

Insider Privatization and Careers -
A Study of a Russian Firm in Transition*

Guido Friebel and Elena Panova

Guido Friebel is a researcher at the Institute of Industrial Economics (IDEI) and a lecturer at EHESS, the French School for Advanced Studies in Social Sciences, both at the University of Toulouse.

Elena Panova is an assistant professor of economics at the University of Quebec at Montreal.

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1 Introduction

How do firms adjust their personnel policies and internal structure to changes in their economic and institutional environment? Chandler (1977) has investigated how firms in the last century reacted to challenges posed by new technologies and by market demands by developing professional management, the line/staff and later the multidivisional organization. Doeringer and Piore (1971) have documented how and why firms created internal labor markets to protect their workers from market shocks and to provide them with incentives to invest in firm-specific human capital. Following Carter and Carter (1985), Lazear (1992), and Baker, Gibbs and Holmström (1994), a literature has emerged which investigates the personnel files of single firms over a long period of time to learn more about their internal labor markets.¹ One main finding is that a firm's organization structure and career paths remain remarkably stable, even in turbulent times.

In this paper, we investigate how Russian transition from a centrally-planned to a market economy has affected human resource policies of a heavy industry firm. We use personnel data set that cover a total of 1538 white-collar workers over up to 17 years: from 1984 to 2000. We find that from 1984 to 1991 (hereafter, *in Soviet times*), the firm featured stable patterns of upward mobility that look quite similar to the career paths in western firms. From the year 1992 when Gaidar's reforms began, to 2000 (hereafter, *during the transition*), these career paths seem blocked. We identify the reason for this observation: in all tiers of the firm's hierarchy except for the lowest one, both (i) more managers are hired from the outside market, and (ii) fewer managers leave the firm. As a result, the firm becomes "toploaded", and promotions are blocked.

What is more difficult is to identify the rationale behind such a firm strategy. We hypothesize that this strategy may be constrained optimal in the Russian environment. Here, outsiders receive notoriously weak protection for their property rights (see for instance, Woodruff, 2004). The privatization law provided insiders with favors through the so-called option 2 of the Russian voucher privatization. Hence, in 1993, effectively, incumbent managers became the owners. The inside owners had the opportunity to hire managers with higher human capital than themselves,² most probably because skilled employees were leaving less successful enterprises.³ The manager-owners decided both (i) to take advantage of this opportunity, and (ii) to stay in the firm (in order to enforce their property rights).⁴ Consequently, career paths are blocked and the firm foregoes the benefit of using careers as a device for providing effort incentives and screening workers.⁵

The paper is organized as follows. The next Section describes the ownership structure, output performance, and employment policies from the firm-level perspective. Section 3 uses the personnel data to compare human resource policies in Soviet times and during the transition. The last Section summarizes and discusses the main insights. All Figures are collected in the Appendix.

2 The firm and its environment

The firm we investigate is one of the largest enterprises in the machinery industry in Russia. It was established in 1949. Prior to transition, it was one of the leading companies in the industry and was awarded a number of distinctions. This Section uses firm-level data⁶ to describe how the firm was evolving in a changing institutional environment.

Ownership structure. In March 1993, the firm was privatized through the so-called option 2 of the Russian voucher privatization, which provided privileges to insider workers and managers in acquiring shares. Since then, it has been a joint stock company. The annual report for 1997 indicates about 92% individual ownership. A total of 53.4% of the firm is owned by insiders. Neither municipality nor the regional government own shares, and there is no foreign capital. We have no information about the distribution of shareholdings. However, according to our interviews with managers in the firm, non-managerial employees delegate their votes to the manager of their department.

Output performance. We do not have access to good measures of profitability. Looking at output gives, however, a good idea of the restructuring process the firm went through. In 1987 there was a first output decline when the firm had to cope with Gorbachev's "perestroyka" (see Figure 1). Decentralization of decision-making power damaged some of the traditional supply channels and affected demand. There is thus a steep drop in output from the beginning of Gaidar's reforms in 1992 onwards, which is typical for these years, in particular, for heavy industry. From 1997, there was a positive tendency, and in 1999, the enterprise won an important tender to supply equipment to India.

