Evaluating Start-Up Subsidies for the Unemployed

Effectiveness and Monetary Efficiency of Two Subsidy Programs

Marco Caliendo

DIW Berlin, IZA Bonn, IAB Nuremberg

email: mcaliendo@diw.de

Viktor Steiner

Free University Berlin, DIW Berlin, IZA Bonn

email: vsteiner@diw.de

Abstract: Start-up subsidies for the unemployed have become an important part of active labor market policy in several OECD countries, and in Germany in particular. We empirically evaluate two start-up subsidies for unemployed people in Germany on the basis of a rich data set that combines register data and survey data from two follow-up interviews. This merged data set allows us to estimate treatment effects for participants up to 28 months after the start of the respective program and to measure these effects in terms of three outcome variables: (i) registered unemployment, (ii) regular employment, and (iii) labor earnings. On the basis of the first outcome variable and additional information contained in the register data we will also evaluate the monetary efficiency of the two programs.

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1 Introduction

Start-up subsidies for unemployed people belong to the more innovative programs in the portfolio of active labor market policies (ALMP) in OECD countries. From the perspective of active labor market policy, the main goal of start-up subsidies is usually the reduction of future unemployment of participants or, more generally, improvement of their future employability. This may occur if former participants remain self-employed after the exhaustion of the start-up subsidy, or if temporary self-employment acts as a bridge into paid employment. Another goal associated with subsidizing start-ups may be to improve the earnings potential of unemployed people.

Despite its potential importance for ALMP, there has been relatively little empirical research on the effectiveness and efficiency of start-up subsidies for unemployed people. Meager (1996), surveying empirical research on the impact of start-up subsidies in a couple of OECD countries, concludes that the available evidence does not allow a conclusive assessment of their effectiveness. Martin and Grubb (2001: 23) suggest, on the basis of a qualitative assessment of the then available literature, to "… use subsidized business start-ups for the minority of the unemployed who have entrepreneurial skills and the motivation to survive in a competitive environment". For Germany, Pfeiffer and Reize (2000) analyze the impact of a special start-up subsidy – the Bridging Allowance – on business survival and employment growth using a firm data set. Comparing subsidized start-ups to a control group not receiving the subsidy, they find mostly insignificant effects of the subsidy for west Germany and small negative effects on survival rates for east Germany. Using the German Socio-Economic Panel (SOEP), Reize (2004) finds some rather indirect evidence that subsidized start-ups may have reduced the unemployment risk for those eligible to the program. Both studies do not focus on the comparison between subsidized unemployed people and a comparable group of unemployed not receiving the subsidy, however.

This is the focus of our paper, which is motivated by our view that this comparison should be of main interest for labor market evaluation as well as recent reforms concerning start-up subsidies in Germany. This paper contributes to the small empirical literature on the effectiveness of start-up subsidies as a means of active labor market policy. We empirically evaluate two start-up subsidies for unemployed people in Germany on the basis of a rich data set that combines register data from the Federal Employment Agency and survey data from two follow-up interviews which were conducted in 2005 and 2006. This merged data set allows us to estimate treatment effects for participants up to 28 months after the start of the respective program and to measure these effects in terms of three outcome variables: (i) registered unemployment, (ii) regular employment, and (iii) labor earnings. On the basis of the first outcome variable and additional information contained in the register data we will also evaluate the monetary efficiency of the two programs.

The remainder of the paper is organized as follows. In the next section, we describe the two start-up subsidy programs which will be analyzed. The data and the structure of subsidized start-ups are described in section 3. Section 4 describes our empirical evaluation methodology. Estimated treatment effects and results concerning the monetary efficiency of the two programs are summarized and discussed in section 5, and section 6 concludes.

2 The Bridging Allowance and the Start-Up Subsidy

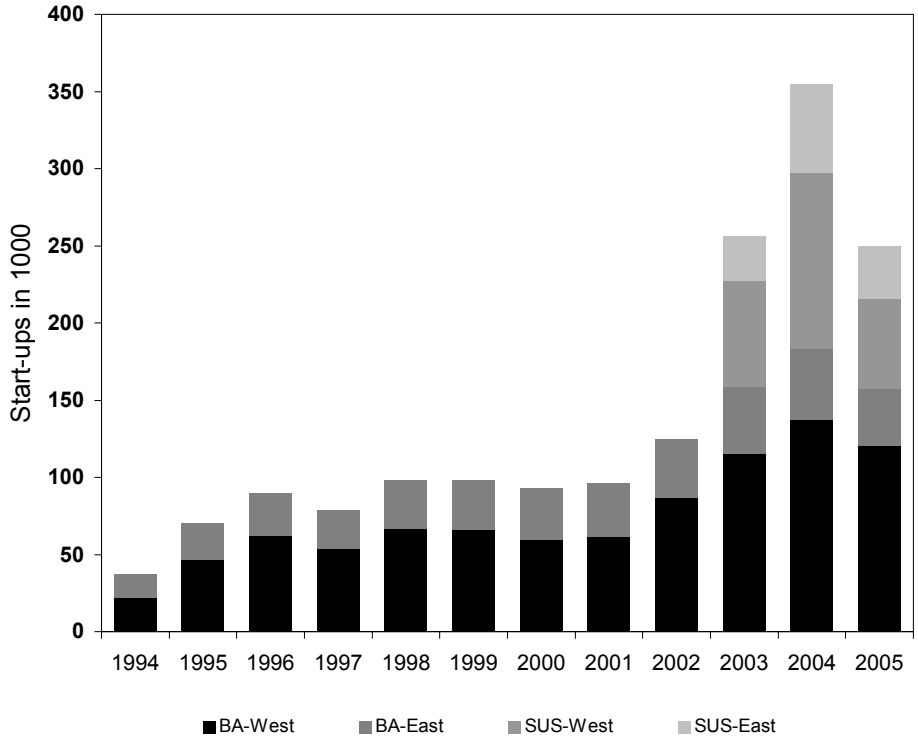
Until recently, two alternative subsidies for unemployed people who chose to become self-employed existed in Germany: the Bridging Allowance (BA) and the Start-Up Subsidy (SUS).[1] These two programs no longer exist separately but have been unified into a general subsidy for start-ups of unemployed individuals (*Gruendungszuschuss*) in August 2006. Participation in these programs has increased substantially since the mid-1990s and reached an all-time high in 2004 (see Figure 1). In that year, the number of start-up subsidies reached about 185,000 (BA) and 175,000 (SUS), respectively. About one third of all subsidies were granted in east Germany which accounts for less than 20% of the labor force but almost a third of the unemployed. In 2004, almost 10% of all unemployed people in Germany participated in these two programmes, thus absorbing a share of more than a sixth of the total spending on ALMP (see Caliendo and Steiner 2005, Table 2).

