

DOES LEAVING WELFARE IMPROVE HEALTH?

EVIDENCE FOR GERMANY

Internet appendix

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IA.1 Data appendix

The panel sample of linked survey and administrative information consists of 12,433 welfare recipients. Table I.0 shows the means of the pre-treatment health outcomes and employment status at interview 1 for the panel cases and those who only responded in the first wave. The means are very similar for all variables.

Table I.0: Attrition

Variable	Panel cases	Wave 1 only
Often lethargic and depressed (binary)	.203	.198
Health (scale, 1: very good, 5: poor)	2.375	2.381
Very good, good or satisfactory health (binary)	.615	.603
Prevalence of psychosomatic symptoms (binary)	.424	.424
Prevalence of mental symptoms (binary)	.315	.314
Prevalence of physical symptoms (binary)	.459	.488
Number of symptoms (integer)	1.685	1.704
Work capacity per day (scale, 1: < 3 hrs, 4: 8+ hrs)	3.250	3.277
Capable of working 6 or more hours per day (binary)	.779	.787
Gastro-intestinal problems (binary)	.157	.146
Cardiovascular problems (binary)	.200	.200
Nervous problems, anxieties (binary)	.189	.188
Allergies, skin problems (binary)	.214	.214
Probl. w. back, neck, spine, intervertebral discs (bin.)	.381	.408
Problems with bones, joints (binary)	.246	.240
Problems with sleeping (binary)	.256	.264
Other symptoms (binary)	.042	.042
No symptoms (binary)	.304	.282
Receiving welfare	.859	.884
Employed	.137	.136
In programme	.097	.110

In order to identify the effect of a change in the welfare state, we are interested in individuals that had not been on welfare for too long before interview 1. The reason is that otherwise the follow-up period after a switch into employment or a programme would be relatively short compared to the pre-transition period on welfare, such that the health state after the transition might be predominantly driven by the long welfare history. In other words, if health deteriorates while being on welfare and it does so for a long time, the short term health effects of finding employment may be negligible vis-à-vis of the long term welfare

receipt. We therefore restrict the sample to individuals who had entered welfare within the last 12 months before interview 1, which leaves us with 4,946 panel cases. Furthermore, we discard individuals that stated not to receive welfare benefits at interview 1 (246 obs.) and those younger than 26 (1486), as our interest lies on prime age workers with completed education. Lastly, we drop observations with missing values in the outcomes (183) and pre-transition outcomes (182) of interest.

As shown in Table I.1, the final evaluation sample consists of 2,849 individuals, for whom three states are considered: remaining on welfare (*W*), finding employment (*E*), and programme participation (*P*).¹ The time span between interviews 1 and 2 is divided into months. The survey contains information on welfare receipt, employment, and programme participation in each month, which was reciprocally asked in interview 2. As the outcome variables are measured at interview 2, the transition period contains all months after interview 1 up to (and including) the last month before interview 2. Note that the transition periods of various individuals may differ in length and timing, as interviews 1 were conducted between January and April 2007 and interviews 2 between November 2007 and March 2008. Whereas state *W* is defined as receiving welfare over the whole transition period, *E* and *P* only require to be employed or in a programme, respectively, for at least one month in the transition period. Thus, the latter comprise individuals that enter a programme or employment both temporarily or permanently between the two interviews.

Furthermore, we condition on not being employed at interview 1 for the comparison *E-W*, on not participating in a programme for *P-W* and on neither being employed nor participating in a programme for *E-P*. E.g., when evaluating *E-W*, only welfare recipients not working at

¹ The majority of programmes are relatively short job search assistance and training programmes, as well as workfare programmes.

interview 1 are compared to each other. By doing so, the health effects of switching into employment are identified and confounding with an ongoing employment spell that started already in the pre-transition period is prevented.

