Cadrelites? Career continuity, discontinuity, or disruption of former socialist elites in the early 1990s: an event history analysis on the basis of statistically matched data

Gebauer, Ronald

Cadr*elites*? Career Continuity, Discontinuity, or Disruption of former Socialist Elites in the Early 1990s. An Event History Analysis on the Basis of Statistically Matched Data

Ronald Gebauer [*]

Abstract: *»Von Kadern zur Elite? Kontinuität, Diskontinuität oder Unterbrechung der Karrieren ehemaliger sozialistischer Leiter in den frühen 1990er Jahren. Eine Ereignisdatenanalyse auf der Grundlage Statistical Matchings«.* This contribution focuses on the career trajectories of the functional elites of the collapsed state socialist GDR after reunification. There is up to now no consensus, whether cadres of the middle and upper stratum of the service class could usually continue their careers after 1989/1990, or not. On the one hand, past research indicates career continuity. On the other hand, there is also evidence of a considerable extent of career interruptions or even disruptions in the early 1990s. In this respect, the contribution discusses the option of matching data from different sources by approaches of "Statistical Matching" or "Data Fusion" as has already been practiced by the author and his colleagues by fusing data of the Central Cadre Data Base with data of the German Socio-Economic Panel Study, a longitudinal sample, that has been introduced to the GDR already in 1990. Here an event history analysis, on the basis of GSOEP-data, that qualify for the criteria of having a near-identical 'statistical twin,' is applied.

Keywords: post-communist transition, elites, mobility, Germany.

1. Why Applying Statistical Matching?

In recent years, there has been much research on Socialist Elites and on the conditions for a successful continuance of their careers even after the collapse of the communist SED-regime in 1989. With regard to the career trajectories under communist rule the author and his colleagues has been in the fortunate position to analyze the elite data of the Central Cadre Database (CCDB, *Zen-*

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traler Kaderdatenspeicher, ZKDS), collected by the regime's administration (n=698,566). Particularly, the analyses of Heinrich Best and Axel Salheiser and of course of the members of the entire research team reveal an inequality structure far more differentiated than anticipated in the West before the expiration of state socialism. Thus, the fundamentals of a "socialist" career consisted not only in the ideological involvement, e.g. SED-party memberships and appropriate professional or vocational degrees, but also in social traits contrary to the official communist doctrine, like social origins from the formerly privileged classes (bourgeoisie, cf. Best 2009, Salheiser 2010, Gebauer 2009) or – somewhat delicate – national socialist entanglements of the parents or in the case of the older birth cohorts even of the cadres themselves (cf. Best 2010).

Additionally, for the era of late socialism, data of the CCDB also reveal a strong tendency of generational closure, by the fact that the generation of functionaries born in the 1920s and 1930s, sustainably occupied hierarchy positions in all sectors of administration, trade (especially foreign trade) and processing industries. This, and the stagnation of economy in the 1970s and 1980s kept younger cadres away from climbing the career ladder above the first steps and left many of them to choose between resignation, putting their careers on hold, or to decide to leave the country for the West (for the socio-economic consequences of non-conformist behavior, cf. Gebauer 2010). Nevertheless, after the collapse of the SED-regime, there is some evidence that a relevant share of older and younger cadres could continue their careers, though past research proves also a considerable extent of career interruptions or disruptions in the early 1990s. However, in this issue there are only some figures social scientists can refer to and there is indeed a desideratum because there exists almost no data base that mirrors both, pre-1990 life histories and their continuances after the system collapse and reunification.[1]

So what to do if traditional concepts of data analysis fail to be applicable? If one considers the availability of existing pre- and post 1989 data, there may arise the idea, to merge data from different sources, combining pre-1990 data as from the Central Cadre Data Basis *with* data collected 1990 and later as available by the German Socio-Economic Panel Study (GSOEP). In this way our research team continued by applying advanced attachment techniques as "Statistical Matching" or "Data Fusion". With these techniques the crucial task consists in linking data not by a data-comprising unique individual case number or identifier, but complement data on the base of a specific set of variables

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[1] In this respect, the data of the East German Life History Study (EGLHS), the data of the German Federal Pension Insurance and to some extent also the data of the GSOEP are exceptions of the rule. Among the most appreciable analyses of status mobility in the early 1990s are the contributions of Martin Diewald and Annemette Sørensen (1996) and Anne Goedicke (2003).

common to both data sources ("fusion variables" or "fusion citerium", see table 1).

