# The net outcome of self-employment coaching and training. A statistical evaluation of non-financial promotion schemes for unemployed business founders in Germany.

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Abstract:

This paper focuses on the question whether improving the competence of new business founders due to coaching and training programs enhances the longevity of self-employment. In our analysis we focus on promoting activities that add to a financial subsidy and that mainly focus on providing external expertise for founders that started from a position of unemployment. We find that the inflow into the related schemes is strongly determined by regional pattern and time while individual characteristics are less important. This reflects a particular regional specialization in the set up of self-employment promotion. A statistical matching approach is used to control for selectivity and is performed in a way that explicitly accounts for differences across regions and time. The results show that treatment effects tend to be insignificant in statistical and economic terms. We also find evidence that external expertise reduces self-employment longevity.

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## 1. Introduction

Several national and sub-national programs set up important initiatives in fostering self-employment in the 1990 and the beginning of 2000. Among others the European Employment Strategy (EES) and the OECD intervention plans are two of these initiatives which framed national and regional programs in this context. The core idea in many of these programs focused on financial supports, or strategies of improving capital endowments and reducing market barriers in promoting self-employment as the major policy strategy (Meager 1996; Blanchflower 2003). So far, only little attention has been spent on the role of programs that enhance the qualification of potential or nascent entrepreneurs.

One field of political activity where we find such programs concentrates on fostering self-employment activities among the unemployed (see Meager 1996).[1] Improving the qualification of these target population is expected to have direct and indirect effects on their individual employability and it may also trigger self-employment activities and the sustainability of related start-ups. The general idea behind this policy also bases on the thinking that promoting self-employment among the unemployment helps to overcome individual unemployment and at the same time also contributes to economic dynamics and growth via stimulating entrepreneurship. However, since reducing unemployment and enhancing growth potential is no longer subject of only national but also part of different supra- and regional policy strategies the special attention on the population of unemployed in fostering self-employment sets up a basement for broad range of promotion programs in different fields of political interest on different regional levels.

So far, two major issues remain unaddressed in this context. First, little is known about national strategies in supporting entrepreneurship activities among the unemployment in a European comparative context. And second, information on the net outcome of these programs is sparse. In this paper we will combine both issues. In focusing on the political implementation we focus on Germany and briefly report the institutional setting of self-employment promotion of the active labor market policy around the years 1998-2004. With respect to the second point, we will contribute to the question whether related programs effectively do improve the stability of self-employment.

Only few studies actually allow deeper insights on these issues. In particular, we only found two studies that roughly tackle the outcome of non-financial support in promoting self-employment. Both of them reveal that enhancing the qualification or providing external expertise seems to be insignificantly correlated with survival (Shutt and Sutherland 2003) or firm growth (Eckl et al. 2009).[2]

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[1] E.g.with a focus on Germany we find that promoting self-employment among the unemployed (only accounting for those with a financial support) has substantially increased in the last decade and rose up to a share of almost 25% of all new self-employment notifications (varying between 20 and slightly above 30% depending on which statistic one applies).

[2] Most attention in the evaluation of self-employment promotion has been spent on financial supports (Hinz and Jungbauer-Gans, 1999; Pfeiffer and Reize 2000; Wießner 2001; Oberschachtsiek 2008; Baumgartner and Caliendo 2008; Caliendo and Kritikos 2009).

We will extend this research and report evidence on the net gain of coaching and training schemes by using modern and more accurate evaluation techniques.

The underlying idea in offering 'non financial' promotion schemes is to allow for a greater inclusion of external knowledge and expertise in setting up new businesses. As political agents expect, promoting the use of external expertise should reduce constraints of self-employment and may improve the sustainability of the new founded businesses.

However, in evaluating the outcome of 'non financial' support in terms of survival we must be aware that theoretically external expertise may always be a two sided coin in affecting self-employment stability as it is usually defined in terms of survival. From a theoretical perspective expertise is ambiguous in affecting survival chances because it does not only improve productivity but also enhances learning (Jovanovic 1982; Ericson and Pakes 1995). Therefore, expertise may also cause more precise evaluations of potential business prosperities which may foster exits and therefore can also entail adverse effects as expected from the political agents (see for example LeBrasseur et al. 2010; Gastrogiovanni 1996; Shane 2003).

The data we use for our investigation is the IEB (Integrated Employment Biographies) which is compiled by the German Federal Employment Agency. This data set consists of information from four distinct administrative registers and combines employment biographies and detailed information on program participation. The advantage of using this data is threefold: First, we are able to observe a five year period to assess the program outcome, second the data rarely suffers from types of participation or attrition bias as usually found in survey data and third, it allows a valid identification of self-employment periods and the type of non-financial support.

The population we focus on consists of recipients of *bridging allowance* (a financial support to encourage transitions from unemployment to self-employment) for which we identify participations in self-employment *training*, *coaching* and *§10 start-up supports*. As a consequence a treatment in this study is defined as an additional 'non-financial' support in conjunction with *bridging allowance*. In dealing with the evaluation approach we follow a broad strand of evaluation research and control for endogeneity and selectivity by using a statistical matching approach (e.g., Lorentzen and Dahl 2005; Wunsch and Lechner 2008; Hujer et al. 2004; Almus and Czarnitzki 2003; Baumgartner and Caliendo 2008; Caliendo and Kritikos 2009). Given the specific regional embeddedness of the non-financial supports in the institutional framework we adjust the standard evaluation approach and pay extra attention to a regionalized implementation. Our adjustment focuses on a specific weighting scheme which uses a clustering framework in the matching procedure.

The next section describes the institutional setting of German self-employment promotion as it is implemented in active labor market policy. Section three presents the data set and the construction of the analysis sample. Part four of the study contains the analysis which includes evaluation strategy, descriptive information, the discussion of the selection process and the implementation of the matching strategy. Part five presents and discusses the empirical results. Finally, section six

summarizes the study, draws some concluding political remarks and makes some suggestions for future research.

## 2. Self-employment promotion as part of the active labor market policy

*The basic framework of self-employment promotion since the late 1990's*

Active labor market policy is a mix of schemes that are offered to the unemployed people in order to enhance their re-employment chances.[3] In Germany, the supply of related schemes is to the largest share controlled by the Federal Employment Agency (Bundesagentur für Arbeit) and in most terms it is highly standardized with respect to access and scopes (executive directions: treatment assignments, application forms, topics). Usually, there are only low degrees of freedom in managing access and topics of the instruments of the active labor market policy - however, self-employment promotion partly has became a specific exception in this setting.

The field of self-employment promotion in active labor market policy was first addressed in 1986 based on a financial subsidy supporting supporting the transition from unemployment to self-employment (called *"Überbrückungsgeld"*: *bridging allowance*). During the mid 1990s self-employment promotion was brought forward due to a more generous promotion setting of the *bridging allowance*. In the late 1990s the promotion of self-employment has been expanded. First of all, the implementation of the Social Code III in 1998 caused a higher degree of managerial disposition for the local offices based on the §10 SGB III (free budget for regional policy; *"freie Förderung")*. To a large extent this higher degree of freedom was used to increase self-employment promotion on a local level. Second, in 1998 the active labor market policy of the Federal Employment Agency also implemented a nationwide program as part of the national ESF-funding (called *ESF-BA-program*; before 2000: *AFG-Plus*; see Deeke 2005). Initially, the national ESF-funding focused on promoting training devices in general as for instance supporting further training or short term trainings. However, this changed during the promotion period between 1998 and 2006 towards a promotion that mainly consisted of additional aids in fostering self-employment.

Finally, important developments of the self-employment promotion were made in 2003, when a second financial support was introduced parallel to the *bridging allowance*. This new *enterprise allowance scheme* (*"Existenzgründungszuschuss"*) especially focused on long term unemployed and on individuals who have been working as part-time workers before unemployment. In 2006 both subsidy measures (*bridging allowance* and *enterprise allowance scheme*) were combined to a new promotion setting. [4]

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[3] For a more general overview see for example Eichhorst and Konle-Seidl (2009).

[4] For details of the changes in the general setting see Fleckenstein (2009) – with respect to self-employment promotion see Caliendo and Kritikos (2009).

*Characteristics of the self-employment promotion schemes[5]*

When reviewing the self-employment promotion, the most important in the late 90's and the early 2000's is the *bridging allowance*. As mentioned above, this scheme mainly rules out as a financial support. Since it is offered by the German Employment Agency is the program is limited in access to the population of individuals who are unemployed or are threatened by periods of unemployment and who seek to avoid unemployment by entering a period of self-employment. Focus of this scheme was to reduce constraints of entering self-employment by ensuring coverage of the living expenditures. The payment in this scheme is granted in the height of the unemployment benefit and the coverage of the social security contributions for duration of the first six months of the new business activity. Access to this program was open to those who were entitled for unemployment benefits and only in cases in which the new venture allowed a termination of the unemployment period and if the business concept was positively assessed by competent authority (e.g. local chamber of commerce).

According to the *§10-promotion*, related activities are fairly heterogeneous in terms of regulation and topics and mainly focused on enhancing local strategies in defeating unemployment. In general, *§10-promotion* cover schemes that allow policies beyond the standardized promotion programs of the Social Code III as for instance concentrating on special industries or target groups and to allow addressing specific regional problems. Across time self-employment promotion received increasing attention in this source of funding which resulted in the promotion of local entrepreneurship centers, financial subsidies and/or training devices for nascent entrepreneurs. Unfortunately, practical reasons caused a relatively high level of aggregation in the reporting system on related programs (so called "*§10 start-up supports*" (FSUS)) and further information about related promotion settings are very limited. However, interviews with local authorities showed that it is plausible to assume that "*§10 start-up support*" - if used as additional promotion - focuses on types of promotion that we would typically define as non-financial supports (see footnote 4).

