Social Origin and Discontinuities in Higher Education Careers

A Comparison between Germany and the US

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Felix Weiss, Marita Jacob[1]

Mannheim Centre for European Social Research (MZES)

Department of Social Sciences, University of Mannheim

Germany

Abstract

Previous research as shown that social origin affects educational attainment. In the light of increasing participation in tertiary education, there has recently been growing interest in social selectivity at the tertiary level and how these differences are conditioned by educational institutions.

In this paper we examine a particular feature of educational careers in postsecondary education, namely labor force participation before final graduation comparing Germany and the US. We analyze two different aspects of discontinuities in education: First we look at tertiary graduates asking who - in terms of social origin and other individual characteristics - has achieved the final degree 'in one go' and who has interrupted education. Second, we are interested in the decision process of returning to education being in the labor market and examine the influence of social origin on re-enrollment.

To explain the micro processes we build on theories of educational decisions, for comparing differences in social origin effects in Germany and US we use a characterization of each country's 'transition regime' of higher education. We expect that working class children more often interrupt their educational career and that this effect is weaker in the US. At the same time, once in the labor market service class children are expected to be more likely to return to education, in particularly in the US.

Our empirical analyses only partly confirm our hypotheses: Although there are some class differences at first sight, these are small and almost disappear if we take other variables into account. Hence on both - patterns of interrupted educational careers and the decision to return to higher education - parental class has only a marginal influence. Rather, individual characteristics such as gender and ability and institutional factors such as having attended lower tiers of higher education or having achieved a vocational degree are the main variables of influence. Comparing Germany and the US, class differences are slightly stronger in the US, but here "ability" explains most of the class differences in re-enrolment rates.

Key words: Higher education, social origin, educational decisions, educational system

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[1] E-Mail: felix.weiss@mzes.uni-mannheim.de, mjacob@sowi.uni-mannheim.de

1 Introduction

The impact of social origin on educational decisions has been found on almost every stage of the educational career. In light of increasing participation in tertiary education, there has recently been growing interest in social selectivity at the tertiary level and how these differences are conditioned by educational institutions (for a detailed discussion see Breen & Jonsson 2007; Davies & Guppy 1997; Reimer & Pollak 2005; Shavit et al. 2007). Although the impact of socioeconomic origin on educational choices is found to be lower at these higher levels of education, it still exists even if previous educational achievement is held constant. Comparative research has shown that different educational systems and labor markets moderate or ease social selectivity, which comes at little surprise given the pronounced differences between educational systems on the tertiary level. However, not much is known about systematic differences between educational systems and labor markets leading to typical patterns of inequality on the level of tertiary education.

Much more is known about systematic differences between societies in the transition from school to work, although these studies focus mainly on secondary educational institutions and labor markets (Müller & Gangl 2003; Müller & Shavit 1998; Wolbers 2007). Few studies refer to higher educational systems and their differentiation as well (e.g. Arum & Hout 1998). Most of these interpret the transition from school to work as an event in the life course, instead of as a "transitional phase" with several, individually different stages, while other studies show that it is difficult to define "the" transition as one single event (Coleman 1984; Jacob & Weiss in press; Scherer 2005). One important and often not considered aspect in the "phase of transition" from school to work is the step backward from work into education.

Re-entry from the labor market into the educational system can be seen as a further educational threshold. Given the numerous findings on the influence of socioeconomic background on decision-making in educational transitions, the question about social selectivity for re-entry into education arises. We expect that both the decision to leave education at a certain stage to enter the labor market and to return to education is influenced by social origin. In principle both scenarios are possible. Children of higher social backgrounds might be more likely to re-entry education as their parents support them to do so. However, gaining work experience and earning some money to build up savings may encourage children from lower socioeconomic origins to return to education as well. Further, there are two aspects of late education for inequality on the societal level. On the one hand, inequality in participation in education can be reduced if more lower-class children succeed in late educational attainment than on earlier educational thresholds. On the other hand, framing

the same biographical pattern as “delaying educational completion” could mean more social inequality if lower-class children earn their degrees later and receive less payoffs in the labor market.

In the following we analyze participation in higher education from two different perspectives: First, we compare those who had returned to education from the labor force with those who obtained their degree without interruption of the educational career. That means, for those who are in employment we examine the decision to return to the educational system and continue schooling. Second, we compare students who re-entered the educational system to those who entered the labor market at the same level of educational achievement and did not re-enter education. For both cases, we examine whether the process of returning from the labor market to education is socially selective.

In order to evaluate how institutional settings shape social selectivity in these decisions, we compare longitudinal data from the United States and (West-)Germany. These countries qualify for a comparative study since their differences in institutional characteristics influence educational careers and school to work transitions. They have distinct third level educational institutions and labor market structures, yet they both belong to the group of the most developed industrialized economies. For the purposes of this study, the most important variation lies in the different structuring of the chances to enter the labor market and to re-enter the educational system, as well as differential opportunities for educational career patterns, that could also influence the process of social selectivity in the tertiary sector.

In the following we introduce our theoretical model on the micro level and derive hypothesis for the general transition pattern. Building on that, we then distinguish several structural attributes of the educational systems and the labor market and derive hypotheses for our country comparison. We estimate comparative regression models for both countries of the influence of students social background on the interruption of educational careers before reaching a higher degree and on the time to re-entry if a student started to work before reaching such a degree. In our analyses we find that students from different classes differ in their educational careers. A major part of this difference is mediated by different choices of institutions within the tertiary system or by ability. The paper ends with a concluding section discussing these findings.

2 Social Inequality in Educational Decisions

2.1 Theoretical background

Re-entering education – such as any educational decision – can be modeled as a rational decision to invest in human assets that pay off in the labor market with higher salaries and more favorable class positions. In such a framework, different decisions at educational thresholds can lead to social inequality in educational achievements.

Following the distinction of Boudon (1974), primary and secondary effects of social origin cause differences in educational achievement of lower- and upper-class children. Primary effects are those effects mediated through lower performance of children with less privileged socioeconomic background. Secondary effects are inequalities in educational achievement due to different educational decisions.