Table 1: Common Variables in CCDB and GSOEP Used for Data Fusion

Common Variables	Variable Names (CCDB)	Variable Names (GSOEP)	Files (GSOEP)
Gender	v0201c	SEX	PPFAD
Birth (year)	v0201b	GEBJAHR	PPFAD
Social Origin	v1002	VBSTELL, MBSTELL	BIOPAREN
School	v1005	$PSBILO	$PGEN
Professional Degree	v5803	$PBBILO/$PBBIL01/ $PBBIL02/$PBBIL03	$PGEN
Marital Status	v5101	$FAMSTD	$PGEN
Children (number)	v5615	$KZAHL	$KIND
Profession, ISCO	v2001	$IS8890	$PGEN
Branches	Processing Industries, Trade; State and Local Administration; Health; Science, Culture, Leisure; Education	Processing Industries, Trade; State and Local Administration; Health; Science, Culture, Leisure; Education	

Linking both data sets was executed by Mahalanobis Distance Matching, based on the Mahalanobis distance measure that also takes into account the relationship between the common variables by their covariances (for this family of distance fusion algorithms, cf. Cochran and Rubin 1973, Rosenbaum and Rubin 1985, Gu and Rosenbaum 1993, Diamond and Sekhon 2012).

Table 2: Bivariate Correlation Between SED-Membership (CCDB) and Wages or Salaries (amount) May 1989 (GSOEP)

Variable	SED-Membership	Wage, Salary, May,1989
SED-Membership	1.000	.249***
Wage, Salary, May,1989, amount	.249***	1.000
N	3,407	

Source: Central Cadre Data Base and German Socio-Economic Panel Study, wave G, 1990 (combined data), own calculations

Table 3: Partial Correlation Between SED-Membership (CCDB) and Wages or Salaries (amount) May 1989 (GSOEP) Controlled by Common Variables

Variable	SED-Membership	Wage, Salary, May,1989
SED-Membership	1.000	.034
Wage, Salary, May,1989, amount	.034	1.000
N	3,407	

Source: Central Cadre Data Base and German Socio-Economic Panel Study, wave G, 1990 (combined data), own calculations

Although, merging data this way appears promising, not all the results are satisfying. One restriction or even disadvantage of Mahalanobis Distance Matching, if not of almost all approaches of data fusion, is that of conditional

independence (cf. Wiedenbeck 1999: 151ff., Rässler 2002: 33ff.) as evident by the (non-) correlation of variables not common to both data sets, as for example the relationship between SED-memberships, (recorded only by the CCDB data) and wages or salaries (according to information provided only by the GSOEP data, see table 2): Notwithstanding, correlation between both variables is positive .249 and in line with our expectations, this figure shrinks to almost zero if one controls for the common variables (see table 3).

This is not the place to consider conditional independence in detail, but this very result indicates that statistical matching of data is not an all-inclusive solution for merging data from different sources (cf. Kiesl and Rässler 2006).

2. Statistical Matching and Longitudinal Data Analysis of Career Trajectories

Nevertheless, "Statistical Matching" of CCDB and GSOEP data may prove useful after all, since there is additional information and if one adopts an information efficiency approach there quickly arises the question why one should waste any valuable information if this information is available? So at least, fused data might be useful in contributing additional information to analyses of processes of upward, lateral and downward mobility of the post-1990-elites, most of them formerly being members of the cadre class, but some of them novices to East Germany's new higher administrative or management class.

Moreover, results of data fusion can be considered as an additional source of validating post-1989/90-data (GSOEP) by taking into account CCDB-data as validator.[2] Table 4 informs about the applied hierarchy scheme as the base of all further analysis.

Table 4: Hierarchical Ranks

Echelon	Level	Positions
Top / Middle Management	4	Ministers and Permanent Secretaries (Council of Ministers members), Director General of Central Combines, Ambassadors, Directors and Department Directors in State-Owned Firms
Basic Cadre	3	Heads of Departments/Heads of Sections in Governmental Administration and Industrial firms, Group Leaders, Master Craftsmen, Heads of Sub-Departments
High Qualified	2	Scientific Assistants, Employees with High Qualifications
Skilled and Unskilled	1	Factory Workers, Secretaries, Drivers, Others

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[2] This type of validation resembles much of the technique of cross validation by splitting a sample in two subsets, running the analysis on one subset and then validating the analysis on the other (cf. Geisser 1993, 32ff.)

