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“A fault confessed is half redressed”

Review essay on low-achieving school leavers’
access to apprenticeships and their returns to
participation in prevocational training measures

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Abstract

This review focusses on the transition of low-achieving school leavers—that is, those who left regular schools or special schools for students with learning disabilities without or with only a lower secondary school degree—into the vocational education and training (VET) system. Most of them do not enter regular VET programs after finishing school but participate in prevocational measures. Some of them are able to eventually enter regular VET programs while others are never able to do so. The review summarizes what we know about how participation in prevocational measures influences the probability of subsequently entering regular VET programs and if so, why. The review shows the little knowledge we have about for whom these measures generate new opportunities, and for whom they reinforce disadvantages. The review includes research on access to regular VET programs because selection processes at this stage result in a selective—not random—group of participants in prevocational measures and research on prevocational programs.

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1. Introduction

The life course is a self-referential, endogenous process shaped by the interplay of institutional regulations, social environments, as well as individual abilities, competencies, and resources (e.g., Elder and Johnson 2003; Mayer 1991, 2009; Mayer and Müller 1986). Correspondingly, numerous studies have shown that school-to-work transition patterns have a strong impact on individuals' later employment careers. It is therefore important to understand how social inequality during the school-to-work transition period is (re)produced or how it can be alleviated. In modern societies, this transition period is characterized by participation in tertiary education or, in some countries like Germany, in vocational and education training (VET) programs. Many of those who do not manage to enter these institutions participate in prevocational training measures (short: prevocational measures). These measures are politically legitimized by the claim to serve as "second chance" education or remedial measures to address poor school performance.

In this review, we focus on the transition of low-achieving school leavers—that is, those who left regular schools or special schools for students with learning disabilities without or with only a lower secondary school degree. Most of them do not enter regular VET programs after finishing school but participate in prevocational measures. Some of them are able to eventually enter regular VET programs while others are never able to do so. The review summarizes what we know about how participation in prevocational measures influences the probability of subsequently entering regular VET programs and if so, why. As we will see, until now, we have little knowledge about for whom these measures generate new opportunities and for whom they reinforce disadvantages. The main focus of the review is therefore to determine the research gaps that future research should pay attention to. The review starts with research on access to regular VET programs because selection processes at this stage result in a selective—not random—group of participants in prevocational measures and continues with research on prevocational programs.

2. Research on access to regular VET programs

There is a broad sociological literature on social inequality in accessing fully qualifying VET programs. In general, this research has shown that educational certificates (school degrees and school types), cognitive and noncognitive skills, family and migration background, and gender influence the chances of youth to enter regular VET programs. Some of this literature is rather descriptive, presenting the distributions of the various VET sectors by social groups; some of it is explanatory. Since apprenticeship systems—like the German one—functions like a market, most of the explanations are adapted from labor market research. These explanations can be summarized into four main—complementary rather than competing—mechanisms generating disadvantages for low-skilled individuals in labor or apprenticeship markets (for an overview, see Solga 2005, 2008). These mechanisms fall into two broad categories: supply-side mechanisms (youth's search behavior) and demand-side mechanisms (employers' recruitment behavior).

An important demand-side mechanism is job competition. Apprenticeship markets are matching markets—matching persons to vacant apprenticeship positions. Based on multiple microeconomic theories—such as human capital theory (Becker 1964), signaling theory (Spence 1974), and job competition theories (Thurow 1979; Sørensen and Kalleberg 1981)—, the following matching argument can be derived: the lower an individual's school degree (or other skills indicators), the lower their rank in the applicant queue and thus their probability of being selected for vacant apprenticeship positions. Based on this matching argument, training opportunities for low-achieving youth should vary by regional differences in the quantitative relationship between the supply of, and demand for, apprenticeship places. Here, few(er) training opportunities for low-achieving youth are primarily explained by their relatively low position in the applicant pool's skills distribution. This explanation has some merit, as the cohort-comparative study by Kleinert and Jacob (2012) has shown, for example. Moreover, Seibert et al. (2009) found that the supply of fully qualifying school-based VET programs under conditions of apprenticeship shortage can reduce educational differentials in access to regular VET programs. So the main cause of being unsuccessful in training markets is a “lack of opportunity” rather than a “lack of skills.”