Breen and Goldthorpe build on the assumption of rational decision making of families and explain differences in educational achievements of students with different class background by three mechanisms (Breen & Goldthorpe 1997; see Erikson & Jonsson 1996 for a similar model). The main assumption of rational decision making is relaxed in that framework. The first mechanism is that families strive to achieve for their offspring at least the same status as they have achieved themselves ("relative risk aversion"). As families interpret not achieving this status as "failure", upper-class families have more incentives to invest in education in order to avoid downward mobility. The second mechanism for lower investment of lower classes according to the Breen-Goldthorpe-model is the expectation of lower returns due to a lack in parental social capital. While parents of higher classes can use their social ties to improve the returns to education, this is less likely for children from lower social background. Hence, they expect to obtain lower returns to their educational investment on the labor market and will therefore invest less in their education. A third mechanism is that higher classes are more confident about the likelihood of educational success because they received better grades in earlier stages of the educational career. This is were the Breen-Goldthorpe model brings in primary effects of social origin: higher class children tend to have better experiences in their previous educational career than lower class children and will therefore expect higher probabilities of passing the more demanding tracks in subsequent education successfully (Breen & Goldthorpe 1997).[2]

[2] Although the Breen-Godlthorpe model is originally formulated for decisions in secondary education, it can easily be transferred to higher education - even if decision making is more an individual than a family decision. The use of parental social ties, experiences of former schooling periods and the aim to achieve the parental status can motivate equally the student itself as its family.

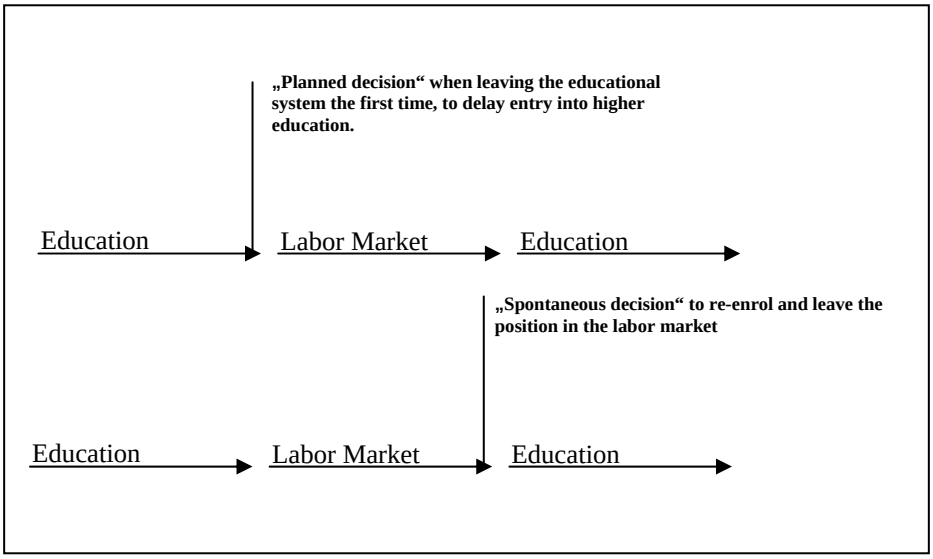
Given that capital markets are imperfect and labor market outcomes of education are not perfectly predictable, in addition to different motivations for investments monetary constraints to obtain education can also vary by socioeconomic background. Since our interest here is in higher education, this can also play an important role. College education can be costly, e.g. regarding tuition fees or costs of living. Lower classes have in general fewer resources and will therefore hesitate to invest in higher education. If capital markets and labor market outcomes of education are perfect markets, this argument would not hold since lower class children would use loans to finance education. We assume that this is not the case. Even if student loans are available at good rates it is not possible to predict payoffs of educational investments. Upper-class children can be backed up by their parents for this risky investment without putting a high share of their wealth and future income at stake.

To sum up, the described mechanisms predict lower educational outcomes for lower class children. However, it is an open question, if the effects of social origin on re-enrolment are stronger or weaker than for educational attainment achieved without interruption. In the following we will discuss the decision to re-enroll in more detail to gain more specific hypotheses on social background effects.

2.2 The re-enrolment decision and social inequality

The observed pattern of a transition back from the labor market into the educational system can follow in principle two modes of decision-making (see Figure 1). First, decisions can be made while in the labor market. We call this “spontaneous decision”. It requires, that the decision to leave the educational system and enter full-time employment antedates. Second, the pattern of entering the labor market and returning into the educational system can originate from what we call the “planned decision”. In this case, at the labor market entry it is already anticipated that there will be a re-entry into the educational system. It is important to distinguish between these patterns, because the implications for the expected effects of social origin are different, as we explain below.

Figure 1: Possible decision making processes leading to re-enrolment in education after a first school-to-work transition.



The Planned Decision: Delay of educational attainment

Assuming that the decision to interrupt one's educational career is already made before entering the labor market, an individual has to balance the costs and risks of delaying the desired final educational attainment. The "relative risk aversion"-assumption predicts that students with higher background will avoid interruptions in their educational careers and go straight to their final educational goal. Gaps in the educational career would simply be time spend in inferior positions in the labor market and should be avoided. Therefore, they have to avoid the re-enrolment pattern from the very beginning. Social ties would also make a straight investment in higher education more worthwhile and therefore prevent students from planning to interrupt their educational career. With regard to the restricted resources argument, one possibility for poor students who want to get a certain degree would be to enter the labor market to earn some money first and then return to school. This is more likely for students with lower social background, since their parents are less often able and willing to spend large amounts of money for the education of their children.

The Spontaneous Decision: Re-Enrolment

The main difference to the planned decision is that students are already in the labor market when they consider attaining a higher educational level. Whereas in the former case all students entitled to enroll think about how and when to achieve a certain degree, here only those who had already made a first decision - to end education and enter the labor market - are left in the risk set. According to the relative risk aversion assumption, those who have failed

to reproduce parental status can use re-enrolment as a last chance. Since this pressure should work stronger on children of higher classes, their re-enrolment rates should be higher. The social-tie-argument applies equally as on earlier educational decisions, although probably less because ties between children and parents could weaken and children begin to build own ties in the labor market. Still, this would also mean higher re-enrolment rates for children with higher class background. The impact of restrictions in resources however should not be very important in case of the spontaneous decision since there are already own earnings and the partner starts playing a more important role for the financial situation. It is not likely that the lack of parental support in failing capital markets will have much impact on the decision to re-enroll[3].

In sum, we can deduct two quite general hypotheses on social selectivity of re-enrolment into higher education:

Hypothesis 1: Interruptions of the educational career towards a certain degree occur relatively more often for lower class students as the 'costs' of interruptions in terms of wasted time are lower.

Hypothesis 2: There is an impact of social origin in favor of upper class children on the spontaneous decision to re-enroll *being in the LM.* Since status reproduction is threatened and upper class children lack in resources, they tend to re-enroll more often.

Looking at previous research on educational careers, there is some evidence for social differences. These studies mainly examine parental education and/or family income. Using NLSY79 data Oettinger (1993) and Light (1996) find that parental education has an impact on reenrollment as well as family income. Similar results are found by Marcus (1986) who analyses the NLS Young Men Data for the US and finds an effect of mothers schooling on the decision to reenroll. Jacob (2004) shows for Germany that in particular students from higher educated parents and with parents in higher occupational positions that initially decided not to enroll right after leaving school revised their decision later on and start with university after vocational training (see similar results of Breen and Jonsson (2000) for Sweden)

[3] However, class differences might be less distinct as lower class students may gain confidence in their cognitive abilities outside the education system and therefore evaluate the risks and returns to higher education more similarly to their upper class peers. Given all other mechansims, we expect the re-enrolment rates of less priviledged students will not exceed those of students of higher backgrounds.