Finally, according to the ESF-BA-Program *self-employment training* and *coaching* were initially implemented in line with the EES which focused on enhancing the self-employment culture in general and which also aimed to improve the individual's ability to start a new venture. While the coaching scheme run until the end of the program in 2008 the *self-employment training* was replaced due to another legal form of promoting training schemes in 2003. Conceptionally, *training courses* and *coaching* were focused on an integrated sequence of promoting self-employment. However, in practice both programs were often offered without requiring this sequence. In detail: *Training courses* mainly aimed at enhancing preparatory qualification (in courses between 4 to 12 weeks) while *coaching* was organized as a way to ensure qualified assistance during the first year of the start-up period. Both schemes offered a coverage of all direct expenditures (course fee or the payments for the coach) as

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[5] Table A1 in the appendix gives a detailed overview about the set up of the promotion schemes which are of interest in this study.

well as indirect costs for childcare, hospitality and travel costs (limited to a total of 4600 euro). Unfortunately, detailed information about the topics and the organization of the courses are limited.[6]

## 3. Data and sampling

The data used for the analysis is a sample of the Integrated Employment Biographies (IEB). This data is compiled from four administrative sources that originate from the registers of the Federal Employment Service.[7] The data include employment and benefit histories back to 1990 and official registrations for job search, unemployment and participation in active labor market programs back to 2000. In combining these sources the IEB allows a detailed historical perspective on periods of employment and unemployment.

The information provides exact beginning and end dates of a period. Source-specific information adds data about the individual's schooling, the type of employment, job characteristics, income and detailed information of the qualification. In addition, we supplemented data from the Establishment History Panel (EHP, see Spengler, 2008) to include characteristics of the associated employment episodes and we added regional labor market information.[8] In the latter case we added data taken from the official statistics of the Federal Employment Agency. For a detailed overview of the attributes see Table A2 in the appendix.

For the analysis this data has cleaned in several ways. First of all, to emphasize the context of 'additional support', we restrict the analysis to individuals that received *bridging allowance*. This ensures a valid identification of self-employment periods. Furthermore, start ups after the first quarter of 2003 (hereafter, 2003(I)) are not studied because they may be affected by additional institutional changes that were introduced in 2003. Drop outs and episodes with difficulties to identify valid begin or end dates are removed from the analysis.[9] Moreover, to focus only on valid additional 'non-financial' support the study is also restricted to participations of support which lie within a certain time corridor before and after the *bridging allowance*.[10] Detailed information of the cleansing procedures is available from the author.

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[6] We collected information to get deeper insights about the promotion scheme concerning topics, their duration and their quality based on additional interviews with participants and local authorities. Among others the survey showed that the hypothesis of low quality of the training and the coaching is not supported. For details see Oberschachtsiek (2007)

[7] This data covers almost 80% of all employed individuals (mainly excluding the self-employed and civil servants) in Germany and the total of all employment positions that are captured by the social security system.

[8] Local information focuses on the level of labor market districts, as suggested in Arntz and Wilke, (2009) and Oberschachtsiek (2010).

[9] For the same reasons people with more than three records of bridging allowance during 1999 and 2005 are excluded from the sample. This will exclude episodes of bridging allowance with less than 60 and more than 740 days. In cases of two or three records of bridging allowance, the study uses the first observation as the reference.

[10] The definitions of the time windows account for legal regulations and empirical density. For example focusing on coaching additional support will only be valid if the entry lies within one year after but not more than three months before entering self-employment. A training episode will be valid if the entry lies within a time window of one year after finishing the

As it is in the focus of this study to analyze the outcome of 'non-financial' support we apply a simple treatment-effect approach where we study the effect of intervention on a related outcome that we expect to be affected by the treatment. The treatment is in our case is defined as an additional 'non-financial' support – that is participating a single additional promotion scheme based on a self-employment *training*, *coaching* and support related to the *§10 start-up support*. Multiple treatments like combining self-employment *training* and a *coaching* are not studied.[11] For the comparison group we use individuals with no additional 'non-financial' support. This includes all individuals who have never received extra promotion during the time period and those who did not receive a valid additional support but who received a *bridging allowance*.[12]

As noted above, the outcome measure relates to the major political objective of self-employment promotion and is conducted in order to capture the stability of an individual's self-employment period. Unfortunately, the data does not provide a direct measurement of this so that we made use of an inverse definition, in which instability is approximated due to any record that is not related to self-employment promotion after self-employment entry. We find this related to any appearance of unemployment, employment or a job search record after having entered the period of *bridging allowance* (quits of self-employment). Furthermore, we concentrate on duration in self-employment and allow for different types of quitting self-employment (exits into unemployment and into employment positions) which may provide further information about the economic reasons of quitting self-employment.

## 4. Analysis

### The Evaluation Strategy

To asses the effects of these schemes on self-employment longevity we use a comparison framework in which the populations of individuals with and without a policy intervention are used to identify counterfactual observations for the estimation of average treatment effects.[13] The core idea of this approach focuses on rebuilding an experimental design in which one seeks to impute counterfactual observations by matching treated and untreated observations with similar characteristics. Following Rosenbaum and Rubin (1983) serving sufficiently good matches the treatment assignment can be considered as being random which ensures that the potential outcome would be independent of the treatment assignment (Conditional Independence Assumption; CIA).

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training course. For the §10 start-up supports we allow that the begin date to lie within a time window of one year before or after the begin date of the bridging allowance. For a detailed description see Figure A.1 in the appendix.

[11] Studying multiple treatments would also run into methodological problems because of limited observations.

[12] Alternatively we might remove these observations. However, such a restriction could also bias the investigation because invalid treatments may relate to re-starters and lead to an underrepresentation of unsuccessful cases.

[13] For a deeper discussion see for example Heckman et al. (1997 and 1999) or Blundell and Costa Dias (2009).

Compared to other methods the advantage of matching is that the set of necessary restrictions is highly limited (e.g. it does not need exogeneity of conditioning variables, exclusion restrictions or separability of outcome and choice equation). In particular, matching techniques do not need a parametric specification of the outcome function or of the selection process, but it emphasizes the existence of a common support and it allows studying heterogeneous treatment effects. However, the bias reduction due to matching fundamentally depends on rich information that allows including attributes that simultaneously determine the treatment assignment and the potential outcome of the comparisons.

As in any evaluation setting the identification of causal effects also relies on the absence of general equilibrium effects. This assumption is known as the stable unit treatment value assumption (SUTVA; see for example Holland, 1986). The SUTVA states that the participants need to be stochastically independent across all observations and that the outcome must be independent of the mechanism the participant receives the treatment. In a more practical way this implies that an individual's potential outcome and his or her likelihood of receiving a treatment should not interfere with those of others. In our evaluation this assumption may evoke special concerns because of the regionalized policies that are studied. Usually, the validity of the SUTVA should hold in cases of a low ratio between the number of participants on the relevant labor market and the total size of that market so that interaction between the potential participants is limited (usually this is fulfilled for relatively small promotion schemes). To clarify this, think of an intervention (for example) that is small on a national level but that may have a substantial relevance for a particular region. Therefore, we need a better understanding of the regional level in the selection process. If regional characteristics are important the validity of the SUTVA will need a more local perspective which must result in an implementation of the matching approach that accounts for the regional promotion setting.
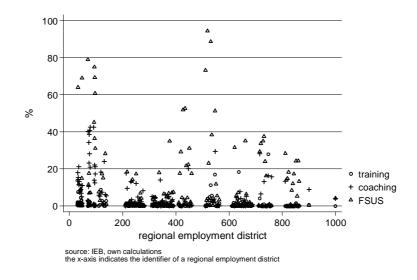
### *Distribution of participations*

Observations enter the risk setting with year 2000 and are right-censored with December 31$^{st}$ 2005. We find that the inflow into bridging allowance increased from above 85,000 in 2000 to 140,671 in 2003. In sum and accounting for the sample restriction presented above 418,856 cases of *bridging allowance* enter this study. *§10 start-up supports* (*FSUS*) show the highest number of participants (n = 30,481), followed by entries in *coaching* (n = 13,737) while the number of participations in *training* courses remains relatively small (n = 2,131).

Following the discussion above and the description on the implementation of self-employment promotion in section 2 we will first have a closer look at the regional variation of the relative relevance of the single promotion schemes. Figure 1 reports the ratio between the number of participants of an additional promotion scheme (*training*, *coaching* and *FSUS*: *§10 start-up supports*)

and the total number of participants with *bridging allowance* for each of the 176 local labor market districts (notice: the x-axis is based on the official identifier of a local district).

As it can be seen in Figure 1, most labor market districts have low ratios of additional support, which indicates low importance of extra self-employment promotion. However, in some regions these extra promotion activities exceed a share of 40% or are close to 40% (which is the case for *§10 start-up supports* and *coaching*). In contrast, self-employment *training* remains relatively unimportant in most of the employment districts (close to zero). Obviously, there are strong local differences either in the costs of controlling the schemes or in the expected gains that may drive this regional heterogeneity.

Figure 1: The relative importance of different promotion schemes across regions



source: IEB, own calculations
the x-axis indicates the identifier of a regional employment district

This finding is important for the evaluation because it indicates a high relevance of a local implementation and particularly deviates from the picture that is usually found for other types of promotion where we observe (except of a structural difference between East and West Germany) a more smoothed distribution across regions (e.g. training schemes; see Hirschenauer 2001). This also supports the hypothesis of a particular regional specialization in promoting self-employment. Furthermore, this finding directly emphasizes the concern of general equilibrium effects (in regions with exposed activities) and the problem of limited common support (in regions with almost no additional activities). To overcome this potential source of bias we exclude regions with more than 40% of additional promotion in one of the focused types of additional self-employment promotion. As a result 17 local labor market districts are excluded from the study. This corresponds to a loss of

almost 29,700 observations (12,500 with *bridging allowance*; 3,400 *coaching* observations and 12,200 in *FSUS*). Furthermore, in the matching approach we will exclude all regions that have no support.[14]

### *The selection process, potential outcome and the validity of the CIA*

*Treatment selection*

Before we enter the evaluation we first focus on investigating the selection process to obtain further insights into the treatment assignment. Theoretically, selection into an additional self-employment support can be considered as a result of a negotiation between the local agent (case manager of the local labor market office) and the applicant. As seen from the supply side, regional differences may result from different local policy strategies, different cost/benefit structures and perceived success that relate to the specific characteristics of the local labor market. Therefore, the supply is assumed to be mainly driven by local specific labor market conditions. Furthermore, time in this context captures variation in learning about efficient policies.

In turn, selection on the individual level (demand side) will be affected by the individual's cost/benefit functions. However, since this is not directly observable to the researcher, we assume that the driving forces behind this pattern are related to the individual expertise which we assume to be linked to the individual's experience, formal qualification and employment biography.

