COMBINING MATCHING AND NONPARAMETRIC IV ESTIMATION: THEORY AND AN APPLICATION TO THE EVALUATION OF ACTIVE LABOUR MARKET POLICIES

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Supplementary Internet Appendix

This appendix contains additional background material with technical details and descriptive tables. This additional material is not essential for the main paper. It will be made available on the website of the authors and/or of the journal in case of acceptance.

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Graphical description of the model

Consider a non-separable model of the type

$$\begin{aligned} Y &= \varphi(D, U_Y, U_{YD}, U_{YZ}, U_{YDZ}), \\ D &= \xi(Z, U_D, U_{YD}, U_{DZ}, U_{YDZ}), \\ Z &= \zeta(U_Z, U_{YZ}, U_{DZ}, U_{YDZ}), \end{aligned} \tag{1}$$

were φ, ξ, ζ are unknown functions and $U_Y, U_D, U_Z, U_{YD}, U_{YZ}, U_{DZ}, U_{YDZ}$ are *mutually independent* random variables. The construction as mutually independent variables clarifies that there are some factors U_Y that only affect the variable Y , some factors U_D that *directly* only affect D , some factors U_{YD} that directly affect Y and D , some factors U_{YDZ} that directly affect Y and D and Z , etc. In addition, we suppose that the function ξ is weakly *monotone* (increasing) in its first argument, which we will refer to as the monotonicity assumption later.

An equivalent representation of model (1) is given in the following directed acyclic graph (DAG):

Proofs of Theorems

The proof of the main theorem proceeds in several steps. First, we prove two corollaries.

Define the functions $\pi(x_1) = E[Z | X_1 = x_1]$ and $p(x_2) = E[D | X_2 = x_2]$ and define the random variables Π and P as $\Pi \equiv \pi(X_1)$ and $P \equiv p(X_2)$.

Corollary 1: For the model with binary D and binary Z and ξ weakly monotonously increasing in its first argument and the support conditions: $E[D | Z = 1] \neq E[D | Z = 0]$ and $0 < \Pi < 1$ *a.s.* and $0 < P < 1$ *a.s.* we obtain the following identification results:

$$E[Y^1 | T = c] = \frac{\int (E[YD | X_1, Z = 1] - E[YD | X_1, Z = 0]) dF_{X_1}}{\int (E[D | X_1, Z = 1] - E[D | X_1, Z = 0]) dF_{X_1}}, \quad (2)$$

$$E[Y^0 | T = c] = -\frac{\int (E[Y(1-D) | X_1, Z = 1] - E[Y(1-D) | X_1, Z = 0]) dF_{X_1}}{\int (E[D | X_1, Z = 1] - E[D | X_1, Z = 0]) dF_{X_1}}, \quad (3)$$

$$E[Y^1 | D = 1, T = c] = \frac{\int (E[YD | X_1, Z = 1] - E[YD | X_1, Z = 0]) \cdot \pi(X_1) \cdot dF_{X_1}}{\int (E[D | X_1, Z = 1] - E[D | X_1, Z = 0]) \cdot \pi(X_1) \cdot dF_{X_1}}, \quad (4)$$

$$E[Y^0 | D = 1, T = c] = -\frac{\int (E[Y(1-D) | X_1, Z = 1] - E[Y(1-D) | X_1, Z = 0]) \cdot \pi(X_1) \cdot dF_{X_1}}{\int (E[D | X_1, Z = 1] - E[D | X_1, Z = 0]) \cdot \pi(X_1) \cdot dF_{X_1}}, \quad (5)$$

$$E[Y^1 | D = 0, T = c] = \frac{\int (E[YD | X_1, Z = 1] - E[YD | X_1, Z = 0]) \cdot (1 - \pi(X_1)) \cdot dF_{X_1}}{\int (E[D | X_1, Z = 1] - E[D | X_1, Z = 0]) \cdot (1 - \pi(X_1)) \cdot dF_{X_1}}, \quad (6)$$

$$E[Y^0 | D = 0, T = c] = -\frac{\int (E[Y(1-D) | X_1, Z = 1] - E[Y(1-D) | X_1, Z = 0]) \cdot (1 - \pi(X_1)) \cdot dF_{X_1}}{\int (E[D | X_1, Z = 1] - E[D | X_1, Z = 0]) \cdot (1 - \pi(X_1)) \cdot dF_{X_1}}, \quad (7)$$

$$E[Y^1 | T = a] = \frac{\int E[YD | X_1, Z = 0] dF_{X_1}}{\int E[D | X_1, Z = 0] dF_{X_1}}, \quad (8)$$

$$E[Y^0 | T = a] = \frac{\int E[Y | X_2, D = 0] dF_{X_2} - E[Y^0 | T = c] \Pr(T = c) - E[Y^0 | T = n] \Pr(T = n)}{\Pr(T = a)}, \quad (9)$$

$$E[Y^1 | T = n] = \frac{\int E[Y | X_2, D = 1] dF_{X_2} - E[Y^1 | T = c] \Pr(T = c) - E[Y^1 | T = a] \Pr(T = a)}{\Pr(T = n)}, \quad (10)$$

$$E[Y^0 | T = n] = \frac{\int E[Y(1 - D) | X_1, Z = 1] dF_{X_1}}{\int E[1 - D | X_1, Z = 1] dF_{X_1}}, \quad (11)$$

$$\text{and } \Pr(T = c) = \int (E[D | X_1, Z = 1] - E[D | X_1, Z = 0]) dF_{X_1},$$

$$\Pr(T = a) = \int E[D | X_1, Z = 0] dF_{X_1}, \text{ and } \Pr(T = n) = \int E[1 - D | X_1, Z = 1] dF_{X_1}.$$

As a second corollary, we note that a type of propensity score property similar to the literature on matching estimators can be derived as well. However, here we need two different propensity scores, i.e. Π and P , to derive all potential outcomes.

Corollary 2: Under the assumptions of Theorem 1, we obtain the following identification results for compliers, treated compliers, nontreated compliers, always-participants, and never-participants:

$$E[Y^1 | T = c] = \frac{\int (E[YD | \Pi, Z = 1] - E[YD | \Pi, Z = 0]) dF_{\Pi}}{\int (E[D | \Pi, Z = 1] - E[D | \Pi, Z = 0]) dF_{\Pi}}, \quad (12)$$

$$E[Y^0 | T = c] = -\frac{\int (E[Y(1 - D) | \Pi, Z = 1] - E[Y(1 - D) | \Pi, Z = 0]) dF_{\Pi}}{\int (E[D | \Pi, Z = 1] - E[D | \Pi, Z = 0]) dF_{\Pi}}, \quad (13)$$

$$E[Y^1 | D=1, T=c] = \frac{\int (E[YD | \Pi, Z=1] - E[YD | \Pi, Z=0]) \cdot \Pi \cdot dF_{\Pi}}{\int (E[D | \Pi, Z=1] - E[D | \Pi, Z=0]) \cdot \Pi \cdot dF_{\Pi}}, \quad (14)$$

$$E[Y^0 | D=1, T=c] = -\frac{\int (E[Y(1-D) | \Pi, Z=1] - E[Y(1-D) | \Pi, Z=0]) \cdot \Pi \cdot dF_{\Pi}}{\int (E[D | \Pi, Z=1] - E[D | \Pi, Z=0]) \cdot \Pi \cdot dF_{\Pi}}, \quad (15)$$

$$E[Y^1 | D=0, T=c] = \frac{\int (E[YD | \Pi, Z=1] - E[YD | \Pi, Z=0]) \cdot (1-\Pi) \cdot dF_{\Pi}}{\int (E[D | \Pi, Z=1] - E[D | \Pi, Z=0]) \cdot (1-\Pi) \cdot dF_{\Pi}}, \quad (16)$$

$$E[Y^0 | D=0, T=c] = -\frac{\int (E[Y(1-D) | \Pi, Z=1] - E[Y(1-D) | \Pi, Z=0]) \cdot (1-\Pi) \cdot dF_{\Pi}}{\int (E[D | \Pi, Z=1] - E[D | \Pi, Z=0]) \cdot (1-\Pi) \cdot dF_{\Pi}}, \quad (17)$$

$$E[Y^1 | T=a] = \frac{\int E[YD | \Pi, Z=0] dF_{\Pi}}{\int E[D | \Pi, Z=0] dF_{\Pi}}, \quad (18)$$

$$E[Y^0 | T=a] = \frac{\int E[Y | P, D=0] dF_p - E[Y^0 | T=c] \Pr(T=c) - E[Y^0 | T=n] \Pr(T=n)}{\Pr(T=a)}, \quad (19)$$

$$E[Y^1 | T=n] = \frac{\int E[Y | P, D=1] dF_p - E[Y^1 | T=c] \Pr(T=c) - E[Y^1 | T=a] \Pr(T=a)}{\Pr(T=n)}, \quad (20)$$

$$E[Y^0 | T=n] = \frac{\int E[Y(1-D) | \Pi, Z=1] dF_{\Pi}}{\int E[1-D | \Pi, Z=1] dF_{\Pi}}, \quad (21)$$

$$\text{and } \Pr(T=c) = \int (E[D | \Pi, Z=1] - E[D | \Pi, Z=0]) dF_{\Pi},$$

$$\Pr(T=a) = \int E[D | \Pi, Z=0] dF_{\Pi}, \text{ and } \Pr(T=n) = \int E[1-D | \Pi, Z=1] dF_{\Pi}.$$

Proof of Corollary 1: As a starting point, note that under the assumptions of Theorem 1, $(Y^d, T) \coprod Z \mid X_1$ and $Y^d \coprod D \mid X_2$ holds. The monotonicity assumption implies that no defiers exist, and the support assumptions imply a non-zero mass of compliers, and that $Supp(X_1 \mid Z = 1) = Supp(X_1 \mid Z = 0)$ and $Supp(X_2 \mid D = 1) = Supp(X_2 \mid D = 0)$. These support assumptions are needed for all conditional expectations to be well defined.