Solga and Kohlrausch (2013), however, could show that, in Lower Saxony, the training opportunities of school leavers from lower secondary schools (*Hauptschule*) did not vary by regional differences in the supply of, and demand for, apprenticeship places. This suggests that a second mechanism is at work: statistical discrimination with discrediting properties (Solga 2002a, 2002b). Here, the lack of training opportunities for low-achieving school leavers is explained by a perceived “absolute lack of skills”—manifested in the discussion on “maturity for regular VET programs” (*Ausbildungsreife*) in Germany over the last decade (cf. Dietrich et al. 2009; Eberhard 2006; Kohlrausch and Solga 2012). According to signaling theory (Spence 1974), employers' perceptions and expectations regarding the trainability of low-achieving youth are crucial for hiring decisions. The cohort

study by Kleinert and Jacob (2012) has shown that educational expansion has exacerbated the negative signaling value of having only a lower secondary school degree, or none at all. Regardless of the respective supply-demand relationship, low-achieving school leavers in younger cohorts have lower entry chances than their counterparts in older cohorts. Thus, an additional source of disadvantages in the apprenticeship market of today's low-skilled youth is that employers have increased their educational hiring norms and are less willing to hire low-skilled youth—even if there is a shortage of higher-educated school leavers (see also Murnane and Levy 1996; Protsch 2014; Rosenbaum and Binder 1997).

These two mechanisms ignore that applicant pools are not random due to socially stratified processes of self-selection. That is why we need to add two other mechanisms, the network mechanism and the stigmatization mechanism, which take account of educational differences in application behavior. The mechanism of stratified network resources is based on the idea that educational groups also differ in the social resources of their networks: their families/friends (strong ties) and their peers (weak ties) (Granovetter 1974). Because of the various secondary school types, particularly in Germany, school biographies coincide with segregated opportunities to establish advantageous social ties, and educational achievement is highly correlated with social background—resulting in a high concurrence of school attended, school-leaving degree, and social network resources (cf. Solga and Wagner 2001). Yet we find strong correlations between educational attainment and social network resources in other countries as well, generated by residential segregation and segregated school districts. According to network theories, individuals' job search patterns are influenced by socially stratified recruitment and supply networks (e.g., Burt 1992; Elliott and Smith 2004; Granovetter 1974). Supply networks provide information on vacant apprenticeship positions and give second-hand accounts of experiences with job requirements. Given the selective social composition of the group of low-achieving youth, their low(er) chances of entering regular VET programs are partially caused by having more less-educated family members and friends than higher-educated youth. As a result, low-achieving young adults know less about “where, when, and how to apply” (Wial 1991: 412; cf. also Kalter 2006).

In addition, recruitment networks can help improve an applicant's reputation if network members are employed in firms with vacant training positions—thus alleviating discrimination. This would be particularly important for low-achieving youth, because network members could testify to these applicants' cognitive abilities, practical skills, or motivational potential despite their missing credentials or poor school achievement. In this vein, a study by Seyfried (2006: 35) revealed that “recommendations by family members, neighbors, and friends” play a major role for German firms when hiring low-skilled persons.

Finally, stigmatization (or “damaged identity”) results from low-achieving school leavers' mostly negative school experiences and biographies. They may have learned about their “inferior status” in society. This may result in two different behavioral patterns: First, they may voluntarily withdraw from the apprenticeship market to avoid possible humiliation and more negative reactions from

others (Jones et al. 1984: 34, 111; see also Fiske 1998; Solga 2004b). In this case, “low education” has become a “master status” in their lives (Goffman 1963). Low-achieving youth may respond to this “status” by disidentifying with educational and employment goals and withdrawing from apprenticeship markets. Second, those for whom “low education” has not (yet) become a “master status” could behave differently. They may only withdraw from training markets temporarily and voluntarily choose to first attend prevocational measures and invest in further schooling to increase their market opportunities. Results based on the German Youth Institute's so-called transition panel of school-leavers from the *Hauptschule* or *Hauptschul*-track of comprehensive school (“DJI-Übergangspanel” of 2004) seem to support this “temporary” self-selection (Skrobanek 2013; Skrobanek et al. 2011). However, in these analyses, Skrobanek and colleagues only controlled for career plans, not for personality characteristics and search behavior—which might have caused biased estimates due to unobserved heterogeneity. Moreover, they take information on youth’s career plans at the end of the last school year (in June). Since applications start at the beginning of the last school year, the low-achieving respondents might have already adjusted their plans to their disappointing application experiences and/or to the fact that they have to attend prevocational programs due to vocational education requirements.