Table 1: Factors affecting treatment selection

| Block of variables | Training | | Coaching | | FSUS (§10 support) | |
|---|---|---|---|---|---|---|
| | BIC | LR | BIC | LR | BIC | LR |
| **model 1**<br>(only b1) | 40.459,61 | 1782,47*** | 171.601,50 | 7163,75*** | 200.113,40 | 1260,58*** |
| **model 2**<br>(adding b2 to b1) | 33.738,78 | 8204,86*** | 129.326,40 | 44134,18*** | 152.136,90 | 50014,96*** |
| **model 3**<br>(adding b3 to model2) | 33.057,17 | 950,84*** | 128.866,70 | 926,89*** | 150.720,80 | 1685,34*** |

notes: the blocks of attributes are sequentially introduced in nested models.
the blocks of the attributes contain: b1 (7 dummy-variables for the # half-year of entry); b2 (regional information, 108 to 159 variables, including regional conditions and dummy variables for each local labor market district); b3 (individual information, 94-99 variables, including gender, age, qualification, employment background and professional background on a two digit classification)
notice,    low values of the BIC indicate superior statistical model: $BIC = 2 \quad ln\ L + k * l(\ n\ )$
the change in terms of the BIC is sensitive to the order of the introduction of the models – however, several checks reveal no different findings to that reported above.

Focusing on the selection process Table 1 reports some related statistics separately for each promotion scheme. Results are based on logit models and cover different sets of attributes. Since we are only interested in general information about the selection process Table 1 focuses only on model fit statistics. The reported statistics [Bayesian Information Criteria (BIC) and the Likelihood Ratio

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[14] The initial and final sample sizes are reported in A4a to A4c in the appendix.

(LR)] inform about the entropy of the statistical modeling which can be used to describe the general pattern of the selection process (see for example Burnham and Anderson 2004).

As it can be seen in Table 1, the greatest model improvement associates with the introduction of regional characteristics (especially due to the introduction of the local labor office indicator). This finding directly supports the hypothesis of the importance of the local agent's cost/utility function (policy strategy) in the overall selection process. In detail, we find that additional support has a higher ratio in Eastern Germany in general (less pronounced for the *§10 start-up supports*) and that time and the local composition of additional self-employment promotion strongly affects the likelihood of the selection process. In contrast, individual characteristics are of low informational value in explaining program participation. Nevertheless, we find that participation probability of receiving an additional self-employment promotion increases with age (inversely u-shaped), that it is higher for males and that the likelihood rises with qualification.

### *The validity of the CIA*

For the validity of the matching approach it is critical that we sufficiently observe information that jointly correlates with the treatment assignment and the outcome measure. In this context it is usually the firm's capital structure and the presence of financial constraints that are stressed by research on start-up success. However, the research on start-ups that have been undertaken from a position of unemployment draws a somewhat different picture (e.g., Hinz and Jungbauer-Gans 1999, Oberschachtsiek 2008).[15]

Furthermore, while we observe that selection is strongly influenced by regional conditions, the literature on the determinants of survival emphasizes the importance of individual characteristics. In particular, previous research indicates that experience, schooling, gender and motivation are highly correlated with business prosperity and self-employment longevity (for an overview see: Santarelli and Vivarelli 2007; for business founders out of unemployment in Germany see Wießner 2001, Reize 2004, Caliendo and Kritikos 2009 and Oberschachtsiek 2008). Evidence on the role of regional conditions mainly focuses on firm formation rather than on self-employment (Fritsch et al. 2006; Falk, 2007). However, Taylor (1999) as well as Johansson (2000) show that the unemployment rate influences survival chances. More explicit evidence is provided by Oberschachtsiek (2010) who shows that local labor market conditions strongly effect the survival of the new business on a higher level of complexity (e.g. differs in its effect across qualifications and is multidimensional in affecting survival chances) - even if individual characteristics are more pronounced.

In sum, in our opinion it is more important to include information related to the individual employment history and context specific information as for instance related to the legal form of the business. In this sense we feel quite comfortable that the included information should provide

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[15] Both studies support the thesis that capital endowment does not seem to be a critical factor in driving the survival chances of new founded business from people who started their business from a position of unemployment. Instead both studies emphasize a higher relative importance of human capital.

sufficient support for the CIA. Finally, a further important support for the argument that sufficient information is included in our data is that a major issue of selection is already absorbed by the choice of applying for the bridging allowance (e.g. capturing the motivation to start a business) and due to the data restrictions discussed above.

### *Implementation of the matching*

In our evaluation we concentrate on the Average Treatment Effect on the Treated (*ATT*,) as the most interesting parameter. This estimator is defined as the difference between the mean outcome of the treated $Y_i^{D=1}$ and the estimated counterfactual outcome $\hat{Y}_j^{D=1}$ and provides information about the net outcome of a treatment for those who were treated:

$$ ATT = \sum_i \left[ Y_i^{D=1} - \hat{Y}_j^{D=1} \right] \quad \text{given that} \quad \hat{Y}_j^{D=1} = \sum_j W_{i,j} Y_j^{D=0}, \tag{1} $$

where *i* characterizes the treated and *j* the untreated individuals. In our analysis all individuals that only received a bridging allowance are defined as untreated (likewise: comparison) while the population of those with an (one!) additional support define the treated individuals. As the right hand side of Formula (1) shows the estimated counterfactual outcome for those with an additional support is taken from the mean outcome of bridging allowance population with no support ($\hat{Y}_j^{D=1}$). We calculate this counterfactual outcome as the weighted mean outcome of the non-treated, in which the individual weights $W_{i,j}$ refer to the distance between comparison *j* and *i*. To ensure equal importance of treated and untreated observations, weights are restricted to the following conditions:

$$ \sum_j W_{i,j} = 1, \quad W_{i,j} \in [0,1]. \tag{2} $$

The distance between those with and without additional support is used to define the comparability of the comparisons. For technical reasons we use the Mahalanobis distance which allows us to set a distance measure and which is used as a measure of equality.[16] In order to stress the importance of specific characteristics we use a more complex procedure to define this distance measure and in using this in the matching approach. For example, to allow a more detailed representation of the selection process we carry out a direct matching for the type of region and calendar time and we calculate three propensity scores (see the full matching approach on next page) which enter the distance measurement.

Finally, the weighting scheme *W* is then performed by using a kernel function *K* (Epanechnikov kernel) based on the bandwidth *h* and the distance function *u*, while *u* is defined on the

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[16] See Cochran and Rubin (1973) and Rubin (1980) for the properties of *M(x)* in matching approaches.

basis of the distance of the balancing scores ($B(x)$) - that is the dissimilarity between the treated and the untreated observation - and the bandwidth $h$:[17]

$$W_{i,j} = \frac{K_{i,j}}{\sum_j K_{i,j}} \quad \text{with} \quad K_{i,j} = \frac{3}{4}(1-u^2) \, 1_{\{|u|\leq 1\}} \quad \text{and} \quad u = (B_i(x) - B_j(x))/h \quad (3)$$

In specifying our outcome measure we focus on two measures. The first one defines as the likelihood of having quit self-employment during the first 36 months ($T \leq 36$) and focuses on a cumulated outcome difference ($Y^1$). The second one informs about the time depending survival probability ($Y^2$). This is the inverse of the probability of quitting self-employment at or before a time interval ($t; t'$) given that the individual has entered that time interval. Both measures are calculated for $k$ types of exits: all types of exits, exits into unemployment and into employment:

$$Y^1 : \Pr(T^k \leq 36) \quad (4)$$

$$Y^2 : 1 - Pr(t \leq T^k < t'/T^k \geq t) \quad (5)$$

The full matching approach proceeds as follows:[18]

1. Identify $j$ and $i$.
2. Skip regions with no support (zero participants between 2000 and 2003).
3. Estimate three propensity scores $Ps(x)$: $Pr(D=1/X^i)$, $Pr(D=1/X^{rc})$ and $Pr(D=1/X^{rd})$;[19] where $Pr(D=1/X=x) = 1 / (1 + e^{X'\beta})$.
4. Stratify the matching procedure into matching cluster (along annual quarter and type of region[20]).
5. Calculate the Mahalanobis distance based on $Ps^{i,rc,rd}(x)$ and selected $X$ as the $B(x)$
6. Set a multiplier $m \in \left]0,1\right]$.
7. Run a pre-matching to identify $h$ based on the distance distribution of nearest neighbors in each matching cluster: a) Select a treated observation $i$. b) Use the nearest neighbor in terms of the Mahalanobis distance, given that $j$ lies within the cluster $cl$ and keep the distances between all comparisons. c) Extract the 75th percentile of all distance values within cluster $cl$. d) Use the 90th percentile across all '$cl$ p75-distance values' as the bandwidth $h$.
8. Run the clustered matching algorithm based on $h$ taken from (7) which is multiplied with $m$.
   → if balancing property is not convenient re-run from (7) based on additional attributes that are added to the calculation of the Mahalanobis distance.

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[17] Techniques that have been discussed to assess optimal bandwidth choice are not feasible in the setting implemented here.

[18] The used matching algorithm mainly corresponds to the one used in Lechner (1999) and Almus (2004). Notice, that we used the psmatch2 (version 3.1.5) command provided by Leuven and Sianesi (2003) for statistical software package STATA 10.1.

[19] i denotes individual characteristics, rc indicates regional and control variables, rd marks the set of regional dummy variables.

[20] For the type of the region we used the ‚five-group' classification suggested by Blien and Hirschenauer (2005). Among others this classification controls for the economic development of a region, the agglomeration structure, the local unemployment, and the seasonal economic dispersion in a region.

$\rightarrow$      if balancing is not sufficient based on adding attributes re-run from (6) with a lower multiplier.

Notice that we calculated the standard errors (SE) of the estimator in (4) following Lechner (2001):

$$SE(ATT) = \frac{1}{N_i}Var(Y_i^{D=1}) + \frac{\sum_{n=1}^{N_j}W_n^2}{(N_i^2)}Var(Y_j^{D=0}) \qquad (6)$$

However, in the calculation based on Formula (6) we implicitly assume that the individuals (treated and matched untreated) are independent. Therefore, in order to emphasize the issue of regional clustering (non independency of observations within a regional entity) as reported in section 4 we also calculate two measures that provide information about the potential misspecification of the standard error. The first measure is a design-effect indicator (denoted with '$se^r/se$, I') that focuses on the ratio of the two standard errors taken from the non-weighted and unrestricted sample of the treatment effect estimation based on a simple logit model with ($se^r$) and without robust standard errors (se). High values indicate a strong correlation between observations and therefore a high risk of a misspecification of the common variance estimation. The second measure follows the same logic and is also calculated as a ratio (denoted with '$se^r/se$, II') but focuses on the weighted and restricted population (matched sample) Nevertheless, using such indicators is not common in evaluation settings and may only be used as a rough indication for the potential effect of clustering.

