‘Stigmatization by Negative Selection’
Explaining Less-Educated People’s Decreasing Employment Opportunities

Heike Solga

The displacement argument is the dominant explanation for the phenomenon of trained individuals out-qualifying the less educated in job competition. Decreasing employment opportunities are seen as a labour-market matching problem. The explanation given in this paper is ‘stigmatization by negative selection’. It takes into account that educational expansion has not only changed the number of less-educated people, but also the ‘quality’ of the less-educated group – due to changes in its group composition caused by increasing selection in the educational system, employers’ perceptions, and ultimately employers’ human resource management of this group. Thus, shrinking employment opportunities for less-educated people are not only derived from distributional but behavioural changes. Whereas the displacement argument is mainly based on labour-market disequilibrium in terms of quantity, the ‘stigma by selection’ argument considers qualitative changes in this relationship between individuals and their environment. The ranking process is expanded into a ‘sorting-out’ process for the less-educated group which begins in school. The main argument is that following educational expansion, employers increasingly trust the sorting function of schools and teachers’ evaluation, resulting in an exclusion of the less well educated. The empirical findings based on West German data correspond to the theoretical reasoning of the ‘stigma by selection’ argument.

Introduction

In all western societies, educational expansion after the Second World War has increased the number of trained young people available in the labour market (Shavit and Blossfeld, 1993; Erikson and Jonsson, 1996). In many countries, less-educated people constitute an increasing share of the long-term unemployed, and unskilled workers are less able to enter into even unskilled jobs, because of greater competition for those positions from the better educated (Blossfeld, 1983: 188; Mallet, 1998: 11). Labour-market research rationalizes this increasingly deprived labour-market situation of the less educated as a result of:
— a decreasing demand for unskilled labour;
— a general shortage of jobs; and
— an over-supply of trained people.
Decreasing demand is explained by technological progress and the transition to a service society, which together have changed the nature of skills by requiring a more highly educated labour force (Noyelle, 1986: 102; cf. also Bell, 1976; Atkinson, 1987; Nickell and Bell, 1995; Rifkin, 1996; Thurow, 1999). At the same time, educational expansion and declining labour demand have resulted in an over-supply of trained people.

The dominant explanation for this phenomenon of trained people out-qualifying the less educated in job competition is the displacement argument, which states that employers are able to upgrade their hiring standards. Decreasing employment opportunities are seen as a labour-market matching problem. The paper’s main goal is to question this explanation and suggest an alternative – stigmatization by negative selection. The central focus will be that educational expansion has not only changed the number of less
educated people. Due to increasing selection in the educational system, employers’ perceptions and ultimately employers’ human resource management members of this group have also come to seem less attractive. The stigma of ‘less educated’ is seen as affecting the matching of jobs and job-seekers over and above applicants’ certification levels. The emergence of this stigma is mainly attributed to changes in educational norms and increasing selection processes in expanding educational systems. The advantages of this perspective are, first, that the shrinking employment opportunities of the less educated are not only derived from distributional but behavioural changes, and, secondly, that it considers the continuity of social selection processes.

The paper aims to contribute to the theoretical understanding of less-educated people’s increasing vulnerability, and, to a lesser extent, to provide an empirical test of the two different arguments. Thus, the empirical part based on West German data should be taken primarily as an illustration, rather than as a ‘proof’. Beginning with a discussion of the displacement argument and its shortcomings in the first section, the paper develops the ‘stigmatization by negative selection’ argument before outlining a research design for examining the stigmatization argument based on hiring outcomes in the form of individuals’ work histories. In the following section this design is applied to West German data before the paper concludes with a summary of the theoretical baseline of the ‘stigma by selection’ argument and the empirical results.

The Displacement Argument

According to the displacement argument, the lower an individual’s standard of education, the poorer are his or her employment opportunities because available positions are filled by more highly qualified people, who displace the less educated from jobs they had carried out previously (e.g. Fürstenberg, 1978; Boudon, 1979; Lutz, 1979; Blossfeld, 1983, 1985, 1990; Kalleberg, 1996; Harrison and Weiss, 1998b; Mallet, 1998). This argument is derived from multiple, well-known theoretical backgrounds, which deliver complementary explanations: human capital theory (Becker, 1964; Bowman, 1966) and queuing theories (Spence, 1974; Stiglitz, 1975; Sørensen, 1977, 1979; Sørensen and Kalleberg, 1981; Thurow, 1975, 1979).1

In short, displacement is a theory of the consequences of shifts in labour supply given a rather fixed occupational distribution. The occupational structure is defined as a system of positions with a fixed number of places in each category, whereas the educational categories are treated as unlimited (Blossfeld, 1983: 188f.; Müller-Benedict, 1999: 315). In addition, the upgraded hiring standards of employers are understood as adequate reactions to the changes in the marginal distribution of the educational structure due to educational expansion (Gerstenberger and Seltz, 1978: 163). Accordingly, the transformational mechanism presumed by the displacement argument – ‘how individual actions are transformed into a collective outcome’ (Hedström and Swedberg, 1996: 296f.; cf. Coleman, 1986) – is a pure technocratic ‘matching’ problem, dealing with quantitative capacity limitations (Boudon, 1974b: 6f; Müller-Benedict, 1999: 313).

The displacement argument’s theoretical merit is that the source of decreasing employment opportunities for individuals is located primarily in ‘lack of opportunity’ and only secondarily, and not even necessarily, in ‘lack of skills.’ It additionally shows that hiring standards are not fixed, but change in response to shifts in the marginal distribution of labour supply and demand, so that such alterations are driven not only by technological requirements, but also by labour supply. In terms of policy, it delivers a counter-explanation to the frequently used, but nonetheless incorrect, argument that the unemployment rate for less-qualified workers is high only because of the decreasing demand for low-skilled labour: ‘In periods of low aggregate demand and high unemployment it may be attractive to hire highly qualified persons to do jobs which could have been occupied by less skilled workers at the same wage’ (Heylen et al., 1996: 25). Only in times of high unemployment are the less educated increasingly pushed out of the labour market (Harrison and Weiss, 1989b; Freeman and Schettkat, 2000). However, an increase in labour demand or an undersupply of trained individuals would only improve less-educated people’s employment opportunities if employers were willing to fill their workplaces with the less educated. That is the implicit assumption of the displacement argument.2 But, even under tight
labour-market conditions, employers may not alter their hiring decisions and standards concerning less-educated people. Why not?

First, displacement employs the signalling idea that employers’ perceptions are crucial for hiring decisions, but does not account for changes in these perceptions due to changes in educational norms. A decrease in the size of the group of less-educated people could lead to changes in employers’ perceptions, independent of the balance between educational distribution and job structure. As the signalling value of education is a socially constructed norm, the ‘uncertified’ signal is certainly perceived differently at a time when this group constitutes a standard-setting majority than in a period when those people constitute a minority ‘deviating’ from the norm.