Table I.1: Sample selection and number of observations per welfare state

Sample of panel cases	12433
Did not enter welfare in the last 12 months before interview 1	7487
Did not receive welfare at interview 1	246
Younger than 26	1486
Missing values in one or more outcomes	183
Missing values in one or more pre-transition outcomes	182
Evaluation sample	2849
W: welfare receipt conditional on not working at interview 1	917
E: employment conditional on not working at interview 1	461
W: welfare receipt conditional on not in programme at interview 1	1142
P: programme conditional on not in programme at interview 1	245
E: employment cond. on not working and not in programme at interview 1	382
P: programme cond. on not working and not in programme at interview 1	185

Table I.2: Health of welfare recipients

	Interview 1	Interview 2	Mean differ- ence	p-value (2-tailed t- test)
Work capacity per day (scale, 1: < 3 hrs, 4: 8+ hrs)	3.2	3.16	-.037	.172
Capable of working 6 or more hours per day (binary)	.73	.7	-.026	.037
Health (scale , 1: very good, 5: poor)	2.7	2.68	-.023	.481
Very good, good or satisfactory health (binary)	.49	.5	.007	.668
Prevalence of psychosomatic symptoms (binary)	.45	.45	-.003	.82
Prevalence of mental symptoms (binary)	.35	.34	-.01	.508
Prevalence of physical symptoms (binary)	.57	.55	-.014	.32
Number of symptoms (integer)	1.97	1.92	-.055	.168
Gastro-intestinal problems (binary)	.16	.16	.005	.626
Cardiovascular problems (binary)	.26	.25	-.008	.572
Nerval problems, anxieties (binary)	.23	.22	-.001	.929
Allergies, skin problems (binary)	.19	.18	-.011	.308
Probl. w. back, neck, spine, intervertebral discs (bin.)	.48	.48	-.003	.81
Problems with bones, joints (binary)	.33	.31	-.014	.35
Problems with sleeping (binary)	.28	.26	-.016	.249
Other symptoms (binary)	.05	.05	-.007	.497
No symptoms (binary)	.21	.22	.011	.429
Often lethargic and depressed (binary)	.25	.26	.01	.481

Notes: Bold and italic: Effect is significant at the 1% level. Bold: Effect is significant at the 5% level. Italic: Effect is significant at the 10% level. p-values are obtained by bootstrap with 4999 replications.

Table I.3: Before matching means of potential confounders

	W	E	W	P	E	P
Socio-economic characteristics						
age	.45	.41	.45	.44	.41	.44
female	.52	.44	.56	.56	.44	.54
migrant	.3	.3	.31	.24	.3	.25
taking care of children	.23	.15	.24	.15	.15	.16
number of children younger than 6	.16	.15	.16	.11	.16	.12
cohabiting	.39	.39	.4	.37	.41	.35
lone parent	.08	.06	.08	.09	.05	.09
no school-leaving qualifications	.03	.03	.03	.02	.03	.02
elementary schooling	.01	0	.01	.01	0	.01
secondary schooling (Hauptschule)	.44	.38	.43	.42	.38	.45
secondary schooling (Realschule)	.34	.35	.34	.37	.36	.35
matriculation standard	.18	.24	.19	.17	.23	.16
no professional degree	.19	.18	.19	.18	.18	.17
vocational education	.57	.55	.56	.58	.55	.59
technical school, college or university	.29	.32	.29	.29	.31	.28
possessing a driver's license	.69	.82	.71	.64	.82	.66
long-term illness	.21	.07	.18	.1	.07	.12
recognized severe disability	.15	.1	.15	.16	.1	.17
Personal attitudes and environment						
reluctant to work under bad working conditions	.16	.07	.15	.11	.07	.12
reluctant to accept night shifts and untypical working hours	.22	.13	.21	.16	.12	.17
reluctant to accept work with a low salary	.2	.21	.19	.18	.23	.18
reluctant to accept work requiring to change the residence	.5	.43	.5	.46	.44	.44
knowing many welfare recipients	.48	.46	.47	.57	.45	.58
familial conflicts	.17	.2	.18	.2	.21	.2
support from partner	.36	.39	.37	.3	.41	.32
support from family and relatives	.46	.5	.49	.48	.53	.49
support from friends and remote relatives	.38	.54	.41	.45	.52	.42
support from organizations	.04	.04	.04	.04	.04	.05
support from others	.11	.14	.11	.17	.13	.16
no support	.23	.19	.22	.22	.19	.23
Welfare benefit entitlement						
between 1 and 350 EUR	.14	.2	.16	.16	.21	.11
between	.26	.25	.26	.29	.24	.28
between	.26	.22	.25	.3	.21	.34
between	.19	.17	.18	.15	.16	.17
Sources of income before welfare receipt						
unemployment benefits	.39	.41	.38	.33	.39	.31
unemployment assistance	.15	.09	.16	.23	.08	.25
social assistance	.12	.09	.13	.12	.08	.12
earned income	.15	.26	.17	.22	.29	.18
mini-job (minor employment)	.05	.07	.11	.09	.07	.05
self-employment	.07	.07	.06	.05	.07	.06
support for professional training and education	.01	.02	.01	.01	.02	.02
lived on savings	.24	.24	.23	.2	.24	.21
lived on partner's income	.16	.13	.17	.13	.13	.14
lived with parents	.03	.05	.03	.02	.04	.02
other sources of income	.14	.15	.13	.11	.15	.13

