ACCEPTANCE AND DECLINE OF APPLICATIONS TO SPECIAL MEASURES FOR VOCATIONAL RE-INTEGRATION OF DISABLED PEOPLE IN GERMANY

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Biography

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Introduction

One of the central objectives of the UN convention on the rights of persons with disabilities is a comprehensive societal participation of persons with disabilities within each country all over the world. The following working paper focusses solely on the German context and in particular on the labour market integration of disabled people.

The paper is centred on vocational rehabilitation of disabled people which is one specific instrument of German social policy promoting societal participation of disabled people. One way to obtain societal participation is the (re-)integration in the labour market, since employment – compared to unemployment – is associated with manifest (income) and latent (social contacts, pursuit of common goals etc.) functions (Jahoda, 1982). Thus, vocational rehabilitation promotes persons with disabilities in their entry or return to the labour market (Ekert et al., 2012) by applying individual- and disability-specific labour market programmes (occupational (re-)training or further training; financial subsidies etc.).

In Germany, there are different institutions financing vocational rehabilitation of disabled people, which are all responsible for different groups of rehabilitants. In this study, I am solely focussing on cases in the responsibility of the Federal Employment Agency (FEA), as one of the biggest financing institutions. The FEA is mainly responsible for those applicants that have worked in employment liable to social security benefits for less than 15 years during their labour market career (Dony et al., 2012).

Within this scope of responsibility, the FEA distinguishes two main groups being promoted in vocational rehabilitation – both of which receive different measures for labour market integration due to different demands: people in first integration and people in re-integration. The first group mostly consists of young people who come

directly from school – most often from a special school – and who are searching for an apprenticeship in order to enter the labour market the first time. The second group – people in re-integration – consists of people who have already been trained occupationally and who have already been employed for some time. Those people lost their job or are endangered of losing it due to their health limitation and are, thus, aiming at a re-integration into the labour market. This paper focusses only on the second group of people who are seeking help in their labour market re-integration[1]. Approximately 80 percent of all applicants aiming at labour market re-integration is granted the status vocational rehabilitant, whereas 20 percent is rejected.

Recognition and Acceptance of Vocational Rehabilitants

In general, everyone can apply for benefits of vocational rehabilitation for persons with disabilities. However, many people are not aware of legal possibilities in case of occupational limitations. If this is the case, gatekeepers are required to identify potential rehabilitation clients and to point them towards the right people. Social practitioners at the work place or personnel in the context of medical rehabilitation, as well as, placement personnel of the FEA often function as gatekeepers due to their knowledge of institutional-specific processes and their networks (Ekert et al., 2012). If e.g. demand of vocational rehabilitation is suspected by a general placement officer, potential rehabilitants are, then, forwarded to rehabilitation-specific departments.

Those departments generally decide on acceptance or decline for benefits of vocational rehabilitation and they are responsible for planning the programme strategies for vocational rehabilitation. The decision on the receipt of vocational rehabilitation is mainly based on medical assessments made by the medical service of the FEA. The medical service observes whether the applicant is disabled or

[1] - as almost all applications submitted by young applicants of the first integration are approved by the FEA (approx.. 97 percent – based on own calculations).

endangered of becoming disabled. The definition of disability differs from country to country. For Germany, according to “Section 2(1) of Book IX of the German Social Code, a person has a disability if their physical ability, mental capacity or mental health is likely to fall short of that typical for their age for at least six months and their participation in society is consequently impaired. They are deemed at risk from disability if such impairment is anticipated.” (Federal Ministry of Labour and Social Affairs: p. 24)

Besides the assertion of a medical impairment, the medical assessments inform about the extent and type of occupational limitations due to the disability which is according to section 19 of Book III of the German Social Code another precondition for the receipt of benefits of vocational rehabilitation. If eligibility for vocational rehabilitation is ascertained by the rehabilitation-specific personnel, benefits are legally mandatory (Dony et al., 2012).

Motivation

Due to the individualistic and disability-specific approach vocational rehabilitation is a highly cost-intensive instrument of German social policy – e.g. the Federal Employment Agency spent 2.35 Billion Euros on vocational rehabilitation in 2013 (Bundesagentur für Arbeit, 2014). However, there is not much known about the (causal) impact of vocational rehabilitation on programme participants. This lack of empirical knowledge applies particularly for selection mechanisms at the entry into vocational rehabilitation. Therefore, this paper is concerned with the selection process at the entry into vocational rehabilitation in order to characterize the population receiving vocational promotion in the first place in comparison to those who apply for benefits, but are rejected. This selection process is particularly interesting for the construction of a potential comparison group that is similar to those

promoted in the context of vocational rehabilitation, however, who does not receive those special benefits. To find appropriate comparison groups that are truly comparable in their characteristics (especially in non-observable characteristics) is a difficult task (Schröder et al., 2009; Dony et al., 2012). Furthermore, potentially biased measures of labour market outcomes after vocational rehabilitation can be improved by taking different selection mechanisms at the entry into vocational rehabilitation into account.

This study seeks to answer the questions of (1) who is applying for benefits for vocational rehabilitation and (2) who actually receives benefits for vocational rehabilitation.

