

ARE TRAINING PROGRAMS MORE EFFECTIVE WHEN UNEMPLOYMENT IS HIGH?

- INTERNET APPENDIX -

Swiss Institute for Empirical Economic Research (SEW)



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IA Descriptive statistics

Table IA.1: Means of all variables

Variable	Nonparticipants	Participants
Personal characteristics		
Woman	43	39
Age (years)	37	34
< 25 years	13	16
25-29 years	18	22
30-34 years	15	18
35-39 years	12	15
40-44 years	10	11
≥ 45 years	32	17
Foreigner	15	9
Married	51	39
At least one child	37	33
No professional degree	29	21
Completed apprenticeship training	66	74
University or polytechnical college degree	4	6
Occupational status in last job		
Blue collar	43	39
High-skilled	23	20
Clerk	25	34
Part-time worker	9	7
Earnings in last job		
≤ 1,000 EUR	53	57
1,000-1,500 EUR	25	29
1,500-2,000 EUR	5	6
> 2,000 EUR	2	2
Industry of last employer		
Manufacturing	34	35
Construction	11	8
Commerce	15	18
Hotel, gastronomy	6	4
Other services	26	28
Agriculture, forestry, fishing, mining, electricity, water supply	2	2
Other	5	6
Occupation in last job		
Administration, officework, teaching, science	24	32
Other services	14	10
Construction and related professions	13	9
Metal manufacturing and processing	9	10
Other manufacturing and processing, technical profession	22	21
Other (agriculture, unskilled, logistics)	18	18
Seasonality of last occupation		
Variance of quarterly change in employment by profession ≤ 3	63	69
Variance of quarterly change in employment by profession 3-20	18	16
Variance of quarterly change in employment by profession > 20	20	15
Quarterly change in employment by prof. negative in march quarter	90	91
To be continued.		

Table IA.1: Means of all variables (continued)

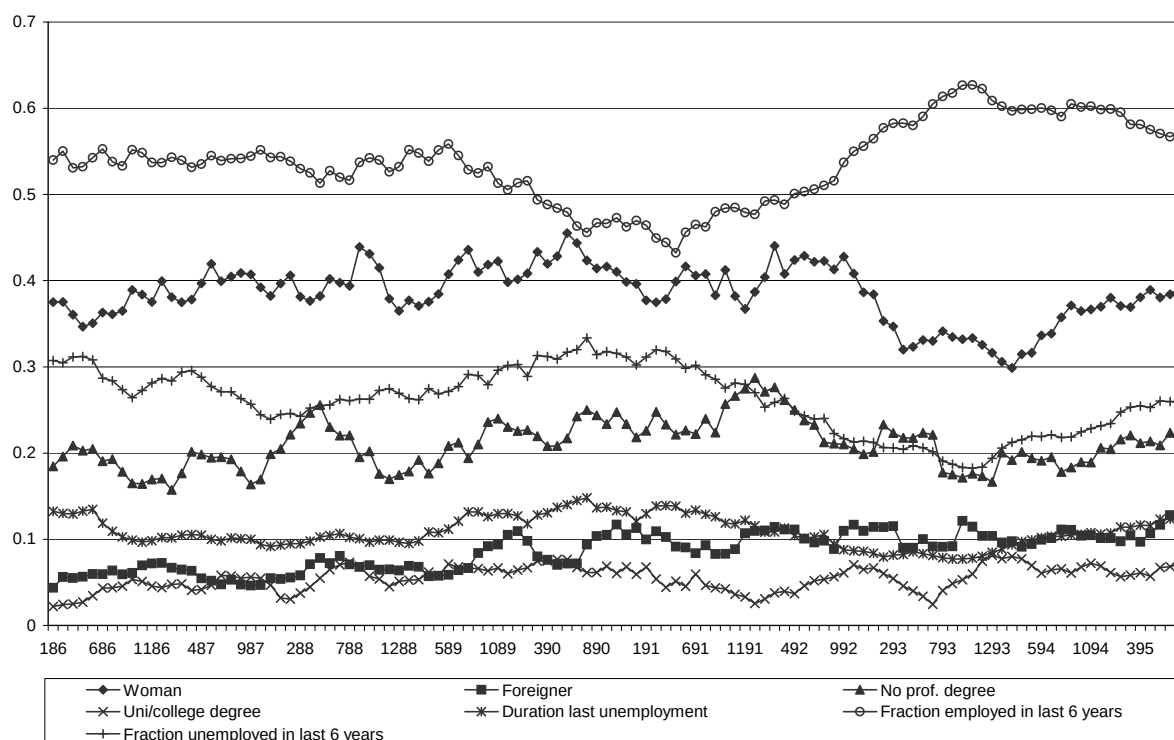
Variable	Nonparticipants	Participants
Firm size of last employer		
< 10 employees	23	22
10-99 employees	37	38
100-499 employees	20	21
≥ 500 employees	17	15
Remaining unemployment benefit claim at beginning of last unemployment spell		
No claim	37	36
1-6 months	10	10
7-12 months	34	42
> 12 months	18	11
Remaining unemployment benefit claim at (hypothetical) program start		
No claim	47	46
1-6 months	20	23
7-12 months	21	24
> 12 months	12	7
Employment history over the 6 years before program start		
Unemployed in month 6 before program start	58	57
Unemployed in month 12 before program start	42	38
Unemployed in month 24 before program start	30	25
Unemployed in month 36 before program start	24	19
Unemployed in month 48 before program start	21	17
Employed in month 6 before program start	30	32
Employed in month 12 before program start	44	49
Employed in month 24 before program start	57	61
Employed in month 36 before program start	61	64
Employed in month 48 before program start	62	64
Out of labor force in month 6 before program start	9	8
Out of labor force in month 12 before program start	11	10
Out of labor force in month 24 before program start	11	11
Out of labor force in month 36 before program start	11	12
Out of labor force in month 48 before program start	11	12
Duration of last unemployment spell before program start (months)	12	11
1-3 months	32	31
4-6 months	19	21
7-12 months	21	23
13-18 months	9	10
> 18 months	19	15
Duration of last employment before program start (months)	39	36
1-6 months	25	26
7-12 months	16	15
13-24 months	14	16
25-60 months	20	21
> 60 months	25	21
Fraction employed	53	54
Fraction unemployed	29	26
Fraction out of labor force	10	11
Number of months between last employment and program	19	15
Transition from employment in last 6 months	31	34
Transition from out of labor force in last 6 months	15	12
To be continued.		

Table IA.1: Means of all variables (continued)

Variable	Nonparticipants	Participants
Employment history over the 6 years before program start (continued)		
Mean duration of unemployment spells in last 2 years	11	11
Mean duration of unemployment spells in last 4 years	19	19
Mean duration of unemployment spells in last 6 years	28	27
Mean duration of employment spells in last 2 years	10	10
Mean duration of employment spells in last 4 years	23	24
Mean duration of employment spells in last 6 years	37	37
Mean duration of out-of-labor-force spells in last 2 years	3	2
Mean duration of out-of-labor-force spells in last 4 years	6	6
Mean duration of out-of-labor-force spells in last 6 years	11	11
Distance to first observation in the data (months)	107	103
Regional information		
Schleswig-Holstein, Hamburg	9	10
Lower Saxony, Bremen	16	17
North Rhine-Westphalia	33	29
Hesse	8	8
Rhineland-Palatinate, Saarland	8	10
Baden-Wuerttemberg	11	10
Bavaria	15	16
City with at least 250,000 inhabitants	30	28
Deviation of local unemployment rate from cross-sectional mean	11	9
Quarterly change in regional employment negative in june quarter	24	20
Variance of quarterly change in regional employment > 4	13	16
Years		
1986	11	11
1987	11	12
1988	11	9
1989	9	8
1990	8	8
1991	7	8
1992	8	10
1993	11	8
1994	13	12
1995	12	14
Program information		
Practice firms	-	14
Short training	-	36
Long training	-	25
Retraining	-	17
Job search assistance	-	9
Planned duration (months)	-	8.5

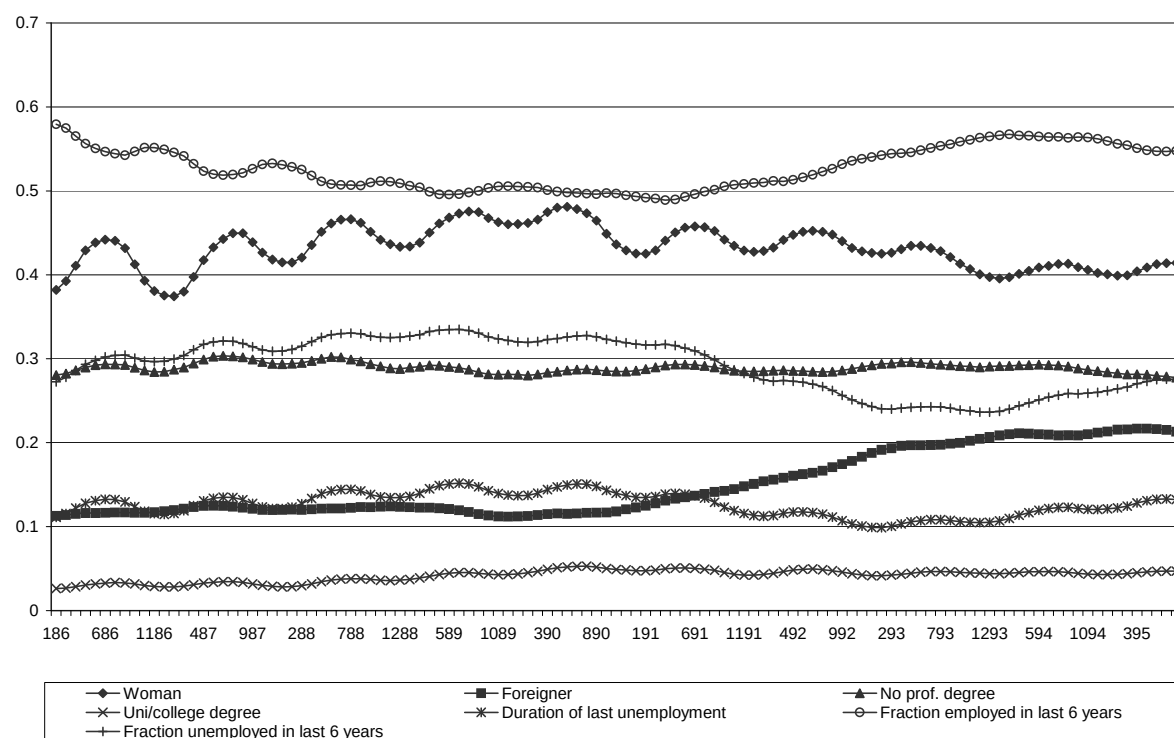
Note: If not stated otherwise entries are in per cent.

Figure IA.1: Composition of participants over time – means of selected variables



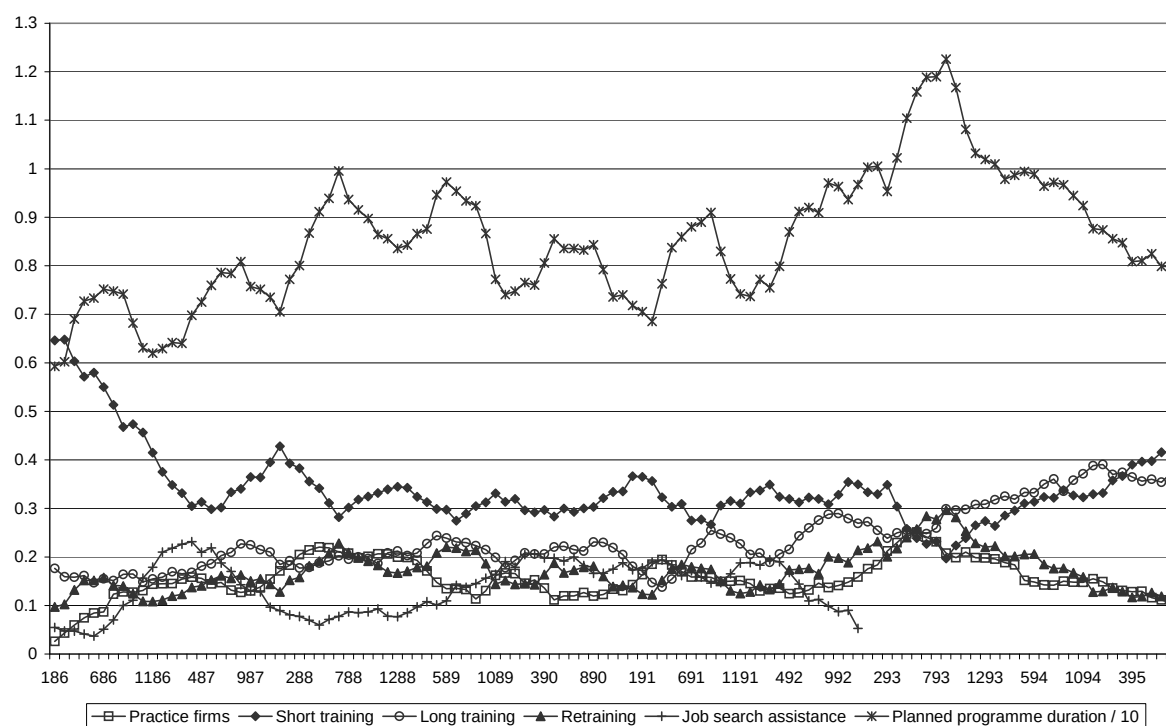
Note: Mean of the respective variable in the population of participants. Six month moving averages (to align figures with the pooling of participants in the estimation).

Figure IA.2: Composition of nonparticipants over time – means of selected variables



Note: Mean of the respective variable in the population of nonparticipants. Six-month moving averages (to align figures with the pooling of nonparticipants in the estimation).

Figure IA.3: Shares of different programs and average planned duration over time



Note: Units of measurement: Shares for the different programs; months /10 for program duration.

IB Selection into programs

IB.1 Effects of selected variables on the participation probability

Table IB.1 Marginal and discrete effects of selected variables on the participation probability
from estimations of probit models for program participation in April 1986-1995

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
Personal characteristics										
Woman	-0.002	-0.022	0.004	-0.061	0.003	0.003	-0.037	-0.027	-0.012	0.006
Age < 25	-0.020	-0.089*	-0.031*	-0.006	-0.001	-0.012*	-0.002	-0.002	-0.001	-0.001
Age > 50	-0.013	-0.005*	-0.005*	-0.005*	-0.013*	-0.001	-0.007*	-0.004*	-0.010*	-0.011*
Married woman	-0.022*	-0.009*	-0.006*	-0.007*	-0.008*	-0.011*	-0.009*	-0.005*	-0.005*	-0.009*
Foreigner	-0.009	-0.002	-0.001	-0.001	-0.001	-0.001	-0.002	-0.006*	-0.011*	-0.011*
Completed apprenticeship	0.012*	0.006	0.001	0.005	0.007	0.006	0.004	0.002	0.003	0.003
Univers./college degree	-0.004	0.000	0.000	0.000	0.001	0.000	-0.002	0.000	0.000	0.000
Highskilled	-0.001	-0.002	-0.005*	-0.003	-0.003	-0.002	-0.005	0.000	-0.001	-0.002
Field of profession in last employment										
Agriculture, unskilled, logistics	0.004	0.000	-0.003	0.000	-0.001	0.001	-0.005	0.001	0.001	-0.003
Other services	-0.005	-0.001	-0.002	-0.003*	-0.001	-0.002	-0.003	0.000	-0.003*	-0.004*
Construction and related	0.004	-0.005	0.000	-0.002	0.000	0.000	-0.003	0.001	0.000	0.000
Metal manufacturing & processing	0.011	0.000	0.000	0.000	0.000	0.001	-0.002	0.001*	0.001	-0.001
Other manufact. & process., technical. occ.	0.004	-0.001	-0.001	-0.001	-0.001	0.000	-0.006	0.001	0.002	0.000
Region										
Schleswig-Holstein/Hamburg	-0.006	0.000	-0.001	0.001*	0.000	0.001	0.000	0.000	0.000	0.001
Northrhine-Westphalia	-0.003	-0.006*	-0.002	0.002	0.001	-0.001	-0.001	0.001	0.001	0.000
Hesse	-0.008	-0.001	0.000	0.000	0.000	-0.001	0.001	0.000	0.000	0.000
Rhineland-Palatinate	0.004	-0.002	0.000	0.001	0.001*	0.001	0.001*	0.000	0.001	0.001*
Baden-Wuerttemberg	-0.002	-0.001	-0.002	-0.001	-0.002	-0.004	0.001	-0.001	-0.002	-0.001
Bavaria	-0.010	-0.005*	-0.002	0.000	-0.006*	-0.003	0.001	0.000	-0.001	0.000
Employment history										
Duration of last unemployment spell*	0.035	0.018	0.010	0.009	0.014	0.026	0.021	-0.003	-0.007	-0.009
3-6 months	0.029*	0.002*	0.001*	0.001*	0.002*	0.002*	0.003*	0.001*	0.002*	0.002*
7-12 months	0.031*	0.002*	0.001	0.001	0.002	0.002*	0.003*	0.001*	0.002*	0.003*
13-18 months	0.036*	0.001*	0.001	0.000	0.000	0.001	0.001*	0.000*	0.001*	0.001*
> 18 months	0.038	0.001	0.001	0.001	0.002	0.002	0.002*	0.001*	0.001*	0.002*
Duration of last employ.+	-0.016	0.004	0.009	-0.024	-0.021	0.000	0.006	0.002	0.005	-0.002
Woman's duration of last employment+	0.013	-0.003	-0.005	0.018*	0.008	0.002	-0.003	0.007	-0.004	0.003
Fraction of employment months in last 6 years*	-0.003	-0.025	-0.020	0.002	-0.006	-0.014	-0.010	-0.006	0.012	0.005
Fraction of UE months in last 6 years*	-0.020	-0.014	-0.034*	0.006	-0.005	-0.022	-0.022	-0.007	0.015	-0.002

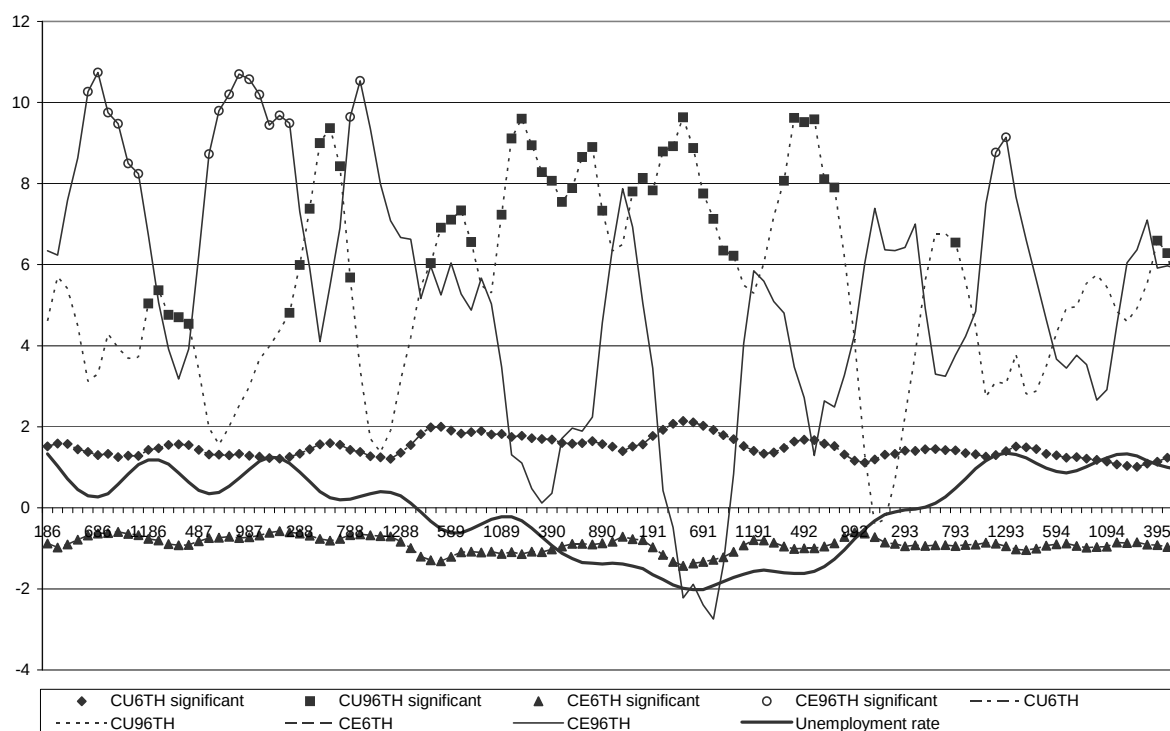
Note: Specification with time varying composition of participants and programs. The estimates for April pool observations from April to September. If not stated otherwise, discrete effects (dummy variables). *Marginal effects (continuous variable). Bold* significant at the 1% level. Bold significant at the 5% level. *Italics* significant at the 10% level. T-value is taken from the test whether the corresponding coefficient in the probit estimation is zero.

IC Additional estimation results

IC.1 Further results for the effects of training on employment and unemployment

IC.1.1 Composition of participants held constant

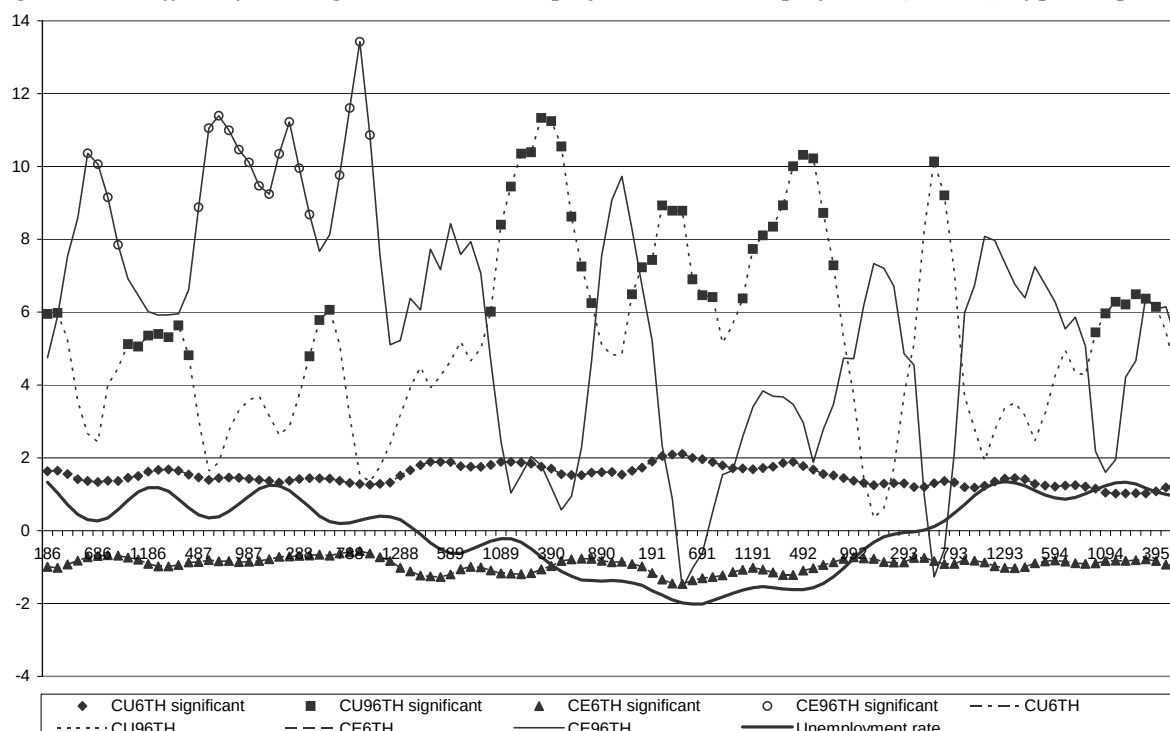
Figure IC.1: Effect of training on cumulated employment and unemployment (months) of participants



Note: The outcome variables are named as follows: CE cumulated employment, CU cumulated unemployment, 6 or 96 months after program start, TH theta (average treatment effect on the treated), dots appear if the effects if point-wise significant on the 5%-level. The unemployment rate is presented net of its mean.

IC.1.2 Composition of participants and programs held constant

Figure IC.2: Effect of training on cumulated employment and unemployment (months) of participants



Note: The outcome variables are named as follows: CE cumulated employment, CU cumulated unemployment, 6 or 96 months after program start, TH theta (average treatment effect on the treated), dots appear if the effects if point-wise significant on the 5%-level. The unemployment rate is presented net of its mean.

IC.1.3 Correlation with the unemployment rate

Table IC.1: Correlation of the effects with the unemployment rate at program start

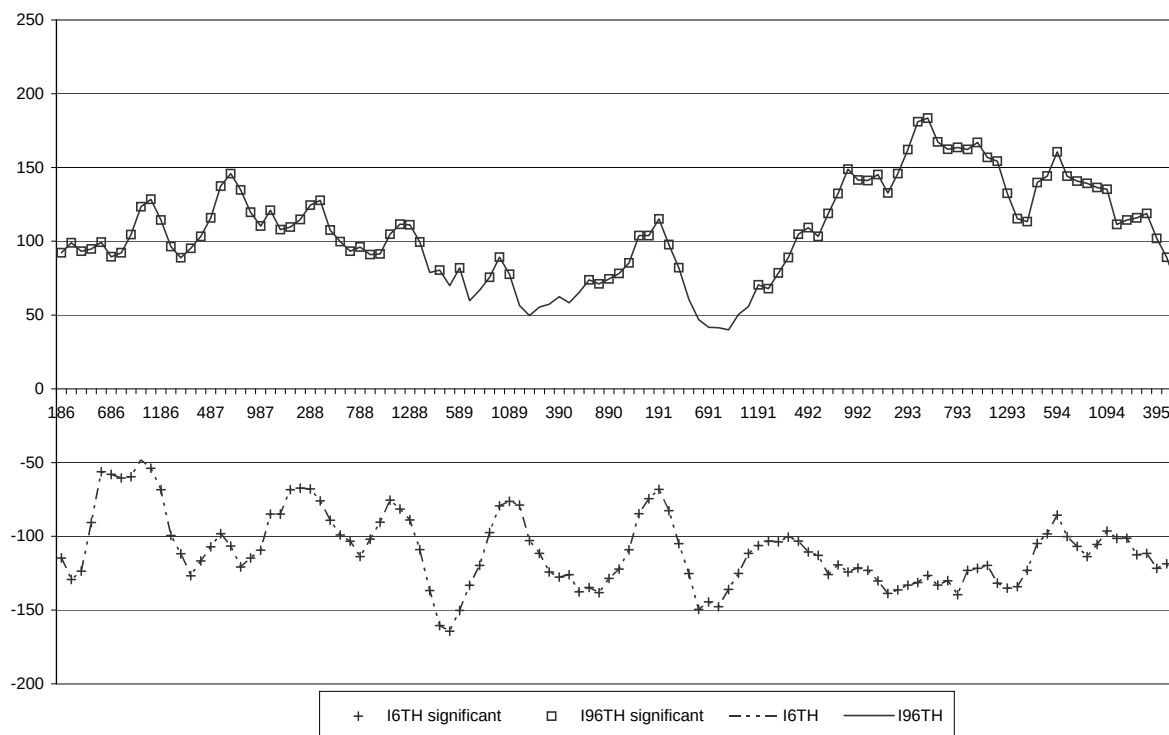
Month after program start	Varying participants and programs	Constant composition of participants	Constant composition of participants and programs
Cumulated employment			
6	-43**	-63**	-67**
36	-65**	-62**	-63**
72	-57**	-61**	-58**
96	-50**	-55**	-51**
Cumulated unemployment			
6	20	41**	47**
36	47**	47**	38**
72	50**	49**	39**
96	52**	54**	42**

Note: Newey-West autocorrelation-robust standard errors: ** significant at the 1% level, * significant at the 5% level.

