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What Determines the Quality of Job Training Services?
A Multi-Level Analysis for Austria

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A Multi-Level Analysis for Austria

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Abstract

Within the last few decades, the provision of social services was and still is changing in many ways: due to ideological changes and cost containment efforts, the public sector has been gradually withdrawing from his dual role as financier *and* provider of social services. The public sector now prefers acting as a financier rather than a provider. It purchases services on behalf of service users, while private sector organizations assume the responsibility for service provision.

Recently, European rules for public procurement policies and the efforts to liberalize service markets have promoted **changes in the funding relationship** between public entities on the one hand and nonprofit or forprofit organisations on the other hand. Increasingly, in terms of *instruments* the public sector follows a contractual approach to managing its relationship with private and nonprofit organizations. Performance related forms of funding are becoming gradually more important whereas funding via grants is on the decline. Moreover, *modes* of public procurement are relying more heavily on competitive processes.

In Austria, training services for the unemployed are provided by both, nonprofit and forprofit organisations. A public sector agency (PES-A) is the sole financier of training services for the unemployed and contracts with private providers. Unemployed people in need of training are then assigned to training courses by the PES-A. Since 2002, the public agent has changed its way of purchasing services and increasingly relies on competitive tendering processes. Little is known on the effects of this change on service provision in terms of cost containment and even less is know about its impact on the quality of training services purchased.

Against this background, our **paper aims** to reveal the determinants of quality of training services for unemployed people with a special emphasis on the modes of procurement used to purchase such services.

A comprehensive literature review offers insight into the effects of different procurement policies. We focus on the effects of modes of public funding on the *quality* of nonprofit social service provision that are reported in the literature. Our theoretical considerations are rooted in economic theories, mainly neo-institutional economics in order to explain potential effects of contracting on the quality of social services.

The **data** were gained by merging administrative data on characteristics of participants and courses provided by the Public Employment Service Austria (PES-A) and organizational-level data from a postal questionnaire we administered to service providers that contracted with the PES-A in 2005/2006.

Three different **measures** for quality related to the output and outcome of training services are in the centre of interest (individual drop out, individual success, job three months after the end of the training). Predictors of quality were expected in individual characteristics, characteristics of the course and of the firms that provide these services and in regional factors.

Our data show a **hierarchical structure**: participants are nested in courses; courses are nested in firms providing these trainings. Due to this structure of the data, the assumption of independency required by regression methods, like OLS, does not hold true. Ordinary least square regressions or – like in our case – simple logit regressions would lead to misleading results. Therefore, we fitted **multivariate multilevel models** (MLM) using MLwiN 2.0. Our multilevel models consist of three levels: level 1 includes a set of characteristics of about 11.500 participants of courses. Level 2 consists of 682 courses, characterised e.g. by type of training, duration, type of contract. Level 3 stands for organizations – information on 72 nonprofit and forprofit providers were merged with the administrative data on participants and courses.

We ran three logistic regression analyses to identify the determinants of the quality of services for unemployed people and to measure the potential impact of the public procurement policy used. Analyses showed that characteristics on all levels, but mainly on the individual level, influence significantly the outcome quality of training services. At this early stage of data analyses (2005), the procurement act was put into force in Austria in 2002, we did not find effects of competitive tendering on the outcome of training services.

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1. Competition-Oriented Reform of Job Market Policy-
   ## an Interim Assessment

In the socio-political reforms of the last few years, active job market policy has taken a singular position. It is emblematic of the enabling welfare state design, which seeks to relieve or forestall lasting dependence on governmental social aid. A successful active job market policy should reduce the duration of unemployment, open economic opportunities, create financial independence, encourage self-reliant and independent action and mobilize human resources. Implementing **market-oriented structures** in the "quasi-market," as elsewhere, has been a goal in and of itself as well as a means to achieving narrower goals of job market policy, in programs marked by neo liberalism (see also Le Grand/Bartlett 1993; cf. van Berkel/van der Aa 2005: 331).

The achieved degree of market similarity (Marktlichkeit), measured, for example, by the market structure and dynamic, market transparency and monetary stimulation, as well as the results of the new competition-oriented job market policy has now undergone its first appraisals. At the same time it has become evident that the degree of market similarity is not achieved through the introduction of calls for bids alone. With reference to the dominant market structures (among other things, the strong position of the state as buyer), price fixing (partial price setting), market transparency (information about the nature and quality of offered services) or transaction costs, the functioning ability of the new quasi-markets is still limited. Furthermore, there is more or less clear evidence in international literature for „creaming"[1] and „parking,"[2] which impairs the access of enabling services for disadvantaged people in the market. These persons are turned down in part by private providers, are eliminated from programs later, or do not receive proper attention (cf. Dockery/Stromback 2001; Bredgaard et al. 2005; Struyven/Steurs 2005: 214ff.; Jahn/Ochel 2007).

Concerning the **effectiveness of competition-oriented job market policies**, existing studies document, for example in Australia, an improved cost-effectiveness in the reformed system. (Dockery/Stromback 2001: 220; Struyven/Steurs 2005). However, it should be kept in mind that the improvement of cost-efficiency can result from increased productivity as well as a reallocation at the employees' expense (in the form of salary cuts or a worsening of working conditions) (cf. Domberger/Jensen 1997: 74). The findings of Irmer/Dawid/Schneider (2007) offer evidence of such reallocation effects in Austria. In the first evaluations of the new job market allocation system in other countries, this tendency is not observed with greater intensity. The country case studies of Sweden and Denmark by Byrnste and Greve constitute an exception in which, due to the changes in the working conditions in geriatric care in both countries, different results are reached (cf. Bryntse/Greve 2002: 12).

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[1] "creaming": Providers only tend to the "easy cases." The selection of unemployed workers is carried out according to the highest likelihood of reaching the appointed goal.

[2] "parking": Service providers do not apply themselves to their assigned unemployed workers at all or only to an insufficient extent to those whose chance of success is assessed as remote.

On the other hand, few findings **regarding the effects on quality** of a competition-oriented job market policy exist - with the exception of the previously mentioned "cherry-picking" problem. There is isolated evidence to suggest that the pricing and compensation systems respectively can lead to deficits in quality. Struyven und Steurs (2005: 216) report that the Australian Department of Employment and Workplace Relations was eliminated from competition in the third round of tenders by minimum prices after the biddings concentrated around this low price. For that reason fixed prices have been predetermined. Jahn und Ochel (2007: 129) note that, after the insolvency of the largest "Personal Service Agentur" (Personnel Service Agency, PSA) in Germany, the weighting system for the A of temporary employment agencies within the scope of the PSA concept was readjusted. While price was to be weighted initially (2003/2004) at 60% and quality at 40%, this relationship then was reversed.

Concerning the safeguarding of quality, van Berkel und van der Aa (2005: 339) report that in the Netherlands quality assurance is regarded as the duty of the providers. According to their findings, the umbrella association of provider organizations in this sector also has developed a system of quality certification, though the largest public purchaser has not adopted it. In principle, case managers could also check the quality of enabling offers for their clients, something which in fact does not occur. In addition, there seems to be no recognizable inclination to innovate in the market, and the enabling services offered are rather standardized. In Germany, according to Ochel und Jahn (2007: 130), the failures of the Personnel Service Agencies (PSA) with regard to the timely processing of assigned cases are well known. The processing is occurring with delays, because the PSAs would like to acquire client firms first. If the unemployed were to be hired earlier, the PSAs would not only have to bear their labor costs but also to perform qualifications in the time in which they cannot place their clients with companies. Consequently, the technically-already-assigned clients often lose the qualification elements of the service. In such cases the state employer has no sanction options other than to terminate the contract—with corresponding costs—and seldom intervenes.

One can counter these observations with the argument that, because of insufficient data regarding quality performance, it is only possible to compare the quality of job market services in the competitive field with that of the traditional system in a limited manner. Domberger and Jensen (1997: 74) term this a "significantly asymmetrical" data situation with regard to quality. It is, however, conceivable that, despite all the problems mentioned, the new system actually constitutes progress in quality. Moreover, because of the outsourcing trend in the public sector, the public's attention was first focused on quality aspects, which can be considered a plus in and of itself. Domberger and Jensen (1997: 74) also observe that it is "extremely difficult" to apply the common, intuitive understanding of quality here with methodical rigor.

The best information base is that for the **outcome quality for job market services**. Based on international experience, reintegration into the job market appears, on average, to work better for all participants in the competition-oriented commissioning system than in the old system of state labor administration. The improvements are, however, less noticeable than expected (cf. Dockery/Stromback 2001: 447; Struyven/Steurs 2005: 223; van Berkel/van der Aa 2005: 336f.). The results of previous evaluations have appeared within a relatively short "phase-in" period and also must be viewed in the context of the general job market trend. Additionally, the data basis of the—often state-provided—evaluations is only partially accessible to the public.