Research state and hypotheses

For Germany, there are only a few empirical studies on vocational rehabilitation in general. Most of them investigate the population of the German Statutory Pension Insurance (Streibelt and Egner, 2012). Only a few studies investigate the population for which the FEA is responsible – most of which are concerned with the rehabilitation process itself (Dony et al., 2012) and with its outcomes in terms of labour market transition after vocational rehabilitation (Wuppinger and Rauch, 2010; Reims and Gruber, 2014; Beyersdorf and Rauch, 2012) and impact of vocational rehabilitation on subjective health (Reims and Bauer, 2015). The rehabilitation process for accepted applicants in labour market re-integration of the FEA is examined quite comprehensively (Dony et al., 2012). About 40 percent of the population receive re-training or further training measures (taking about one to two years) often combined with occupation-specific preparation measures in order to be prepared and trained in a new or differently designed occupation. Almost 30 percent of all rehabilitants do not receive any measures during their vocational rehabilitation.

Most of these people are filed as rehabilitants very shortly and drop out again supposedly due to health reasons or employment opportunities.

Since there is scarce (quantitative) data on the selective group of people who are eligible for vocational rehabilitation, there are only a few qualitative studies that are concerned with the process step of selection into vocational rehabilitation. One study by Schubert et al. (2007) is characterized as an explorative implementation study analysing the consequences of a huge German labour market reform in 2005 – the so called *Hartz Reforms*. The study is particularly focused on recipients of unemployment assistance (basic income support).

The study is interested in potential pitfalls in terms of recognition of rehabilitants, as well as acceptance, selection into measures and labour market integration in consequence to the reform process. Using case-vignettes of fictitious applicants for vocational rehabilitation, rehabilitation-specific personnel (of different types of placement institutions of the FEA) was asked to assess the given case profiles according to placement chances and strategies. The comparison of different types of placement institutions is associated with the fact that after the reforms clients receiving unemployment assistance are counselled and placed by Social Code II institutions, whereas Social Code III institutions are in charge for recipients of unemployment insurance benefits (people who contributed to unemployment insurance for at least one year and are unemployed less than one year) (Konle-Seidl et al., 2007). The Hartz-reforms had a great impact on the placement process in Germany which was re-organized according to efficiency and effectiveness (see Konle-Seidl et al., 2007). In the study of Schubert et al. (2007) the institutional re-organisation was hypothesised to influence the process of vocational rehabilitation, as well. Due to institutional-structural (new organisations with new institutional

routines) and institutional–personnel (new personnel with new tasks and different occupational background) changes, the process step of recognizing someone as being entitled to benefits of vocational rehabilitation was found to be problematic in the case of Social Code II institutions. The new personnel had to be trained in terms of legal background on vocational rehabilitation, as well as, in terms of medical background in order to identify medical conditions that might lead to occupational limitations. If the recognition of potential rehabilitants is not guaranteed, potential clients are not forwarded to the rehabilitation-specific personnel. A comprehensive and targeted promotion of entitled persons can, therefore, be doubted. Longer unemployment spells might result.

Besides the consequences of the re-organisation for the recognition, the study identifies different characteristics for the decision on acceptance or decline of an applicant for vocational rehabilitation, as well as, reasons for voluntary withdrawal or non-submission of applications on part of the applicant. The fear of being stigmatized as a disabled person, concerns of being absent from the job for longer periods and concerns of income loss, are mentioned as reasons for voluntary withdrawal or non-submissions of applications. The decision of the rehabilitation-specific personnel whether an application receives approval or not is generally depending on several characteristics: the self-assessed probability of labour market success after vocational rehabilitation, the occupational limitation in the former occupation, the degree to which an occupational change is necessary and the relevance of health issues for potential occupations, the time spent in the last occupation and the time since the applicant has actually worked within the occupation, the ability of the applicant to work (legally defined as being able to work more than 3 hours a day) and the educational background in terms of school and professional certificates. The main

reason for approving the application has to be justified by the health condition determining an occupational limitation and may not be justified by a lack in qualification (Schubert et al., 2007).

Another qualitative implementation study by Ekert et al. (2012) is part of a feasibility study to evaluate the labour market effect of vocational rehabilitation for eligible persons. Using regional case studies in 15 agency districts and questioning personnel of different hierarchical levels and institutions, the study focusses on the organisational structure in different FEA-organisations (Social Code II and III) and provides – amongst other results on gender-specific selection into measures and factors for "successful" labour market integration – further information on institutional criteria for the selection of eligible rehabilitants. The study mentions the regional labour market structure at the place of residence as a further determinant for the decision on (dis-)approval. Though the foremost decision criterion is the health status, which determines how much rehabilitation-specific promotion is necessary in order to achieve labour market re-integration. Characteristics of the applicant that might lead to disapproval in the decision process are (higher) age of the applicants, lack in motivation of the applicant, sufficiency of applying general labour market programmes, the priority of medical and social rehabilitation to vocational rehabilitation and the lack in specific labour market measures nearby the place of residence (Ekert et al., 2012).

