Have it Your Way: The Effects of Course Choices on the Return to Training

Annabelle Doerr
Albert-Ludwigs-University Freiburg

Anthony Strittmatter
Albert-Ludwigs-University Freiburg
University of St. Gallen

Preliminary and Incomplete

Comments are very welcome!

April 19, 2014

Abstract

Choices are presumed to raise consumption utility. Vouchers-like allocation systems are used more and more often to provide choices between public sponsored consumption goods. The German Training Voucher system is an example for the provision of choices between different public sponsored further training courses. Such systems potentially improve the effectiveness of training programs, because of an enhanced match quality and highly motivated training participants. However, in the presence of information failure or wrong incentives these positive effects might be reversed. The institutional implementation of training vouchers in Germany offers a quasi-experimental setting, which allows to identify effects of course choices on labor market outcomes of participants in the same course. We find that voucher recipients choose higher quality courses than those which would be assigned by the caseworkers, but within these courses they show a relatively low performance.

JEL-Classification: J68, H43, C21

Keywords: Active Labor Market Policies, Treatment Effects Evaluation, Administrative Data, Voucher

1 Introduction

Offering freedom in terms of how individuals can choose goods and services has been proposed to improve social welfare. Proponents argue that expanded choices increase consumer utility and competition among producers of goods and services. Opponents are worried that too many choices impair social welfare. In particular, this might be relevant in the presence of information asymmetries or wrong incentives. In recent years, voucher-like systems become more and more popular as an instrument to increase consumer choices between public sponsored services. Education vouchers are prominent examples for the provision of choices between public sponsored services in practice.[1] In the context of public sponsored further training, the Adult and Dislocated Worker Program under the Workforce Investment Act (WIA) in the United States and the German Training Vouchers are the largest programs using voucher-like allocation mechanisms.[2] In this paper, we study the effects of choices between different courses on the return to further training in Germany.

The institutional implementation of training vouchers in Germany offers a quasi-experimental setting, which allows to identify effects of choices on post-participation labor market outcomes. Before 2003, the provision of public sponsored further training was organized within a direct assignment system. Caseworkers could assign training participants to courses based on subjective measures. Since 2003, caseworkers can award further training vouchers to unemployed. Voucher recipients have the freedom to redeem their voucher at an appropriate training course of their choice. Both allocation mechanisms coexisted during a two months transition period. We exploit this transition period to identify comparable participants in the same course and time period, with different options of choice.

The main contribution of this study is the decomposition of within and between course effects. Within course effects can be associated with different match qualities between participants and courses as well as different attitudes of participants towards training. Proponents of training vouchers argue that increased choices result in better match qual-

[1] See Angrist, Bettinger, King, and Kremer (2002), Cullen, Jacob, and Levitt (2005, 2006), Hsieh and Urquiola (2006), Krueger and Zhu (2004), and Rouse (1998) among others.

[2] See Heinrich, Mueser, Troske, Jeon, and Kahvecioglu (2010, 2011) for an evaluation of the services provided by the Adult and Dislocated Worker Program. See Doerr et al. (2013) for an evaluation of German Training Vouchers.

ities between training participants and training courses. This argument may be true if all voucher recipients are well-informed about offered courses. In case of information asymmetry, caseworkers with their accumulated experience and expertise can potentially find better suited courses than unemployed (comp. Barnow, 2009). Further, the increased freedom of choice may also affects the attitude towards training in a positive way. Unemployed may perceive further training more like an offer and less like an assignment under the voucher regime. This could result in highly motivated participants, who potentially accumulate more human capital during training. On the negative side, they could reduce their job search effort during training. Further, unemployed could be overstrained by too many choices, which might result in lower motivation. Positive between course effects could be explained by an increased competition between training providers, if voucher recipients choose higher quality courses than those that would be assigned by caseworkers. However, competition could generate market outcomes which do not improve the quality of training, especially under information asymmetry (see discussion in Prasch and Sheth, 2000).