IC.2 Effects of training on earnings

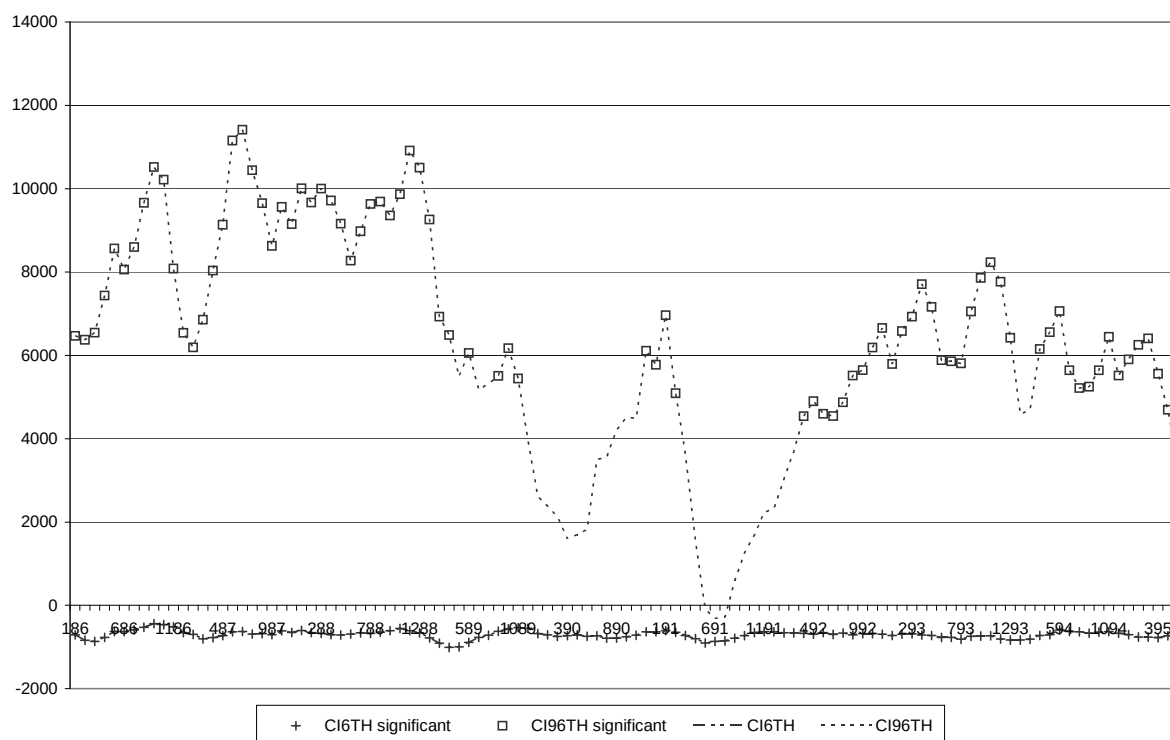
IC.2.1 Time-varying composition of participants and programs

Figure IC.3: Effect of training on earnings (in €) of participants



Note: The outcome variables are named as follows: I: earnings if employed, 6 or 96: month after program start, TH theta (average treatment effect on the treated), dots appear if the effects if point-wise significant on the 5%-level.

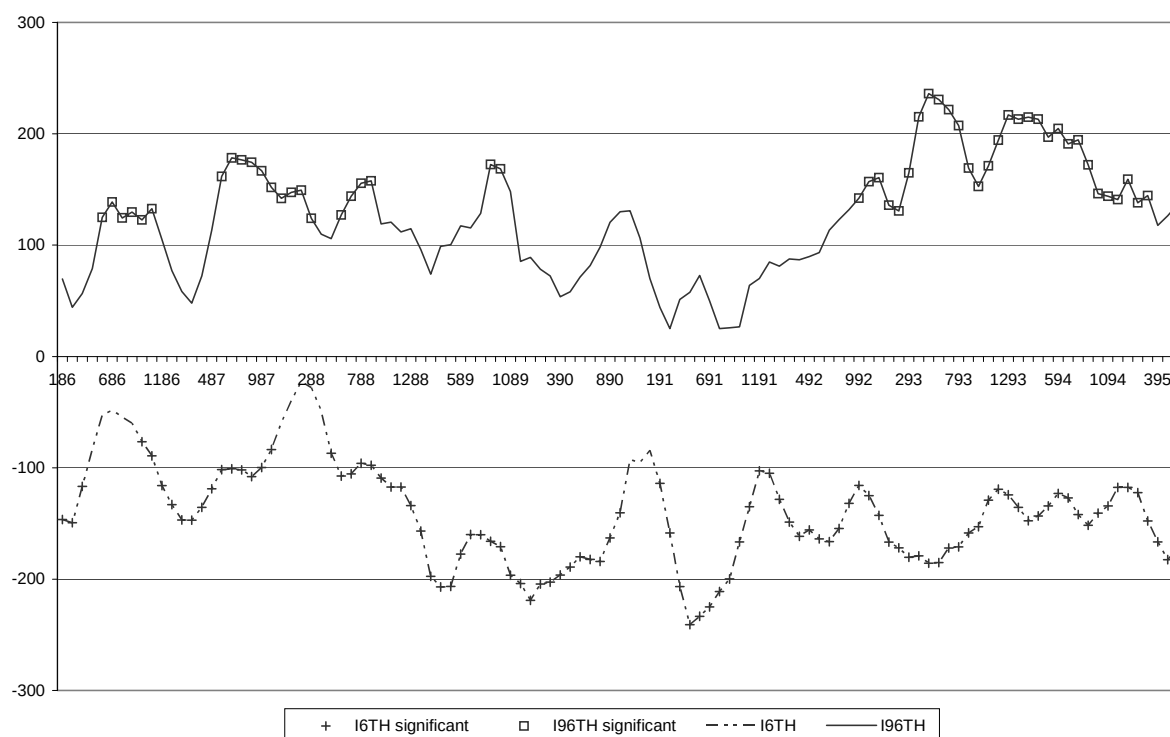
Figure IC.4: Effect of training on cumulated earnings (in €) of participants



Note: The outcome variables are named as follows: CI: cumulated earnings if employed, 6 or 96: month after program start, TH theta (average treatment effect on the treated), dots appear if the effects if point-wise significant on the 5%-level.

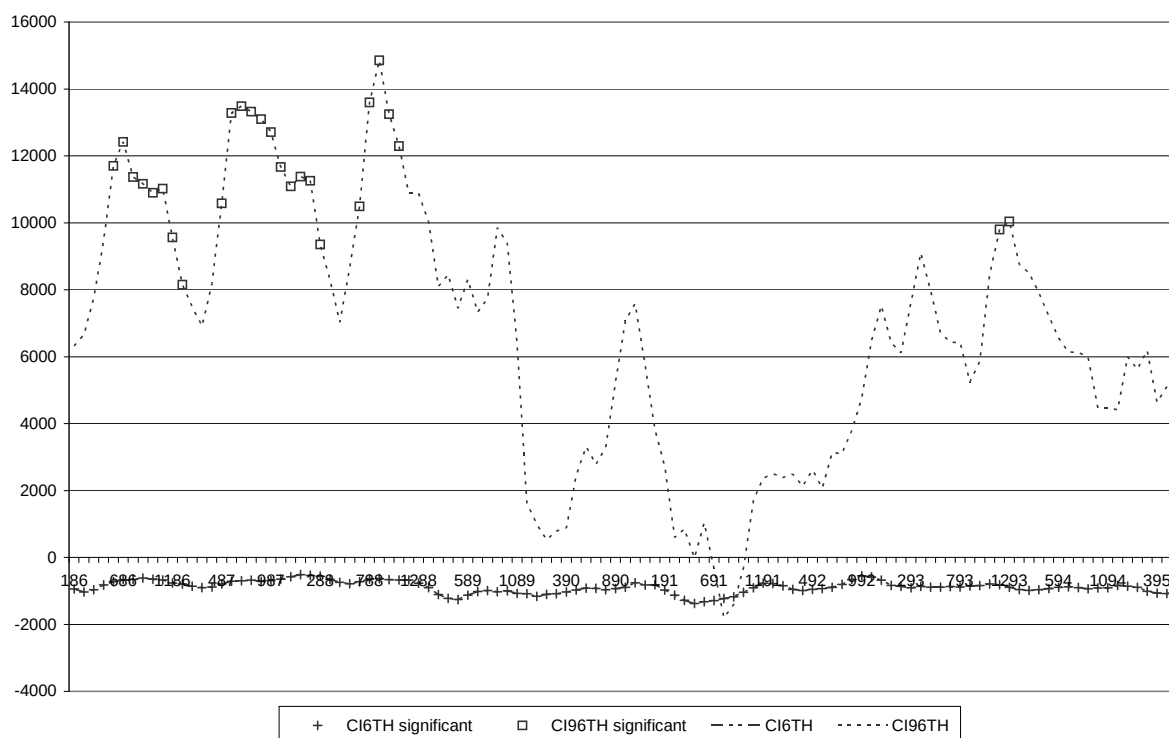
IC.2.2 Composition of participants held constant

Figure IC.5: Effect of training on earnings (in €) of participants



Note: The outcome variables are named as follows: I: earnings if employed, 6 or 96: month after program start, TH theta (average treatment effect on the treated), dots appear if the effects if point-wise significant on the 5%-level.

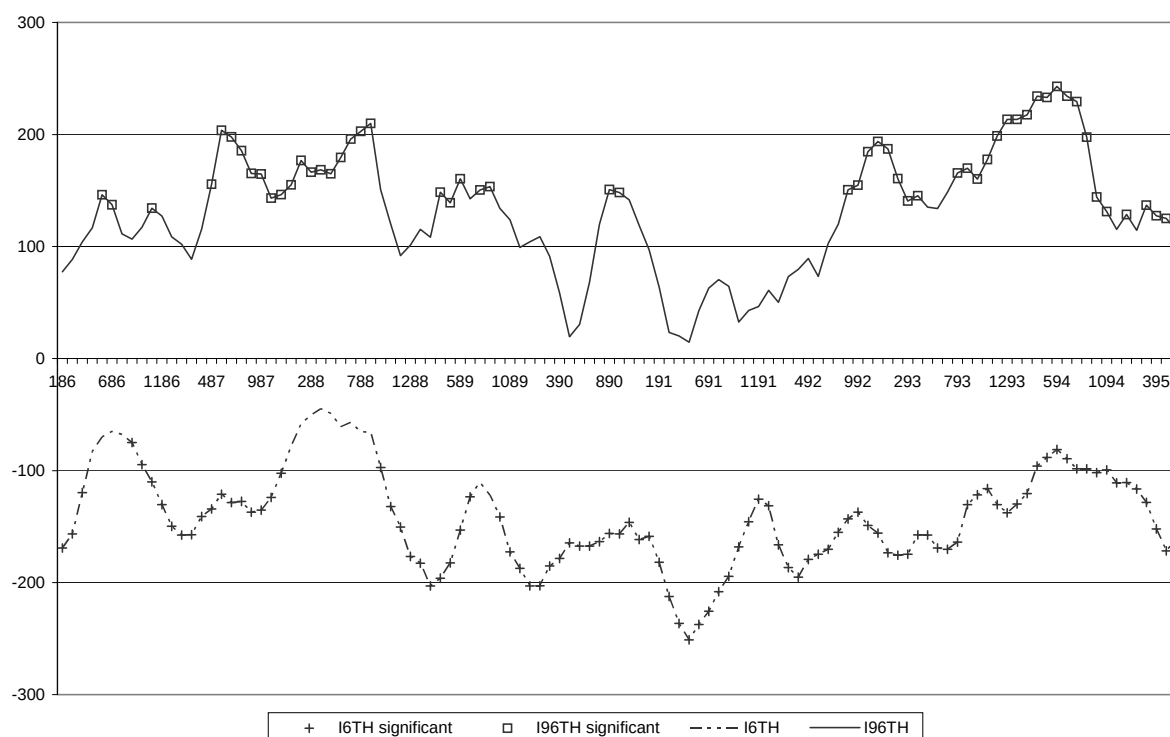
Figure IC.6: Effect of training on cumulated earnings (in €) of participants



Note: The outcome variables are named as follows: CI: cumulated earnings if employed, 6 or 96: month after program start, TH theta (average treatment effect on the treated), dots appear if the effects if point-wise significant on the 5%-level.

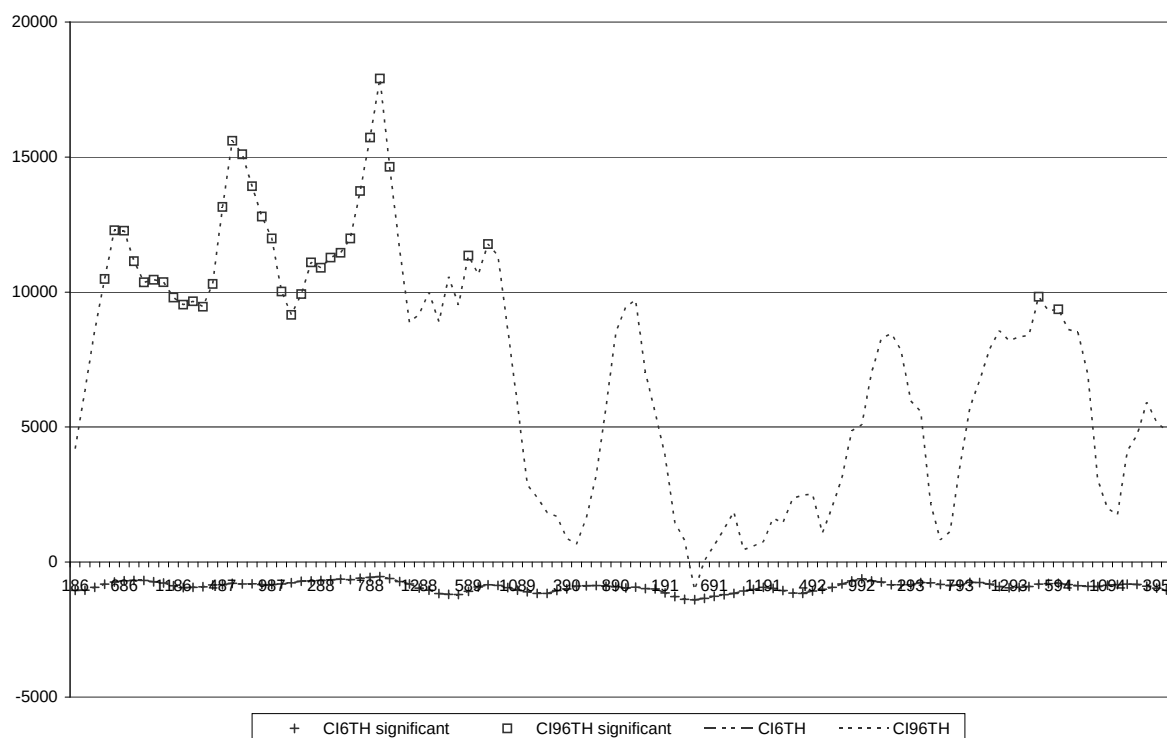
IC.2.3 Composition of participants and programs held constant

Figure IC.7: Effect of training on earnings (in €) of participants



Note: The outcome variables are named as follows: I: earnings if employed, 6 or 96: month after program start, TH theta (average treatment effect on the treated), dots appear if the effects if point-wise significant on the 5%-level.

Figure IC.8: Effect of training on cumulated earnings (in €) of participants



Note: The outcome variables are named as follows: CI: cumulated earnings if employed, 6 or 96: month after program start, TH theta (average treatment effect on the treated), dots appear if the effects if point-wise significant on the 5%-level.

IC.2.4 Correlation with the unemployment rate

Table IC.2: Correlation of the effects with the unemployment rate at origram start

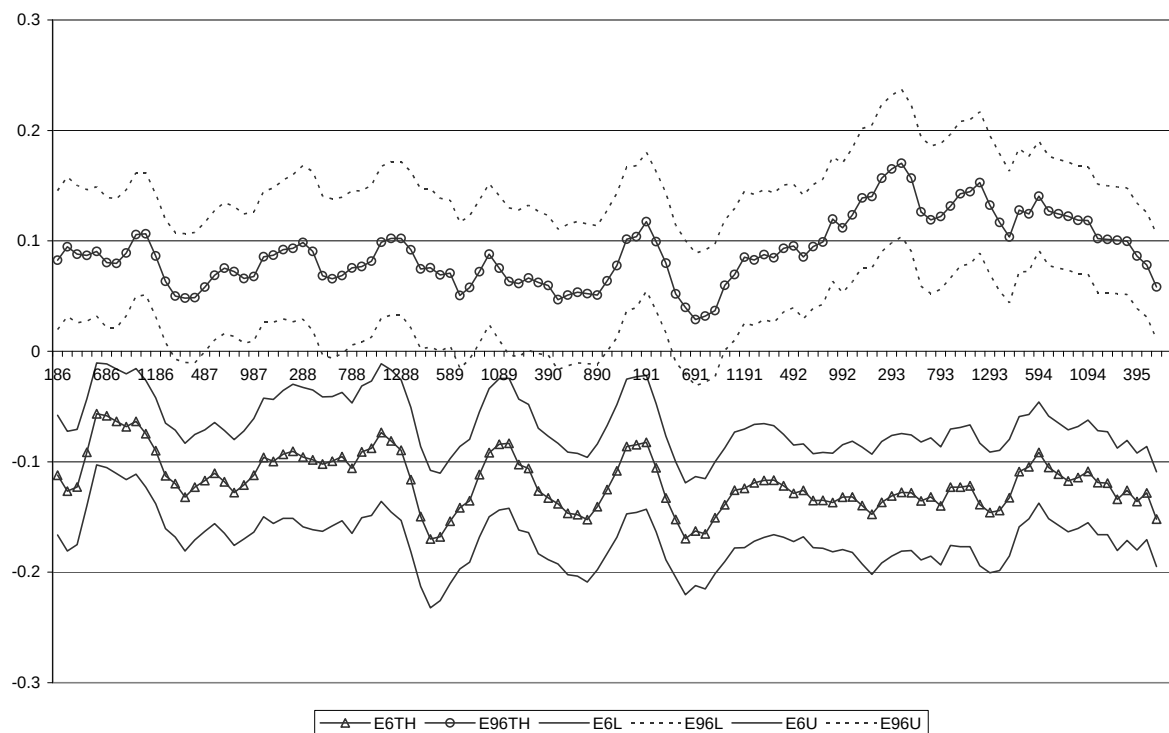
Month after program start	Varying participants and programs	Constant composition of participants	Constant composition of participants and programs
Earnings			
6	20	40**	52**
36	48**	44**	37*
72	53**	58**	48**
96	47**	53**	55**
Cumulated earnings			
6	13	41**	48**
36	46**	48**	41**
72	51**	51**	43**
96	56**	59**	49**

Note: Newey-West autocorrelation-robust standard errors:
** significant at the 1% level, * significant at the 5% level.

IC.3 Confidence bands for the effects

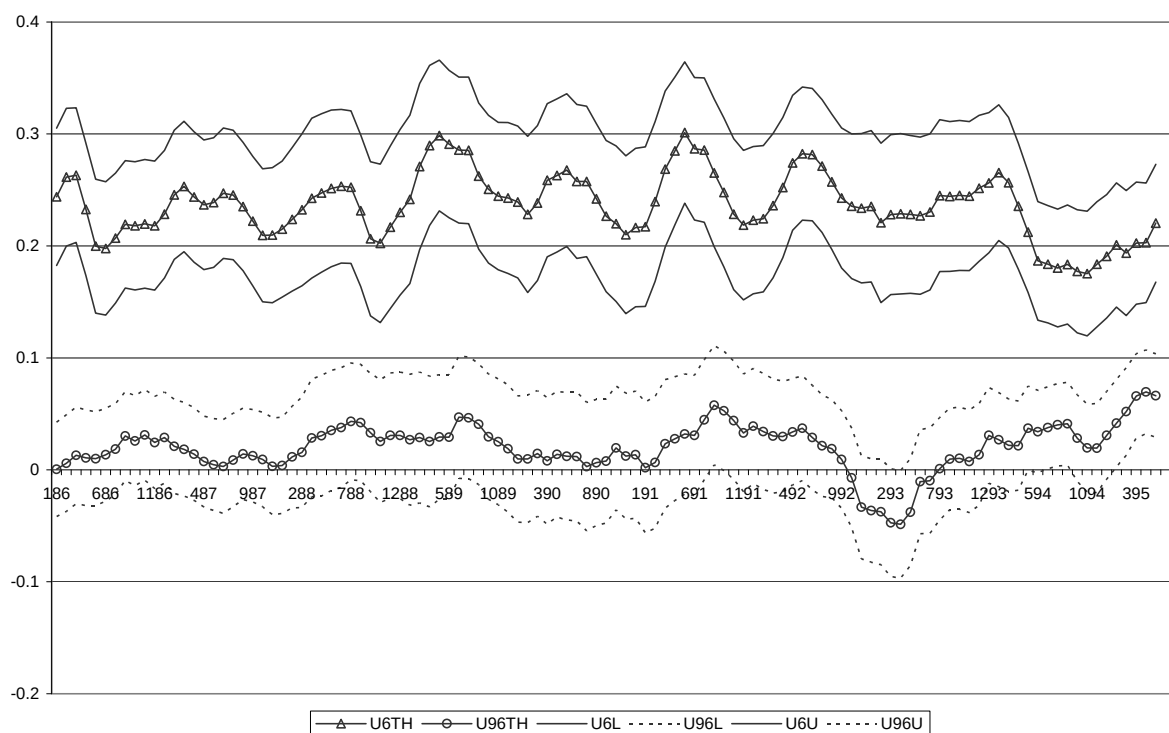
IC.3.1 Time-varying composition of participants and programs

Figure IC.9: Effects of training on employment (%-points) with confidence bands



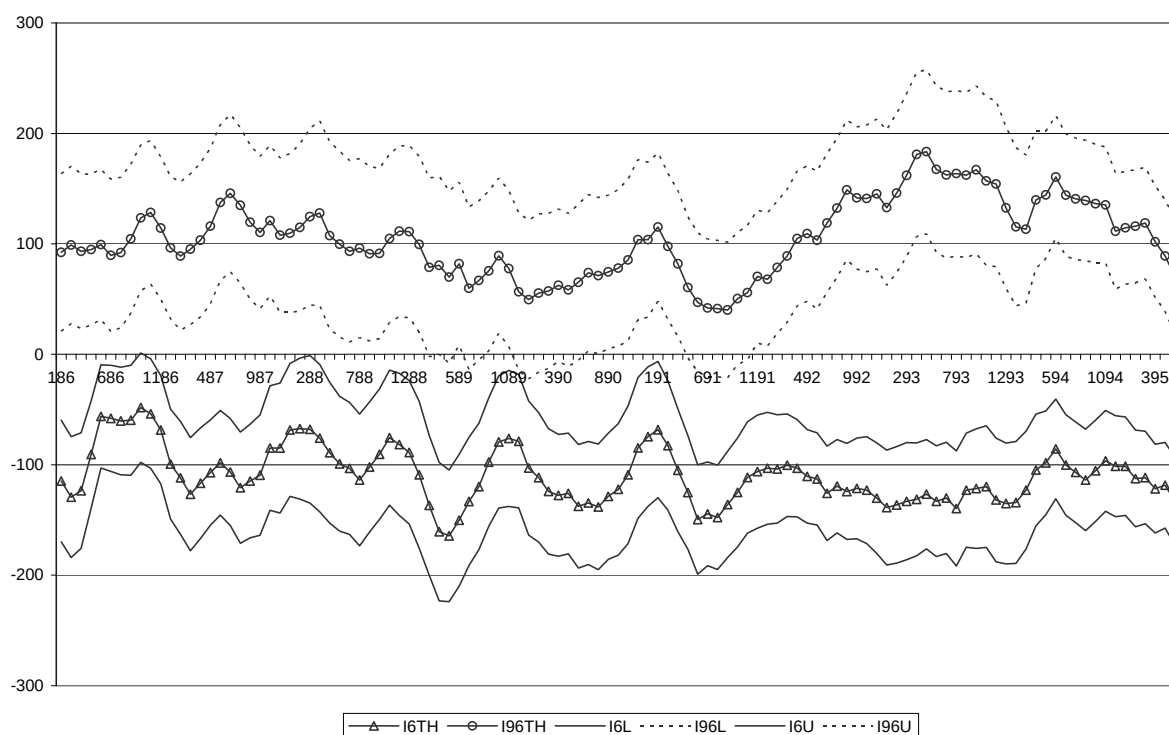
Note: The outcome variables are named as follows: E employment, 6 or 96 months after program start, TH theta (average treatment effect on the treated), U upper 95%-confidence band, L lower 95%-confidence band.