The following analysis restricts attention on cadres or elite members of hierarchy level 4 as recorded in the GSOEP-data. First of all, 103 out of 107 of the upper and middle stratum elites in the GSOEP were matched with an individual of the very same hierarchy level in the CCDB-data. This was done by searching for an ideal candidate among the available 293,869 CCDB-records by the criteria that data match within the fusion variables to the maximum possible extent. Of course, each of the GSOEP-upper or middle stratum individuals had been assigned with such a "nearest neighbor" or even "statistical twin" (but as already discussed not necessarily with an individual of the same hierarchy stratum), however gradual differences are catched by the Mahalanobis distance measure. In Fig. 1 corresponding percentile-values of Mahalanobis distances are plotted.

Figure 1: Percentiles of Mahalanobis Distance Values
(CCDB and GSOEP matches)
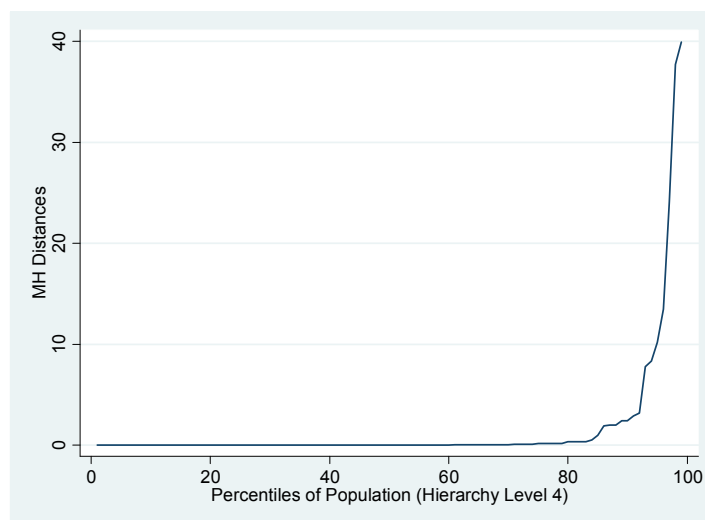
Source: Central Cadre Data Base and German Socio-Economic Panel Study, wave G, 1990 (combined data), own calculations, n=107 (hierarchy level 4 only)

As can be seen here, the distances or differences among the fusion variables are almost negligible for around 4/5 of the GSOEP total sample population of hierarchy level 4 elites (n=107). More precisely, almost 1/8 of GSOEP cases correspond to a perfect match within the CCDB (n=14 resp. 13%) and a total of 90 individuals (resp. 84%) correspond to a similar "next neighbor" by a distance less than 0.5, usually indicating only a slight difference in the ISCO-code (n=71 cases within an interval of ±25). Moreover, the major share of total

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Mahalanobis distances (=95%) concentrate on the 10% of individual matches with the highest distances and all individual matches indicating Mahalanobis distances less than 0.5 contribute only to 1% of total distances (see fig. 2).

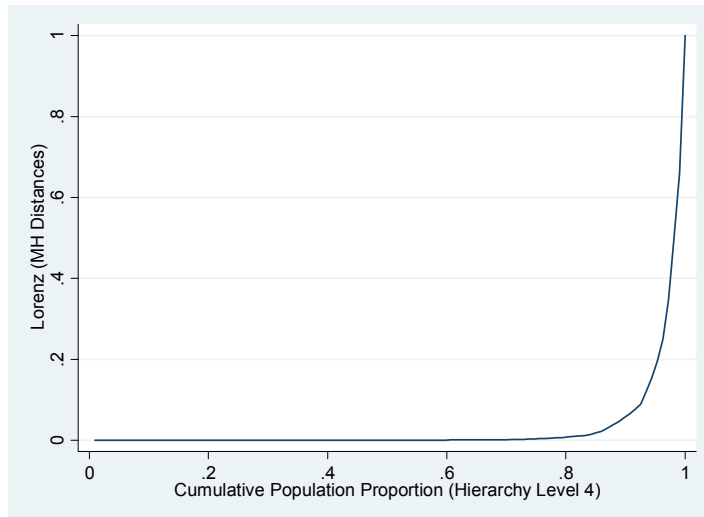Figure 2: Lorenz Curve of the Mahalanobis Distance

Source: Central Cadre Data Base and German Socio-Economic Panel Study, wave G, 1990 (combined data), own calculations, n=107 (hierarchy level 4 only)

3. Explorative Event History Analysis of Downward Mobility of Top-Cadres in the Early 1990s

In the following, the focus will be on the career trajectories of previously privileged functionaries in higher positions (hierarchy level 4), as directors or managers of combines or plants in the processing industries or trade or higher administrative personnel on the state or local level in the early 1990s as mirrored in the GSOEP-data.[3] Analysis is restricted to all individual cases (n=90) that were assigned a "statistical twin" in the CCDB by a Mahalanobis distance not higher than 0.5 and, additionally, were not older than 55 years in 1990.[4] Fur-

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[3] Of course, this analysis could be extended to the career mobility in the 1980s by using the entire information provided by the fused data. But from a practitioner's point of view and in the face of conditional independence it seems to be advisable to dispense with analyses of "artificial" life courses and to rivet attention instead on the (by fused data validated) biographies collected by the GSOEP-data.