Based on qualitative data, the studies just mentioned give many references to factors that were found to play a role in the decision process of becoming a vocational rehabilitant. Although it will not be possible to analyse the recognition process with the given quantitative data, it is possible to explore the empirical validity of some –

yet not all – determining factors mentioned in the qualitative studies based on a full sample of vocational rehabilitants in re-integration of the FEA.

Hypotheses that are to be tested in this context are:

The probability for an application approval for vocational rehabilitation is higher if…

1. the probability of labour market integration is relatively good in terms of
    - (lower) age,
    - a higher schooling certificate
    - a professional degree
    - a better labour market structure at the place of residence
    - less unemployment and sickness periods in the prior employment biography (often used as a proxy for motivation)
2. the applicant is unemployed or participating in a general measure at the time of the application and does, thus, not fear any job absences or (very high) income losses due to a potential participation in vocational rehabilitation.

Data and variables

Analyses are based on unique register data of the FEA comprising (employment-) biographical information on all people applying for vocational rehabilitation at the FEA from June 2006 onwards. The data combines different data sources originating in individual social security data[2] on (un-)employment entries and exits, participation in different types of labour market programmes, sickness periods during (un-) employment periods of longer than six weeks. In addition to daily information on labour market status (continuous labour market information before, during and after

[2] There is no information on self-employed person and on civil servants.

the application for vocational rehabilitation), the data includes (continuous) information on gender, age, citizenship, educational and professional background, occupation, individual (daily) income, the place of residence, and whether the person is severely disabled (Zimmermann et al., 2007).

Furthermore, the data set includes unique information on the process of vocational rehabilitation (however, only for those being accepted as a vocational rehabilitants), i.e. data on the type of disability (nine rough categories), status after completion of vocational rehabilitation (transition into (self-)employment, lack in cooperation, sheltered workshops etc.), profiling information in terms of market status and support necessity on part of the rehabilitation-specific counsellor and information on rehabilitation-specific programmes. In addition, limited information is available for persons who had submitted an application for benefits of vocational rehabilitation, but were rejected by the FEA (see variable list below).

Based on the hypotheses mentioned in the research state section, the following (available) variables are chosen from the data to be related to the decision on the application for vocational rehabilitation benefits:

- socio-demographic data: sex, age groups, citizenship, schooling and vocational degree
- structural (regional) information: labour market structure of FEA agency districts in Germany according to Hirschenauer & Springer (2014)[3], year of submission of the application (in order to measure period effects)
- (employment-specific) biographical information: labour market status at the time of the application (benefit receipt, (un-)employed, type of employment,

[3] 174 agencies were clustered according to their regional labour market structure including characteristics like unemployment and employment rates, share of people in the labour force without any vocational degree, share of people working in the service sector etc.

participation in different types of labour market measures), (logarithmic) daily (benefit and labour) income at the time of application (or last income entry in the data), cumulated sickness periods, cumulated periods spent in labour market programmes, cumulated unemployment and employment[4] periods over the whole (available) life course – all measured in days

- rehabilitation-process-specific information: repeated application for benefits of vocational rehabilitation, type of labour market profile at the time of the application (Bundesagentur für Arbeit, 2011)[5]

Using the given data set, nothing can be said about the occupational limitations, about the health condition of the applicants, whether occupational limitations due to the health conditions are a recent issue and whether FEA personnel opted for general instead of rehabilitation-specific measures.

The analysis sample is restricted to applicants for vocational rehabilitation assigned to the group of re-integration who had submitted an application from 2007 until 2013 in the responsibility of the FEA. 2006 and 2014 are not used for the analyses, as the application process cannot be observed for the whole year, but only for some months. In sum, 196.256 applications are analysed below.

[4] restricted to employment liable to social security contributions; thus, information on self-employment is not considered.

[5] At the first contact with the FEA, a profile of every client is set by the FEA staff. This profile sets out the degree and type of action required for successful labour market integration. The profiling distinguishes seven different types of profiles: market profile (due to high motivation and good qualification fast labour market integration is expected), activation profile (activation of motivation required, though fast labour market integration is expected), support profile (lack in qualification or capability or environmental difficulties; expected time to labour market integration is measured to be less than one year), development profile (similar difficulties as with the support profile, however, expected time to labour market integration is measured to be longer than one year due to motivational issues), stabilization profile (necessary improvement of capabilities combined with a lack in qualification, motivation or with environmental issues; integration within one year is expected); assistance profile (similar to stabilization profile, however, expected time to integration is measured to be longer than 12 months), sheltered employment profile (not available within the data; clients to be placed within the second labour market within an institution of sheltered employment)

Method

In order to examine the above mentioned hypotheses drawn from the qualitative data, it is necessary to use a quantitative model measuring the outcome decision *application approved (1) or rejected (0)*, which is the dependent variable $y_{i\ approved}$. Therefore, a classic multivariate regression framework is used where $y_{i\ approved}$ is related to individual socio-demographic, structural, biographical and process-specific characteristics in a step-wise manner. Thus, the first-step model only contains the socio-demographic information of the applicants. The second-step model then adds structural (regional) information on the place of residence and on the time the application was submitted. In the third-step model (labour market) biographical information is additionally inserted, whereas, the fourth-step model completes the formula below with rehabilitation-process-specific information.

$$y_{i\ approved} = \beta\ SD_{socio-demographic} + \gamma\ S_{stuctural} + \theta B_{biographical} + \delta P_{process-specific}$$

By using this step-wise procedure – which is quite often applied in the field of sociology – it is possible to see how (size and direction of) coefficients and the goodness of fit measures change by adding or dropping variables.