Despite the rich research knowledge, there are still crucial research gaps.

Competences and personality traits: Most studies rely on educational certificates. However, the correlation between school type or grades and competences is rather moderate, especially in Germany (cf. Stern and Hardy 2004 for a meta-analysis, see also Uhlig et al. 2009). There are only very few studies on VET markets that additionally consider competence measures. Their results are mixed. Neither Protsch and Dieckhoff (2011) nor Solga and Kohlrausch (2013) found basic cognitive abilities (measured by fluid intelligence tests) to have an effect on training opportunities in Germany—controlled for school-leaving certificates and grades. In contrast, Buchholz et al. (2012) could show that PISA reading scores (2000) had an additional impact on youth’s training opportunities in Switzerland. Since these studies look at different measurements and countries, it remains unclear what these different results actually indicate.

Likewise, there are only few studies that take account of information on behavioral characteristics; and again, their results are mixed. Protsch and Dieckhoff (2011) found an impact of personality traits (measured by the so-called Big Five) on the chances of entering VET programs only for school leavers holding an intermediate secondary school degree, but not for those with a lower secondary school degree. In contrast, Solga and Kohlrausch (2013) did find such an impact for the latter group as well. Similarly, Buchholz et al. (2012) could show that perceived self-efficacy influenced youth’s chances to enter regular VET programs. Moreover, this research on cognitive and noncognitive skills mainly focuses on employers’ recruitment behavior and signaling effects. However, there are good reasons to assume that they also influence youth’s search behavior, and thus self-selection.

Heterogeneity: The low-achieving group has been viewed as a homogenous group. Yet although they are similar in terms of school degree, low-achieving

youth might nonetheless be a quite heterogeneous group in terms of competencies, school experiences (e.g., due to attending different school types), motivational, personality, and social characteristics. Problems of endogeneity and unobserved heterogeneity have mostly been neglected by previous research. These problems also call for research designs that pay attention to within-group variation (or heterogeneity)—in addition to common between-group comparisons and the resulting “mean” differences between educational groups. Looking at selection processes into regular VET programs versus (different types of) prevocational measures within the group of low-achieving youth is important because they are the population with the highest risk of having to enter prevocational measures. In order to understand the work of the four mechanisms discussed above, it is also important to find out who among the low-achieving youth does enter VET programs “against the odds” (see e.g. Solga and Kohlrausch 2013).

Segmentation of apprenticeship markets: There are many studies highlighting the strong education-based segmentation of the labor markets (see e.g., Baron and Bielby 1980; Blossfeld and Mayer 1988; Solga and Konietzka 1999, 2000; Sengenberger 1987; Shavit and Müller 2000). Yet only few studies also consider corresponding segmentation processes in VET markets along school leaving certificates (see e.g. Autorengruppe Bildungsberichterstattung 2012: 283; Friedrich and Hall 2007; Hillmert 2010; Konietzka 1999; Uhly and Erbe 2007; Protsch 2014; Troltsch and Walden 2012; for Switzerland see Imdorf 2005). The apprenticeship market is not “one market,” in which all applicants compete with each other. There are different segments—ranging from a segment of less attractive occupations, in which low-achieving school leavers might compete with each other and with school leavers with an intermediate school-leaving degree, to a segment of quite qualified and attractive occupations for which only applicants with an upper secondary school degree (*Abitur*) and some applicants with a very good intermediate degree compete. Thus the dependent variable of entry into VET programs is not only “yes or no” (the way it is done in most studies); we also need to specify the quality of VET placements—that is, “access to which segment” (the low/er or high/er VET segment).

Regional disparities in apprenticeship market conditions: Most studies include no or only very general regional indicators, such as the regional youth unemployment rate or the regional apprenticeship/applicant ratio (see critical comments in Kleinert and Kruppe 2012). The regional reach of the indicators used often does not correspond to employers’ recruitment and youth’s search radius. Existing studies therefore overlook that the selectivity of the group of youth in regular VET programs and in prevocational measures, respectively, should vary by regional differences in VET market conditions—according to the job competition mechanism.