From 1986 to 2002, the BA was the major program providing support to unemployed individuals who wanted to start their own business. Unemployed people are granted the BA conditional on their business plan being approved externally, usually by the regional chamber of commerce. The main goal of the BA was to cover basic costs of living and social security contributions during the initial stage of self-employment. The BA supported the first six months of self-employment, the subsidy amounted to the level of an individual's unemployment benefit. In addition, a lump sum amounting to nearly 70% of the unemployment benefit was paid to cover social security, especially health insurance and contributions to the public pension fund.

The SUS was introduced in January 2003 in the wake of the recent labor market reforms. Entitlement to the SUS was conditioned on the previous entitlement to unemployment compensation. The SUS was granted for a period of up to three years, as long as income does not exceed a threshold of € 25,000 per year. The monthly subsidy amounted to a lump sum of € 600 in the first, € 360 in the second, and € 240 in the third year. In contrast to the BA, SUS recipients are obligated to contribute to the public pension fund and, at a reduced rate, the public health insurance fund. Initially, applicants for the SUS did not have to submit business plans for prior approval, but have been required to do so since November 2004.

[1] There are various other specific start-up subsidies at the regional level which we do not consider here.

Figure 1 Subsidized start-ups from unemployment by type and region



Source: Federal Employment Agency.

Whether the BA or the SUS was more advantageous for the unemployed depended on the individual level of unemployment compensation, the remaining benefit-entitlement period, the household's income tax bracket, the expected duration of unemployment and the expected income streams. Figure 1 suggests that the introduction of the SUS did not replace the BA, but did make subsidized self-employment significantly more attractive for the unemployed in general.

In August 2006, both programs were superseded by a new start-up subsidy (*Gründungszuschuss*). To be eligible for it, the applicant has to have a remaining unemployment benefit entitlement period of at least 90 days and an approved business plan. This new subsidy comes in two phases: The first phase lasts for up to nine months, the amount of the subsidy is equal to an individual's previous unemployment benefit plus a monthly lump sum of € 300 to cover social security contributions. Subsequently, under certain conditions, the subsidy may be extended for another six months at a rate of € 300 per month.

3 Data and the Structure of Subsidized Start-Ups from Unemployment

3.1 Data

We combine register data supplied by the Federal Employment Agency (FEA) and data from two surveys specifically undertaken to evaluate subsidized start-ups of unemployed people in Germany.

The register data come from the file 'Integrated Labor Market Biographies' (ILMB, *Integrierte Erwerbs-Biographien*) of the FEA compiled from four sources: (i) individual employment histories, (ii) receipt of unemployment support, (iii) participation in active labor market programs, and (iv) job seeker histories. For our purpose, the major drawback of the ILMB data is that it does not have information on self-employed people. Another drawback is that the ILMB data is only available with a substantial time lag. To circumvent these drawbacks, we merged the ILMB data with information from computer-assisted telephone interviews (CATI).

For each of the two programs, we selected a random sub-sample of unemployed people who became self-employed in the third quarter of 2003. The respective comparison (control) groups were chosen from the pool of people who were unemployed in the third quarter of 2003, eligible for participation in either of the two programs, but did not join any of the two in this quarter. Participating in some ALMP program after this quarter does not lead to exclusion from the control group, however, because this would most likely result in selection bias.

To minimize the survey costs we pre-selected non-participants in either of the two programs into the pool of potential controls on the basis of age, gender, previous unemployment duration, and labor market region.[2] We compiled a sample of 6,123 participants of whom 3,025 received a SUS and 3,098 received the BA, and a control group of non-participants. These individuals were interviewed twice. The first interview took place in January/February 2005 and the second in January/February 2006 when about 70% of the initial sample were interviewed. This enables us to observe the occupational status and earnings of both participants in the two programs as well as of non-participants for at least 28 months after the programs started.