Secondly, it ignores changes in the social composition of educational groups. It disregards the qualitative consequences of the outflow, or upward mobility, from the lowest educational category. Suppose that the remaining individuals are negatively selected in terms of social background, demonstrated ability, and educational aspiration level, then educational upgrading has exacerbated the social screening value of a missing educational credential on employers’ beliefs about less-educated people’s lack of skills, both hard and soft. Accordingly, employers may not only have adapted to quantitative change in the educational distribution, but also have adjusted their work organization and within-firm occupational structure to a qualitatively different less-educated group (Rosenbaum and Binder, 1997: 75; cf. Lutz, 1979). Thus, the displacement argument neither explains the possibility of emerging stigmatization of the less educated as group size decreases and group composition changes nor the impact of these quantitative and qualitative changes on the stigmatized group’s employment opportunities.

‘Stigmatization by Negative Selection’

The ‘stigmatization by negative selection’ argument (henceforth referred to as the stigma argument) deals precisely with this missing explanation. It takes changes in group size, group composition, and employers’ perception in the course of educational expansion into account. First, it shows that changes at the macro level – i.e. the enlargement of educational opportunities – have resulted in changes in individuals’ behaviour at the micro level – i.e. increased educational participation by individuals and altered employer practices in hiring and employing the ‘left-over’ less-educated people. Secondly, the outcome of this altered behaviour of the two actor groups has been translated into the deprived labour-market opportunities of the less educated, independent of the effects of labour-market demand and supply disequilibrium. In contrast to the displacement argument, the stigma argument looks at who has not participated in educational upgrading and also at how the environment, especially that of employers as labour-market matching agents, has responded to their non-participation. It sets ‘our explanatory focus to characteristically different life histories that produce people who differ so greatly in knowledge, skill, style, motivation and personal connections as to affect reward-generating performances deeply’ (Tilly, 1998: 241). For that reason, the stigma perspective reverses the displacement approach to analysing employment differences: instead of treating discrimination as residual differences once the variation in individual characteristics is taken into account, the stigma approach treats it as the proportion of inequality that corresponds to categorical lines of education (Tilly 1998: 239f.; cf. Arrow, 1985).

Compositional Changes

The first phenomenon to analyse is the compositional change as a product of socially stratified shifts in educational participation. Who has not participated in educational expansion? Applying Boudon’s idea that primary and secondary effects are responsible for class differentials in educational attainment (Boudon 1974a, 1974b), the outflow from the lower educational group was not and is not a random sample in terms of social background and demonstrated ability. The concept of primary effects of social stratification states an association between children’s class origin and their average level of demonstrated academic ability (Gould, 1995; Lippmann, 1996; Lemann, 1999). Accordingly, those lower class children with the comparatively highest social background and
the ‘associated’ higher levels of demonstrated ability will have had better chances of entering into higher educational groups than children from lower social backgrounds. Because this outflow over time has not been counteracted by an inflow of people holding higher rank positions before educational expansion into the less-educated group, via downward educational mobility, the remaining individuals in that lowest group are a negative selected group.

The secondary effects of social stratification state that educational choices that children and their parents make are dependent on their aspiration level, their subjective beliefs about the chances of success, and the risk of downward social mobility (cf. Breen and Goldthorpe, 1997), which in turn enhance the selective outflow process already produced by the primary effects. Children and parents at the upper end of the lower social strata are presumed to show more ambition to complete higher educational degrees than those in the lowest social strata. This difference in ambition is encouraged by judgements about pupils’ abilities from teachers, who – sometimes unconsciously – ‘tend to reward proper behaviour and adjustment to the “cultural” values prevailing in school’ (Erikson and Jonsson, 1996: 11).

‘Negative Selection’

As a result of expansion, the less-educated group is negatively selected in terms of social composition and relative ability compared to the higher educational groups. Those with the comparatively highest social background and demonstrated ability have moved up the educational ladder, as those with lower social background, demonstrated ability, and ambitions have remained in the lowest educational group. As inequality of educational opportunities has not increased due to educational expansion, but has remained constant in most countries or even declined (Shavit and Blossfeld, 1993; Erikson and Jonsson, 1996; Breen and Goldthorpe, 1997), ensuing increasing social heterogeneity at the education system’s higher levels must paradoxically have resulted in higher social homogeneity at the lowest level of education (Leschinsky and Mayer, 1999: 31; cf. Solga and Wagner, 2001).

The fact of negative selection may already explain part of the change in less-educated people’s labour-market opportunities. This argument is well known in evaluation studies of training activities forming part of active labour-market policy, which have shown that differences in the employment chances of participants and non-participants can be explained by selection effects (Fitzenberger and Prey, 1995; Heckman, 1996; Heckman and Smith, 1997; Lechner, 1998). The fact that unemployed people who participate in qualification measurements, compared to non-participants, represent a negative selection in terms of individual characteristics, explains why the former have poorer – not better – re-entrance chances than the latter. Similarly, Mare (1980) has applied this approach in his sequencing logistic regression models to explain the increasing equality of educational opportunities from lower- to higher-level school institutions. His main explanation for this phenomenon is that ‘overlapping subpopulations diminish’ (Mare, 1980: 295), resulting in decreasing unobserved heterogeneity from one level to the next. Applied to the historical comparison of the group of the less educated, their worsening labour-market opportunities observed at time \( T_{i+1} \) might be caused (solely by or in addition to displacement) by the ‘escape’ of people who had better chances at time \( T_i \). The ‘left-overs’ are those who already had poorer chances at time \( T_i \). The result is an increase in the homogeneity of their employment opportunities due to a decrease in the heterogeneity of individuals’ characteristics.

Employers’ Responses: Reducing Risks

However, as with the displacement argument, this pure selection explanation of less-educated people’s employment opportunities also includes the possibility that, if too few or no skilled people are available, employers may be willing to hire less-educated workers for vacant (unskilled and skilled) jobs. It similarly relies on a relative definition of people’s employment opportunities and does not explain whether less-educated people’s employment opportunities have changed in absolute terms – that is, independently of the balance between labour supply and demand.