Results

In general, 21% of all applications for vocational rehabilitation from 2007 until 2013 is rejected by the FEA. Only nine percent of the applicants submit an application more than once. On a descriptive level, those two groups *rejected* and *approved* applicants can be further characterized (see table 1 in attachment) using the above mentioned control variables which will be used in the multivariate models further on.

Descriptives

- Socio-demographic information: There are fewer women compared to men in the population, though, more women are rejected. More than half of the population is between 25 and 34 years old, however those with the lowest share of rejection are those aged younger than 25 years (almost 20% of the population). Regarding citizenship, over 90 percent of the population has a German citizenship. Their rejection rate is 21% compared to 26% in the non-German population. Two third of the applicants have a medium schooling degree (lower and intermediate secondary schooling) and a (company internal/-external) vocational degree, respectively. The highest share of rejection is found with those applicants who show no schooling degree and those who have a higher vocational degree (either university of applied sciences or college; 10% of the population). Those 20% of the population who have a severe disability or have equal legal status (which hints to a given health limitation, which, however, does not mean that there is also an occupational limitation) are more often approved as a vocational rehabilitant.

- Structural information: applications are submitted at different times and from people living in different regions with different regional labour market structures. Yet, regions where the highest share of rejection can be found are rural regions in eastern Germany that offer worse labour market conditions and less inhabited regions with favourable labour market conditions regions. Regions with the lowest share of rejection can be seen in urban regions with favourable labour market structure and in less inhabited regions mainly in eastern Germany with unemployment and seasonal influences. Thus, a distinct pattern cannot be identified. The time of application does not show any

striking numbers, neither. Every year, almost the same share of people is rejected.

- Labour market biographies: Based on summary statistics, it is found that rejected applicants show more (mean) days in sickness, in unemployment, as well as in employment and have spent less days in labour market measures. The logarithmic mean daily income at the time of the application is only slightly lower for approved applicants compared to rejected applicants. Approximately one fourth of the population is (mostly full-time) employed, another fourth receives basic income support, one fifth receives unemployment benefits at the time of the application, six percent already participates in labour market measures and 17% is generally seeking a job (without receiving benefits). Those receiving unemployment benefits have the lowest share of rejected applicants, whereas full-time employed persons have the highest share.

- Rehabilitation-process information: Regarding the initial profiling of respective (and rather subjective) labour market perspectives, one third of the applicants do not (yet) have a profile distributed to them[6], for another 14% it is not possible to distribute one of the given profiles. This should be kept in mind while interpreting the results. For those already profiled, the biggest groups are support clients (20%) and development clients with 15% (see footnote 5 above for further explanation of profiles). The lowest share of rejection is found within the group of support clients, whereas the highest within the group of market clients. The latter might as well be promoted via general measures.

[6] This might be due to the fact that application might be submitted without any prior contact to FEA institutions.

Multivariate Analysis

The decision process on applications for vocational rehabilitation is observed using multivariate analyses. As already shown in the methods section, a step-wise model is used in order to see how much variance is explained by adding groups of variables. Furthermore, changes regarding the size and direction of the coefficients can be observed for each step a group of variables is added to the model. The multivariate results measuring the approval/disapproval decision of an application for vocational rehabilitation are displayed in table 2 (attachment). In order to state the size of influence of each characteristic average marginal effects (ame) are presented. The *socio-demographic model* only controls for socio-demographic information, the *structural model* controls additionally for the regional labour market structure and the year the application has been submitted, the *biographical model* adds information on the labour market biography and the *process (or full) model* includes further rehabilitation-process-specific information on the profile of the applicant and whether an application was submitted earlier or not.

The results state that men have generally higher chances of being accepted compared to women. The same is true for younger people – particularly those aged less than 25 years – as well as people with German citizenship and people who are ascertained to be severely disabled (or have equal legal status). This could already be found within the descriptive analysis. However, statistical significance of the schooling and vocational degree is not stable over all model steps. Within the socio-demographic model, the structural and the biographical model, those people without any schooling degree show a highly significant negative correlation of being accepted as a vocational rehabilitant. Thus, people lacking a schooling degree have a lower chance of being accepted compared to people with lower secondary degree.

However, if we control for rehabilitation-specific process information the characteristic *no schooling degree* loses its statistical significance. The intermediate secondary degree at first is insignificant, but becomes significant already in the structural model and is still significant in the full model, where additionally labour market biography and process-specific information is controlled for. Similar (unstable) results can be observed for the vocational degree; when biographical information is added the coefficient of those people lacking a vocational degree even changes the direction, whereas, in the full model, the lack of a vocational degree has no influence on the decision, anymore. Higher vocational degrees ((technical) college degree) lose their statistical significance when biographical and process-specific information is added.

In regard to the full model, it can be stated that schooling and vocational qualification is only marginally relevant for the decision process. However, it can be found that higher chances for acceptance can be found for those with an intermediate schooling degree.