At different points in time, the firm experimented with new product lines, for instance, tailor-made instruments. From late 1980's until the late 90's it has also been producing consumer goods (plastic chairs and tables). However, Figure 2 shows that there is a high correlation between the firm's output and its specialization in the core business – the production of heavy machinery items. The fact that the firm operates in a specialized market with high fixed costs and high entry barriers may explain why the firm survived transition relatively well.

Employment policies, aggregate (firm-level) perspective. Between 1988 and 1997, industrial employment, that is, a number of workers employed in the core operations of the firm,⁷ has steadily declined (see Figure 1). Indeed, it fell from 4813 in 1998 to 3206 in 1998. Unfortunately, we cannot distinguish between an involuntary dismissal and a voluntary quit: it is a tradition in Russia to label any separation as a "quit", so as to avoid subsequent stigmatization of a worker.

During transition, employment becomes more sensitive to output changes. However, it reacts with a lag. The most important wave of separations occurred in 1997, the first year of transition in which the firm's real output has grown. Interestingly, that wave of separations followed the top manager's dismissal initiated by the employees: an evidence of an active stance by new owners in the firm.

Furthermore, during transition, an increasing share of the total wage bill (including wage arrears and in-kind payments) was allocated to white-collar workers and the ratio between white- and blue collar workers increased. Notice that this implies that more and more blue collars leave the firm (recall that industrial employment has steadily declined).⁸ Hence, the firm's defensive (cost-cutting) restructuring has mainly affected its blue collar workers.⁹

3 Personnel policies of the firm

Personnel data. In order to better understand how transition has affected the firm's hiring and promotion policies,¹⁰ we investigate 17 years (1984-2000) of personnel files of 1538 white-collar workers of the firm.

We use the raw data from the human resource department. An employee's personnel file contains: the date of accession, the date of separation, dates of movements across job titles, an occupational code for each position defined by Goskomstat, the statistical office of Russia. We also know whether, in a given moment of time, an individual works in production and engineering, or in administration (sales, planning, accounting).

Moreover, we know the following personal characteristics: age, work experience, education (years of schooling), gender, party and trade union membership, ethnicity, marital status, number of children, place of birth, place of university education, and field of study. We also know some of the job history of an individual: military service, date of leaving previous job, last employer. Unfortunately, we do not dispose of information about individual wages.

Hierarchy and career paths. As in other related work (for instance, Baker, Gibbs and Holmström, 1994), human resources, as measured by "persondays per title",¹¹ are concentrated on few job titles.¹² In our case twelve job titles represent about 90% of core white collar staff. We hence focus on these job titles.

They are located on five levels of the firm's hierarchy (see Table 1):¹³ On level 1: technician, planning technician, and accountant; on level 2: economist, planning engineer, engineer working in production unit, and foreman (a managerial position in production);¹⁴ on level 3: head of bureau, the responsible of a non-production unit, and supervisor of a

production unit; on level 4: head of production, and head of non-production departments; on level 5: top manager.

Comparing the two columns of the table on Table 1, we see that during transition, the firm has shifted employees from production-oriented job titles (technician, engineer) to job titles that are related to business administration and development (accountant, economist, planning technician, and planning engineer). Moreover, it has reallocated human resources towards four managerial jobs (supervisor of production unit, head of production department, head of non-production department, and top manager).

To find patterns of internal mobility, we compute a transition matrix that captures accessions to and separations from the firm, and movements across job titles for the whole time interval. We find that in Soviet times, the firm maintained career paths, some of them leading to the very top of the company (see Figure 3). These paths are depicted by arrows.¹⁵ The numbers represent the probability of transition of a person from one job title to the job title the arrow points to. This picture is very similar to the one that Baker, Gibbs and Holmström (1994) find.

In Soviet times employment and upward mobility were distorted by political influence. Hence, career paths may have served both efficiency and political goals. Nonetheless, there is some evidence that firms used promotions as the main instrument to incentivise and, in particular, to retain their workers (see Kornai, 1992). The main difference between Soviet and western firms is not so much the use of promotions, but rather the fact that in Soviet firms, promotions provided access to additional fringe benefit, rather than substantial wage increases.