Therefore the second part of the analysis must examine the response of employers to these changes in group size, educational standards, and group composition. Interviews with employers and
managers have shown that they are not only interested in hiring the best applicants, but also in avoiding hiring applicants whom they believe are incapable of mastering a given job (cf. Bills, 1988; Schröger, 1989; Baron and Pfeffer, 1994; Rosenbaum and Binder, 1997; Bennett and Weiss, 1998a). Thus, hiring decisions are based not only on ‘positive screens,’ but also on ‘negative screens’: ‘An individual who belongs to a group that has a lower probability of having desired characteristics, or a higher probability of having an undesired characteristic, is not paid less, he is completely excluded from the job in question’ (Thurow, 1975: 174). Because of increasing standard educational norms over the course of educational expansion, the less educated have exhibited ‘deviant educational behaviour’ and, given increasing educational opportunities, their lack of education seems to indicate their ‘individual failure to succeed’. Moreover, due to declining group size, the risk of not choosing an actually capable person by excluding all less-educated people for the job in question has become ever smaller. This can be explained if we imagine two mobility tables with individuals’ social origin as rows and individuals’ educational destination as columns.

<table>
<thead>
<tr>
<th>Situation at time t</th>
<th>Situation at time t+1</th>
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<tbody>
<tr>
<td>Certified</td>
<td>Uncertified</td>
</tr>
<tr>
<td>Certified</td>
<td>Uncertified</td>
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<tr>
<td>Class 1 (C1)</td>
<td></td>
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<tr>
<td>a_t</td>
<td>b_t</td>
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<tr>
<td>a_{t+1}</td>
<td>b_{t+1}</td>
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<tr>
<td>Class 2 (C2)</td>
<td></td>
</tr>
<tr>
<td>c_t</td>
<td>d_t</td>
</tr>
<tr>
<td>c_{t+1}</td>
<td>d_{t+1}</td>
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<tr>
<td>Marginal</td>
<td></td>
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<tr>
<td>C_t</td>
<td>U_t</td>
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<tr>
<td>C_{t+1}</td>
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<td>Marginal</td>
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Given an increase in educational participation between t and t+1 (i.e., U_t > U_{t+1} = U_t - x, with x > 0) and assuming that employers try to avoid hiring a constant fraction of uncertified people with undesired characteristics (A), with U_t = A + A^t and U_{t+1} = A + A^t_{t+1} = A + A^t - x, then the probability that employers hire any uncertified person is smaller at time t+1 than at time t [P(X_{u,t}) = P(X_{u,t+1})]. For a fuller explanation see the Appendix, first proof.

P(X_{u,t}) = P(X_{u,t+1}) implies that by using the single criterion ‘uncertified,’ employers reduce both risks – that of choosing a supposedly incapable person [because P(A_t) < P(A_{t+1})] and of not choosing a supposedly capable person [because P(A_t) > P(A_{t+1}) = P(A_{t+1})]. Even qualitatively the two risks are lower, because b_{t+1} and d_{t+1} represent a ‘negative selection’ out of b_t and d_t.

Moreover, following Boudon’s dominance rule (1974a, 1974b), the risk reduction is even more successful. If employers use individuals’ social origin and certification based on the assumption that uncertified people with undesired characteristics (A) belong dominantly to d_t and d_{t+1}, respectively (and, vice versa, that A^t and A^t_{t+1} mainly belong to b^t and b_{t+1}, respectively), the risk of not choosing a supposedly capable person becomes smaller (for a fuller explanation see second proof in the Appendix).

This negative screening is not just a hypothetical expectation, but actually impacts on employers’ hiring behaviour. Especially for the lowest educational category – school dropouts or people without any completed vocational training certificate – employers increasingly complain about their low or even non-employability (cf. Murnane and Levy, 1996; Klös, 1997; Giloth, 1998; Heidenreich, 1998; CEDEFOP, 1999). As Rosenbaum and Binder (1997: 68) have reported, employers respond to these shortcomings in skills ‘by taking previously unnoted actions that increase labour-market stratification. They increase supervisors’ responsibility for explaining tasks at considerable costs to themselves, adjust jobs to match workers’ skills, offer special accommodations to retain workers with valued skills, and use “on-the-job screening” and recruiting linkages to select workers.’ Apprenticeships fulfil an especially reliable screening function for managers and create an ‘in-or-out’ situation (Rosenbaum and Binder, 1997: 77). Individuals who have not been able to find an apprenticeship or who have dropped out of apprenticeships without entering into new ones have already been ‘screened out’ once. If employers are nonetheless willing or forced to hire the less educated, many of them feel compelled to reduce the skill demands for entry-level jobs because of workers’ limitation’ (Rosenbaum and Binder, 1997: 76). ‘Mediated by employers’ organizational philosophies and their culturally derived assumptions about the capacities of different categories of workers’ (Gallié et al., 1998: 56), employers take action to adapt to workers’ low skill level by decreasing job complexity and simplifying job tasks to match workers’ poor skills (Rosenbaum and Binder 1997: 75f). As a consequence, they have poorer chances of being employed in qualified jobs. Moreover, despite rapid technological change and
intensified market competition, skill development in jobs occupied by semi- and non-skilled workers has occurred far less than in jobs occupied by skilled people (Gallie et al., 1998: 56). This shows that the distribution of jobs is not fixed — as assumed by displacement theory — but flexible and adaptive.

**Stigma**

In sum, individual characteristics that are negatively defined in society have become more easily labelled and observed using a single indicator, namely ‘uncertified’. The indicator of belonging to the lowest educational group has become a ‘visible marker for inclusion and exclusion’ (Tilly, 1998: 243). Given educational expansion and increasing educational participation, for employers it seems clear that the ‘left-over uncertified’ are not only less capable, but increasingly incapable. Employers either disqualify them from qualified positions or from employment completely. Their perception of this group has changed: it has gone from a majority to a ‘deviant’ group — a ‘suspect segment of the population’ (Tilly, 1998: 66) — from a risky group to an ‘incapable’ group. Yet the process of stigmatization does not begin at entry into labour markets. Decision-makers, from teachers to employers, establish a continuum of evaluation and discrimination. Moreover, though this ‘inability’ label needs not rely on objective verification, the social selection process accompanying educational expansion and educational ‘failure’ in life seem to legitimate this stigma.

Regardless of an over- or under-supply of educated individuals, the less educated are either completely excluded from employment or employed only in low-skill jobs. Compared to the displacement argument, the ‘stigma argument’ explains the decreasing employment opportunities of the less educated not only on the basis of a ‘lack of opportunities’ due to an over-supply of educated people, but as a result of a ‘lack of opportunities’ due to the stigma of the label — ‘lacking technical and soft skills’ — that has been attached to them.

The advantage of the ‘stigmatization by negative selection’ argument is that it sets the locus of disadvantage at earlier points in the life course. Where displacement happens after educational investments already have been made, the stigma argument explains inequality of opportunities by reference to selection processes which start in the educational system. It does not simply state that at labour-market entry better-educated people outperform less-educated ones, but offers explanations for this. It connects alterations in educational and labour-market stratification not only to distributional but also to behavioural changes.