We start with proving the expression (8), i.e. that

$$E[Y^1 \mid T = c] = \frac{\int (E[YD \mid X_1, Z = 1] - E[YD \mid X_1, Z = 0]) dF_{X_1}}{\int (E[D \mid X_1, Z = 1] - E[D \mid X_1, Z = 0]) dF_{X_1}}.$$

First, note that

$$\begin{aligned} E[YD \mid X_1, Z = 1] &= E[YD \mid X_1, Z = 1, T = a] \Pr(T = a \mid X_1, Z = 1) \\ &\quad + E[YD \mid X_1, Z = 1, T = n] \Pr(T = n \mid X_1, Z = 1) \\ &\quad + E[YD \mid X_1, Z = 1, T = c] \Pr(T = c \mid X_1, Z = 1) \\ &= E[Y^1 \mid X_1, Z = 1, T = a] \Pr(T = a \mid X_1, Z = 1) \\ &\quad + E[Y^1 \mid X_1, Z = 1, T = c] \Pr(T = c \mid X_1, Z = 1) \\ &= E[Y^1 \mid X_1, T = a] \Pr(T = a \mid X_1) + E[Y^1 \mid X_1, T = c] \Pr(T = c \mid X_1), \end{aligned}$$

where we used $(Y^d, T) \coprod Z \mid X_1$. With analogous derivations for $E[YD \mid X_1, Z = 0]$ we obtain

$$E[YD \mid X_1, Z = 1] - E[YD \mid X_1, Z = 0] = E[Y^1 \mid X_1, T = c] \Pr(T = c \mid X_1). \quad (22)$$

With similar derivations as those leading to equation (28) we obtain

$$E[D \mid X_1, Z = 1] - E[D \mid X_1, Z = 0] = \Pr(T = c \mid X_1). \quad (23)$$

With these intermediate results we examine

$$E[Y^1 \mid T = c] = \int E[Y^1 \mid X_1, T = c] dF_{X_1 \mid T=c} = \int E[Y^1 \mid X_1, T = c] \frac{\Pr(T = c \mid X_1) dF_{X_1}}{\Pr(T = c)},$$

where the first step uses iterated expectations and the second Bayes' theorem. In the following we frequently use $\Pr(T = c) = \int \Pr(T = c | X_1) dF_{X_1}$. Now inserting $\Pr(T = c) = \int \Pr(T = c | X_1) dF_{X_1}$ and equation (28) and (29) in the previous expression, we obtain

$$E[Y^1 | T = c] = \frac{\int (E[YD | X_1, Z = 1] - E[YD | X_1, Z = 0]) dF_{X_1}}{\int (E[D | X_1, Z = 1] - E[D | X_1, Z = 0]) dF_{X_1}}.$$

The proofs for the identification of $E[Y^0 | T = c]$, $E[Y^1 | T = a]$, $E[Y^0 | T = n]$, $\Pr(T = c)$, $\Pr(T = a)$ and $\Pr(T = n)$ follow similar derivations and are thus omitted.

For the identification results for the treated compliers $E[Y^1 | D = 1, T = c]$ and $E[Y^0 | D = 1, T = c]$ we additionally make use of the following calculations: Noticing first that in the subpopulation of compliers, conditioning on $D = 1$ is equivalent to $Z = 1$ and conditioning on $D = 0$ is equivalent to $Z = 0$, it follows that

$$\begin{aligned} E[Y^1 | D = 1, T = c] &= \int E[Y^1 | X_1, Z = 1, T = c] \cdot dF_{X_1|Z=1, T=c} \\ &= \int E[Y^1 | X_1, T = c] \cdot dF_{X_1|Z=1, T=c} \end{aligned} \quad (24)$$

where we made use of $(Y^d, T) \perp\!\!\!\perp Z | X_1$. Now, by Bayes' theorem the conditional distribution of X_1 can be written as

$$\begin{aligned} dF_{X_1|Z=1, T=c} &= \frac{\Pr(Z = 1, T = c | X_1) \cdot dF_{X_1}}{\Pr(Z = 1, T = c)} = \frac{\Pr(T = c | X_1, Z = 1) \cdot \pi(X_1) \cdot dF_{X_1}}{\int \Pr(Z = 1, T = c | X_1) dF_{X_1}} \\ &= \frac{\Pr(T = c | X_1) \pi(X_1) dF_{X_1}}{\int \Pr(T = c | X_1) \pi(X_1) dF_{X_1}}. \end{aligned} \quad (25)$$

Inserting this result in (30) and together with (28) and (29) we obtain the equation (10) of Corollary 1:

$$E[Y^1 | D = 1, T = c] = \frac{\int (E[YD | X_1, Z = 1] - E[YD | X_1, Z = 0]) \cdot \pi(X_1) \cdot dF_{X_1}}{\int (E[D | X_1, Z = 1] - E[D | X_1, Z = 0]) \cdot \pi(X_1) \cdot dF_{X_1}}$$

The calculations for the non-treated compliers are analogous.

To conclude the proof of Corollary 1, we need to prove the expressions for $E[Y^0 | T = a]$ and $E[Y^1 | T = n]$. These pieces cannot be obtained via the instrumental variable identification since a discrete instrumental variable is usually not strong enough to move the treatment status for these groups. Identification can nevertheless be obtained via exploiting the model implication $Y^d \perp\!\!\!\perp D | X_2$. This implies that $E[Y^0]$ and $E[Y^1]$ are identified as

$$E[Y^0] = \int E[Y | X_2, D = 0] dF_{X_2} \quad \text{and} \quad E[Y^1] = \int E[Y | X_2, D = 1] dF_{X_2}.$$

By also noting that

$$E[Y^0] = E[Y^0 | T = a] \Pr(T = a) + E[Y^0 | T = c] \Pr(T = c) + E[Y^0 | T = n] \Pr(T = n) \quad (26)$$

$$\text{and} \quad E[Y^1] = E[Y^1 | T = a] \Pr(T = a) + E[Y^1 | T = c] \Pr(T = c) + E[Y^1 | T = n] \Pr(T = n), \quad (27)$$

the expressions for $E[Y^0 | T = a]$ and $E[Y^1 | T = n]$ are obtained via inserting the previously derived expressions for $E[Y^1 | T = a]$, $E[Y^0 | T = n]$, $E[Y^1 | T = c]$ and $E[Y^0 | T = c]$.

Having proved Corollary 1, it is straightforward to show via iterated expectations that the expressions in Theorem 1 and Corollary 1 are identical. Starting then from Theorem 1, one can also obtain all expressions of Corollary 2 by using iterated expectations, where the conditional expectations are now taken with respect to the propensity score and not with respect to the covariates.

Map of 18 labour markets

As the following map shows, Switzerland is a small country and has numerous winding administrative borders. At the same time, Switzerland has a very good commuting infrastructure and one of the highest per-capita car ownership rates worldwide. Hence, it frequently happens that people live and work in different cantons.

Figure 1: Map of administrative borders and defined local labour markets in Switzerland

Note: Figure shows the (approximate) regions of local labour markets and the respective cantonal borders. Same colour indicates a region used for one or more comparisons. Exact details are given in Table 1.

Appendix IA: Estimates of effects in all 18 labour markets

In this section supplementary information to the estimation results of Section 4 of the main paper is given.

The table numbering starts with IA to indicate that these tables are included in the Internet Appendix. The following twelve tables IA.1 to IA.12 give the estimated treatment effects separately for each of the 18 local labour markets and separately for each of the four outcome variables considered. For comparability with Frölich and Lechner (2010) the order of these results corresponds to the order of the labour markets in Table IA.0 below. Table IA.0 is identical to Table 1 in the main text and differs only in the ordering of the 18 labour markets.

Table IA.0: The 18 local labour markets divided by administrative border

#	Cantons	Regional employment offices (REO), left and right of the border		Number of ob- servations		% Treated		Difference (7) - (6)	Size N x (8)
				N ₁	N ₂				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1	SO-BE	Solothurn, Oensingen,	Wangen, Langenthal,	877	818	51.7	48.2	3.5	59
2	BE-AG	Biberist, Zuchwil Langenthal	Burgdorf Zofingen	313	472	45.7	49.2	-3.5	27
3	BE-FR	Gümligen, Zollikofen, Köniz, Bern (2x)	Murten, Tafers, Fribourg	2660	763	45.5	46.9	-1.4	48
4	FR-VD	ChatelSt.Denis	Oron la Ville	107	107	51.4	44.9	6.5	14
5	FR-VD	Romont, Estavayer	Payerne, Moudon	371	355	47.4	40.6	6.9	50
6	VD-GE	Nyon	Genf (6x)	576	5700	35.8	33.3	2.5	157
7	VD-VS	Vevey, Aigle, Montreux	Monthey (2x)	1580	609	40.3	50.1	-9.8	215
8	BL-BS	Pratteln, München- stein, Binningen	Basel (3x)	934	2081	52.0	34.3	17.8	537
9	LU-NWOW	Luzern, Emmen, Em- menbrücke, Kriens	Hergiswil (2x)	1607	265	49.0	52.5	-3.5	66
10	LU-ZG	Luzern, Emmen, Em- menbrücke, Kriens	Zug	1607	571	49.0	49.6	-0.6	13
11	SZ-UR	Goldau	Altdorf	337	150	57.9	39.3	18.5	90
12	AG-ZH	Baden, Wettingen, Wohlen	Opfikon, Effretikon, Uster, Wetzikon, Bülach, Dietikon, Regensdorf	1529	4165	45.5	39.7	5.8	330
13	ZH-TG	Winterthur	Frauenfeld	1221	537	39.0	53.6	-14.7	258
14	ZH-SG	Meilen, Thalwil	Rapperswil	1421	360	40.2	43.9	-3.7	66
15	ZH-SZ	Meilen, Thalwil	Lachen	1421	529	40.2	53.3	-13.1	255
16	TG-SH	Frauenfeld	Schaffhausen	537	605	53.6	45.6	8.0	91
17	TG-SG	Amriswil	Rohrschach, Oberuzwil	474	853	42.4	42.9	-0.5	7
18	SG-SZ	Rapperswil	Lachen	360	529	43.9	53.3	-9.4	84

The following tables IA.1 to IA.12 show the treatment effects separately for the 18 local labour markets. The first four tables refer to a treatment definition window of *three* months, i.e. a person is defined as treated if entering an ALMP during January to March 1998. The subsequent four tables IA.5 to IA.8 refer to a treatment definition window of *two* months, i.e. a person is defined as treated if entering an ALMP during January to February 1998. Finally, the four tables IA.9 to IA.12 refer to a treatment definition window of *four* months, i.e. a person is defined as treated if entering an ALMP during January to April 1998. The estimates are given for the four outcome variables *employment in 1999* (i.e. number of months in employment divided by 12), *employment in 2003*, *employment in 2006* and *employment in 1999-2006*.