Transition changes the firm's promotion policies. Indeed, it becomes more or less impossible to move upward beyond level 2 (see Table 2). The reason is that the previously existing career paths are blocked by increased hiring activity from the outside labor market to the upper levels of the hierarchy (see Figure 3).¹⁶ Managers recruited to levels above the second are better educated and more experienced as compared both to (i) the incumbents, and to (ii) those managers who were recruited on the same level in Soviet times (see Table 2).

Hazard rates of promotions and exits. In order to better understand how transition has affected labour mobility inside the firm, we consider separately two time intervals: 1984-1992 and 1992-2000. For each of them, we carry out a duration analysis on two events: (i) a "*promotion*", that is, move from a lower- to a higher level of the hierarchy, and (ii) a "*separation*" from the firm.¹⁷

We first consider promotions. The data are translated into the survival time form. We observe an individual at the beginning of a time interval (controlling for the exact date of the recruitment). To adjust time-varying variables (like age), we make at least one record in three years. We document the spans of time (the "survival time") until a promotion.¹⁸ After each promotion, the "survival time" is reset to 0.¹⁹

We use an accelerated failure time model in which the natural logarithm of the survival time is assumed to be linearly dependent on covariates:²⁰

$$\ln(t_j) = x_j \beta + \varepsilon$$

where x_j is a covariate vector, β is a vector of regression coefficients, and ε is an error term with density $f(\cdot)$. As covariates, we pick three basic individual characteristics: *age* and

education (to measure human capital),²¹ and gender.²² We assume that the density of the error term follows a generalized Gamma model²³

$$f(t) = \begin{cases} \frac{|\kappa|}{\Gamma(\kappa^{-2})} (\kappa^{-2})^{\kappa^{-2}} \exp \left[\kappa^{-2} \left(\kappa \frac{\ln(t) - x_j \beta}{\sigma} - \exp \left(\kappa \frac{\ln(t) - x_j \beta}{\sigma} \right) \right) \right], & \text{if } \kappa \neq 0; \\ \frac{1}{\sqrt{2\pi}} \exp \left(-\frac{(\ln(t) - x_j \beta)^2}{2\sigma^2} \right), & \text{if } \kappa = 0, \end{cases}$$

where κ and σ are ancillary parameters to be estimated from the data (see Kalbfleish and Prentice, 1980).

We find that in Soviet times, being younger, male, and having better education was helpful for a promotion. In contrast, during transition, age and education variables are not statistically significant anymore (see Table 4). More importantly, in Soviet times an employee could increase the probability to receive a promotion by simply staying in the firm. During the transition, however, only the first few years of "waiting for a promotion" where increasing the probability of this event: "waiting longer" would actually *decrease* the probability to move up the firm's hierarchy (see Figure 5).²⁴

We proceed in a similar way for separations. We again use a generalized Gamma model with controlling variables being: age, education, gender, and level in the hierarchy. The most important result is that despite worsening career perspectives during transition, workers are less likely to leave the firm (see Table 5), especially from the upper levels of the hierarchy.²⁵

4 Concluding discussion

We have investigated how transition, a particularly drastic process of institutional and structural change, has affected the personnel policies of a Russian firm. A sizeable literature on enterprise restructuring in transition measures the impact of privatization, the hardening of budget constraints, increasing competition, and price liberalization on enterprise performance (see Djankov and Murrell 2001). Insider-privatized firms usually show little signs of restructuring, while firms that are privatized to outsiders, in particular to foreigners, are more likely to improve their performance. In order to learn more about the micro channels through which transition affect enterprise performance, we "open the black box" of a heavy industry firm.

The main changes after the reforms are as follows:

- (i) employment becomes more responsive to output changes after privatization;
- (ii) the wage bill is reallocated from blue- to white collars;
- (iii) separations affect blue collars whereas white collars, especially those working on the upper tiers of the hierarchy, are less likely to leave the firm than before the reforms;
- (iv) the use of white collar human resources is shifted from production to administrative and management activities;
- (v) more white collars are hired from the outside labour market, in particular for higher levels of its hierarchy;
- (vi) the firm becomes "toploaded", and career paths are blocked.