This study is based on process generated data provided by the Federal Employment Agency of Germany. The data contain a 100% sample of all further training participants during the transition period. It is enriched by a large set of individual and regional specific control variables. We address potential selection issues by implementing an instrumental variable identification strategy. Therefore, we exploit regional variation in voucher intensity as instrument. Germany has 178 local employment agencies. The award intensity varies strongly between the different local employment agencies. The implementation of training vouchers resulted in large-scale changes of the assignment process into further training not only for training participants, but also for caseworkers and the local employment agencies. Some managers supported the idea of freedom of choice, while others have remained sceptical (see Doerr and Kruppe, 2014). Especially during the transition period, the introduction of vouchers was judged very differently by different teams. Consequently, the adoption of the new system worked in some local employment agencies faster than in others. We document that this variation in the award intensity reflects an exogenous policy style.

Our findings suggest that expanded choices have on average no clear impacts on the

return to training. If at all, we find negative effects on employment during the first year. However, once we account for the quality of the course and focus on within course variations, we report significant negative within course effects on the return to training. The probability to find an employment during the first three years after the start of training is 20 percentage points lower for participants who received a voucher. During the first 36 months (69 months), voucher recipients receive 6 months (10 months) less work experience than comparable participants in the same course who are not awarded with a voucher. We do not find significant within course effects of vouchers on earnings, even though the estimated parameters are generally negative and have economically significant size. We report weak evidence for positive between course effects, in particular for earnings.

These findings complement and qualify the existing estimates in the literature in several dimensions. They suggest that voucher recipients choose courses which lead on average to higher post-treatment labor market success, mostly higher earnings. However, within these courses the performance of participants with a voucher is weak in comparison to participants who are directly assigned. One reason could be that the match quality, between participants and training courses, is worse than for participants without a voucher. This reiterates the argument of Berger, Black, and Smith (2000), that participation decision should be made on labor market impacts rather than outcome levels. Another reason could be, that voucher recipients participate with a lower motivation or have a lower search intensity. The literature supports the argument that positive incentives and attitudes reduce the effectiveness of training. For example, Van der Klaauw and Van Ours (2013) find positive financial incentives to be less effective than negative incentives. Behncke, Frölich, and Lechner (2010) report that close cooperations and harmonic relations between caseworkers and their clients harm the effectiveness of training with respect to employment. Accordingly, training vouchers foster the competition between training providers, but give too much flexibility to the voucher recipients.

Doerr and Strittmatter (2014) and Rinne, Uhlendorff, and Zhao (2013) identify the institutional effects of the German Training Voucher reform. Both studies rely on more restrictive identifying assumptions than we do. For example, they require selection on observable, additive separability, and common trend assumptions. On the positive side, these study consider much more observations and focus not only on a specific time window.

Nevertheless, our results for the total effects of course choices are qualitatively comparable to the findings of these studies.

The remainder of the paper is structured as follows. In Section 2 we provide the institutional background on the implementation of training vouchers in Germany. The data and summary statistics are presented in Section 3. In Section 4, we analyze the impact of expanded choice on the return of further training. The empirical strategy and details about how we use the exogenous variation in award intensity as instrument are presented in this section. The final section concludes.

2 Institutional background

The provision of further training is traditionally a major part of active labor market policies in Germany. Between 2000 and 2002 the average yearly expenditures exceeded 7 billion Euros. Further training is used as instrument to adjust skills to changing requirements of the labor market or to changed individual conditions (due to health problems for example). Accordingly, the primary goal of further training is the provision of occupation specific skills. The large variety of further training courses can be mainly classified in three types of programs: practice firm training, classical short training (maximum duration 6 months), classical long training (minimum duration 6 months), and retraining. Teaching takes place in class rooms or on-the-job. Typical examples of classical further training schemes are courses on IT based accounting or on customer orientation and sales approach. Retraining programs have a long duration up to three years. They cover for example the full curriculum of vocational training for a physical therapist, office clerk or tax consultant assistant.

The direct assignment of training participants to courses was replaced by a voucher system in January 2003. Before the reform, caseworkers had strong authority and could make assignment decisions based on subjective measures. Since the reform, caseworkers can award vouchers to unemployed. Voucher recipients are free to redeem their voucher at a suitable training course or to let their voucher expire. However, vouchers indicate the course objectives and the maximum course duration. Caseworkers are not allowed to suggest specific training providers or to give sanctions in case the voucher is not redeemed.