The stigma argument requires the following four conditions:

- a ‘less educated’ category that has persisted in the course of educational expansion;
- a less-educated group that has declined drastically in size over time;
- stable or decreasing inequality in educational opportunities overall; and
- hiring decisions in which employers are faced with uncertainty about people’s actual abilities.

**Analytical Design, Data, and Variables**

**Analytical Design and Empirical Expectations**

It could be argued that employer interviews would be the most appropriate source of data, because the two explanations differ in reasons and qualities of shifts in employers’ hiring behaviour. But, as Tilly (1998: 108) has stated: ‘a significant proportion of that inequality results not from self-conscious discrimination but from efforts to solve other organizational problems by the incorporation, often unintentional, of exterior categories into the structure of work and labor markets.’ Therefore, self-reported information on hiring criteria by employers may produce less reliable information on hiring decisions than the observation of actual hiring outcomes as reported in individuals’ work histories. Moreover, as Hedström and Swedberg (1996: 290) have stated, ‘assumptions of intentions, discounting, and preferences have proven extremely useful for the analysis of individual action even though they never can be observed. Mechanisms thus are theoretical constructs that provide hypothetical links between observable events.’

Using individual data, the two explanations — displacement and stigma by selection — lead to both common and different empirical expectations. Both explanations suggest increasing shares of better-educated people in low-skill jobs and decreasing shares of less-educated people in qualified jobs.
According to the displacement theory, this is caused by an over-supply of trained people; according to the stigmatization theory, this is due to exclusion of the less educated and the opportunity to hire better-educated people. But in different ways, they claim an increasing impact of belonging to the lowest educational group on employment opportunities over the birth cohorts. The displacement argument suggests that the poorer employment opportunities of the less educated are only observed in times of labour supply and demand disequilibrium. In other words, without controlling for the two marginal distributions, the impact of ‘less educated’ should have increased, but by controlling the marginal distributions, this impact should not alter over the cohorts, because the distributions of supply and demand are held constant. In contrast, though stigmatization is difficult to observe directly, the stigma argument would be supported if the impact of the label ‘less educated’ has increased over the cohorts, especially when controlling for the marginal distributions. If this is so, then changes in their employment opportunities cannot be attributed to distributional mismatches alone.

Logistic regressions are an appropriate method to test these different expectations, because their estimated effects are independent of the marginals. Furthermore, the stigma argument – i.e. the interpretation of a stratified outflow, an increased teachers’ and employers’ belief in the label ‘lacking technical and soft skills’ – suggests that the less-educated group’s social composition has changed during the course of educational expansion. Such an empirical finding of compositional changes would not contradict the displacement argument, which makes no assumption about that at all. But it would strengthen the interpretation of emerging stigmatization of less-educated people in society and the stigma argument’s power to ‘predict how action will change as conditions change’ (Coleman, 1986: 1329).

Correspondingly, the empirical analyses will investigate

— the alteration in the proportion of over-educated people in low-skill jobs;

— changes in the impact of educational certificates on less-educated employment opportunities by controlling for shifts in the marginal distribution of labour supply and demand; and

— changes in the social composition of the less-educated group which correspond to changes in demonstrated and socially constrained opportunities of ability development (cf. primary effect in Boudon, 1974a; cf. also Thurow, 1975; Collins, 1979).

Moreover, controlling for actual individual ability is less important because both explanations refer to employers’ belief about, and not to employers’ objective knowledge of, individuals’ abilities.

Data

The data-set used in the empirical analyses is the West German Life History Study, conducted at the Max Planck Institute for Human Development (Berlin). In retrospective, standardized interviews, the respondents reported, among other things, their school, training, and employment histories as well as parental information. The analyses presented here are limited to native-born West Germans. Given that ‘ethnicity’ might reinforce stigmatization, the stigma effect will be underestimated in the analyses. The analyses use data for men and women born between 1929–31, 1939–41, 1949–51, and 1959–61. These four cohorts indicate the situation before, during, and after educational expansion and changes in the opportunity structure defined by labour-market conditions (cf. Allmendinger, 1989: 40).

The members of the 1930 cohort made the transition from school and vocational education to work before educational expansion, i.e. until around 1950. They tried to enter into vocational education and employment in the immediate post-war period. It was difficult for them to find training positions, but their more urgent problem was to earn a living (Blossfeld, 1990: 169). At that time, the unemployment rate was around 10 per cent. The 1940 and 1950 cohorts experienced their transition from school to work at a time when educational participation had started to increase remarkably. At the same time, the demand for skilled labour and the number of training positions increased substantially due to the revival of German industry. The labour-market situation improved dramatically, with unemployment rates between 1955 and 1973 below 4 per cent. The 1960 cohort attended school at a time when the average educational standard had already increased to having an intermediate school
degree and a vocational degree. They had to enter into first employment during deteriorating labour-market conditions in the first half of the 1980s – at a time when the unemployment rate had doubled from about 5 per cent to 10 per cent.

The 1930 cohort shows a peculiarity. A comparison between the percentage of Germans attending the lowest secondary school type *Hauptschule* depicts that the respondents of the German Life History Study – as survivors of the Second World War – are a positively selected group of the population in this cohort (Solga, 2000). Although there are no official data available for this time period, the percentages of people attending the lowest secondary school type in this cohort should have been larger than in the 1940 cohort. One general explanation for this selection is that people from lower social backgrounds faced a higher risk of dying in the War because of less security and poorer access to food. Nevertheless, when discussing the employment opportunities of the less educated, even in this cohort, the survey’s respondents do represent people who were seeking training and jobs after the War.

Two final comments should be made about the data used. Because of its sophisticated and standardized schooling and vocational training systems, Germany may be a special case. The advantage of using Germany is that the definition of the group of less-educated people is – in technical terms – easier than in less standardized settings. But, standardization may come at a price, by contributing to higher visibility and stigmatization of this group in Germany than elsewhere (cf. Allmendinger, 1989). Nevertheless, the German findings should be generalizable because the group of other countries’ school dropouts is similarly easily observable. In general, the German case meets the requirements stated above: between 1940 and 1980 (when the members of the four selected cohorts attended school and vocational education) educational expansion took place, the group size of less-educated people drastically declined from 47 per cent in the 1930 cohort to 11 per cent in the 1960 cohort (see Figure 1), and inequality in educational opportunities did not increase (Blossfeld, 1993; Müller and Haun, 1994; Henz and Maas, 1995; Schimpl-Neimanns, 2000). Moreover, except for those who completed apprenticeships in their prospective firm, measures of actual individual ability were not available.