In each table, first the number of observations (left and right of the border) are repeated for each labour market. Thereafter the expected outcomes and the treatment effects $E[\Delta | type] = E[Y^1 - Y^0 | type]$ are given separately for the compliers, always- and never-participants. In addition, the estimated fractions of compliers, always- and never-participants are given as P_c , P_a and P_n .

These twelve tables represent the basis for the Tables 4 and 6 in the main paper, where the estimates are aggregated across the 18 labour markets. These averages in Tables 4 and 6 are obtained by weighting the estimates for each labour market with the number of observations of type complier, always- or never-participant, respectively. I.e. for the compliers, the weights are $P_c \cdot N$, where $N = N_1 + N_2$ is the number of observations in the respective labour market, as given by the first two columns. For the always-participants, the corresponding weights are $P_a \cdot N$, and for the never-participants the weights are $P_n \cdot N$.

The estimated potential outcomes for the compliers vary considerably between labour markets, while they are more stable for the always- and never-participants. When the (estimated) number of compliers ($= P_c \cdot N$) is very low, the estimates are often restricted to the logical boundaries $[0,1]$. In such cases, the number of compliers is usually very small, often below 40.

Table IA.1: Estimates for employment 1999, treatment window January to March, 18 labour markets

No. observations		Always-participants				Complier				Never-participants			
		E[Y ¹ a]	E[Y ⁰ a]	E[Δ a]	P _a	E[Y ¹ c]	E[Y ⁰ c]	E[Δ c]	P _c	E[Y ¹ n]	E[Y ⁰ n]	E[Δ n]	P _n
N ₁	N ₂												
877	818	0.558	0.525	0.033	0.471	0.000	0.722	-0.722	0.046	0.517	0.488	0.028	0.483
313	472	0.525	0.510	0.015	0.452	0.000	1.000	-1.000	0.043	0.478	0.448	0.031	0.505
2660	763	0.503	0.503	0.001	0.446	0.273	0.271	0.001	0.039	0.494	0.495	-0.001	0.514
107	107	0.654	0.568	0.087	0.471	0.508	0.768	-0.260	0.036	0.608	0.592	0.016	0.493
371	355	0.389	0.514	-0.125	0.402	1.000	0.805	0.195	0.071	0.439	0.479	-0.040	0.527
576	5700	0.449	0.338	0.111	0.332	0.835	0.000	0.835	0.028	0.425	0.461	-0.036	0.640
1580	609	0.455	0.508	-0.053	0.407	0.332	0.000	0.332	0.095	0.468	0.504	-0.036	0.498
934	2081	0.472	0.459	0.013	0.346	0.553	0.317	0.236	0.170	0.453	0.480	-0.027	0.484
1607	265	0.524	0.433	0.090	0.490	1.000	0.000	1.000	0.021	0.563	0.667	-0.103	0.489
1607	571	0.523	0.511	0.012	0.490	0.000	0.651	-0.651	0.001	0.517	0.532	-0.015	0.509
337	150	0.400	0.368	0.031	0.393	0.785	0.748	0.037	0.202	0.444	0.530	-0.086	0.404
1529	4165	0.508	0.507	0.001	0.399	0.508	0.285	0.223	0.061	0.518	0.508	0.010	0.540
1221	537	0.516	0.541	-0.025	0.386	0.473	0.123	0.350	0.131	0.477	0.532	-0.054	0.483
1421	360	0.520	0.525	-0.005	0.401	0.886	1.000	-0.114	0.025	0.510	0.471	0.039	0.574
1421	529	0.518	0.532	-0.014	0.397	0.578	0.579	-0.001	0.134	0.482	0.474	0.008	0.469
537	605	0.527	0.510	0.017	0.474	0.000	0.354	-0.354	0.060	0.473	0.539	-0.066	0.466
474	853	0.519	0.565	-0.046	0.420	0.000	1.000	-1.000	0.004	0.502	0.458	0.045	0.576
360	529	0.552	0.546	0.006	0.457	0.171	0.490	-0.319	0.064	0.477	0.456	0.021	0.479

Table IA.2: Estimates for employment 2003, treatment window January to March, 18 labour markets

No. observations		Always-participants				Complier				Never-participants			
		E[Y ¹ a]	E[Y ⁰ a]	E[Δ a]	P _a	E[Y ¹ c]	E[Y ⁰ c]	E[Δ c]	P _c	E[Y ¹ n]	E[Y ⁰ n]	E[Δ n]	P _n
N ₁	N ₂												
877	818	0.614	0.618	-0.004	0.471	0.395	0.105	0.289	0.046	0.568	0.579	-0.011	0.483
313	472	0.610	0.467	0.143	0.452	0.000	1.000	-1.000	0.043	0.584	0.453	0.131	0.505
2660	763	0.619	0.597	0.022	0.446	0.675	0.076	0.599	0.039	0.601	0.576	0.025	0.514
107	107	0.689	0.682	0.007	0.471	1.000	1.000	0.000	0.036	0.735	0.637	0.098	0.493
371	355	0.575	0.616	-0.040	0.402	1.000	0.378	0.622	0.071	0.609	0.654	-0.046	0.527
576	5700	0.566	0.364	0.202	0.332	1.000	0.000	1.000	0.028	0.537	0.598	-0.061	0.640
1580	609	0.643	0.628	0.015	0.407	0.505	0.200	0.305	0.095	0.646	0.614	0.032	0.498
934	2081	0.496	0.482	0.014	0.346	0.564	0.249	0.315	0.170	0.499	0.495	0.004	0.484
1607	265	0.566	0.472	0.095	0.490	1.000	0.000	1.000	0.021	0.565	0.678	-0.113	0.489
1607	571	0.570	0.545	0.025	0.490	0.000	0.000	0.000	0.001	0.551	0.582	-0.031	0.509
337	150	0.564	0.489	0.076	0.393	0.806	0.828	-0.022	0.202	0.570	0.557	0.013	0.404
1529	4165	0.564	0.526	0.038	0.399	0.685	0.432	0.253	0.061	0.558	0.512	0.047	0.540
1221	537	0.572	0.568	0.003	0.386	0.164	0.132	0.033	0.131	0.592	0.544	0.048	0.483
1421	360	0.574	0.596	-0.022	0.401	1.000	1.000	0.000	0.025	0.574	0.475	0.099	0.574
1421	529	0.578	0.533	0.046	0.397	0.485	0.778	-0.293	0.134	0.565	0.472	0.093	0.469
537	605	0.573	0.543	0.030	0.474	0.000	0.761	-0.761	0.060	0.488	0.542	-0.054	0.466
474	853	0.541	0.546	-0.005	0.420	0.000	1.000	-1.000	0.004	0.533	0.480	0.053	0.576
360	529	0.660	0.526	0.133	0.457	0.000	0.892	-0.892	0.064	0.573	0.457	0.115	0.479

Table IA.3: Estimates for employment 2006, treatment window January to March, 18 labour markets

No. observations		Always-participants				Complier				Never-participants			
		E[Y ¹ a]	E[Y ⁰ a]	E[Δ a]	P _a	E[Y ¹ c]	E[Y ⁰ c]	E[Δ c]	P _c	E[Y ¹ n]	E[Y ⁰ n]	E[Δ n]	P _n
N ₁	N ₂												
877	818	0.571	0.571	0.000	0.471	0.874	0.000	0.874	0.046	0.543	0.544	-0.001	0.483
313	472	0.519	0.505	0.014	0.452	0.000	0.000	0.000	0.043	0.525	0.481	0.045	0.505
2660	763	0.571	0.554	0.017	0.446	0.175	0.000	0.175	0.039	0.621	0.561	0.059	0.514
107	107	0.640	0.655	-0.015	0.471	1.000	0.431	0.569	0.036	0.668	0.646	0.022	0.493
371	355	0.535	0.634	-0.099	0.402	1.000	0.343	0.657	0.071	0.569	0.625	-0.055	0.527
576	5700	0.552	0.398	0.153	0.332	1.000	0.000	1.000	0.028	0.531	0.568	-0.037	0.640
1580	609	0.648	0.599	0.049	0.407	0.244	0.403	-0.159	0.095	0.686	0.573	0.112	0.498
934	2081	0.466	0.431	0.035	0.346	0.549	0.306	0.244	0.170	0.470	0.440	0.030	0.484
1607	265	0.552	0.491	0.061	0.490	1.000	0.000	1.000	0.021	0.540	0.652	-0.112	0.489
1607	571	0.551	0.577	-0.026	0.490	0.000	1.000	-1.000	0.001	0.539	0.519	0.019	0.509
337	150	0.453	0.496	-0.044	0.393	1.000	0.671	0.329	0.202	0.554	0.542	0.012	0.404
1529	4165	0.555	0.507	0.049	0.399	0.466	0.402	0.065	0.061	0.558	0.492	0.066	0.540
1221	537	0.541	0.541	0.000	0.386	0.266	0.225	0.041	0.131	0.558	0.509	0.049	0.483
1421	360	0.531	0.606	-0.075	0.401	1.000	1.000	0.000	0.025	0.526	0.435	0.091	0.574
1421	529	0.532	0.517	0.015	0.397	0.551	0.706	-0.155	0.134	0.501	0.452	0.048	0.469
537	605	0.535	0.554	-0.019	0.474	0.000	1.000	-1.000	0.060	0.487	0.482	0.005	0.466
474	853	0.517	0.519	-0.002	0.420	0.000	1.000	-1.000	0.004	0.484	0.455	0.029	0.576
360	529	0.600	0.446	0.154	0.457	0.000	1.000	-1.000	0.064	0.516	0.434	0.081	0.479

Table IA.4: Estimates for employment 1999-2006, treatment window January to March, 18 labour markets