Figure IC.10: Effects of training on unemployment (%-points) with confidence bands



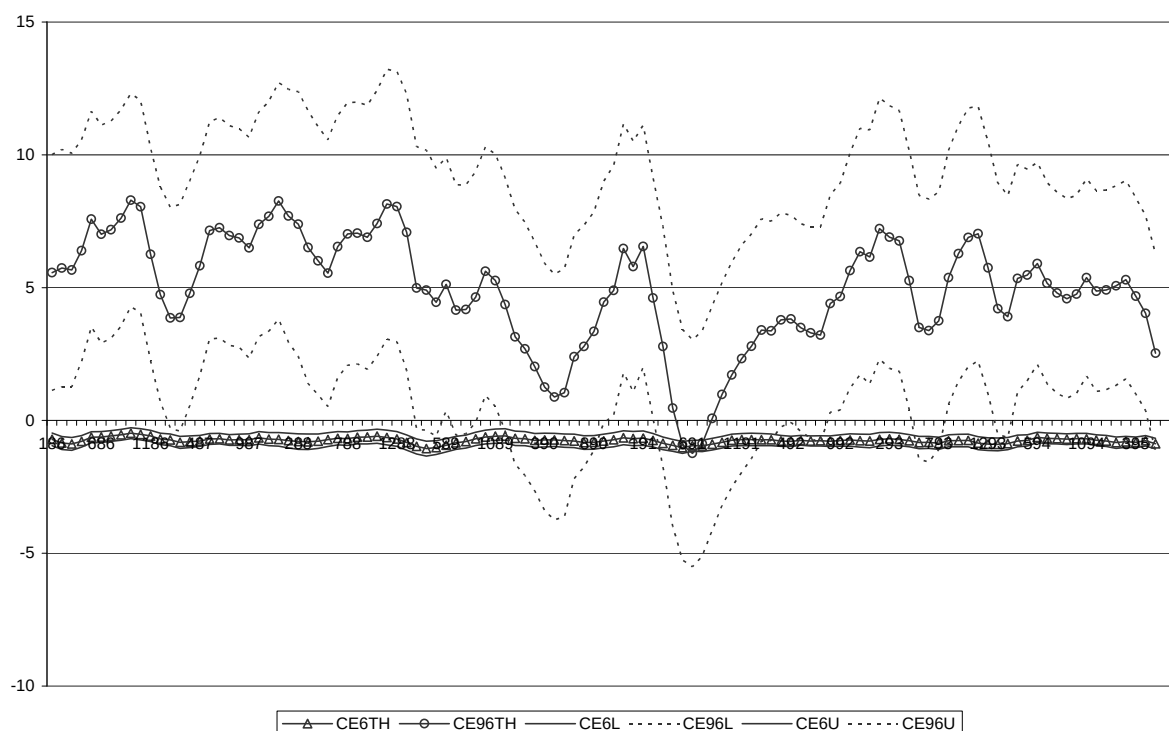
Note: The outcome variables are named as follows: U unemployment, 6 or 96 months after program start, TH theta (average treatment effect on the treated), U upper 95%-confidence band, L lower 95%-confidence band.

Figure IC.11: Effects of training on earnings (EUR) with confidence bands



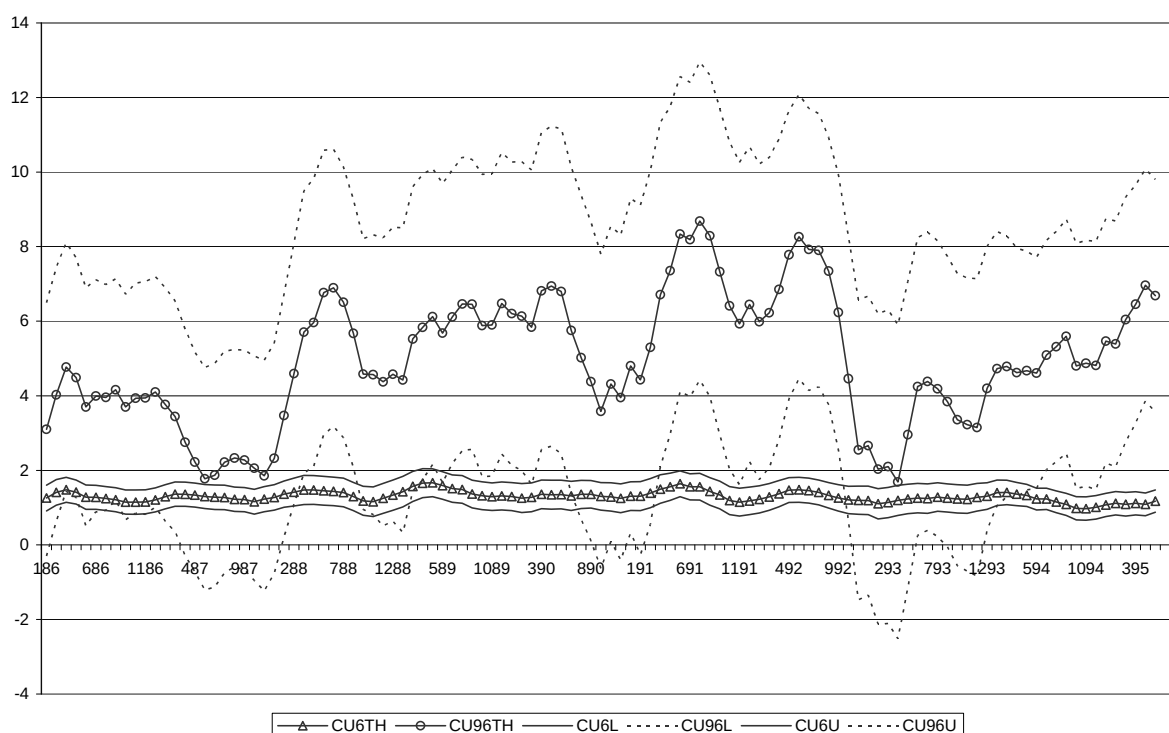
Note: The outcome variables are named as follows: I earnings, 6 or 96 months after program start, TH theta (average treatment effect on the treated), U upper 95%-confidence band, L lower 95%-confidence band.

Figure IC.12: Effects of training on cumulated employment (months) with confidence bands



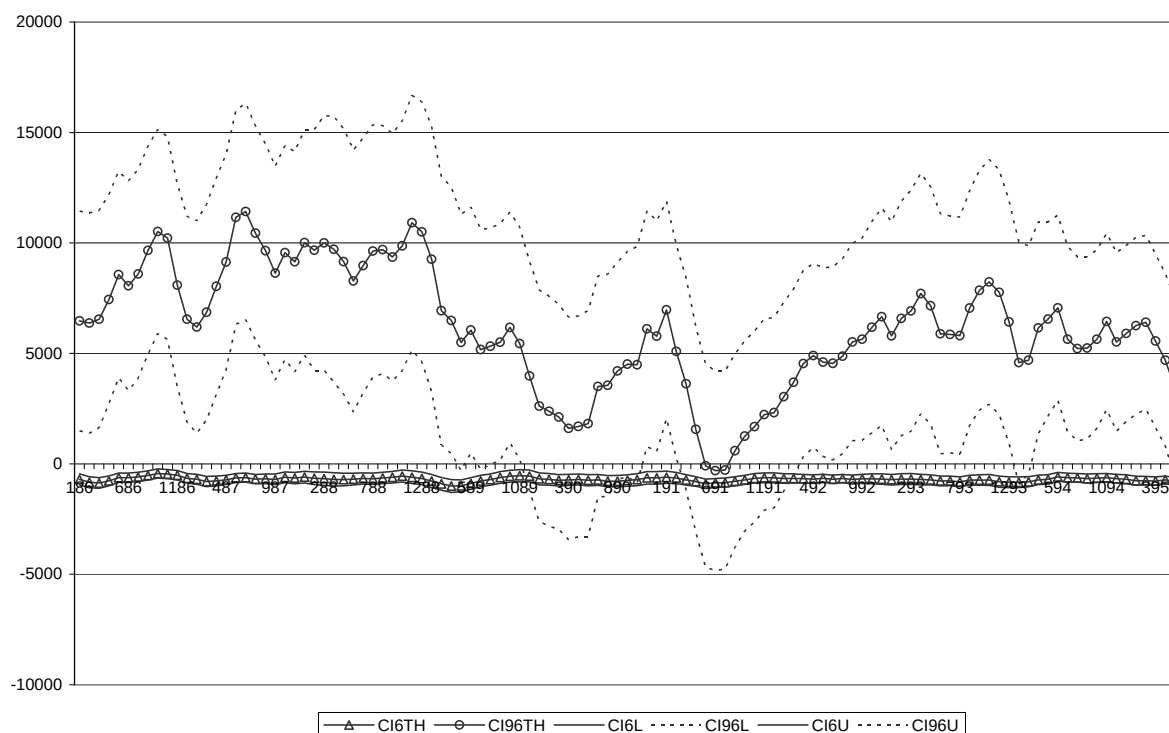
Note: The outcome variables are named as follows: CE cumulated employment, 6 or 96 months after program start, TH theta (average treatment effect on the treated), U upper 95%-confidence band, L lower 95%-confidence band.

Figure IC.13: Effects of training on cumulated unemployment (months) with confidence bands



Note: The outcome variables are named as follows: CU cumulated unemployment, 6 or 96 months after program start, TH theta (average treatment effect on the treated), U upper 95%-confidence band, L lower 95%-confidence band.

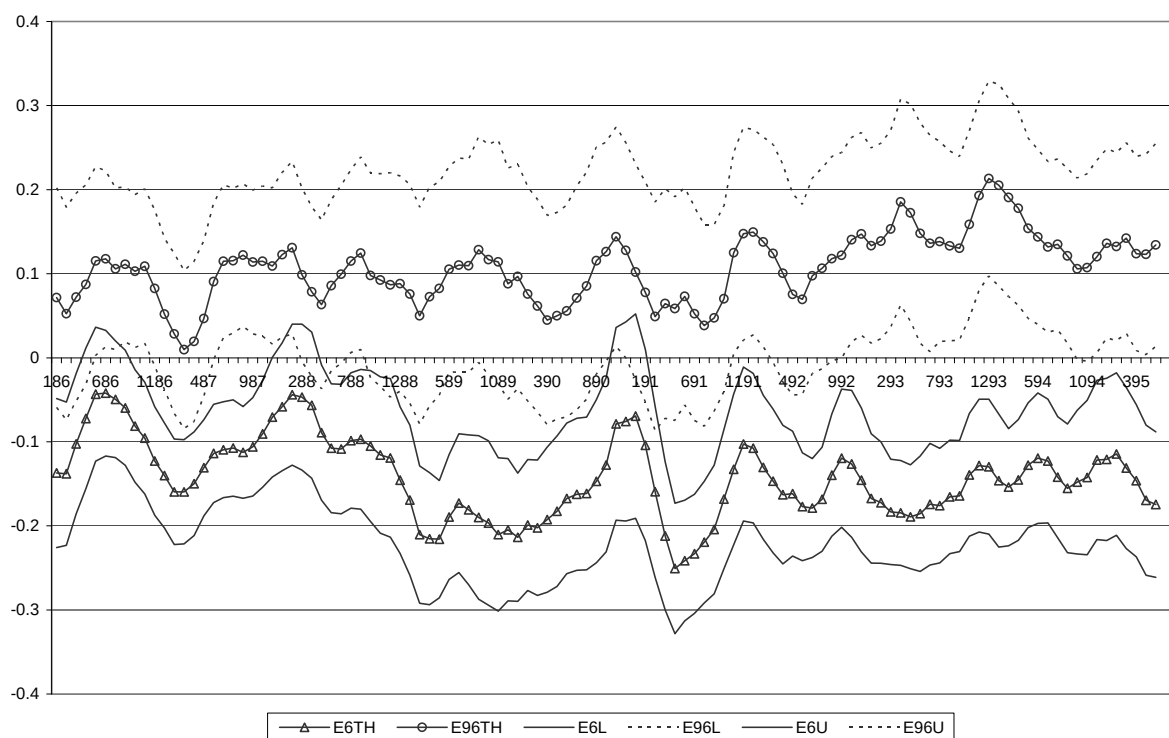
Figure IC.14: Effects of training on cumulated earnings (EUR) with confidence bands



Note: The outcome variables are named as follows: CI cumulated earnings, 6 or 96 months after program start, TH theta (average treatment effect on the treated), U upper 95%-confidence band, L lower 95%-confidence band.

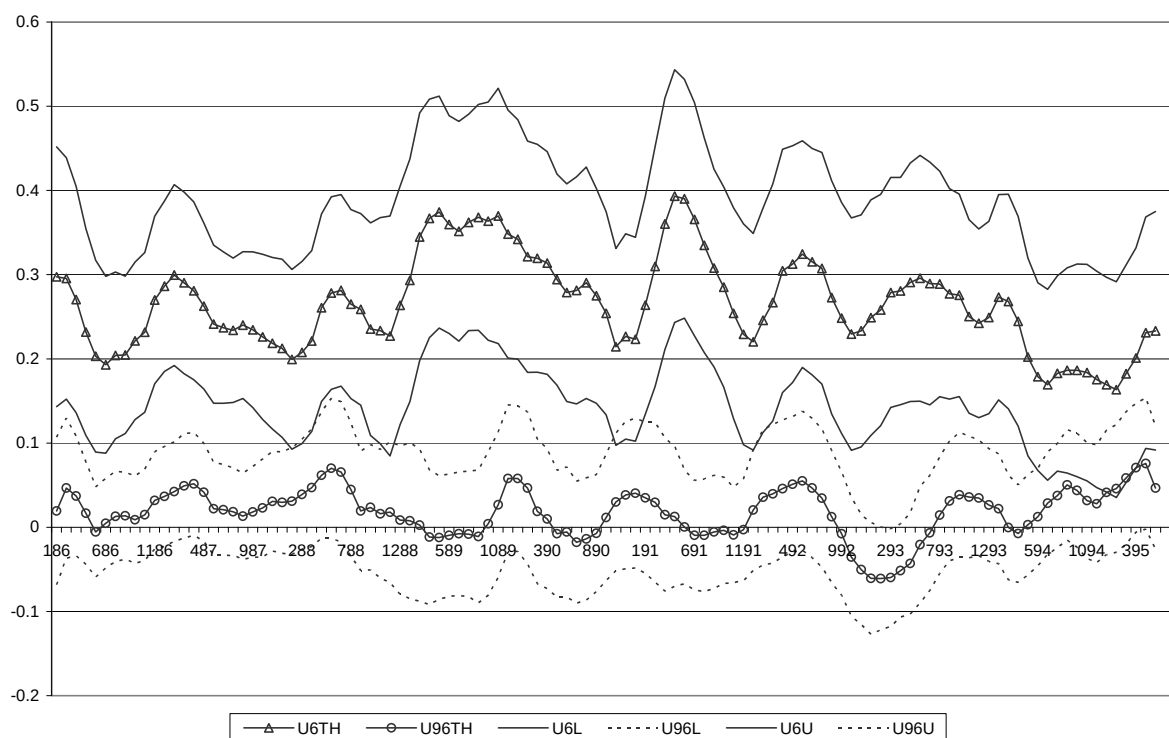
IC.3.2 Composition of participants held constant

Figure IC.15: Effects of training on employment (%-points) with confidence bands



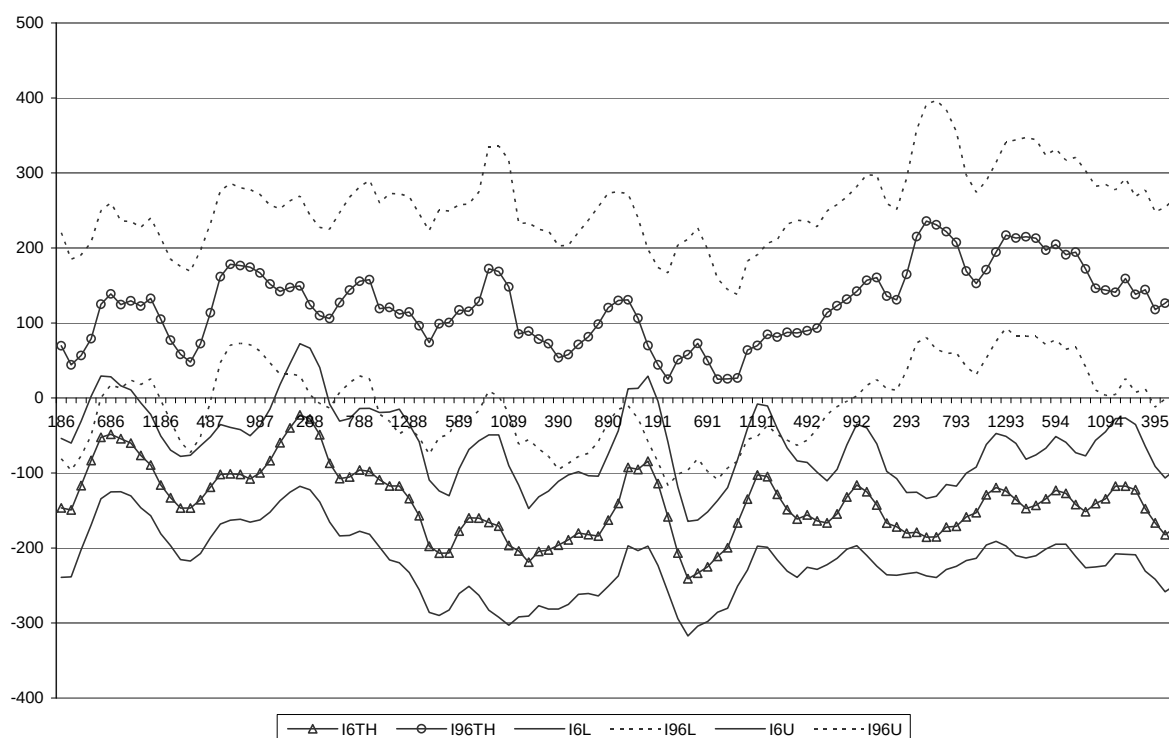
Note: The outcome variables are named as follows: E employment, 6 or 96 months after program start, TH theta (average treatment effect on the treated), U upper 95%-confidence band, L lower 95%-confidence band.

Figure IC.16: Effects of training on unemployment (%-points) with confidence bands



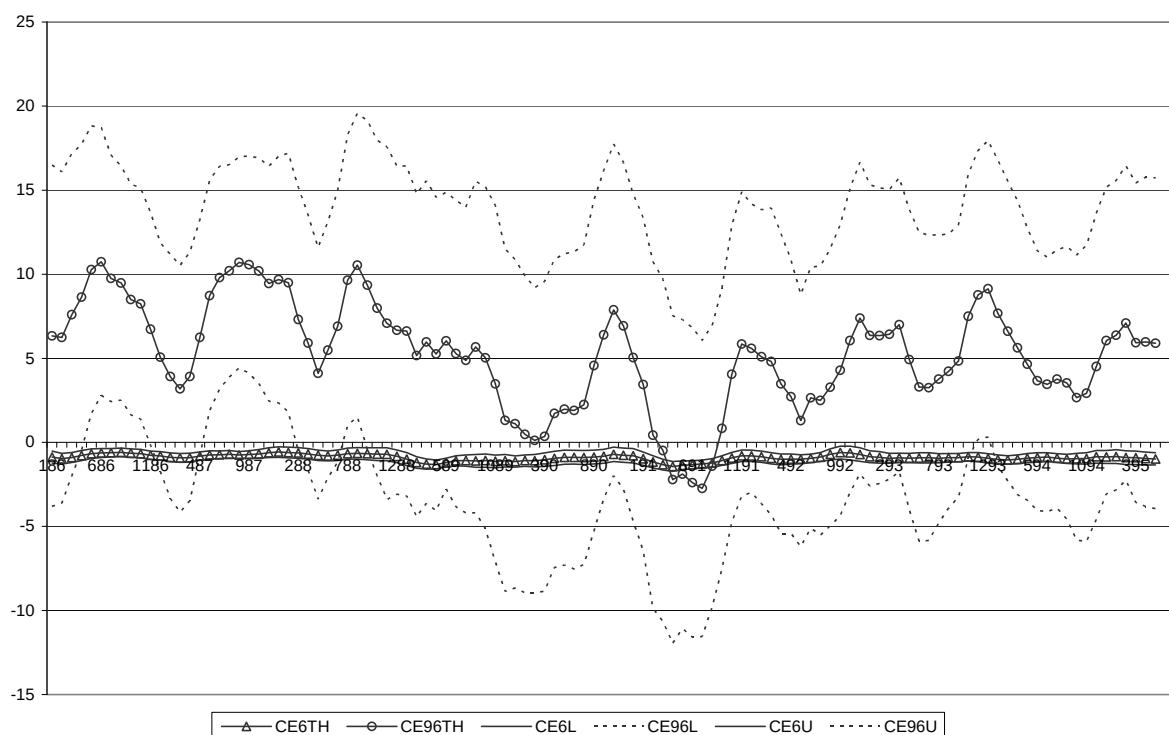
Note: The outcome variables are named as follows: U unemployment, 6 or 96 months after program start, TH theta (average treatment effect on the treated), U upper 95%-confidence band, L lower 95%-confidence band.

Figure IC.17: Effects of training on earnings (EUR) with confidence bands



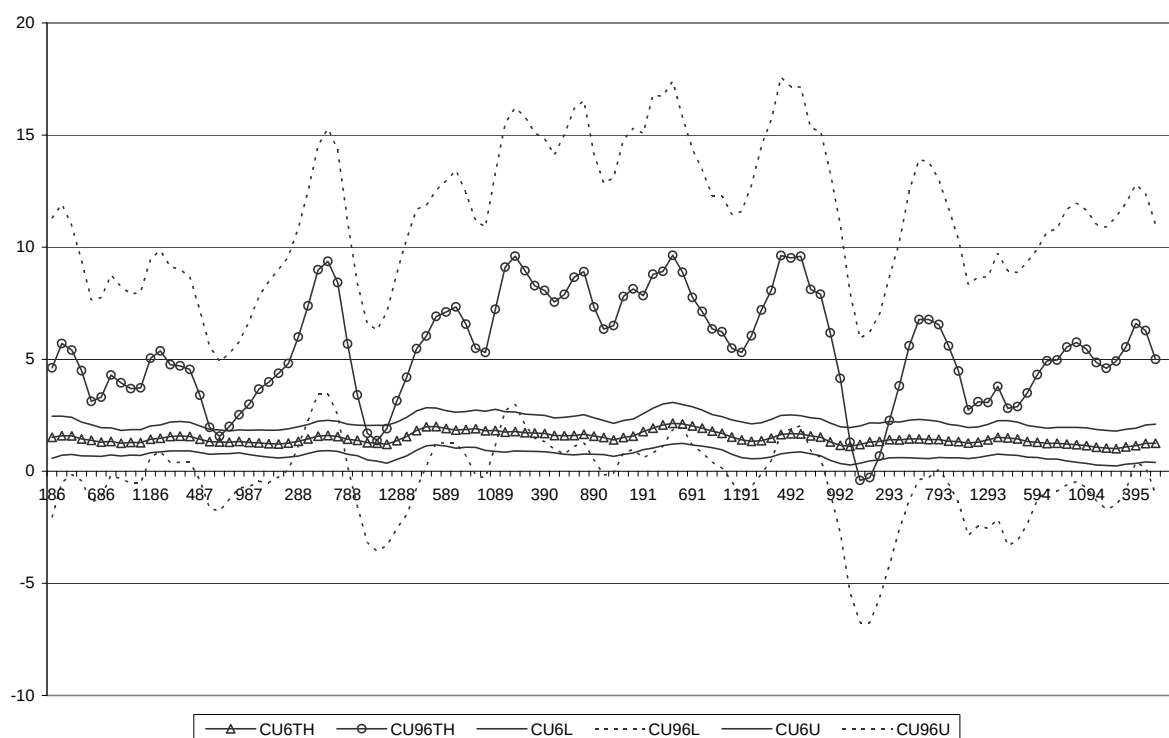
Note: The outcome variables are named as follows: I earnings, 6 or 96 months after program start, TH theta (average treatment effect on the treated), U upper 95%-confidence band, L lower 95%-confidence band.

Figure IC.18: Effects of training on cumulated employment (months) with confidence bands



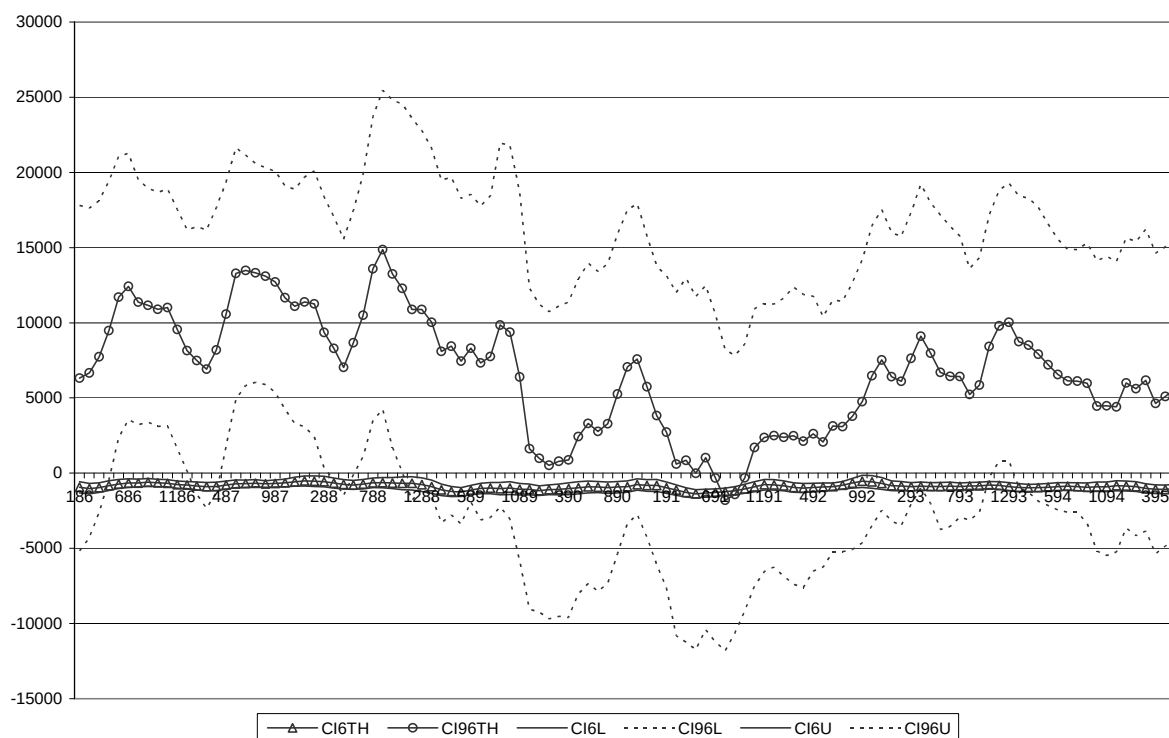
Note: The outcome variables are named as follows: CE cumulated employment, 6 or 96 months after program start, TH theta (average treatment effect on the treated), U upper 95%-confidence band, L lower 95%-confidence band.

Figure IC.19: Effects of training on cumulated unemployment (months) with confidence bands



Note: The outcome variables are named as follows: CU cumulated unemployment, 6 or 96 months after program start, TH theta (average treatment effect on the treated), U upper 95%-confidence band, L lower 95%-confidence band.