3.2 Structure of Subsidized Start-Ups

Table 1 reveals some noteworthy differences regarding personal characteristics of participants in the two programs: The BA is much more used by men in both east and west Germany, whereas there is little gender difference in the participation in SUS in both regions. Marked gender differences also remain if participation in the two programs is cross-classified by household structure, disability status, and nationality. Irrespective of gender and region of residence, participants in the SUS program are less qualified than those receiving the BA. For example, whereas more than 50% of west German men receiving a SUS have no educational degree, the respective share is less than 40% among those receiving the BA. In this group, only about 15% have a college degree, compared to about 24% among west German men receiving the BA.

[2] We used these variables to estimate the probability of participation in a program and pre-selected the control group using this estimated probability (for details, see Caliendo, Steiner and Baumgartner 2006, part IV, chapter 2.3).

Regarding previous labor market experience, Table 1 shows that the share of long-term unemployed people is much higher among participants receiving the SUS than for those who chose the BA, both for men and women living in both regions. Probably due to their shorter previous unemployment spell, participants in the BA program received fewer job offers by the labor agency, on average, than those participating in the SUS program. The former also had higher and longer claims for unemployment benefits than those receiving the SUS, and the remaining period of benefit entitlement is also higher for those receiving BA. Furthermore, participants in the BA program have more previous labor market experience than participants in the SUS program, especially in west Germany, and for most groups a larger share of previous labor market experience was accumulated in regular dependent employment.

Differences between the two programs can also be expected across regional labor markets. Table 1 differentiates between seven regional clusters based on 181 regional labor market districts (see Blien et al. 2004). These clusters range from regions with very high unemployment rates (regional cluster Ia) to those with favorable labor market conditions (regional cluster V). Differences between the BA and SUS across regional clusters are small, since both programs are concentrated in regional cluster III in west Germany and in regional cluster Ib in east Germany.

Table 1 also shows differences between the BA and the SUS in terms of the structure of subsidized start-ups. The distribution of start-ups across industries suggests that these differ more by gender and between the two regions within than between the two programs. Subsidized start-ups also differ in terms of start-up capital between the two programs: Whereas almost 50% of all previously unemployed receiving the SUS became self-employed without any start-up capital, this share is only between 30% and 40% in case the self-employed receives the BA. Even more pronounced are differences between the two programs if one compares start-ups with more than 5,000 Euro start-up capital.

The dominating motive for becoming self-employed is to end unemployment, especially for those receiving the SUS, whereas the motives ‘benefit entitlement almost exhausted’ and ‘avoiding move of residence’ are more often named by those receiving the SUS than for the BA. Advice from the labor agency seems to have been a relatively unimportant motive to become self-employed for all groups, but especially for those receiving the BA.

Table 1 Structure of subsidized start-ups from unemployment

	Start-Up Subsidy (SUS)				Bridging Allowance (BA)			
	West-Germany		East-Germany		West-Germany		East-Germany	
	Men	Women	Men	Women	Men	Women	Men	Women
Personal Characteristics								
Age (Mean)	37.2	38.6	37.4	38.9	38.4	38.3	36.9	38.2
Single/lone parent	57.2	46.8	47.7	34.2	44.5	60.1	44.2	41.4
Married/cohabiting	42.8	53.2	52.3	65.8	55.5	39.9	55.8	58.6
Disability reducing employability	9.6	5.4	5.7	4.5	4.7	3.8	3.6	3.9
German	63.6	71.7	77.5	72.5	69	73.2	81	79.6
Qualification								
No educational degree	7.3	2.3	2.4	0.9	4.1	2.1	1.4	0.4
Lower secondary schooling	44.8	31.1	20	12.1	34.4	20.4	13.7	7.6
Middle secondary schooling	25.4	33.3	62.1	65.9	24.9	29.5	62.4	62.9
Specialized upper secondary schooling	7.8	9.9	4.7	4.9	13.1	12.4	5.2	5.8
Upper secondary schooling (Abitur)	14.6	23.4	10.8	16.1	23.5	35.6	17.3	23.3
Previous unemployment								
duration < 3 months	27.7	29.4	27.6	26.6	31	29.2	29.8	33.3
3 months < duration < 12 months	47.3	51.7	47.2	45.7	53.9	57.6	52.9	49.7
12 months < duration < 24 months	17.9	14.2	17.9	17.9	12.3	11.2	13.2	13.3
duration > 24 months	7	4.7	7.2	9.8	2.8	2	81.1	3.7
Occupational experience before start-up								
Yes, from paid employment	60.5	55.1	63.2	53.4	71.6	70.2	68.4	61.6
Yes, from secondary job	27.3	26.7	23.5	24.1	20.3	21.8	19.9	24.1
No experience	14.9	19.3	14.4	20.7	13.5	14.1	14.4	14.8
Number of job offers received from labor agency	4.3	2.5	4.3	3.8	2.3	2.0	2.9	2.9
Regional Cluster								
Ia			12.9	12.6			12.3	11.8
Ib			67.5	68.7			67.6	68.6
Ic			19.6	18.7			20.1	19.6
II	30.1	25.5			29.3	32.2		
III	34.3	34.7			32.8	28.2		
IV	10.6	11.5			13.4	17.1		
V	25	28.3			24.5	22.5		
Industry of start-up (in %)								
General services	31.3	58.2	27.7	51.6	30.4	57.5	25.0	40.9
Construction	11.4	2.2	23.0	3.5	12.0	2.0	20.4	3.4
Trade	17.4	16.8	13.8	24.0	16.2	12.9	14.5	23.6
Crafts	12.3	5.8	15.9	3.5	10.4	4.0	17.4	3.0
Information technology	8.9	2.4	5.0	0.7	11.8	4.0	5.3	3.4
Banking, insurance	4.2	2.1	2.3	6.3	7.6	6.5	6.3	10.8
Agriculture, forestry, fishery#	2.1	0.3	2.9	1.0	0.5	0.3	1.1	1.0
Transport, logistics	5.9	2.1	6.0	2.1	3.4	1.8	4.2	2.5
Other industries	6.6	10.1	3.4	7.3	7.7	10.9	5.9	11.3
Start-up capital								
No start-up capital	48.9	58.1	44.7	52.0	34.8	38.9	30.8	42.8
Bis unter 5.000 Euro	25.3	23.2	30.2	34.7	15.4	20.2	21.2	25.1
€ 5,000 < start-up capital < € 50,000	24.3	18.3	24.3	13.0	43.7	36.5	43.0	31.6
start-up capital > € 50,000	1.5	0.4	0.8	0.4	6.1	4.3	4.9	0.5
Main motives for start-up								
Termination of unemployment	84.0	83.2	85.9	85.2	74.6	71.0	75.7	80.3
Exhaustion of unemployment benefit entitlement	36.1	36.4	44.6	42.8	25.9	26.0	30.5	31.0
Avoidance of regional mobility	30.2	35.8	46.7	40.0	28.5	27.3	37.4	33.5
Advice from the labor agency	17.0	21.1	12.5	17.2	12.9	14.6	4.6	8.9