A series of very important methodological questions are posed as well, dealing in part with the outcome indicators and in part with the methodology of evaluation per se.

Studies of the evaluation of outcome quality in competitive job market policies often quote the *average* success of participants. Via the aggregation of individual characteristics, attempts are made to generate insights into outcomes. Accounts also are offered of analyses on the individual level, whereby, information based on the group level (for example, about allocation procedures or service contents) is included as a controlling factor without explicitly taking into account the data structure of the model. Both procedural methods lead to problems resulting from the limits of conventional statistical methods for hierarchical data (cf. Heinrich/Lynn Jr. 2001: 110f.).

Heinrich and Lynn Jr. (2001) and Heinrich (2000) demonstrate, with an example of job market policy evaluation, that it is more effective to evaluate hierarchically-structured data in multilevel analytical models. In a multilevel model, the interaction between the levels can be analyzed and for every data level the degree of the explained variance can be identified. The multilevel analysis also indicates in each case which level is responsible for each degree of the total variance. In direct comparison of the evaluation approaches Heinrich und Lynn Jr. (2001) demonstrate that multilevel models allow for more detailed and less distorted estimates than OLS estimates on only one level. In particular, outcomes emerge that diverge strongly from OLS models on the program level.

Against this background, it is the **goal of this article** to examine the job training service policies of the *Public Employment Service Austria* (AMS) with recent data for the first time within the scope of multilevel analysis models. On the one hand, with the help of this method it will be determined whether the factors typically connected with individual success probability once again prove themselves to be significant. On the other hand, the explanatory contribution of contextual factors—such as course layout and the competitive awarding of commissions will be explored. It should be noted that it is still a little early for a solid analysis of active market-oriented job market policy in Austria. The tendering of job training services is a comparatively new development. The share of services which are allocated to tendering processes is still modest. Also, up to now, little data has been available, and the corresponding systems are only now under construction. For these reasons an initial estimate can serve even more as a basis for subsequent evaluations and moderate excessive expectations or fears about the subject of competitive contract awarding.

In the course of this article, the factors influencing outcome quality, which should be considered by the model, will be systematized first. Then the data and method of analysis will be presented. Subsequently, the results of the estimates will be laid out and elucidated. The article concludes with a summary of the insights gained and the projected possibilities for continuing research.

2. Factors Influencing the Outcome Quality in Job Training Service Policies

Job training services create the organizational framework for imparting skills, enhancing abilities, and teaching techniques that should ease the (re-)integration of the unemployed into the job market. These accomplishments, which are assigned to training services, emerge first in the course of interaction between trainers and job-seeking participants. The quality of job training services is thus central to describing the characteristics of this interaction process (process quality) as well as of the results of interaction (outcome quality).

At the center of this article is the examination of factors, which influence the outcome quality of job training services. The *outcome quality*—in the sense of enhancing competence, proficiency, and ability, as well as the reintegration of participants into the job market after/during the course—is potentially influenced by a plethora of factors. These factors are linked to the directly and indirectly involved participants, as well as to the institutional, social, and economic contexts (cf. also Figure 1).

Figure 1 clarifies stylized indirect coherences between selected aspects of the procurement process and the quality of job training services.

Figure 1: Potential Influencing Factors on the Quality of Job Training Services
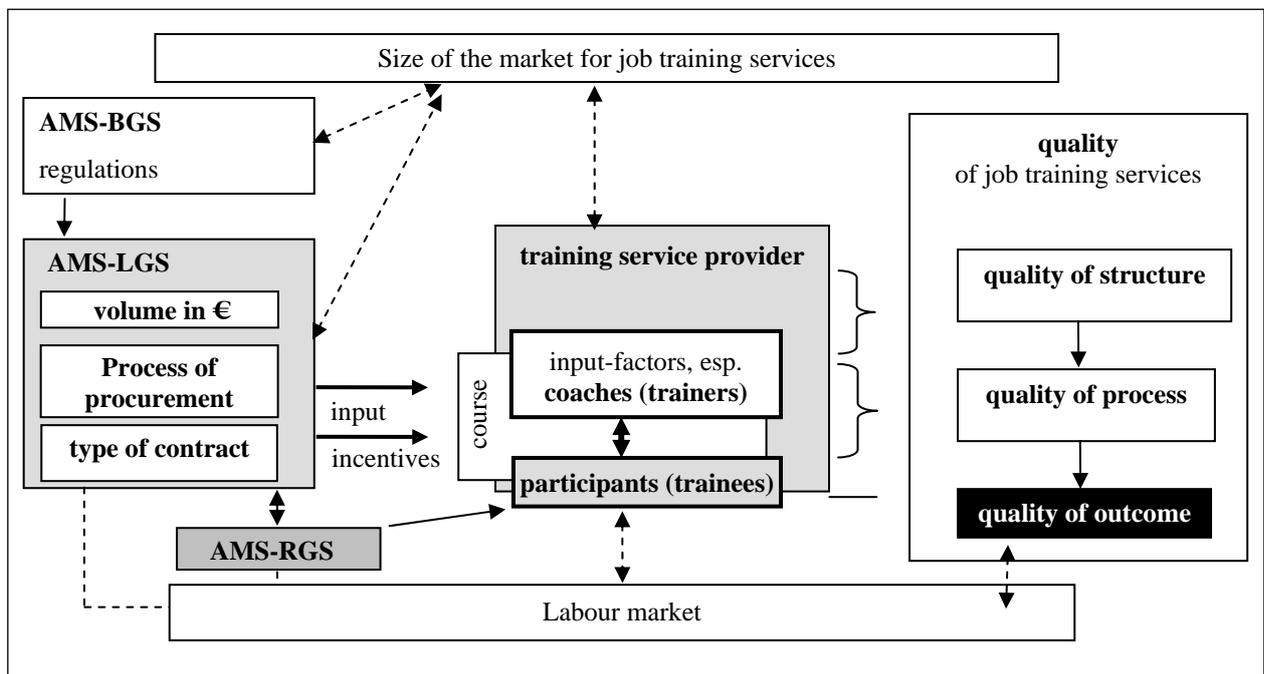
Notes: *AMS-BGS: federal branch of the Public Employment Service*
        AMS-LGS: state branche of the Public Employment Service
        AMS-RGS:regional branche of the Public Employment Service

Source: Further developed for job training services according to Trukeschitz/Schneider (2007: 264)

This article is particularly interested in the influence emanating from the AMS procurement policy parameters for the outcome quality of job training services—specifically for the probability of success in courses and the employability of unemployed persons. An attempt to influence is expected in many aspects of the procurement process, in particular in the context of defining services to be procured and in the selection phase of training facilities eligible for the establishment of services. [3]

Offering the "right" courses is important above all for job market integration. In advance of conducting courses and the actual commissioning of training facilities, the selection of job training services, with regard to content and other details (like course length or completion requirements), must be determined to correspond with current and expected job market conditions. Failed decisions in this phase of the procurement process probably do not impair the acquisition of skills in the courses (the output) but do reduce the chances of (re-)integration into the job market (the outcome) if the skills and abilities acquired are not in demand.

When desired training services have been chosen, the task for the next phase of the procurement process [4] is to investigate which training facility offers the best price-performance ratio (the best bidder principle). The selection of organizations can be carried out in many ways[5], available according to the magnitude and nature of the placed order and the training market. Alternative procurement procedures differentiate themselves primarily to the extent to which competition among the potential service providers is initiated. Competition-oriented procurement procedures should ensure fair, discrimination-free access of qualified providers to AMS contracts. From a liberal market position, superiority of competitive vs. direct allocation could be anticipated with respect to the selection of the best offer (cf. also Burger 2007).

So far two procurement policy factors influencing outcome quality have been studied conceptually (creation of the course program and selection of providers). The third influencing factor concerns formulating the AMS service agreement with the training facility. In these agreements production- and service-oriented standards (e.g. trainer qualification and experience or placement rate) can be incorporated. So, too, can incentives[6] for the performance of training facilities be asserted via the system of compensation (amounts and billing modes). Both ultimately can influence the outcome quality. For these aspects insufficient data was available for empirical analysis so that this potential influence could not be pursued further.

In addition to the possible influences of the procurement policy, it must be assumed that other, if not several other, factors have an influence on the outcome quality of job training services. Among these are the **course** characteristics, the trainers, the participants, and the engaged training facilities.

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[3] For the other possible influences on the quality in the procurement procedure, see Trukeschitz/Jung (2007).
[4] For the phases of the procurement procedure, see Schedlberger/Schneider as well as Trukeschitz/Jung in this volume.
[5] For the concrete steps of contract awarding and further details, see Schedlberger (2006) as well as Schedlberger/Schneider (2007).
[6] See also for this Burger (2007).