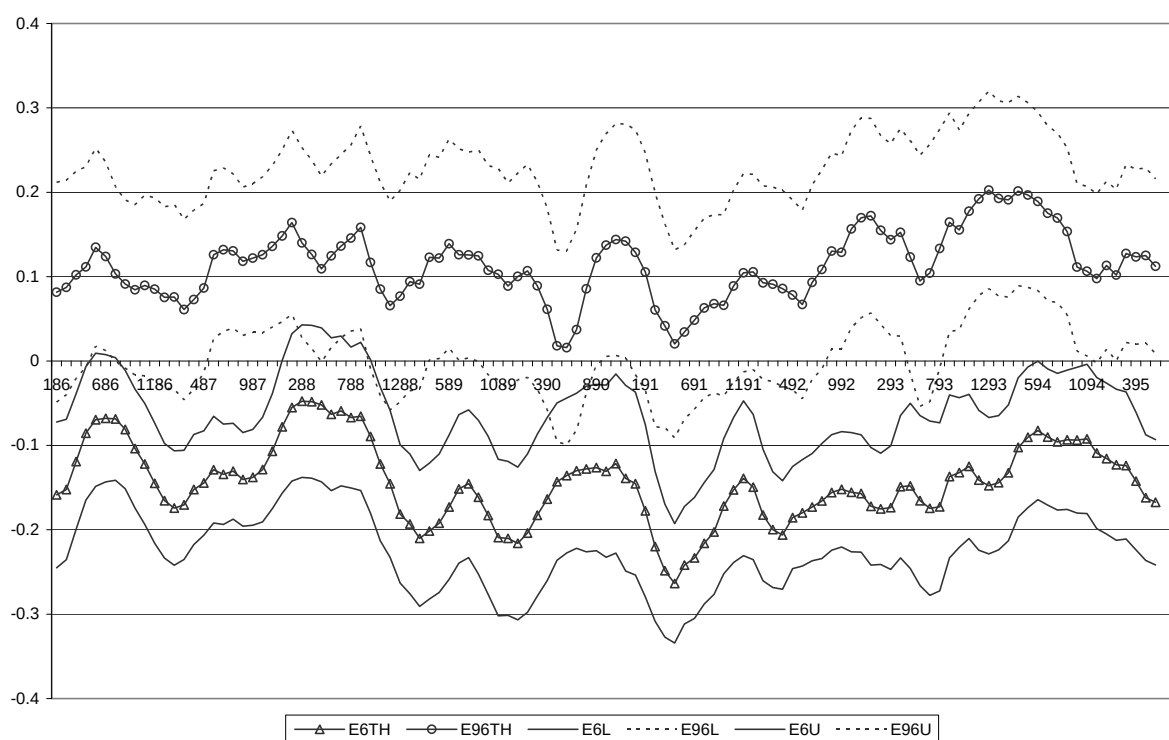
Figure IC.20: Effects of training on cumulated earnings (EUR) with confidence bands



Note: The outcome variables are named as follows: CI cumulated earnings, 6 or 96 months after program start, TH theta (average treatment effect on the treated), U upper 95%-confidence band, L lower 95%-confidence band.

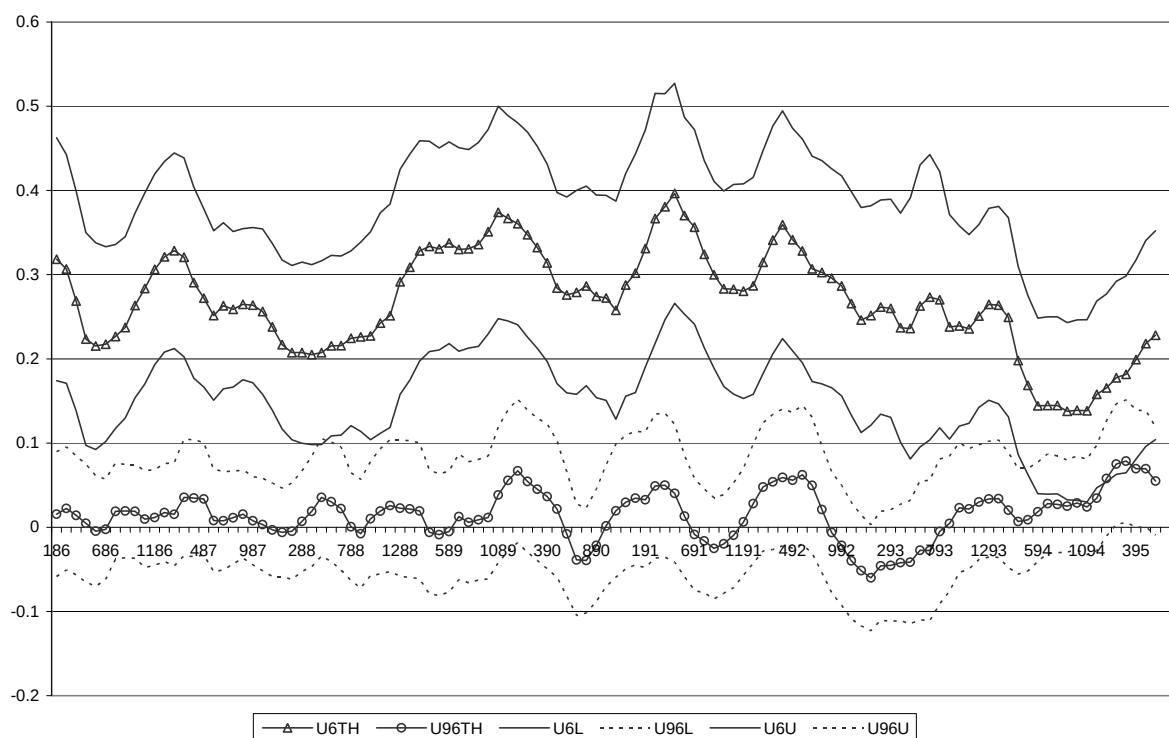
IC.3.3 Composition of participants and programs held constant

Figure IC.21: Effects of training on employment (%-points) with confidence bands



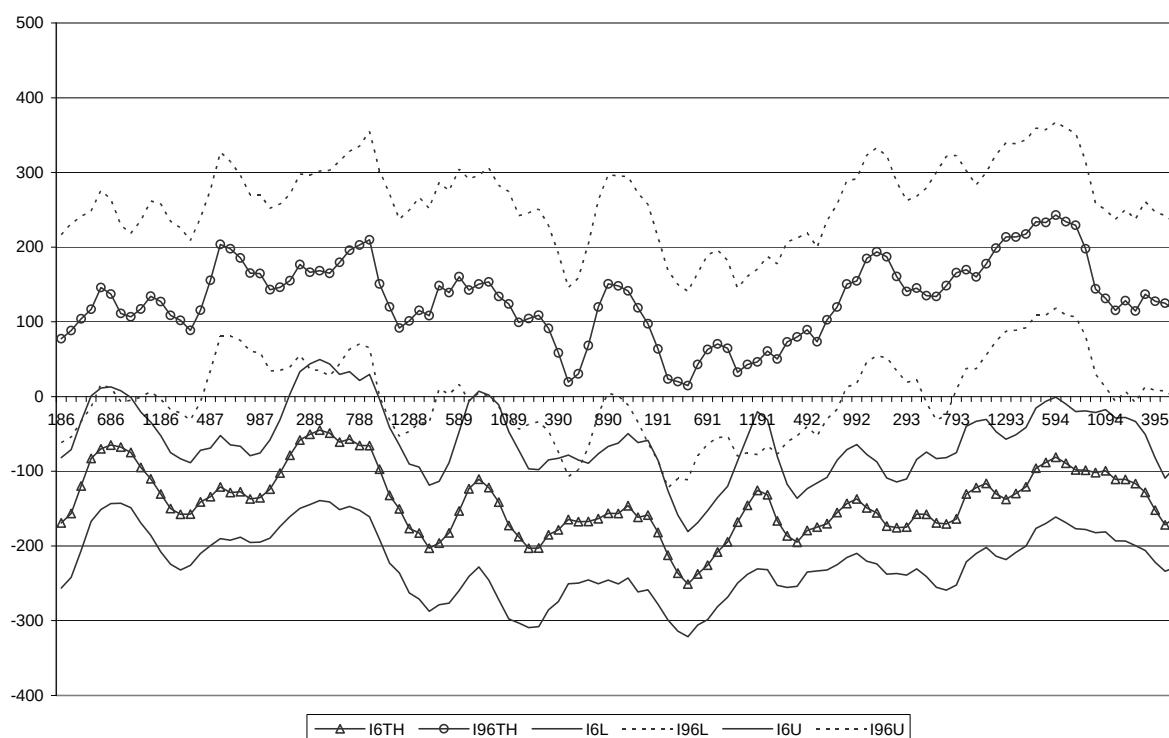
Note: The outcome variables are named as follows: E employment, 6 or 96 months after program start, TH theta (average treatment effect on the treated), U upper 95%-confidence band, L lower 95%-confidence band.

Figure IC.22: Effects of training on unemployment (%-points) with confidence bands



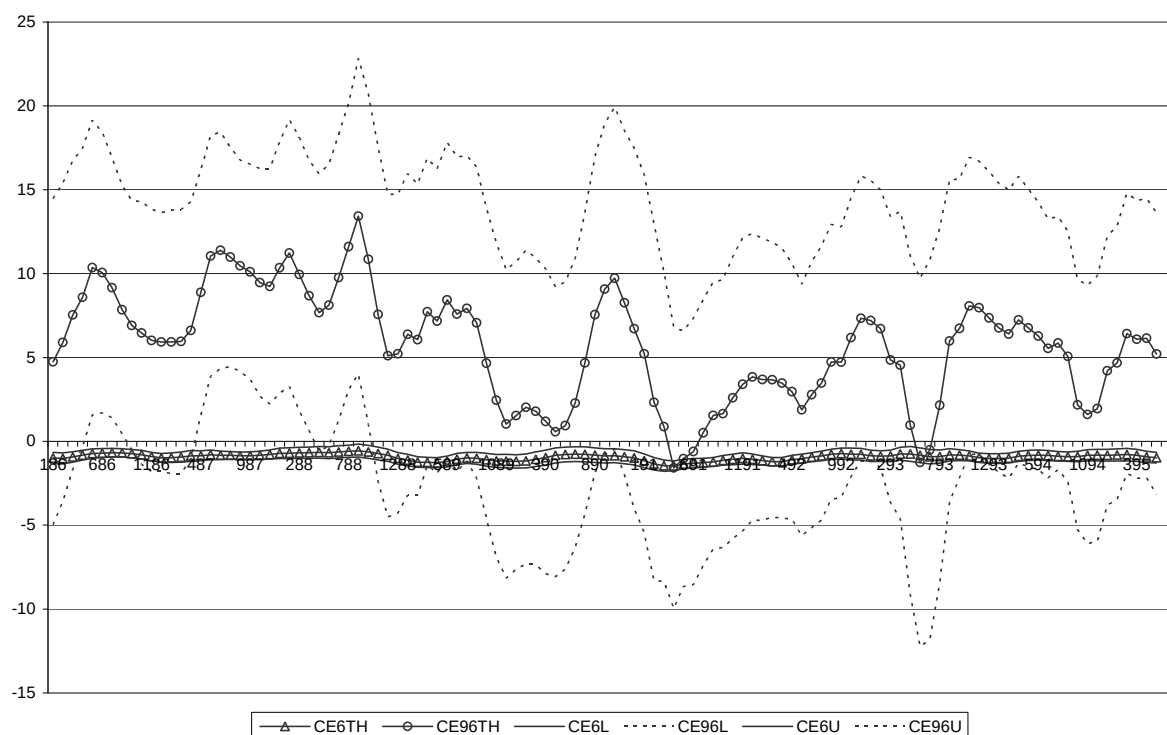
Note: The outcome variables are named as follows: U unemployment, 6 or 96 months after program start, TH theta (average treatment effect on the treated), U upper 95%-confidence band, L lower 95%-confidence band.

Figure IC.23: Effects of training on earnings (EUR) with confidence bands



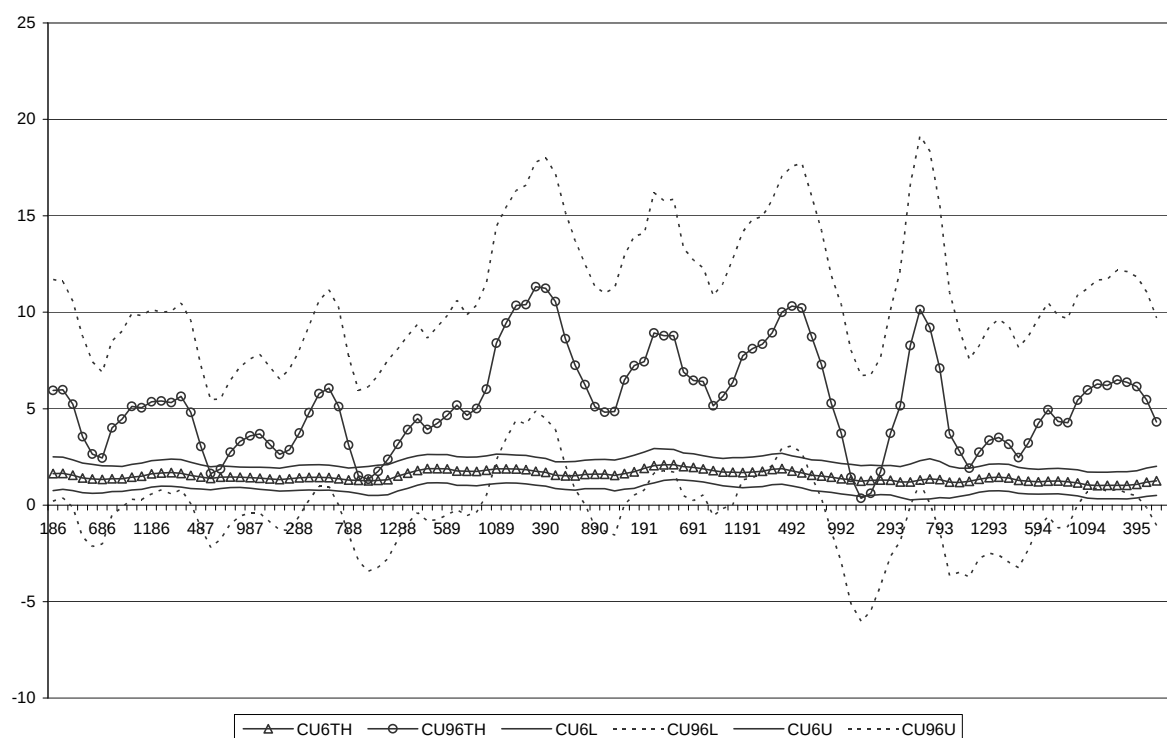
Note: The outcome variables are named as follows: I earnings, 6 or 96 months after program start, TH theta (average treatment effect on the treated), U upper 95%-confidence band, L lower 95%-confidence band.

Figure IC.24: Effects of training on cumulated employment (months) with confidence bands



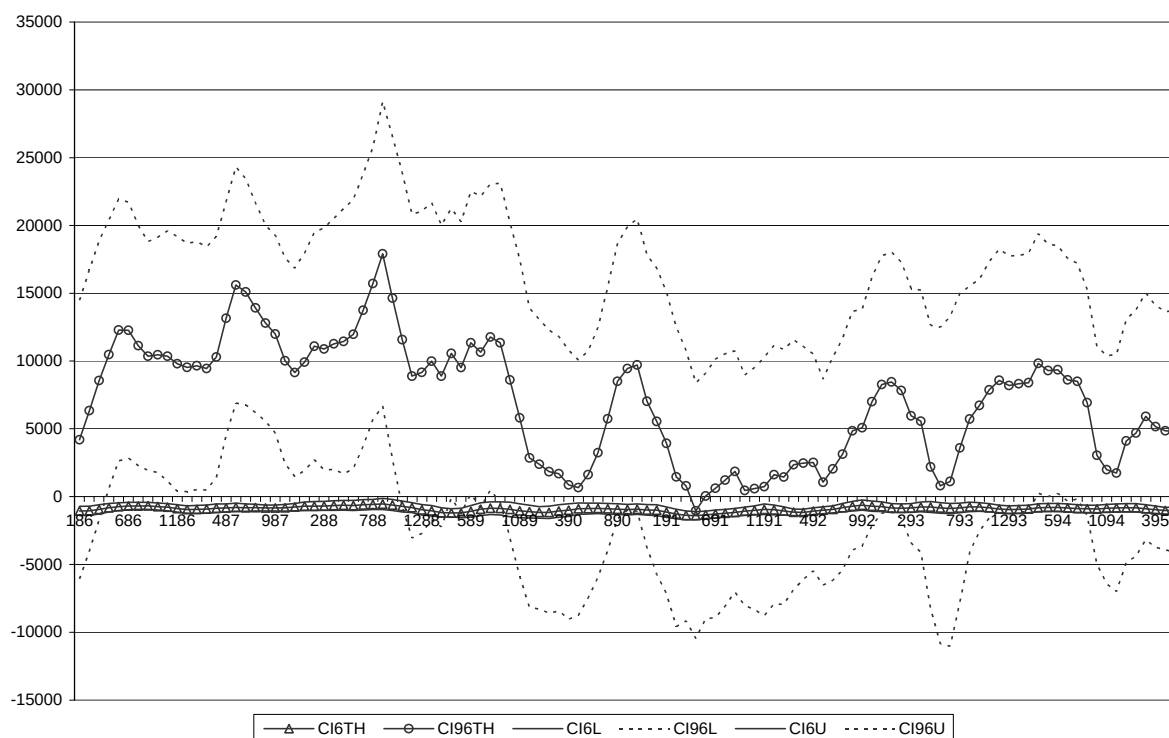
Note: The outcome variables are named as follows: CE cumulated employment, 6 or 96 months after program start, TH theta (average treatment effect on the treated), U upper 95%-confidence band, L lower 95%-confidence band.

Figure IC.25: Effects of training on cumulated unemployment (months) with confidence bands



Note: The outcome variables are named as follows: CU cumulated unemployment, 6 or 96 months after program start, TH theta (average treatment effect on the treated), U upper 95%-confidence band, L lower 95%-confidence band.

Figure IC.26: Effects of training on cumulated earnings (EUR) with confidence bands

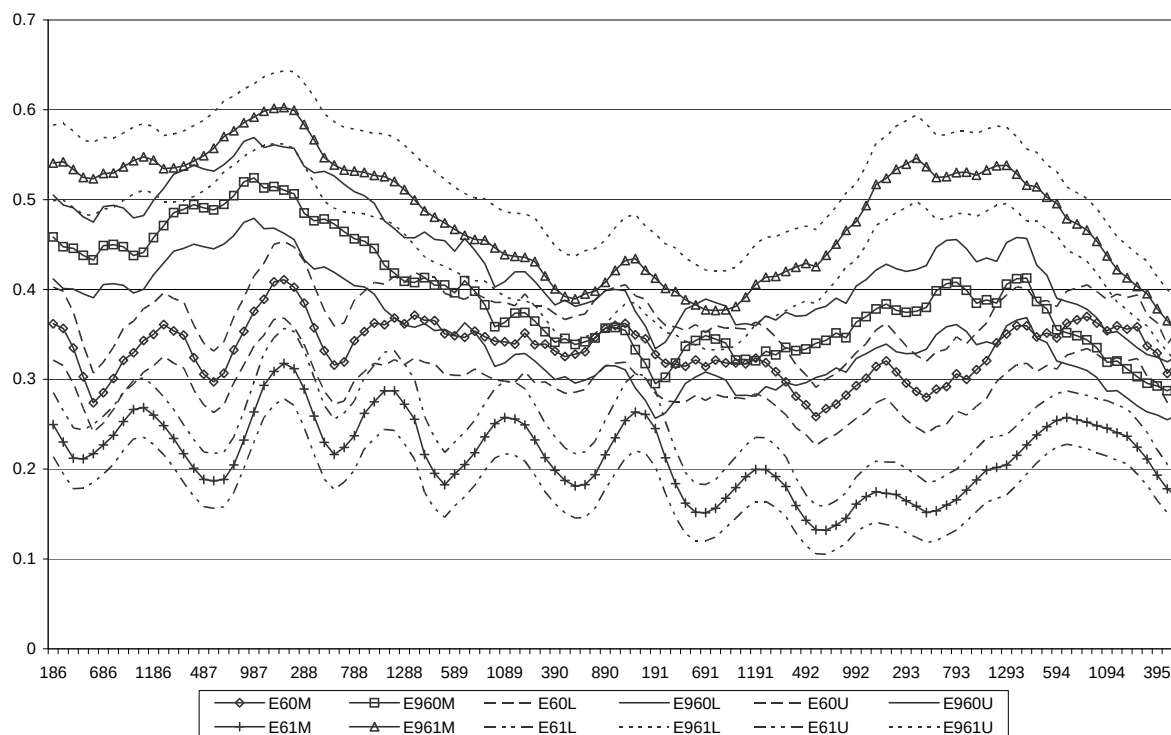


Note: The outcome variables are named as follows: CI cumulated earnings, 6 or 96 months after program start, TH theta (average treatment effect on the treated), U upper 95%-confidence band, L lower 95%-confidence band.

IC. 4 Levels of the potential outcomes with confidence bands

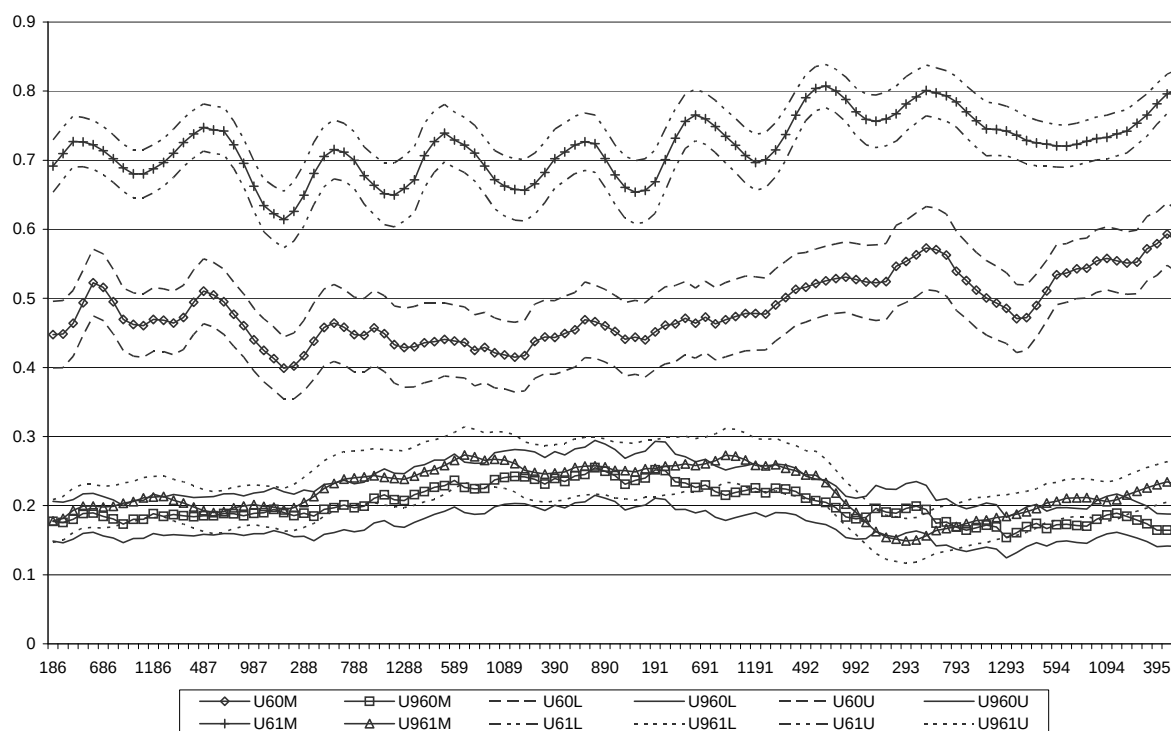
IC.4.1 Time-varying composition of participants and programs

Figure IC.27: Potential outcome employment with confidence bands



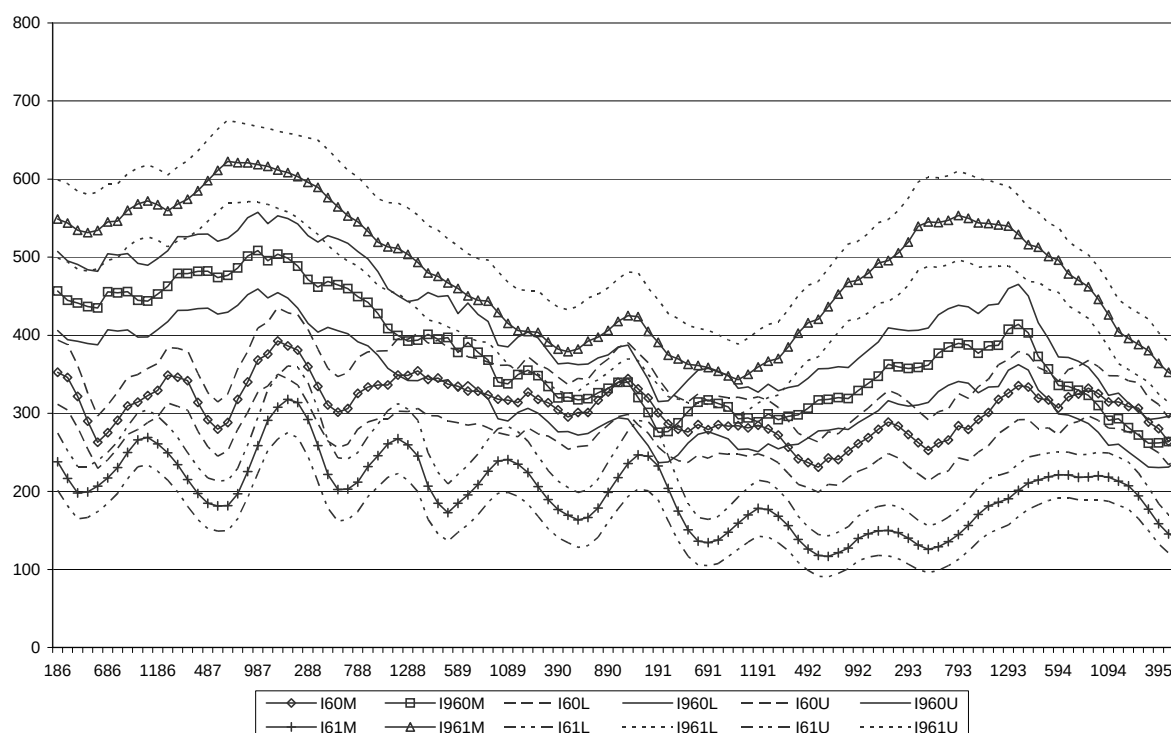
Note: The outcome variables are named as follows: E employment, 6 or 96 months after program start, 0 nonparticipants, 1 participants, M mean level, U upper 95%-confidence band, L lower 95%-confidence band.