Secondly, investigations of the less-educated group may be faced with two data problems, regardless of the country analysed. Representative population surveys are selective with regard to who participates in them. It is well known from non-response studies (e.g. for Germany see Riede and Emmerling, 1994) that unemployed as well as the less educated are underrepresented in such surveys. Hence, empirical findings based on population surveys may overestimate the occupational success of the less educated because the ‘successful’ among them may have a higher response rate. Additionally, most surveys are representative samples of the whole population, therefore the number of less-educated people is – especially for cohorts after educational expansion – rather small. For that reason, the regression analyses presented in the paper will include as few independent variables as possible in order to avoid overestimating the data.

### Variables

The crucial variable in this analysis is the classification of people as *less-educated* (synonymously labelled ‘untrained’ or ‘uncertified’). Less-educated people are defined as those who, at age 25, have not completed an occupational training programme (apprenticeship, vocational school, university, or technical college) and who are not in training or other educational institution at that age. The untrained are also differentiated by the possession of a formal school degree, enabling an investigation of whether holding a higher school degree compensates for a missing vocational degree or whether even those untrained young people are stigmatized. The focus on the less-educated at age 25 aims to identify those in a persistent rather than transitory state of being less educated (cf. Dahrendorf, 1956).5

The other central variable is *less-educated people’s employment opportunities*. The idea of the secondary labour-market consisting of unskilled jobs (cf. Doeringer and Piore, 1971) is employed to define poorer job and career perspectives. Jobs in the secondary market have lower earning prospects and stability of employment, bear higher unemployment risks, have poorer quality of work conditions, and higher risks of exclusion from internal labour-market promotion ladders – resulting in a continuously disadvantaged work history (Blossfeld and
Figure 1. Qualification level at age 25

Source: Own calculations, German Life History Study, Max Planck Institute for Human Development, Berlin.
Mayer, 1988: 125). The boundary between jobs with low qualification standards (in agriculture, production, administration, and services) and qualified jobs is taken as an indicator of employment opportunities. This boundary reveals whether the less educated have less access to qualified positions than more highly educated people and whether this boundary has grown stronger over the cohorts as the less-educated group’s size has decreased and, as hypothesized, employers’ behaviour has become more stigmatizing. Occupational placement in a first job (with a duration of at least six months) is considered because first job is known to be crucial for the subsequent occupational career (e.g. Blossfeld, 1989; Shavit and Blossfeld, 1993; Kalleberg, 1996; Kontietzka, 1999).

The independent variables relating to social background included in the analysis are: vocational education of (step)parents; (step)father’s occupational position when the respondent was 15; family size; and stressful family situation (for details of the definitions of these variables see Table A1 in the Appendix). Most of these independent variables are defined as dummy variables contrasting the people in the most negative situation with those in more advantageous situations. According to the ‘stigma by selection’ explanation’s focus, the aim is to show the widening distance between the less educated and the formally better qualified ‘rest’ of the population. Moreover, it is necessary to handle the relatively small sample size appropriately.

### Empirical Findings

Figure 1 shows that the size of the less-educated group has decreased rapidly from the 1930 to the 1960 cohort: from 47 per cent to 11 per cent. Taking the ‘positively selected’ survivors of the 1930 cohort into account, without the War this decline would have been even more dramatic than that displayed by the retrospective data. But even this data shows that the less educated have become the ‘deviating minority’. There are remarkable gender differences in this upgrading process. Among men, the share of less-educated individuals decreased from 27 to about 8 per cent. Among women, the percentage of the less educated declined from 66 to 13 per cent. The gender comparison reveals that the post-war conditions affecting entrance into vocational education were ‘mainly a misery of women’ (Blossfeld, 1990: 172) and that educational expansion with respect to vocational education has abolished the exclusion of women from vocational education.

Table 1 depicts that this upgrading in the educational structure was accompanied by changes in the structure of labour-market entry positions. The percentage of people who were employed in low-skill jobs decreased from about half of the 1930 cohort members to less than one-third of the 1960 cohort members. This decrease is especially evident for women. In particular, declines in agricultural employment have resulted in the decreasing share of unskilled manual jobs over the cohorts (cf. Solga, 2000).

Table 2 shows that the percentage of trained people entering low-skill jobs correlates with the supply of trained people. For men, this correlation is in line with the displacement argument: the larger the over-supply of trained men, the lower is the share of untrained men in qualified jobs and the higher is the percentage of trained men in low-skill jobs. However, for women, there is not such a clear-cut correlation. In contradiction to the displacement argument, the percentage of trained women employed in low-skill jobs declined dramatically from about 50 per cent to about 30 per cent, while in the three younger cohorts the over-supply of trained women remained stable at a level of 16 per cent (and did not decrease as would have been expected under the displacement argument).

### Table 1. Low-skill entry jobs (first job), by cohort and gender (N=2844)

<table>
<thead>
<tr>
<th>Cohort</th>
<th>All</th>
<th>Men</th>
<th>Women</th>
</tr>
</thead>
<tbody>
<tr>
<td>1930</td>
<td>49.9</td>
<td>37.0</td>
<td>62.4</td>
</tr>
<tr>
<td>1940</td>
<td>42.2</td>
<td>22.9</td>
<td>62.5</td>
</tr>
<tr>
<td>1950</td>
<td>32.5</td>
<td>19.2</td>
<td>45.7</td>
</tr>
<tr>
<td>1960</td>
<td>28.2</td>
<td>24.0</td>
<td>32.5</td>
</tr>
</tbody>
</table>

Notes: Risk group: all people who have entered first job, not having foreign origin.
Low-skilled job=unskilled manual or low-skilled non-manual job (LS=low-skilled; Unsk.=unskilled).
Source: Own calculations, German Life History Study, Max Planck Institute for Human Development, Berlin.
Without controlling for the marginal distributions of labour supply and demand, the displacement argument seems to explain, at least partly, lower employment opportunities of less-educated men in times of an over-supply of trained men, but does not explain the changes in employment opportunities of less-educated women.

Besides the relationship between supply of and demand for trained people — as stated by the stigma argument — educational norms are supposed to be an important contextual term for less-educated people’s employment opportunities. In order to test whether untrained people face a decreasing chance of being employed in qualified jobs — independent of changes in the marginals, but dependent on the cohorts’ educational standards — a logistic regression on the risk of being employed in a low-skill first job was estimated (Table 3). The cohort effects represent the impact of certification — independent of cohort differences in the marginal distributions.

The logistic regression model in Table 3 shows that in the three older cohorts, uncertified people with low school achievement (odds ratio = 7.1) as well as uncertified people with higher school achievement (odds ratio = 2.3) had higher risks than trained people of being employed in low-skill jobs. In the youngest cohort — with the lowest percentage of untrained people — for both categories this disadvantage compared to their trained contemporaries is more than three times higher than in the older cohorts (odds ratios = 4.1 and 3.3 respectively), and slightly more pronounced for low school achievers. Furthermore, these results show that although the higher school achievers out of the untrained were better off than the low school achievers, their higher school degree could not compensate for a missing training certificate, and the difference between the two groups did not change over the cohorts. These findings together support the stigma argument. 12 Independent of the marginal distributions, untrained people in the 1960 cohort compared to their trained contemporaries had lower chances than in the older cohorts of being hired for qualified jobs by employers.