In the structure model, variables on the (regional) labour market structure are added. 2.1% of the variance in measuring a successful application for vocational rehabilitation is explained by controlling for socio-demographic information only. By adding data on labour market structure, 2.6% of the variance is explained. However, regarding the (time-variable) regional labour market structure, no apparent pattern can be identified (as already found in the descriptives): compared to urban regions with favourable labour market structure, low chances for application approval can be found in rural regions in eastern Germany with bad labour market conditions. However, this can also be said for (rather structurally good) regions with high seasonal dynamics and favourable labour market conditions. Controlling for the year the application was submitted, the results show that applicants who submitted an

application in 2007 were less likely to be approved later on. Worst chances of approval can be found for 2010, when the general labour market situation in Germany was quite good. The coefficients, though, do not differ much.

In model 3, biographical information was added to the model which increases the explained variance to 4,1%. One of these biographical variables is the labour market status at the time of the application. Compared to people in full-time employment (including interns, trainees and apprentices), people receiving unemployment benefits have the highest chances for approval, followed by people participating in measures for severely disabled people and by people receiving basic income support. These results match the descriptives mentioned above. The reason why unemployed people are more often approved compared to employed people might be the closer contact to gatekeeper personnel. Thus, it is more likely that those receiving benefits of the FEA or already participating in a labour market programme (which is often used to pre-test a rehabilitation demand) already have a closer contact to respective personnel of the FEA which is not necessarily the case with employed people. In direct contact to the applicants, personnel are able to better assess the rehabilitation demand. Furthermore, personnel of the FEA might consider those already unemployed as more urgent cases for vocational rehabilitation compared to applicants still employed. From the applicant view, people in unemployment are not afraid of losing their job or being absent from the job for a longer time. Thus, it could also be the case that employed people are more often rejected because they withdraw their application out of fear to lose their job completely[7]. Furthermore, the days spent in (un-)employment, in labour market programmes and in longer sickness periods were cumulated and added to the model. All average marginal effects (except for days spent in labour market measures) are

[7] Whether the candidate was rejected or withdrew his/her application cannot be distinguished with the given data.

close to zero, but show a negative coefficient and are highly significant. Thus, the more days the applicants have spent in unemployment, employment, or sickness, the lower the probability of being approved as a vocational rehabilitant. In regard to the measure *days spent in labour market programmes,* it is the other way around: the more days spent in measures, the higher the probability of being accepted. Income at the time of the application seems to be less relevant, since it lacks statistical significance. Thus, the size of income makes no difference in the decision process.

In model 4, adding (rehabilitation)process-specific information, the explained variance increases to 5,1%. People, who already submitted an application earlier (successfully or not), are more likely to be approved compared to people who apply the first time. Furthermore, people who are considered a support client – thus, show some lack in qualification or in capabilities or have environmental difficulties (e.g. at the work place), but are expected to be re-integrated relatively fast – have the highest chances of being approved.

Résumé, discussion and outlook

By summarizing the results, I would like to refer back to the hypotheses above. In the first hypothesis, it was stated that the probability for approval to vocational rehabilitation is higher if the probability of labour market integration is relatively good in terms of lower age, higher schooling and occupational degree, better labour market structure and less unemployment and sickness periods regarding the prior employment biography. As this hypothesis consists of several parts, it can only be partly confirmed: The results show that lower age groups have a higher probability for approval. They, furthermore, show that a medium schooling degree provides better chances for approval (in relation to a lower schooling degree). However, a professional degree does not (significantly) determine the decision of (dis-)approval.

Although the type of labour market structure at the place of residence does matter for the selection into vocational rehabilitation, there is no consistent and clear pattern over all types of regional labour markets. This might be due to different practices within each agency district towards (dis-)approval or to other factors determining selection, as e.g. regional labour market chances of the target occupation. It, furthermore, can be confirmed that lower unemployment and sickness spells prior to the application are to improve chances of approval. Though, the coefficients are close to zero, but have a negative sign. The second hypotheses stating that applicants have higher chances for approval if they are unemployed or in general measures at the time of the application can be confirmed: compared to full-time employed people, unemployed people (receiving unemployment benefits or income support) and people participating in general labour market measures have higher chances of approval. If people are already out of the job, they do not have to fear the loss of their job or (very high) loss of income since they already receive income support or unemployment benefits.

Further determinants for the decision on approval or decline of applications, are gender-specific. Thus, women are more frequently rejected. This might be due to a limited support of part-time measures and the frequent need to travel higher distances. For women in child rearing, this might be problematic and can result in withdrawal of application. Furthermore, it is relevant whether the applicant is severely disabled or is of equal legal status and whether the applicant has already submitted an application beforehand. Both factors improve the chances of being accepted for vocational rehabilitation. The legal status of being severely disabled points to a health limitation and the fact that an application is submitted a second (or third) time

hints to an ongoing health and occupational limitation which might cause the rehabilitation personnel to look closer towards a repeated application.