Note. Numbers are shares in percent unless stated otherwise.

Source: Own calculations based on Integrated Labor Market Biographies from the FEA merged with two follow-up surveys.

Table 2 summarizes occupational status of participants in the two programs at the date of the first and second follow-up interview, respectively. At the date of the first interview 16 months after the start-up two thirds (women in west Germany) to three quarters (men in east Germany) of the former unemployed receiving the BA were still self-employed. Even higher were survival rates in self-employment among those receiving the SUS varying between almost 75% among men in west Germany and more than 80% in east Germany. At the date of the second interview 28 months after the start-up, the survival rate in self-employment of those receiving SUS have declined by 4-5 percentage points, but still exceed 70% for all groups. For men in east Germany, the survival rate is even slighly higher than the one observed at the date of the first interview due to temporarily interrupted self-employment spells. A similar pattern can also be observed for men and women in

west Germany in the BA program, whereas survival rates in self-employment declined by about 3 percentage for east Germans participating in this program.

Termination of self-employment cannot generally be considered a failure, however, because some of the participants in the two programs have meanwhile moved to wage employment, which we define as a job covered by the social security system. The share of previously self-employed people who have taken up a regular job is particularly high among west German men and women who received the BA, but has also increased significantly in east Germany between the first and second interview (see Table 2). At the same time, the share of previously subsidized self-employed people observed unemployed declined between the first and second interview. This decline was relatively strong in west Germany for men and women who previously received the BA, and for east German women participating in this program; the unemployment share for this latter group declined from 15.7% to 10.6% between the first and second interview.

Table 2 Occupational status and earnings of participants

	Start-Up Subsidy (SUS)				Bridging Allowance (BA)			
	West Germany		East Germany		West Germany		East Germany	
	Men	Women	Men	Women	Men	Women	Men	Women
1st interview, 16 months after start-up								
Self-employed	74.7	78.6	80.6	79.0	71.5	66.2	74.2	68.5
Wage employment (covered by social security)	7.3	5.4	3.1	4.1	11.6	13.7	8.2	7.9
Unemployed	14.6	8.3	13.9	11.0	13.8	14.1	15.3	15.8
Others	3.4	7.6	2.4	5.9	3.1	6.0	2.3	7.9
2nd interview, 28 months after start-up								
Self-employed	70.4	74.6	80.9	74.2	73.0	68.4	71.4	66.0
Wage employment (covered by social security)	10.3	7.9	5.1	7.8	13.6	15.7	11.5	11.9
Unemployed	13.4	7.2	11.0	8.3	9.6	9.9	14.0	10.7
Others	5.9	10.3	2.9	9.7	3.7	6.0	3.0	11.3
Monthly Earnings (in Euro)	1371	912	1151	777	2200	1629	1469	1182
Share in monthly net household income	66.4	39.6	59.8	40.6	81.2	62.9	65.4	52.4

Notes: Interviews took place in January/February 2005 and January/February 2006. Except for earnings, numbers are shares in percent. Monthly earnings are either from self-employment or wage employment.

Source: see Table 1.

At the bottom of Table 2, we report monthly earnings of participants either from self-employment or wage employment, and its share in monthly net household income reported 28 months after the start-up. For example, men in west Germany who received the BA earn about €2,200 per month, which amounts to more than 80% of net household income. For both programs, earnings in west Germany are considerably higher than in the east, and also higher for men than for women in both regions. When comparing the two programs after 28 months, one has to take into account that the

BA already expired at least 22 months ago, whereas there is still a small monthly subsidy of € 240 for those still receiving the SUS (see section 2).

Overall, participants in the two programs not only differ in terms of occupational status and future earnings but also regarding other observable characteristics, and both groups are likely to differ from unemployed people not receiving start-up subsidies. The descriptive evidence assembled in this section, although instructive, does, therefore, not allow to draw conclusions on the effectiveness of the two programs, neither relative to each other nor relative to comparable unemployed people not participating in either of the two programs. It is this latter comparison to which we now turn.