Training providers can place information material about offered courses in the local employment agencies. In addition, voucher recipients can rely on a pool of information about further training courses provided online.

3 Data

The existence of a transition period during the reform implementation give us the possibility to study impacts of choices under a quasi experimental setting. During the transition period of two months, direct assigned as well as voucher allocated participants are observed in the same courses. Working with administrative data provided by the Federal Employment Agency of Germany, we observe all individuals who participate in a further training course in January and February 2003. The program data includes precise start and end dates of further training courses. Individual data records are collected from the Integrated Employment Biographies (IEB). The IEB contain daily information on employment subject to social security contributions, receipt of transfer payments during unemployment, job search, and participation in different active labor market programs as well as rich individual information. The version of the IEB we use in this project, has been supplemented with personal and regional information not available in the standard version.

The evaluation sample is constructed as inflow sample into unemployment.[3] We consider individuals who enter unemployment between 2001 and 2002 after having been continuously employed for at least three months. The sample is restricted to those individuals who start training courses in January and February 2003 either after having received a training voucher (treatment group) or being directly assigned to a course (control group). Finally, we end up with a sample of 795 voucher recipients who started a training course in January or February 2003 and 1,811 direct assigned training participants.

To measure the effectiveness of participation, we focus on post-participation employment probabilities and earnings. We follow each participant over a period of 69 months after the program starts. In Table 1 we present summary statistics for various character-

[3]Entering unemployment is defined as the transition from (non-subsidized, non-marginal, non-seasonal) employment to non-employment of at least one month plus subsequently (not necessarily immediately) some contact with the employment agency either through benefit receipt, program participation, or a job search spell.

Table 1: Sample first moments of observed socioeconomic characteristics.

	Direct Assigned Training Participants (control group)	Training Participants with Training Vouchers (treatment group)	SD between (1) and (2)
	(1)	(2)	
Personal Characteristics			
Female	0.445	0.385	12.2
Age	38.7	38.1	6.9
Older than 50 years	0.014	0.008	5.9
No German citizenship	0.064	0.074	4.2
Children under 3 years	0.044	0.047	1.4
Single	0.276	0.315	8.5
Health problems	0.094	0.111	5.7
Sanction	0.009	0.011	1.9
Incapacity (e.g. illness, pregnancy)	0.156	0.164	2.2
Lack of Motivation	0.098	0.118	6.4
Education, Occupation and Sector			
No schooling degree	0.046	0.041	2.3
Schooling degree without Abitur	0.367	0.326	8.5
University entry degree (Abitur)	0.197	0.232	8.7
No vocational degree	0.207	0.2	1.7
Academic degree	0.096	0.095	0.4
White-collar	0.443	0.476	6.6
Elementary occupation	0.076	0.1	8.3
Skilled agriculture and fishery workers	0.012	0.011	0.4
Craft, machine operators and related	0.323	0.339	3.3
Clerks	0.245	0.225	4.9
Technicians and associate professionals	0.137	0.141	1.0
Professionals and managers	0.1	0.092	2.5
Employment and Welfare History			
Half months employed in the last 24 months	43.4	43.5	1.6
Half months unemployed in the last 24 months	0.86	0.922	2.5
Time since last unemployment in the last 24 months (half months)	44.7	44.8	1.1
No unemployment in last 24 months	0.813	0.802	2.7
Unemployed 24 months before	0.095	0.088	2.1
\# unemployment spells in the last 24 months	0.25	0.271	3.4
Any program in last 24 months	0.082	0.09	2.9
Time of last out of labor force in last 24 months	44.1	44.4	3.9
Remaining unemployment insurance claim	23.4	24.6	9.3
Eligibility unemployment benefits	12.6	12.4	5.0
Cumulative employment (last 4 years before Unemployment)	75.9	75.3	2.3
Cumulative earnings (last 4 years before Unemployment)	80163	80274	0.2
Cumulative benefits (last 4 years before Unemployment)	5.00	5.79	7.4
Timing of Unemployment			
Elapsed Unemployment duration	8.94	9.10	3.0
Start Unemployment in 1st quarter 2001	0.022	0.012	7.5
Start Unemployment in 2nd quarter 2001	0.038	0.041	1.8
Start Unemployment in 3rd quarter 2001	0.06	0.066	2.4
Start Unemployment in 4th quarter 2001	0.091	0.082	3.2
Start Unemployment in 1st quarter 2002	0.167	0.162	1.4
Start Unemployment in 2nd quarter 2002	0.178	0.198	5.2
Start Unemployment in 3rd quarter 2002	0.227	0.206	5.2