3 Educational Decisions and Institutional Contexts

3.1 Flexible and inflexible transition regimes

Educational systems and labor markets can clearly influence the shape of the educational career. We know less about how they mediate the effect of socioeconomic status on students returning into education. In the following we distinguish between two types of 'transition regimes'. One which we call "flexible" and its counterpart, we call it "inflexible" (see Jacob & Weiss in press). We define the flexibility of transition regimes according to three dimensions: the link between occupation and labor market positions, labor market flexibility and the differentiation of the (tertiary) educational systems. Strong - in our terms inflexible - links between educational systems and labor market positions often evolve in the case of strong vocationally oriented educational systems (König & Müller 1986).[4] Labor market flexibility is first of all determined by dismissal costs: the higher the costs the less flexible is the labor market. Regarding differentiation of the educational systems parallel stratified educational systems, in which students are divided into several tracks that do not found on each other are a characteristic of inflexible transition regimes. Flexible systems have sequentially stratified educational systems that are made of several cycles of educational programs, beginning with the least prestigious and leading through several thresholds to the most prestigious ones (Allmendinger 1989). In higher education, this is typically the case in a bachelor/master system.[5]

We assume that in each transition regime those who enter the labor market after a first stage of education - and hence constitute the population at risk for re-enrolment - differ regarding social origin. This is due to the following characteristics of the transitions regimes:

- First, both regimes differ in regard to predictability of occupational outcomes with certain educational degrees. In flexible transition regimes that go along with less relevance of occupational qualifications and a flexible labor market, the link between education and occupation is generally weaker. This makes it harder to predict occupational outcomes, on whatever educational level. Therefore, relatively more students should enter the labor market

[4] Müller and Shavit (1998) further couple these characteristics and distinguish between "occupational" (=strong vocational education and Occupational Labour Market (OLM) and "organizational" (=general education and Internal Labour Market ILM)) space

[5] As we have shown elsewhere, in flexible systems educational careers are less standardized, there are in general more early school-leavers and, most important, more students interrupt their educational career. On the other hand, careers in inflexible systems follow more standardized sequences and are less often interrupted (Jacob & Weiss, in press).

earlier, since occupational outcomes vary more on all levels of education. In consequence students from all backgrounds may opt for leaving education and enter the labor market after some initial education. In that case, the population at risk for re-enrolment is rather heterogeneous. Inflexible transition regimes go along with a strong role of occupational and/or academic credentials for labor market outcomes. Therefore we expect that in general fewer students enter the labor market early. In particular students with higher socioeconomic background are less likely to leave education before having attained the highest degree compared to their counterparts in a flexible system, because the risk of failing status reproduction without reaching the highest level of education is higher in the former case than in the latter.

- The second major difference of the two regimes, the mode of differentiation within higher education, affects the composition of the population at risk in the same way: In flexible transition regimes the educational sequence is institutionally split in more sections like the bachelor/master system, opening more opportunities to enter the labor market and to re-enroll into education. Even for upper-class children it could seem worthwhile to try their luck with a Bachelors degree, especially coupled with the above argument of difficult predictability of labor market prospects.

3.2 Postsecondary Educational Systems in Germany and the US

Germany

The formal requirement to enter tertiary education in Germany is successfully passing upper secondary education and attaining the *Abitur* or a vocationally oriented *Fach-Abitur*.[6] The German higher education system is commonly classified as a "binary stratified" system (Goedegebuure et al. 1996) as it is (mostly) a two-tier system with universities and lower tertiary institutions (*Fachhochschule*)[7]. The *Fachhochschule* focuses on vocationally-oriented tertiary education in a limited range of subjects, whereas universities are more academically oriented offering courses in all fields of studies. There has been a clear status difference between these two types of institutions. Both tracks are terminal. Entering a certain program therefore implies the decision to obtain a terminal degree and returning to the educational system after that means obtaining more than one terminal degree – usually without credit transfer to the new program. Therefore, Germany stands for a typical case of parallel

[6] Whereas the *Abitur* provides eligibility for all university courses, the *Fach-Abitur* or *Fachhochschulreife* provides only access to *Fachhochschulen*.

[7] Vocational schools as well as apprenticeships also attract students that are eligible to tertiary education (Hillmert & Jacob 2002). Entering the labour market with *Abitur* but without any further qualification is not common at all (Müller & Pollak 2007).

stratification in higher education. At a *Fachhochschule* at least 4 to 5 years and at the University at least 5 years have to be spent before obtaining a degree. This makes a decision for tertiary education a large investment and limits flexibility.[8]

Universities are considered to be more or less equal in quality and there is no strong hierarchy *among* universities. Until recently, there were no tuition fees in public institutions of higher education in Germany.[9] Lower tracks are in general more vocationally oriented leading to less labor market flexibility for their graduates.

United States

In the US graduation from high-school or passing the GED-exam provides access to higher education. In contrast to Germany, the majority of students achieve that. While the American system of higher education is often classified as "diversified" in terms of stratification (Goedegebuure et al. 1996), the institutional setting is mainly twofold[10]. Research universities with selective admission procedures build the first tier, offering classes in liberal arts and scientific education and granting bachelors, masters and doctoral degrees. The second tier consists of community colleges providing rather open access. They offer transfer classes leading to "Associates of Arts" - degrees (A.A.) as well as terminal vocational education. In community colleges, transfer classes and terminal courses channel the students to different final levels of education. By offering high flexibility in their programs, i.e. concerning class times or the possibility of temporary drop out, community colleges often serve the demands of part-time students and older students returning to education (Brint & Karabel 1989; Cohen & Bianchi 1999; Grubb 2006; Roksa et al. 2007). In contrast to Germany universities and community colleges are a clearly sequentially differentiated system. The possibility to enter the labor market at different stages during higher education or to continue with one's studies implies flexibility in the planning of educational careers. The decision for or against participation in tertiary education is broken down into several smaller decisions at different stages in the life course.

Further, the American system of higher education can be described as market-coordinated. There is very minor intervention into matters of higher education by the government and universities compete for students e.g. by offering an environment of selective admission

[8] This has changed recently with the gradual introduction of the new Bachelor/Master system. We cannot extend our analyses to these most recent developments as this would require information about university entrants and graduates over several years after graduation which is not yet available.

[9] Few private institutions of higher education exist and charge fees in Germany (see Beck & Wilhelm 2003).