Two central players have direct influence on the process quality, which in turn is deemed to have a meaningful effect on the outcome quality—the **trainer and participant**. Participants with risk factors, like limited education or long-term unemployment, would similarly exhibit less probability of success in the courses as well as in (re-)integration into the job market. In addition to engaging qualified *trainers*, the assignment of suitable students to the courses can influence the processes in job training services. The assignment is carried out by the regional branches of the AMS, which directly influence the composition of the classes. This means that the AMS also can exert a favorable influence on quality in the course of the training service. In addition to adequate participant assignment to training services, the monitoring of training services or a result control system, for example, are worthy of consideration.

The training facility constitutes the interface between AMS procurement policy actions and conducting the course. Hence, it is expected that **training providers** exhibit specific characteristics or a "structural quality" that can influence the outcome quality of job training services. The facility entrusted with the execution of the job training service is responsible for the preparation of the classrooms and their furnishing, as well as for engaging qualified trainers. According to Donabedian (1980), one can, therefore, expect influences of what are referred to as the structural qualities of facilities and trainers on the processes and consequently on the results of the service. Among the relevant structural characteristics are the size of the organization (measured by the number of paid employees), its experience (with training offerings and with the AMS client), and the degree of specialization in job training offerings (measured by the ratio between business volume from AMS-services and total business volume). It is expected that all three factors will benefit the outcome quality in relation to how well developed they are.

3.   Data Basis and Method of Empirical Analysis

3.1   Data Basis

The analytical interpretations are based on a data set that was constructed from two data sources: The *federal branche of AMS* made available the anonymous personal data of participants in job training services (e.g. age, sex, professional training) along with data on the job training services concerned (e.g. type of training service, procurement procedure, volume of expenditure, course length). The latter were commissioned and completed from 1/7/2005 to 30/6/2006.[7] This data was linked with information from a *written survey of training facilities* in the autumn of 2006.[8] Included in this data was information provided by organizations about their demographic characteristics (size, location, spectrum of services, etc.), experiences with the AMS (e.g. initiation of collaboration with the AMS, nature of the commission, satisfaction with the assignment procedures), and employed instruments of quality assurance. The data set in which both data sources were consolidated bears the designation ABÖ/AMP-BM 2005/2006.

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[7] Further limitations were of a technical nature: Only those data concerning job training services in the specified time frame could be used, which were already in the BAS_TF (Government Aid Administration System-Provider Facilitation) of the AMS. This system was put into operation in 2005.

[8] For descriptive findings of the organization study, see Schedlberger et al. (2007).

Job training services are administered by the AMS in the form of "projects." Many services can be dedicated to any given project, and these services can consist of many courses. Approximately 90% of the 771 projects in the data set available and suitable for analysis consist only of one service with one course. To reach a homogeneous data structure, in each case one course was randomly chosen for analysis from the remaining 10% of the projects. The underlying data set to be analyzed thus consists entirely of projects with one course.

The utilized information for the analysis of the influencing factors on the outcome quality of job training services exhibits a **hierarchical data structure**. Hierarchically-structured data exists whenever the observed entities emerge in grouped form. In the case under consideration, participants are assigned to specific training facilities. Courses in turn are conducted by specific facilities under AMS commission. The structure of the present data exhibits three levels.

The lowest level (*level 1*) is comprised of the data for *participants* in the courses. Included are attributes of the participants such as sex, age, duration of unemployment, etc. as well as the dependent variables deemed relevant for the study of outcome quality (see related in section 3.3.).

Participants are assigned to specific job training services. *Level 2* of the data structure is constituted by the *courses* attended by participants. These courses are characterized on one hand by the original course attributes, like course length, method, etc., as well as the attributes arising from the aggregate characteristics of AMS-assigned participants. Examples of these attributes are: number of participants, share of participants who have completed compulsory education, etc.

Furthermore, data is available for analysis, which characterizes the *training facilities*. These training providers conduct the job training courses under AMS commission. One or more courses are assigned to the training facilities, and the training facilities, therefore, form *level 3* of the present data structure.

Figure 2: Hierarchical structure of data
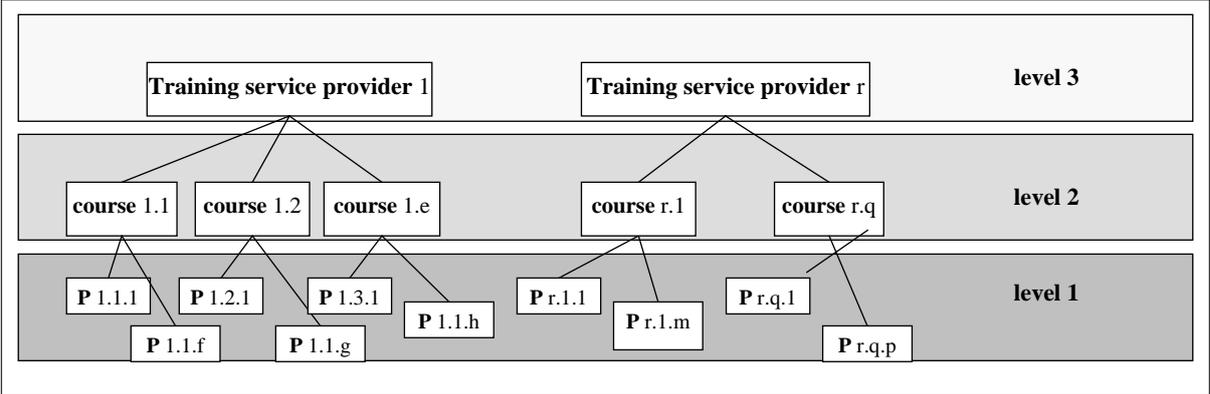
Notes: P…participant (trainee)

For the analysis, the hierarchical data structure implies that participants cannot be considered detached from course context and courses cannot be considered detached from the facility responsible for them. To properly process this data, it is essential to adopt special analytical methods, which in the following section will be introduced briefly.

3.2 Methodology: Multilevel Analysis

Multilevel models[9] are well suited to the analysis of hierarchically-structured data sets. Observation values on one level are no longer to be considered independently of one another, rather they exhibit stronger similarities within groups than between groups. In the present case participants bear more similarity to each other within a course than to others in different courses (inter-class correlation). In such cases, the independence of observations, a key prerequisite of traditional regression models, is compromised. If conventional regression models were utilized in cases with hierarchically-structured data, misinterpretations of the effects would result (cf. Hox 2002: 3ff.).

Unlike standard regression models, multilevel models take into account the grouping of data in the model structure. The parameters are calculated on all levels simultaneously. Moreover, multilevel analyses enable the modeling of relationships between the individual levels. The mapped effects can be traced back to their origin: effects proceed from the influences on the micro-level (e.g. attributes of participants), from the aggregate level(s) (e.g. attributes of the courses, attributes of the training facilities), and from the influences of the interaction between the micro- and aggregate levels. Thus, with reference to the cognitive focus of this article, it can be empirically tested if, for example, participants dropping out of courses is dependent only upon specific characteristics of the participant (level 1) or also on characteristics of the courses attended, which are influenced by the procurement policy (level 2), or on characteristics of the training facility offering the course (level 3).

When it comes to multilevel models, two model forms must be differentiated: Models in which the regression constants of the groups vary (random intercept models) and models in which both the regression constants of the groups and the coefficient of one or more explanatory variable varies randomly across higher-level units (random slope models). Random intercept models were employed exclusively for these analyses of the influencing factors on the quality of job training services. Thus, in the models, the additive constants (intercepts) vary between the courses. For example, this takes into account, that some courses are dropped more often than others. The functional correlations between the individual predictors and the dependent variables are not modeled group-specifically.

The dependent variables under consideration exist in binary form: course dropped (yes | no), course successfully completed (yes | no), and integrated into the job market (either work or apprenticeship: yes|no). Hence, three **multivariate multilevel models are** calculated using **logistic regressions**. The probability that an observation adopts one of two characteristics is modeled, taking into consideration other attributes, which lie on differing levels.

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[9] For detailed explanations of the method of multilevel analysis, see Snijders/Bosker (2004) and Hox (2002).

$$Y_{ijk} \sim Binomial(1, \pi_{ijk}) \qquad\qquad (1)$$

$$logit(\pi_{ijk}) = \log\left(\frac{\pi_{ijk}}{1-\pi_{ijk}}\right) = \beta_{0jk} + \sum_{h=1}^{p} \beta_h x_{hijk} + \sum_{h=1}^{q} \gamma_h y_{hjk} + \sum_{h=1}^{r} \delta_h z_{hk} \qquad (2)$$

$$\beta_{0jk} = \beta_0 + v_{0k} + u_{0jk} \qquad\qquad (3)$$

$$[v_{0k}] \sim N(0, \Omega_v) : \Omega_v = [\sigma_{v0}^2]$$

$$[u_{0jk}] \sim N(0, \Omega_u) : \Omega_u = [\sigma_{u0}^2]$$

$$var(Y_{ijk} \mid \pi_{ijk}) = \pi_{ijk}(1 - \pi_{ijk})$$

x_{ijk}, y_{jk}, z_k in equation 2 stand for predictors, which represent attributes of participants, courses, and training facilities. The indices express the hierarchical ordering of these predictors. x_{ijk} refers to predictors that incorporate the attributes of participants. The indices clarify that this attribute is assigned to a participant i, who attends a course j, which is offered by the training facility k. The case is similar with predictors that incorporate the attributes of courses (y_{jk})

Their indices order an attribute to a course j, which is offered by the training facility k under AMS commission. β, γ, δ are the coefficients of the predictors of each level. The index *h* numbers predictors and coefficients.