Table I.3: Before matching means of potential confounders (continued)

	W	E	W	P	E	P
Labour market and welfare history						
duration of current welfare receipt	.39	.33	.38	.39	.31	.39
duration of current unemployment	1.14	.7	1.19	1.15	.64	1.19
currently regularly employed	0	0	.04	.04	0	0
currently job seeker	.53	.81	.55	.7	0	0
currently in programme	.05	.17	0	0	.82	.71
fortnights since last employment	.44	.33	.41	.35	.31	.39
mean duration of welfare receipt since beg. of 2005	1.24	1.14	1.28	1.37	1.08	1.37
fortnights regularly employed since beg. of 2005	.35	.65	.39	.46	.7	.42
fortnights in minor employment since beg. of 2005	.24	.24	.4	.27	.26	.16
duration of last employment	.18	.16	.18	.14	.15	.15
fortnights employed since beg. of 1998	.3	.29	.31	.25	.28	.25
fortnights unemployed since beg. of 1998	.46	.35	.46	.45	.34	.47
fortnights job seeking since beg. of 1998	.03	.02	.03	.03	.02	.03
fortnights out of labour force since beg. of 1998	1.16	1.26	1.16	1.18	1.29	1.16
fortnights in programmes since beg. of 1998	.09	.1	.09	.11	.08	.11
in public employment programme in the two yrs before welfare	.09	.06	.09	.21	.05	.21
in training programme in the two yrs before welfare	.14	.15	.15	.2	.14	.22
Characteristics of last employment						
normalized monthly earnings	.07	.08	.06	.06	.07	.06
employee, clerk	.16	.16	.15	.11	.14	.12
skilled worker, master craftsman, foreman	.09	.13	.08	.09	.13	.1
worker	.15	.19	.15	.17	.2	.17
apprentice	.01	.02	.01	.02	.02	.02
part time employment	.21	.2	.24	.18	.19	.17
employed in production and processing industry	.27	.32	.28	.29	.33	.27
employed in service industry	.26	.26	.27	.2	.25	.21
employed in other industries	.06	.07	.06	.06	.06	.07
occupation: agri-/ horticulture, forestry, mining	.03	.02	.02	.02	.01	.02
occupation: unskilled worker	.04	.04	.03	.02	.04	.02
occupation: technical occupation, engineering	.02	.03	.02	.01	.03	.01
occupation: office management, admin., teaching	.2	.21	.2	.19	.2	.19
occupation: logistics	.08	.11	.07	.07	.1	.08
occupation: services	.13	.1	.15	.11	.1	.11
occupation: construction	.04	.06	.03	.05	.07	.04
occupation : metal working	.03	.03	.03	.03	.04	.03
occupation : other production and processing	.06	.07	.06	.06	.07	.05
Regional characteristics						
regional unemployment rate	.11	.11	.11	.13	.11	.12
ratio of young to elderly unemployed	.49	.5	.49	.5	.5	.5
normalized regional share of long-term unemployed	-.04	-.18	-.07	.07	-.18	.03
normalized employment rate	-.09	-.08	-.09	-.06	-.07	-.04
normalized population density	.62	.56	.6	.61	.56	.64
normalized share of foreigners	.17	.16	.16	0	.16	.07
normalized ride time to next metropolitan area	-.12	-.01	-.11	-.09	-.04	-.12
intense activation by the employment office	.41	.5	.41	.44	.51	.46
intense sanctioning in case of non-compliance by employment office	.27	.27	.28	.28	.27	.28
Eastern Germany	.24	.24	.22	.37	.26	.34
Berlin	.02	.01	.02	.01	.01	.02