No. observations		Always-participants				Complier				Never-participants			
		E[Y ¹ a]	E[Y ⁰ a]	E[Δ a]	P _a	E[Y ¹ c]	E[Y ⁰ c]	E[Δ c]	P _c	E[Y ¹ n]	E[Y ⁰ n]	E[Δ n]	P _n
N ₁	N ₂												
877	818	0.613	0.605	0.008	0.471	0.296	0.101	0.195	0.046	0.581	0.570	0.011	0.483
313	472	0.579	0.520	0.059	0.452	0.000	0.925	-0.925	0.043	0.571	0.470	0.100	0.505
2660	763	0.595	0.584	0.011	0.446	0.979	0.000	0.979	0.039	0.554	0.575	-0.020	0.514
107	107	0.684	0.648	0.037	0.471	1.000	0.245	0.755	0.036	0.706	0.679	0.027	0.493
371	355	0.530	0.600	-0.069	0.402	1.000	0.410	0.590	0.071	0.578	0.626	-0.048	0.527
576	5700	0.553	0.375	0.178	0.332	1.000	0.000	1.000	0.028	0.526	0.571	-0.045	0.640
1580	609	0.620	0.611	0.008	0.407	0.407	0.227	0.180	0.095	0.636	0.589	0.047	0.498
934	2081	0.503	0.474	0.029	0.346	0.540	0.284	0.255	0.170	0.508	0.486	0.022	0.484
1607	265	0.564	0.465	0.100	0.490	1.000	0.000	1.000	0.021	0.575	0.688	-0.113	0.489
1607	571	0.566	0.549	0.017	0.490	0.322	0.000	0.322	0.001	0.553	0.569	-0.016	0.509
337	150	0.518	0.513	0.005	0.393	0.912	0.759	0.153	0.202	0.538	0.573	-0.035	0.404
1529	4165	0.570	0.534	0.035	0.399	0.601	0.415	0.186	0.061	0.571	0.522	0.048	0.540
1221	537	0.575	0.569	0.005	0.386	0.272	0.179	0.093	0.131	0.575	0.546	0.029	0.483
1421	360	0.572	0.601	-0.029	0.401	1.000	1.000	0.000	0.025	0.560	0.476	0.083	0.574
1421	529	0.575	0.551	0.024	0.397	0.493	0.682	-0.189	0.134	0.561	0.494	0.068	0.469
537	605	0.575	0.546	0.028	0.474	0.000	0.859	-0.859	0.060	0.508	0.538	-0.030	0.466
474	853	0.541	0.563	-0.022	0.420	0.000	1.000	-1.000	0.004	0.524	0.480	0.045	0.576
360	529	0.630	0.555	0.075	0.457	0.000	0.698	-0.698	0.064	0.568	0.476	0.091	0.479

Table IA.5: Estimates for employment 1999, treatment window January to February, 18 labour markets

No. observations		Always-participants				Complier				Never-participants			
		E[Y ¹ a]	E[Y ⁰ a]	E[Δ a]	P _a	E[Y ¹ c]	E[Y ⁰ c]	E[Δ c]	P _c	E[Y ¹ n]	E[Y ⁰ n]	E[Δ n]	P _n
N ₁	N ₂												
877	818	0.584	0.521	0.063	0.390	0.000	0.801	-0.801	0.057	0.545	0.473	0.072	0.553
313	472	0.529	0.453	0.076	0.367	0.072	1.000	-0.928	0.054	0.469	0.456	0.013	0.579
2660	763	0.515	0.498	0.016	0.391	0.613	0.040	0.573	0.023	0.478	0.491	-0.014	0.585
107	107	0.731	0.522	0.209	0.395	0.267	0.875	-0.608	0.092	0.667	0.543	0.124	0.513
371	355	0.399	0.514	-0.116	0.327	1.000	0.781	0.219	0.061	0.453	0.470	-0.017	0.612
576	5700	0.460	0.321	0.139	0.269	0.636	0.000	0.636	0.029	0.454	0.459	-0.005	0.702
1580	609	0.466	0.490	-0.024	0.335	0.391	0.000	0.391	0.101	0.462	0.506	-0.045	0.564
934	2081	0.479	0.455	0.024	0.287	0.563	0.314	0.249	0.161	0.480	0.473	0.007	0.553
1607	265	0.519	0.466	0.052	0.430	1.000	0.000	1.000	0.055	0.535	0.655	-0.119	0.515
1607	571	0.522	0.508	0.014	0.430	0.395	0.663	-0.268	0.014	0.527	0.529	-0.001	0.556
337	150	0.423	0.390	0.033	0.365	0.806	0.763	0.042	0.152	0.486	0.522	-0.036	0.483
1529	4165	0.518	0.508	0.010	0.333	0.596	0.372	0.223	0.068	0.519	0.494	0.025	0.599
1221	537	0.529	0.552	-0.023	0.309	0.549	0.213	0.336	0.151	0.471	0.511	-0.040	0.541
1421	360	0.538	0.590	-0.052	0.345	0.576	1.000	-0.424	0.014	0.527	0.448	0.079	0.641
1421	529	0.536	0.525	0.012	0.343	0.516	0.520	-0.004	0.140	0.508	0.482	0.026	0.516
537	605	0.553	0.503	0.050	0.424	0.000	0.385	-0.385	0.050	0.491	0.511	-0.020	0.526
474	853	0.529	0.511	0.018	0.343	0.214	0.899	-0.685	0.038	0.516	0.463	0.053	0.619
360	529	0.552	0.556	-0.004	0.409	0.259	0.537	-0.278	0.067	0.492	0.459	0.034	0.524

Table IA.6: Estimates for employment 2003, treatment window January to February, 18 labour markets

No. observations		Always-participants				Complier				Never-participants			
		E[Y ¹ a]	E[Y ⁰ a]	E[Δ a]	P _a	E[Y ¹ c]	E[Y ⁰ c]	E[Δ c]	P _c	E[Y ¹ n]	E[Y ⁰ n]	E[Δ n]	P _n
N ₁	N ₂												
877	818	0.626	0.633	-0.007	0.390	0.467	0.212	0.255	0.057	0.570	0.574	-0.005	0.553
313	472	0.636	0.461	0.175	0.367	0.000	0.911	-0.911	0.054	0.601	0.457	0.145	0.579
2660	763	0.629	0.575	0.054	0.391	1.000	0.000	1.000	0.023	0.600	0.582	0.018	0.585
107	107	0.680	0.695	-0.015	0.395	1.000	1.000	0.000	0.092	0.825	0.572	0.253	0.513
371	355	0.593	0.647	-0.054	0.327	1.000	0.000	1.000	0.061	0.642	0.652	-0.010	0.612
576	5700	0.573	0.311	0.262	0.269	1.000	0.000	1.000	0.029	0.554	0.600	-0.046	0.702
1580	609	0.643	0.603	0.040	0.335	0.551	0.279	0.272	0.101	0.651	0.611	0.041	0.564
934	2081	0.502	0.499	0.004	0.287	0.581	0.252	0.329	0.161	0.524	0.488	0.036	0.553
1607	265	0.556	0.529	0.027	0.430	1.000	0.000	1.000	0.055	0.527	0.670	-0.143	0.515
1607	571	0.560	0.575	-0.015	0.430	0.684	0.000	0.684	0.014	0.548	0.571	-0.023	0.556
337	150	0.538	0.471	0.067	0.365	0.952	0.943	0.009	0.152	0.568	0.570	-0.001	0.483
1529	4165	0.568	0.531	0.037	0.333	0.721	0.500	0.221	0.068	0.557	0.508	0.048	0.599
1221	537	0.584	0.575	0.008	0.309	0.278	0.255	0.023	0.151	0.576	0.526	0.050	0.541
1421	360	0.589	0.636	-0.046	0.345	1.000	1.000	0.000	0.014	0.593	0.474	0.118	0.641
1421	529	0.592	0.534	0.058	0.343	0.479	0.735	-0.257	0.140	0.572	0.474	0.098	0.516
537	605	0.593	0.541	0.052	0.424	0.000	0.897	-0.897	0.050	0.480	0.519	-0.038	0.526
474	853	0.548	0.508	0.041	0.343	0.223	0.837	-0.614	0.038	0.536	0.487	0.048	0.619
360	529	0.676	0.525	0.151	0.409	0.000	0.926	-0.926	0.067	0.603	0.456	0.147	0.524

Table IA.7: Estimates for employment 2006, treatment window January to February, 18 labour markets

No. observations		Always-participants				Complier				Never-participants			
		E[Y ¹ a]	E[Y ⁰ a]	E[Δ a]	P _a	E[Y ¹ c]	E[Y ⁰ c]	E[Δ c]	P _c	E[Y ¹ n]	E[Y ⁰ n]	E[Δ n]	P _n
N ₁	N ₂												
877	818	0.571	0.596	-0.025	0.390	0.884	0.000	0.884	0.057	0.559	0.542	0.018	0.553
313	472	0.562	0.512	0.050	0.367	0.000	0.000	0.000	0.054	0.534	0.472	0.062	0.579
2660	763	0.579	0.523	0.057	0.391	1.000	0.000	1.000	0.023	0.575	0.569	0.006	0.585
107	107	0.621	0.599	0.023	0.395	1.000	0.593	0.407	0.092	0.633	0.654	-0.021	0.513
371	355	0.544	0.623	-0.079	0.327	1.000	0.155	0.845	0.061	0.613	0.607	0.005	0.612
576	5700	0.560	0.366	0.194	0.269	1.000	0.000	1.000	0.029	0.548	0.568	-0.020	0.702
1580	609	0.652	0.592	0.060	0.335	0.275	0.423	-0.149	0.101	0.690	0.579	0.111	0.564
934	2081	0.467	0.440	0.027	0.287	0.579	0.315	0.265	0.161	0.475	0.436	0.039	0.553
1607	265	0.540	0.539	0.002	0.430	0.912	0.000	0.912	0.055	0.523	0.659	-0.136	0.515
1607	571	0.539	0.590	-0.051	0.430	0.791	1.000	-0.209	0.014	0.528	0.513	0.015	0.556
337	150	0.418	0.631	-0.213	0.365	1.000	0.562	0.438	0.152	0.613	0.552	0.061	0.483
1529	4165	0.566	0.511	0.055	0.333	0.500	0.451	0.048	0.068	0.565	0.488	0.077	0.599
1221	537	0.550	0.544	0.007	0.309	0.366	0.327	0.039	0.151	0.539	0.493	0.046	0.541
1421	360	0.548	0.654	-0.106	0.345	1.000	1.000	0.000	0.014	0.553	0.425	0.128	0.641
1421	529	0.550	0.511	0.040	0.343	0.459	0.670	-0.211	0.140	0.530	0.456	0.074	0.516
537	605	0.558	0.587	-0.029	0.424	0.000	1.000	-1.000	0.050	0.477	0.469	0.008	0.526
474	853	0.515	0.499	0.016	0.343	0.000	0.668	-0.668	0.038	0.491	0.472	0.019	0.619
360	529	0.621	0.471	0.150	0.409	0.000	0.935	-0.935	0.067	0.542	0.436	0.106	0.524