Figure IC.28: Potential outcome unemployment with confidence bands



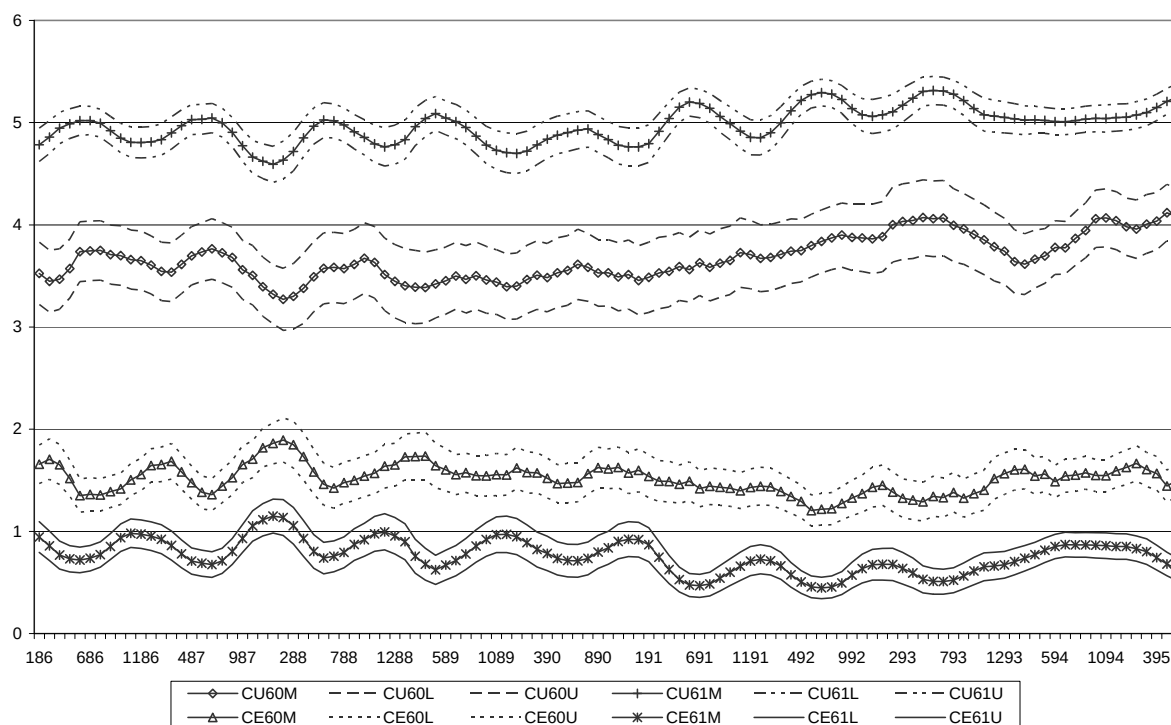
Note: The outcome variables are named as follows: U unemployment, 6 or 96 months after program start, 0 nonparticipants, 1 participants, M mean level, U upper 95%-confidence band, L lower 95%-confidence band.

Figure IC.29: Potential outcome earnings (EUR) with confidence bands



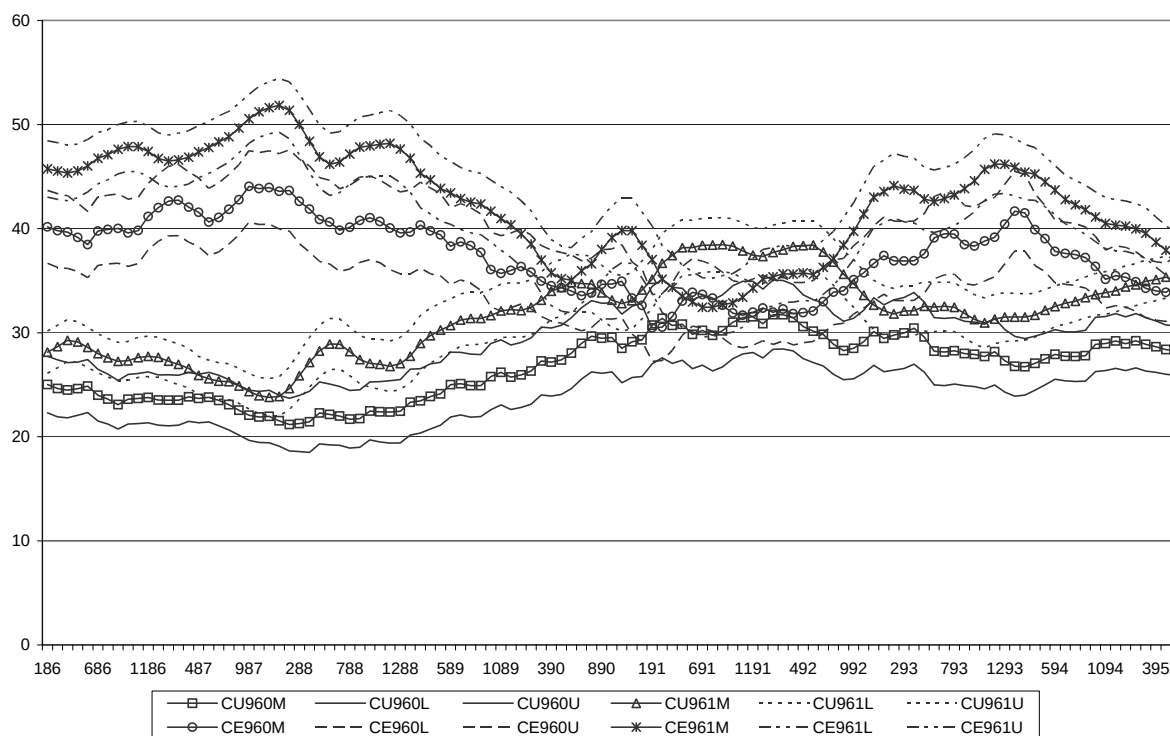
Note: The outcome variables are named as follows: I earnings, 6 or 96 month after program start, 0 nonparticipants, 1 participants, M mean level, U upper 95%-confidence band, L lower 95%-confidence band.

Figure IC.30: Potential outcome cumulated employment and unemployment (months) in month 6 after program start with confidence bands



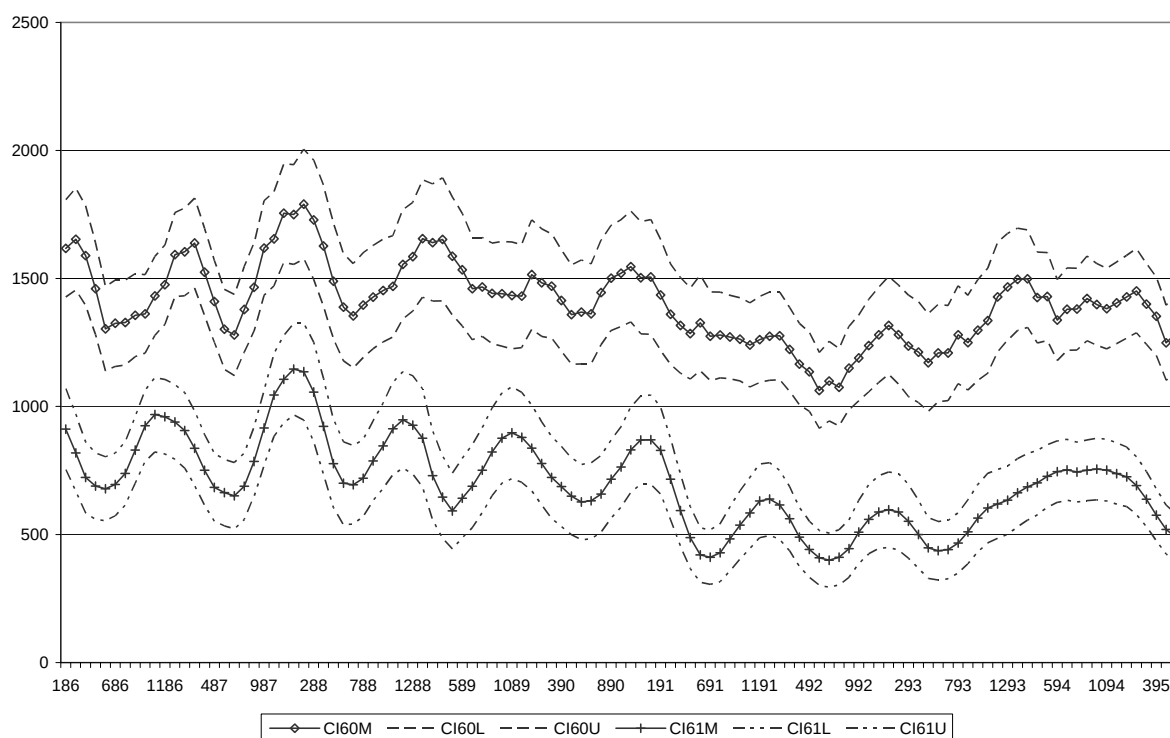
Note: The outcome variables are named as follows: CE cumulated employment, CU cumulated unemployment, 6 month after program start, 0 nonparticipants, 1 participants, M mean level, U upper 95%-confidence band, L lower 95%-confidence band.

Figure IC.31: Potential outcome cumulated employment and unemployment (months) in month 96
after program start with confidence bands



Note: The outcome variables are named as follows: CE cumulated employment, CU cumulated unemployment, 96 month after program start, 0 nonparticipants, 1 participants, M mean level, U upper 95%-confidence band, L lower 95%-confidence band.

Figure IC.32: Potential outcome cumulated earnings (EUR) in month 6 after program start with confidence bands



Note: The outcome variables are named as follows: CI cumulated earnings, 6 month after program start, 0 nonparticipants, 1 participants, M mean level, U upper 95%-confidence band, L lower 95%-confidence band.

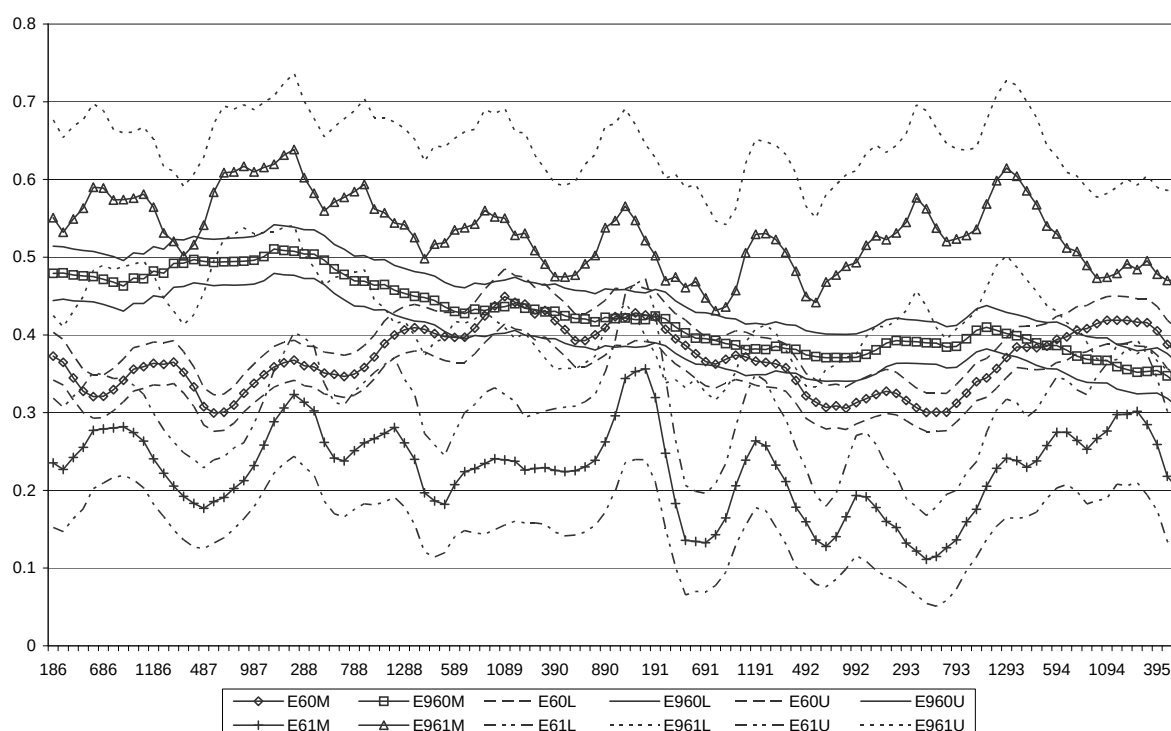
Figure IC.33: Potential outcome cumulated earnings (EUR) in month 96 after program start with confidence bands



Note: The outcome variables are named as follows: CI cumulated earnings, 96 month after program start, 0 nonparticipants, 1 participants, M mean level, U upper 95%-confidence band, L lower 95%-confidence band.

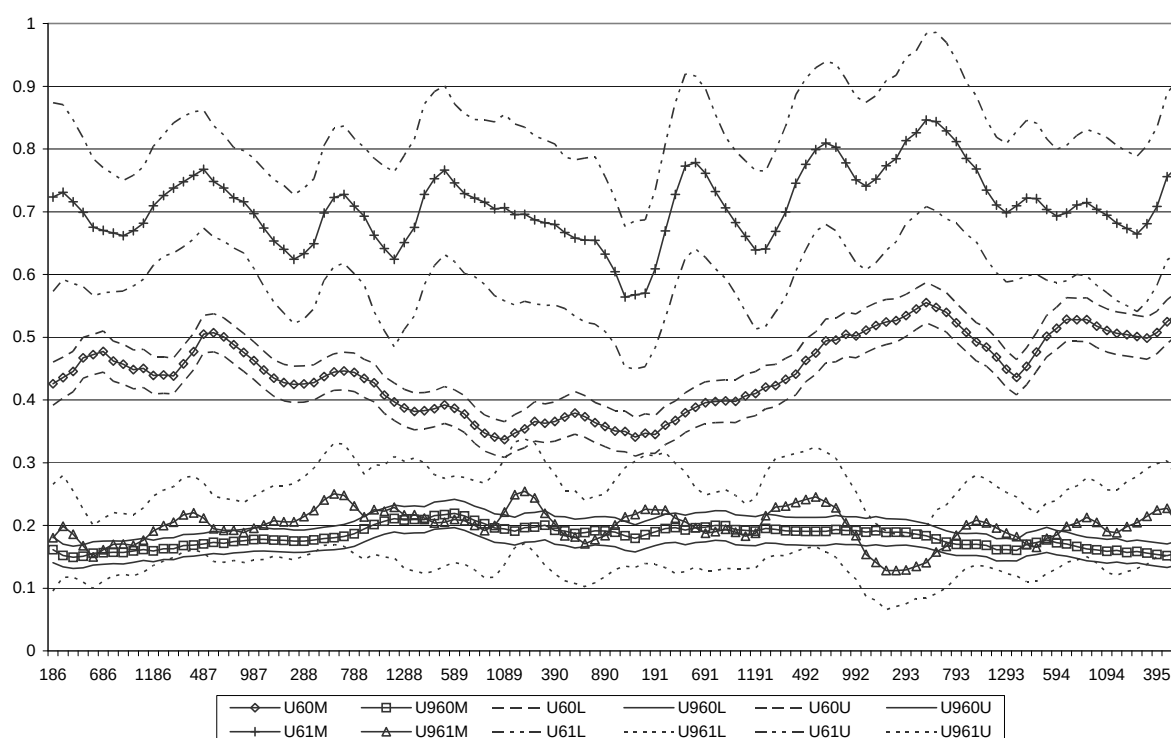
IC.4.2 Composition of participants held constant

Figure IC.34: Potential outcome employment with confidence bands



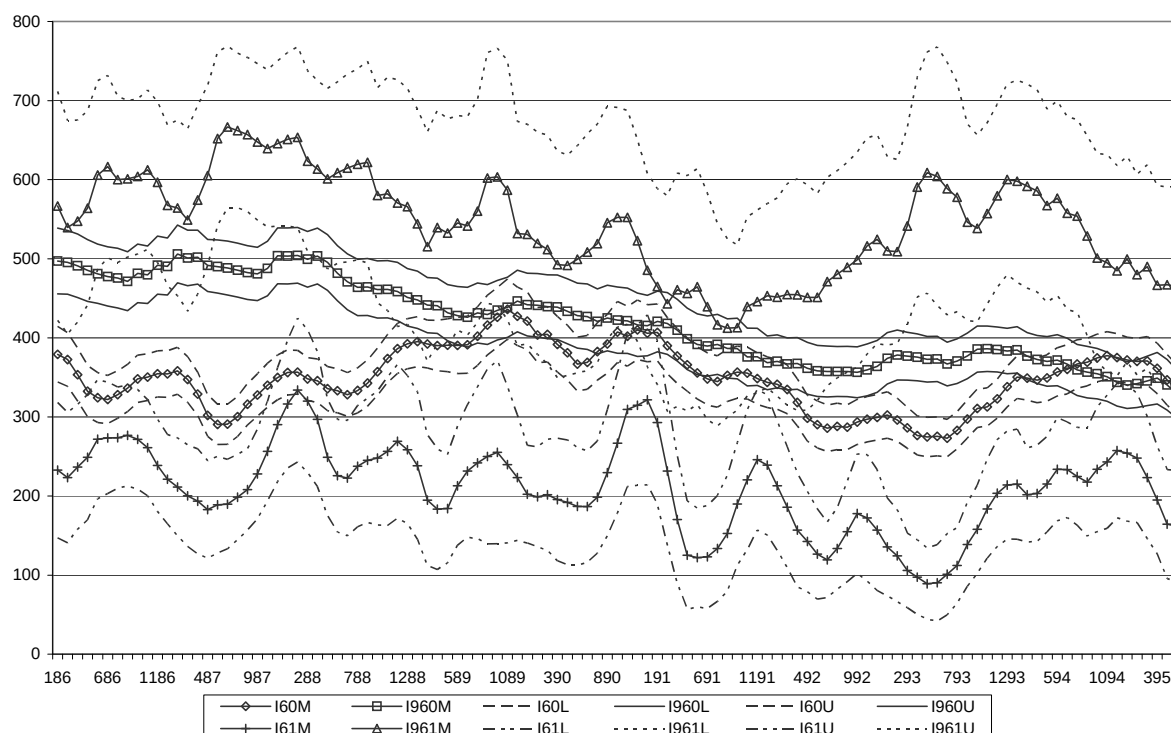
Note: The outcome variables are named as follows: E employment, 6 or 96 months after program start, 0 nonparticipants, 1 participants, M mean level, U upper 95%-confidence band, L lower 95%-confidence band.

Figure IC.35: Potential outcome unemployment with confidence bands



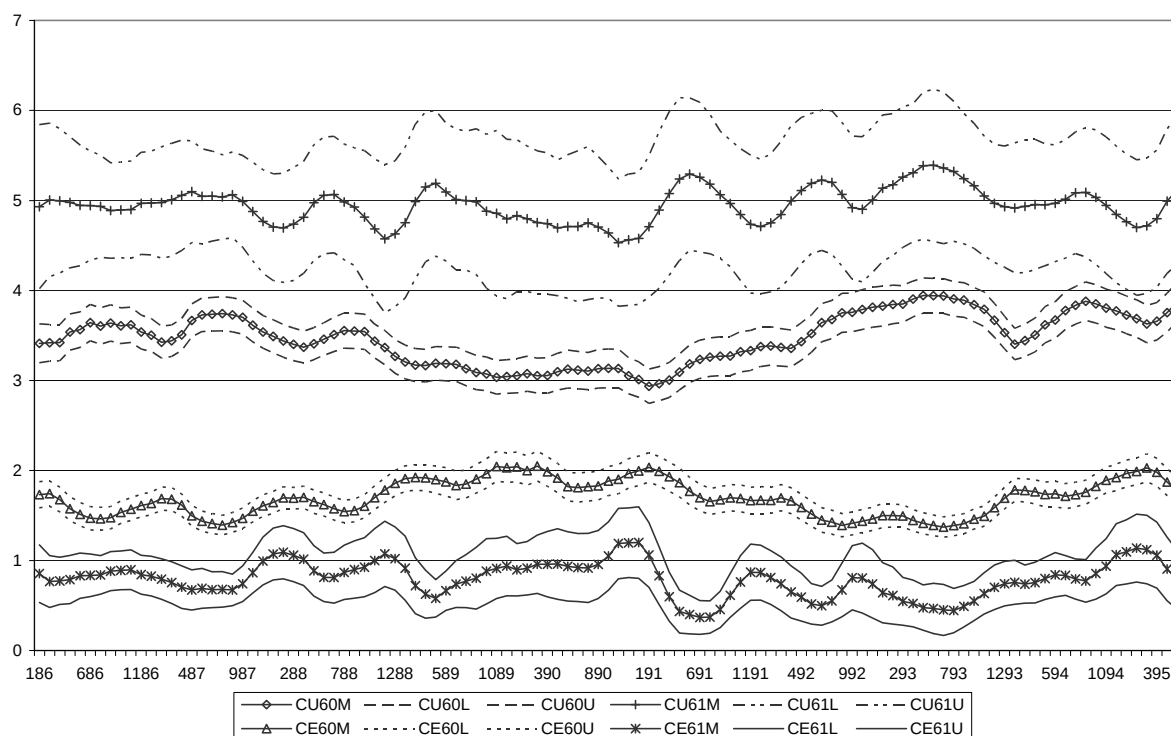
Note: The outcome variables are named as follows: U unemployment, 6 or 96 months after program start, 0 nonparticipants, 1 participants, M mean level, U upper 95%-confidence band, L lower 95%-confidence band.

Figure IC.36: Potential outcome earnings (EUR) with confidence bands



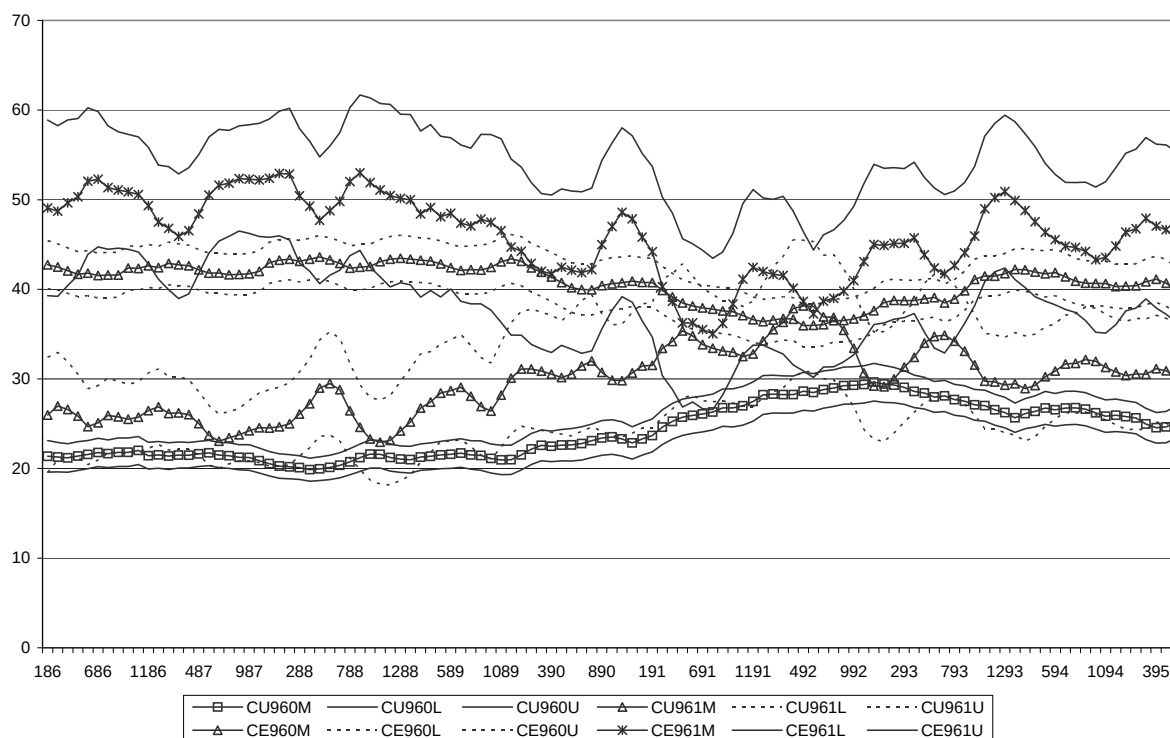
Note: The outcome variables are named as follows: I earnings, 6 or 96 month after program start, 0 nonparticipants, 1 participants, M mean level, U upper 95%-confidence band, L lower 95%-confidence band.

Figure IC.37: Potential outcome cumulated employment and unemployment (months) in month 6
after program start with confidence bands



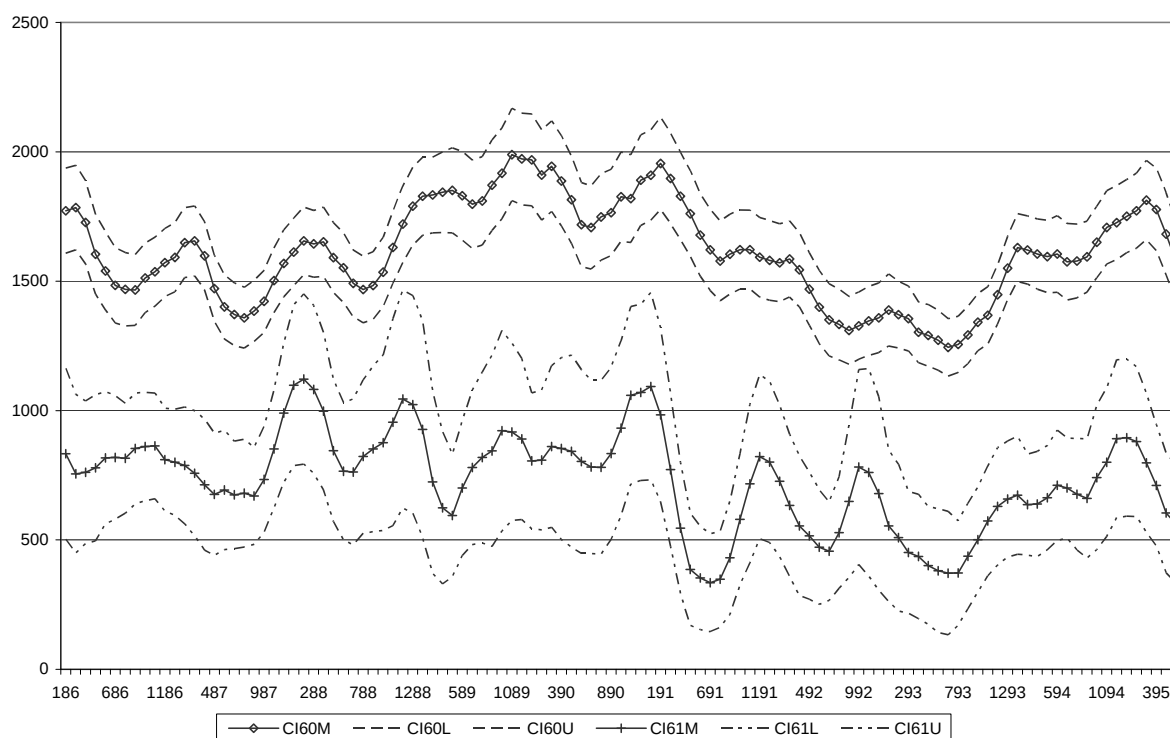
Note: The outcome variables are named as follows: CE cumulated employment, CU cumulated unemployment, 6 month after program start, 0 nonparticipants, 1 participants, M mean level, U upper 95%-confidence band, L lower 95%-confidence band.