Note: In columns (1) and (2) we report the sample first moments of observed characteristics. Information on individual characteristics refer to the time of inflow into unemployment, with the exception of the treatment months and the monthly regional labor market characteristics which refer to the treatment time. In column (3) we report the standardized differences (SD) between individuals who receive a training voucher and those who are directly assigned to training courses.

istics of treated and control persons. The share of female participants with a voucher is with 39% lower than for direct assigned participants (46%). For all other socioeconomic characteristics, we document remarkably low differences between participants with and

Table 2: Sample first moments of observed regional and program characteristics.

	Direct Assigned Training Participants (control group)	Training Participants with Training Vouchers (treatment group)	SD between (1) and (2)
	(1)	(2)	
State of Residence			
Baden-Württemberg	0.076	0.051	10.1
Bavaria	0.073	0.098	8.8
Berlin, Brandenburg	0.178	0.042	44.6
Hamburg, Mecklenburg Western Pomerania, Schleswig Holstein	0.088	0.032	23.5
Hesse	0.069	0.085	5.9
Northrhine-Westphalia	0.197	0.316	27.4
Rhineland Palatinate, Saarland	0.065	0.059	2.6
Saxony-Anhalt, Saxony, Thuringia	0.146	0.207	16.1
Characteristics of Local Employment Agency District			
Share of employed in the production industry	0.231	0.252	25.6
Share of employed in the construction industry	0.068	0.068	1.9
Share of employed in the trade industry	0.15	0.152	8.4
Share of male unemployed	0.569	0.573	11.2
Share of non-German unemployed	0.13	0.13	0.6
Share of vacant fulltime jobs	0.796	0.795	0.8
Population per km^2	1186	576	37.6
Unemployment rate	13.7	13.1	11.2
Program Characteristics			
Pratice firm	0.192	0.181	2.9
Long training	0.318	0.248	15.6
Retraining	0.132	0.254	31.4
Maximum course duration	275	341	27
Squared maximum course duration	125240	187217	26.1
Pratice firm x Maximum course duration	32.4	31.6	1
Long training x Maximum course duration	102.4	73.3	19.1
Retraining x Maximum course duration	91.5	187.9	32.9

Note: See Table 1.

without a voucher. The standardized difference are always below 10 and for more than 60% of all reported characteristics fairly below 5. This is a first incidence that the selection into training participation is for both groups very similar. Participants with a training voucher are on average younger, have a somewhat higher school education, are slightly more often white collar worker, and employed in elementary occupations. The remaining unemployment insurance claims are a little higher for participants with a voucher. But all these differences are remarkably small.

To the opposite, we report large differences in the first moments of regional and program characteristics in Table 2. For most characteristics we report standardized differences above 10 and they even exceed 20 for more than a third of the reported variables. There are large variations in the states of residence of the participants. However, there is no clear pattern that richer states or states that are located in specific geographic areas of Germany have more participants with a voucher. We report more participants with a

voucher in local employment agency districts with a high share of employment in the production industry. The unemployment rate and the share of male unemployed is somewhat higher in these districts. Participants with a voucher are more often located in rural local employment agency districts, with a low population density. We report more participants with a voucher in retraining courses and less in short and long training. At the same time, the maximum planned duration of courses is sharply increased. But again, this is due to an increase in the duration of retraining courses. For long training we report a decrease in the maximum duration.

4 Results

4.1 Total effects of choices

At first, we focus on the total impacts of course choices on the return to training. Parameter estimates for the three outcomes employment, months employed and earnings can be found in Table 3. We present results for each of the first five years after the start of the program separately. Additionally, we present results for the first three years and first 69 months after program start.