[4] This restriction on ex-cadres younger than 55 years is necessary, because older employees were due to retirement and early retirement schemes.

thermore, the GSOEP sample weights were applied (cf. Pannenberg et al. 2005), in order to inflate the number of people interviewed to equal the number of people in the population (n=195,727).[5] For a first impression on downward mobility (first episode) one can differentiate between various destinations on the career ladder (see table 5).

Table 5: Downward Mobility from Original Rank (column)
to Destination Rank (row)

	Rank (Origin)	Col%
Rank (Destination)	4	
Right Censored	58,893	30.1
1	64,009	32.7
2	47,794	24.4
3	25,031	12.8
Total	195,727	100.0

Source: Central Cadre Data Base and German Socio-Economic Panel Study, (combined data 1990s), own calculations, weighted data, first episode.

Almost one third of durations (n=58,893 out of 195,727 cases) are right-censored, meaning that there is no information about any change to a different (lower) hierarchical rank. However, there had been considerable discontinuity: About one third (n=64,009) of these type of episodes expired by a downward-shift to level 1. Data also indicate downward mobility to hierarchical ranks 2 (n=47,794 or 24%) and 3 (n=25,031 or 13%).

This first impression finds confirmation by results of survival analysis (see fig. 3). As can be seen here, there had been considerable downward mobility in the early 1990s, more than 60% of the then cadres losing their high positions already in the course of the years 1990/1991.

However, these considerable dynamics can be additionally differentiated by comparing downward mobility both, in higher administration and manufacturing industry or trade (see fig. 4). If attention is focused to the top management in manufacturing industry/trade, downward dynamics are even higher, with only 36% individuals remaining at their original positions in 1991, while in the administrative sector the velocity of status loss had been somewhat lower (50% still staying at hierarchy level 4 in 1991).

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[5] Apart from restrictions due to the analysis approach used here (MHD-measure < 0.5 and younger than 55 years old), the application of GSOEP-weights refers to a total number of 265,582 individuals occupying a top position on hierarchy level 4 in 1990.

Figure 3: Top Management Downward Mobility early 1990s
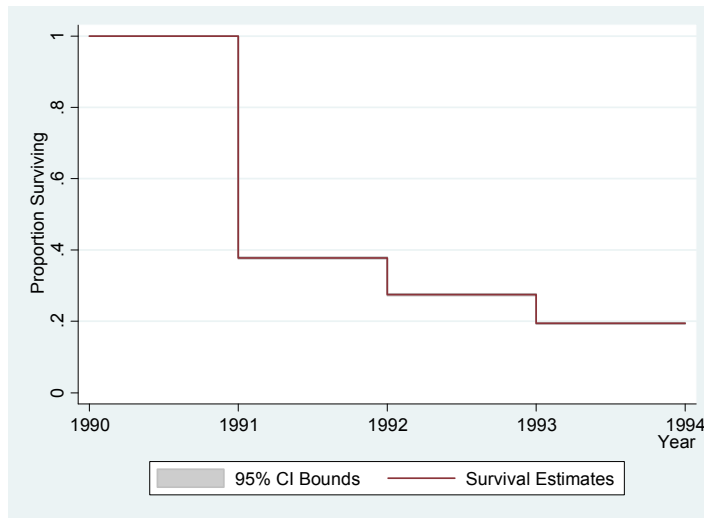
Source: Central Cadre Data Base and German Socio-Economic Panel Study, (combined data 1990s), own calculations, weighted data, n=195,727.

Figure 4: Top Management Downward Mobility Early 1990s
(Manufacturing Industry or Trade vs. State Administration)

Source: Central Cadre Data Base and German Socio-Economic Panel Study, (combined data 1990s), own calculations, weighted data, n=195,727.

However, persistence at top positions in the end arrives at a similar low level: Only approximately 1/4 to 1/5 of all top managers in 1990 could resume their career at a comparable advanced position until 1994.