4 Evaluation Methodology

4.1 Estimating Average Treatment Effects

We use statistical matching to estimate the average treatment effect on the treated, ATT. This effect, which is the focus of much of the evaluation literature (see, e.g., Heckman, LaLonde and Smith 1999), is not only relatively easy to estimate but, more importantly, also of main interest for the evaluation of the overall effectiveness of the two programs analyzed here. ATT(X) is defined as $E(Y_1\text{-}Y_0|D=1,X)$, where Y_1 is the potential outcome if the individual with observable characteristics X participates in the start-up program (D=1), Y_0 is the potential outcome if the individual does not participate (D = 0), and E is the mathematical expectation operator. By simple averaging, ATT for some sub-sample or the whole sample of participants can be derived, e.g. for the latter ATT = $E_X[E(Y_1\text{-}Y_0|D=1,X)]= E_X[(E(Y|D=1,X) - E(Y|D=0,X) \mid D=1)]$.

Matching is based on the Conditional Independence Assumption (CIA) which states that, conditional on X, the potential outcomes are independent of participation in the program. Since we estimate ATT, we only need to assume that Y_0 is independent of D, because the moments of the distribution of Y_1 for the treatment group are directly estimable. Given the CIA holds, the ATT can consistently be estimated simply by taking the mean over the difference of each participant (or a sub-group of participants defined by the respective partitioning of X) and some weighted control group of non-participants, i.e.:

$$\text{ATT} = \frac{1}{N_1}\sum_{i=1}^{N_1}\left(Y_{1i} - \sum_{j=1}^{N_0}\omega(i,j)Y_{0j}\right),$$

where N_1 (N_0) is the number of participants (non-participants) and $\omega(i, j)$ is a weight placed on the j-th individual from the control group of non-participants in constructing the counterfactual for the i-th individual of the treatment group, with $\sum_{j=1}^{N_0}\omega(i,j)=1$. Matching estimators differ in the choice of weighting function (see, e.g., Heckman, Ichimura, Smith, and Todd 1998). Here, we apply

nearest-neighbor matching: Potential member *j* of the control group of non-participants in the program whose estimated probability of participation (propensity score, P_j) is closest to the one of the chosen participant *i* gets a weight $\omega(i, j)=1$, and all other controls the weight $\omega(i, j)=0$.

To guarantee satisfactory matching quality, we use so-called *caliper* matching which restricts the differences defined above to lie within a certain interval (defined by the chosen significance level and the variance of the estimated propensity score). Since the number of controls relative to the number of participants is quite large in our data set, we apply matching without replacement, i.e. each member of the control group is used once at most. This choice avoids complications in calculating variances of estimated treatment effects (see, e.g., Lechner 2001).

The CIA is a rather strong assumption and the applicability of statistical matching crucially depends on the quality of the set of matching variables. We believe that the quality of our data base and the large number of observables which potentially affect both the participation in the two programs and outcome variables (see Table 1) allows us to maintain this assumption.[3] Given the extensive set of matching variables we use propensity score matching and estimate binary-logit participation equations for both programs versus nonparticipation in a first step. Estimations are done separately for men and women in east and west Germany with the same set of matching variables in all models.[4] From these estimates, we derive propensity scores for both participants in the program and the respective control group. The distribution of estimated propensity scores shows that the overlap between the group of participants and non-participants is quite good in general, with the exception of some participants with very high scores. However, excluding participants in the program from the sample whose propensity score lies above the highest propensity score in the control group, only very few participants had to be dropped. To test if the matching procedure is able to balance all the matching variables we use the standardized difference (SD) test suggested by Rosenbaum and Rubin (1985). For each matching variable the SD is defined as the difference of sample means in the treated and matched control sub-samples as a percentage of the square root of the average of sample variances in both groups. The mean standardized difference (MSD) over all covariates after matching turned out to be quite small for both programs, never exceeding 4% for any of the groups and samples analyzed.

[3] See Caliendo and Kopeinig (2005) for some practical aspects concerning the implementation of propensity score matching. Baumgartner and Caliendo (2007) test the sensitivity of the results with respect to different matching algorithms and find that the estimated matching estimators are robust to the choice of the algorithm. Furthermore, using a conditional difference-in-differences approach and the same data as used in this study, they find no evidence for selection bias due to time-invariant unobservable individual factors.

[4] Detailed results for the propensity-score estimation and tests of the matching quality are available from the authors.

4.2 Cost-Benefit Analysis

To evaluate the efficiency of the two programs in terms of their respective costs and benefits from the perspective of the Federal Employment Agency we proceed in the following way:

1. For each of the two programs, the estimated ATT effect on the outcome variable *not unemployed* cumulated over the whole observation period is computed. This cumulative treatment effect, denoted by CE, gives the number of months a participant is expected to spend less in unemployment than a comparable non-participant.
2. The maximum remaining entitlement period before entry in the program (RBE) is computed for each participant on the basis of the FEA register data. RBE is the difference between an individual's maximum benefit-entitlement period and the number of months of unemployment benefit already received at the time of entry into the program. An individual's maximum benefit-entitlement period depends on age and her previous employment history which can be derived from the panel structure of the register data. Then, min(CE, RBE), averaged over all participants within a given group, gives average savings (AS) measured in unemployment months.
3. Monetary average savings (MAS) are computed by multiplying AS for each participant by the average amount of savings per month. This latter amount is the sum of unemployment benefits received in the month before program entry and a surcharge of 70% covering social security contributions.
4. Fiscal costs (FC) are computed according to the level and duration of subsidies implied by the two programs. FC for the BA are the sum of the individual amount of unemployment benefit plus a 70% surcharge for social security contributions for a maximum of six months. The effective take-up of the start-up subsidy is determined by the survival rate in self-employment. FC for the SUS are computed the same way, in principle, taking into account the longer subsidy period and the successive reduction of its amount from € 600 in the first, € 360 in the second, and € 240 in the third year.
5. Monetary Efficiency is thus given by ME = MAS – FC; a positive (negative) value implies that from the perspective of the FEA savings of a program exceed (fall short) of the fiscal costs induced by the program.