There are some limitations to this study. First of all, I can only report on the applicants to vocational rehabilitation. However, we cannot say anything about those people who do not apply for vocational rehabilitation, even though they were potential candidates. Thus, there is still not much known about the recognition process of potential applicants – which is due to the fact that this is very hard to observe. Secondly, though the register data used here provides a lot of insight into labour market biographies prior and after vocational rehabilitation, it only gives limited access to information on the individual health condition and on occupational limitations due to the health condition. This results in a rather low explained variance of only five percent. Nonetheless, the data gives rather unique opportunities to analyse all selection steps in the process of vocational rehabilitation (approval of application, selection into measures and selection into the labour market), the first time. As selection mechanisms at the entry to vocational rehabilitation are analysed in a first step, employment transitions of both groups (rejected and approved) can be compared in a second step. It needs to be observed how employment biographies differ for both groups and whether accepted applicants are more successful in terms of re-employment. In order to balance biased return to work rates, it will be necessary to account for the selection process into vocational rehabilitation by using a heckman correction for future analyses.

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Table 1: Population Description of Rejected and Approved Applicants (socio-demographic & structural data)

		Application for Vocational Rehabilitation…					
		Rejected		Approved		Total	
		Freq	Row %	Freq	Row %	Freq	Col %
Gender	Female	18411	22%	65424	78%	83835	43%
	Male	22798	20%	89623	80%	112421	57%
Age at the time of application	< 25 years	5330	14%	32228	86%	37558	19%
	25 to 34 years	21718	20%	85600	80%	107318	55%
	35 to 44 years	9210	26%	26606	74%	35816	18%
	≥ 45 years	4951	32%	10613	68%	15564	8%
Citizenship	Non-German	4263	26%	12342	74%	16605	8%
	German	36890	21%	142558	79%	179448	91%
	Missing values	56	28%	147	72%	203	0%
Schooling degree	No (lower) schooling degree	8975	25%	27458	75%	36433	19%
	Lower secondary schooling degree	13074	20%	53274	80%	66348	34%
	Intermediate secondary schooling degree	11645	20%	47857	80%	59502	30%
	Advanced technical college entrance certificate	3141	22%	11352	78%	14493	7%
	Higher education entrance certificate	4374	22%	15106	78%	19480	10%
Vocational degree	No (vocational) degree (valid in the German context)	5278	21%	20192	79%	25470	13%
	Company-internal/-external degree	26654	20%	104066	80%	130720	67%
	Vocational school	2234	20%	8824	80%	11058	6%
	Technical school	1489	23%	5082	77%	6571	3%
	Technical college degree	413	25%	1260	75%	1673	1%
	College degree	737	24%	2371	76%	3108	2%
	Technical college degree (without detailled specificiation)	965	24%	3123	76%	4088	2%
	Universtiy degree (without detailled specification)	3320	25%	9783	75%	13103	7%
	Missing values	119	26%	346	74%	465	0%
Disability degree	Not severely disabled	35513	22%	123240	78%	158753	81%
	Severely disabled/ equal legal status	5696	15%	31807	85%	37503	19%
Regional labour market structure	Urban regions with favourable labour market structure	3.920	17	19.132	83	23.052	12%
	Urban regions characterized by a high amount of industry and favourable labour market conditions	4.843	22	17.096	78	21.939	11%
	Urban regions with unemployment above the mean	2.820	23	9.354	77	12.174	6%
	Urban regions with very high unemployment	4.971	21	18.799	79	23.770	12%
	Mostly urban regions with unemployment above the mean	2.345	20	9.404	80	11.749	6%
	Less or medium inhabited regions with unemployment slightly above the mean	6.302	22	22.680	78	28.982	15%
	Less inhabited regions with unemployment above the average	2.071	23	7.089	77	9.160	5%
	Less inhabited regions with favourable labour market condition	4.099	24	12.909	76	17.008	9%
	Rural regions with low unemployment and high seasonal dynamics	1.948	16	10.356	84	12.304	6%
	Regions with high seasonal dynamics and favourable labour market conditions	1.048	23	3.549	77	4.597	
	Less inhabited regions mainly in eastern Germany with high unemployment and seasonal influences, partly bordering western	1.593	18	7.097	82	8.690	4%
	Less or medium inhabited regions in eastern Germany with bad labour market conditions	3.199	22	11.067	78	14.266	7%
	Rural regions in eastern Germany with bad labour market conditions	2.050	24	6.515	76	8.565	4%
Year of application submission	2007	5521	21%	21354	79%	26875	14%
	2008	6186	22%	22253	78%	28439	14%
	2009	5691	20%	22709	80%	28400	14%
	2010	6238	22%	21520	78%	27758	14%
	2011	6056	22%	21824	78%	27880	14%
	2012	5798	21%	22353	79%	28151	14%
	2013	5719	20%	23034	80%	28753	15%
	Total	**41209**	**21%**	**155047**	**79%**	**196256**	**100%**

Table 1: Population Description of Rejected and Approved Applicants (cont'd: biographical & process data)