In the column (1) of Table 3 we show the descriptive difference in the outcomes between the participants with and without a vouchers. The parameters in column (2) are based on an OLS regression including a large number of relevant control variables. In particular, we include all variables from Tables 1 and 2. In columns (3) and (4) we exploit regional variations in award intensity as instrument to identify the effects of expanded course choices. The award intensity is defined as the number of awarded vouchers divided by the number of training participants in a specific local employment agency district. An appropriate instrument should influence the probability of being treated with a training voucher, without having a direct effect on the outcomes of interest. We assume that the expected labor market outcomes of participants with (without) a voucher are not affected by the fact that he lives in a region with high award intensity, unless his assignment mechanism into training chances. The regional variation in the voucher ratio show no systematic pattern or regional clustering. Further, the regional award intensity has a strong impact on the treatment probability, as reflected in the high F-statistics in the

Table 3: Total effects of choices on employment probability, monthly employed and earnings.

	OLS (1)		**OLS** (2)		**IV** (3)		**IV** (4)	
				Outcome: Employment				
Year 1	-.044**	(.019)	-.056***	(.018)	-.002	(.075)	-.114*	(.069)
Year 2	-.053**	(.023)	-.061***	(.021)	.014	(.086)	-.095	(.081)
Year 3	-.058**	(.025)	-.066***	(.024)	-.008	(.089)	-.076	(.088)
Year 4	-.022	(.023)	-.034	(.023)	.008	(.083)	-.041	(.087)
Year 5	-.021	(.022)	-.028	(.021)	.058	(.077)	.046	(.079)
First 3 years	-.018	(.025)	-.028	(.023)	.004	(.095)	-.119	(.089)
First 69 months	.019	(.020)	.004	(.019)	.099	(.077)	.040	(.080)
				Outcome: Months employed				
Year 1	-.44***	(.13)	-.55***	(.12)	.004	(.49)	-.86*	(.44)
Year 2	-1.13***	(.21)	-1.20***	(.20)	-.05	(.85)	-1.01	(.76)
Year 3	-1.10***	(.26)	-1.16***	(.25)	-.30	(.99)	-1.11	(.96)
Year 4	-.72***	(.28)	-.78***	(.27)	.12	(.97)	-.19	(.96)
Year 5	-.55**	(.26)	-.59**	(.25)	.34	(.95)	.22	(.94)
First 3 years	-2.67***	(.51)	-2.9***	(.48)	-.35	(2.04)	-2.97	(1.81)
First 69 months	-4.33***	(1.07)	-4.7***	(1.03)	.22	(4.07)	-2.78	(3.88)
				Outcome: Earnings				
Year 1	-895***	(284)	-978***	(275)	1,117	(1,091)	-281	(1,065)
Year 2	-2,543***	(490)	-2,287***	(471)	564	(1,933)	-83	(1,913)
Year 3	-2,786***	(575)	-2,424***	(568)	-404	(2,303)	-815	(2,386)
Year 4	-2,458***	(612)	-2,010***	(592)	1,051	(2,375)	998	(2,430)
Year 5	-2,499***	(605)	-2,012***	(563)	873	(2,470)	1,300	(2,524)
First 3 years	-6,224***	(1,185)	-5,689***	(1,157)	1,277	(4,690)	-1,178	(4,746)
First 69 months	-13,069***	(2,549)	-11,242***	(2,456)	2,892	(10,362)	1,243	(10,814)
Socioec. charac.	No		Yes		No		Yes	
Empl.t history	No		Yes		No		Yes	
Lagged out.	No		Yes		No		Yes	
Regional charac.	No		Yes		No		Yes	
Program charac.	No		Yes		No		Yes	
F-statistic					354		230	
Observations	2,606		2,606		2,606		2,606	

Note: Clustered standard errors are in parentheses.

bottom line of Table 3.

The descriptive difference suggest negative effects of expanded course choices on employment, months employed and earnings. As expected, the inclusion of additional control variables does not have a large impact on the estimated effects. The reason is, that many socioeconomic characteristics are balanced between participants with and without a voucher. The results change strongly when we implement the instrumental variable

identification strategy. For employment, we report much stronger negative effects of expanded course choices in the short run in column (4). However, after four or five years these effects turn positive. These results are only significantly different from zero during the first year. The estimates suggest that the probability to find an employment during the first year is 11 percentage points lower. Participants with an voucher have 0.9 months (about 26 days) less work experience during the first year, than if the would be directly assigned. For the other years, the effects on employment are insignificant, which might be due to the higher imprecision of the estimates. For earnings the sizes of the estimated parameters are smaller and insignificant under the instrumental variable strategy.