## 5. Results

*Results for the main groups*

Table 2 also reports statistics related to the treatment effect. In particular we focus on the ATT measured in accordance with formula (4; $Y^1$) and the subsequent inference statistics. For the interpretation of the ATT ($Y^1$) notice that a positive sign associates with a higher failure rate of those with an additional support compared to those who only received a bridging allowance and therefore indicates a negative effect of the treatment on the likelihood of remaining self-employed.

As column five shows, the ATT's ($Y^1$) are relatively low and in most cases remain statistically insignificant. To make this clear, empirically this reflects that additional support (on average) does not contribute to improve self-employment survival. For self-employment *training* for instance statistically significant effects can only be identified for exits into unemployment, indicating that additional support associates with an increase in quitting self-employment if one focuses on quits into unemployment positions. In contrast, *coaching* significantly reduces exits into wage work (level of statistical significance: 95%) which means that business founders with a *coaching* are less likely to enter a wage work position when quitting self-employment. Furthermore, focusing on the *§10 start-up support* we find exits into employment are less likely, whereas exits into unemployment increase.

Table 2: Treatment effects

| Treatment / type of exit | on support[A] | | matched[A] | | ATT[B] | | Inference | | balance (MSB)[C] | | F-test[D] | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Nj | Ni | Nj | Ni | | se | $se^r/se$, I | $se^r/se$, II | before | after | before | after |
| **Training** | | | | | | | | | | | | |
| all types: | 1555 | 118236 | 1555 | 32968 | 0,006 | 0,015 | 1,799 | 0,818 | 24,866 | 2,380 | 0,000 | 0,631 |
| unempl.: | 1555 | 118236 | 1555 | 32968 | 0,023[+] | 0,014 | 1,364 | 1,031 | 24,866 | 2,380 | 0,000 | 0,631 |
| employment: | 1555 | 118236 | 1555 | 32968 | -0,013 | 0,009 | 1,163 | 1,020 | 24,866 | 2,380 | 0,000 | 0,631 |
| **coaching** | | | | | | | | | | | | |
| all types: | 7204 | 177573 | 7204 | 27529 | 0,002 | 0,008 | 2,237 | 1,623 | 28,573 | 0,970 | 0,000 | 0,823 |
| unempl.: | 7204 | 177573 | 7204 | 27529 | 0,007 | 0,007 | 2,166 | 1,179 | 28,573 | 0,970 | 0,000 | 0,823 |
| employment: | 7204 | 177573 | 7204 | 27529 | -0,013[*] | 0,005 | 1,392 | 1,060 | 28,573 | 0,970 | 0,000 | 0,823 |
| **§10 start-up support (FSUS)** | | | | | | | | | | | | |
| all types: | 8942 | 206189 | 8942 | 22033 | 0,010 | 0,007 | 3,633 | 1,042 | 24,773 | 0,885 | 0,000 | 0,523 |
| unempl.: | 8942 | 206189 | 8942 | 22033 | 0,021[*] | 0,007 | 2,329 | 0,888 | 24,773 | 0,885 | 0,000 | 0,523 |
| employment: | 8942 | 206189 | 8942 | 22033 | -0,011[*] | 0,005 | 1,942 | 1,358 | 24,773 | 0,885 | 0,000 | 0,523 |

[A] j and i are indicators for the population (i = treated population; j= untreated persons)
[B] ATT stands for the average treatment effect on the treated; the ATT is calculated based on formula (4): $Pr(T^k \leq 36)$
[C] the balancing property is calculated as the averaged mean standardized bias based on individual and regional variables as well as on the three propensity scores
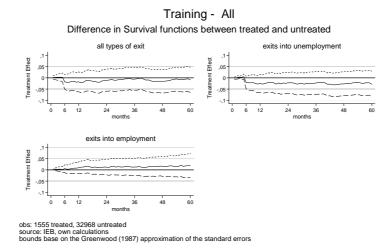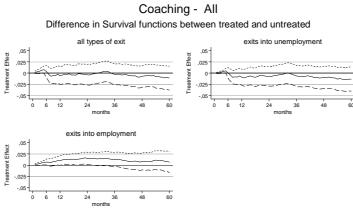[D] the test used is a F-test of the joint insignificance of all regressors before and after matching
+ indicates statistical significance on the 90%-level; * indicates statistical significance on the 95%-level

With respect to clustering the indicator for the design effect ('$se^r/re$, I') shows a potentially high correlation of the observations within regions. However, focusing on the '$se^r/re$, II' ratio suggests that the matching procedure fairly solves the problem. Furthermore, despite some statistically significant treatment effects of additional self-employment promotion Table 2 shows that the magnitudes of the identified treatment effects remain rather small. For example, a statistical significant difference in survival between the treated and the matched untreated of 0.021 (see §*10 start-up support*; exits into unemployment) means that an additional support increases exit probabilities by no more than 2.1%-points over a period of three years. This is less likely to be of an economic importance.
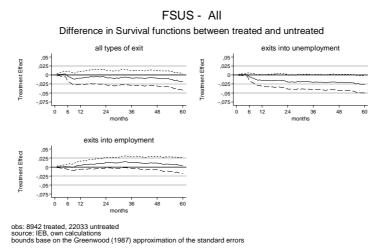
However, when assessing this finding we must be aware, that low treatment effects may result from different sources; namely: time variant effects, heterogeneous treatment effects and methodical misspecifications. Accounting for such pattern points to the fact that we may otherwise average out existing effects. We will focus on these issues below.

Figure 2: Time depending treatment effects

## Training - All
### Difference in Survival functions between treated and untreated



obs: 1555 treated, 32968 untreated
source: IEB, own calculations
bounds base on the Greenwood (1987) approximation of the standard errors

## Coaching - All
### Difference in Survival functions between treated and untreated



obs: 7204 treated, 27529 untreated
source: IEB, own calculations
bounds base on the Greenwood (1987) approximation of the standard errors

## FSUS - All
### Difference in Survival functions between treated and untreated



obs: 8942 treated, 22033 untreated
source: IEB, own calculations
bounds base on the Greenwood (1987) approximation of the standard errors

Note: the dashed lines report the upper and the lower bounds of the 95%-confidence interval.

*Time variant treatment effects*

To uncover time depending differences in survival Figure 2 displays the treatment effect as the difference of the non-parametric survival functions between the treated and the (weighted) untreated comparison group. That is providing information about the net outcome of an additional support in terms of better survival chances over time. Notice that the ATT now focuses on $Y^2$ so that a negative value reflects a lower survival chance in the population with an additional support compared to those with no treatment. Again results are reported for different types of quitting self-employment. To account for right censoring the survival functions calculate as the share of observations that is self-employed at time *t* in reference to the pool of individuals that are still at risk. 95%-confidence intervals (dashed lines) are calculated using the Greenwood (1926) approximation of standard errors (without controlling for clustering).

As Figure 2 shows, time depending effects exist for all types of additional promotion. However, the extent in which variation over time occurs differs across the type of additional support and for the type of exit that we consider. For example, - putting statistical significance aside - for self-employment *training* it is found that an additional support (comparatively) associates with a loss of survival chances when we focus on all types of exits during the first 24 months. However, after a period of 24 month we see that the survival difference between treated and the matched non-treated almost approximates zero, while we see relative constant difference in survival for exits into unemployment and wage work. In general, there is small evidence that a gain from an additional support tends to increase with time when focusing on exits in general and into unemployment (inverse for exits into employment). Nevertheless, it is notable that "*trained*" self-employment periods in particular have a lower survival rate immediately after the ending of the *bridging allowance* promotion while entries with a *coaching* tend to have higher survival rates at this point in time. In particular, we find a high share of early exits in the "*trained*" population which points to a strong post entry selection. A similar pattern is also found for the *coaching* population but is less pronounced. However, this finding may indicate that additional support enhances the perception of self-employment as being an inferior option of employment.

*Heterogeneous treatment effects*

For plausible reasons effects caused by an additional promotion may also differ for specific sub-populations. As research on self-employment shows, outcome differences are likely to emerge across gender as it associates with differences in risk attributes, investment behavior, income and growth intentions (Williams 2000; Georgellis and Wall 2005; Wagner 2007). Following this idea we control for gender differences, for differences between East and West Germany and we stratify the population based on a generalized propensity score (five groups according to the 20% percentiles). However, the findings do not differ a lot compared to the results for the whole population (see Table A.4a-c in the appendix). In most cases we are not able to identify significant effects – except for the

*§10 start-up support* where we find the highest treatment effect for the subgroup with low treatment dispositions and where we find increased quits into unemployment for those with an additional support (ATT = 0.065; se = 0.027).

### *Common support and matching quality*

In order to assess the quality of the matching procedures we examined joint distributions of the propensity scores for those with and without an additional support. Following this graphical assessment in Figure A.2 (in the appendix), the included matched comparisons are sufficiently balanced. Furthermore, in accordance with Rosenbaum and Rubin (1983 and 1985) we may also use the mean standardized bias (MSB) as an indicator for the overall balance of the matched comparisons.[21] As reported in Table 2 the averaged MSB decreases strongly after the matching. This is a fairly good indication for a sufficient good balance, and indicates a better balance than in other related studies (e.g. Baumgartner and Caliendo 2008). Finally, the F-test statistic also reveals joint insignificance of the covariates in a logistic regression in the matched sample.[22] Likewise, t-tests of mean differences for single variables between matched treated and non-treated individuals also support the rejection of the hypothesis of differences in the matched sample.