Table IA.8: Estimates for employment 1999-2006, treatment window January to February, 18 markets

No. observations		Always-participants				Complier				Never-participants			
		E[Y ¹ a]	E[Y ⁰ a]	E[Δ a]	P _a	E[Y ¹ c]	E[Y ⁰ c]	E[Δ c]	P _c	E[Y ¹ n]	E[Y ⁰ n]	E[Δ n]	P _n
N ₁	N ₂												
877	818	0.620	0.616	0.003	0.390	0.453	0.218	0.236	0.057	0.584	0.563	0.022	0.553
313	472	0.608	0.506	0.102	0.367	0.000	0.640	-0.640	0.054	0.569	0.476	0.094	0.579
2660	763	0.604	0.549	0.055	0.391	1.000	0.000	1.000	0.023	0.575	0.580	-0.005	0.585
107	107	0.679	0.597	0.082	0.395	1.000	0.917	0.083	0.092	0.763	0.611	0.152	0.513
371	355	0.542	0.661	-0.120	0.327	1.000	0.063	0.937	0.061	0.612	0.618	-0.006	0.612
576	5700	0.561	0.329	0.232	0.269	1.000	0.000	1.000	0.029	0.543	0.574	-0.031	0.702
1580	609	0.624	0.608	0.016	0.335	0.419	0.222	0.197	0.101	0.641	0.595	0.046	0.564
934	2081	0.509	0.485	0.024	0.287	0.559	0.295	0.265	0.161	0.529	0.479	0.049	0.553
1607	265	0.554	0.515	0.040	0.430	1.000	0.000	1.000	0.055	0.536	0.684	-0.148	0.515
1607	571	0.556	0.565	-0.009	0.430	1.000	0.485	0.515	0.014	0.550	0.561	-0.012	0.556
337	150	0.500	0.495	0.006	0.365	1.000	0.832	0.168	0.152	0.577	0.580	-0.003	0.483
1529	4165	0.580	0.538	0.042	0.333	0.627	0.475	0.152	0.068	0.576	0.517	0.058	0.599
1221	537	0.583	0.573	0.010	0.309	0.396	0.309	0.087	0.151	0.552	0.526	0.026	0.541
1421	360	0.586	0.643	-0.057	0.345	1.000	1.000	0.000	0.014	0.580	0.472	0.109	0.641
1421	529	0.589	0.542	0.047	0.343	0.493	0.673	-0.180	0.140	0.568	0.493	0.075	0.516
537	605	0.596	0.552	0.044	0.424	0.000	0.991	-0.991	0.050	0.491	0.519	-0.028	0.526
474	853	0.545	0.524	0.021	0.343	0.121	0.780	-0.659	0.038	0.528	0.493	0.035	0.619
360	529	0.649	0.560	0.089	0.409	0.027	0.686	-0.659	0.067	0.589	0.475	0.114	0.524

Table IA.9: Estimates for employment 1999, treatment window January to April, 18 labour markets

No. observations		Always-participants				Complier				Never-participants			
		E[Y ¹ a]	E[Y ⁰ a]	E[Δ a]	P _a	E[Y ¹ c]	E[Y ⁰ c]	E[Δ c]	P _c	E[Y ¹ n]	E[Y ⁰ n]	E[Δ n]	P _n
N ₁	N ₂												
877	818	0.555	0.531	0.024	0.513	0.000	0.508	-0.508	0.058	0.518	0.508	0.010	0.429
313	472	0.547	0.448	0.099	0.501	0.000	1.000	-1.000	0.047	0.462	0.443	0.019	0.453
2660	763	0.498	0.508	-0.011	0.495	0.289	0.282	0.007	0.046	0.489	0.502	-0.013	0.459
107	107	0.644	0.525	0.120	0.514	0.338	0.486	-0.147	0.063	0.583	0.628	-0.046	0.423
371	355	0.393	0.521	-0.128	0.459	1.000	0.936	0.064	0.063	0.465	0.479	-0.014	0.478
576	5700	0.444	0.345	0.098	0.362	0.628	0.000	0.628	0.057	0.416	0.490	-0.074	0.581
1580	609	0.442	0.500	-0.058	0.455	0.421	0.007	0.414	0.082	0.450	0.506	-0.056	0.463
934	2081	0.463	0.480	-0.016	0.393	0.506	0.290	0.216	0.183	0.440	0.506	-0.066	0.424
1607	265	0.517	0.452	0.065	0.538	1.000	0.000	1.000	0.018	0.560	0.688	-0.128	0.443
1607	571	0.514	0.516	-0.002	0.538	0.000	0.660	-0.660	0.003	0.519	0.543	-0.024	0.459
337	150	0.387	0.354	0.033	0.418	0.782	0.743	0.039	0.230	0.393	0.540	-0.147	0.353
1529	4165	0.507	0.506	0.001	0.442	0.502	0.251	0.251	0.053	0.522	0.508	0.014	0.504
1221	537	0.509	0.575	-0.066	0.426	0.406	0.106	0.300	0.154	0.481	0.570	-0.089	0.420
1421	360	0.516	0.519	-0.003	0.441	0.414	0.836	-0.422	0.052	0.528	0.467	0.061	0.506
1421	529	0.513	0.537	-0.025	0.438	0.516	0.519	-0.003	0.165	0.494	0.494	0.000	0.397
537	605	0.519	0.514	0.004	0.537	0.000	0.212	-0.212	0.051	0.468	0.558	-0.090	0.412
474	853	0.503	0.539	-0.036	0.508	0.000	1.000	-1.000	0.006	0.522	0.459	0.063	0.487
360	529	0.523	0.560	-0.037	0.539	0.171	0.475	-0.304	0.060	0.475	0.479	-0.004	0.401

Table IA.10: Estimates for employment 2003, treatment window January to April, 18 labour markets

No. observations		Always-participants				Complier				Never-participants			
		E[Y ¹ a]	E[Y ⁰ a]	E[Δ a]	P _a	E[Y ¹ c]	E[Y ⁰ c]	E[Δ c]	P _c	E[Y ¹ n]	E[Y ⁰ n]	E[Δ n]	P _n
N ₁	N ₂												
877	818	0.607	0.608	-0.002	0.513	0.397	0.215	0.182	0.058	0.565	0.586	-0.021	0.429
313	472	0.593	0.458	0.134	0.501	0.000	0.974	-0.974	0.047	0.587	0.453	0.135	0.453
2660	763	0.606	0.594	0.011	0.495	0.699	0.156	0.543	0.046	0.579	0.586	-0.006	0.459
107	107	0.679	0.587	0.093	0.514	1.000	1.000	0.000	0.063	0.805	0.604	0.201	0.423
371	355	0.600	0.720	-0.120	0.459	1.000	0.181	0.819	0.063	0.596	0.652	-0.056	0.478
576	5700	0.561	0.428	0.133	0.362	1.000	0.000	1.000	0.057	0.502	0.599	-0.096	0.581
1580	609	0.633	0.619	0.014	0.455	0.512	0.168	0.343	0.082	0.636	0.616	0.020	0.463
934	2081	0.488	0.491	-0.003	0.393	0.514	0.220	0.293	0.183	0.497	0.522	-0.024	0.424
1607	265	0.560	0.507	0.053	0.538	1.000	0.000	1.000	0.018	0.563	0.674	-0.111	0.443
1607	571	0.559	0.559	0.000	0.538	0.000	0.000	0.000	0.003	0.558	0.579	-0.021	0.459
337	150	0.554	0.474	0.079	0.418	0.786	0.798	-0.012	0.230	0.517	0.568	-0.051	0.353
1529	4165	0.564	0.525	0.040	0.442	0.721	0.422	0.300	0.053	0.559	0.506	0.053	0.504
1221	537	0.569	0.573	-0.004	0.426	0.157	0.137	0.020	0.154	0.604	0.567	0.037	0.420
1421	360	0.572	0.549	0.023	0.441	0.800	1.000	-0.200	0.052	0.554	0.482	0.072	0.506
1421	529	0.575	0.534	0.040	0.438	0.472	0.664	-0.192	0.165	0.563	0.489	0.074	0.397
537	605	0.574	0.555	0.019	0.537	0.000	0.556	-0.556	0.051	0.469	0.565	-0.096	0.412
474	853	0.529	0.522	0.007	0.508	0.000	1.000	-1.000	0.006	0.547	0.482	0.064	0.487
360	529	0.625	0.533	0.092	0.539	0.000	0.843	-0.843	0.060	0.531	0.474	0.057	0.401

Table IA.11: Estimates for employment 2006, treatment window January to April, 18 labour markets