		Application for Vocational Rehabilitation…					
		Rejected		Approved		Total	
		Freq	Row %	Freq	Row %	Freq	Col %
Labour market status at the time of the application	Unemployed/on job search/rehabilitation	7659	23%	26276	77%	33935	17%
	Receipt of basic income support (SGB II)	8641	19%	36550	81%	45191	23%
	Receipt of unemployment benefits (SGB III)	5169	14%	32519	86%	37688	19%
	Full-time employed (incl. interns/apprentices/trainees)	12755	27%	34130	73%	46885	24%
	Marginally employed	3331	22%	11570	78%	14901	8%
	Job creation measures	598	20%	2333	80%	2931	1%
	Employment subsidies	300	19%	1311	81%	1611	1%
	Further training	213	19%	893	81%	1106	1%
	Training measures	502	23%	1696	77%	2198	1%
	Measures for severly disabled	176	14%	1084	86%	1260	1%
	Others	551	20%	2186	80%	2737	1%
	Missing values	1314	23%	4499	77%	5813	3%
Approved		Obs	Mean	Std. Dev.	Min	Max	
	Days in sickness	155047	81,02	140,9757	0	3076	
	Days in unemployment	155047	630	735,2122	0	9239	
	Days in employment	155047	2217,4	1530,521	0	19354	
	Days in measures	155047	394,22	602,2727	0	6580	
	(Log) income at the time of the application	147733	3,1242	0,984975	0	7,6168	
Rejected		Obs	Mean	Std. Dev.	Min	Max	
	Days in sickness	41209	98,802	155,2537	0	1757	
	Days in unemployment	41209	704,46	829,0542	0	11694	
	Days in employment	41209	2493,9	1658,28	0	15534	
	Days in measures	41209	349,08	569,3291	0	27763	
	(Log) income at the time of the application	39715	3,2279	1,035041	0	6,1776	
Total		Obs	Mean	Std. Dev.	Min	Max	
	Days in sickness	196256	84,754	144,2727	0	3076	
	Days in unemployment	196256	645,63	756,4898	0	11694	
	Days in employment	196256	2275,5	1562,275	0	19354	
	Days in measures	196256	384,74	595,7888	0	27763	
	(Log) income at the time of the application	187448	3,1462	0,996692	0	7,6168	
		Application for Vocational Rehabilitation…					
		Rejected		Approved		Total	
		Freq	Row %	Freq	Row %	Freq	Col %
Repeated application	No	38653	22%	140266	78%	178919	91%
	Yes	2556	15%	14781	85%	17337	9%
Profiling	Not yet profiled/missing values	18302	27%	48684	73%	66986	34%
	Market profile	846	27%	2332	73%	3178	2%
	Activation profile	869	21%	3193	79%	4062	2%
	Support profile	5409	14%	34247	86%	39656	20%
	Development profile	5175	18%	24341	82%	29516	15%
	Stabilization profile	1948	23%	6630	77%	8578	4%
	Assistance profile	2722	20%	10807	80%	13529	7%
	Profile assignment not possible	5133	18%	23180	82%	28313	14%
	Integrated, but in need for help	805	33%	1633	67%	2438	1%
	Total	**41209**	**21%**	**155047**	**79%**	**196256**	**100%**

Table 2: Logistic Regression Measuring Application Decision

Selection into Vocational Rehabilitation: Application Approved				
	Socio-Demographic	Structural	Biographical	Process
	ame (se)	ame (se)	ame (se)	ame (se)
Male	0,01 (0,00) ***	0,01 (0,00) ***	0,01 (0,00) ***	0,01 (0,00) ***
Age at the time of application (Ref.: 25 to 34 years)				
< 25 years	0,06 (0,00) ***	0,06 (0,00) ***	0,04 (0,00) ***	0,04 (0,00) ***
35 to 44 years	-0,05 (0,00) ***	-0,05 (0,00) ***	-0,04 (0,00) ***	-0,04 (0,00) ***
≥ 45 years	-0,11 (0,00) ***	-0,11 (0,00) ***	-0,11 (0,00) ***	-0,10 (0,00) ***
German	0,03 (0,00) ***	0,03 (0,00) ***	0,04 (0,00) ***	0,04 (0,00) ***
Schooling degree (Ref.: Lower secondary schooling degree)				
No (lower) schooling degree	-0,03 (0,00) ***	-0,03 (0,00) ***	-0,01 (0,00) ***	-0,00 (0,00)
Intermediate secondary schooling degree	0,00 (0,00)	0,00 (0,00) +	0,01 (0,00) **	0,01 (0,00) **
Higher education entrance certificate	0,00 (0,00)	0,00 (0,00)	-0,00 (0,00)	0,00 (0,00)
Vocational degree (Ref.: Company-internal/-external degree)				
No (vocational) degree (valid in the German context)	0,02 (0,00) ***	0,02 (0,00) ***	-0,01 (0,00) *	-0,01 (0,00)
Vocational school	0,00 (0,00)	0,00 (0,00)	-0,00 (0,00)	-0,00 (0,00)
Technical college	-0,01 (0,01)	-0,01 (0,01) +	-0,00 (0,01)	-0,00 (0,01)
University (of Applied Sciences)	-0,02 (0,00) ***	-0,02 (0,00) ***	-0,01 (0,00) +	-0,00 (0,00)
Severely disabled/ equal legal status	0,09 (0,00) ***	0,09 (0,00) ***	0,08 (0,00) ***	0,07 (0,00) ***
Regional labour market structure (Ref.: Urban regions with favourable labour market structure)				
Urban regions; high amount of industry and favourable labour market conditions		-0,06 (0,00) ***	-0,05 (0,00) ***	-0,05 (0,00) ***
Urban regions with unemployment above the mean		-0,06 (0,00) ***	-0,06 (0,00) ***	-0,06 (0,00) ***
Urban regions with very high unemployment		-0,04 (0,00) ***	-0,05 (0,00) ***	-0,04 (0,00) ***
Mostly urban regions with unemployment above the mean		-0,04 (0,00) ***	-0,04 (0,00) ***	-0,03 (0,00) ***
Less or medium inhabited regions with unemployment slightly above the mean		-0,05 (0,00) ***	-0,05 (0,00) ***	-0,05 (0,00) ***
Less inhabited regions with unemployment above the average		-0,07 (0,00) ***	-0,07 (0,01) ***	-0,07 (0,01) ***
Less inhabited regions with favourable labour market condition		-0,08 (0,00) ***	-0,07 (0,00) ***	-0,07 (0,00) ***
Rural regions with low unemployment and high seasonal dynamics		-0,00 (0,00)	0,00 (0,00)	0,00 (0,00)
Regions with high seasonal dynamics and favourable labour market conditions		-0,08 (0,01) ***	-0,07 (0,01) ***	-0,07 (0,01) ***
Less inhabited regions mainly in eastern Germany with high unemployment and seasonal influences, partly bordering western Germany		-0,04 (0,00) ***	-0,04 (0,01) ***	-0,03 (0,01) ***
Less or medium inhabited regions in eastern Germany with bad labour market conditions		-0,07 (0,00) ***	-0,08 (0,00) ***	-0,07 (0,00) ***
Rural regions in eastern Germany with bad labour market conditions		-0,10 (0,01) ***	-0,10 (0,01) ***	-0,09 (0,01) ***
+ p<0.1, * p<0.05, ** p<0.01, *** p<0.001				