4.2 Within course effects of choices

Now we focus on within course effects of choices. Therefore, we demean all dependent and independent variables. This corresponds to a fixed effects (FE) approach. As before, we apply four different specification.

For the specifications without instrument, the results for the total and within course effects are almost identical. However, once we rely on the more convincing instrumental variable identification strategy, the within course effects are significantly more negative than the total effects of choices. The point estimates are for all three outcome variables always negative, in all four specifications. During the first three years, the probability to find an employment is significantly lower for participants with a voucher, than if the would be directly assigned to the same course. The probability to find an employment is 21 percentage points (24 percentage points) [18 percentage points] lower in the first year (second year) [third year]. The probability to find an employment during the first three years is 23 percentage points lower. Participants with a voucher accumulate 1.1 months (2.6 months) [2.4 months] less work experience during the first year (second year) [third year]. On average they have 6 months (10 months) less work experience after the first 36 months (69 months). For earnings, we do not find any significant within course effect. Nevertheless, the estimated parameters are generally negative and are very large in economic terms.

Table 4: Within course effects of choices on employment probability, monthly employed and earnings.

	FE (1)		**FE** (2)		**IV FE** (3)		**IV FE** (4)	
				Outcome: Employment				
Year 1	-.062***	(.020)	-.055***	(.019)	-.195***	(.064)	-.209***	(.070)
Year 2	-.074***	(.022)	-.073***	(.022)	-.19**	(.086)	-.244***	(.090)
Year 3	-.079***	(.024)	-.07***	(.024)	-.183*	(.095)	-.184*	(.096)
Year 4	-.037	(.024)	-.037	(.024)	-.117	(.092)	-.12	(.098)
Year 5	-.041*	(.023)	-.036	(.023)	-.16*	(.090)	-.142	(.095)
First 3 years	-.033	(.024)	-.027	(.023)	-.209**	(.094)	-.237**	(.097)
First 69 months	.004	(.020)	.004	(.020)	-.111	(.088)	-.112	(.093)
				Outcome: Months employed				
Year 1	-.57***	(.13)	-.52***	(.13)	-.95**	(.43)	-1.06**	(.46)
Year 2	-1.37***	(.21)	-1.33***	(.21)	-2.33***	(.77)	-2.59***	(.78)
Year 3	-1.3***	(.26)	-1.23***	(.25)	-2.16**	(1.05)	-2.36**	(1.07)
Year 4	-.96***	(.28)	-.88***	(.28)	-1.47	(1.07)	-1.27	(1.15)
Year 5	-.76***	(.27)	-.65**	(.27)	-1.35	(1.03)	-1.29	(1.1)
First 3 years	-3.24***	(.51)	-3.08***	(.49)	-5.44***	(1.89)	-6.01***	(1.96)
First 69 months	-5.55***	(1.09)	-5.17***	(1.05)	-10.08**	(4.26)	-10.05**	(4.52)
				Outcome: Earnings				
Year 1	-1,218***	(304)	-1,084***	(292)	-1,032	(1,098)	-1,317	(1,120)
Year 2	-2,649***	(466)	-2,594***	(473)	-2,321	(1,935)	-2,268	(2,125)
Year 3	-2,722***	(579)	-2,627***	(568)	-2,565	(2,597)	-2,297	(2,682)
Year 4	-2,542***	(624)	-2,324***	(600)	-1,898	(2,813)	-1,161	(2,921)
Year 5	-2,397***	(637)	-2,182***	(595)	-1,614	(2,905)	-1,032	(2,978)
First 3 years	-6,589***	(1,181)	-6,304***	(1,157)	-5,918	(4,839)	-5,882	(5,203)
First 69 months	-13,377***	(2,618)	-12,591***	(2,470)	-12,524	(11,938)	-10,852	(12,504)
Socioec. charac.	No		Yes		No		Yes	
Empl.t history	No		Yes		No		Yes	
Lagged out.	No		Yes		No		Yes	
Regional charac.	No		Yes		No		Yes	
Program charac.	No		Yes		No		Yes	
F-statistic					155		154	
Observations	2,606		2,606		2,606		2,606	

Note: See Table 3.