Although these findings give a similar impression for the first glance, there is also further considerable heterogeneity. This becomes clear if one controls for gender: As analysis reveals, downward mobility of the once privileged upper echelon of the cadre class among women was much higher than that of men. This may particularly apply to manufacturing industry or trade indicated by the survivor estimates, suggesting only 6% of women keeping their status throughout the early 1990s (see fig. 5).

Figure 5: Top Management Downward Mobility Early 1990s in Manufacturing Industry or Trade (Gender)

Source: Central Cadre Data Base and German Socio-Economic Panel Study, (combined data 1990s), own calculations, weighted data, n=195,727.

4. Event History Logistic Regression of Downward Mobility of Top-Cadres in the Early 1990s

Nonparametric approaches of event history analysis are useful in exploring differences between several subgroups, as just demonstrated, but with increasing number of such groups, the analysis by comparing survivor functions becomes problematic in practice. So it is advisable to switch to parametric or multivariate transition rate models with the opportunity to control downward mobility by a set of variables. As may be clear by the findings already pre-

sented, there might be some further socio-economic variables that structured downward mobility of former top-cadres. Apart from relevant dynamics, caused by the context of various sectors and gender, the analysis focus in this respect is additionally on the age, the number of children, educational attainments and social origin. The analysis approach applied here is event history logistic regression (see table 6).

Table 6: Factors of Downward Mobility

Covariates	Coefficient Log. Odds	Odds Ratio (Effect)
Female (male=0)	0.122343	+ 13%
Children (number)	0.588982	+ 80%
Age (year 1990)	0.1154387	+ 12%
Academic Education	- 0.3547751	- 30%
Polytechnic, Applied Sciences	- 0.3971628	- 33%
Social Origin: Privileged	- 0.7042152	- 50%
Social Origin: Intelligentsia	- 0.579065	- 44%

Source: Central Cadre Data Base and German Socio-Economic Panel Study, (combined data 1990s), own calculations, weighted data, n=195,727.

As becomes evident from table 6, downward dynamics were pushed by being female (+ 13%). Also cadres with children proved to be more downward mobile, each child contributing to an increase of a status loss by 80%. Moreover, older cadre birth cohorts now considerably faced the risk of losing their advanced position by the changing labor market condition (12% increasing mobility per year of life). However, there are also some traits that lowered downward mobility by some extent. In this respect, keeping the advanced hierarchical status had been more easy, if ex-cadres could refer to an advanced level of qualification, e.g. by professional or vocational degrees (university or academies of applied science). And, last but not least, also social origin from the privileged classes – offsprings of the bourgeoisie and of the socialist intelligentsia – had been conducive to continuing career and advancement by lowering downward mobility at approximately 30%.

So, how to interpret these findings in the light of career dynamics of late GDR-socialism? First and foremost, it becomes clear, that the social and educational profile of cadres predetermined them for a continued career or for a temporary career gap or final decline. Some of these career factors had the same effect as in the era of late socialism, e.g. the disadvantaged position of women or the advantageous effect of having a privileged family background (bourgeois or intelligentsia social origin) and are stable and system comprising. This also applies to higher educational attainment as necessary ingrediente for climbing up hierarchies. But not all effects are consistent.

Contrary to these continuities, the effect of growing up children changed considerably, since in the era of late socialism, parenthood was no career obstacle, at least for male cadres. (This, however, never applied to female functionaries, that had usually to abstain from motherhood, in order to reach top

positions.) Apart from this, the effect of age changed with the arrival of capital-ism. Though, the event history model already controlled for retirement and early retirement (spells of 55 year aged and older were right censored), the main effect of age is still negative. Compared to the career dynamics in the GDR this is inconsistent with the seniority principle prevailing there and as is (or was) evident by better conditions for the advancement of older cadres.

5. Meeting the Challenge – Returning to the Top?

So far, as analysis revealed, the arrival of capitalism went hand in hand with considerable downward mobility of the former top cadres of the then collapsed SED-regime, at least for the employment sectors focused here. This, however, for many was not the end of the story. Data analysis and hence event history modelling can also rivet attention to upward mobility beyond the initial set-back, since it cannot be excluded that former cadres strived to regain status. Fig. 6 addresses the efforts of former top-cadres to recover their elite-status.[6]