Logistical multilevel models differentiate themselves from conventional logistic regression in that not one but many regression constants are modeled. This is expressed by β_{0jk}. With the assignment of the indices *j* and *k*, it is demonstrated that for every course within a training facility an individual regression constant is defined. These group-specific regression constants consist—as in equation 3—of an average regression constant (β_0) and the group-specific variations, in this case on 2 levels (u_{0jk} und v_{0k}).

In multilevel analytical models the unexplained portion of the variance can be assigned to individual levels of the model. The variance of the residuals on level 2 (the course level) is designated with σ_{v0}^2 and those of level 3 (the training facility level) with σ_{u0}^2. The variance of the residuals on the level of the participant (level 1) in a model with a dichotomous dependent variable results directly from the probability that the dependent variable assumes the value of 1 (cf. Snijders/Bosker 2004: 213). Through the assignment of residual variances to the individual levels, statements can be made regarding which share of the variance can be explained on the individual levels of the model.

The calculations of the multilevel analytical models of this article were carried out with MLwiN 2.02.

3.3 Indicators for the Outcome Quality in Job Training Services

The notion of quality can—in general, as well as in reference to job training services—be broken down conceptually into the quality of "structure," "process," and "outcome."[10] The following analyses are concentrated on the quality aspect of "outcome" of the job training services, whereby good connectivity to existing studies on this subject is given. Furthermore, here the link to the aims of job market policy is clearly visible.

Thus, in the selection of indicators for "outcome quality," the aims of job training services, as they were defined by the management directive of the AMS valid for the period of observation (cf. AMS 2005) were addressed explicitly. The following indicators for the measurement of course success on the participant level were employed:[11]

- Course withdrawal (drop-out)
- Successful course completion
- Integration into the job market three months after the end of the training service

The first two indicators take their place among the *direct* objective indicators of outcome quality (output). The course termination is recorded as either "course withdrawal"/"negative course result" or „positive course result." The integration into the job market is seen on the other hand as an *indirect* objective indicator of the outcome quality of job training services (outcome).

The **indicator "course withdrawal"** registers whether the participant discontinued the job training service. The variable is coded as Dummy. Discontinuing the service can be traced to three groups of causes: personal/health reasons, exclusion from the program, or assignment mistakes on the part of the AMS.[12] In the data set used for the analysis, of 11.427 participants around 1.277 (11.2%) were recorded as having discontinued the course.

The indicator "participant successful course completion" is likewise coded as Dummy. This variable assumes the value of 1 when it is observed in the outcome data set that the participant has "positively completed" the course. Additionally, other information about the participant status is registered as "course success." This occurs—as briefly explained below—with the specific aims of each type of training course attended in mind:

Training services of the "orientation" type establish the conditions for further meaningful training, for the participation in qualification services, or for a career decision. The are divided into career-orientation and career-preparation services (cf. AMS 2004: 30f.). The direct goal of career-orientation services is for participants to establish their individual career plans. The goal of career-preparation services is the personal and social stabilization of the participant (AMS 2004: 31).

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[10] See additionally Irmer/Szlezak (2006).

[11] The empirical job market research is capable of further refinement, for example the consideration of the scale of employment and the wage rate that comes with successful reintegration in to the job market (see also related Lechner/Wunsch 2007). These indicators were however not available in the data set.

[12] In the data available from AMS the following evaluations of the variable "status of participant" for the indicator "abandonment of the service" were combined: "course abandonment", "health reasons", "personal reasons", "lacking work", "discipline", "work", "wrong target group", "service transfer", and "conditions not met".

Thus, in a narrow sense of the term a "success" of the "orientation" form of job training would result if one or both evaluations--"positive course completion" or completion "with career plan"--could be ascribed to the participant.

The following analyses rely, however on a broader understanding of successful course completion for orientation services. As AMS (2004) reports, the *indirect* goal of career orientation services is the implementation of individual career-path plans (primarily interest in further education and locating an apprenticeship or job). The stabilization goal of career-preparation services implies that conditions are created to allow the beginning of gainful employment or participation in qualification services. Thus, positive course outcomes in the *broader* sense of "orientation" services include the status attributes "follow-up action," "subordinated follow-up action," and "employment (domestic/foreign)."

Training programs of the *"qualification"* type are divided into education services and continuing education services. The goal of the education service is to enable participants to achieve a government-accredited compulsory education or professional certification and subsequently find employment. The goal of the continuing-education service is the "acquisition of content imparted by the service, skills, and employment" (AMS 2004: 32). "Successful course completion" of a "qualification" service in a narrow sense of the term would be reached with the increasing of human resources and with status designation "positive course completion". However, because in job training services the qualification per se must not be viewed in isolation, rather in combination with the consequent improvement of the participant's employability, in the analyses a successful course completion of qualification services is seen as "beginning employment (domestic/foreign)," as well as "follow-up action" or "subordinated follow-up action."

Training services of the "*active job-seeking*" type impart skills directly related to the job search (i.e. composition of application letters and resumes) (AMS 2004: 32f.). The aim of the "active job-seeking" service type is to find employment and to begin working as quickly as possible (AMS 2004: 33). Thus, a successful course completion for this qualification service type is "employment (domestic/foreign)".

Training services of the *training* type are specially conceived to reduce the consequences of long-term unemployment or of mental and physical limitations. They require a productive job performance during 50% of the total service length (AMS 2004: 33). Their goal is the "social, psychological, and physical stabilization and attainment to either a more advanced service or a employed position" (AMS 2004: 33). Accordingly, it is assumed that participants who leave training services with the status of "positive course completion", "follow-up action", "subordinated follow-up action", or "employment (domestic/foreign)" have a successful course completion.

On the whole, the descriptive evaluation of course success, as defined above, shows that 9,930 persons (86.9%) of the 11,427 considered could successfully complete their courses.

The **outcome indicator**, which should be used for measuring the outcome quality, indicates whether the participant in a job training service was able to begin gainful employment or occupy an apprentice position three months after the conclusion of the service.

This integration into the job market is considered attained for the following evaluations in the case of minimal occupation, subsidized employment, or subsidized apprenticeship.

Figure 3 gives an overview of the possible development paths, which participants can pursue after the end of a job market policy training service course or after a premature drop out from the service.

Figure 3: Possible development paths after participation in a training course
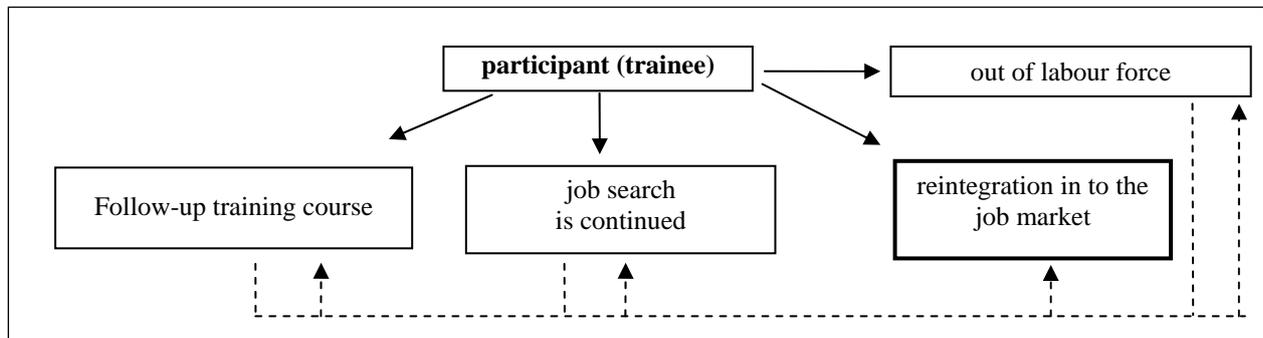
Source: For job training services adapted according to Unruh/Hodkin (2004: 776)

The solid lines drawn in Figure 3 describe the direct development paths after participation in a training course. The dotted line gives the status of the participant at a later time and thus makes it clear that the reintegration in to the job market can not always occur immediately after completion of a training course but instead after an in-between phase, in which the job search was continued or a subsequent job training class was attended. The more complex and the longer these in-between phases are, the more indirect the connection between the participation in the applicable training course and the integration into the life of gainful employment.