4.3 Between course effects of choices

Finally, we turn to the between course effects (BE) of choices. In contrast to before, we average the dependent and independent variables by course and run regressions on these averages. Similar as before, we show results for four different specifications.

We report in almost all specifications insignificant results, even though the size of the estimated parameters is large in economic meanings. For the first to specification we find mixed results. Sometimes the parameters are positive and sometimes negative. However,

Table 5: Between course effects of choices on employment probability, monthly employed and earnings.

	BE (1)		**BE** (2)		**IV BE** (3)		**IV BE** (4)	
				Outcome: Employment				
Year 1	.005	(.069)	-.040	(.062)	.280	(.184)	.286	(.220)
Year 2	-.031	(.074)	.030	(.067)	.065	(.194)	.135	(.229)
Year 3	-.053	(.068)	-.013	(.070)	.00003	(.180)	.143	(.242)
Year 4	-.014	(.063)	-.031	(.066)	.091	(.166)	.144	(.227)
Year 5	.052	(.062)	.042	(.067)	.236	(.165)	.324	(.235)
First 3 years	-.038	(.068)	.008	(.068)	.005	(.180)	.066	(.233)
First 69 months	.039	(.054)	.035	(.057)	.24*	(.144)	.28	(.200)
				Outcome: Months employed				
Year 1	.01	(.45)	-.39	(.40)	1.81	(1.2)	1.36	(1.41)
Year 2	-.71	(.74)	-.25	(.66)	2.15	(1.97)	3.47	(2.35)
Year 3	-1	(.73)	-.51	(.74)	.59	(1.95)	2.59	(2.58)
Year 4	-.23	(.73)	-.33	(.75)	.82	(1.92)	1.56	(2.59)
Year 5	.002	(.72)	-.12	(.76)	.99	(1.89)	1.85	(2.63)
First 3 years	-1.70	(1.67)	-1.15	(1.53)	4.55	(4.47)	7.41	(5.44)
First 69 months	-1.67	(3.11)	-1.6	(3.1)	7.97	(8.29)	12.6	(10.88)
				Outcome: Earnings				
Year 1	456	(907)	354	(825)	5,790**	(2,482)	4,880*	(2,932)
Year 2	-2,616	(1,685)	426	(1,469)	4,255	(4,523)	7,099	(5,162)
Year 3	-3,740**	(1,707)	37	(1,612)	217	(4,524)	5,204	(5,590)
Year 4	-2,280	(1,787)	864	(1,660)	2,617	(4,750)	4,932	(5,725)
Year 5	-2,642	(1,850)	88	(1,764)	2,692	(4,921)	4,880	(6,095)
First 3 years	-5,900	(3,815)	817	(3,387)	10,261	(10,254)	17,184	(11,939)
First 69 months	-12,542	(7,992)	2,270	(7,335)	18,281	(21,410)	32,154	(25,644)
Socioec. charac.	No		Yes		No		Yes	
Empl.t history	No		Yes		No		Yes	
Lagged out.	No		Yes		No		Yes	
Regional charac.	No		Yes		No		Yes	
Program charac.	No		Yes		No		Yes	
F-statistic					75		3	
Observations	2,606		2,606		2,606		2,606	

Note: Standard errors are in parentheses.

once we apply the instrumental variable strategy, we find clearly positive effects, which are also somewhat larger in size. Nevertheless, we find only significant impacts on earnings during the first year. Participants with a voucher search courses which lead to about 5,000 Euros more earnings during the first year after the start of the program.

5 Conclusion

In this paper, we investigate the impact of expanded choices on the returns to further training. Since January 2003, the former assignment system, in which caseworkers assign unemployed individuals directly into training courses, was replaced by a voucher allocation system. We exploit the quasi-experimental setting during the transition period. This unique institutional setup allows us to identify participants with a voucher and direct assigned participants during the same time in similar courses. To overcome selection issues that may bias the obtained estimates, we rely on exogenous variations in the award intensity between local employment agencies as instrument.