3. Research on returns to second-chance education and prevocational training measures

Despite the research deficits discussed above, research on access to VET programs is much richer than research on prevocational measures or second-chance education programs and their returns. The latter is very underdeveloped—in Germany as well as internationally. This is partly due to the enormous diversity of prevocational measures in terms of structure, content, duration, governing actors, and financing across and within countries (Leney 2009: 104). Most second-chance education studies report on single projects/programs for vulnerable youth. They are often descriptive and rarely explanatory. Existing studies often do not provide information about the context conditions under which they took place, and the selectivity of participants in prevocational programs. It is difficult, therefore, to systematize this research in terms of selection into, developmental processes during, and consequences of prevocational measures. That is why I will focus on the existing (rather descriptive) research on returns to prevocational programs in Germany and the research on the General Educational Development certificate in the US for methodological reasons.

In public debates as well as research on prevocational training measures in Germany, there is an ongoing discussion on whether prevocational measures actually do remedial work and increase opportunities for low-achieving youth or whether they are only misleading “wait loops” for unsuccessful youth, neither improving their skills and motivational endowments nor their rank position in employers’ applicant queues. Moreover, German politicians, institutional actors (in firms, vocational schools, employment agencies), and researchers debate the “maturity for VET programs” of un-successful young applicants: whether it is true that these young people lack this maturity and, if so, whether the various prevocational measures are useful “treatments” to help these young adults mature (see Dietrich et al. 2009; Eberhard 2006; Kohlrausch and Solga 2012). Unfortunately, this research lacks data on competence and motivational development and has not yet paid much attention to selection processes into the prevocational sector and the various prevocational measures. Thus, the “treatment” effects of prevocational measures in Germany are still unknown. What we do know is rather descriptive and based on quite small and often local samples:

1. The different types of prevocational measures provide different opportunities to obtain higher-level school degrees. About 50 percent of the participants in partially qualifying programs at vocational schools (*teilqualifizierende Berufschulgänge*) improve their school degree, compared to only about 10 percent of participants in the vocational preparation year (so-called BVJ) and vocational basic education year (so-called BGJ). As a result, the differences in educational certificates between prevocational measure participants are larger at the end than they were at the beginning of the measure (Beicht 2009: 9). Thus, at least in terms of formal qualification, some participants may improve

their position in the applicant queue (job competition and signaling), but this will depend on the type of prevocational program they attended.

2. Earning a higher-level school degree while participating in prevocational programs seems to increase the likelihood of subsequently entering regular VET programs (Beicht 2009: 11; Skrobánek et al. 2011: 828). Yet research has shown that school degrees earned after leaving school have a lower positive impact on training opportunities than the same degrees obtained in the standard way (cf. Allmendinger et al. 2012; Solga 2004a). Thus, degrees earned after leaving school may convey the signal of having needed to participate in “second-chance” education—generating a scar effect like unemployment (cf. Gangl 2006). We have to note, however, that all these estimations are not controlled for competences, internships, work experience, or changes in the network resources during participation in prevocational measures (e.g., due to changes in a family’s employment situation, new friends, etc.).
3. A substantial proportion of participants in prevocational measures does not enter regular VET programs—even after some years. Beicht (2009: 10) and Ulrich (2008: 16) report that an average of about one in five participants, including low-achieving youth in particular, had not entered regular VET programs three years after leaving school. We do not know, however, whether this high proportion results only from individual characteristics or from institutional and regional factors as well.
4. Evaluations of projects for low-achieving youth have revealed that firm-based measures are quite successful in improving their training opportunities (e.g., Baas et al. 2012; Dietrich 2001, 2003; Kohlrausch and Solga 2012). The experience of firms with low-achieving youth, especially during long-term internships, could counteract statistical discrimination. These long-term internships are able to generate a so-called permanent placement effect (“Klebeeffekt”) (Solga and Kohlrausch 2013).
5. In a similar vein, the comparison of research findings for Germany and Switzerland reveals that the supply of prevocational measures versus lower-level regular VET programs plays an important role for low-achieving youth’s training opportunities. Instead of increasing the number of prevocational measures, Switzerland introduced the so-called “Attestlehre” in 2003 (Kammermann and Hättich 2010). These are two-year dual VET programs for low-achieving school leavers. In Germany, two-year VET programs were established as well, but on a much smaller scale (Uhly et al. 2011). In addition, the French part of Switzerland has a much higher proportion of school-based VET programs, whose supply can be more easily adjusted to higher demands. Studies have shown that these two institutional differences between Germany and Switzerland result in better training opportunities for low-achieving young people in Switzerland (Buchholz et al. 2012; Seibert et al. 2009).