[10] The pronounced vertical stratification of the system stems from the huge differences in prestige of the institutions and from stratification within the institutions (Geiger 1996; Roksa et al. 2007). That is mirrored in tuition fees commonly charged for higher education.

and/or reputation, or by offering flexible study plans. State intervention concentrates on the support of students, predominantly by loans (Roksa et al. 2007). Degrees are not very standardized, e.g. (community) colleges sometimes offer very specialized degrees in contrast to very broad liberal arts degrees.

Table 1. Summary: Characteristics of the tertiary system and flexibility of the labor market in Germany and the US

	Germany	**US**
Tertiary Education		
Mode of Differentiation	parallel	sequential
Coordination	state	market
Standardization	high	low
Labor Market		
Flexibility	low	high
Transition regime	inflexible	flexible

3.3 Comparing interruptions in educational careers and re-enrolment in Germany and the US

Comparing the two educational systems (see table 1 for a summary) it becomes clear that the American system opens more opportunities for the interruption of educational careers than the German system. This leads us to the following hypotheses regarding country differences in the impact of social origin on interrupted patterns of educational careers:

Hypothesis 3: As outlined above, in a flexible system more students from all social backgrounds enter the labor market early as labor market outcomes depend less on having achieved a certain degree. In an inflexible system like the German one, in particular students with higher socioeconomic background are less likely to leave education before having attained the highest degree compared to their counterparts in a flexible system, because of higher risks of failing status reproduction without reaching the highest level of education. Hence, conditioning on final attainment, social origin effects of interruptions are lower in the US although we expect more interruptions than in Germany.

Hypothesis 4: The educational system in the US offers more opportunities for both, to enter the labor market after a first step and to re-enroll into education. Given labor market participation we expect the influence of social origin in the US to be stronger than in Germany. We assume that typically upper class students anticipate re-enrolment when

entering the labor market in case of failure of status reproduction. Therefore, in cases like the US we would observe higher re-enrolment rates of upper class students that had planned an interruption. [11]

4 Data and Methods

4.1 Data and selection of the sample

To grasp the overlap of educational careers and labor market entry, detailed longitudinal data are necessary. We use two cohort-datasets: The (West-)German Life History Study (GLHS) conducted by Mayer and colleagues for Germany (Max Planck Institut für Bildungsforschung 2004) and the NLSY79 (National Longitudinal Study of Youth 1979) for the US (U.S. Department of Labor 2008). The German Life History Study (GLHS) contains information about the educational and labor force status on a monthly basis. Both cohorts have been interviewed in 1998 and those born in 1971 also in a second wave in 2004. We use the cases with valid observations in both waves only. Of the totally 2543 cases we can use 775 cases that passed the qualifying exams for tertiary education (*Abitur* or *Fachhochschulreife*).

The NLSY79 is a cohort panel representative for the US population containing 12,686 cases at its start in 1979.[12] At that time the respondents were between 14 and 22 years old. They were interviewed annually (from 1994 biannually) about a broad range of topics, containing detailed information about educational attainment. Labor force status and the number of hours worked are available weekly. We use respondents of the births cohorts since 1960 with complete information until age 34 and among those only cases that have attained either high school degree or GED[13]. For our empirical analyses, we have 2045 cases left.

[11] In the case of a spontanous decision, direct and indirect costs in the US may counterbalance each other: There are higher tuition fees than in Germany that may increase social differences in re-enrolment rates but at the same time courses are in general shorter, so the burden of foregone earnings in the US is lower leading to less selectivity. As we assume that restrictions in (parental) resources are less severe in the case of spontaous re-enrolment, we adhere to our hypothesis of stronger class differences in the US than in Germany due to selectivity in planned re-enrolment.

[12] Using panel data and retrospectiv data for comparison might lead to problems (Solga 2001). However, as panel mortality in the NLSY79 is rather low systematic sample differences due to the design might be low. Regarding problems of selective memory in retrospective data we assume that (formal) education is remembered quite accurately. The fact that data for the German 1971 cohort are a 2-wave panel too should further ameliorate this problem.

[13] Further we dropped all cases in special subsamples, namely the poor white, Hispanics and Black subsamples and the military subsample.

4.2 Variables and Methods

We will examine two different aspects: (1) interruptions in educational careers and (2) returning to education vs. staying in the labor market. In the first case, we look at the whole pattern of educational careers and compare careers with or without interruption that that lead to the same final degree. We define interruptions by considering only labor market participation, i.e. we speak of an interrupted career if a fulltime employment period of at least 6 months is reported before reaching the first academic degree[14]. For this simple comparison of patterns we use binary logit-models that distinguish between graduates that had an interruption and those that had not[15].

In the second step we look at the process of re-entering education more closely. We examine students that are already in the labor force and analyze if they re-enter education later on or not, and how long it takes until they re-enroll. Thus, the samples of these analyses differ from the first. As we are interested in both, the event of re-enrolment and its timing, we use techniques of event history analyses. We decided to specify an accelerated failure time (AFT) model.[16] When applying such a fully parametric model it is necessary to specify a certain functional form. We chose a log-logistic distribution as we assume that the hazard rate is less steep than in the Weibull case and we also expect a considerable number of events still at the margins of the distribution. In the AFT model the dependent variable is the logarithm of the survival time rather than the hazard rate. Hence, the estimated coefficients have to be interpreted in terms of the failure functions, i.e. if β is greater than zero, then *x(t)* has a positive effect, i.e. the event (here: re-enrolment) is expected to occur later. If β is less than zero, the event occurs sooner. To be able to include time-varying covariates, we split our dataset into person-period data format. For each person we use one observation for each month, which allows covariates that change from one to the next month.

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[14] This refers to BA and BSc.-degrees in the US and a *Fachhochschule* or university diploma in Germany. We define "fulltime" as working at least 25 hours per week or being unemployed.

[15] In this model, the effects of independent variables x in the probability of interrupting is modeled as $\Pr(y = 1 \mid x) = \frac{\exp(\alpha + \beta x)}{1 + \exp(\alpha + \beta x)}$. We report logit coefficients (log odds ratios) as results and to facilitate comparison across countries predicted probabilities for typical cases.(cf. Long & Freese 2003).

[16] The AFT model assumes a linear relationship between the log of survival time ţ and the independent variables x: $\ln(t) = x(t)\beta + z_i$ where β is a vector of parameters and *z* is an error term. An AFT regression coefficient relates proportionate changes in *survival time* to a unit change in a given regressor, with all other characteristics held constant. The advantage over proportional hazards models is, that it does not require the proportional hazards assumption and the interpretation of the coefficients is easier than for proportional hazards regressions (Cleves et al. 2002; Kay & Kinnersley 2002). Using a proportional hazard regression model, a test on Schoenfeld-residuals indicated that the proportional hazard assumption can not be justified for our central independent variable "parental class".