If at all, vouchers have a negative impact on employment outcomes in the first year after the program start. However, once we decompose the total effects of choices into between and within course effects, the results differ strongly. Participants with a voucher choose courses which lead to higher post-participation earnings. On the other side, the performance of participants within the same course is worse when they receive a voucher in comparison to being directly assigned.

This analysis is subject to several caveat. Besides the usual, the external validity could be questioned, because we focus only on a very specific time period. Further, we did not account for potential peer group effects. This is of less concern, because many up-to-date studies find, if at all, only small peer-effects (see for example Angrist and Lang, 2004).

References

Angrist, J. D., E. P. Bettinger, E. M. King, and M. Kremer (2002): "Vouchers for Private Schooling in Colombia: Evidence from a Randomized Natural Experiment," *American Economic Review*, 92(5), 1535–1558.

Angrist, J. D., and K. Lang (2004): "Does School Integration Generate Peer Effects? Evidence from Boston's Metco Program," *American Economic Review*, 94(5), 1613–1634.

Barnow, B. (2009): "Vouchers in US Vocational Training Programs: An Overview of What We have Learned," *Journal of Labor Market Research*, 42(1), 71–84.

Behncke, S., M. Frölich, and M. Lechner (2010): "Unemployed and their Case Workers: Should they be friends or foes?," *The Journal of the Royal Statistical Society - Series A*, 173(1), 67–92.

Berger, M., D. Black, and J. Smith (2000): "Evaluating Profiling as a Means of Allocating Government Services," in *Econometric Evaluation of Labour Market Policies*, ed. by M. Lechner, and F. Pfeiffer, pp. 59–84. Physica, Heidelberg.

Cullen, J. B., B. A. Jacob, and S. D. Levitt (2005): "The Impact of School Choice on Student Outcomes: An Analysis of the Chicago Public Schools," *Journal of Public Economics*, 89(5-6), 729–760.

——— (2006): "The Effect of School Choice on Participants: Evidence from Ranomized Lotteries," *Econometrica*, 74(5), 1191–1230.

Doerr, A., B. Fitzenberger, t. Kruppe, M. Paul, and A. Strittmatter (2014): "The Award of Training Vouchers and Labor Market Outcomes," *Working Paper*.

Doerr, A., and T. Kruppe (2014): "Training Vouchers, Regional Employment Offices, and Policy Styles," *Working Paper*.

Doerr, A., and A. Strittmatter (2014): "Assignment Mechanisms, Selection Criteria, and the Effectiveness of Training Programs," *Working Paper*.

Heinrich, C., P. Mueser, K. Troske, K. Jeon, and D. Kahvecioglu (2010): "New Estimates of Public Employment and Training Program Net Impacts: A Nonexperimental Evaluation of the Workforce Investment Act Program," *Working Paper No. 1003, Department of Economics, University of Missourir*.

——— (2011): "The Workforce Investment Act: Implementation Experiences and Evaluation Findings," in *The Workforce Investment Act: Implementation Experiences and Evaluation Findings*, ed. by D. J. Besharov, and P. H., pp. 371–404. Kalamazoo, MI: W.E. Upjohn Institute for Employment Research.

Hsieh, C.-T., and M. Urquiola (2006): "The Effects of Generalized School Choice on Achievement and Stratification: Evidence from Chile's Voucher Program," *Journal of Public Economics*, 90(8-9), 1477–1503.

Krueger, A. B., and P. Zhu (2004): "Another Look at the New York City School Voucher Experiment," *American Behavioral Scientist*, 47(5).

Prasch, R. E., and F. A. Sheth (2000): "What is wrong with Education Vouchers?," *Journal of Economic Issues*, 34(2), 509–515.

Rinne, U., A. Uhlendorff, and Z. Zhao (2013): "Vouchers and Caseworkers in Training Programs for the Unemployed," *Empirical Economics*, forthcoming.

Rouse, C. E. (1998): "Private school Vouchers and Student Achievement: An Evaluation of the Milwaukee Parental Choice Program," *Quarterly Journal of Economics*, 113(2), 553–602.

Van der Klaauw, B., and J. Van Ours (2013): "Carrot and Stick: How Reemployment Bonuses and Benefit Sanctions Affect Exit Rates from Welfare," *Journal of Applied Econometrics*, 28(2), 275–296.