Research on the General Educational Development (GED) certificate is much more advanced than research on other prevocational measures. The GED certificate is a second-chance education program for high school dropouts in the US. In contrast to the German prevocational programs, it is an examination-based credential, that

is, participants do not have to attend school for taking the exam. The GED program has been studied extensively in recent years, especially by economists. The major research focus has been on the GED credential's returns in terms of labor market outcomes (for an overview see Tyler 2005). The baseline assumptions of the returns to GED certificates have been that the GED certificate may (a) serve as a positive signal enhancing an applicant's position within the pool of high school dropouts applying for jobs, (b) increase youth's skills (human capital) due to preparing for the exam, and/or (c) increase an individual's educational options and pro-educational behavior—resulting in participation in higher education and thereby improving their labor market opportunities. In doing so, the GED “treatment” may alleviate the mechanisms of job competition and/or statistical discrimination. In addition, an individual's success in the GED exam may counteract their internalized disidentification with education, empowering them to search for jobs more actively and confidently.

Most of the research did not study these assumptions directly, but—in contrast to the German re-search—some studies have accounted for selection processes into GED participation and unobserved heterogeneity. The study by Heckman and Rubenstein (2001: 146) revealed that differences in labor market outcomes between GED recipients and ordinary high school dropouts are not produced by a GED “treatment” effect but by selection, meaning that GED recipients are simply smarter. They may also have more favorable noncognitive characteristics. Heckman and Rubenstein (2001) interpreted the residuals of unobserved heterogeneity as indicators of differences in noncognitive traits (e.g., self-discipline, persistence, perseverance) yet did not include direct measures of personality traits in their estimation (this information was not available). If we accept that GED recipients are better equipped with both types of skills—cognitive and non-cognitive—, then the GED credential itself has no effect. Tyler, Murnane, and Willett (2000) allowed the impact of participation in GED exams to differ by skill level. Their study revealed that lower skilled dropouts benefit from GED credentials in terms of wages, whereas higher skilled dropouts did not—presumably because the GED's positive signaling value is stronger for dropouts with weak skills (cf. also Tyler and Lofstrom 2010).

This review reveals fundamental knowledge gaps in prevocational research:

- Selection problems: Most studies neither account for selection processes into the prevocational sector in general nor for selection into different types of prevocational measures.
- “Treatment effect”: Research frequently assumes positive effects of prevocational measures caused by an accumulation of competencies or positively altered motivational factors but does not examine this accumulation or alteration explicitly.
- Scar effects: It is still unknown if the probabilities to enter regular VET programs—in higher or lower apprenticeship market segments—differ between comparable youth with direct and indirect transitions into regular VET programs because of their participation in prevocational measures.

- Segregated learning environment: Research has paid little attention to the conditions under which prevocational measures reinforce or counteract the mechanisms of missing network resources or disidentification. This is partially because researchers have failed to identify prevocational programs as segregated learning environments of the kind we know from school research (e.g., Baumert et al. 2006; Solga and Wagner 2001). If the prevocational sector is segregated by school degrees (and thus social groups), it may exacerbate both mechanisms. Moreover, segregation within the prevocational sector might also result in ability grouping and thereby influence individual competence development in different programs (cf. Baumert et al. 2006; Becker et al. 2012; Hanushek et al. 2003).
- Alteration of regional factors: Another neglected aspect is that regional market conditions could change while students are enrolled in prevocational measures. According to the job competition mechanism, such changes might also affect their likelihood of entering regular VET programs after completing the prevocational measures. Here, the “treatment effect” would rather be “getting time to wait” for changes in the competition conditions than improving participants’ individual characteristics.

4. Conclusion

As the state-of-the-art review will show, we know very little about the returns to these prevocational programs and the factors that improve participants' chances of entering regular VET programs after-wards. In sum, based on existing research, it is still unknown: If, why, and for whom do prevocational measures increase the likelihood of eventually entering regular VET programs? Most of the research deficits are caused by a lack of appropriate data and/or insufficient statistical modeling. To answer this question appropriately, we need to take into account the selection problems and investigate how prevocational measures help unsuccessful young people to "overcome" the four mechanisms described above. Or, put differently, how do prevocational measures mitigate participants' disadvantageous characteristics to such an extent that they are not any longer affected by the respective mechanism? Thus, future research needs to develop research designs that handle these aspects properly.

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