Social origin as the central independent variable is measured using an extremely simplified version of the EGP-class scheme (Erikson et al. 1979). For the US, we construct the classes based on the 1970 census classification of occupations using the coding scheme of Hout (2005). For Germany, we adopt the construction of EGP-classes implemented in the GLHS by Hillmert and Kröhnert (2000). We collapse the class schemes to two categories. Upper classes that comprise the original EGP classes I and II (service classes) and those from lower classes (i.e. not service class). This is done for theoretical and practical reasons. According to Goldthorpe (1996) upper and lower classes diverge during the life course, e.g. in terms of growing resources. This is particularly important for decision on the children's post-compulsory education. In terms of status attainment, in particular higher employment positions often require higher education, thus making status maintenance for these parents via education much more important. Furthermore, the coding schemes in the two countries differ slightly in some details that make comparisons on a disaggregated level difficult. We use the highest class position of both parents as class of origin, disregarding if mother or father hold this position.

We include several variables as controls that have strong links to the selection into our sample. These are gender, age when the school leaving certificate has been achieved and the birth cohort. In the German models on re-enrolment we also include the type of schooling degree (*Abitur* vs. *Fachhochschulreife*) and if the respondents already hold an occupational degree of postsecondary vocational training. In the US we distinguish between high school graduates and those that passed GED, and if respondents have already achieved an A.A. degree.

In order to evaluate if primary effects of social class are the reason for class specific career patterns, we ran additional models for each country including an indicator for primary effects. Here, we cannot construct a directly comparable measure. In Germany, we use the grades of the school leaving certificate (*Abitur*) that are normally used as a selection criterion by universities and *Fachhochschulen*. In the US it is common among more prestigious colleges to regulate access by entry exams. We assume that these correlate strongly with aptitude and therefore use the score of the "Armed Forces Qualification Test[17]" (AFQT) as an indicator for primary effects in the US. We standardize the grades in the German case on the distribution of the sample of each model and use percentiles of the AFQT-scores. Table A1 in the appendix shows some descriptive statistics of our variables. The well known high selectivity of the

[17] The "Armed Services Vocational Aptitude Battery" was administered to the whole NLSY-sample in 1980. The score is a weighted average of different test scores such as on arithmetic reasoning, numerical operations, word knowledge and paragraph comprehension. For use of the score in a similar context see Oettinger (1993).

German academic track (e.g. Hillmert & Jacob 2005) is also apparent in our data: Whereas only 35 of those with Abitur have working class parents, 456 of them are from service class backgrounds. High school leavers in the US are more heterogeneous in terms of social origin as 18% have working class parents and less than half are from service class backgrounds.

Table 2: Distribution of Parental class in sample of students entitled to higher education

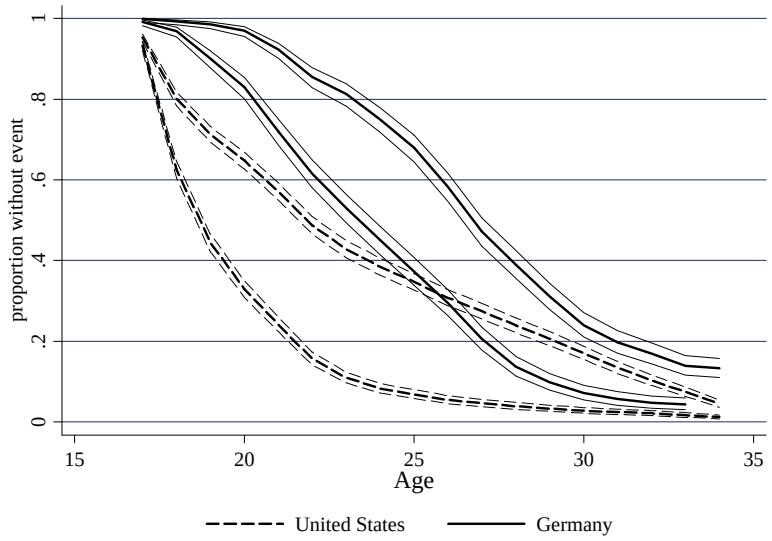
Highest Parental Class	**Germany**	**United States**
Service class	456 (59%)	933 (46%)
Intermediate classes	185 (24%)	578 (28%)
Working class	35 (5%)	373 (18%)
Not known	99 (13%)	161 (8%)
N	775	2045

5 Results

5.1 Interruption of educational careers

The structure of educational careers differs between the US and Germany. Of all students entitled to higher education in Germany 37% and in the US 45% experience an interruption of at least 4 months in the labor market. Figure 2 shows survivor curves for two differently defined “labor market entry-events”, each for Germany and the US. The left curve shows the rate of students who entered the labor market the first time for at least 4 months to a certain age, given by the horizontal axis. The right curve shows the last entry from education into work before age 35. When many students enter the labor market at the same age, we find a steep slope, while more individualized entry patterns lead to a flatter curve.

Figure 2: School-to-Work Transition patterns in Germany and the US (Survivor curves of first and last entry into the labor market)



Data Source: NLSY79, GLHS64/71

While German students on average leave the educational system later than in then US, American students participate more in education after their first labor market entry and the age at final labor market entry varies more in the US. American students on average enter their first job without returning to education about at age 23 with a standard deviation of 5 years. Their German counterparts enter permanent work at about age 26, with a standard deviation of only 3.5 years. Hence, entry patterns in the US are less standardized and the difference between both labor market entries is longer. We find, and discuss elsewhere in more detail (Jacob & Weiss in press), that a part of the US students obtain their education

over a longer period of their life course compared to German students. Also, US students have less standardized pattern of educational careers, which is in line with our expectation of higher flexibility in the US.

5.2 Social Inequality in Educational Careers

We ran separate regression models on interruptions of the educational career for each country.

Table 3. Interrupted vs. continuous educational careers, Germany (logistic regression)

Interrupted careers: y=1	**Model 1**	**Model 2**	**Model 3**
Non of Parents in Service Classes	0.372	0.311	0.342
(Ref.: at least one in SC)	(0.172)	(0.265)	(0.229)
Fachhochschule: ever visited		1.004***	0.915***
(Ref.: never visited)		(0.000)	(0.001)
Male			0.113
			(0.674)
School leaving exam: *Fachhochschulreife*			-0.00885
(Ref.: Abitur)			(0.990)
School leaving exam: age received			0.147
			(0.581)
Birth Cohort 1971			-0.275
(Ref.: 1964)			(0.123)
School leaving exam: Grade point average			0.474*
			(0.044)
Constant	-1.471***	-1.844***	3.369
	(0.000)	(0.000)	(0.322)
N	393	393	393
pseudo R^2	0.005	0.043	0.056

p-values in parentheses
* p<0.05, ** p<0.01, *** p<0.001

In Germany, we find a clearly lower likelihood of interrupted careers for service class children in a bivariate model (table 3, model 1) as graduates of lower class backgrounds are 1.5 times higher chance to interrupt their educational career than the former (exp(0.372)). However, the effect does not reach conventional criteria of statistical significance. The most important factor promoting an interruption one's educational career is having attended a *Fachhochschule* and it also reduces the class effects (see model 2 and model 3). None of the other control variables except for the grade point average are significant at a conventional criterion.