These calculations only take into account the direct benefits and costs of the programs from the perspective of the FEA. Costs of administrating the programs and for counseling services provided by the local employment agency are not included in the calculations. If these costs are higher for participants in some program than for the control group of non-participants, our approach overstates its true ME, and vice versa. Regarding the potential benefits of the respective program, we only

consider the reduced spending on unemployment benefits for those participants whose entitlement has not already expired at the start-up date. Since unemployed people in Germany may be entitled to means-tested unemployment assistance after their entitlement to unemployment benefit has expired (see Schmitz and Steiner 2007), public savings may be higher. However, means-tested benefits are not borne by the FEA but from the federal budget, and reductions in such payments does therefore not affect the ME of the program from the perspective of the FEA. Likewise, we also do not take into account the additional tax revenues of the entrepreneurs' businesses or the fact that some of these businesses might generate additional jobs (see Caliendo and Steiner 2007). Clearly, a more comprehensive analysis should account for these indirect benefits and costs of the two programs, which we leave for future research.

5 Evaluation Results

In the following section, we analyze average treatment effects of the BA and the SUS on the basis of three outcome variables: (i) registered unemployment, (ii) regular employment, and (iii) labor earnings. The first outcome variable is of special relevance since avoiding registered unemployment is one of the major goals of German ALMP and also has important fiscal implications from the perspective of the FEA, as described above. It is constructed by defining registered unemployment as a failure and all possible other states as a success. Another important aim of ALMP is the integration of previously unemployed people in regular employment. This is accounted for by the second outcome variable which treats ongoing self-employment and wage employment as a success. The third outcome variable we use is labor earnings, either in self-employment or in wage employment. In section 5.2, we use the results of the ATT effects to evaluate the efficiency of the two programs in terms of their benefits and costs from the perspective of the Federal Employment Agency.

5.1 Average Treatment Effects

5.1.1 Occupational status

Estimated average treatment effects for the outcome variable (i) are summarized in the upper panel and for outcome variable (ii) in the lower panel of Table 3. Treatment effects are measured in percentage points and shown at 6 months after the date of the start-up, and at the time of the first (16 months) and second (28 months) interview. We report estimated treatment effects for the two programs separately for men and women living in east and west Germany, respectively. Note that estimated treatment effects are not directly comparable between the two programs since control groups and participants in the two programs are not the same.

Table 3 shows, for example, the estimated treatment effect for the first outcome variable and the SUS program after 6 months is about 54 percentage points for men in west Germany. This estimate gives the difference in the probability (in percent) of registered unemployment between the control group and participants of the SUS program six month after the start-up. In other words, the share of unemployed people among those receiving the SUS six months after their subsidized start-up is about 54 percentage points *below* the share among comparable previously unemployed people who did not participate in this program. Since previously unemployed people participating in the program are not counted as unemployed before it terminates, this large effect should obviously not be taken too seriously in case of the SUS for which the subsidy period normally ends only after three years. Although the SUS has still not expired for most cases even after 28 months, the amount of the subsidy has declined to only € 240 by then, which is hardly sufficient to cover an individual's mandatory social security contributions (see section Section 2). Thus, the estimated treatment effect after 28 months, also taking into account its change relative to the one obtained after 16 months, may well provide a fairly good measure for the expected effect after the subsidy has expired.

Table 3 Average treatment effects of participating in BA and SUS on occupational status (percentage points)

	Start-Up Subsidy (SUS)				Bridging Allowance (BA)			
	West Germany		East Germany		West Germany		East Germany	
	Men	Women	Men	Women	Men	Women	Men	Women
Outcome variable: Not unemployed								
Measured ... after start-up								
6 months	54.2	52.8	56.1	59.9	44.2	44.3	51.2	45.4
16 months	35.1	30.7	38.8	44.4	24.3	21.9	30.8	26.5
28 months	27.6	19.9	30.3	34.9	19.8	17.9	23.9	21.3
Outcome variable: Self-employed or in wage employment								
Measured ... after start-up								
6 months	64.5	72.2	68.2	73.6	55.8	59.4	65.2	62.2
16 months	46.1	53.5	48.6	56.7	33.8	39.7	41.5	45.9
28 months	35.8	43.1	42.9	49.4	27.8	33.7	36.6	39.4

Notes: Interpretation of effects, see text. All effects shown are statistically significant at the 5 % level.