Table I.3: Before matching means of potential confounders (continued)

	W	E	W	P	E	P
Mecklenburg-Western Pomerania	.02	.03	.01	.03	.03	.03
Brandenburg	.09	.09	.08	.1	.09	.08
Saxony-Anhalt	.04	.05	.04	.12	.05	.12
Saxony	.06	.05	.06	.1	.05	.08
Thuringia	.03	.02	.03	.02	.03	.03
Schleswig-Holstein and Hamburg	.01	.03	.02	.03	.04	.03
Lower Saxony and Bremen	.12	.13	.12	.1	.13	.12
North Rhine-Westphalia	.23	.18	.23	.17	.16	.16
Hesse	.15	.1	.15	.1	.1	.11
Rhineland-Palatinate and Saarland	.06	.06	.06	.06	.05	.05
Baden-Wuerttemberg	.07	.1	.08	.08	.1	.08
Bavaria	.1	.15	.1	.08	.15	.09
Pre-transition outcomes						
health (scale)	2.7	2.17	2.64	2.37	2.19	2.42
very good, good or satisfactory health at interview 1	.49	.69	.5	.62	.69	.61
work capacity per day (scale)	3.2	3.62	3.2	3.45	3.62	3.46
capable of working 6 or more hours per day	.73	.9	.73	.84	.9	.85
psychosomatic symptoms	.45	.35	.44	.39	.35	.37
mental symptoms	.35	.27	.35	.33	.28	.35
physical symptoms	.57	.46	.55	.54	.46	.52
number of symptoms	1.97	1.42	1.91	1.72	1.44	1.73
gastro-intestinal problems	.16	.13	.16	.11	.14	.11
cardiovascular problems	.26	.11	.24	.19	.1	.19
nervous problems, anxieties	.23	.16	.2	.21	.16	.24
allergies, skin problems	.19	.17	.2	.18	.18	.18
problems with back, neck, spine, intervertebral discs	.48	.39	.47	.47	.4	.46
problems with bones, joints	.33	.23	.31	.24	.22	.22
problems with sleeping	.28	.2	.27	.27	.21	.28
other symptoms	.05	.03	.05	.04	.03	.05
no symptoms	.21	.33	.22	.26	.32	.26
often lethargic and depressed	.25	.18	.24	.23	.19	.26
often meeting friends	.55	.6	.57	.61	.61	.59
I know that I am needed	.75	.78	.77	.79	.79	.77
often lonely	.69	.71	.7	.66	.69	.64
positive wellbeing at interview 1	.48	.53	.5	.47	.52	.43
good social contacts at interview 1	.42	.46	.44	.44	.46	.42

IA.2 Estimation results for selection into treatment

Table I.4: Probit estimates for employment (E) vs. welfare receipt (W)