Table 4. Interrupted vs. continuous educational careers, USA (logistic regression)

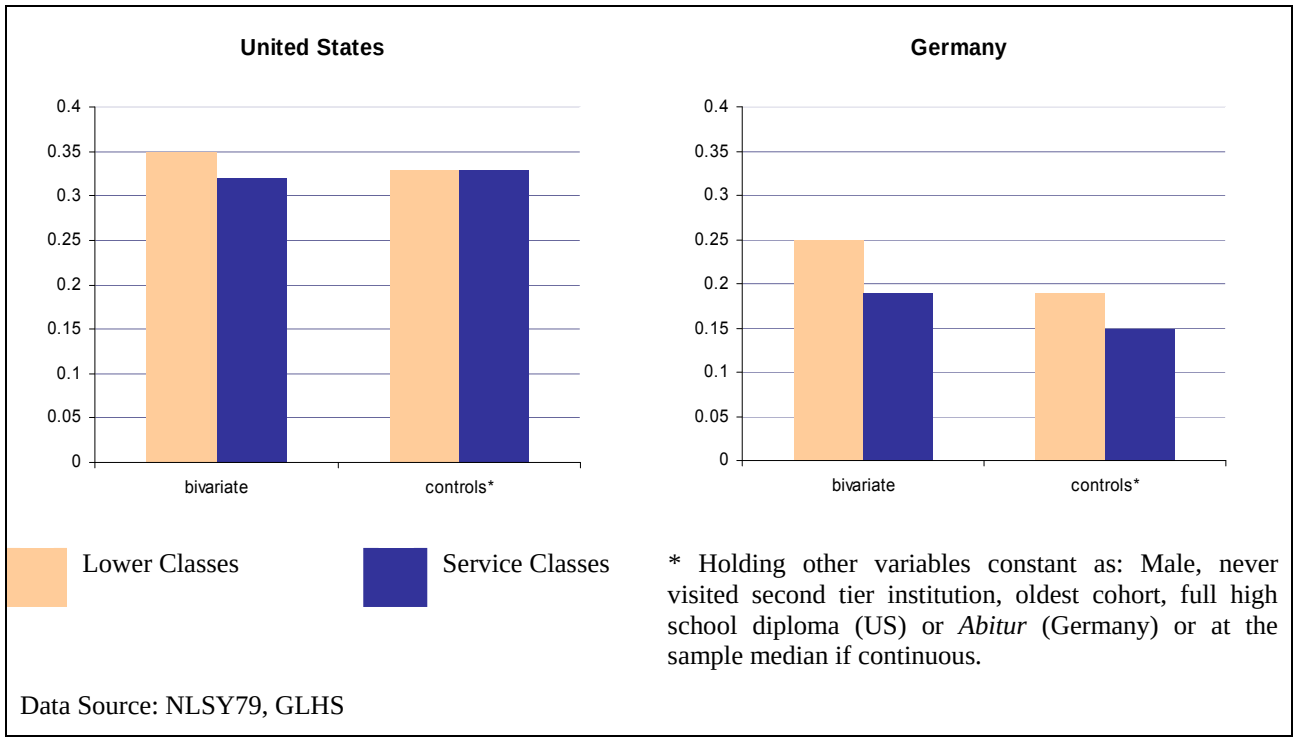
Interrupted careers: y=1	**Model 4**	**Model 5**	**Model 6**
Non of Parents in Service Classes *(Ref.: at least one in SC)*	0.171 (0.459)	0.117 (0.619)	0.0130 (0.958)
Community College: ever visited *(Ref.: never visited)*		0.761*** (0.000)	0.700** (0.002)
Male			-0.0785 (0.719)
School leaving exam: age received			0.103 (0.492)
GED *(Ref.: High School diploma)*			-0.104 (0.890)
Birth Cohort 1962 *(Ref. 1961)*			-0.435 (0.138)
Birth Cohort 1963			-0.581 (0.067)
Birth Cohort 1964			-0.280 (0.367)
AFQT-Score			-0.00827 (0.146)
Constant	-0.775*** (0.000)	-1.055*** (0.000)	-1.872 (0.486)
N	414	414	414
pseudo R2	0.001	0.025	0.037

p-values in parentheses
* p<0.05, ** p<0.01, *** p<0.001

In the US class effects are rather small as well. Comparing graduates from service classes with those from lower classes the latter are only 1.2-times more likely to have an interruption than the former. This effect even disappears completely when we include the control variables into the model. [18] As in the German analyses, we introduce a variable for the lower tier of higher education in model 5, i.e. if the graduate had attended a community college at least once. As in the German case, the effect is strongly positive and statistically significant. But more important for our main interest in social selectivity - other than in Germany, it accounts less for the class effect. Comparing model 5 and 6, the class effect is further reduced by our measure of aptitude.

[18] However, if we distinguish between intermediate and the (few) working class children in the US, we find that working class children interrupt their educational career significantly more often than the service class, while we find no effect for the intermediate classes. In these models, the working class effect is rather stable and working class children with academic careers indeed delay their graduation more often than service- or intermediate class children (estimation results not shown here).

Figure 3: Predicted Probabilities for interruption of educational careers in Germany and the US by parental social class



To illustrate country differences, we compare predicted probabilities of interrupting one's educational career for both countries which are shown in Figure 3. Although in both countries not statistically significant, we find slightly larger differences between class backgrounds in Germany. It also shows the generally higher probability of interrupting the educational career in the US. Our hypotheses 1 on social selectivity predicted that in both countries lower class children delay their educational career. We find a small but not significant effect in both countries, but taking several individual characteristic into account the class difference is reduced or disappears almost completely, as in the US. The only exception is the small group of working class students mentioned in footnote 18. Regarding our hypothesis 3 that there is less selectivity and a higher overall probability of interruptions in the US, this is confirmed by our analyses. Looking at the classes in more detail in the US (see footnote 19) we even found that intermediate and service class do not differ (no table).

In both countries, class differences are partly due to the choice of different pathways through higher education: In particular students that attended the *Fachhochschule* and community colleges are more likely to interrupt - and these seem to be rather students from less privileged families. However, the interruption might have served as a bridge towards higher education.