Regarding the BA, for which the subsidy period already ends after 6 months, interpretation of treatment effects may already start in that month. For outcome variable (i), the estimated treatment effect after 6 months ranges between 44 percentage points in west Germany and 51 percentage points for east-German men. Thus, the BA has significantly reduced registered unemployment among those receiving it after the subsidy expired. The positive short-term effect of the BA is also confirmed by estimated treatment effects for the second outcome variable, regular employment including both self-employment and paid employment covered by the social security system. As

shown in the lower panel of Table 3, the effects of the BA measured by this outcome variable are significantly larger than for the previous one, ranging between about 56 percentage points for men in west Germany to 65 percentage points for men in the east.

Turning to the estimates for the longer-term treatment effects, Table 3 shows that they decline with process time both for the BA and the SUS. For example, measured by the first outcome variable the estimated treatment effect for men in west Germany drops from 44.2 percentage points after 6 months to 24.3 percentage points after 16 months for the BA and from 54.2 to 35.1 percentage points for the SUS program. For both programs, reductions in estimated treatment effects of similar size can also be observed for the other groups in Table 3. Between the first and second interview, estimated treatment effects continue to decline for both programs, if at a considerably slower pace. Between the 16th month after the start-up and the 28th month, the estimated treatment effect of the BA (SUS) for west German men, as measured by the first outcome variable, declines by about 5 (8) percentage points. The strongest decline occurs for west German women receiving the SUS for whom the estimated treatment effect drops from 30.6 to 19.9 percentage points between the first and second interview.

Despite the decline in treatment effects, participants in both programs do have substantially lower unemployment rates than they would have, had they not participated. For the SUS program, we estimate average treatment effects, as measured by the avoidance of registered unemployment, between about 20 percentage points (women in west Germany) and 35 percentage points (women in east Germany), for the BA between about 18 percentage points (women in west Germany) and 24 percentage points (men in east Germany).

A similar pattern can also be observed regarding the second outcome measure, as shown in the lower panel of Table 3. For the BA, treatment effects 28 months after the start-up vary between 30 percentage points for men in west Germany and almost 50 percentage points for women in east Germany. Estimated treatment effects measured by regular employment are markedly higher for all groups than the ones obtained under the first outcome measure. This shows that participation in either of the two programs not only reduces the unemployment risk but, at least for part of previously unemployed people, also supports the transition into regular employment, either as self-employed or in wage employment.

5.1.2 Earnings

Estimated average treatment effects with earnings as our third outcome variable are summarized for the various groups in Table 4. Treatment effects are measured as average earnings difference between participants and the control group of non-participants at the date of the second interview, where earnings include income from self-employment and wage employment

At the date of the second interview, participants in both programs earn, on average, significantly more than they would have had they not participated in either program. For example, men in west Germany who have been receiving the SUS earn, 28 months after the start-up began, about € 510 more, on average, than comparable persons in the control group. At that time, the subsidy amounts to € 240 per month at most. Assuming that this subsidy is included in the interviewees' answer to the income question in case they are sill entitled to it, the estimated income effect for this group would be significantly above this amount. The same holds for men living in east Germany, for whom the estimated treatment effect of SUS program amounts to € 640. However, income effects estimated for women in both regions only slightly exceed the amount of the SUS in the third year.

Table 4 Average treatment effects of participating in BA and SUS on earnings (in Euro)

	West Germany		East Germany	
	Men	Women	Men	Women
Start-Up Subsidy (SUS)				
Earnings difference	509.5	242.5	639.8	321.3
Standard deviation	74.5	70.6	120.4	87.3
Bridging Allowance (BA)				
Earnings difference	923.9	648.4	651.2	777.4
Standard deviation	90.3	131.6	116.7	161.1

Notes: Interpretation of effects, see text. All effects shown are statistically significant at the 5 % level.

This caveat does not apply when interpreting income effects of the BA program because in this case the subsidy already expired way before the date of the second interview. For this program, we estimate the strongest income effect for men in west Germany whose monthly income 28 months after the start-up was more than € 900 higher than it would have been had they not participated in the BA program. Estimated income effects for the other groups are not quite as large, but still imply that monthly earnings of participants in this program are between roughly € 650 (women in west Germany) and almost € 800 higher than those of comparable people not participating in the program.

5.2 Monetary Efficiency

Table 5 contains our results on the monetary efficiency of the two programs on the basis of the cost-benefit analysis outlined in section Section 4.2. The first row of the table shows the cumulative treatment effects in months, CE, as measured by our first outcome variable ('not unemployed'). The following two rows contain the average remaining benefit-entitlement period, RBE, and the average

amount of monthly unemployment benefits. The last two rows show the program costs and, finally, the Monetary Efficiency, ME, of the two programs for the various groups.

Whereas the cumulated treatment effects estimated for the SUS exceeds those for the BA by a substantial margin for most groups, participants in the BA program, on average, have longer remaining benefit-entitlement periods than those receiving SUS. For example, the average REB of men in west Germany participating in the former program is 7.4 months, compared to less than 5 months for the same group receiving the BA. Also, the level of unemployment benefits is much higher for former unemployed receiving the BA than for those receiving the SUS. For example, west German men participating in the former program received almost € 1,200 per month, on average, compared to only about € 700 for west German men receiving the latter subsidy. Substantial differences between the two programs in this respect can also be observed for the other groups in Table 5.