Moreover, separate logistic regressions for the four cohorts (not presented here), which included an interaction effect between gender and qualification level, displayed that, besides a continuing although declining disadvantage of women, the stigma explanation increasingly also applied to women and men in the same way. This interaction was not significant in the 1960 cohort, but proved only to be significant in the three older cohorts (for the category ‘no training + lower/no school degree’, where those women had higher chances of employment in qualified jobs than those men). Undeniably, as the less-educated group’s size decreased, employers not only upgraded their hiring standards corresponding to the increased supply, they also increasingly excluded the less educated from qualified jobs, stigmatizing the untrained as ‘incapable’ of carrying out these jobs.

### Table 2: Qualification level reached at age 25 and occupational position of first job (N=2844)

<table>
<thead>
<tr>
<th></th>
<th>All</th>
<th></th>
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<tbody>
<tr>
<td></td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>A</td>
<td>B</td>
<td>C</td>
</tr>
<tr>
<td>1930</td>
<td>31</td>
<td>22</td>
<td>4</td>
<td>21</td>
<td>19</td>
<td>7</td>
<td>52</td>
<td>23</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1940</td>
<td>28</td>
<td>21</td>
<td>9</td>
<td>14</td>
<td>28</td>
<td>2</td>
<td>53</td>
<td>19</td>
<td>16</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1950</td>
<td>26</td>
<td>27</td>
<td>9</td>
<td>15</td>
<td>34</td>
<td>1</td>
<td>39</td>
<td>24</td>
<td>17</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1960</td>
<td>24</td>
<td>15</td>
<td>10</td>
<td>19</td>
<td>17</td>
<td>4</td>
<td>28</td>
<td>14</td>
<td>16</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Correlation with C**

- 0.91
- 0.25
- 0.93
- 0.83
- 0.51
- 0.39

**Notes:**

- **A:** % of qualified people employed in low-skill jobs.
- **B:** % of untrained people employed in qualified jobs.
- **C:** % difference between supply of qualified people and demand for qualified people.

- ‘—’ = under-supply, ‘+’ = over-supply.

**Source:** Own calculations, German Life History Study, Max Planck Institute for Human Development, Berlin.
The next step in the analysis involved the investigation of the relevance of the ‘stigma by selection’ argument by analysing whether the group composition of the less educated changed over the cohorts. Figure 2 displays that, over the cohorts, the social distance between the trained and untrained cohort members increased in a way that corresponded to the growth in participation rates in vocational education. ‘Proportional representations’ of the certified and uncertified have been calculated:

Proportional representation of ‘uncertified’ = per cent uncertified people in group characterized by variable X divided by per cent of uncertified people in the cohort considered

Proportional representation of ‘certified’ = per cent certified people in group characterized by variable X divided by per cent of certified people in the cohort considered

| Table 3. Logit regression on first job in a low-skill position (odds ratios) |
|---------------------------------|-------|--------|
| Gender [male]                   | Exp(b)| P > |IzI| % of no first job |
| Female                          | 2.05  | 0.000 |
| Cohort [1930]                   |       |       |
| 1940                            | 0.57  | 0.004 |
| 1950                            | 0.59  | 0.009 |
| 1960                            | 0.72  | 0.073 |
| Interaction gender * cohort [female – 1930] |       |       |
| Female – 1940                   | 2.27  | 0.002 |
| Female – 1950                   | 1.38  | 0.222 |
| Female – 1960                   | 0.71  | 0.164 |
| Qualification level at age 25 [training completed] |       |       |
| No training + medium/higher school degree | 2.31  | 0.048 |
| No training + lower/no school degree | 7.12  | 0.000 |
| In training at age 25            | 0.19  | 0.118 |
| Interaction qualification level * cohort [qualification levels in 1930] |       |       |
| No training + medium/higher school degree – 1940 | 1.52  | 0.496 |
| No training + medium/higher school degree – 1950 | 0.73  | 0.596 |
| No training + medium/higher school degree – 1960 | 3.26  | 0.052 |
| No training + lower/no school degree – 1940 | 1.12  | 0.700 |
| No training + lower/no school degree – 1950 | 1.35  | 0.356 |
| No training + lower/no school degree – 1960 | 4.11  | 0.002 |
| In training at age 25 – 1940     | 2.54  | 0.437 |
| In training at age 25 – 1950     | 1.40  | 0.784 |
| In training at age 25 – 1960     | 9.08  | 0.041 |
| Intercept                       | 0.35  | 0.000 |
| Model chi-square                | 829.1 |
| df                              | 19    |
| Pseudo R²                       | 32.9  |
| N                               | 2979  |
| N – low-skill job               | 1180  |
| N – 1930                        | 678   | 708   | 4.2 (mainly women) |
| N – 1940                        | 706   | 728   | 3.0 |
| N – 1950                        | 691   | 733   | 5.7 |
| N – 1960                        | 904   | 1001  | 9.7 (mainly students) |

Note: Bold indicates significant at p < 0.05; bold and italics indicates significant at p < 0.1.
Source: Own calculations, German Life History Study, Max Planck Institute for Human Development, Berlin.
EXPLAINING LESS-EDUCATED PEOPLE'S DECREASING EMPLOYMENT OPPORTUNITIES

Source: Own calculations, German Life History Study, Max Planck Institute for Human Development, Berlin.

Figure 2. Social distance between trained and untrained persons
These proportional representations report whether people with certain individual characteristics are over- or under-represented in the ‘uncertified’ and ‘certified’ groups. Values below 1 signal an under-representation, while values above 1 display an over-representation. The chart of ‘stressful family situation’ (in Figure 2) shows that people with less advantageous family backgrounds were increasingly over-represented in the uncertified group, resulting in an increasing social distance between the uncertified and the certified groups. The distance in terms of mother’s vocational education remained stable over the cohorts. Even in the 1960 cohort, children with untrained mothers had a higher risk of themselves being untrained at age 25. The distance in terms of father’s vocational education decreased for the 1940 and 1950 cohorts, then increased for the 1960 cohort, reaching the level of the 1930 cohort. This picture reveals that the economic boom from mid-1955 to the early 1970s enabled children with differently qualified fathers to participate almost equally in vocational education. But in the 1980s, the demand for apprenticeships exceeded the supply and children with less-well-educated fathers again lost out in the competition. In terms of living in a large family, in the 1960 cohort the social distance had declined compared to the 1940 and 1950 cohorts, indicating that the costs of training became less important in explaining social differences in participation rates in vocational education. In other words, the impact of large family size on the need to earn a living quickly declined.