Although being less beneficial as a continuous career, some students might not have entered higher education without that interruption at all. This question of who re-enrolls after having the educational system already left is tested in the next section, looking at those that are actually in the labor force and decide to re-enroll (or not to re-enroll).

5.3 Re-enrolment and social inequality

We estimate the AFT-model on re-enrolment for those that are in the labor market for Germany first (Table 4). Looking at model 1 that includes only social class we find no significant differences in Germany. In tendency the re-enrolment rate is lower and duration in the labor market is longer for children of non-service class families. This is what we had expected. Controlling for gender, type of school certificate, occupational degree and grades, the coefficients remain unaltered.

Table 5. Re-enrolment, Germany (accelerated failure time regression model)

Time to reenrollment	**Model 7**	**Model 8**	**Model 9**
Non of Parents in Service Classes *(Ref.: at least one in SC)*	0.401 (0.407)	0.456 (0.247)	0.447 (0.257)
Male		-1.419*** (0.000)	-1.414*** (0.000)
School leaving exam: *Fachhochschulreife* *(Ref.: Abitur)*		1.239 (0.129)	1.268 (0.122)
Vocational Degree obtained *(time varying)*		3.554*** (0.000)	3.567*** (0.000)
Birth Cohort 1971 *(Ref.: 1964)*		1.243** (0.001)	1.218** (0.002)
School leaving exam: Grade point average			-0.126 (0.702)
Constant	5.586*** (0.000)	4.866*** (0.000)	4.876*** (0.000)
Ln Gamma Constant	0.715*** (0.000)	0.503*** (0.000)	0.503*** (0.000)
N (Person months)	28712	28712	28712
N (Persons)	334	334	334

p-values in parentheses
* p<0.05, ** p<0.01, *** p<0.001

The most important factors for re-enrolment once in the labor market in Germany are gender and the time-dependent covariate for the occupational degree that both are highly significant.

Women return less to the educational system than men. Possible explanations are that they either stick to their current job more than men do or that women may withdraw from work and education totally with marriage or motherhood. The strong effect of occupational degrees is noteworthy. Holding an occupational degree decreases the rate of re-enrolment, because labor market prospects are much better with a completed degree as without. In the third model we included grades as an indicator of primary effects, but these are neither significant nor do they reduce the class differential.

Table 6. Re-enrolment, USA (accelerated failure time regression model)

Time to reenrollment	Model 10	Model 11	Model 12
Non of Parents in Service Classes	0.794***	0.811***	0.275
(Ref.: at least one in SC)	(0.000)	(0.000)	(0.160)
Male		0.407*	0.542**
		(0.037)	(0.004)
GED		0.431	-0.0725
(Ref.: High School diploma)		(0.143)	(0.802)
A.A.-Degree obtained *(time varying)*		1.582*	1.858**
		(0.015)	(0.004)
Cohort 1962		0.201	0.130
(Ref.: 1961)		(0.450)	(0.614)
Cohort 1963		0.316	0.112
		(0.243)	(0.670)
Cohort 1964		0.602*	0.284
		(0.032)	(0.299)
AFQT-Score			-0.0373***
			(0.000)
Constant	6.102***	5.510***	7.620***
	(0.000)	(0.000)	(0.000)
Ln Gamma	0.579***	0.561***	0.516***
Constant	(0.000)	(0.000)	(0.000)
N (Person months)	221521	221521	221521
N (Persons)	1457	1457	1457

p-values in parentheses
* p<0.05, ** p<0.01, *** p<0.001

In the US, in contrast to Germany, we actually observe pronounced class differences in the time to re-enrolment in the bivariate model (table 5, model 1). The survivor time in the labor market of children from lower classes is 2.21-times that of upper classes.[19] Controlling for gender, type of school leaving certificate and holding an A.A. degree does not change this

[19] $e^{ß(lowerclasses)} = e^{0.794} = 2.21$

effect substantially. However, if we take the ability measure into account, the class difference not only decreases dramatically, it is also not significant any more. For the covariates we get almost the same results as in Germany: Gender matters for re-enrolment favoring men to re-enter education, whereas graduates holding an A.A.-degree more often refrain from re-enrolment. Regarding primary effects we get a different picture in the US: Aptitude has a strong negative and highly significant effect, meaning that higher scores accelerate reenrollment. As mentioned above, introducing this variable to the model also changes the effects of class considerably.

If we relate our results to our expectations, hypothesis 2 is supported by the data in both countries. In Germany and the US, children from upper classes are more likely to enroll after a period in the labor market than children from lower classes. However, in both countries this effect is no longer significant once we include several individual characteristics. In Germany in particular women and those who already hold an occupational degree refrain from re-entering higher education and both variables reduce the class effect considerably. In the US in particular aptitude influences the re-enrolment rate and alters the class effect strongly. This result in the US contradicts our hypotheses insofar, as we expected accelerated re-enrolment for upper class students due to their decisions, not to their cognitive ability.
The pronounced class effects in the US compared to Germany confirm hypothesis 4 at first sight, as social origin effects on late reenrollment are stronger in the US than in Germany. However, once we take ability into account, there is almost no difference between the two countries as in both cases the effect is rather small and not significant. One might even interpret estimates for class differences in Germany that are rather robust against controlling for other factors as in indicator of 'persistent' class effects. In the US class effects are mostly due to ability differences of the students, which we could not measure in Germany.

In addition to the above analyses we look at the American system of higher education in more detail (see tables A2 and A3 in the appendix).[20] College prestige varies enormous and the system is divided into to 2- and 4- year colleges. Therefore, we split our sample into two parts: those students that have been ever enrolled in a 2-year college and those that have not. All cases not returning to any form of higher education are left in both samples, because they may decide to re-enroll into either a 2-year college or a 4-year college in the future. Now it

[20] Due to the small number of cases in the German sample we could not ran similar analyses on Fachhochschule and university.

turns out that class effects are persistent even under control of aptitude for re-enrolment into 4-year colleges, but not into 2-year colleges.

6 Summary and Conclusion

In this paper we have analyzed the impact of parental social class on educational careers. We have focused on a particular group of school leavers, namely those entitled to enroll in higher education. By comparing Germany and the US we examined both, patterns of educational careers and differences in the impact of parental background in these two countries. Theoretically we built on rational educational decisions theory for the micro process and a characterization of 'transition regimes' of higher education for deriving hypotheses about the country differences. Looking at the whole educational career leading to an academic degree, we find that interruptions during education occur more often for working class children. However, taking several covariates into account in both countries reduced the effect of social origin considerably. We then examined one aspect of these interrupted educational careers in more detail: the decision to re-enroll after having already entered the labor market. We again found that class differences exist, at least in the US in favor of service class children that are more likely to re-enroll, but these differences are greatly reduced when we control for other factors, e.g. ability. Hence, although social class has been shown to be highly relevant for educational decisions in general, it is not the crucial factor for these late decisions of young adults. Further, we observed some remarkable country differences: Class effects on interruptions are smaller in the US, but higher for re-enrolment. In the US ability has a much higher impact on educational decisions and educational careers than *Abitur*-grades in Germany. The importance of ability in the US might be due to less selectivity of students during their previous educational career. Whereas in Germany selectivity in both respects - social class and ability - on the way to *Abitur* is rather high, this is less so in American high schools. Therefore, social and ability selection of students might just be postponed, as indicated by the high selectivity of re-enrolment. More generally speaking, both systems manifest some degree of inequality in educational careers in higher education, but the prevalence and extent of selectivity of specific groups, regarding their decisions, final attainment and the pathway towards a certain degree, varies with the structure of higher education.