### *Additional findings and robustness checks*

The most critical objection in this evaluation may refer to the point that individuals with unpromising business projects may have higher relative utilities of using additional self-employment support and therefore have a higher likelihood in taking advantage of the additional self-employment promotion. Since this might be unobserved, matching may fail to estimate unbiased treatment effects. However, in order to assess the robustness of the estimates different checks have been made. First of all, we performed different matching methods including single nearest neighbors, caliper matching and propensity kernel matching in order to check methodical issues and which in sum support the reported findings. In addition, we also tested the potential effect of unobserved heterogeneity by explicitly excluding information and by calculating post-estimation Rosenbaum bounds.[23] In particular, both sensitivity tests do not give support for the hypothesis that unobserved heterogeneity affects the

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[21] The MSB defines as the difference of sample mean of each covariate in the treated and control subsamples as a percentage of the square root of the average of sample variances in both groups (before and after matching). We control for the following set of attributes: gender, age, higher education, college or university degree, small business employment background, master craftsman, small business background and being a master craftsman, West or East Germany, date of entry, all three propensity scores, profession based on a one digit classification. Furthermore all regional attributes are included: local unemployment rate, local firm hazard, variation index of local unemployment and the regional share of additional promotion.

[22] The 'after test' (see Table 2) performs a test on the null hypothesis that the entropy of the treatment selection model equals zero when it is restricted to the weighted matched population.

[23] The Rosenbaum bounds provide information about the potential change of an estimator if one includes a hypothetical factor that covers unobserved heterogeneity (see Rosenbaum 2002 or Becker and Caliendo 2007 for details). In the sensitivity analysis we used the STATA module "mhbounds.ado" – as suggested by the authors (Becker and Caliendo 2007) we focused the sensitivity test only on the nearest neighbor matching without replacement.

reported estimates. In addition, we also re-run the estimates by only including regions with high ratios of additional support which is used to account for a potential interference of a 'negative creaming' (assuming that negative selection would be relatively higher in regions with only few participants). Finally, we replicated estimations while focusing on regions with low activities in state specific ESF-funding of additional self-employment promotion in order to test for the effect of potential substitutes.[24] In sum, none of the robustness checks reveal substantial differences of the findings reported above.

### 7. Summary and Conclusions

In this study we are the first time examining the treatment effect of the additional start-up support in terms of employment stability. Subject of the investigation are self-employment *trainings*, *coaching* and *§10 start-up supports* (a scheme that comprises different programs with a regional focus). Even though recent policies have spent increasing attention on this promotion little is known about their net outcome. In our analysis we use data taken from the IEB which is an integrated German data base that allows a complete control of all participations within the active labor market policy offered by the Federal Employment Agency. Detailed information of the employment history, qualification and socio-demographic information and rich regional data about local labor market conditions can be controlled for in the evaluation setting which makes the statistical matching approach a valid evaluation technique.

First of all, we find that selection into an additional promotion (treatment assignment) mainly seems to be a result of differences in local strategies in active labor market policy across Germany. In particular, the results show that few regions have very high shares of additional support and that in most regions additional self-employment promotion seems to be less attractive. This finding indicates a particular regional specialization in promoting self-employment. This issue has been unaddressed or has been underreported in previous evaluation studies. In order to solve the problem of a potential selection bias we implement a matching approach which seeks to address the specific regional embedment of the selection process and at the same time allows for regionally unequal chances of start-up success. Finally, we also put much effort into studying the robustness of our findings.

The evaluation shows that self-employment *trainings* and *coaching* tend to increase hazards, while exits into employment positions seem to be decreased. However, statistical significance is limited for all schemes and all outcome measures. For example, *coaching* mainly shows relevance for (decreased) exits into wage work positions, while significant effects for *trainings* limit to (increased) exits into unemployment. Statistically significant treatment effects mainly concentrate on *§10 start-up*

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[24] We used data from the state ESF monitoring of 2002 to identify states with low numbers of participations of ESF-funded coaching, self-employment training and counseling. Data is available only for Western Germany. Since promotion is costly it is assumed that other programs that were not funded by the ESF can be treated as negligible.

*supports*, in which survival is less likely, exits into unemployment are increased and hazards into wage are decelerated. However, treatment effects remain small. Several robustness checks support these findings.

In sum, our findings indicate that on an average level *training* and *coaching* do not associate to what was politically intended. If individual 'learning' would be improved due to additional non-financial support, we would have expected that survival is higher and/or that exits into wage work may be accelerated. However, we find insignificant treatment effects for exits in general and significant 'negative' (negative in terms of the political objective) treatment effects related to *training courses* and related to the "*§10 start-up supports*" (increased exits into unemployment). This is interesting for at least two reasons: First, it shows that the promotion scheme with the highest degrees of freedom associates with some non-ignorable treatment effects and second the treatment relates to a decrease in survival. One explanation which would be in line with this finding is that external expertise may tend to enhance better preconceptions of future economic prosperities of the business and may therefore cause higher exit rates in order to prevent running into deficits. Furthermore, we find a strong shift in survival at the end of the basic financial support which points to the fact that treatments enhance the perception of self-employment as an inferior employment option.

Unfortunately, we neither know much about the objectives, forms and regulation of the single promotion schemes and the determination of these treatment effects in detail nor do we know much about the mechanisms that associate with these findings. Therefore, further research is needed that allows a deeper understanding of the way non-financial support operates. In particular, future evaluation must be aware of the high level of complexity when studying self-employment promotion (e.g. multilevel promotion, spatial heterogeneity). This also motivates further research on a more local level to account for regional differences in the political strategies of the active labor market policy.

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# Appendix

Table A.1: Self-employment promotion schemes of the active labor market policy

| | bridging allowance | free start-up supports (§10 start-up supports) | self-employment training | self-employment coaching |
|---|---|---|---|---|
| **target group** | individuals who entitled to receive unemployment benefits and who will start a new business | individuals who will or who have started a business from a position of unemployment | individuals who plan to become self-employed | individuals who have started a business |
| **focus** | transition costs; financial support | regional policy | preparation and qualification | external expertise, improved learning |
| **benefits** | • coverage of the living expenditures during the fix six months plus extra payment for the social security contribution payment limits to the (potential) unemployment benefit | • flexible (experimental) types of support during the transition, start-up period or the early period of self-employment<br>• e.g, allowances for the living expenditures, technical equipment | • 4 to 12 weeks of training<br>• coverage of training fees, traveling costs and expenditures for child chare<br>• free selection of the course (usually professional training centers) | • coverage of coaching costs, traveling costs and expenditures for child chare<br>• free selection of the coach to address individual topics (usually tax counselors or business consultants) |
| **requirements** | • self-employment activity stops or avoids unemployment<br>• younger than 64 years<br>• positive assessment of the business concept<br>• evidence of new business activity or the start-up (difficulties in cases of a business buyout) | • not conflicting with the general directions of the active labor market policy<br>• only if other schemes (including national or regional business development programs) are not possible<br>• limited to a total spending of not more 10% of the regional reintegration budget | • entitled to receive a regular promotion of the Social Code III – e.g. planed to apply for bridging allowance<br>• preparing a start up | • receiving a promotion of the Social Code III – usually bridging allowance<br>• limited topics since 03/2003 (marketing, business development, mental help)<br>• subsidies are limited to a one year period after start up<br>• limited topics since 03/2003 (marketing, business development, mental help) |
| **validity period** | Start in 1986; reform in august 1994; changes in 1997, 1998 and 2001; termination in 2006 | start in 1998 | start in 1998; restarted in 2000, terminated in 2006 several changes: e.g. total payment up to 9.000 Euro (until 03/2003), between 3/2003 and 02/2000 4.600 Euro | start in 1998; restarted in 2000, several changes: see coaching terminated in 03/2003 |

own compilation

Table A.2: Definition of the variables

gender (male)
    Sex is male. Source: Employment History.
age
    Age of the business founder at the beginning of the self-employment episode. Source: Employment History.
schooling (>= high school)
    Schooling equals high school degree or higher (Germany: 'Abitur' or 'Fachabitur'). Source: Job Search Register.
academic degree
    The founder holds an academic diploma (university or college). Source: Job Search Register.
master craftsman / foreman
    The founder has worked as a crafts master or foreman (job position) in his or her last employment episode before starting the business. Excluded are employment episodes with a daily income lower than 5 Euro or lasting less than 60 days (valid employment episode). Source: Employment History.
management
    The founder worked in a management position in the last employment episode before starting the business. Source: Job Search Register.
commercial background
    The founder is experienced and (formally) trained in a commercial profession. Source: Job Search Register (apprenticeship information); Employment History (using the two digit classification of a selected set of professions; experience).
short unemployment
    The unemployment duration before setting up the business is less than 3.5 months (difference between last employment and beginning of the promoted self-employment episode; missing values are imputed). Source: Employment History
number job changes
    Number of distinct two-digit classified professions during the last two years before starting the business. Source: Employment History.
minor employment
    Founder worked in a minor employment during the last valid employment episode before setting up the business. Source: Employment History.
wage-premium
    Identifies if a founder earned 1.66 times more than the expected monthly wage income in the last valid employment episode. The expected income is a regressed function of the income and a selected set of covariates (e.g., age, schooling, job changes, gender, job position, size of the establishment) conditional on the type of profession and part- or full-time status. Source: Employment History.
size of establishment / small business
    Size of the Establishment: modus of the number of employees of the establishments during the last five years before setting up the business. Only those employment records are included that last for more than 3 month with an income greater than zero. Source: Establishment History Panel.
    Small Business: The founder has usually worked (modus of the last five years) in establishments with less than 20 employees. Source: Establishment History Panel.
unemployment rate (UER)
    Monthly unemployment rate of the local labor market district. This information is merged with the micro data after splitting the dataset into three-month periods. Berlin is treated as one region (un-weighted average). Source: Employment Statistics.
unemployment index
    Time-varying covariate that covers a normalized unemployment rate relative to the starting point (index = UER*100/UER). Source: Employment Statistics.
variation index
    Captures the variation of the monthly unemployment rate for each local labor market district. The index relates to the square root of the squared mean error of a time series estimation. Source: Employment Statistics.
share (%) of vanishing establishments (local firm hazard)
    Identifies the share of establishments that are found in t-1 but do not exist in t in the local labor market district. Source: Establishment History Panel.
cohort
    Represents the year in which the founder set up the business. Source: Participation in Measure Register.
profession
    Distinguishes seven clusters of professions based on a two-digit job classification related to the last valid employment episode. Source: Employment History.
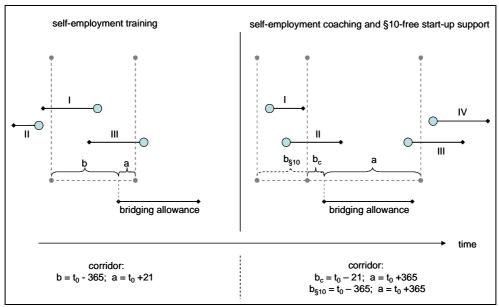exit
    Equals one if there is a non-self-employment episode after starting the business (beginning of the promotion). Source: all sources of the IEB. The identification distinguishes between a) employment (wage work with notification to the social security system), b) unemployment (with and without unemployment benefits) or participation in measure, and c) other (e.g. minor employment). Before identifying these spells, the data set was reorganized to summarize different types of spells.
duration of self-employment
    The duration of self-employment is the difference between the beginning date of the promotion (start-up of the business) and the date of the first non-self-employment episode after starting the business. Censoring refers to 31 Dec. 2005.