We cannot judge to what extent all of these changes have been introduced with an aim to increase efficiency. The fact that the inside managers are residual claimants makes us believe, though, that the firm acts in a profit-maximizing way, taking the institutional

framework as given. In general, firms are frequently limited in their capability to maintain career paths and other elements of internal labor markets when their environment changes (see Bertrand, 2004). The specificity of our case is the notoriously weak protection of outsider property rights in Russia which created strong incentives for the manager-owners to stay inside the firm. At the same time, the Russian labor market became thicker, making it possible to hire new workers and managers with higher human capital. Manager-owners seem to have made use of these recruitment opportunities even at the expense of interrupting career paths altogether.

We cannot claim any generality for Russian firms, as we only had access to one data set. The case study opens, however, a new perspective on how corporate governance institutions shape the structure and human resource policies of firms, and we hope that it may provide food for thought for theoretical analyses.

Endnotes

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¹ A non-exhaustive list includes Ariga et al (1999), Dohmen (2004) and Dohmen et al (2004), Ichino (1999), Seltzer and Merret (2000), Treble et al (2001).

² Managers hired after 1992 have been both more experienced and better educated than incumbents working on the same level.

³ Between 1996 and 1999, industrial employment in the region where the firm that we study is located has decreased by 9%. In the same period, the employment in the firm has decreased by only 6%.

⁴ Potentially, the newly hired managers could take over the control. However, an obstacle, once again, was a weak enforcement of outsider ownership rights: it was limiting bank credit for acquisition of the firm's shares.

⁵ Career prospects are among the most important instruments for encouraging employees to invest in firm-specific human capital (see Gibbons and Waldman 1999). Also, promotions signal the quality of employees, helping thereby to better allocate them among tasks (see Waldman, 1984; Sattinger, 1993).

⁶ Unfortunately, we have no individual-level information about blue-collar workers, except for those of them who at some stage in their career moved into white collar or managerial positions. However, we have firm-level information about the employment and wages by both blue- and white collars.

⁷ Similar to many other large industrial firms in Russia, the firm that we study had a large number of employees in non-industrial activities such as restaurants, hospitals, kindergartens, and housing. These individuals are out of our consideration.

⁸ By the end of nineties, however, blue collars are more and more demanded by enterprises located in the same region as the firm that we study: the ratio of while collar- over blue collar vacancies in the region has decreased from 0.59 in 1996 to 0.2 in 2000.

⁹ Following Grosfeld and Roland (1999), we distinguish between defensive and strategic restructuring. For a model on defensive and strategic restructuring of insider-privatized firms see Debande and Friebe (2005).

¹⁰ Although we find more downward mobility than in other related work (there were 120 demotions in Soviet times, and 97 during the transition), we have not studied its determinants. The reason is that results could be difficult to interpret. Indeed, according to our interviews with human resource department, demotions are typically used as an employment insurance, in cases when (i) an employee reaches a retirement age, or (ii) he (she) becomes unable to fulfill his (her) duties for health reasons, or else, (iii) he (she) receives a primary job outside the firm, for instance, in informal sector.

¹¹ For any given individual we know (i) the date of accession into the firm, and the accession job title (ii) duration of stay on a given job title. For each job title, we can then add up the persondays over individuals. These persondays per title can be expressed as a ratio of the total human resources in the firm.

¹² Of course, each job title contains a variety of specifications, as described by Goskomstat's 5 digit code. However, we have pooled down most of that variety, keeping to make a distinction between employment in production, and in administration.

¹³ We have carried out a similar exercise as the one by Baker, Gibbs and Holmström (1994). They looked at the flows of human resources between different job titles. They established the lowest level of the hierarchy, mostly filled by workers hired on the outside market. Afterwards, they determined level 2 by looking at "where do employees mostly move from level 1". They proceeded in the same way until the top of the hierarchy (the general manager). Carrying out this procedure we generated a hierarchy that was identical to the one we later received from the human resource department of the firm.

¹⁴ Becoming a "foreman" is a typical promotion for a blue collar worker.

¹⁵ We here plot links between job titles that have a transition probability of at least 5%.

¹⁶ These policies may be optimal response from constrained efficiency perspective. We thank Marc-Andreas Muendler for his discussion of this point.

¹⁷ We use the terms of duration analysis from labor economics (see Van den Berg, 2001).

¹⁸ Because there is always a record at the exact date of a promotion, the time interval between two records can be shorter than three years.