Of the 11,265 participants whose data could be included in the quantitative analyses, 5,614 (49.8%) were either employed or had an apprentice position three months after the end of a job market policy training service.

3.4 Indicators of Factors Influencing Outcome

3.4.1 Factors of Influence at the Level of the Participant

At the level of the participant (level 1), the following variables were tested: age, sex, education, duration of unemployment, native language (nationality), marital status, and profession of the participant. Individual variables were simplified for the analysis:

Information about the age of the participant was divided into categories. The formation of the a*ge groups* followed that of Heinrich (2000). The level of education of the participant is depicted with one variable, which records whether the participant's highest completed educational level is either none or the compulsory level. The reference group was composed of participants, who had completed a higher level of educational.

Those people, who upon entry into a job training course had already been identified as „on the brink of long-term unemployment" or „long-term without occupation," are referred to as „long-term unemployed" in this report.

Those persons who are in the brink of long-term unemployment are considered in danger of longer-term unemployment.[13] Young persons (under 25) are designated as „on the brink of long-term unemployment" when starting their third month and adults starting their ninth month of unemployment. People designated as „long-term without occupation" are those who have been registered with the AMS as unemployed for more than 12 months, are seeking apprenticeship or are enrolled in an AMS job training course.[14]

The AMS also records participants' nationalities upon registration. To form meaningful groups out of the diverse variety of nationalities, participants from Austria, Germany, and Switzerland were placed together in one group. This group represents those participants whose *native language is German*. The marital status variable was condensed to designate simply whether the participant *shares a household* (e.g. married, sharing an apartment) or lives alone.

The *profession group*, which was originally accessible at the level of six variables, was depicted in the calculations on the basis of one variable to reduce complexity. Nine categories were differentiated: agriculture and forestry professions; three categories of production professions[15] in mining, industry, and crafts; trade and transportation professions; service-industry professions; technical professions; public officials; legal, administrative, and office professions; health, teaching, and cultural professions.

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[13] Adults and youth (under 25 years of age) are considered long-term unemployed if they have been registered with the AMS as unemployed for 12 months and 6 months respectively. Interruptions of 28 days or less within this period are not considered here. Note that the terms „long-term unemployed" and „long-term without occupation" are to be distinguished from one another.

[14] Interruptions of less than 62 days are not considered here.

[15] The three categories of production professions are illustrated in the following: Type 1 includes predominately mining and similar professions, stone works, brick and glass making, as well as construction. Type 2 includes machine metal working, mechanic, electrical, wood-working, and textile professions. Type 3 is made up of professions such as clothing manufacturing, shoe making, graphic design, and food-product manufacturing.

Table 1: Data set description level 1: participant characteristics

variable	number	%	variable	number	%
gender			*family status*		
women	5.843	51,1	shares a household	3.966	34,7
men	5.584	48,9	single living	7.461	65,3
age			*professional categories*		
younger than 18	2.517	22,0	agriculture and forestry professions	164	1,4
19 to 21	1.507	13,2	production professtion type 1	1.481	13,0
22 to 29	2.118	18,5	production professtions type 2	1.301	11,4
30 to 39	1.145	18,8	production professtions type 3	1.834	16,0
40 and older	3.139	27,5	trade and transportation professions	1.793	15,7
native language			service-industry	2.149	18,8
german	9.401	82,3	technical professions	217	1,9
other languages	2.026	17,7	public officials; legal, administrative, and office professions	2.022	17,7
Length of unemployment			health, teaching, and cultural professions	466	4,1
long-time unemployed	3.159	27,6			
short-time unemployed	8.268	72,4			

Source: ABÖ/AMP-BM 2005/2006, authors' calculations

3.4.2 Factors of Influence at the Level of the Courses

At the level of the courses (level 2) two groups of characteristics were of interest in the analysis: The first group of characteristics describes the course independent of its participants: course length, type of course completion (with or without a recognized transcript) course content, rolling admission into the course, and federal state in which it takes place.[16]

Furthermore, each course is characterized by the process, with which the course was allocated. A corresponding variable indicates either „competitive process," „follow-up commission," or "direct allocation".[17]

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[16] The variable „course content" was formed by the course designation and grouped by means of the profession barometer of the AMS, cf. http://bis.ams.or.at/qualibarometer/

[17] „Open procedure" and „closed procedure, with and without prior notice" formed the group of „competitive procedure." The term „follow-up job" serves as an abbreviated designation for the group „negotiation procedure without prior notice." These designations, as well as the designation „direct allocation" were the procedure designations used in the period of observation 2005/2006.

Table 2: Data set description level 2: course characteristics

variable	number	%	variable	number	%
Procurement process			*course contents*		
competitive process	57	8,4	professional orientation and softskills[1]	142	20,8
direct allocation	537	78,7	data processing, administrative, and office professions	147	21,6
follow-up commission	88	12,9	building main-industry/ building addition-industry, gardening	38	5,6
type of course completion			stock/logistics, traffic/construcion equipment	91	13,3
with recognized transcript	581	85,2	tourism/catering	76	11,1
without recognized transcript	101	14,8	trade/sale	45	6,6
rolling admission			health, teaching, and other social professions	41	6,0
possible	69	10,1	languages	102	15,0
not possible	613	89,9			
duration of course			*share of long-term unemployed participants*		
short: up to 31 days	136	19,9	up to 25%	362	53,1
medium: 32-92 days	458	67,2	25 to 50%	205	30,1
long: more than 93 days	88	12,9	more than 50%	115	16,9
federal state					
Burgenland	134	19,6	Styria	34	5,7
Carinthia	85	12,5	Tyrol	137	20,1
Lower Austria	139	20,4	Vorarlberg	7	1,0
Upper Austria	55	8,1	Vienna	28	4,1
Salzburg	63	9,2			

Note: 1) Also includes active job search/training (low frequency)

Source: ABÖ/AMP-BM 2005/2006, authors' calculations

The second group of characteristics describes the course in terms of the characteristics of the participants and those of the course composition. Long-term unemployment is a social phenomenon that also can influence interaction within the course.

Thus a variable was formed that, on the level of courses, divides the share of participants who had already been unemployed over a long period of time into three groups.

In total, 682 courses were documented in the study. Table 2 offer a descriptive overview of the characteristics of these courses.

3.4.3 Factors of Influence at the Level of the Training Facilities.

Characteristics of the training facilities, which were commissioned by the AMS to provide courses, were also suspected as factors influencing the outcome of job training services.

Table 3: Data set description level 3: characteristics of training facilities

variable	number	%	variable	number	%
sector			*years of co-operation with the AMS*		
Nonprofit Organisation	37	51,4	up to 8 years	24	33,3
For-Profit Organisation	35	48,6	9 to 15 years	26	36,1
contracts mainly awarded through competitive procedures			more than 15 years	22	30,6
yes	24	33,3			
no	48	66,7			
size of company (number of paid employees)			*rate of volume of AMS-orders*		
up to 50 Personen	35	48,6	up to 50 %	24	33,3
more than 50 Personen	37	51,4	more than 50 %	48	66,7
Specialist or all-rounder			*company's satisfaction with allocated participants[2]*		
specialist (up to 2 qualification areas)	23	31,9	very satisfied	28	38,9
3-6 qualification areas	26	36,1	unsatisfied	44	61,1
all-rounder (7 and more qualification areas)	23	31,9			
support infrastructure for job search [1]			*share of long-term unemployed people trained by the company*		
yes	61	87,1	up to 40%	49	68,1
no	11	15,3	40% and more	23	31,9

Note: 1) *Support infrastructure for job search: Participant has access to job offers and employer contacts*
2) *Satisfaction with the allocated participants (Previous knowledge, personal characteristics, motivation)*

Source: *ABÖ/AMP-BM 2005/2006, authors' calculations*

Particular fundamental attributes describing the organization, such as size of the company, indicators of the company's relationship with the AMS – such as how many years of collaboration with AMS – and the company's satisfaction with the allocation of participants by the AMS, as well as the specialization of job training services (measured by the share of total business volume constituted by AMS commissions) were included in the calculations.

To analyse the effect of course allocation procedures, a variable was formed at the level of the training facilities, which identifies the allocation procedure that was typically used by the AMS to commission the particular training facility to provide job training services.

Analysis uncovered certain institutions that the AMS commissioned especially frequently with *one specific allocation procedure* (e.g. follow-up job or competitive procedure), as well as institutions acquiring commissions through a *mix of various allocation procedures.*

Thus, a variable was formed in the model that designates whether the educational institution was allocated courses primarily through competitive procedures.

Noteworthy here is that with the multivariable model only in isolated cases could significant influences of the training facility characteristics on outcome quality be identified. The characteristics of the courses per se seem to explain the quality of results much better. Table 3 gives an overview of the observed facility variables. Data integrated into this model were provided by 72 training facilities.