Figure A.1: Definition of valid additional support



own illustration

To focus only on valid additional support the study uses time corridors as displayed in Figure A.1. Following this figure *training*, *coaching* and *§10 start-up supports* are included only if they lay within a certain time corridor related to the begin date of the bridging allowance. For simplicity the figure displays the number of the episode (I to IV) and the type of period (b=before the start of bridging allowance; a = after the start) as well as the time corridor to define the cutting edges to include or exclude observations. For the training population this includes observations where the end date of the training lies within a corridor of one year before the begin date of the bridging allowance (entry date) and end dates that are no later than 3 weeks after the entry date (*trainings* must have started before the entry). For the *coaching* we set a time window of -21 days up to +365. This means that coaching is only valid if the entry is observed within 3 weeks after the begin date of coaching and that a coaching must begin no later than one year after the bridging allowance. For the *§10 start-up supports* the time corridor is +/- one year.

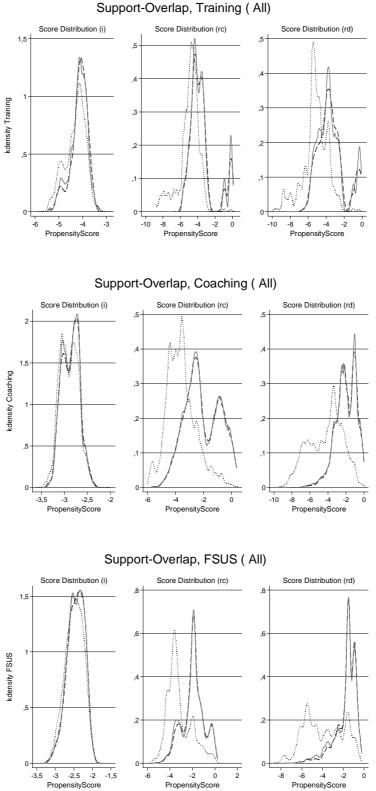Listing A.1: Description of the matching algorithm

Labor market districts (regions) that have no participants of the evaluated promotion scheme do not enter the study, because the common support in these regions is zero (step 2). To include statistical information of the assignment process linear prediction of logit estimates are used. To emphasize the distinct levels of selection three separate scores are applied. The first one includes only individual characteristics, the second bases on regional attributes and time intervals, the third is based on dummy variables of the labor market district and time (step 3).

Before calculating M(x) the sample of $i$ and $j$ is stratified along regional cluster and time intervals (step 4). Region (type of region) and time (13 annual quarters) define distinct matching cluster to ensure that comparisons are only taken from observations with most similar external economic market conditions and to account for the dominating pattern of the treatment assignment. The exact date of entry, the scores and the interaction between the scores are added to the list of attributes that enter the calculation of the Mahalanobis distance (step 5). The inclusion of further variables depends on step 8.

A pre-within sample matching is then performed to identify a bandwidth parameter (step 7). This step ensures to draw $h$ directly from the clustered sample. Nearest neighbor matching guarantees that only the closest $j$ are used. Based on the realized $n^{i,j}$ distances the 75th percentile is taken as the cluster $k$ specific bandwidth ($h^k$). This avoids potential high distance matches within a cluster. Next, the 90th percentile of all $h^k$ is used as the overall bandwidth parameter $h$. This procedure is implemented to weight down matches in clusters in which only high distance matches exist.

The final matching is then performed based on $h$ and proceeds in step 8. The multiplier defined in step 6 ensures a flexible adjustment of the bandwidth parameter and is only rescaled if the inclusion of additional variables (or interaction terms) does not improve the balance between $i$ and $j$ after the matching.

Figure A.2: Support-Overlap



Support-Overlap, Training ( All)

Support-Overlap, Coaching ( All)

Support-Overlap, FSUS ( All)

source: IEB, own calculations

note: the dashed line reports the unconditional distribution of propensity score – the other show the
distribution of the propensity score for the matched treated and non-treated population.

## Table A.3: Treatment selection (estimated effects)

| | Coaching | | Training | | §10 start-up support | |
|---|---|---|---|---|---|---|
| | b | se | b | se | b | se |
| **individual characteristics** | | | | | | |
| male | -0,288*** | (0,05) | -0,337*** | (0,05) | -0,139** | (0,07) |
| age | 0,061*** | (0,01) | 0,066*** | (0,02) | 0,084*** | (0,01) |
| age squared | -0,001*** | (0,00) | -0,001*** | (0,00) | -0,001*** | (0,00) |
| schooling (>=high school) | 0,122*** | (0,04) | 0,251*** | (0,07) | 0,163*** | (0,04) |
| academic degree | -0,001 | (0,04) | 0,036 | (0,06) | 0,036 | (0,03) |
| master craftsman / foreman | 0,050 | (0,05) | 0,213* | (0,12) | 0,051 | (0,06) |
| management | -0,066* | (0,04) | -0,136 | (0,12) | -0,038 | (0,03) |
| short unemployment | -0,256*** | (0,04) | -1,169*** | (0,21) | -0,457*** | (0,04) |
| small business | -0,023 | (0,02) | -0,031 | (0,03) | 0,007 | (0,02) |
| **profession (one digit classification; 10 types)** | | included in the model but omitted in this table | | | | |
| **Local conditions** | | | | | | |
| unemployment (ue) rate | 0,011 | (0,02) | -0,000 | (0,02) | -0,018 | (0,02) |
| ue variation | -1,351*** | (0,06) | 1,440*** | (0,21) | 1,006*** | (0,05) |
| firm hazard | -0,069* | (0,04) | -0,018 | (0,03) | -0,061*** | (0,02) |
| share of Training | 0,065*** | (0,00) | 0,182*** | (0,00) | -0,019*** | (0,00) |
| share of Coaching | 0,113*** | (0,00) | 0,025*** | (0,00) | 0,043*** | (0,00) |
| share of FSUS | 0,028*** | (0,00) | 0,065*** | (0,00) | 0,159*** | (0,00) |
| Eastern Germany | 2,192*** | (0,21) | 1,110*** | (0,32) | 1,516*** | (0,24) |
| **Time (quarter since 1st 2000 = reference group)** | | | | | | |
| 2nd | 0,718*** | (0,10) | 2,088*** | (0,38) | 0,613*** | (0,13) |
| 3rd | 0,916*** | (0,16) | 2,316*** | (0,41) | 0,856*** | (0,17) |
| 4th | 0,867*** | (0,30) | 2,261*** | (0,43) | 0,975*** | (0,20) |
| 5th | 1,180*** | (0,30) | 2,179*** | (0,43) | 0,958*** | (0,17) |
| 6th | 1,490*** | (0,32) | 2,218*** | (0,41) | 0,846*** | (0,20) |
| 7th | 2,052*** | (0,30) | 1,689*** | (0,39) | 0,847*** | (0,22) |
| 8th | 2,642*** | (0,29) | -0,725 | (0,46) | 0,917*** | (0,27) |
| **local labor market district (153 dummies)** | | included in the model but omitted in this table | | | | |
| _cons | -6,889*** | (0,35) | -9,637*** | (0,42) | -8,570*** | (0,29) |
| N | 337407,000 | | 257281,000 | | 365785,000 | |
| ll | -63343,482 | | -15649,085 | | -74211,991 | |
| bic | 127017,920 | | 31622,076 | | 148757,036 | |

table reports estimated coefficients (b) and standard errors (se; in parentheses) based on logit estimations
source: IEB, own calculations