¹⁹ Our data set contains repeated records of the same individuals. Hence, the assumption of independent observations may not be adequate. Therefore, we use a robust estimate of variance controlling for identity.

²⁰ A statistical test based on the distribution of Schoenfeld residuals rejected the Cox proportional hazard model.

²¹ Age is highly correlated with work experience.

²² We have tried to add to the set of covariates the following individual characteristics: number of children, dummy for being born in the region, dummy for employment in production division of the firm at some point of the career, and party membership. It turned out that none of them is statistically significant, even though we were adding them to the set of three basic covariates one by one (indeed, party membership was significant at 15% level in Soviet times, and became insignificant during transition). At the same time, age, education and gender remained significant with the same sign in all the regressions. We have not tried to use labour union membership as a regressor, because there is too little variation in the data: until the year 2000, the firm remains highly (more than 80%) unionized.

²³ We used the Akaike Information Criterion to select Generalized gamma form among Exponential, Weibull, Lognormal, and Log-logistic, and generalized Gamma distributions. Moreover, the Wald likelihood ratio test has rejected the hypothesis of a Weibull distribution $\kappa=1$. Hence, we have not imposed any restrictions on highly flexible baseline hazard function of the generalized Gamma distribution.

²⁴ Notice also, that the incidence of promotion during the transition is only 64, as compared to 150 in Soviet times (the number of individuals in the two periods is more or less the same).

²⁵ There were only 316 separations during transition, as compared to 609 in Soviet times.

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Table 1: Allocation of human resources across jobs

	Job title	Percentage of person days before 1992	Percentage of person days after 1992
LEVEL 5	top management	3	4
LEVEL 4	head of production department	3	5
	head of department	2	2
LEVEL 3	supervisor	1	2
	head of bureau	8	9
LEVEL 2	engineer	43	38
	foreman	15	17
	planning engineer	4	5
	economist	3	5
LEVEL 1	technician	5	2
	accountant	2	4
	planning technician	1	2

Table 2: Schooling and work experience, incumbents versus new hires

LEVEL:	2	3	4	5
Years of schooling				
1984-1991	14.24	14.40	14.33	15.66
hired from the outside	14.73	15.08	14.70	16.00
incumbents	13.50	14.29	14.26	15.62
1992-2000	14.26	14.32	14.53	15.79
hired from the outside	14.62	15.47	14.93	16.00
incumbents	13.38	13.90	14.19	15.55
Work experience				
1984-1991	11.58	19.51	18.54	20.96
hired from the outside	8.31	21.17	15.10	22.67
incumbents	16.56	19.24	19.18	20.76
1992-2000	14.00	21.77	18.77	21.67
hired from the outside	12.48	22.26	20.63	23.46
incumbents	17.67	21.59	17.21	19.55

Table 3: Staffing from outside and from within (numbers in parentheses are promotions)

	Level			
	2	3	4	5
accession to a level	1 (895)	1 (155)	1 (118)	1 (53)
1984-1991	0.55	0.55	0.52	0.55
1992-2000	0.45	0.45	0.48	0.46
hired from outside	0.74	0.20	0.31	0.30
1984-1991	0.37	0.08	0.08	0.06
1992-2000	0.37	0.12	0.23	0.25
promoted	0.26	0.80	0.69	0.70
1984-1991	0.14	0.48	0.43	0.49
1992-2000	0.11	0.32	0.25	0.21

Table 4: Promotion regressions, * represents significance at 10%, ** at 5%

	1984 to 1991		1992 to 2000	
	σ *coefficient	robust standard error	σ *coefficient	robust standard error
Years of schooling	0.05**	0.01	-0.08	0.05
Dummy for sex (1 = male)	0.96**	0.012	0.92**	0.43
Age in years	-0.03**	0.01	0.02	0.01
Constant	-3.24**	0.029	-2.12*	1.19
$\ln \sigma$	0.67**	0.10	0.549	0.16
κ	-0.76**	0.18	-3.30	1.14
σ	-0.51	0.05	1.73	0.28
Number of observations	3510		3148	
Number of promotions	158		64	
Number of individuals	1088		991	
Time at risk	5120.13		4959.95	
Log likelihood	-213.83		-195.44	
Wald χ^2	173.49		19.86	
Probability χ^2	0.000		0.000	