Multivariate logistic regressions comparing the group composition of the 1930 cohort to the other three birth cohorts (Table 4) support the finding of an enormous increase in social selection in terms of growing up in a stressful family situation – even after controlling a wide range of correlated social variables as father’s occupational position. By standardizing group size and gender distribution, untrained people were more likely to grow up in stressful family situations in the 1960 cohort (odd ratios=2.2). In terms of parents’ education, there seems to be no selection, but one has to keep in mind that compared to the 1930 cohort the parents’ generation of the 1950s and especially the 1960s, in general, exhibited an upgraded educational distribution. The indicator ‘not in employment’ displays that parents of the younger generations, in general, had a lower risk of unemployment (i.e. in during the boom between the mid-1960s and mid-70s, when respondents were 15 years old) than those of the children born between 1929 and 1931 (i.e. at the end of

Table 4. Logistic regressions on the risk of being uncertified in the younger cohorts compared to the 1930-cohort (odds ratios)

<table>
<thead>
<tr>
<th>Independent variables</th>
<th>P (1940-cohort=1)</th>
<th>P (1950-cohort=1)</th>
<th>P (1960-cohort=1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Father’s vocational education [holding a degree]</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Holding no degree</td>
<td>0.83</td>
<td>0.63</td>
<td>0.92</td>
</tr>
<tr>
<td>Mother’s vocational education [holding a degree]</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Holding no degree</td>
<td>0.70</td>
<td>0.50</td>
<td>0.25</td>
</tr>
<tr>
<td>Father’s occupational position [occupying a qualified job when respondent was 15 years old]</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In low-skill position</td>
<td>0.86</td>
<td>1.06</td>
<td>1.40</td>
</tr>
<tr>
<td>Not in employment</td>
<td>0.08</td>
<td>0.02</td>
<td>0.37</td>
</tr>
<tr>
<td>Dead</td>
<td>1.13</td>
<td>0.42</td>
<td>0.45</td>
</tr>
<tr>
<td>Stressful family situation [no]</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>0.94</td>
<td>1.03</td>
<td>2.21</td>
</tr>
<tr>
<td>Family with 4 or more children [no]</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>1.11</td>
<td>0.73</td>
<td>0.81</td>
</tr>
<tr>
<td>Intercept</td>
<td>1.71</td>
<td>3.48</td>
<td>2.12</td>
</tr>
<tr>
<td>Model chi-square</td>
<td>88.3</td>
<td>154.6</td>
<td>203.4</td>
</tr>
<tr>
<td>df</td>
<td>11</td>
<td>11</td>
<td>11</td>
</tr>
<tr>
<td>Nagelkerke R²</td>
<td>16.6</td>
<td>27.6</td>
<td>35.9</td>
</tr>
</tbody>
</table>
the Second World War). Moreover, the highest risk of ‘fathers’ death’ in the 1940 cohort exhibits a general cohort effect, namely that fathers of this birth cohort had a higher risk of dying during the Second World War (they were in their 20s) than fathers who were older at time of the War (1930 cohort) or fathers who were younger (1950 and 1960 cohort).

Discussion and Conclusion

The aim of this paper has been to offer support to a less common explanation of the increasing vulnerability of the less educated in a society that considers itself ‘meritocratic’. In addition to displacement, it is argued that the increasing negative selection of this group and its perception by employers are central causes of their poorer employment opportunities today. Among the important consequences of the remarkable educational expansion after the Second World War is the increased salience of the labelling of less-educated individuals. This not only places them in lower-ranked positions in the applicants’ queue, but increasingly stigmatizes them as ‘generally unemployable’ or ‘only employable in low-skill jobs’. This stigmatization argument is based on processes of negative selection and change in educational norms due to educational expansion.

The ‘stigmatization by negative selection’ explanation considers these historical changes in the context of employers’ hiring decisions. Employers’ interests include minimizing the risk of ‘bad’ decisions, such as hiring an ‘incapable’ candidate (even though he/she might be the best among those available for the job). Employers attempt to reduce this risk by increasing the probability of choosing ‘individuals who are less bothered by the difficulty of sustained, disciplined attention to more or less complex cognitive tasks’ (Bridges, 1996: 175). Today the indicator ‘less educated’ provides this information more ‘effectively’. By excluding the total – smaller and more selective – group from employment or, at least, from qualified jobs, employers reduce not only the risk of choosing an ‘incapable’ person, but also the risk of not choosing a ‘capable’ person. After educational expansion, firms invest less in improving their perceptions of each individual’s productive characteristics. For the less educated, they increasingly trust the sorting function of schools and teachers’ evaluations.

Thus, whereas the displacement argument is mainly based on a snapshot of labour-market disequilibrium in terms of quantity and the resulting ranking of all job applicants, the ‘stigma by selection’ argument considers qualitative changes in this relationship between individuals and their environment. The ranking process is expanded into a ‘sorting-out’ process for the group of the less educated. This has two advantages: first, statistical discrimination does not initially take place in the labour market, but already in the educational system and, thus, occurs earlier in an individual’s life course. Secondly, the possibility that statistical discrimination shifts from a ranking towards a ‘stigmatization’ process becomes visible. By including selection as a process over an individual’s life course, it takes the production conditions of the stigma ‘incapable’ into account. Whereas displacement takes place in the labour market, stigma starts in school with teachers’ evaluation of pupils and disadvantages in ability development because of social background.

Since selection and stigma production begin in school, this paper suggests that policy-making should focus on prevention rather than post facto therapy and supports Freeman’s view that ‘the most effective long-run policy is to target intervention early in life’ (Freeman 1999: 64; cf. also Thurow 1999: 136). Thus, implementing means for compensating individuals’ disadvantages in terms of their own social background resources as well as the abolition of institutional separation in school systems could help to mitigate social inequality in schools – especially given that it is questionable whether participation in special adult training programmes (which the displacement argument suggests) would diminish the ‘stigma’ of having been unsuccessful in the educational system, which is attributed to them.

The empirical analyses presented in this paper support the ‘stigmatization by negative selection’ argumentation. The analyses for the German case have shown that by controlling for changes in the marginal distribution over time, today’s less educated people are excluded from qualified jobs more than the less-educated people of older cohorts were. Thus, in addition to the over-supply of trained
people (the displacement argument), employers’ increasing exclusion of the less educated based on missing certification suggests their increasing belief in the ‘incapability’ of the less-educated ‘left-overs’ at the bottom of the educational hierarchy. This belief is backed up by the fact that the social selectivity of the less-educated group has increased over the cohorts, and consequently so has their homogeneity in terms of lower resources for ability development. The German case clearly shows that educational expansion has increased the function and acceptance of educational certificates to separate out people from less-advantaged families and relatively disadvantaged environments in which abilities could be developed.