Table 2: Logistic Regression Measuring Application Decision (cont'd)

Selection into Vocational Rehabilitation: Application Approved				
	Socio-Demographic	Structural	Biographical	Process
	ame (se)	ame (se)	ame (se)	ame (se)
Year of application (Ref.: 2007)				
2008		-0,01 (0,00) **	-0,01 (0,00) *	-0,02 (0,00) ***
2009		0,00 (0,00)	0,01 (0,00) +	-0,00 (0,00)
2010		-0,02 (0,00) ***	-0,01 (0,00) ***	-0,03 (0,00) ***
2011		-0,01 (0,00) **	-0,00 (0,00)	-0,02 (0,00) ***
2012		0,00 (0,00)	0,01 (0,00) *	-0,01 (0,00) **
2013		0,01 (0,00) **	0,02 (0,00) ***	0,00 (0,00)
Labour market status at the time of the application (Ref.: Full-time employed (incl. interns/apprentices/trainees))				
Unemployed/on job search/rehabilitation			0,05 (0,00) ***	0,04 (0,00) ***
Receipt of basic income support (SGB II)			0,10 (0,00) ***	0,06 (0,00) ***
Receipt of unemployment benefits (SGB III)			0,13 (0,00) ***	0,10 (0,00) ***
Marginally employed			0,06 (0,00) ***	0,03 (0,00) ***
Job creation measures			0,07 (0,01) ***	0,04 (0,01) ***
Employment subsidies			0,04 (0,01) ***	0,02 (0,01) +
Further training			0,07 (0,00) ***	0,03 (0,00) ***
Training measures			0,03 (0,00) ***	-0,00 (0,00) ***
Measures for severly disabled			0,08 (0,00) ***	0,07 (0,00) ***
Others			0,08 (0,00) ***	0,05 (0,00) ***
Days in sickness			-0,00 (0,00) ***	-0,00 (0,00) ***
Days in measures			0,00 (0,00) ***	0,00 (0,00) ***
(Log) income at the time of the application			-0,00 (0,00)	0,00 (0,00)
Days in unemployment			-0,00 (0,00) ***	-0,00 (0,00) ***
Days in employment			-0,00 (0,00) ***	-0,00 (0,00) ***
Repeated application				0,08 (0,00) ***
Profiling (Ref.: Market profile)				
Not yet profiled/missing values				0,02 (0,01) *
Activation profile				0,03 (0,01) **
Support profile				0,11 (0,01) ***
Development profile				0,09 (0,01) ***
Stabilization profile				0,05 (0,01) ***
Assistance profile				0,08 (0,01) ***
Profile assignment not possible				0,09 (0,01) ***
Integrated, but in need for help				-0,03 (0,01) **
Constant	1,11 (0,02) ***	1,41 (0,03) ***	1,18 (0,05) ***	0,96 (0,06) ***
Observations	195588	195588	183543	183543
Pseudo R-squared	0,021	0,026	0,041	0,051
AIC	196736,4	195787,8	181569,3	179694,5
BIC	196878,9	196113,7	182044,9	180261,2

+ p<0.1, * p<0.05, ** p<0.01, *** p<0.001