# Table A.4a: Treatment effects for '*training*' (sub groups and robustness checks)

| Treatment / type of exit | on support[A] Nj | Ni | matched[A] Nj | Ni | ATT[B] | se | Inference se$^r$/se I | se$^r$/se II | balance (MSB)[C] before | after | test[D] before | after |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Single Nearest Neighbor** | | | | | | | | | | | | |
| all types: | 1983 | 136376 | 1983 | 1816 | 0,023 | 0,017 | 1,799 | 1,094 | 27,318 | 1,610 | 0,000 | 0,049 |
| unempl.: | 1983 | 136376 | 1983 | 1816 | 0,020 | 0,016 | 1,364 | 1,113 | 27,318 | 1,610 | 0,000 | 0,049 |
| empl.: | 1983 | 136376 | 1983 | 1816 | 0,010 | 0,011 | 1,163 | 0,943 | 27,318 | 1,610 | 0,000 | 0,049 |
| **Caliper matching** | | | | | | | | | | | | |
| all types: | 1516 | 136376 | 1516 | 1487 | 0,031 | 0,018 | 1,799 | 1,072 | 27,318 | 2,558 | 0,000 | 0,060 |
| unempl.: | 1516 | 136376 | 1516 | 1487 | 0,030 | 0,017 | 1,364 | 1,047 | 27,318 | 2,558 | 0,000 | 0,060 |
| empl.: | 1516 | 136376 | 1516 | 1487 | 0,009 | 0,012 | 1,163 | 0,962 | 27,318 | 2,558 | 0,000 | 0,060 |
| **Kernel PS-Matching** | | | | | | | | | | | | |
| all types: | 1983 | 136376 | 1983 | 1816 | 0,023 | 0,017 | 1,799 | 1,094 | 27,318 | 1,610 | 0,000 | 0,049 |
| unempl.: | 1983 | 136376 | 1983 | 1816 | 0,020 | 0,016 | 1,364 | 1,113 | 27,318 | 1,610 | 0,000 | 0,049 |
| empl.: | 1983 | 136376 | 1983 | 1816 | 0,010 | 0,011 | 1,163 | 0,943 | 27,318 | 1,610 | 0,000 | 0,049 |
| **All, but excluding information** | | | | | | | | | | | | |
| all types: | 1558 | 118236 | 1558 | 22234 | -0,001 | 0,016 | 1,725 | 0,842 | 26,087 | 1,984 | 0,000 | 0,851 |
| unempl.: | 1558 | 118236 | 1558 | 22234 | 0,021 | 0,015 | 1,423 | 1,041 | 26,087 | 1,984 | 0,000 | 0,851 |
| empl.: | 1558 | 118236 | 1558 | 22234 | -0,013 | 0,010 | 1,172 | 0,842 | 26,087 | 1,984 | 0,000 | 0,851 |
| **West Germany** | | | | | | | | | | | | |
| all types: | 1321 | 88003 | 1321 | 25967 | 0,027 | 0,017 | 1,670 | 1,011 | 28,828 | 2,266 | 0,000 | 0,961 |
| unempl.: | 1321 | 88003 | 1321 | 25967 | 0,030 | 0,015 | 1,405 | 0,996 | 28,828 | 2,266 | 0,000 | 0,961 |
| empl.: | 1321 | 88003 | 1321 | 25967 | 0,001 | 0,011 | 1,099 | 0,820 | 28,828 | 2,266 | 0,000 | 0,961 |
| **West Germany excluding region with high ESF state funding** | | | | | | | | | | | | |
| all types: | 212 | 30457 | 212 | 6287 | 0,019 | 0,040 | 0,972 | 0,921 | 24,129 | 1,753 | 0,000 | 1,000 |
| unempl.: | 212 | 30457 | 212 | 6287 | 0,073 | 0,038 | 0,941 | 1,150 | 24,129 | 1,753 | 0,000 | 1,000 |
| empl.: | 212 | 30457 | 212 | 6287 | -0,042 | 0,022 | 1,151 | 0,888 | 24,129 | 1,753 | 0,000 | 1,000 |
| **East Germany** | | | | | | | | | | | | |
| all types: | 286 | 37040 | 286 | 1190 | 0,013 | 0,036 | 1,239 | 0,758 | 22,253 | 2,667 | 0,000 | 0,997 |
| unempl.: | 286 | 37040 | 286 | 1190 | 0,000 | 0,035 | 1,022 | 1,053 | 22,253 | 2,667 | 0,000 | 0,997 |
| empl.: | 286 | 37040 | 286 | 1190 | 0,024 | 0,019 | 1,232 | 1,032 | 22,253 | 2,667 | 0,000 | 0,997 |
| **Male Population** | | | | | | | | | | | | |
| all types: | 1126 | 83300 | 1126 | 33874 | -0,003 | 0,017 | 1,555 | 0,739 | 24,827 | 1,783 | 0,000 | 0,994 |
| unempl.: | 1126 | 83300 | 1126 | 33874 | 0,015 | 0,016 | 1,047 | 1,077 | 24,827 | 1,783 | 0,000 | 0,994 |
| empl.: | 1126 | 83300 | 1126 | 33874 | -0,010 | 0,010 | 1,165 | 0,629 | 24,827 | 1,783 | 0,000 | 0,994 |
| **Female Population** | | | | | | | | | | | | |
| all types: | 579 | 28320 | 579 | 15001 | 0,008 | 0,024 | 1,353 | 0,846 | 27,863 | 2,825 | 0,000 | 0,996 |
| unempl.: | 579 | 28320 | 579 | 15001 | 0,027 | 0,022 | 1,249 | 1,468 | 27,863 | 2,825 | 0,000 | 0,996 |
| empl.: | 579 | 28320 | 579 | 15001 | 0,001 | 0,017 | 0,845 | 1,024 | 27,863 | 2,825 | 0,000 | 0,996 |
| **Low Treatment Disposition** | | | | | | | | | | | | |
| all types: | 121 | 49488 | 121 | 1256 | 0,054 | 0,054 | 1,799 | 0,776 | 14,720 | 2,470 | 0,000 | 1,000 |
| unempl.: | 121 | 49488 | 121 | 1256 | 0,050 | 0,051 | 1,364 | 0,948 | 14,720 | 2,470 | 0,000 | 1,000 |
| empl.: | 121 | 49488 | 121 | 1256 | -0,002 | 0,030 | 1,163 | 0,946 | 14,720 | 2,470 | 0,000 | 1,000 |
| **High Treatment Disposition** | | | | | | | | | | | | |
| all types: | 776 | 26238 | 776 | 3462 | 0,009 | 0,023 | 1,799 | 0,845 | 23,486 | 2,123 | 0,000 | 0,997 |
| unempl.: | 776 | 26238 | 776 | 3462 | 0,000 | 0,021 | 1,364 | 0,823 | 23,486 | 2,123 | 0,000 | 0,997 |
| empl.: | 776 | 26238 | 776 | 3462 | 0,014 | 0,016 | 1,163 | 0,899 | 23,486 | 2,123 | 0,000 | 0,997 |

table reports selected statistics of the evaluation for subgroups and selected robustness checks; source: IEB, own calculations
[A] j and i are indicator for the population (i = treated population; j= untreated persons)
[B] ATT stands for the average treatment effect on the treated; the ATT is calculated based on formula (4): $\Pr(T^k \leq 36)$
[C] the balancing property is calculated as the averaged mean standardized bias based on individual and regional variables as well as the three propensity scores
[D] the test used is a F-test of the joint insignificance of all the regressors before and after matching

Table A.4b: Treatment effects for '*coaching*' (sub groups and robustness checks)

| Treatment / type of exit | on support[A] Nj | Ni | matched[A] Nj | Ni | ATT[B] | se | se[r]/se I | se[r]/se II | balance (MSB)[C] before | after | test[D] before | after |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Single Nearest Neighbor** | | | | | | | | | | | | |
| all types: | 10107 | 180283 | 10107 | 8611 | -0,012 | 0,008 | 2,237 | 1,603 | 28,604 | 1,107 | 0,000 | 0,003 |
| unempl.: | 10107 | 180283 | 10107 | 8611 | -0,004 | 0,007 | 2,166 | 1,435 | 28,604 | 1,107 | 0,000 | 0,003 |
| empl.: | 10107 | 180283 | 10107 | 8611 | -0,016 | 0,005 | 1,392 | 1,371 | 28,604 | 1,107 | 0,000 | 0,003 |
| **Caliper matching** | | | | | | | | | | | | |
| all types: | 9393 | 180283 | 9393 | 8347 | -0,006 | 0,008 | 2,237 | 1,389 | 28,604 | 0,998 | 0,000 | 0,010 |
| unempl.: | 9393 | 180283 | 9393 | 8347 | -0,003 | 0,007 | 2,166 | 1,426 | 28,604 | 0,998 | 0,000 | 0,010 |
| empl.: | 9393 | 180283 | 9393 | 8347 | -0,012 | 0,005 | 1,392 | 1,225 | 28,604 | 0,998 | 0,000 | 0,010 |
| **Kernel PS-Matching** | | | | | | | | | | | | |
| all types: | 10107 | 180283 | 10107 | 8611 | -0,012 | 0,008 | 2,237 | 1,603 | 28,604 | 1,107 | 0,000 | 0,003 |
| unempl.: | 10107 | 180283 | 10107 | 8611 | -0,004 | 0,007 | 2,166 | 1,435 | 28,604 | 1,107 | 0,000 | 0,003 |
| empl.: | 10107 | 180283 | 10107 | 8611 | -0,016 | 0,005 | 1,392 | 1,371 | 28,604 | 1,107 | 0,000 | 0,003 |
| **All, but excluding information** | | | | | | | | | | | | |
| all types: | 6906 | 177573 | 6906 | 23810 | 0,002 | 0,008 | 2,608 | 1,411 | 29,724 | 0,916 | 0,000 | 0,919 |
| unempl.: | 6906 | 177573 | 6906 | 23810 | 0,011 | 0,008 | 2,334 | 1,071 | 29,724 | 0,916 | 0,000 | 0,919 |
| empl.: | 6906 | 177573 | 6906 | 23810 | -0,017 | 0,005 | 1,454 | 1,164 | 29,724 | 0,916 | 0,000 | 0,919 |
| **West Germany** | | | | | | | | | | | | |
| all types: | 2935 | 129836 | 2935 | 18630 | 0,014 | 0,011 | 1,519 | 1,022 | 28,336 | 0,702 | 0,000 | 1,000 |
| unempl.: | 2935 | 129836 | 2935 | 18630 | 0,005 | 0,010 | 1,335 | 1,101 | 28,336 | 0,702 | 0,000 | 1,000 |
| empl.: | 2935 | 129836 | 2935 | 18630 | -0,007 | 0,007 | 1,710 | 1,007 | 28,336 | 0,702 | 0,000 | 1,000 |
| **West Germany excluding region with high ESF state funding** | | | | | | | | | | | | |
| all types: | 1615 | 34537 | 1615 | 13288 | 0,019 | 0,015 | 1,336 | 0,613 | 23,574 | 1,289 | 0,000 | 0,999 |
| unempl.: | 1615 | 34537 | 1615 | 13288 | 0,016 | 0,014 | 1,065 | 0,872 | 23,574 | 1,289 | 0,000 | 0,999 |
| empl.: | 1615 | 34537 | 1615 | 13288 | -0,007 | 0,009 | 1,369 | 1,481 | 23,574 | 1,289 | 0,000 | 0,999 |
| **East Germany** | | | | | | | | | | | | |
| all types: | 4269 | 47737 | 4269 | 9497 | -0,008 | 0,011 | 1,931 | 0,846 | 17,989 | 0,754 | 0,000 | 0,957 |
| unempl.: | 4269 | 47737 | 4269 | 9497 | 0,006 | 0,010 | 1,955 | 0,833 | 17,989 | 0,754 | 0,000 | 0,957 |
| empl.: | 4269 | 47737 | 4269 | 9497 | -0,017 | 0,005 | 1,088 | 0,831 | 17,989 | 0,754 | 0,000 | 0,957 |
| **Male Population** | | | | | | | | | | | | |
| all types: | 5405 | 124239 | 5405 | 28342 | -0,002 | 0,009 | 2,541 | 1,684 | 30,354 | 1,114 | 0,000 | 0,901 |
| unempl.: | 5405 | 124239 | 5405 | 28342 | 0,002 | 0,008 | 2,120 | 1,377 | 30,354 | 1,114 | 0,000 | 0,901 |
| empl.: | 5405 | 124239 | 5405 | 28342 | -0,010 | 0,005 | 1,268 | 1,247 | 30,354 | 1,114 | 0,000 | 0,901 |
| **Female Population** | | | | | | | | | | | | |
| all types: | 2667 | 43564 | 2667 | 12747 | 0,006 | 0,012 | 1,437 | 1,244 | 23,458 | 1,304 | 0,000 | 0,965 |
| unempl.: | 2667 | 43564 | 2667 | 12747 | 0,018 | 0,012 | 1,777 | 1,365 | 23,458 | 1,304 | 0,000 | 0,965 |
| empl.: | 2667 | 43564 | 2667 | 12747 | -0,022 | 0,008 | 1,217 | 0,894 | 23,458 | 1,304 | 0,000 | 0,965 |
| **Low Treatment Disposition** | | | | | | | | | | | | |
| all types: | 340 | 74383 | 340 | 1583 | -0,017 | 0,034 | 2,237 | 0,867 | 15,003 | 4,011 | 0,000 | 0,809 |
| unempl.: | 340 | 74383 | 340 | 1583 | 0,002 | 0,032 | 2,166 | 0,965 | 15,003 | 4,011 | 0,000 | 0,809 |
| empl.: | 340 | 74383 | 340 | 1583 | -0,047 | 0,021 | 1,392 | 0,794 | 15,003 | 4,011 | 0,000 | 0,809 |
| **High Treatment Disposition** | | | | | | | | | | | | |
| all types: | 3133 | 31542 | 3133 | 4836 | -0,002 | 0,013 | 2,237 | 0,766 | 12,474 | 1,243 | 0,000 | 0,795 |
| unempl.: | 3133 | 31542 | 3133 | 4836 | 0,003 | 0,012 | 2,166 | 0,888 | 12,474 | 1,243 | 0,000 | 0,795 |
| empl.: | 3133 | 31542 | 3133 | 4836 | -0,009 | 0,007 | 1,392 | 1,314 | 12,474 | 1,243 | 0,000 | 0,795 |