4. Results of Empirical Analysis

The goal of the analysis was to determine those factors, which influence the outcome quality job training services (measured by the participant's likelihood to withdraw from a course, successfully complete it, and to become integrated into the job market.) The effect of various course allocation procedures was especially of interest, by means of which training facilities were entrusted with providing job training services by the AMS.

The perceived conceptually logical **structuring of the data** into three levels proved itself useful for the calculations. The analysis of the Zero Model"[18] supported constructing a model with three levels (participants, courses, training facilities).

Level 1 contains variables for a total of 11,427 participants, who were assigned to 682 courses (level 2), which were provided by 72 training facilities (level 3) as commissioned by the AMS. The smallest course had four participants, the largest 288. The minimum number of courses provided by a training facility was one, the maximum 83.

In summary, it can be asserted that a **series of factors** were identified, which significantly influenced the outcome quality of the courses, specifically the individual characteristics of the participants as well as those, above all, of the corresponding courses. In isolated cases the characteristics of the training facilities add to the picture. Differences in the outcome quality among training facilities were ascertained. The differences among the facilities, however, explain less about the specific characteristics of the facilities and more about those of the provided courses.

Effects of the procurement procedure could not be reliably isolated at the level of courses. The variables that characterize the course procurement procedure correlate with specific course characteristics, most of all with course length. Short courses (no longer than one month) were allocated primarily with competitive procedures and „follow-up commissions." Since it was assumed here that the course length more than the procurement procedure influenced the participant's relative success in the course, more value was attributed to the variable „course length" in the analysis.

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[18] Logistical regression model (multi-level analysis): Reduction of the DIC values) Bayesian Deviance Information Criterion) with each further level in the Zero Model.

For the variable „competitive procedure as dominant allocation process" – at the level of commissioned training facilities (level 3) – no noteworthy effects could be proven. Here, too it is possible that other variables overlie these effects.

It could not be confirmed that facilities, which the AMS commissions overwhelmingly through competitive procedures AMS, achieved a better outcome quality of services. In the following, the results of each result indicator will be discussed in detail.

4.1 Factors Influencing Course Withdrawal

The first result indicator to be analysed designates whether or not the participant successfully completed the course assigned by the AMS; (for the operationalization of the variables, see section 3.3.) This variable characterizes participants individually and is therefore assigned to level 1 in this model. The characteristics of the participants, courses, and educational institutions integrated in the final model explain ca. 36.7% of the variance[19] for the result indicator course withdrawal (yes/no.) As previously mentioned, no significant effects on outcome quality could be traced to the competitive allocation procedures. However, the following **characteristics of participants** influenced significantly the probability of course withdrawal (comp. Table 4, see p.19, significant effects are marked in bold):

- Participants, whose highest educational degree was either at the *compulsory level* or none, are more likely to withdraw from their course. For participants, whose highest educational degree is at the compulsory level, the probability of course withdrawal compared to the probability of course completion increases by a factor of 1.8.

- *Participants of the age group 19 to 21 years old* and of the *age group 30 to 39 years old* are more likely to complete a course earlier than expected than those who are 40 years old[20] and above.

- A documentable effect stems from the duration of unemployment. Participants, who are long-term unemployed are more likely to withdraw from their course than those who are neither on the brink of long-term unemployment nor long-term without occupation.

- Participants with German as their native language are significantly less likely to withdraw from their course than those with another native language.

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[19] For the formula see Snijders/Bosker (2004: 225).
[20] The age group 40+ was chosen to contrast unemployment and persons on the verge of unemployment.

Table 4: Multilevel model 1: Factors influencing course withdrawal

fixed effect	ß	S.E.	p-Werte	Exp(ß)
constant	**-2,201**	**0,353**	**< 0,001**	**0,11**
level 1 – participant				
education of participant (compulsory level or none)	**0,567**	**0,088**	**< 0,001**	**1,76**
age				
up to 18	0,202	0,143	0,156	1,22
19 to 21	**0,425**	**0,120**	**< 0,001**	**1,53**
22 to 29	0,159	0,111	0,155	1,17
30 to 39	**0,218**	**0,108**	**0,043**	**1,24**
long-term unemployed participant	**0,200**	**0,081**	**0,014**	**1,22**
participant with german native language	**-0,343**	**0,089**	**< 0,001**	**0,71**
level 2 – courses				
course length				
short: up to 31 days	**-0,601**	**0,172**	**<0,001**	**0,55**
long: more than 93 days	**0,599**	**0,139**	**< 0,001**	**1,82**
courses with recognized transcript	**-0,387**	**0,174**	**0,026**	**0,68**
contents				
data processing,and office administration	**-0,570**	**0,164**	**<0,001**	**0,57**
building main-industry/ building addition-industry, gardening	0,199	0,246	0,419	1,22
languages	**-0,607**	**0,171**	**< 0,001**	**0,54**
tourism/catering	**-0,611**	**0,194**	**0,002**	**0,54**
trade/sale	-0,219	0,215	0,309	0,80
health, and other social professions	-0,345	0,223	0,121	0,71
stock/logistics,traffic/construcion equipment	**-0,651**	**0,244**	**0,008**	**0,52**
rolling admission	**-0,373**	**0,174**	**0,032**	**0,69**
share of long-term unemployed participants				
up to 25%	-0,181	0,122	0,140	0,83
more than 50%	**-0,524**	**0,157**	**<0,001**	**0,59**
federal state				
Burgenland	**-1,028**	**0,248**	**< 0,001**	**0,36**
Carinthia	0,061	0,271	0,823	1,06
Lower Austria	**-0,585**	**0,228**	**0,010**	**0,56**
Upper Austria	**-1,143**	**0,293**	**<0,001**	**0,32**
Salzburg	**-1,048**	**0,289**	**<0,001**	**0,35**
Styria	-0,349	0,325	0,283	0,71
Tyrol	-0,268	0,243	0,269	0,76
Vorarlberg	-0,441	0,499	0,377	0,64
level 3 training institution				
co-operation with the AMS				
9 to 5 Jahre	**0,355**	**0,171**	**0,038**	**1,43**
more than 15 Jahre	0,258	0,165	0,118	1,29
support infrastructure for job search	**0,428**	**0,182**	**0,019**	**1,53**
random effect	Par.	S.E.	$R^2_{dicho} = 0,367$	
level 2 variance var(u0jk)	0,554	0,090		
level 3 variance var(v0k)	0,013	0,021		

Note: omitted categories: Age group (40+), course duration (medium: 32-92days), course contents (professional orientation/soft skills), Share of participants with long-term unemployment (more than 25% to 50%), federal state (Vienna), years of collaboration with AMS (up to 8 years);   significant effects (p≤0,05) in bold print.

Source: ABÖ/AMP-BM 2005/2006, authors' calculations

Significant effects on the probability of course withdrawal also stem from individual **characteristics of job training services (courses)**:

- The course length also significantly influences the likelihood of course withdrawal. In comparison to courses that last one to three months, the probability of course withdrawal is significantly lower in courses that last no more than one month; and in courses that last up to one year, the likelihood is significantly higher.

In courses, in which the participants receive a recognized certificate upon completion, the probability of course withdrawal is significantly lower.

- The effects of course content also can be documented. Compared with courses that include career counseling, an active job search, and training, the likelihood of course withdrawal from career-specific courses (e.g. information technology, office, administration, languages) is significantly lower. The probability of withdrawal in courses with ongoing enrollment significantly reduced.

- Course composition also influences participants' probability of course withdrawal. This effect appears in courses with a high share (over 50%) of long-term unemployed participants compared to courses with a „moderate" share (25% to 50%) of long-term unemployed participants. In a course with a high share of long-term unemployed participants, the performance of these participants is affected positively. Descriptive analyses showed that long-term unemployed participants withdrew from courses les frequently and those who had only recently become unemployed more frequently, when the course had a high proportion of long-term unemployed participants.

- Regional factors also have a documentable influence on the probability of course withdrawal. In comparison to the Federal State of Vienna, this probability is significantly lower in the provinces of States of Burgenland, Upper Austria, and Salzburg.

As previously mentioned, primarily predictors at the level of the participants and courses contribute to an explanation of course withdrawal. Of the considered predictors at the **level of training facilities**, only two effects were able to be proven.

Course withdrawal is more likely in courses provided by training facilities that have worked with the AMS for 9-15 years and less likely for courses provided by those with a shorter AMS collaboration.

It is also essential, whether educational institutions provided access to the contact information of potential employers and job opportunities. In this case, course withdrawal was more likely.

4.2   Factors Influencing Successful Course Completion

The second analyzed model identifies the factors influencing successful course completion. The **model structure** is the same as that for the factors influencing course withdrawal, (refer to the explanation in section 4.1.). The concerned **dependent variable** identifies whether or not the participant successfully completed his/her course. This variable characterizes participants individually and is therefore assigned to level 1 of the current model. The total explanatory value of this model is 35.6%.