Table 5: Separation regressions, * represents significance at 10%, ** at 5%

	1984 to 1991		1992 to 2000	
	σ *coefficient	robust standard error	σ *coefficient	robust standard error
Years of schooling	0.06*	0.01	0.03	0.05
Dummy for sex (1 = male)	0.53*	0.012	0.97*	0.21
Age in years	0.01	0.01	-0.01	0.01
Level in the hierarchy	0.10*	0.05	-0.26**	0.11
Constant	-1.49*	0.39	-1.8**	0.79
$\ln \sigma$	0.65*	0.01	0.59*	0.01
κ	1.70*	0.14	-0.19	0.15
σ	1.91	0.07	1.81	0.08
Number of observations	3510		3148	
Number of separations	609		316	
Number of individuals	1088		991	
Time at risk	5120.13		4959.95	
Log likelihood	-1600.03		-712.90	
Wald χ^2	37.73		26.17	
Probability χ^2	0.000		0.000	

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Figure 1: Output, employment over time

Figure 2: Output and specialization

Figure 3: Mobility during Soviet times

Figure 4: Mobility in transition

Figure 5: Baseline promotion hazards, Soviet times vs transition

Figure 1: Output, employment over time

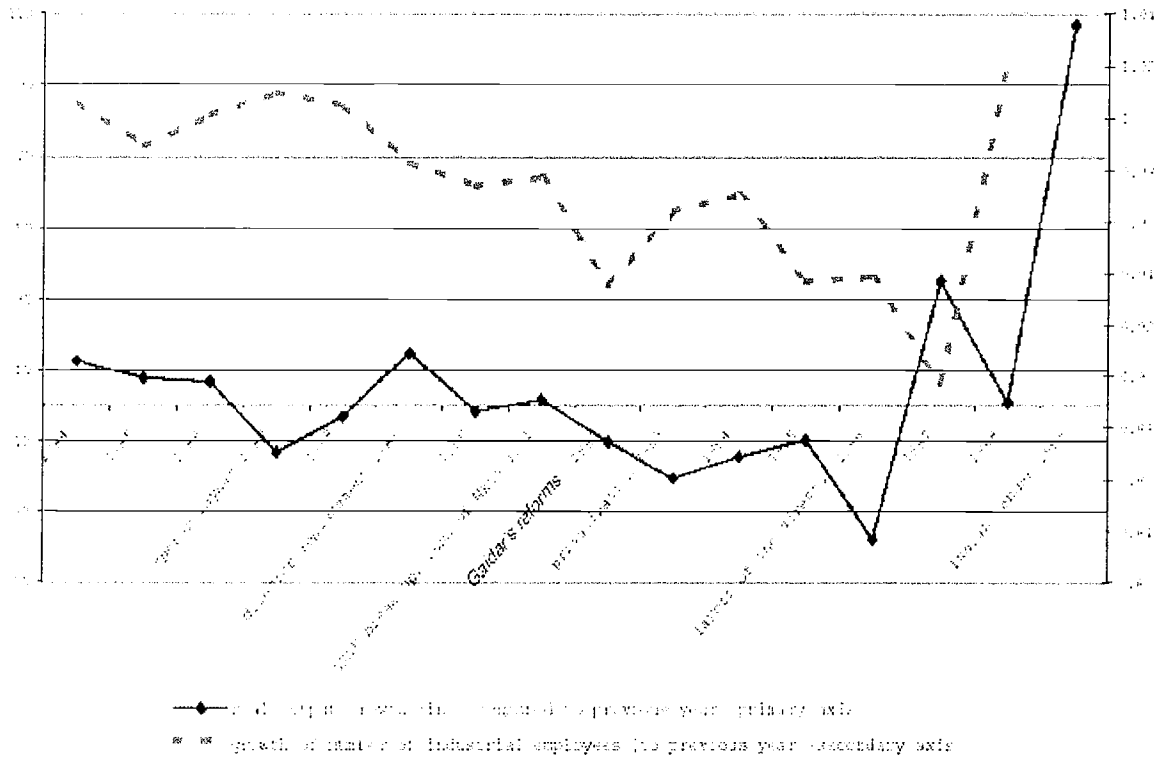
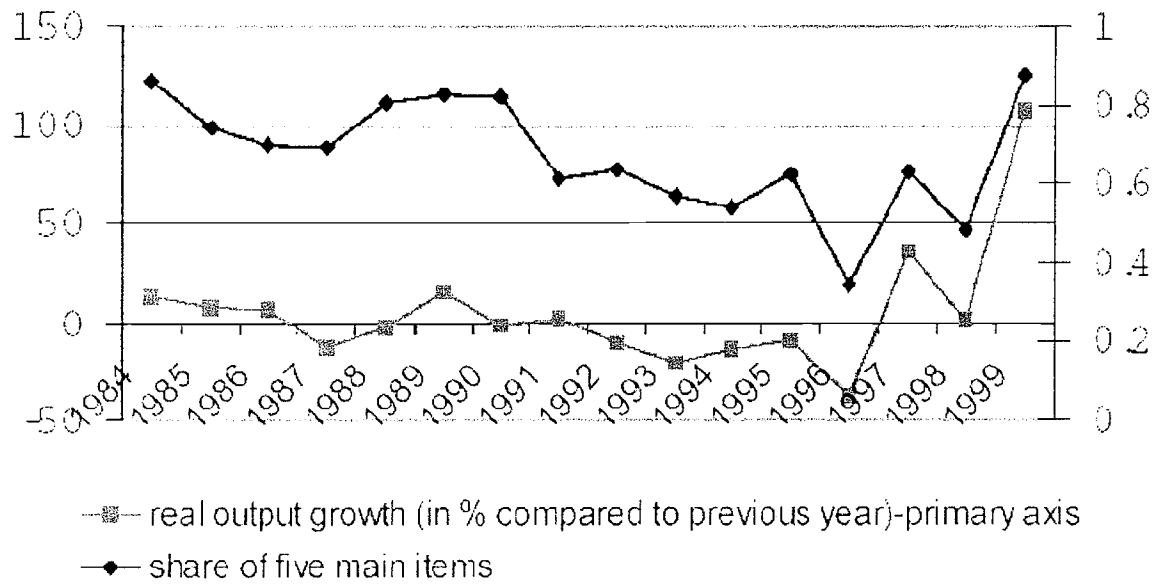