No. observations		Always-participants				Complier				Never-participants			
		E[Y ¹ a]	E[Y ⁰ a]	E[Δ a]	P _a	E[Y ¹ c]	E[Y ⁰ c]	E[Δ c]	P _c	E[Y ¹ n]	E[Y ⁰ n]	E[Δ n]	P _n
N ₁	N ₂												
877	818	0.551	0.570	-0.019	0.513	0.906	0.102	0.803	0.058	0.530	0.548	-0.017	0.429
313	472	0.511	0.489	0.022	0.501	0.063	0.156	-0.093	0.047	0.536	0.475	0.061	0.453
2660	763	0.552	0.580	-0.028	0.495	1.000	0.062	0.938	0.046	0.532	0.563	-0.032	0.459
107	107	0.645	0.635	0.009	0.514	1.000	0.580	0.420	0.063	0.591	0.633	-0.041	0.423
371	355	0.549	0.636	-0.087	0.459	1.000	0.274	0.726	0.063	0.576	0.626	-0.050	0.478
576	5700	0.548	0.456	0.092	0.362	1.000	0.000	1.000	0.057	0.495	0.568	-0.073	0.581
1580	609	0.642	0.591	0.051	0.455	0.066	0.249	-0.183	0.082	0.700	0.594	0.106	0.463
934	2081	0.461	0.444	0.017	0.393	0.490	0.259	0.231	0.183	0.463	0.464	-0.001	0.424
1607	265	0.549	0.531	0.018	0.538	1.000	0.000	1.000	0.018	0.549	0.633	-0.084	0.443
1607	571	0.545	0.580	-0.035	0.538	0.000	1.000	-1.000	0.003	0.549	0.510	0.039	0.459
337	150	0.433	0.493	-0.060	0.418	1.000	0.674	0.326	0.230	0.498	0.560	-0.061	0.353
1529	4165	0.553	0.501	0.052	0.442	0.455	0.389	0.066	0.053	0.556	0.489	0.067	0.504
1221	537	0.540	0.551	-0.011	0.426	0.222	0.217	0.005	0.154	0.572	0.527	0.044	0.420
1421	360	0.533	0.530	0.003	0.441	0.528	0.967	-0.439	0.052	0.542	0.459	0.084	0.506
1421	529	0.534	0.528	0.006	0.438	0.474	0.603	-0.129	0.165	0.511	0.466	0.045	0.397
537	605	0.544	0.546	-0.002	0.537	0.000	1.000	-1.000	0.051	0.466	0.488	-0.022	0.412
474	853	0.510	0.477	0.032	0.508	0.000	1.000	-1.000	0.006	0.499	0.463	0.036	0.487
360	529	0.578	0.466	0.112	0.539	0.000	0.938	-0.938	0.060	0.480	0.458	0.022	0.401

Table IA.12: Estimates for employment 1999-2006, treatment window January to April, 18 labour markets

No. observations		Always-participants				Complier				Never-participants			
		E[Y ¹ a]	E[Y ⁰ a]	E[Δ a]	P _a	E[Y ¹ c]	E[Y ⁰ c]	E[Δ c]	P _c	E[Y ¹ n]	E[Y ⁰ n]	E[Δ n]	P _n
N ₁	N ₂												
877	818	0.598	0.593	0.005	0.513	0.376	0.230	0.146	0.058	0.582	0.577	0.006	0.429
313	472	0.586	0.465	0.121	0.501	0.000	1.000	-1.000	0.047	0.552	0.463	0.090	0.453
2660	763	0.584	0.588	-0.005	0.495	0.999	0.146	0.853	0.046	0.533	0.576	-0.044	0.459
107	107	0.678	0.561	0.117	0.514	1.000	0.554	0.446	0.063	0.725	0.668	0.056	0.423
371	355	0.537	0.667	-0.130	0.459	1.000	0.471	0.529	0.063	0.587	0.625	-0.038	0.478
576	5700	0.549	0.434	0.115	0.362	1.000	0.000	1.000	0.057	0.492	0.572	-0.080	0.581
1580	609	0.611	0.600	0.011	0.455	0.399	0.151	0.248	0.082	0.628	0.597	0.031	0.463
934	2081	0.495	0.487	0.008	0.393	0.491	0.255	0.235	0.183	0.498	0.511	-0.013	0.424
1607	265	0.558	0.505	0.054	0.538	1.000	0.000	1.000	0.018	0.578	0.679	-0.100	0.443
1607	571	0.556	0.563	-0.007	0.538	1.000	0.000	1.000	0.003	0.558	0.565	-0.006	0.459
337	150	0.503	0.504	-0.001	0.418	0.885	0.748	0.137	0.230	0.499	0.587	-0.089	0.353
1529	4165	0.571	0.533	0.037	0.442	0.614	0.342	0.272	0.053	0.570	0.524	0.047	0.504
1221	537	0.570	0.593	-0.023	0.426	0.224	0.187	0.037	0.154	0.593	0.567	0.026	0.420
1421	360	0.568	0.565	0.003	0.441	0.575	1.000	-0.425	0.052	0.567	0.473	0.094	0.506
1421	529	0.569	0.559	0.011	0.438	0.443	0.597	-0.155	0.165	0.579	0.512	0.067	0.397
537	605	0.576	0.553	0.023	0.537	0.000	0.728	-0.728	0.051	0.480	0.552	-0.072	0.412
474	853	0.528	0.530	-0.002	0.508	0.000	1.000	-1.000	0.006	0.542	0.484	0.058	0.487
360	529	0.603	0.551	0.052	0.539	0.000	0.610	-0.610	0.060	0.540	0.495	0.045	0.401

Appendix IB: Data and Institutions

IB.1 AVAM/ASAL/AHV Database

The empirical analysis is based on data from two administrative sources, matched by a unique person identifier. Data were obtained for all of the approximately 180'000 persons registered unemployed on December 31, 1997. The first data source is the information system for placement and labour market statistics (AVAM) and the unemployment offices payment system (ASAL). These data provide detailed information about the unemployment history, ALMP participation, and personal characteristics for the period 1996 to 2006.¹ These data were merged with the social security records (AHV) for a random subsample of about 80'000 individuals. These social security data contain monthly information on the individual labour market histories and earnings (including self-employment) on a monthly basis for the period 1988 to 1999. These social security data allow us to examine the effects of active labour market programmes on employment.

Sample selection:

In order to focus on the mobile population, as described in Section 3, various sample selection rules were applied. These are detailed in Table IB.1 together with the ensuing loss of observations.

Table IB.1: Sample selection

	Remaining observations
Original sample	81'399
Delete all students, apprentices, homeworkers	80'775
Delete all foreigners with less than yearly work permit	79'610
Delete age < 25 or age > 55	75'992
Delete if insured monthly earnings < 1000 CHF	70'474
Delete if partly employed	68'190
Delete if disabled or exhausted unemployment benefits (ausgesteuert) → Final sample	66'713

¹ E.g. information on place of residence, mother tongue, foreign languages, number of dependent persons, disability, education, qualification, caseworker's assessment of employability, information about last job, looking for part-time or full-time job, beginning and end of entitlement period, benefit payments, sanction days, sickness benefits, participation in labour market programmes, and temporary wage subsidies. AVAM: Arbeitsvermittlung und Arbeitsmarktstatistik, ASAL: Auszahlungssystem der Arbeitslosenkassen, AHV: Alters- und Hinterlassenenversicherung. The data were merged by Jonathan Gast (seco).

IB.2 Regional employment offices and descriptive statistics

Table IB.2 gives a list of all regional employment offices. The first column contains an identification number. The second column indicates the canton, and the third column gives the name of the regional employment office. In the last column, the number of observations in the selected sample (see Table IB.1) is given. The REO that are included in any of the 30 local labour markets are marked in bold.

Table IB.2: Regional employment offices (REO)

No	Can ton	Name of regional office	Obs	No	Can ton	Name of regional office	Obs
1	ZH	Opfikon	733	51		Kriens	485
2		Marthalen	115	52		Sursee	399
3		Winterthur	1221	53		Wolhusen	154
4		Effretikon	320	54	UR	Altdorf	150
5		Uster	928	55	SZ	Goldau	337
6		Wetzikon	719	56		Lachen	529
7		Bülach-Nord	305	57	OW	Hergiswil, OW	110
8		Meilen	474	58	NW	Hergiswil, NW	155
9		Thalwil	947	59	GL	Glarus	129
10		Affoltern a.A.	277	60		Schwanden	135
11		Dietikon	767	61	ZG	Zug	571
12		Regensdorf	393	64	FR	Châtel-St.Denis	107
13		Ausstell.	607	65		Murten, See-B.	197
14		Ausstell.	537	198		FRD2	2
15		Flösserg.	471	66		Tafers, Sense-	201
16		Flösserg.	360	67		Romont, Glâne	143
18		Schwamend ^a	291	68		Fribourg, Sar.	860
19		Hohlstr.	291	200		FRL2	5
20		Bäckerstr.	615	205		FRL3	8
21		Badenerstr	511	212		Städtisches Arbeitsamt Fribourg	55
22		Eggbühlstr	810	69		Bulle, Gruyère	319
23		Lagerstr.	492	201		FRM2	2
216	BE	BEAa	1	70		Estavayer le lac, Bro	228
27		Mittell. Gümlingen	416	71	SO	Trimbach	104
28		Mittell. Zollikofen	369	74		Grenchen	191
29		Mittell. Liebefeld-Köniz	456	75		Solothurn	440
30		BE-Oberl. Unterseen	366	76		Oensingen	181
214		BEAG	16	77		Olten	336
32		Spiez	223	78		Breitenbach	159
33		BE-Oberl. Meiringen	79	79		Biberist	125
35		Emmental, Langnau	94	80		Schönenwerd	131
36		Oberaargau, Wangen	202	81		Zuchwil	131
37		Lyss (Seeland)	329	196	BS	BSA2	3
38		Moutier	124	82		Basel, RAV 1, Hochstr	783
39		Jura La Neuveville	49	83		Basel, Utengasse	760
40		Jura St.Imier	91	208		KIGA Basel, LAM	56
41		SubRav Bern-West Lagerhausweg	813	84		Basel, RAV 2, Hochstr	538
42		SubRav. Bern-Ost Kasterhoferstr.	666	194	BL	BLA1	14
215		BEAZ	2	87		Pratteln	338
43		Jura, Tavannes	123	197		BLD2	1
204		BEA3	2	88		Münchenstein	256
44		Biel	945	199		BLE2	2
210		BEA6	3	89		Binningen	340
45		Burgdorf	303	90		Liestal	287
46		Langenthal	313	91		Laufen	86
47		Oberl. Thun S.	858	92		Gelterkinden	155
48	LU	Luzern	538	93	SH	Schaffhausen	605
49		Emmen	429	94	AR	Herisau	247
50		Emmenbrücke	155	95	AI	Appenzell	39