In particular vertical stratification within higher education into a higher and lower tier of tertiary education is reflected in the structure of educational careers in both countries: Interruptions are more likely for students in lower tiers. Further, for those that already had achieved some vocational degree to be utilized in the labor market re-enrolment seems to be less attractive or they do not plan to return when leaving the educational system. Having attained a vocational degree in Germany or an A.A. degree in the US seems sufficient for labor market integration and reduces later enrollment in higher education. Hence, in both countries the highest possible educational attainment, university graduation, is not pursued by all students formally entitled to enroll. Thus, talking about the necessity to enhance participation in higher education, one has to bear in mind that there are feasible non-university tertiary or upper secondary programs for these young people, that have advantages (or disadvantages) for the individual and for society compared to the maximal possible degree.

Our results add to the ongoing debate on the effects of differentiation in higher education (e.g. Shavit et al. 2007): In both countries, lower tiers have an effect on educational careers - they are overrepresented in interrupted educational careers. Interpreting delay of final graduation as a potential disadvantage for labor market entry (e.g. because of foregone earnings or potential discrimination of employers hanging on particular age norms) attending a less prestigious tier in higher education is coupled with these labor market disadvantages. Hence, the shape and structure of educational careers might imply another stratifying dimension influencing participation in higher education, the students' composition, final attainment and last but not least labor market outcomes. However, whereas in Germany interruptions of the educational career are rather a "deviation" given the setting of educational institutions, in the US they are encouraged by the structure of the educational institutions and more common for young people. The labor market consequences of 'late' graduation might therefore also differ, a question that could not be examined here but has to be answered in further research.

Our analyses also complement previous research on educational transitions pointed out the necessity to go beyond a mere comparison of highest educational attainment. However, studying transitions at certain branching points in the educational system, i.e. enrollment after leaving school, is not enough as more recent life-course oriented research has discussed (Hillmert & Jacob 2008). In our paper we have shown that final graduation can be achieved via different pathways, e.g. comprising interruptions gaining labor market experience, that are

used socially selective. Thus, even a rather ‘simple’ event like enrolment in higher education might be a ‘complex’ one, as timing, context and relevant factors might vary individually. Even more, in comparative analyses comparing isolated or simplified transitions may lead to problematic results, as different factors may have different effects at different points in the educational career, as we have shown here. This underlines the need for longitudinal data and a more closely analyses of whole educational careers taking into account inter-individual variations in the order and timing of transitions.

Against the background of the current reforms in Germany establishing a sequential B.A./M.A. structure on the one hand and strengthening the *Fachhochschule* on the other hand, our analyses of educational careers in the US that already have a sequentially and horizontally differentiated tertiary educational system shows that some effort has to be done that social selectivity of students does not increase. Strong incentives and support for students from less privileged classes are necessary to enhance the attractiveness of re-enrollment into higher education so that they are not diverted to the lower tracks and degrees.

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Appendix

Descriptive overview of variables

Table A1: Descriptive Statistics for logit-models: Students with tertiary degree interrupting their educational career vs. students with continuous educational career

	Germany (N=393)	United States (N=414)
Interrupted educational career	80 (20%)	135 (33%)
None of parents in service class	104 (26%)	116 (28%)
Ever visited a *Fachhochschule* (Germany) / Community College (United States)	127 (32%)	149 (36%)
Fachhochschulreife (Germany) / GED (United States)	10 (3%)	9 (2%)
Male	226 (58%)	201 (49%)
School leaving exam: grade point average (standardized)	0 (SD: 0.61)	--
School leaving exam: age received	19.3 (SD: 0.8)	17.6 (SD: 0.7)
AFQT-Percentiles	--	72 (SD: 20)
Cohort 1961	--	108 (26%)
Cohort 1962	--	115 (28%)
Cohort 1963	--	95 (23%)
Cohort 1964	244 (55%)	96 (23%)
Cohort 1971	178 (45%)	--

Table A2: Descriptive Statistics for the Accelerated Failure Time Models

	Germany (N=334)	United States (N=1457)
Returning to Education	137 (38%)	472 (32%)
None of parents in service class	115 (34%)	834 (57%)
Fachhochschulreife (Germany) / GED (United States)	23 (7%)	203 (14%)
Male	150 (45%)	683 (47%)
School leaving exam: grade point average (standardized)	0 (SD 0.59)	--
AFQT-Percentiles	--	43.8 (SD 25.5)
Holding Vocational Degree (Germany) or A.A. Degree (United States), in model time varying	96 (29%)	87 (8%)
Cohort 1961	--	347 (24%)
Cohort 1962	--	392 (27%)
Cohort 1963	--	369 (25%)
Cohort 1964	160 (48%)	349 (24%)
Cohort 1971	187 (52%)	--

Additional Models

Table A3: AFT-Models on re-enrolment separately by University and Community College

Time to reenrollment	**Model A1** University	**Model A2** Community College
Non of Parents in Service Classes (Ref.: at least one in SC)	1.158**	-0.173
	(0.002)	(0.430)
Male	0.496	0.0708
	(0.157)	(0.746)
GED	-0.776	0.0770
(Ref.: High School diploma)	(0.122)	(0.825)
A.A.-Degree obtained *(time varying)*		2.900***
		(0.000)
Cohort 1962	-0.335	0.482
(Ref.: 1961)	(0.480)	(0.099)
Cohort 1963	0.128	0.350
	(0.804)	(0.229)
Cohort 1964	-0.210	0.653*
	(0.671)	(0.038)
AFQT-Score	-0.0502***	-0.0168***
	(0.000)	(0.000)
Constant	9.820***	5.403***
	(0.000)	(0.000)
Ln Gamma		
Constant	0.609***	0.345***
	(0.000)	(0.000)
N (Person months)	148869	73637
N (Persons)	1132	1310

Note: The sum of N does not give the total N of the complete models, since censored cases neither returning to University nor to community college are included in both models.
p-Values in parentheses
* p<0.05, ** p<0.01, *** p<0.001