Notes

1. A detailed discussion of these theories can be found elsewhere (Solga, 2000).

2. Displacement supposes the application of the ‘fairness-in-hiring’ rule utilized by employers in order ‘to prefer the educated to other (uneducated or less-educated) members of the labour market seeking the jobs’ (Bhagwati and Srinivasan, 1977: 2). Based on that, employers fill vacant positions by starting at the top of the applicants’ list ranked by trainability and working downward until all are filled (Blossfeld, 1983: 188f.).

3. Even Herrnstein and Murray (1996) acknowledge the social co-determination of intelligence – although they have ‘forgotten’ it when interpreting their results.

4. In the following labelled: 1930, 1940, 1950, and 1960. ‘In terms of membership of certain social strata and regional distribution, the sample was representative of the [native-born West German] population of the FRG’ (Blossfeld and Mayer, 1988: 127). Information on education and vocational training, as well as on job history are relatively reliable (Blossfeld, 1987). Although the West German Life History Study covers eight birth cohorts (1919–21, 1929–31, 1939–41, 1949–51, 1954–56, 1959–61, 1964, and 1971), the analyses only use the four cohorts mentioned above. For the cohorts 1964 and 1971, the editing and coding process of the data – which is particularly crucial for reliable work-history data – has not yet been completed. But the continuing decline of in the number of less-educated people after the 1960 cohort suggests that the selective outflow process – shown below – has not been reversed. In the 1960-cohort of the survey used here, 11% of the native-born West Germans in the age group ‘25–9 years old’ were without completed vocational training; in 1998, a survey by BIBB/Emnid (Bundesministerium für Bildung und Forschung, 1999) reports that 8 per cent of native-born West Germans in the age group ‘25–9 years old’ (that includes the 1971-cohort) were without completed vocational training. Moreover, the data from the East German Life History Study are not included. A comparison between a market versus state-socialist situation would enable an investigation of whether ‘stigmatization by negative selection’ occurs in both situations, given educational expansion. However, the focus of the paper is the market situation with relatively unconstrained employer hiring decisions.

5. Qualified jobs are all jobs above unskilled manual and low-skill non-manual positions (i.e. skilled manual jobs, but also medium and higher-level non-manual jobs).

6. The increasing percentage of those who are still in training at age 25 over the cohorts is due to an increasing share of university attendance.

7. However, men and women did not enter into the same vocational education tracks and occupations (cf. Solga and Konietzka, 2000).

8. The increase of employment in unskilled manual jobs in the 1960 cohort is caused by the increase in the relative share of employment as construction and transport workers (cf. Solga, 2000).

9. In the 1960 cohort those people who were still in vocational education at age 25 – and thus had no vocational certificate when entering their first job – had fewer opportunities of entering into qualified jobs than in the older cohorts. As the percentage of such people is highest in the 1960 cohort, and the direct transitions from school to university of these people were fewer, the character of their first jobs – more than in the older cohorts – was temporary employment and not the beginning of the occupational career.

10. This does not display an unobserved general cohort effect because the total percentage of people with a ‘stressful family situation’ within each cohort did not vary very much, except for the War-born 1940 cohort (1930: 13% 1940: 17% 1950: 10%, 1960: 14%).

Acknowledgements

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References


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Appendix

First Proof

Let Xut = hired for a job in question, given uncertified, and
P(X|A)=0 ⇒ employers’ selection function of uncertified people with undesired characteristics (A),
P(X|A)=z ⇒ employers’ selection function of uncertified people without undesired characteristics (A),
then the probability of employers hiring an uncertified person is:
at time t: P(Xut)=P(X|A)P(A)+P(X|A)P(A)
with P(A)=A/U and P(A)=A/U
at time t+1: P(Xut+1)=P(X|A)P(A)+P(X|A)
P(A)P(A) 
Because P(X|A)=0 and P(X|A)=z, this is equal to:
P(Xut)=zP(A)
And P(Xut+1)=zP(A).
Given A=x, this is equal to:
P(Xut)=zP(A)
and P(Xut+1)=zP(A−x),
and because x > 0, P(A) > P(A−x) and, thus, P(Xut) > P(Xut+1).

Second Proof

Because:
at time t: P(Xut+C2d)<P(Xut)
⇒ P(X|A)P(A)+P(X|A)P(A)<P(X|A)P(A)+P(X|A)P(A)
(with P(X|A)=0 and P(X|A)=z)
at time t+1: P(Xut+C2d+1)<P(Xut+1)
⇒ P(X|A)P(A)+P(X|A)P(A)<P(X|A)P(A)+P(X|A)P(A)
(with P(X|A)=0 and P(X|A)=z)
and P(A) > P(A) (because d > d+1).
Table A1. Definition of the independent variables used in the analysis

<table>
<thead>
<tr>
<th>Label</th>
<th>Definition</th>
</tr>
</thead>
</table>
| Vocational education of (step)mother | 1=without a completed vocational degree  
2=holding a vocational degree (apprenticeship, full-time vocational school, technical college, university) |
| Vocational education of (step)father | See (step)mother |
| (Step)father’s occupational position when respondent was 15 years old | 1=employed in low-skill manual/non-manual job  
2=employed in qualified jobs (skilled manual worker and any position above)  
3=non-employed  
4=dead |
| Family size | 0=less than 4 children in the family  
1=four or more children in the family (‘large family’) |
| Stressful family situation | 0=none or one of the following indicators is given  
1=two or more of the following indicators are given |

*aParents’ school degree and vocational degree are highly correlated. In the regression models, parents’ vocational certificate has proved to be more discriminating than their school degree.*

*bThe operationalization as an ‘index’ is due to small cell counts, especially of the less-educated group in the younger cohorts.*

**Note:** Indicators of a stressful family situation: Having a stepmother until age 16; having a stepfather until age 16; death of the mother before age 16; death of the father before age 16 (this indicator is highly correlated with ‘dead’ status for father’s occupation: of 446 respondents who had this indicator, 344 of them gave ‘dead’ as their father’s occupational position); having a ‘young’ mother (less than 21 when first child born); having a ‘young’ father (less than 21 when first child born). Divorce of the parents is not included because it is not available for the 1960 cohort. It is partially covered by the higher ‘risk’ of having stepparents.

**Author’s Address**

Max Planck Institute for Human Development, Lentzeallee 94, 14195 Berlin, Germany. Tel.: +49 30–824 06383; fax: +49 30–824 99 39; email: solga@mpib-berlin.mpg.de

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