193	SG	SGA1	1	140	Echallens	163
96		St.Gallen	1022	141	Vevey	654
97		Rorschach	348	142	Prilly	263
98		Oberuzwil	505	143	Aigle	515
99		Sargans	207	144	Morges	442
100		Buchs	168	145	Renens	801
101		Heerbrugg	417	146	Montreux	411
102		Rapperswil	360	147	Oron-la-Ville	107
103		Wattwil	185	148	Orbe	406
104	GR	Chur	289	149	Pully	378
189		Gemeindearbeitsamt Stadt Chur	191	150	Aubonne	158
105		Thusis	80	151	Yverdon Grand.	617
106		Ilanz	70	153	Nyon	576
107		Grono	73	154	Payerne	236
108		Davos-Platz	76	155	Moudon	119
109		Samedan	98	156	VS Monthey 1	367
110	AG	Zofingen	472	157	Monthey 2	242
111		Zurzach	214	158	Martigny 1	336
112		Muri AG	175	159	Martigny 2	389
113		Menziken	221	160	Fully	123
114		Frick	106	161	Sierre 1	372
192		AGA1	3	162	Sierre 2	319
115		Aarau, Kunstst.	551	163	Sion 1	238
116		Baden	572	164	Sion 2	308
117		Wettingen	484	165	Sion 3	588
118		Lenzburg	328	166	St-Séverin	114
119		Brugg	283	167	Brig 1	539
120		Wohlen	473	168	Brig 2	128
121		Rheinfelden	233	169	Visp	89
122	TG	Frauenfeld	537	170	Naters	7
202		Gemeindearbeitsamt Stadt Frauenfeld	29	171	NE Mont., La Chaux de Fonds	845
123		Kreuzlingen	387	172	Litt., Neuchâtel	1234
207		TGP4	1	211	NEA6	1
124		Weinfelden	227	213	Städtisches Arbeitsamt Neuchâtel	17
125		Amriswil	474	179	GE Ag de Rive	1509
203		TGQ2	3	180	GE, Carouge	231
206		TGQ3	3	181	AG d Minot. I	1304
209		TGQ5	11	182	AG d Minot. II	613
126	TI	Bellinzona	697	183	AG des Saules	699
127		Locarno	1495	184	AG des Gares	1344
128		Lugano	1665	191	GEA1	2
129		Chiasso	394	195	JU JUA1	1
130		Biasca	343	186	Delémont	266
131	VD	Lausanne Chaud. 9	2010	187	Porrentruy	237
132		Lausanne Chaud. 7	140	188	Saignelégier	46

Note: All regional employment offices with at least one observation in the selected sample. Marked in **bold** are all REO included in any of the 30 local labour markets. ^{a)} Oberwiesenstrasse 66

Appendix IC: Local labour markets

Table IC.1: Commuting times by car between regional employment offices (in minutes)

	122 Frau- enfeld	123 Kreu- zlingen	124 Weinfeld- en	125 Amriswil	55 Goldau	56 Lachen	94 Herisau	95 Appenzell	104 Chur	01 Opfikon	03 Winterthur	05 Uster	06 Wetzikon	08 Meilen
96 St.Gallen				20			16	24						
97 Rorschach				21										
98 Oberuzwil	27		35	36			22				34			
99 Sargans									22					
100 Buchs														
101 Heerbrugg														
102 Rapperswil						11				34	43	24	19	27
103 Wattwil													41	

	122 Frau- enfeld	123 Kreu- zlingen	124 Wein- felden	125 Am- riswil	55 Gol- dau	56 Lache- n	93 Schaff- hause- n	61 Zug	110 Zofin- gen	111 Zur- zach	112 Muri	113 Men- ziken	114 Frick	115 Aarau	116 Baden	117 Wet- tingen	118 Lenzb- urg	119 Brugg	120 Wohle- n	121 Rhein- felden
01 Opfikon	30						34			34	38			37	21	21	30	41	33	
02 Marthalen	25						12													
03 Winterthur	20						22													
04 Effretikon	26						29													
05 Uster	35					36														
06 Wetzikon						30														
07 Bülach-Nord							36			29					35	35				
08 Meilen						37														
09 Thalwil								31												
10 Affoltern								26												
11 Dietikon										38	17									30
12 Regensdorf											30				15	15	24	27	24	
13-23: ZH City															19	19	28	39	31	
															27	27		45	37	

	82-84 Basle	87 Pratteln	88 Mün- chenstein	89 Binning- en	90 Liestal	91 Laufen	92 Gelterkin- den	186 Delémont	110 Zofingen	111 Zurzach	112 Muri	113 Menziken	114 Frick	115 Aarau	116 Baden	117 Wettlin- gen	118 Lenzburg			
87 Pratteln	10																			
88 Münchenstein	13																			
89 Binningen	7																			
90 Liestal	20																			
91 Laufen	25							20												
92 Gelterkinden	24																			
71 Trimbach					28		25		21					20			35			
72 Derendingen									27					43						
74 Grenchen																				
75 Solothurn									31											
76 Oensingen							32		17					34						
77 Olten							32		16				36	15			30			
78 Breitenbach	26		22			5		26												
79 Biberist									31											
80 Schönenwerd									20					5			24			
81 Zuchwil									26											
	68 Fri- bourg	64 Châtel- St.Denis	65 Murten	66 Tafers	67 Romont	69 Bulle	70 Es- tavayer le-lac	71 Trim- bach	72 Derendi- ngen	74 Grench- en	75 Solo- thurn	76 Oensin- gen	77 Olten	78 Breiten- bach	79 Biberist	80 Schöne- nwerd	81 Zuchwil	110 Zofin- gen	171 La- Chaux de Fonds	172 Neu- chatel
27 Gümligen	29		26	29					26	42	32	34			27		34			
28 Zollikofen	30		27	30					22	29	29	30			24		30			
29 Liebefeld- Köniz	24		24	25					30	46					31					
30 Unterseen																				
47 Thun																				
32 Spiez																				
33 Meiringen																				
44 Biel			39							25										30
35 Langnau																				
36 Wangen								30	9	28	13	8	24		13	32	14			
37 Lyss			29						30	27	36				36					
38 Moutier																				
39 La Neuveville																				15
40 St.Imier																			17	
41/42 Bern	23		20	24					26	42	32				27		34			
43 Tavannes																				
45 Burgdorf											28				22		29			
46 Langenthal								36	25		29	19	30		29	39	31	26		

	68 Fribourg	64 Châtel-St.Denis	65 Murten	66 Tavers	67 Romont	69 Bulle	70 Estavayer le-lac	156/157 Monthey
131/132 Lausanne		30						
140 Echallens		35			44			
141 Vevey		12				28		27
142 Prilly		26						
143 Aigle		24						15
144 Morges								
145 Renens		27						
146 Montreux		15				30		25
147 Oron-la-Ville		13			21	29		
148 Orbe								
149 Pully		19						
150 Aubonne								
151 Yverdon							25	
153 Nyon								
154 Payerne	28		19		23		9	
155 Moudon		30			18		28	
	55 Goldau	57/58 Hergiswil	61 Zug	110 Zofingen	122 Frauenfeld			
48 Luzern	26	11	30					
49 Emmen	22	10	26		34			
50 Emmenbrücke	23	10	28		34			
51 Kriens	26	8	31					
52 Sursee	35	23		22				
53 Wolhusen		23						
54 Altdorf	24							
61 Zug	21							
93 Schaffhausen					31			

Note: The REO Schlieren (24) and Horgen Süd-Wädenswil (25) are not displayed since the number of observations is zero for these two REO. Commuting times were calculated using <http://route.web.de/Europa>. Commuting times are in minutes when using a car and driving at medium speed. All commuting times between any pair of REO are shown in the table, if ≤ 30 minutes. Commuting times > 30 minutes are not always displayed. The number in front of the name of the REO corresponds to the number of Table IB.2.

Table IC.1 shows the commuting distances between the regional employment offices as calculated using <http://route.web.de/Europa>. With these commuting distances and further considerations on commuting infrastructure, 30 local labour markets were identified. These are displayed in Table IC.2, together with the number of observations in the selected sample. For example, the first row indicates that the areas corresponding to the REO of Grenchen, Biel, and Lyss are considered as a local labour market, where Grenchen belongs to the canton Solothurn (SO) and Biel and Lyss belong to the canton Bern (BE). This row further shows that 186 observations belong to the REO Grenchen, while the REO Biel and Lyss together have 1'109 observations.

Table IC.2: Local labour markets divided by administrative border

#	Cantons	Regional employment offices		Number of observations	
				n ₁	n ₂
1	SO-BE	Grenchen	Biel, Lyss	186 ^a	1'109 ^a
2	SO-BE	Solothurn, Oensingen, Biberist, Zuchwil	Wangen, Langenthal, Burgdorf	877	818
3	SO-BL	Breitenbach	Laufen	159	86
4	SO-AG	Trimbach, Olten, Schönewerd	Zofingen, Aarau	571	1'023
5	NE-BE	La Chaux de Fonds	St. Imier	845	91
6	NE-BE	Neuchatel	La Neuveville	1'234	49
7	BE-AG	Langenthal	Zofingen	313	472
8	BE-FR	Gümligen, Zollikofen, Köniz, Bern (2x)	Murten, Tafers, Fribourg	2'660 ^a	763 ^a
9	FR-VD	Chatel St. Denis	Oron la Ville	107	107
10	FR-VD	Romont, Estavayer	Payerne, Moudon	371	355
11	VD-GE	Nyon	Genf (6x)	576	5'700
12	VD-VS	Vevey, Aigle, Montreux	Monthey (2x)	1'580	609
13	BL-BS	Pratteln, Münchenstein, Binningen	Basel (3x)	934	2'081
14	LU-AG	Sursee	Zofingen	399	472
15	LU-NWOW	Luzern, Emmen, Emmenbrücke, Kriens	Hergiswil (2x)	1'607	265
16	LU-ZG	Luzern, Emmen, Emmenbrücke, Kriens	Zug	1'607	571
17	SZ-UR	Goldau	Altdorf	337	150
18	SZ-ZG	Goldau	Zug	337	571
19	AG-ZH	Baden, Wettingen, Wohlen	Opfikon, Effretikon, Uster, Wetzikon, Bülach, Dietikon, Regensdorf	1'529	4'165
20	ZH-SH	Marthalen	Schaffhausen	115	605
21	ZH-TG	Winterthur	Frauenfeld	1'221	537
22	ZH-SG	Meilen, Thalwil	Rapperswil	1'421	360
23	ZH-SZ	Meilen, Thalwil	Lachen	1'421	529
24	TG-SH	Frauenfeld	Schaffhausen	537	605
25	TG-SG	Amriswil	Rohrschach, Oberuzwil	474	853
26	SG-AR	St. Gallen, Rohrschach	Herisau	1'370	247
27	AR-AI	Herisau	Appenzell	247	39
28	SG-SZ	Rapperswil	Lachen	360	529
29	SG-GR	Sargans	Chur (2x)	207	480
30	GR-TI	Grono	Bellinzona	73	697

Note: ^a Number of observations after deleting individuals with French mother tongue, because a French-German bilingual region is bordering a German speaking region.