Just as for the indicator course withdrawal, no effect of the course allocation process could be directly documented. The documentable effects at the level of the participants and courses may be considered symmetric since virtually[21] the same set of factors influence the probability of successfully complete a course compared to the probability to withdraw from a course (albeit inversely.) This is unbiased to the extent that course withdrawal is a „negative" dependent variable and successful course completion a positive one.

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[21] Documentation upon course completion (e.g. recognized certificate) had no effect.

Table 5: Multilevel model 2: factors influencing successful course completion

fixed effect	ß	S.E.	p-Werte	Exp(ß)
constante	**1,613**	**0,314**	**< 0,001**	**5,02**
level 1 – Teilnehmer				
education of participant (compulsory level or none)	**-0,550**	**0,083**	**< 0,001**	**0,58**
age				
up to 18	**-0,291**	**0,136**	**0,033**	**0,75**
19 to 21	**-0,375**	**0,115**	**0,001**	**0,69**
22 to 29	-0,045	0,108	0,674	0,96
30 to 39	**-0,248**	**0,104**	**0,017**	**0,78**
long-term unemployed participant	**-0,166**	**0,079**	**0,034**	**0,85**
participant with german native language	**0,410**	**0,084**	**< 0,001**	**1,51**
Ebene 2 – Kurse				
duration				
short: up to 31 Tage	**0,632**	**0,174**	**< 0,001**	**1,88**
long: more than 93 Tage	**-0,676**	**0,146**	**< 0,001**	**0,51**
contents				
data processing,and office administration	**0,753**	**0,172**	**< 0,001**	**2,13**
building main-industry/ building addition-industry, gardening	0,198	0,261	0,449	1,22
languages	**0,855**	**0,182**	**< 0,001**	**2,35**
tourism/catering	**0,582**	**0,203**	**0,004**	**1,79**
trade/sale	0,349	0,227	0,124	1,42
health, and other social professions	**0,501**	**0,232**	**0,030**	**1,65**
stock/logistics,traffic/construction	**0,603**	**0,227**	**0,008**	**1,83**
rolling admission	**0,469**	**0,185**	**0,013**	**1,60**
long-term unemployed participants				
up to 25%'	0,166	0,126	0,185	1,18
more than 50%	**0,529**	**0,164**	**0,001**	**1,70**
federal state				
Burgenland	**0,791**	**0,272**	**0,004**	**2,21**
Carinthia	0,063	0,273	0,816	1,07
Lower Austria	0,514	0,247	0,037	1,67
Upper Austria	**0,975**	**0,319**	**0,002**	**2,65**
Salzburg	**0,859**	**0,306**	**0,005**	**2,36**
Styria	0,598	0,340	0,078	1,82
Tyrol	0,295	0,027	0,275	1,34
Vorarlberg	0,649	0,534	0,224	1,91
level 3 – training institution				
years of co-operation with the AMS				
9 to 15 Jahre	**-0,415**	**0,183**	**0,023**	**0,66**
more than 15 Jahre	-0,266	0,180	0,140	0,77
random effect	**Par.**	**S.E.**		
level 2 variance var(u$_{0ik}$)	0,737	0,097	$R^2_{dicho} = 0{,}356$	
level 3 variance var(v$_{0k}$)	0,022	0,033		

Note: omitted categories see the table 4;. significant effects (p≤0,05) in bold print.

Source: ABÖ/AMP-BM 2005/2006, authors' calculations

Thus it can be maintained that the probability of successful course completion is influenced by the following **characteristics of participants**. Having completed education beyond the compulsory level and having German as a native language positively influence the probability to complete a course successfully. In comparison to participants over 40 years old, the likelihood of positive course completion is evidently lower for participants in the *age groups* 18-21 and 29-30. Additionally, the likelihood of success is also lower for *long-term unemployed participants*.

Significant effects on the probability of successful course completion also stem from the characteristics of **job training services (courses)**. *Short courses*, *courses with rolling enrolment*, as well as *courses with specific qualification content* (e.g. information technology, office and administration, languages, tourism, and gastronomy) increase the participant's likelihood to successfully complete a course. The *class composition* also has proven effects on probability of success: courses with a high proportion of long-term unemployed participants enhance the likelihood of course success. Additionally, *regional factors* significantly influence the likelihood of success of participants in job training courses. In comparison to the Federal State of Vienna, the probability of successful course completion is significantly higher in the states of Burgenland, Upper Austria, and Salzburg.

At the level of the training facilities one significant factor of influence could be identified. In contrast to **training facilities** that have *collaborated with the AMS* since 1998 or later, the likelihood of successful course completion in those courses provided by facilities that have worked with the AMS for 9-15 years is significantly lower. These facilities are not significantly distinguishable from the reference group.

Here as well further study would be necessary, because in this case only initial signs of facility characteristics influencing the differences in individual course success can be discerned.

4.3   Factors Influencing (Re-) Integration into the Job Market

The third and last result indicator to be analyzed identifies whether a participant found employment three months after the end of his/her course, (for the operationalization of the variables, see section 3.3.) This variable characterizes participants individually and is therefore also assigned to level 1 of the present model. This model accounts for 50.5% of the influences on integration into the job market.[22]

The effects of the course allocation procedure also could not be determined for indicator integration into the job market.

The following **participant characteristics** significantly influence the probability that a participant will become gainfully employed or have an apprenticeship three months after the end of his/her course (cf. Table 6):

- Participants who have not or only have completed compulsory education are more likely not to find employment or apprenticeships.

- Participants less than 40 years old are more likely to find gainful employment or apprentice-ships than those 40 and over.

- Long-term unemployed participants have lower chances of (re)integration than those who have only been unemployed a short time.

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[22] For the formula see Snijders, Bosker (2004: 225)

- In comparison to people with a professional background in the service industry, people with production professions of type 3, trade and transportation professions, and administrative and office professions are less likely to be (re)integrated into the job market three months after the end of their course.

- Marital status and sex jointly influence a participant's chances of (re)integration into the job market. The likelihood of integration is higher with women who live alone that with women living in a household community (e.g. married, long-term relationship). Men living in a household community have the highest likelihood of integration.

- Successfully completing a course affects integration chances positively. The comparison group for this is constituted by participants who either withdrew from or did not successfully complete the course.

Significant effects on the probability to find employment or an apprenticeship three months after the end of a course also stem from the individual **characteristics of job training services (courses):**

- In contrast to orientation courses, courses with professional qualification (above all in the fields of landscaping/gardening, tourism/gastronomy, trade/sales, health/social work, storage/logistics, transportation/construction equipment) have a positive effect on the likelihood of (re)integration into the job market.

- People in courses with a low proportion of long-term unemployed participants have a significantly higher chance of becoming gainfully employed or having an apprenticeship three months after the end of the course than those in courses with 25-50% of the class being composed of long-term unemployed participants. In comparison to courses with a very high proportion of long-term unemployed people, this effect could not be proven.

- Yet again, there are regional factors that account for certain effects. In this case it was, not least of all, the situation in the regional job markets likely plays a role.

Table 6: Multilevel model 3: Factors influencing (re-) integration into the job market

relevance	ß	S.E.	p-Werte	Exp(ß)
constant	**-0,740**	**0,291**	**0,011**	**0,48**
level 1 – participants				
participant with or at least obligation	**-0,338**	**0,059**	**< 0,001**	**0,71**
age				
up to 18	**0,556**	**0,106**	**< 0,001**	**1,74**
19 to 21	**0,852**	**0,087**	**< 0,001**	**2,34**
22 to 29	**0,572**	**0,074**	**< 0,001**	**1,77**
30 to 39	**0,285**	**0,071**	**< 0,001**	**1,33**
long-term unemployed participants	**-0,248**	**0,057**	**< 0,001**	**0,78**
gender: women	**0,202**	**0,067**	**0,003**	**1,22**
professional categories				
agriculture and forestry	-0,355	0,195	0,068	0,70
production professions type 1	0,147	0,101	0,143	1,16
production professions type 2	-0,151	0,093	0,103	0,86
production professions type 3	**-0,444**	**0,081**	**< 0,001**	**0,64**
trade and traffic professions	**-0,336**	**0,079**	**< 0,001**	**0,71**
technical professions	-0,249	0,172	0,148	0,78
public officials; legal,	**-0,328**	**0,083**	**< 0,001**	**0,72**
health, teaching, and cultural	**-0,351**	**0,126**	**0,005**	**0,70**
Family status (participant shares a houshold)	**0,555**	**0,081**	**< 0,001**	**1,74**
woman shares a household (interactive term)	**-0,619**	**0,098**	**< 0,001**	**0,54**
participant has successfully finished	**1,309**	**0,071**	**< 0,001**	**3,71**
Level 2 – courses				
contents				
data processing,and office	-0,162	0,121	0,181	0,85
building main-industry/	**1,323**	**0,208**	**< 0,001**	**3,75**
languages	-0,181	0,127	0,154	0,83
tourism/catering	**0,670**	**0,145**	**< 0,001**	**1,95**
trade/sale	**0,305**	**0,166**	0,065	**1,36**
health and other social	**0,439**	**0,169**	**0,009**	**1,55**
stock/logistics,traffic/construction	**1,023**	**0,143**	**< 0,001**	**2,78**
share of long-term unemployed participants				
up to 25 %'	**0,519**	**0,088**	**< 0,001**	**1,68**
more than 50 %	-0,149	0,119	0,209	0,86
federal state				
Burgenland	**-0,808**	**0,206**	**< 0,001**	**0,45**
Carinthia	**-0,700**	**0,221**	**0,002**	**0,50**
Lower Austria	**-0,780**	**0,198**	**< 0,001**	**0,46**
Upper Austria	-0,635	0,243	0,009	0,53
Salzburg	0,013	0,239	0,956	1,01
Styria	**-1,021**	**0,253**	**< 0,001**	**0,36**
Tyrol	-0,454	0,220	0,039	0,64
Vorarlberg	**-0,811**	**0,410**	**0,048**	**0,44**
level 3 –company				
share of unemployed participants > 40%	**-0,435**	**0,142**	**0,002**	**0,65**
specialist or all-rounder				
specialist	**-0,388**	**0,196**	**0,048**	**0,68**
all-rounder	**-0,288**	**0,120**	**0,017**	**0,75**
random effect	**Par.**	**S.E.**		
level 2 variance var(u_{0ik})	0,454	0,052	$R^2_{dicho} = 0,505$	
level 3 variance var(v_{0k})	0,015	0,019		