Table 5 Monetary efficiency of BA and SUS

	Start-Up Subsidy (SUS)				Bridging Allowance (BA)			
	West Germany		East Germany		West Germany		East Germany	
	Men	Women	Men	Women	Men	Women	Men	Women
Cumulative treatment effect, CE (in months)	11.4	10.3	11.8	13.9	8.8	8.3	10.5	9.8
Remaining entitlement period, RBE (in months)	5.0	5.2	5.7	4.4	7.4	6.7	7.0	6.2
Unemployment benefit (in Euro)	699.4	527.6	662.8	482.8	1179.1	891.6	858.9	729.2
Program costs (in Euro)	11317	11580	11735	11700	11979	9030	8698	7413
Monetary Efficiency, ME (in Euro)	-5436	-6898	-5357	-8101	2882	1095	1497	244

Notes: For interpretation of the various components of the ME analysis, see section Section 4.2.

Except for west German men, overall program costs for the BA are substantially higher than for the SUS for all groups. Since the SUS is paid as a lump sum, program costs vary little between groups, where the small observed variation is related to differences in survival rates in (subsidized) self-employment within the program. In contrast, program costs for the BA differ substantially by gender and region, ranging from about € 7,000 for women in east Germany to almost € 12,000 for west German men. These large differences are mainly due to related differences in net earnings in previous employment which is the basis for the calculation of the unemployment benefit.

The bottom line of Table 5 shows that the ME of the SUS (BA) is negative (positive) for all groups. The estimated negative ME for the SUS can be explained by the relatively short REB of participants in this program, a low level of unemployment benefits this group is entitled to relative to the lump-sum in the first year, and relatively large program costs. The first two factors explain the relatively large negative ME of the SUS program for women, and of those living in east Germany in particular. Although these negative ME effects may seem large at first sight, relative to

the length of the subsidy period they are rather modest. For example, for west German men the monthly net costs of the program would amount to about € 200. On the other hand, the SUS is still on-going at the end of our observation period and participants may receive a subsidy of € 240 for another 8 months, which adds to the costs of the program and further reduces its ME.

6 Summary and Conclusion

We have evaluated two start-up subsidies for unemployed people in Germany – the Bridging Allowance (BA) and the Start-Up Subsidy (SUS) – on the basis of a rich data set that combines register data from the Federal Employment Agency and survey data from two follow-up interviews. This merged data set provides detailed information on the future occupational status and earnings of previously unemployed people participating in the two programs for up to 28 months after the subsidized start-up began. Using statistical matching on the basis of the very detailed individual information contained in the register data, we were able to construct appropriate control groups for the participants in the two programs and to evaluate their effects on three outcome variables: (i) registered unemployment, (ii) regular employment, and (iii) labor earnings. In addition to the traditional evaluation of the two programs in terms of average treatment effects on participants as measured by these three outcome variables, we have also computed their monetary efficiency on the basis of estimated treatment effects and information on program costs both at the aggregate and individual level.

On a descriptive level, we find for both programs that survival rates in self-employment are surprisingly high: About 70 percent of all participants are still self-employed 28 months after the subsidized start-up began, and survival rates in self-employed declined only little over the 12 months-period lying between the first and second interview of our survey. Furthermore, the share of people who received a start-up subsidy and entered paid employment increased over time, especially in case of the BA. Subsidized start-ups may thus indeed act as a bridge to regular employment. We have also documented that the two programs differ significantly in terms of personal characteristics of participants but also in the structure of start-ups.

Estimated average treatment effects indicate that both programs can be considered successful along various dimensions. As measured by our first outcome variable – registered unemployment – participants in both programs are less likely to be unemployed 28 months after the subsidized start-up than they would had they not participated. For participants in the BA program, the average treatment effect after 28 months amounts to roughly 20 percentage points, for the SUS program it ranges between 20 percent for women in west Germany and 35 percentage points for women in east Germany. Participants in the two programs are also much more likely to be self-employed or in wage employment than the control group of comparable non-participants at the end of our

observation period. Furthermore, participants earn considerably more than comparable non-participants 28 months after they became self-employed, and this effect is especially strong for those having received the BA. For the SUS, the interpretation of estimated treatment effects on participants' future occupational status and earnings has to take into account that the program is still on-going for the majority of the cohort analyzed in this study. For the BA, the subsidy already expired at least 22 months ago, estimated treatment effects can therefore be interpreted without this caveat.

On the basis of estimated average treatment effects measured by our first outcome variable, a simplified cost-benefit analysis shows that monetary efficiency from the perspective of the Federal Employment Agency is positive for the BA and negative for the SUS. This result can be explained by the relatively short remaining benefit-entitlement period and the low level of unemployment benefits of participants in the SUS program relative to its direct costs. However, relative to the length of the subsidy period the net costs of the SUS seem rather modest, both in absolute terms and in comparison to the fiscal costs of other ALMP in Germany (see Caliendo and Steiner 2005).

Overall, both the BA and the SUS may be considered to belong to the more promising programs in the portfolio of active labor market policy in Germany and perhaps in other European countries, too, where self-employment is still an under-developed activity. Given the evaluation results of this study, we are skeptical about the recent reform of start-up subsidies in Germany whereby the BA and the SUS were superseded by a new subsidy. The fact that the two previously existing start-up subsidies attracted quite different groups of participants does not, a priori, suggest that a single program will improve the effectiveness and monetary efficiency of subsidized start-ups. Neither do our evaluation results suggest that the SUS was ineffective in reducing future unemployment or excessively expensive. Nor do evaluation result suggest that the subsidy period needed to be increased for the BA in order to increase its effectiveness or monetary efficiency. Thus, the new start-up subsidy may well reduce program effectiveness and increase deadweight loss.

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