Table IC.3 shows various summary statistics for these local labour markets. The first two columns indicate the number of the local labour market and the cantonal border that passes through this labour market.

Columns 3 to 10 show the ALMP-structure in the REO of the local labour market, where columns 3 to 6 refer to the one side of the border and columns 7 to 10 to the other side. The ALMP-structure is presented by the percentages of treated participating in training, employment programmes, temporary wage subsidies and other programmes, respectively. These columns indicate a non-negligible variation in the types of programmes to which caseworkers assign their clients. For example, the first row indicates that 13% of the participants in the REO Grenchen receive training, while this figure is 29% in the REO Biel and Lyss. The corresponding fractions for employment programmes are 46% in Grenchen and 31% in Biel and Lyss. Hence, not only are unemployed living in Grenchen (compared to Biel and Lyss) more likely to be treated, they are also more likely to be assigned to employment programmes if treated and less likely to receive training. Thus, the treatment itself is different in Grenchen from Biel and Lyss.

The IV exclusion restriction requires that the ALMP should be similar on both sides of the border. With the fractions of the ALMP allocation adding up to 100%, we select a *subset* of local labour markets where the structure of ALMP appears to be similar on both sides of the border in that we limit the *maximum divergence* between the corresponding fractions on the two sides of the border. For example, the maximum divergence in the first row is 16 (29% training - 13% training). For the second labour market, the maximum divergence is 4 (39%-35% for employment programmes). Since the choice of a threshold for the maximum divergence is somewhat arbitrary, two variants are considered: In the first variant (Selection A) a maximum divergence of at most 7 is permitted. This condition is satisfied by only 8 local labour markets, which are marked in the second last column of Table IC.3.² For the second variant (Selection B), the threshold is doubled to include a larger selection of local labour markets in the analysis.³ Selection B contains 18 local labour markets, marked in the last column of Table IC.3. These 18 labour markets are used as our main sample in the empirical analysis.

² The threshold 7 was chosen, as this is exactly the maximum divergence for four of the 30 labour markets. Hence, a smaller threshold would have been satisfied only by four or fewer labour markets.

³ The threshold was set to 13, since there was no local labour market with maximum divergence of 14.

Table IC.3: Treatment intensity and ALMP composition in the local labour markets

Region	Allocation to programme types among the treated (in %)								S ^a	
	Train- ing	Empl. prg	Temp subsidy	other	Train- ing	Empl. prg	Temp subsidy	other	A	B
1	SO-BE	13	46	39	1	29	31	40	0	
2	SO-BE	20	35	45	1	18	39	43	0	x x
3	SO-BL	29	1	66	4	24	24	52	0	
4	SO-AG	19	29	51	1	34	30	35	0	
5	NE-BE	21	42	36	1	27	27	46	0	
6	NE-BE	23	39	37	1	45	21	30	3	
7	BE-AG	17	37	46	0	24	39	36	1	x
8	BE-FR	28	33	39	0	28	38	33	1	x x
9	FR-VD	30	20	48	1	27	16	56	2	x x
10	FR-VD	31	30	37	2	21	38	40	1	x
11	VD-GE	41	12	46	1	40	10	48	2	x x
12	VD-VS	33	20	46	1	23	33	43	1	x
13	BL-BS	34	22	44	0	25	22	52	1	x
14	LU-AG	46	25	27	1	24	39	36	1	
15	LU-NWOW	46	21	32	1	39	21	40	1	x
16	LU-ZG	46	21	32	1	38	23	38	1	x
17	SZ-UR	41	38	21	0	34	35	31	0	x
18	SZ-ZG	41	38	21	0	38	23	38	1	
19	AG-ZH	49	15	35	1	38	14	47	1	x
20	ZH-SH	31	15	54	0	46	18	36	0	
21	ZH-TG	38	19	43	1	34	26	40	0	x x
22	ZH-SG	51	12	35	1	45	13	42	0	x x
23	ZH-SZ	51	12	35	1	49	20	31	0	x x
24	TG-SH	34	26	40	0	46	18	36	0	x
25	TG-SG	44	19	37	0	44	15	39	1	x x
26	SG-AR	47	12	40	1	8	38	54	0	
27	AR-AI	8	38	54	0	56	0	44	0	
28	SG-SZ	45	13	42	0	49	20	31	0	x
29	SG-GR	48	12	39	1	27	20	50	2	
30	GR-TI	42	21	34	3	25	27	47	2	

Note: ^a Selection A contains only labour markets with maximum divergence between the programme type compositions ≤ 7 . For selection B, the maximum divergence is ≤ 13 .

On the following pages we show geographical maps of the 18 local labour markets that we use in our empirical analysis.

Graphical representation of Table IA.0:

Location of all considered Regional Employment Offices:

All borders separately:

Note that the maps are on the same scale.

SO (red): Solothurn, Oensingen, Biberist, Zuchwil

BE (grey): Wangen, Langenthal, Burgdorf

BE (red): Langenthal
AG (grey): Zofingen

BE (red): Gümligen, Zollikofen, Köniz, Bern (2x)
FR (grey): Murten, Tavers, Fribourg

FR (red): Chatel-St.Denis
VD (grey): Oron la Ville

FR (red): Romont, Estavayer
VD (grey): Payerne, Moudon

VD (red): Nyon
GE (grey): Genf (6x)

VD (red): Vevey, Aigle, Montreux
VS (grey): Monthey (2x)

BL (red): Pratteln, Münchenstein, Binningen
BS (grey): Basel (3x)

LU (red): Luzern, Emmen, Emmenbrücke, Kriens
NWOW (grey): Hergiswil (2x)

LU (red): Luzern, Emmen, Emmenbrücke, Kriens
ZG (grey): Zug

SZ (red): Goldau
UR (grey): Altdorf

AG (red): Baden, Wettingen, Wohlen

ZH (grey): Opfikon, Effretikon, Uster, Wetzikon, Bülach, Dietikon, Regensdorf

ZH (red): Winterthur
TG (grey): Frauenfeld

ZH (red): Meilen, Thalwil
SG (grey): Rapperswil

ZH (red): Meilen, Thalwil
SZ (grey): Lachen

TG (red): Frauenfeld
SH (grey): Schaffhausen

TG (red): Amriswil
SG (grey): Rohrschach, Oberuzwil

SG (red): Rapperswil
SZ (grey): Lachen

Appendix ID: Analysis of common support

The following graphs show the distributions of the estimated propensity scores in all 18 labour markets. (The ordering of the 18 labour markets follows Table IA.0) On the left, estimates of the propensity score $P = p(X_2) = \Pr(D = 1 | X_2)$ are shown, whereas on the right, estimates of the instrument propensity score $\Pi = \pi(X_1) = \Pr(Z = \bar{z} | X_1)$ are given. In each graph, two Kernel density estimates of the respective propensity scores are shown. The left graph shows density estimates of $f_{P|D=1}$ and $f_{P|D=0}$, whereas the right graph shows density estimates of $f_{\Pi|Z=\bar{z}}$ and $f_{\Pi|Z=\underline{z}}$, using an Epanechnikov kernel with bandwidth value 0.1. (The caption below each graph indicates the cantonal border which divides the labour market.)

Figure ID.1: Distribution of the estimated propensity scores in each of the 18 labour markets

Labour market 3: BE-FR (Left graph: Kernel density estimate of $E[D|X_2]$, right graph: Kernel density estimate of $E[Z|X_1]$)

Labour market 4: FR-VD (Left graph: Kernel density estimate of $E[D|X_2]$, right graph: Kernel density estimate of $E[Z|X_1]$)

Labour market 5: FR-VD (Left graph: Kernel density estimate of $E[D|X_2]$, right graph: Kernel density estimate of $E[Z|X_1]$)

Labour market 6: VD-GE (Left graph: Kernel density estimate of $E[D|X_2]$, right graph: Kernel density estimate of $E[Z|X_1]$)

Labour market 7: VD-VS (Left graph: Kernel density estimate of $E[D|X_2]$, right graph: Kernel density estimate of $E[Z|X_1]$)

Labour market 8: BL-BS (Left graph: Kernel density estimate of $E[D|X_2]$, right graph: Kernel density estimate of $E[Z|X_1]$)

Labour market 9: LU-NW/OW (Left graph: Kernel density estimate of $E[D|X_2]$, right graph: Kernel density estimate of $E[Z|X_1]$)

Labour market 10: LU-ZG (Left graph: Kernel density estimate of $E[D|X_2]$, right graph: Kernel density estimate of $E[Z|X_1]$)

Labour market 11: SZ-UR (Left graph: Kernel density estimate of $E[D|X_2]$, right graph: Kernel density estimate of $E[Z|X_1]$)

Labour market 12: AG-ZH (Left graph: Kernel density estimate of $E[D|X_2]$, right graph: Kernel density estimate of $E[Z|X_1]$)

Labour market 13: ZH-TG (Left graph: Kernel density estimate of $E[D|X_2]$, right graph: Kernel density estimate of $E[Z|X_1]$)

Labour market 14: ZH-SG (Left graph: Kernel density estimate of $E[D|X_2]$, right graph: Kernel density estimate of $E[Z|X_1]$)

Labour market 15: ZH-SZ (Left graph: Kernel density estimate of $E[D|X_2]$, right graph: Kernel density estimate of $E[Z|X_1]$)

Labour market 16: TG-SH (Left graph: Kernel density estimate of $E[D|X_2]$, right graph: Kernel density estimate of $E[Z|X_1]$)

Labour market 17: TG-SG (Left graph: Kernel density estimate of $E[D|X_2]$, right graph: Kernel density estimate of $E[Z|X_1]$)

Labour market 18: SG-SZ (Left graph: Kernel density estimate of $E[D|X_2]$, right graph: Kernel density estimate of $E[Z|X_1]$)