Figure 6: Upward Mobility Early 1990s After First Status Loss
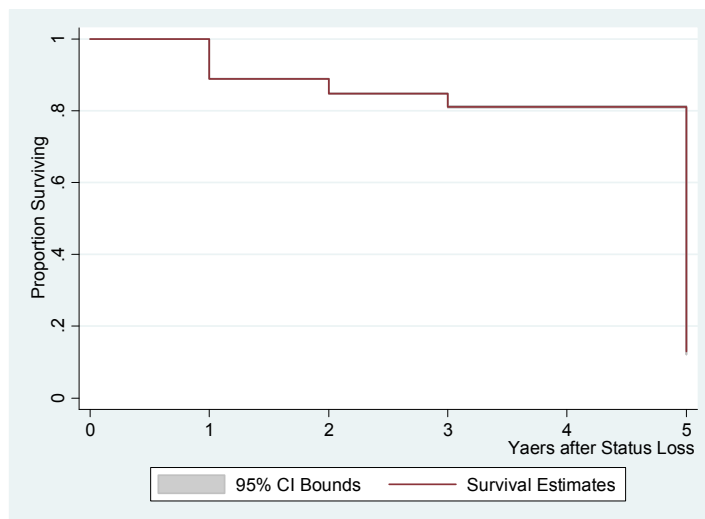
Source: Central Cadre Data Base and German Socio-Economic Panel Study, (combined data 1990s), own calculations, weighted data, n=153,387.

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[6] Analysis units are spells (or episodes) of employment. Unlike the analysis of downward mobility of ex-cadres, in the case of upward mobility individuals can contribute to more than one (or "repeated") episodes.

Survivor estimates here could be interpreted as follows: 11% arrived at a higher rung of the career ladder already one year after the original setback. Afterwards, for the remaining 89%, the speed of catching up slowed down, indicated by an inferior proportion of only 4% in the second and third and coming even to a halt in the fourth year after the initial career setback. Higher upward mobility, then, is suggested by the survivor estimates concerning the last time interval. However, the figure must not be over-interpreted, because these results are based on very few cases.

Table 7 also mirrors mobility between the rank after the initial status loss (or later) and the position(s) achieved after a further change (rank destination). As it becomes clear, after losing high-ranked positions there had been further and considerable mobility. This mobility is necessarily not restricted to the upward direction. Former cadres that had not reached the bottom rung could be, of course, stepping down the hierarchy ladder even further. This applies to 30% out of a total of all 188,216 (non-censored) episodes. In the case of further positional change after the initial status loss, 36% of all employees had been able to stabilize their status position at the already arrived level, though one has to take into account, that 17% of these 'stayers' at that time continued to perform blue collar or service jobs. Nevertheless, and this is the good news (for ex-cadres), data analysis reveals that 34% of former cadres with an initial status loss, and as measured by episodes, could regain status at a later point of time[7]

Table 7: Mobility After Original Status Loss

Rank (Destination)		Ranks Captured After the First Status Loss				
		1	2	3	4	Total
1	n	31,078	20,926	11,576	19,275	82,855
	cel-%	16.51	11.12	6.15	10.24	44.02
2	n	20,632	14,705	3,973	1,515	40,825
	cel-%	10.96	7.81	2.11	0.80	21.69
3	n	6,498	2,288	2,320	0	11,106
	cel-%	3.45	1.22	2.11	0.0	5.90
4	n	15,865	13,237	5,536	18,792	53,430
	cel-%	8.43	7.03	2.94	9.98	28.39
Total		74,073	51,156	23,405	39,582	188,216
		39.36	27.18	12.44	21.03	100.0

☐ Downward Moves   ☐ Lateral Moves   ▨ Upward Moves

Source: Central Cadre Data Base and German Socio-Economic Panel Study, (combined data 1990s), own calculations, weighted data, n=116,338.

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[7] Using individuals, rather than episodes, as analysis units (n=116,338) discloses that upward and downward mobility is even higher (46% vs. 48%). Additionally, analysis reveals that 56% (n=31,145) out of all individuals with a career setback (n=55,580) even after the initial downturn had been successfully regaining status later.

6. Conclusion

After the collapse of the SED-regime and with the arrival of Western welfare capitalism in East Germany top cadres' careers had been severely affected. As analysis reveals, there was considerable downward mobility. This finding is, additionally, cross-validated by statistical matching. Event history analysis confirms, on the one hand, that there were some factors that accelerated status loss, such as being female or growing up children. On the other hand, several factors curbed status decline, such as privileged social origin or educational attainment Although, enhanced downward mobility imposed significant hardship for ex-cadres and their families in the first moment, many of them met the challenge and afterwards returned to career and advancement.

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