Figure 2: Output and specialization



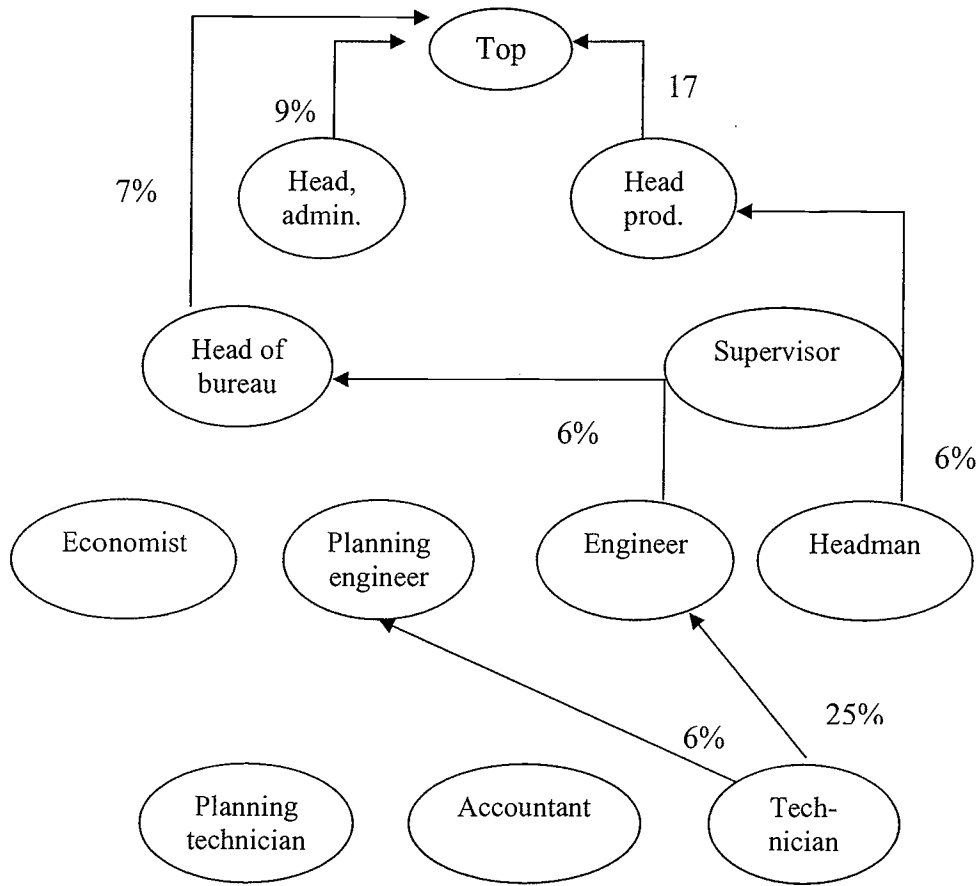


Figure 3: Mobility during Soviet times

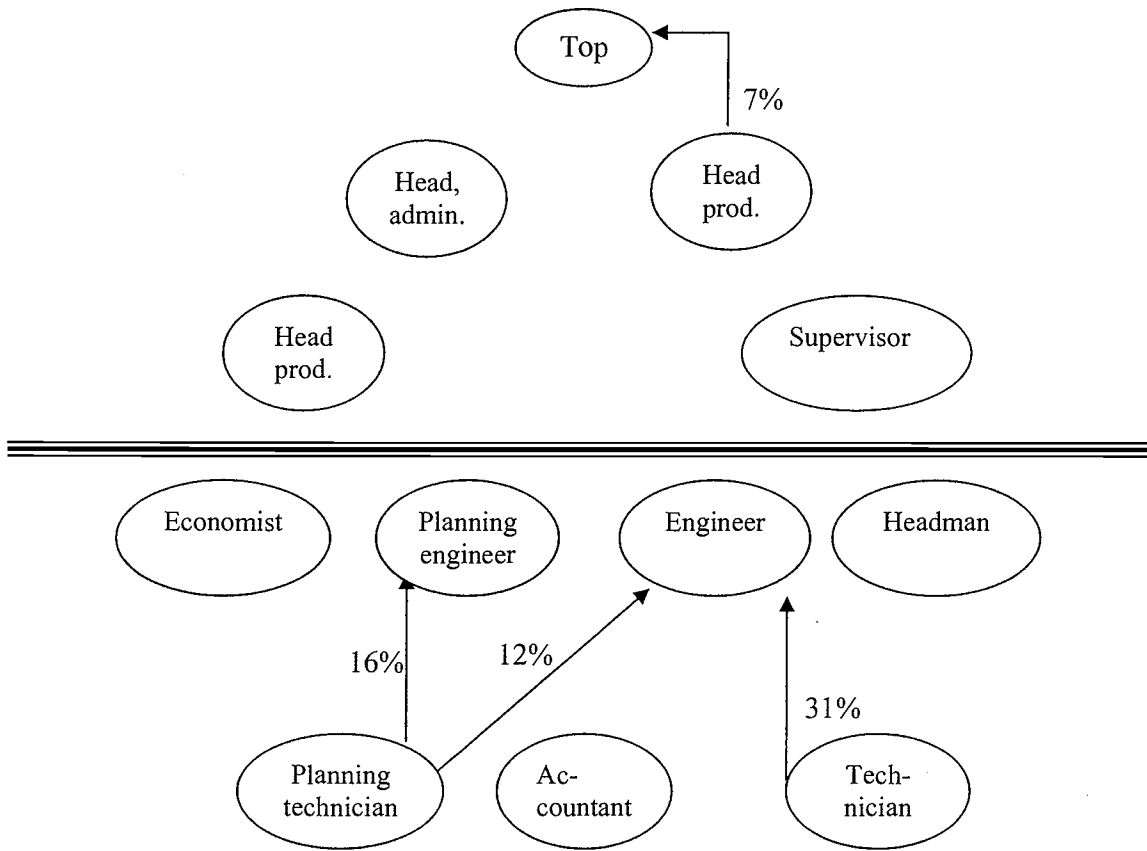


Figure 4: Mobility in transition

Figure 5: Baseline promotion hazards, Soviet times vs transition

