional Hazard model with controls for unobserved herterogeneity, jobs beginning in period 1991-1998

	Job to Non-employment transition		**Job to job transition to budgetary sector enterprise**	
	Beta	s.e.	Beta	s.e.
Age groups (aged 30-39 reference group)				
Aged less than 25	.138	.12	.294***	.13
Aged 25-29	.289***	.14	.309**	.16
Aged more than 40	.078	.13	-.0342	.16
Sex (males reference group)	.180**	.10	-.240***	.11
Education groups (completed highschool or technical training is referen.11ce group)				
Higher Education	-.539***	.12	-.0480	.12
No qualification	.890***	.15	.196	.22
Head of Household	.076	.10	-.133	.12
Sector of work (government/budgetary sector is reference group)				
Private sector job	-.486***	.14	-1.51***	.22
De novo sector job	.287***	.11	-.573***	.16
Self-employment	-.362	.27	-1.01***	.38
Native of this community	.120	.10	-.0616	.11
City of residence (Samara is reference group).11				
Resident of Kemerovo	.315***	.11	.304***	.14
Resident of Lyubertsy	-.0762	.14	.415***	.16
Resident of Syktyvkar	.0254	.13	.405***	.14
Starting date of job	1.502***	.31	-.538*	.34
Probability	.98		.96	
U values	1.2	14	.8	3
Log Likelihood	-3565.88			
Number of failures	497		387	
Number of observations	3078		3078	

*** significant at 5% level
** significant at 10% level
* significant at 15% level

Table 16 cont'd: Mixed Proportional Hazard model with controls for unobserved herterogeneity, jobs beginning in period 1991-1998

	Job to Job transition to Private Sector Enterprise		**Job to job transition to De Novo Sector**		**Job to Self-Employment Transition (ITD)**	
	Beta	s.e.	Beta	s.e.	Beta	s.e.
Age groups (aged 30-39 reference group)						
Aged less than 25	.0237	.21	.056	.15	.158	.36
Aged 25-29	-.388	.31	.021	.18	-.600	.57
Aged more than 40	-.106	.24	-.379***	.18	-.035	.42
Sex (male is reference)	-.871***	.21	-.342***	.14	-2.18***	.46
Education groups (completed highschool or technical training is reference group)						
Higher	-.834***	.26	-.043	.14	-.0768	.36
No qualification	-.668*	.46	.257	.28	-1.17	1.02
Head of Household	-.279	.20	-.060	.14	.375	.33
Sector of work (government/budgetary sector is reference group)						
Private sector job.	.140	.21	-.289*	.20	-.0955	.39
De novo sector job.	-.194	.25	1.11***	.13	-.237	.44
Self-employment	-1.14*	.72	.124	.33	-.157	.74
Native of this community	.048	.18	.297***	.13	-.0116	.32
City of residence (Samara is reference group)						
Resident of Kemerovo	.247	.22	.003	.15	-.242	.38
Resident of Lyubertsy	.117	.25	-.014	.16	-1.27***	.63
Resident of Syktyvkar	-.0025	.25	-.484	.19	.0144	.38
Starting date of job	.296	.57	-.503	.41	-.642	1.00
Probability	.98		.92		.90	
U values	.75	4.1	1.4	5.6	2.3	14
Log Likelihood	-1021.1538		-2028.67		-316.85	
Number of failures	142		288		46	
Number of observations	3078		3078		3078	

Source: ISITO April/May 1998 Household Survey

*** significant at 5% level

** significant at 10% level

* significant at 15% level

Appendix A: Composition of the Labour Market, 1987-1998

Year of Starting job	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Percentage of individuals in each category											
Employed	97.8	96.3	95.9	95.0	94.4	93.9	92.9	91.5	89.2	87.2	83.9
Non-working	1.1	2.2	2.2	2.95	3.7	4.3	5.5	7.1	9.4	11.7	15.4
Student, military, etc	1.2	1.6	1.9	2.0	1.9	1.8	1.6	1.5	1.4	1.0	.7

Source: ISITO April/May 1998 Work History Survey