table reports selected statistics of the evaluation for subgroups and selected robustness checks; source: IEB, own calculations
[A] j and i are indicator for the population (i = treated population; j= untreated persons)
[B] ATT stands for the average treatment effect on the treated; the ATT is calculated based on formula (4): $\Pr(T^k \leq 36)$
[C] the balancing property is calculated as the averaged mean standardized bias based on individual and regional variables as well as the three propensity scores
[D] the test used is a F-test of the joint insignificance of all the regressors before and after matching

Table A.4c: Treatment effects for '*§10 start-up support*' (sub groups and robustness checks)

| Treatment / type of exit | on support[A] Nj | on support[A] Ni | matched[A] Nj | matched[A] Ni | ATT[B] | se | $se^r$/se I | $se^r$/se II | balance (MSB)[C] before | balance (MSB)[C] after | test[D] before | test[D] after |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Single Nearest Neighbor** | | | | | | | | | | | | |
| all types: | 17790 | 209040 | 17790 | 14578 | 0,001 | 0,006 | 3,633 | 1,175 | 24,747 | 0,657 | 0,000 | 0,574 |
| unempl.: | 17790 | 209040 | 17790 | 14578 | 0,013 | 0,005 | 2,329 | 1,325 | 24,747 | 0,657 | 0,000 | 0,574 |
| empl.: | 17790 | 209040 | 17790 | 14578 | -0,016 | 0,004 | 1,942 | 1,210 | 24,747 | 0,657 | 0,000 | 0,574 |
| **Caliper matching** | | | | | | | | | | | | |
| all types: | 17442 | 209040 | 17442 | 14432 | 0,002 | 0,006 | 3,633 | 1,189 | 24,747 | 0,623 | 0,000 | 0,506 |
| unempl.: | 17442 | 209040 | 17442 | 14432 | 0,013 | 0,005 | 2,329 | 1,284 | 24,747 | 0,623 | 0,000 | 0,506 |
| empl.: | 17442 | 209040 | 17442 | 14432 | -0,014 | 0,004 | 1,942 | 1,078 | 24,747 | 0,623 | 0,000 | 0,506 |
| **Kernel PS-Matching** | | | | | | | | | | | | |
| all types: | 17790 | 209040 | 17790 | 14578 | 0,001 | 0,006 | 3,633 | 1,175 | 24,747 | 0,657 | 0,000 | 0,574 |
| unempl.: | 17790 | 209040 | 17790 | 14578 | 0,013 | 0,005 | 2,329 | 1,325 | 24,747 | 0,657 | 0,000 | 0,574 |
| empl.: | 17790 | 209040 | 17790 | 14578 | -0,016 | 0,004 | 1,942 | 1,210 | 24,747 | 0,657 | 0,000 | 0,574 |
| **All, but excluding information** | | | | | | | | | | | | |
| all types: | 7688 | 206189 | 7688 | 14064 | 0,007 | 0,008 | 3,118 | 0,937 | 25,954 | 0,575 | 0,000 | 0,996 |
| unempl.: | 7688 | 206189 | 7688 | 14064 | 0,019 | 0,007 | 2,108 | 0,891 | 25,954 | 0,575 | 0,000 | 0,996 |
| empl.: | 7688 | 206189 | 7688 | 14064 | -0,015 | 0,005 | 1,756 | 1,094 | 25,954 | 0,575 | 0,000 | 0,996 |
| **West Germany** | | | | | | | | | | | | |
| all types: | 6019 | 164956 | 6019 | 11792 | 0,008 | 0,009 | 4,101 | 1,405 | 27,978 | 1,114 | 0,000 | 0,899 |
| unempl.: | 6019 | 164956 | 6019 | 11792 | 0,019 | 0,008 | 2,300 | 0,900 | 27,978 | 1,114 | 0,000 | 0,899 |
| empl.: | 6019 | 164956 | 6019 | 11792 | -0,017 | 0,006 | 2,127 | 1,183 | 27,978 | 1,114 | 0,000 | 0,899 |
| **West Germany excluding region with high ESF state funding** | | | | | | | | | | | | |
| all types: | 1673 | 35618 | 1673 | 6544 | 0,023 | 0,016 | 2,304 | 0,652 | 41,720 | 1,234 | 0,000 | 0,956 |
| unempl.: | 1673 | 35618 | 1673 | 6544 | 0,023 | 0,015 | 1,653 | 1,462 | 41,720 | 1,234 | 0,000 | 0,956 |
| empl.: | 1673 | 35618 | 1673 | 6544 | 0,002 | 0,011 | 1,006 | 0,821 | 41,720 | 1,234 | 0,000 | 0,956 |
| **East Germany** | | | | | | | | | | | | |
| all types: | 2614 | 41233 | 2614 | 6403 | 0,002 | 0,014 | 1,958 | 1,343 | 26,728 | 1,024 | 0,000 | 0,971 |
| unempl.: | 2614 | 41233 | 2614 | 6403 | 0,011 | 0,013 | 1,712 | 1,130 | 26,728 | 1,024 | 0,000 | 0,971 |
| empl.: | 2614 | 41233 | 2614 | 6403 | -0,015 | 0,007 | 0,994 | 0,906 | 26,728 | 1,024 | 0,000 | 0,971 |
| **Male Population** | | | | | | | | | | | | |
| all types: | 7496 | 147369 | 7496 | 23522 | 0,008 | 0,008 | 3,217 | 0,988 | 25,531 | 1,113 | 0,000 | 0,302 |
| unempl.: | 7496 | 147369 | 7496 | 23522 | 0,022 | 0,007 | 2,114 | 0,972 | 25,531 | 1,113 | 0,000 | 0,302 |
| empl.: | 7496 | 147369 | 7496 | 23522 | -0,015 | 0,005 | 1,685 | 1,370 | 25,531 | 1,113 | 0,000 | 0,302 |
| **Female Population** | | | | | | | | | | | | |
| all types: | 4492 | 52832 | 4492 | 14652 | 0,013 | 0,010 | 2,157 | 0,989 | 23,808 | 1,359 | 0,000 | 0,553 |
| unempl.: | 4492 | 52832 | 4492 | 14652 | 0,023 | 0,009 | 1,634 | 0,902 | 23,808 | 1,359 | 0,000 | 0,553 |
| empl.: | 4492 | 52832 | 4492 | 14652 | -0,004 | 0,007 | 1,350 | 0,949 | 23,808 | 1,359 | 0,000 | 0,553 |
| **Low Treatment Disposition** | | | | | | | | | | | | |
| all types: | 428 | 88513 | 428 | 2378 | 0,039 | 0,030 | 3,633 | 0,884 | 10,112 | 1,963 | 0,000 | 1,000 |
| unempl.: | 428 | 88513 | 428 | 2378 | 0,065 | 0,027 | 2,329 | 0,937 | 10,112 | 1,963 | 0,000 | 1,000 |
| empl.: | 428 | 88513 | 428 | 2378 | -0,025 | 0,017 | 1,942 | 1,081 | 10,112 | 1,963 | 0,000 | 1,000 |
| **High Treatment Disposition** | | | | | | | | | | | | |
| all types: | 6044 | 34157 | 6044 | 10038 | 0,004 | 0,009 | 3,633 | 1,236 | 6,840 | 0,579 | 0,000 | 1,000 |
| unempl.: | 6044 | 34157 | 6044 | 10038 | 0,025 | 0,008 | 2,329 | 1,195 | 6,840 | 0,579 | 0,000 | 1,000 |
| empl.: | 6044 | 34157 | 6044 | 10038 | -0,017 | 0,006 | 1,942 | 1,377 | 6,840 | 0,579 | 0,000 | 1,000 |

table reports selected statistics of the evaluation for subgroups and selected robustness checks; source: IEB, own calculations
[A] j and i are indicator for the population (i = treated population; j= untreated persons)
[B] ATT stands for the average treatment effect on the treated; the ATT is calculated based on formula (4): $Pr(T^k \leq 36)$
[C] the balancing property is calculated as the averaged mean standardized bias based on individual and regional variables as well as the three propensity scores
[D] the test used is a F-test of the joint insignificance of all the regressors before and after matching