Note: omitted categories: age group (40+), professional groupe (service sector, course content (professional orientation/soft skills), share participants with long-term unemployment (more than 25 % to 50 %), Federal State (Vienna), specialisation(2-6 qualification areas); significant effects (p≤0,05) in bold print.

Source: ABÖ/AMP-BM 2005/2006, authors' calculations

Two effects can be documented with he predictors at the **level of training facilities:**

- Participants at training facilities which offered training or continuing education to many persons who already had been unemployed for a long period have lower chances of finding employment or apprenticeships.

- Compared with institutions with a narrow spectrum of fields of qualification, participants at highly specialized institutions and institutions offering courses in a wide variety of fields were less likely integrated into the job market.

5.   Summary and Conclusions

This report analyzed the quality of results of job training services on the basis of three indicators (course withdrawal, successful course completion, a participant's integration into the job market). Multi-level models were used for the analysis of essential factors influencing the so-defined outcome quality. The influencing factors were assigned to levels (i) the participants, (ii) the courses taken by them, and (iii) the training facilities that provide these courses under AMS commission. Thereby, a broad spectrum of influencing factors of influence could be integrated into the model. The use of multi-level models ensured that the hierarchical data structure would be taken into account.

The **influence of the AMS allocation process** was identified with two indicators. One indicator depicts the allocation procedures used by the AMS to assign specific courses to various training facilities. This variable identifies the allocation procedure as „competitive procedure," „follow-up commission," and „direct allocation."[23] The second variable was at the level of training facilities. It was known in which manner the training facilities usually received commissions: by direct allocation, follow-up commission, or competitive procedure. This information was incorporated into the model with the variable „competitive procedure as dominant mode of allocation" in the form of a dummy-variable. It was assumed that medium-term confrontation with competitive procedure would reflect itself in the outcomes for participants at the training facilities.[24] The results demonstrate that no direct allocation policy influence on the outcome quality—via the procurement process—is documented by the available data.

The influence on the job training services was not limited only to the allocation process. The regional AMS offices did shape the course composition with their subsequent practice of assigning participants to courses. The course composition can affect participants' course success, when, for example, there's a certain „atmospheric transmission effect" between participants or that these learn from each other.

In these cases the AMS is affecting indirectly – by means of course composition – the outcome quality.

It could be demonstrated that the proportion of long-term unemployed participants in the course affects the probability of withdrawal from or successful completion of a course. In these cases, participants in courses with a high proportion of long-term unemployed individuals had a high probability of successful completion and low probability of course withdrawal in comparison to those with a „moderate" proportion of long-term unemployed individuals.

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[23] The competitive procedures were classified as „open" and „closed, with and without prior notice." The designation "follow-up commission serves as a course type for the group of "negotiation procedures without prior notice." These procedures, as well as the "direct allocations" were those implemented in the period of observation 2005/2006. For the designations for the new allocations procedures, see Schedlberger und Schneider (2007).

[24] However, the allocation procedure, which was implemented in the case of the commissioning the observed courses, was not considered in the model.

The characteristics of the participants as well as of the courses they took played an important role in determining the outcome quality. Although differences among training facilities regarding course withdrawal, successful completion, and integration into the job market were confirmed, these result indicators could be explained predominately with reference to characteristics of the participants and courses. Only in isolated instances could effects of the training facility characteristics be demonstrated.

The meaning of the **definition for "outcomes" of job training services** also emerges from the comparison of the analyses. Two types of indicators were presented. The first type begins at the moment the training ends (withdrawal/successful completion). The second type describes the short-term job-market effect (integration into the job market three months after the end of the course). From this comparative perspective, three groups of factors can be perceived:

The first group is formed by factors influencing the relative success of course completion but having no provable effect on the participant's integration into the job market. German as a native language belongs to this group. Having German as a native language fosters the successful completion of a course and reduces the likelihood of course withdrawal, but at the same time does not conclusively improve or worsen the chances of integration into the job market. Similar results appear at the level of courses: short courses, in comparison to courses of medium length (between one and three months), increase the probability of successful completion of a course and decrease the likelihood of withdrawing from one. The course length, however, has no effect on the participant's likelihood to become integrated into the market three months after the end of his/her course.

The second group contains factors with a proven influence on course result) withdrawal or successful completion) as well as for the integration into the job market. Within this group, two forms of manifestation are to be distinguished.

- Factors that negatively influence the successful completion of a course and nevertheless more likely positively influence successful integration into the job market. Thus, participants from the age of 19 to 21, in comparison to those in the age group 40 and older, are at more likely at risk of not completing a course successfully. Regarding chances of job market integration, however, their likelihood of success is significantly better than those of the older group.

- Factors that negatively influence the successful completion of a course and worsen the chances of job market integration. Persons, whose highest completed level of schooling is the compulsory level and those who are long-term unemployed have a lowered chance of successful completion of a course as well as integration into the job market.

The third group of factors affects the chances of job market integration but not those related to course completion. Among these factors is the professional background of the participant.

This comparative analysis demonstrates that it is advisable to distinguish between direct and indirect „results" in forming a definition of the outcome quality of job training services. Also when integration into the job market is a goal of course participation, intermediate goals must be considered for a differentiated understanding.

The analyses demonstrate, furthermore, that the outcome quality – which must be quantified using indicators – is influenced by various factors, some of which stem from factors not associated with the participants, courses, or training facilities.

Overall, the multi-level analysis has proven itself to be an innovative process for the data structure used here. Through differentiated analysis of individual levels, it could discerned that characteristics of courses, participants, also to an extent those of the training facilities explain well the differences in the outcome quality between facilities. For **more extensive analyses t**he following extensions/variants with respect to the date basis and model could be useful:

Data Basis

Information about the allocation procedures provided by the AMS from July 2005 until the end of June 2006 was included. It would be wise to repeat the analysis after an appropriate "phase-in" period and if possible to collect data over a period of at least 12 months. Additionally, it would be of interest to analyse the data of public allocation procedures in other areas of social welfare.

Differentiated Indicators of the Allocation Procedures

In this analysis the implemented allocation procedures were differentiated into competitive procedures, „follow-up commissions," and direct allocation. An analysis of the details of these procedures could also be of interest, because public allocation procedures are only homogenous in the broadest sense. Upon closer observation, differences in the form (design of the criteria by which an assignment is awarded and their weighting) and in implementing the allocations (e.g. number of competitors) are recognizable. Taking them into account could afford further insights.

Alternative Indicators of Outcome Quality

If work on an improvement of outcome indicators is desired, this can occur with two methods: (i) differentiating the indicators and (ii) adopting further indicators. For the analysis of integration into the job market, the volume of gainful employment (part time, full time) and the achieved salary level would be of interest. Of equal significance would be determining how the new position corresponds with the participant's career to date. Thus, it would be possible to conclude whether job training services aid not only with re-integration into the job market, but also with improved career chances.

Analysis of the Interplay between Outcome Quality and Structural/Procedure Quality

To what extent the influence of structure and procedure quality, as suggested in the existing literature, affects the outcome quality of job training services could only roughly be sketched using the available data in this study. Additional information about courses (particularly about the instructor) and about the participant would be necessary here.

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Data Set

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