Figure IC.38: Potential outcome cumulated employment and unemployment (months) in month 96 after program start with confidence bands



Note: The outcome variables are named as follows: CE cumulated employment, CU cumulated unemployment, 96 month after program start, 0 nonparticipants, 1 participants, M mean level, U upper 95%-confidence band, L lower 95%-confidence band.

Figure IC.39: Potential outcome cumulated earnings (EUR) in month 6 after program start with confidence bands



Note: The outcome variables are named as follows: CI cumulated earnings, 6 month after program start, 0 nonparticipants, 1 participants, M mean level, U upper 95%-confidence band, L lower 95%-confidence band.

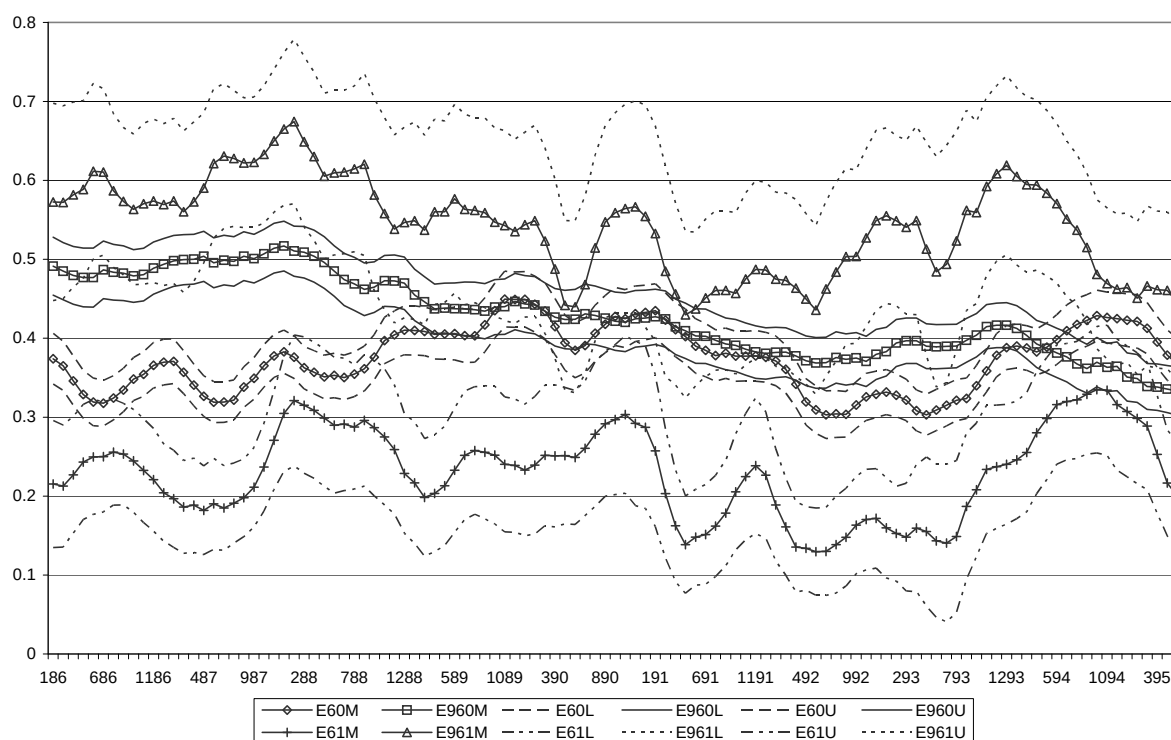
Figure IC.40: Potential outcome cumulated earnings (EUR) in month 96 after program start with confidence bands



Note: The outcome variables are named as follows: CI cumulated earnings, 96 month after program start, 0 nonparticipants, 1 participants, M mean level, U upper 95%-confidence band, L lower 95%-confidence band.

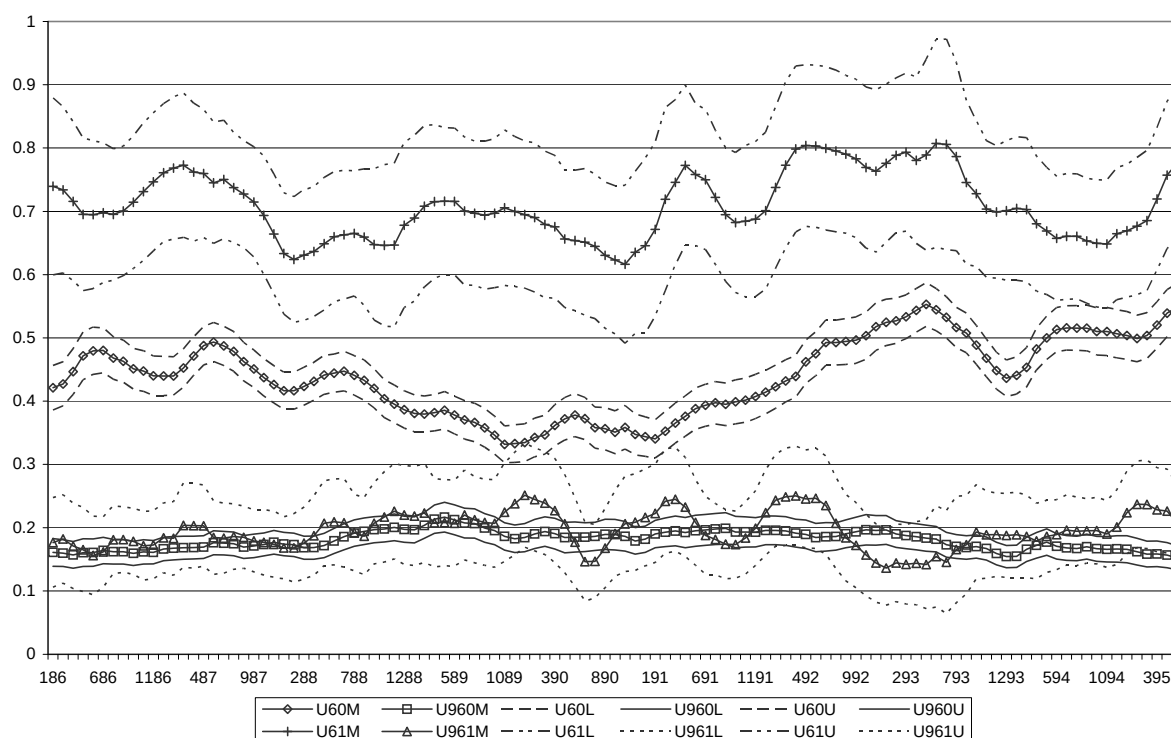
IC.4.3 Composition of participants and programs held constant

Figure IC.41: Potential outcome employment with confidence bands



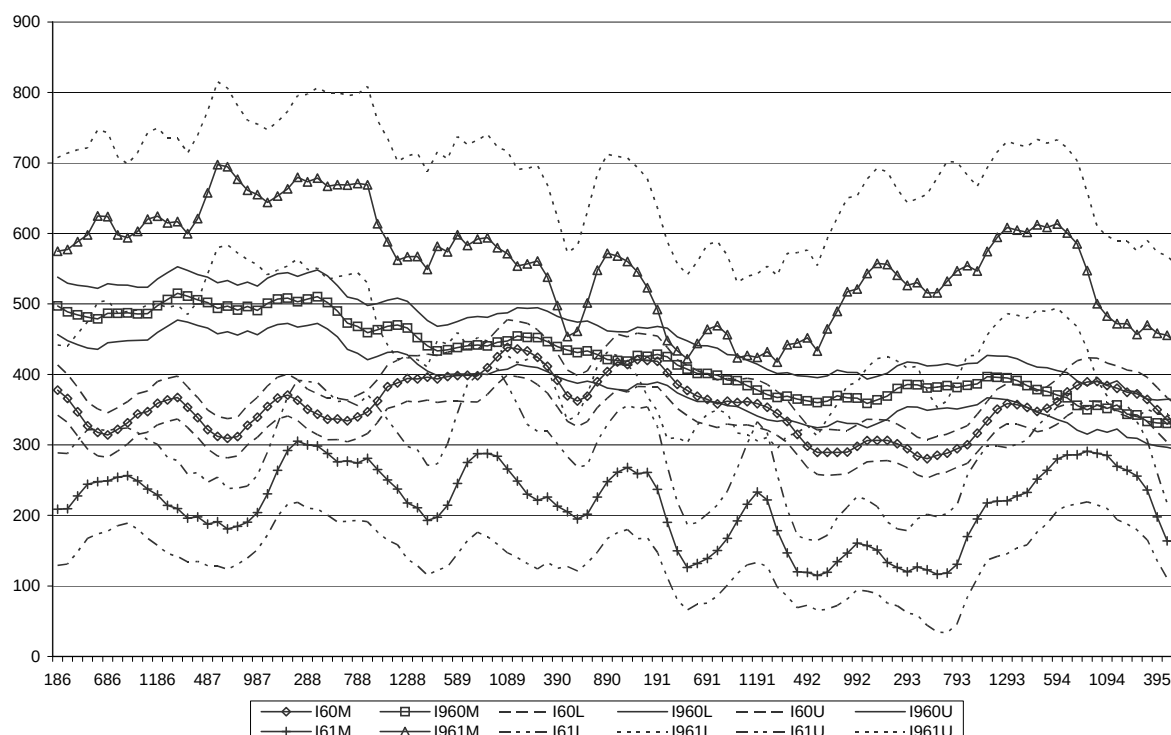
Note: The outcome variables are named as follows: E employment, 6 or 96 months after program start, 0 nonparticipants, 1 participants, M mean level, U upper 95%-confidence band, L lower 95%-confidence band.

Figure IC.42: Potential outcome unemployment with confidence bands



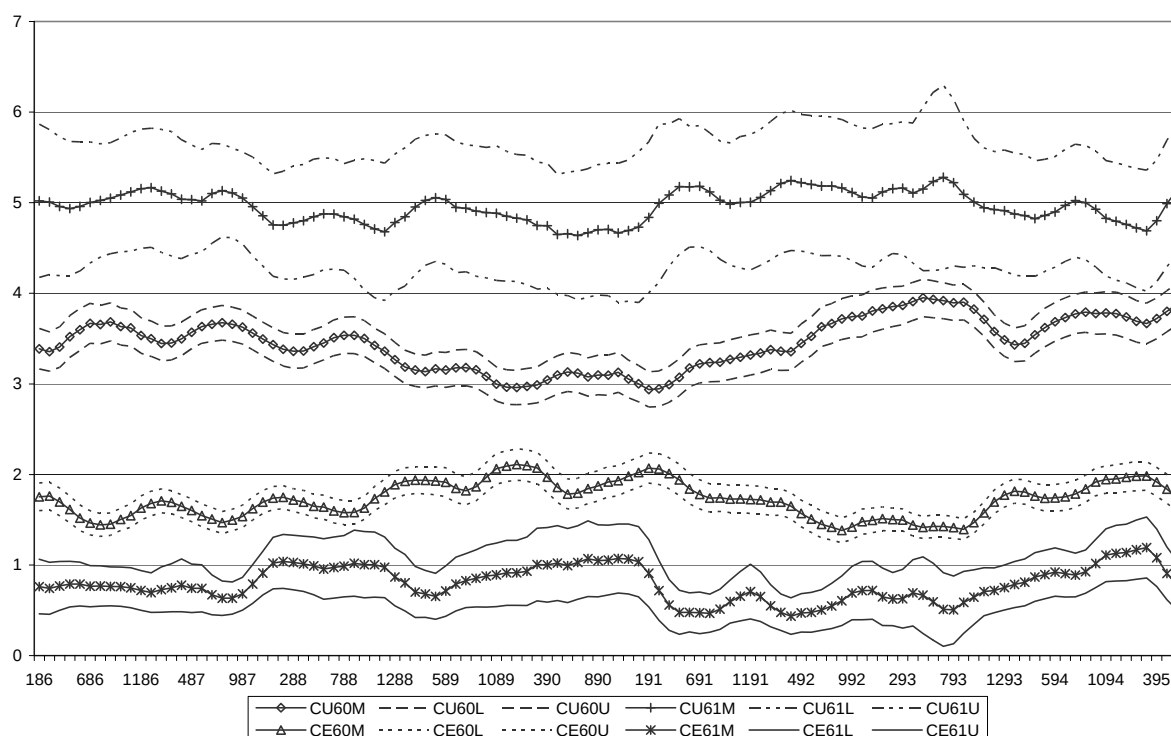
Note: The outcome variables are named as follows: U unemployment, 6 or 96 months after program start, 0 nonparticipants, 1 participants, M mean level, U upper 95%-confidence band, L lower 95%-confidence band.

Figure IC.43: Potential outcome earnings (EUR) with confidence bands



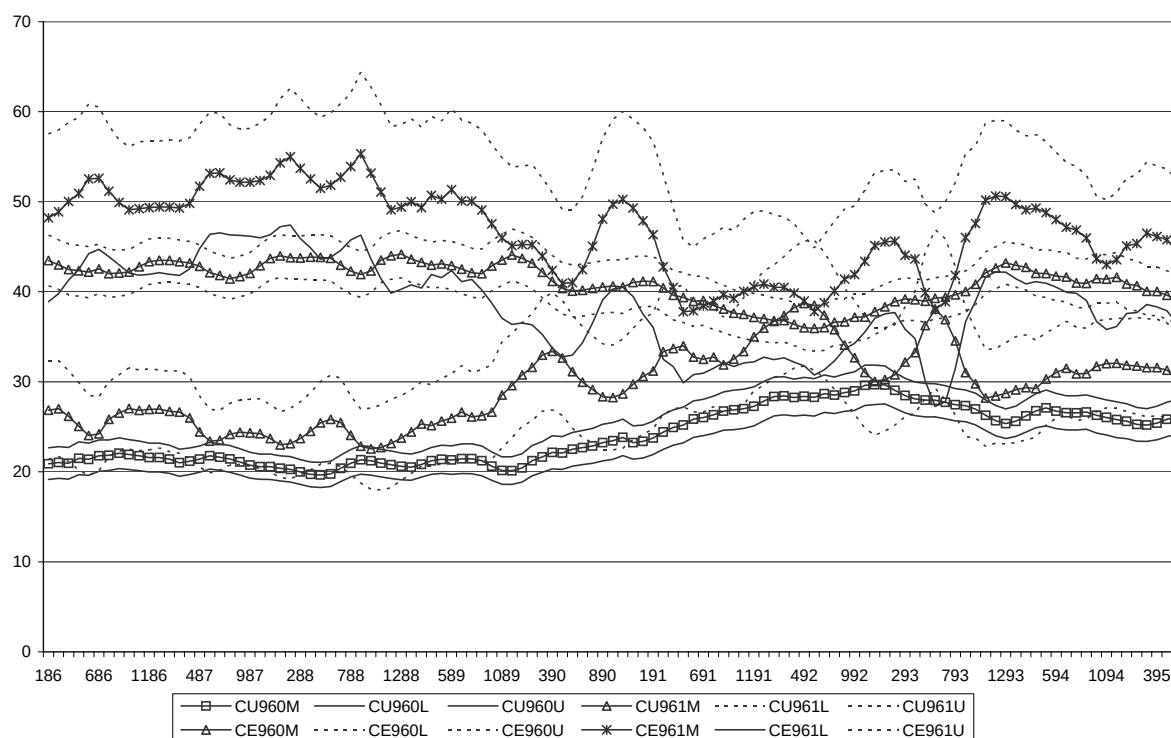
Note: The outcome variables are named as follows: I earnings, 6 or 96 month after program start, 0 nonparticipants, 1 participants, M mean level, U upper 95%-confidence band, L lower 95%-confidence band.

Figure IC.44: Potential outcome cumulated employment and unemployment (months) in month 6 after program start with confidence bands



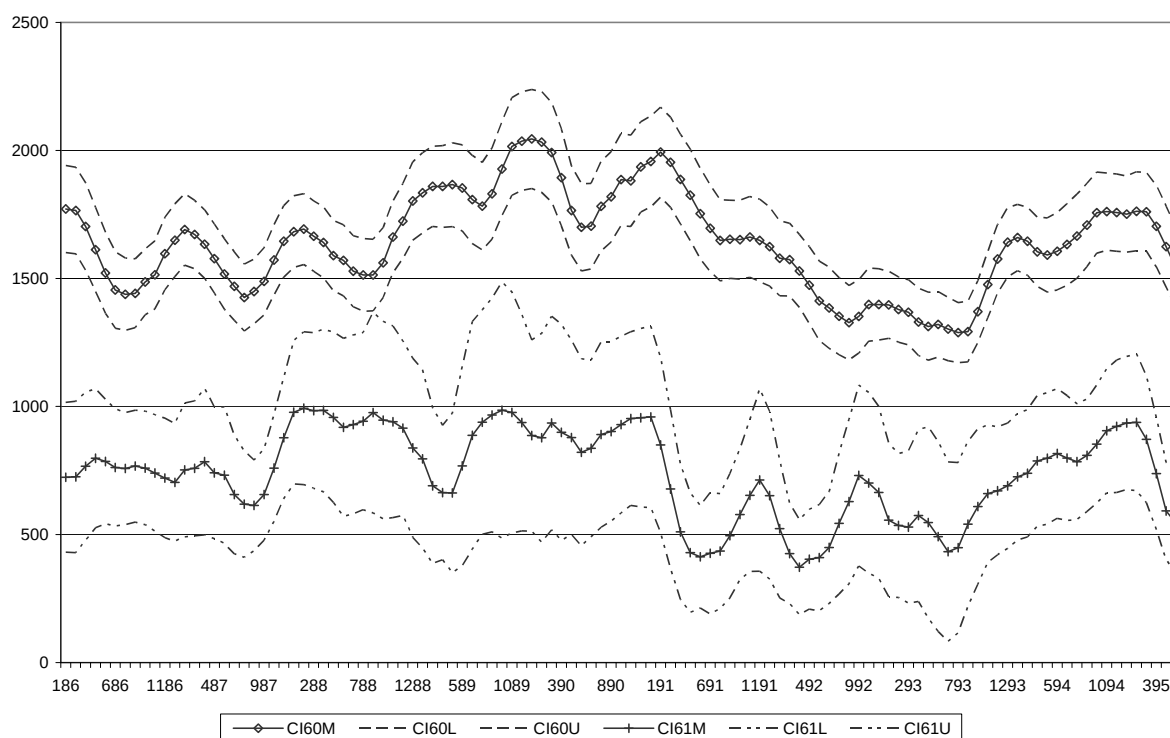
Note: The outcome variables are named as follows: CE cumulated employment, CU cumulated unemployment, 6 month after program start, 0 nonparticipants, 1 participants, M mean level, U upper 95%-confidence band, L lower 95%-confidence band.

Figure IC.45: Potential outcome cumulated employment and unemployment (months) in month 96 after program start with confidence bands



Note: The outcome variables are named as follows: CE cumulated employment, CU cumulated unemployment, 96 month after program start, 0 nonparticipants, 1 participants, M mean level, U upper 95%-confidence band, L lower 95%-confidence band.

Figure IC.46: Potential outcome cumulated earnings (EUR) in month 6 after program start with confidence bands



Note: The outcome variables are named as follows: CI cumulated earnings, 6 month after program start, 0 nonparticipants, 1 participants, M mean level, U upper 95%-confidence band, L lower 95%-confidence band.

Figure IC.47: Potential outcome cumulated earnings (EUR) in month 6 after program start with confidence bands



Note: The outcome variables are named as follows: CI cumulated earnings, 96 month after program start, 0 nonparticipants, 1 participants, M mean level, U upper 95%-confidence band, L lower 95%-confidence band.

IC.5 Correlation of the levels of the potential outcomes with the unemployment rate

Table IC.3: Correlation of the the potential outcomes with the unemployment rate at program start

Month after program start	Varying participants and programs		Constant composition of participants		Constant composition of participants and programs	
	Participants	Nonparticipants	Participants	Nonparticipants	Participants	Nonparticipants
Employment						
6	44**	34**	21	-14	31*	-14
36	65**	63**	60**	68**	51**	67**
72	76**	68**	60**	43**	50**	42**
96	62**	47**	47**	22	46**	22
Unemployment						
6	-6	23	9	57**	-6	56**
36	-43**	-33*	-43**	-20	-36*	-20
72	-84**	-86**	-70**	-75**	-62**	-76**
96	-65**	-75**	-18*	-65**	-29*	-68**
Earnings						
6	42**	37**	21	-18	32*	-19
36	63**	65**	53**	60**	48**	60**
72	75**	67**	64**	42**	56**	40**
96	64**	50**	58**	17	52**	17
Cumulated employment						
6	40**	27*	17	-24	27	-24
36	69**	66**	61**	36*	54**	36*
72	74**	73**	64**	58**	56**	57**
96	75**	70**	65**	53**	56**	52**
Cumulated unemployment						
6	-5	27*	7	64**	-4	63**
36	-29	5	-22	29*	-24	30*
72	-51**	-32*	-44**	-6	-41**	-5
96	-64**	-52**	-53**	-22	-49**	-20
Cumulated earnings						
6	39**	31*	14	-27*	23	-28*
36	63**	61**	52**	29*	45**	28*
72	68**	68**	56**	47**	50**	47**
96	71**	66**	60**	42**	53**	42**

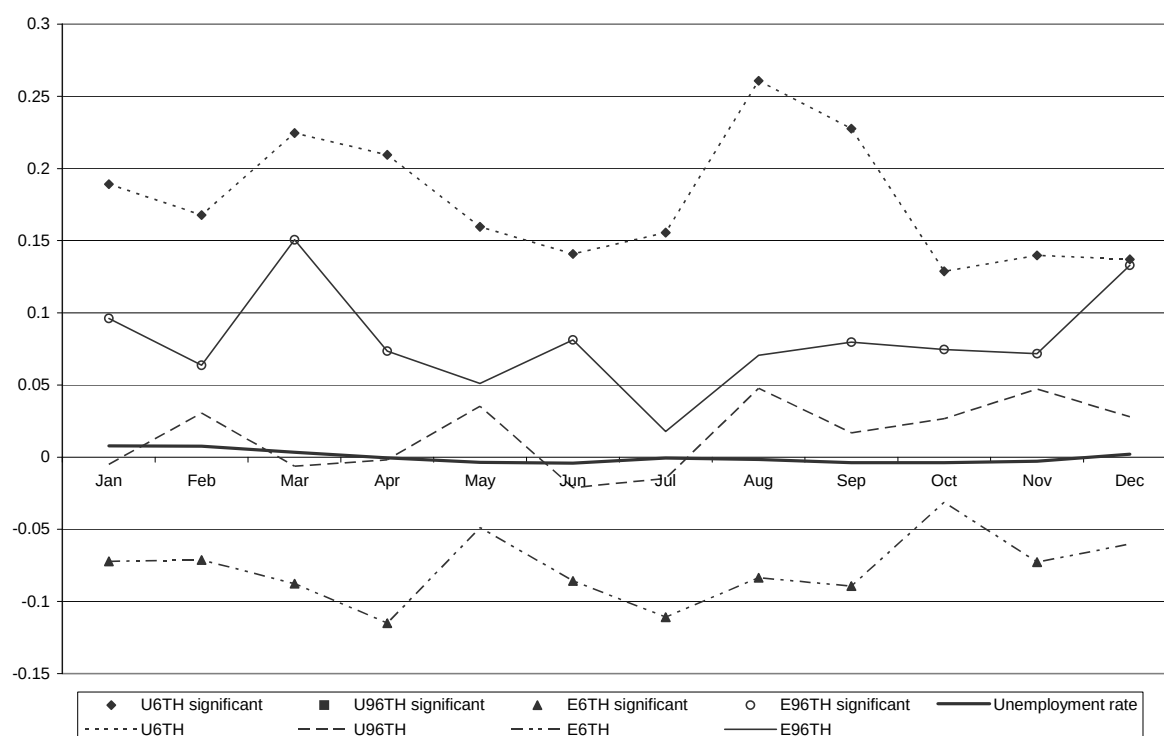
Note: Newey-West autocorrelation-robust standard errors: ** significant at the 1% level, * significant at the 5% level.

ID Sensitivity analysis

ID.1 Seasonality

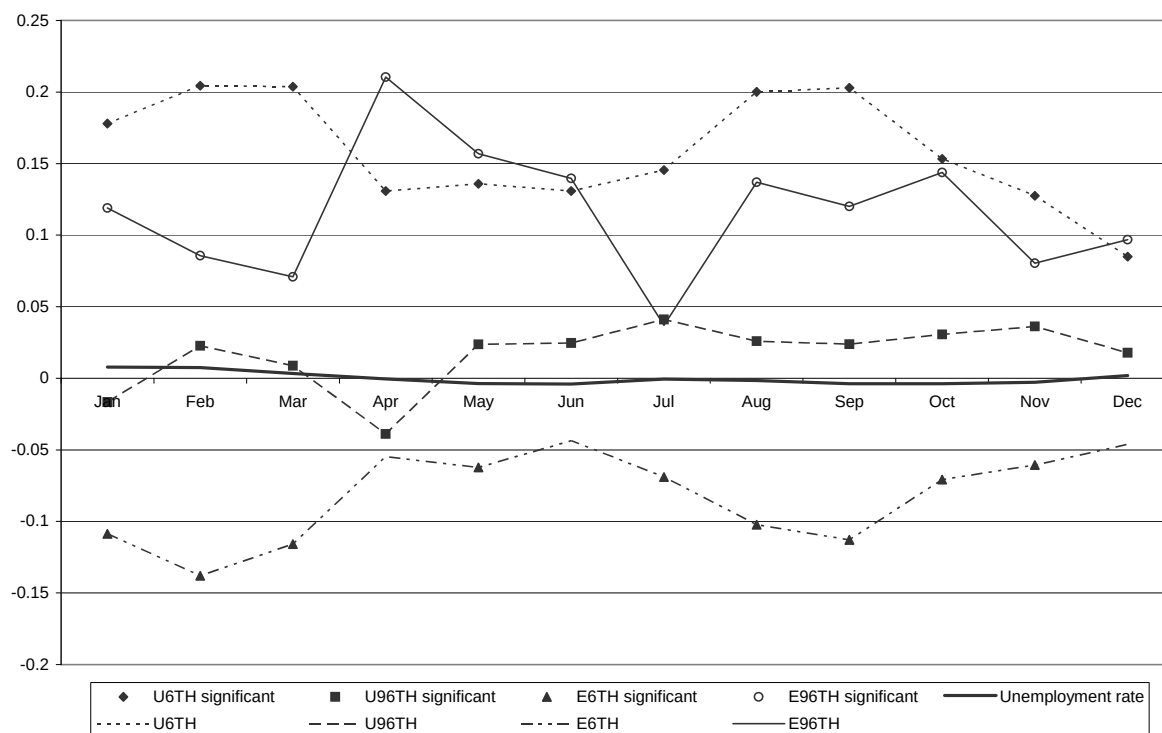
ID.1.1 Time-varying composition of participants and programs

Figure ID.1: Effects of training on employment and unemployment (%-points) over the seasonal cycle by calendar month 1986-1990



Note: The outcome variables are named as follows: E employment, U unemployment, 6 or 96 months after program start, TH theta (average treatment effect on the treated), dots appear if the effects if point-wise significant on the 5%-level. The unemployment rate is presented net of its mean.

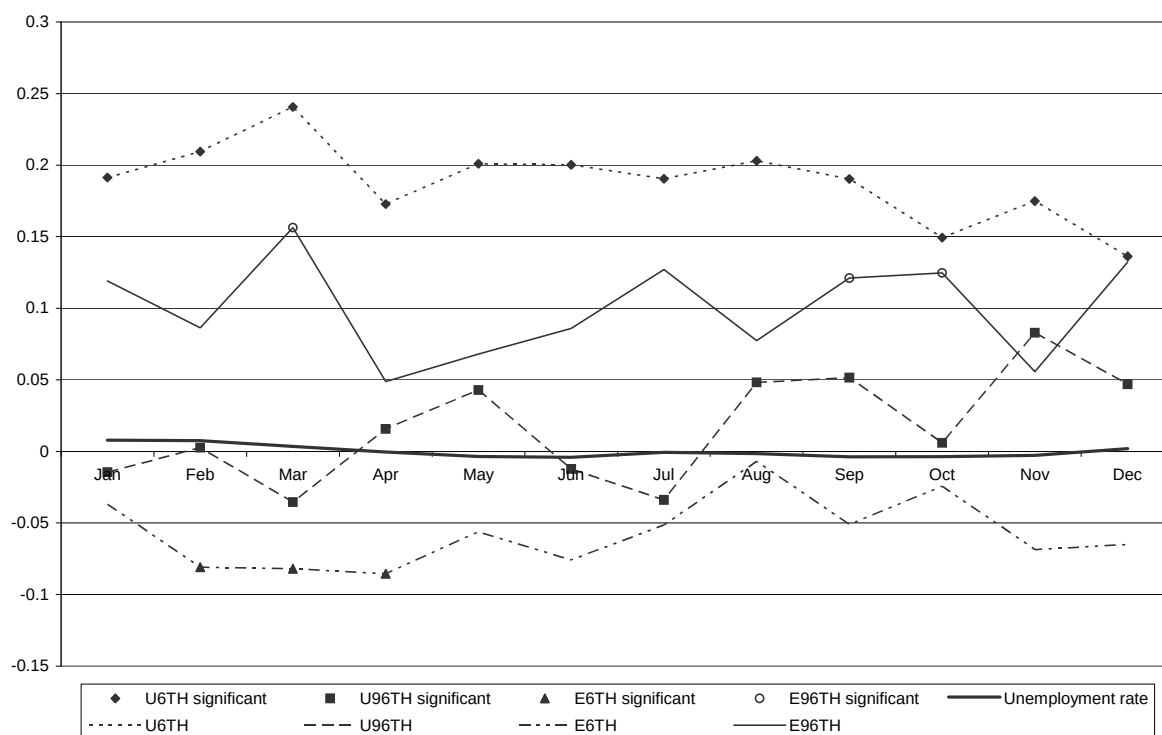
Figure ID.2: Effects of training on employment and unemployment (%-points) over the seasonal cycle by calendar month 1991-1995



Note: The outcome variables are named as follows: E employment, U unemployment, 6 or 96 months after program start, TH theta (average treatment effect on the treated), dots appear if the effects if point-wise significant on the 5%-level. The unemployment rate is presented net of its mean.

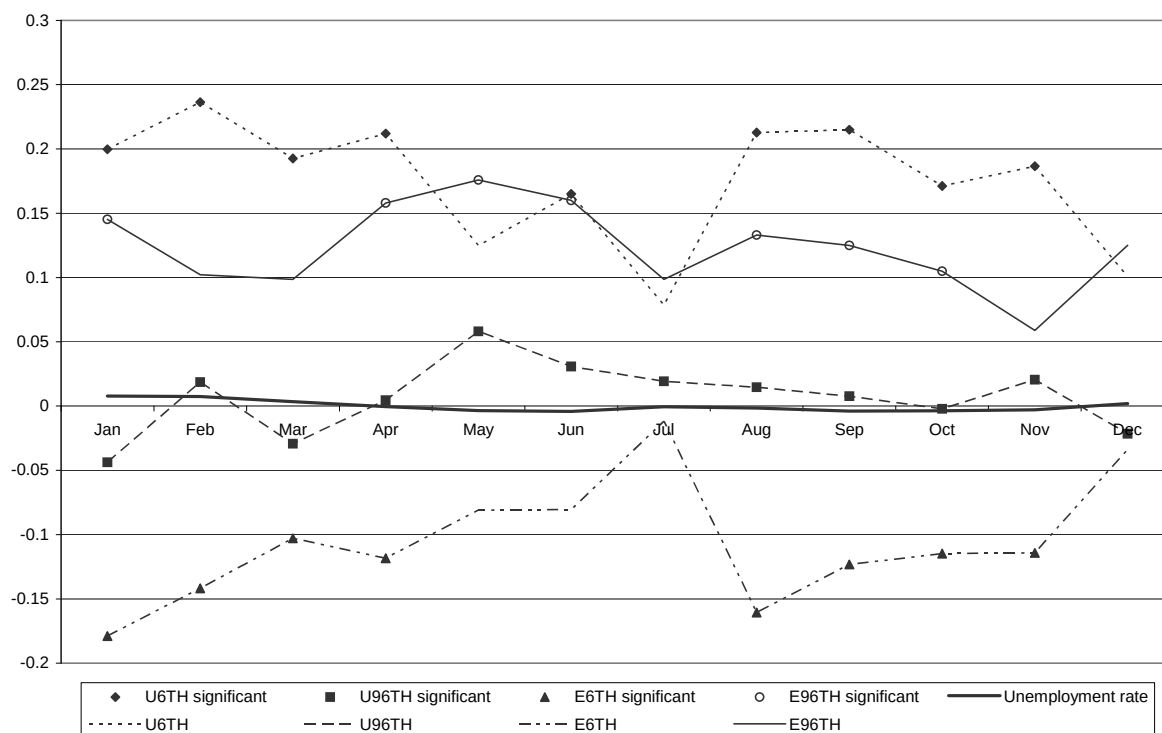
ID.1.2 Composition of participants held constant

Figure ID.3: Effects of training on employment and unemployment (%-points) over the seasonal cycle by calendar month 1986-1990



Note: The outcome variables are named as follows: E employment, U unemployment, 6 or 96 months after program start, TH theta (average treatment effect on the treated), dots appear if the effects if point-wise significant on the 5%-level. The unemployment rate is presented net of its mean.

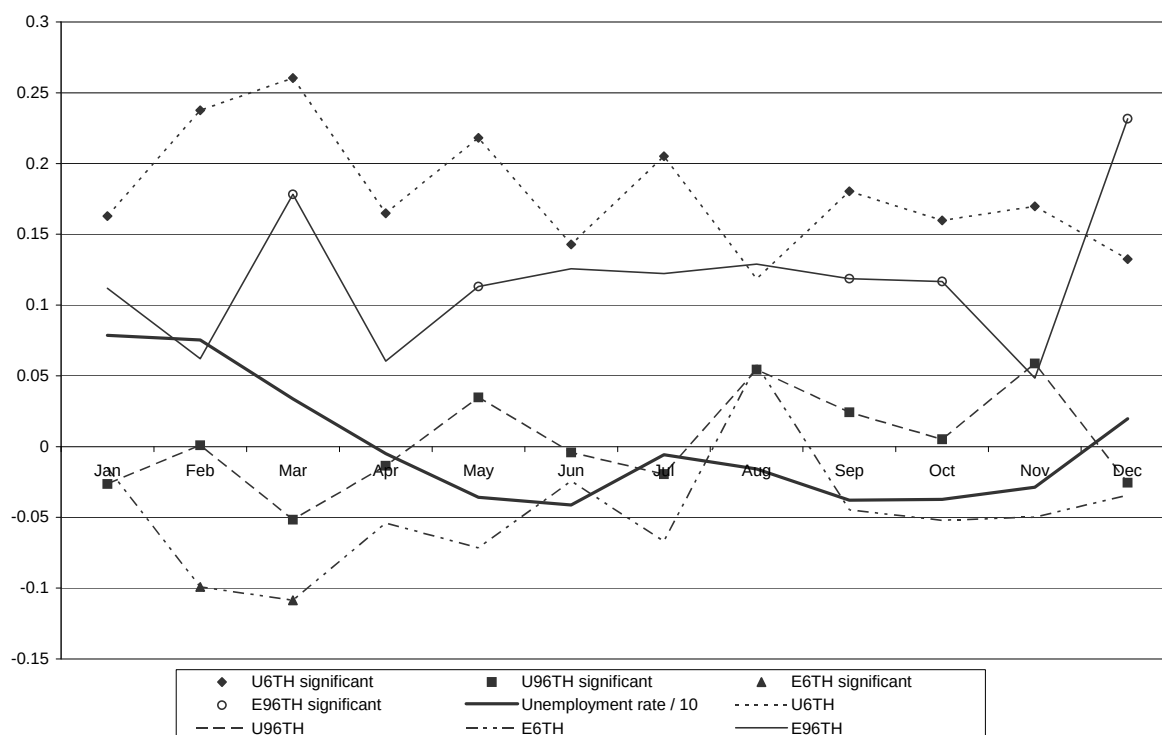
Figure ID.4: Effects of training on employment and unemployment (%-points) over the seasonal cycle by calendar month 1991-1995



Note: The outcome variables are named as follows: E employment, U unemployment, 6 or 96 months after program start, TH theta (average treatment effect on the treated), dots appear if the effects if point-wise significant on the 5%-level. The unemployment rate is presented net of its mean.

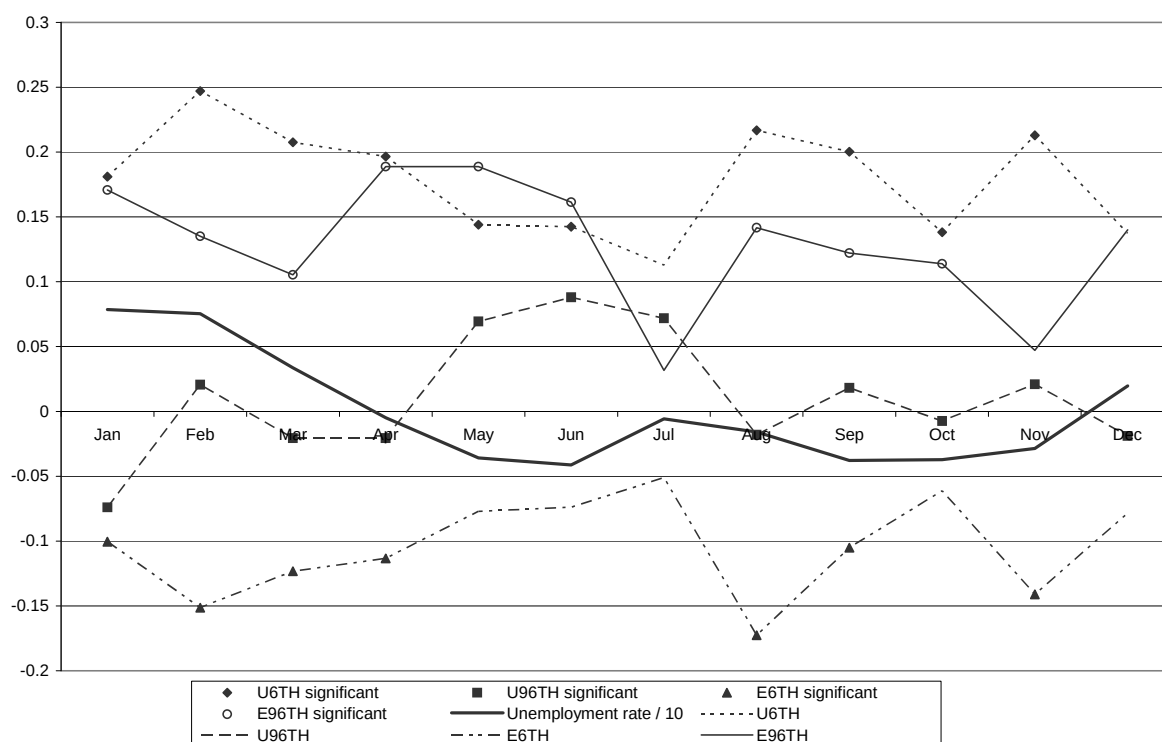
ID.1.3 Composition of participants and programs held constant

Figure ID.5: Effects of training on employment and unemployment (%-points) over the seasonal cycle by calendar month 1986-1990



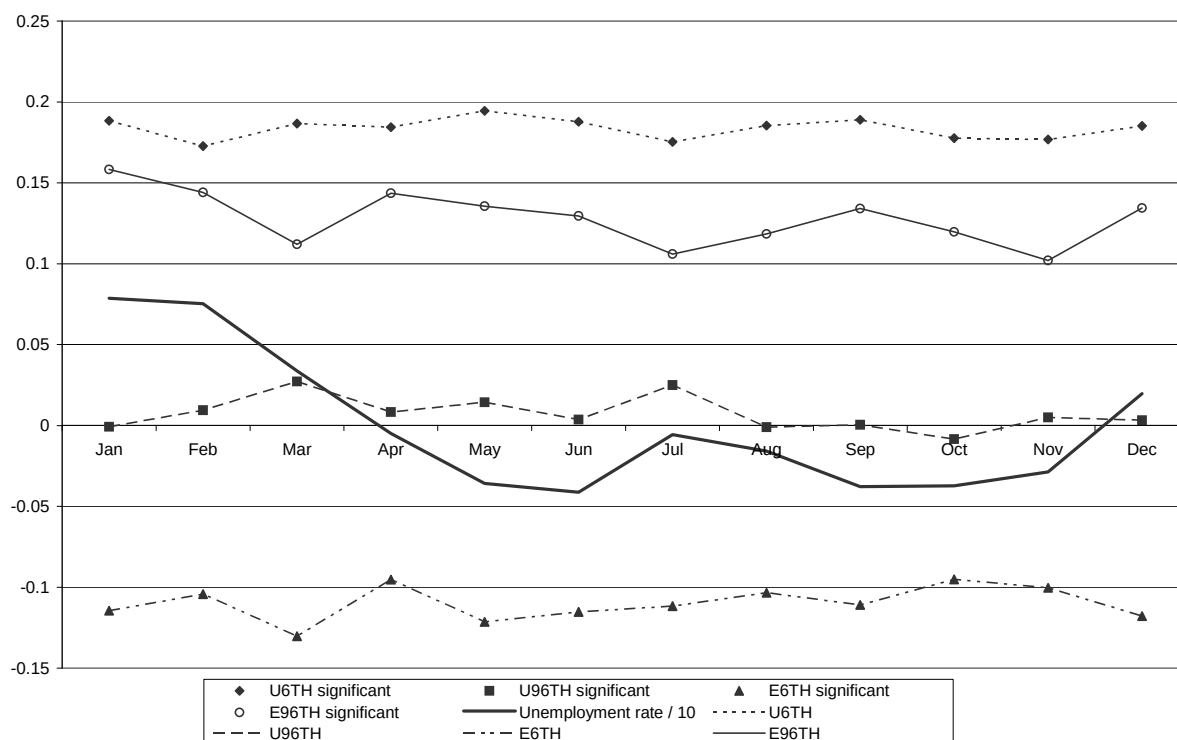
Note: The outcome variables are named as follows: E employment, U unemployment, 6 or 96 months after program start, TH theta (average treatment effect on the treated), dots appear if the effects if point-wise significant on the 5%-level. The unemployment rate is presented net of its mean.

Figure ID.6: Effects of training on employment and unemployment (%-points) over the seasonal cycle by calendar month 1991-1995



Note: The outcome variables are named as follows: E employment, U unemployment, 6 or 96 months after program start, TH theta (average treatment effect on the treated), dots appear if the effects if point-wise significant on the 5%-level. The unemployment rate is presented net of its mean.

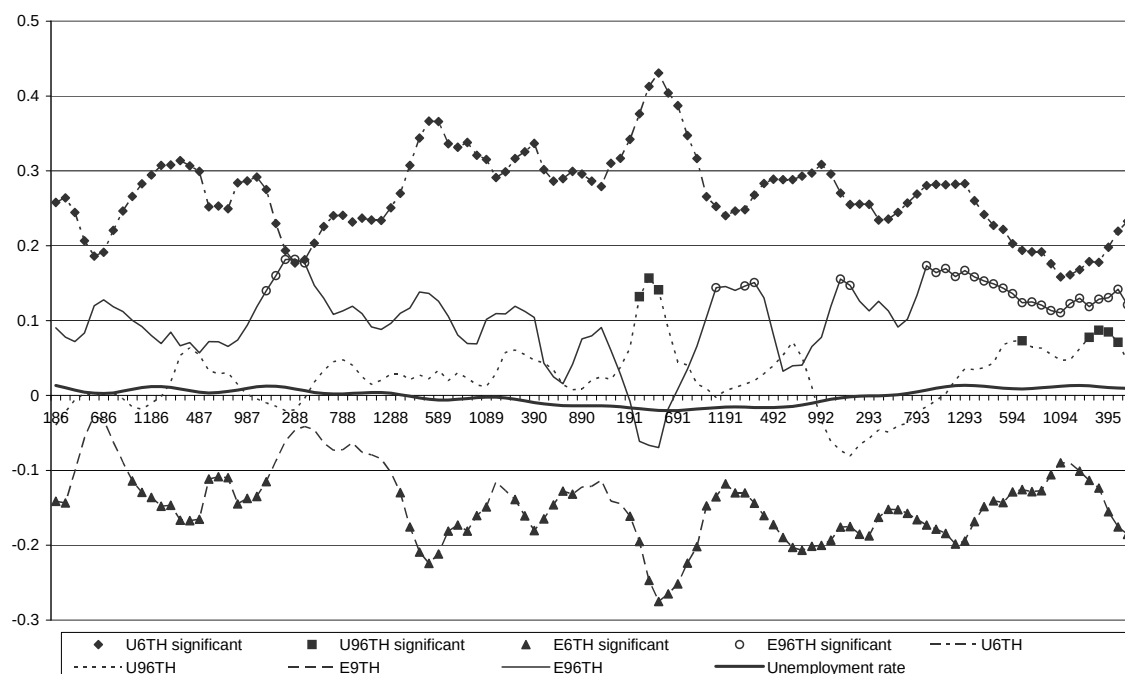
Figure ID.7: Effects of training on employment and unemployment (%-points) over the seasonal cycle by calendar month 1991-1995 - pooling of observations over 6 months



Note: The outcome variables are named as follows: E employment, U unemployment, 6 or 96 months after program start, TH theta (average treatment effect on the treated), dots appear if the effects if point-wise significant on the 5%-level. The unemployment rate is presented net of its mean.

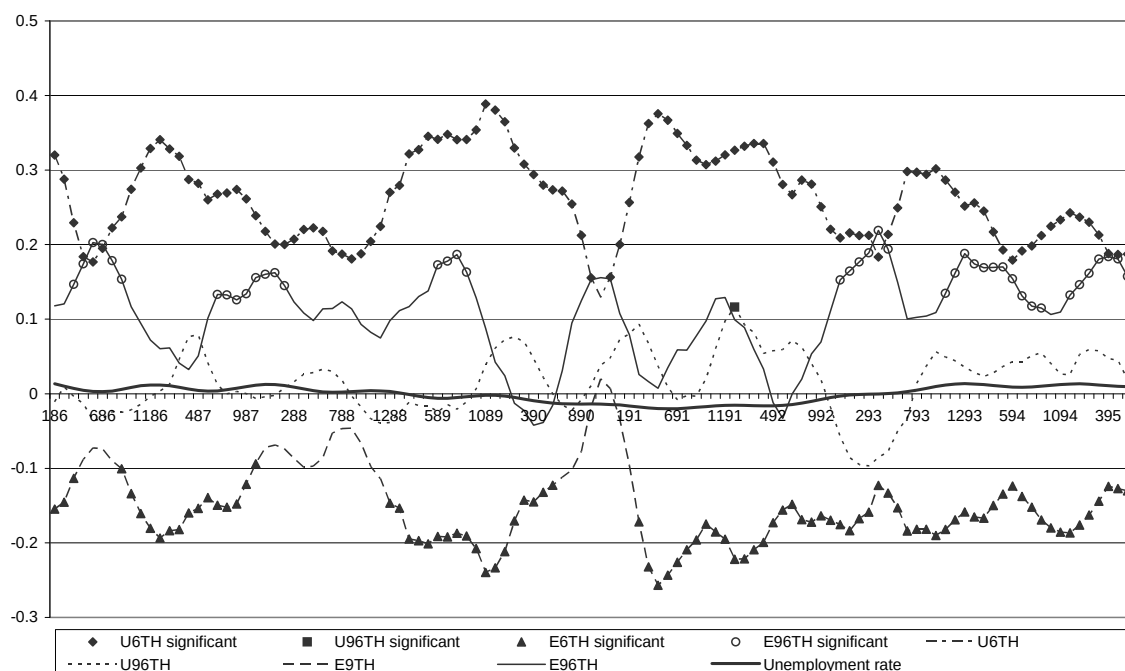
ID.2 Regional variation

Figure ID.8: Employment and unemployment probabilities of participants in regions with low unemployment (stable characteristics of participants, program types, and durations)



Note: The effects are named as follows: U: unemployment, E: employment, 6 or 96: month after program start, TH: theta (average treatment effect on the treated). For each outcome variable, dots appear if the effect is significant at the 5% level in a particular month. The unemployment rate is presented net of its mean 1986-1995. Unemployment rate is national rate normalized as before.

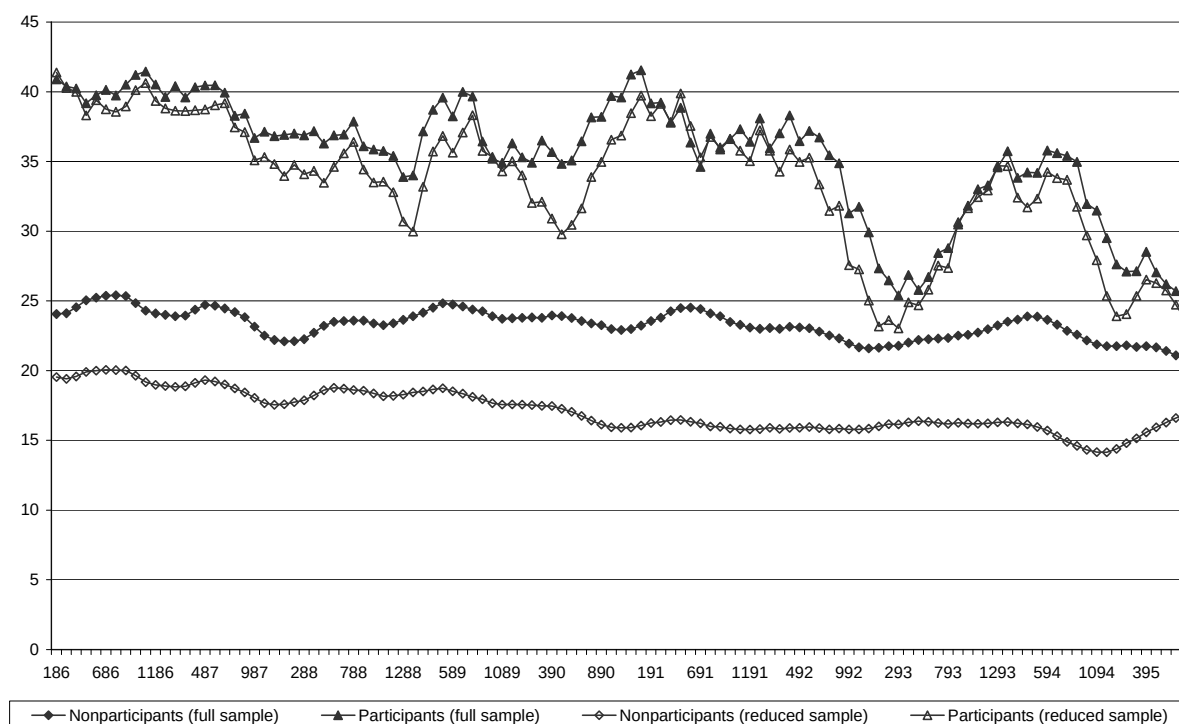
Figure ID.9: *Employment and unemployment probabilities of participants in regions with high unemployment (stable characteristics of participants, program types, and durations)*



Note: The effects are named as follows: U: unemployment, E: employment, 6 or 96: month after program start, TH: theta (average treatment effect on the treated). For each outcome variable, dots appear if the effect is significant at the 5% level in a particular month. The unemployment rate is presented net of its mean 1986-1995. Unemployment rate is national rate normalized as before.

ID.3 Future program participation

Figure ID.10: Fraction of persons with at least one additional program after program start (%)



Note: Six-month moving averages. Full sample: before reduction to common support. Reduced sample: after reduction to common support.

Table ID.1: Correlation of future program participation with the unemployment rate

Sample	Group	Correlation
Full sample before reduction to common support	Nonparticipants	12
	Participants	20
Reduced sample after reduction to common support	Nonparticipants	-22
	Participants	16

Note: None of the correlations is significant on the 5% level (Newey-West autocorrelation-robust standard errors).

ID.4 *Implementational issues*

Table ID.2 *Specification tests and their results*

Issue	Objective	Specification	Effect
Pooling of observations	Ensure sufficient number of observations	4 months	Reduced precision, correlation with unemployment rate somewhat smaller, conclusions unchanged
		6 months	Benchmark specification
		9 months	Increased precision, correlation with unemployment rate somewhat larger, conclusions unchanged
Before program start no program	Ensure that we do not use unemployed who completed a program shortly before program start	6 months	No change
		12 months	No change
		24 months	No change
		48 months	Benchmark specification
Nonparticipants no program after program start	Ensure that nonparticipants are not too similar to participants but also not too different	6 months	Nonparticipants more similar to participants though results very similar
		12 months	Benchmark specification
		24 months	Nonparticipants less similar to participants though results very similar

ID.5 Summary of the correlations of the estimated effects with the unemployment rate at program start for all specifications

Table ID.3 Correlation of the estimated effects with the unemployment rate at program start for all specifications

Month after program start	Time varying participants and programs	Stable particip- ants	Stable participants and programs												Separate samples		Iteration terms	
			Base- line	Common support max(pscore) + x% std(pscore)			Pooling of observations over x months		Nonparticipants no program for x months		Seaso- nality dummies							
				x = 5	x = 10	x = 20	x = 4	x = 9	x = 6	x = 24		pre 10/1990	post 10/1990	pre 10/1990	post 10/1990			
Unemployment																		
6	-44**	-50**	-58**	-60**	-60**	-60**	-50**	-68**	-59**	-61**	-58**	-38*	-75**	-57**	-64**			
36	-36**	-48**	-39**	-41**	-39**	-37*	-25*	-41**	-40**	-40**	-31*	-70**	-20	-31*	-25*			
72	-27*	-33**	-22*	-28**	-24*	-24*	-12	-32**	-24*	-19	-20*	-37	-9	-22*	-17			
96	-2	18	3	1	6	7	1	5	5	5	6	2	6	6	7			
Employment																		
6	26*	36**	46**	47**	45**	47**	40**	55**	47**	46**	49**	33*	55**	48**	45**			
36	45**	45**	31*	32*	30*	28	24	32*	32*	33*	25	62**	4	26*	13			
72	44**	47**	34**	37**	31*	29*	18	43**	35**	34**	29**	34	31	29**	23*			
96	32**	31*	40**	41**	37**	36**	29*	37**	40**	42**	38**	23	56**	39**	46**			
Earnings																		
6	20	40**	52**	52**	50**	53**	41**	63**	53**	51**	53**	41**	62**	52**	49**			
36	48**	44**	37*	37*	37*	36*	28*	40**	38**	39**	29*	55**	19	29**	14			
72	53**	58**	48**	49**	45**	47**	29**	54**	50**	48**	43**	42*	51**	41**	33**			
96	47**	53**	55**	55**	52**	55**	39**	57**	55**	56**	53**	29	68**	51**	54**			
Cumulated unemployment																		
6	-43**	-63**	-67**	-67**	-66**	-67**	-61**	-70**	-69**	-72**	-65**	-50**	-83**	-65**	-73**			
36	-65**	-62**	-63**	-66**	-64**	-64**	-53**	-74**	-64**	-65**	-58**	-54**	-75**	-58**	-63**			
72	-57**	-61**	-58**	-62**	-60**	-60**	-44**	-68**	-59**	-59**	-50**	-61**	-56**	-51**	-50**			
96	-50**	-55**	-51**	-56**	-53**	-52**	-38**	-59**	-52**	-52**	-44**	-56**	-49**	-45**	-44**			
Cumulated employment																		
6	20	41**	47**	47**	44**	46**	44**	49**	51**	45**	47**	36*	53**	47**	44**			
36	47**	47**	38**	42**	39**	39**	33*	44**	41**	39**	35**	46**	30	34**	25*			
72	50**	49**	39**	41**	38**	37**	31*	45**	41**	40**	34**	51**	26	34**	22*			
96	52**	54**	42**	45**	41**	40**	33*	50**	44**	44**	38**	48**	36*	38**	30**			
Cumulated earnings																		
6	13	41**	48**	46**	43**	46**	41**	51**	51**	44**	48**	39**	52**	48**	46**			
36	46**	48**	41**	44**	40**	43**	31*	48**	43**	40**	35**	47**	35*	34**	21*			
72	51**	51**	43**	44**	41**	43**	32*	49**	45**	43**	37**	48**	37*	36**	22*			
96	56**	59**	49**	50**	47**	49**	37**	55**	51**	50**	44**	46**	50**	43**	32**			

Note: Newey-West autocorrelation-robust standard errors: ** significant at the 1% level, * significant at the 5% level. The baseline specification (columns 2-4, 12-15) is pooling of observations over 6 months, nonparticipants no program for 12 months starting with potential program start and all persons no program in the 48 months before (potential) program start.

Table ID.4 Regional variation

Outcome		Correlation of the monthly effect with the national unemployment rate		Correlation of the regional effects with the average regional unemployment rate
		Low unemployment region	High unemployment region	
Unemployment	6 months after prog. start	-56**	-37**	-21**
	3 years after prog. start	-47**	-37*	-18**
	6 years after prog. start	-40**	-25*	-19*
	8 years after prog. start	-13	-14	-14**
Employment	6 months after prog. start	38**	15	9
	3 years after prog. start	40*	36*	7
	6 years after prog. start	45**	31*	-8
	8 years after prog. start	49**	46**	-8
Monthly earnings	6 months after prog. start	48**	27	11*
	3 years after prog. start	44**	39**	9
	6 years after prog. start	52**	47**	-7
	8 years after prog. start	59**	60**	-4
Cumulated unemployment	6 months after	-69**	-51**	-18*
	3 years after prog. start	-68**	-53**	-13*
	6 years after prog. start	-65**	-47**	-17*
	8 years after prog. start	-60**	-43**	-23**
Cumulated employment	6 months after prog. start	41**	25	9
	3 years after prog. start	42**	35**	2
	6 years after prog. start	47**	36**	1
	8 years after prog. start	54**	41**	-1
Cumulated earnings	6 months after prog. start	41**	29	10*
	3 years after prog. start	45**	40**	5
	6 years after prog. start	49**	42**	4
	8 years after prog. start	55**	50**	2

Note: Newey-West autocorrelation-robust standard errors: ** significant at the 1% level, * significant at the 5% level. Low / high unemployment rate regions are those where 60% of the unemployed facing the lowest / highest regional unemployment rate in a specific period live.

IE Estimation of the variance of the program effects

The estimation procedure used for the variances of the monthly effects follows an intuition that is similar to the procedure proposed by Abadie and Imbens (2009), namely decomposing the variances in two terms based on the basic decomposition rule ($Var(A) = E(Var(A|B)) + Var(E(A|B))$) and then obtaining nonparametric estimates of the respective components. Such a procedure naturally accounts for effect heterogeneity and heteroscedasticity of the conditional expectation of the potential outcomes with respect to the weights used in the estimation procedure, which is the only type of heteroscedasticity that is relevant in this context. Note however that the estimation error of the propensity score is ignored by the estimation procedure.¹

As the observations of participants and nonparticipants are independent, the variance of the effect is the sum of the conditional on treatment variances of the potential outcomes:

$$Var(\hat{\theta}_t(P_t)) = Var[\hat{Y}_t^1(P_t)] + Var[\hat{Y}_t^0(P_t)].$$

The estimated potential outcomes are determined by the standard weighting formula (capital letters denote random variables, small letters their realisations, '^' denote estimated quantities):

$$\hat{Y}_t^j(P_t) = \sum_{i=1}^{N_t} \hat{\omega}_{t,i}^j(P_t) \cdot y_{t,i} \cdot \mathbb{1}[d_{t,i} = j],$$

¹ Note that alternative procedures have their drawbacks as well: For example, the paper by Abadie and Imbens (2006b) casts some doubt on the bootstrap, although the estimator considered here is considerably smoother than the one considered by them. In addition, the procedures by Abadie and Imbens (2006b) and Abadie and Imbens (2009) are not directly applicable as they are based on different matching estimators that do not involve the propensity score.

where $\hat{\omega}_{t,i}^1(P_t)$ and $\hat{\omega}_{t,i}^0(P_t)$ are the estimated matching weights of, respectively, the treatment

and the comparison group for the population of interest P_t , and $\sum_{i=1}^{N_t^1} \hat{\omega}_{t,i}^1(P_t) = \sum_{i=1}^{N_t^0} \hat{\omega}_{t,i}^0(P_t) = 1$.

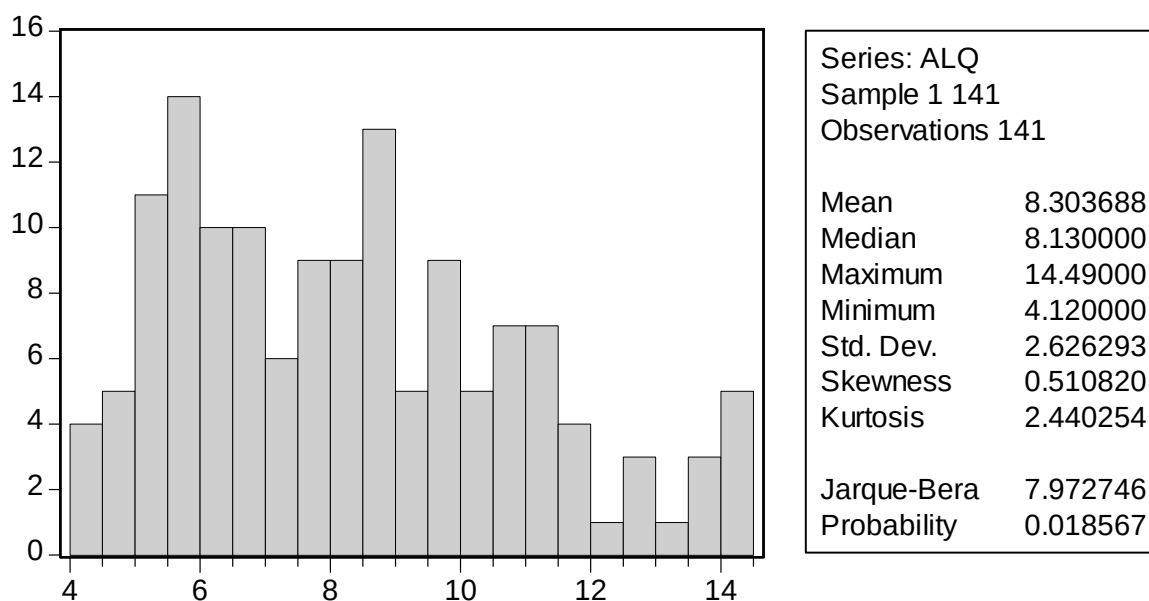
Treating the weights as stochastic, and applying the decomposition formula leads to the final expression for the estimator of the variance terms:

$$\begin{aligned} \widehat{Var}[\hat{Y}_t^j(P_t)] &= \sum_{i=1}^{N_t} [\hat{\omega}_{t,i}^j(P_t)]^2 \cdot \widehat{Var}[Y_t | D_t = j, \Omega = \hat{\omega}_{t,i}^j(P_t)] \cdot \mathbb{1}[d_{t,i} = j] \\ &\quad + N_t^j \cdot \widehat{Var}[\hat{\omega}_{t,i}^j(P_t)] \cdot \hat{E}(Y_t | D_t = j, \Omega = \hat{\omega}_{t,i}^j(P_t)) | D_t = j], \\ N_t^j &= \sum_{i=1}^{N_t} \mathbb{1}[d_{t,i} = j], j = 0, 1. \end{aligned}$$

The unknown conditional expectations, $E(Y_t | D_t = j, \Omega = \hat{\omega}_{t,i}^j(P_t))$, and variances, $Var[Y_t | D_t = j, \Omega = \hat{\omega}_{t,i}^j(P_t)]$, are estimated nonparametrically based on the k nearest neighbors of observation i with respect to the weight $\hat{\omega}_{t,i}^j(P_t)$. The number of neighbours k is chosen according to $\max\{10, 2\sqrt{N_t^j}\} \leq k \leq \min\{N_t^j, 2\sqrt{N_t^j}\}$. The estimates do not appear to be sensitive to not too large variations in k . Finally, the population variance appearing in the last term of the variance equation above is estimated by the empirical variance of $\hat{\omega}_{t,i}^j(P_t) \cdot E(Y_t | D_t = j, \Omega = \hat{\omega}_{t,i}^j(P_t))$ in the respective subsample defined by treatment status.

IF Background information on regional variation in economic conditions

Figure IF.1 Distribution of the average regional unemployment rate 1986-1995 in %

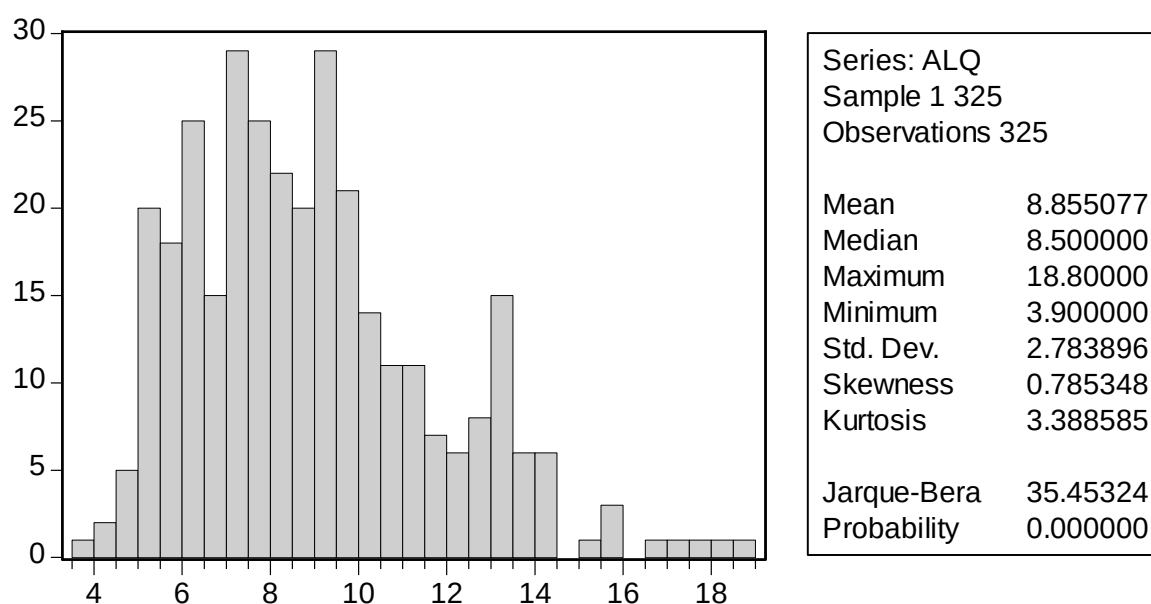


Note: Regions are defined by labor market districts.

Source: Own calculations based on official statistics published by the Federal Employment Agency, the Institute for Employment Research and the Federal Statistical Office.

The numbers for some of the following indicators for years earlier than 1998 are not publicly available on this level of disaggregation. To obtain comparable numbers, we therefore restricted our focus to the years of our observation period for which the statistics are available for all indicators we consider in the following (1998 to 2003).

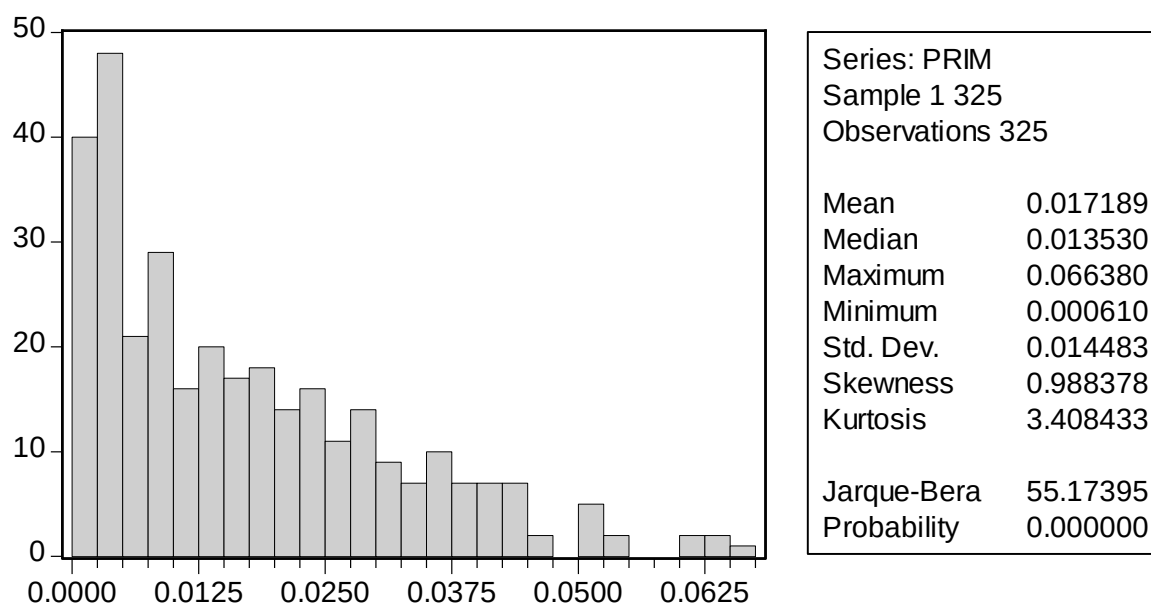
Figure IF.2 Distribution of the average regional unemployment rate 1998-2003 in %



Note: Regions are defined by administrative districts.

Source: Own calculations based on official statistics published by the Federal Employment Agency, the Institute for Employment Research and the Federal Statistical Office.

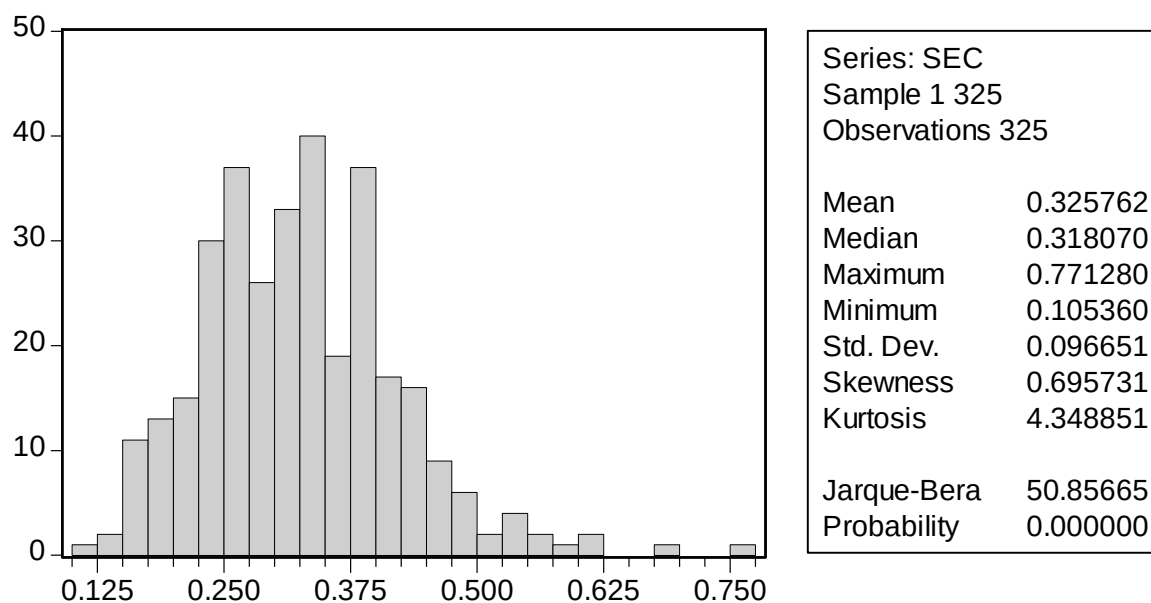
Figure IF.3 Distribution of the average regional fraction of the gross value added by the primary sector 1998-2003



Note: Regions are defined by administrative districts.

Source: Own calculations based on official statistics published by the Federal Employment Agency, the Institute for Employment Research and the Federal Statistical Office.

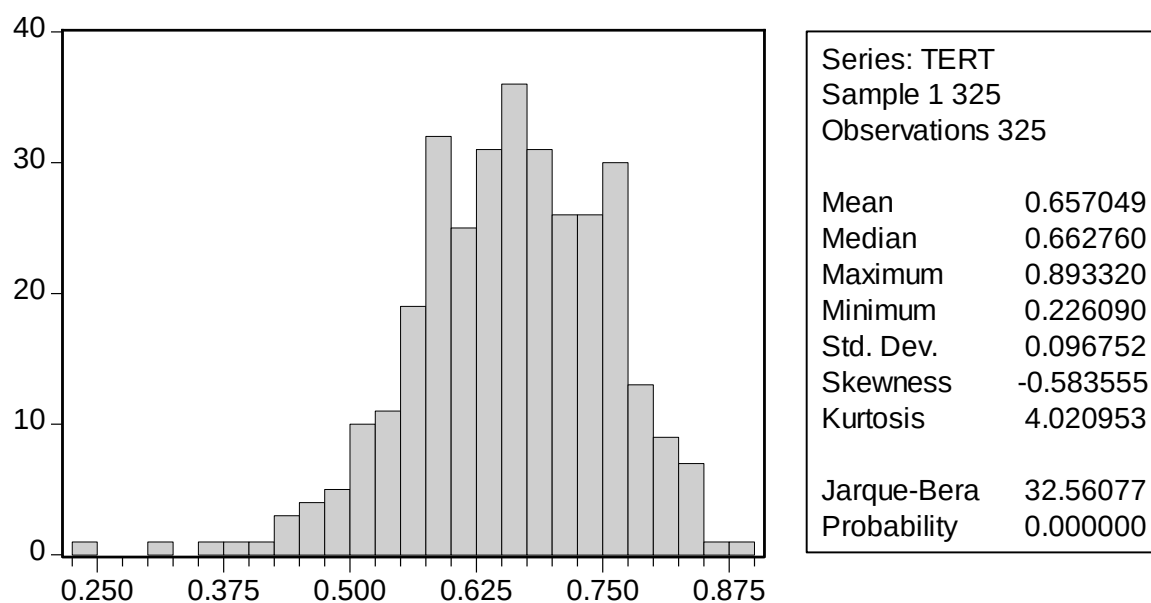
Figure IF.4 *Distribution of the average regional fraction of the gross value added by the secondary sector 1998-2003*



Note: Regions are defined by administrative districts.

Source: Own calculations based on official statistics published by the Federal Employment Agency, the Institute for Employment Research and the Federal Statistical Office.

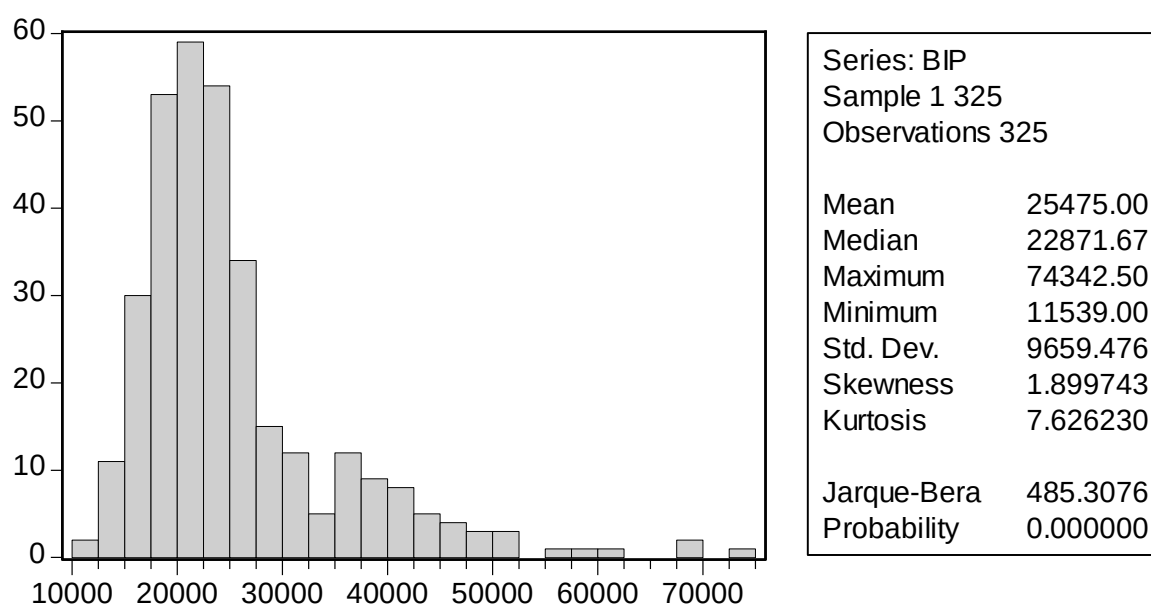
Figure IF.5 *Distribution of the average regional fraction of the gross value added by the tertiary sector 1998-2003*



Note: Regions are defined by administrative districts.

Source: Own calculations based on official statistics published by the Federal Employment Agency, the Institute for Employment Research and the Federal Statistical Office.

Figure IF.6 Distribution of the average regional GDP per capita 1998-2003



Note: Regions are defined by administrative districts.

Source: Own calculations based on official statistics published by the Federal Employment Agency, the Institute for Employment Research and the Federal Statistical Office.

Table IF.1 Correlations between average regional indicators 1998-2003

		1	2	3	4	5
1	Regional unemployment rate					
	Pearson Correlation	1	-.215**	-.195**	.227**	.102
	Sig. (2-tailed)		.000	.000	.000	.066
2	Fraction of gross value added by primary sector					
	Pearson Correlation	-.215**	1	-.068	-.082	-.559**
	Sig. (2-tailed)	.000		.222	.141	.000
3	Fraction of gross value added by secondary sector					
	Pearson Correlation	-.195**	-.068	1	-.989**	.049
	Sig. (2-tailed)	.000	.222		.000	.378
4	Fraction of gross value added by tertiary sector					
	Pearson Correlation	.227**	-.082	-.989**	1	.035
	Sig. (2-tailed)	.000	.141	.000		.534
5	GDP per capita					
	Pearson Correlation	.102	-.559**	.049	.035	1
	Sig. (2-tailed)	.066	.000	.378	.534	

Note: ** Correlation is significant at the 0.01 level (2-tailed). Regions are defined by administrative districts.

Source: Own calculations based on official statistics published by the Federal Employment Agency, the Institute for Employment Research and the Federal Statistical Office.

Table IF.2 Descriptive statistics for the deviations of the yearly regional unemployment rate from the national mean in the same year

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
Mean	0.002	0.002	-0.005	0.001	-0.003	0.003	0.001	-0.004	-0.001	0.004
Median	-0.250	-0.320	-0.140	-0.170	-0.240	-0.210	-0.510	-0.660	-0.580	-0.750
Maximum	11.550	11.380	9.770	6.730	6.560	5.790	5.290	5.840	6.420	6.850
Minimum	-6.650	-6.320	-6.040	-4.380	-4.240	-3.710	-3.610	-4.060	-4.280	-4.250
Std. dev.	3.582	3.613	3.543	2.854	2.664	2.304	2.100	2.224	2.348	2.419
Skewness	0.391	0.433	0.417	0.492	0.493	0.574	0.635	0.647	0.724	0.836
Kurtosis	2.715	2.612	2.411	2.417	2.418	2.514	2.611	2.659	2.886	3.111
National mean	10.055	9.922	9.835	7.675	7.037	6.113	6.411	8.056	8.979	8.954

Note: Regions are defined by labor market districts.

Source: Own calculations based on official statistics published by the Federal Employment Agency, the Institute for Employment Research and the Federal Statistical Office.