Variable	Coefficient	Standard error	t-statistic	p-value
constant	-.83	.35	-2.41	.02
age	-1.40	.55	-2.55	.01
dummy for age > 55	-.44	.15	-2.89	.00
female	.00	.09	-.02	.99
migrant	-.19	.13	-1.44	.15
secondary schooling or less	.00	.10	-.01	.99
matriculation standard	.27	.11	2.36	.02
more than one child	.34	.14	2.34	.02
number of children younger than 6	-.29	.13	-2.21	.03
couple	.19	.09	2.15	.03
duration of current welfare receipt	.09	.09	.93	.35
currently in programme	.76	.15	5.10	.00
longterm illness	-.36	.15	-2.32	.02
current job seeker	.54	.12	4.52	.00
possessing a driver's license	.36	.10	3.48	.00
fortnights regularly employed since beg. of 2005	.06	.05	1.22	.22
regional share of longterm unemployed	-.20	.05	-4.41	.00
intense activation by the employment office	.26	.09	3.04	.00
capable of working 6 or more hrs per day at int. 1	.09	.13	.69	.49
very good, good or satisfactory health at int. 1	.30	.10	2.86	.00
positive wellbeing at interview 1	.04	.09	.49	.63
good social contacts at interview 1	-.03	.09	-.31	.75
number of symptoms at interview 1	.01	.04	.33	.74
cardiovascular problems	-.34	.13	-2.60	.01
taking care of children	-.45	.14	-3.12	.00
welfare entitlement between 1 and 350 EUR	.30	.11	2.78	.01
in public employment programme in the 2 yrs before welfare	-.44	.15	-2.92	.00
very good reading skills	-.32	.09	-3.53	.00
job search activities: written application	.25	.10	2.48	.01
support from friends and remote relatives	.40	.10	4.12	.00
no support	.25	.12	2.12	.03
fortnights unemployed since beg. of 1998	-.70	.15	-4.57	.00
migrant*fortnights unemployed since beg. of 1998	.53	.25	2.15	.03
changed case worker several times	-.35	.12	-2.99	.00
poor PC/internet competencies	.26	.09	2.76	.01
end of unemployment is foreseeable	.43	.20	2.13	.03
number of unemployment spells since beg. of 1998	1.12	.32	3.57	.00
recognized severe disability	-.44	.13	-3.44	.00
Hesse	-.38	.13	-2.82	.00
familial conflicts	.28	.12	2.43	.02
reluctant to work under bad working conditions	-.32	.14	-2.35	.02
fortnights since last employment	-.21	.09	-2.31	.02
duration of current unemployment	-.13	.05	-2.58	.01
number of observations	1378			
degrees of freedom	1335			
log likelihood	-642			
Efron's R squared	.308			

Table I.5: Probit estimates for programme participation (P) vs. welfare receipt (W)

Variable	Coefficient	Standard error	t-statistic	p-value
constant	-1.88	.38	-5.00	.00
age	.98	.57	1.72	.09
dummy for age > 55	-.64	.16	-3.92	.00
female	.10	.09	1.13	.26
migrant	-.28	.12	-2.37	.02
secondary schooling or less	.02	.09	.19	.85
more than one child	-.01	.15	-.10	.92
couple	-.07	.09	-.82	.41
duration of current welfare receipt	.05	.09	.53	.59
current job seeker	.23	.10	2.36	.02
possessing a driver's license	-.24	.09	-2.63	.01
fortnights regularly employed since beg. of 2005	.05	.05	1.12	.26
East Germany	.35	.13	2.71	.01
share of longterm unemployed	-.05	.06	-.87	.39
capable of working 6 or more hrs per day at int. 1	.20	.13	1.52	.13
very good, good or satisfactory health at int. 1	.22	.11	1.98	.05
positive wellbeing at interview 1	-.06	.09	-.63	.53
good social contacts at interview 1	.04	.09	.38	.70
number of symptoms at interview 1	.03	.03	1.00	.32
contact with several case workers	-.30	.14	-2.19	.03
in public employment programme 2 yrs before welfare	.40	.12	3.27	.00
number of counselling interviews in last 6 months	.04	.02	2.45	.01
fortnights unemployed since beg. of 1998	-.34	.11	-3.21	.00
duration of last employment before unemployment	.00	.00	-2.47	.01
zero last earnings	.38	.11	3.51	.00
last earnings > 1000	.33	.12	2.76	.01
number of unemployment spells since beg. of 2005	1.95	.76	2.58	.01
migrant*urban area	.38	.19	2.04	.04
taking care of underage children	-.33	.15	-2.27	.02
my environment is interested in my job situation	-.23	.11	-2.15	.03
obliged to accept public workfare programmes	.24	.11	2.11	.04
number of observations	1387			
degrees of freedom	1356			
log likelihood	-569			
Efron's R squared	.121			

Table I.6: Probit estimates for programme participation (P) vs. employment (E)

Variable	Coefficient	Standard error	t-statistic	p-value
constant	-.79	.43	1.82	.07
age	1.42	.65	-2.19	.03
female	.18	.14	-1.30	.19
migrant	-.05	.15	.33	.74
secondary schooling or less	.08	.14	-.61	.54
more than one child	-.28	.20	1.38	.17
couple	-.21	.13	1.58	.11
duration of current welfare receipt	-.23	.19	1.23	.22
current job seeker	-.13	.17	.76	.45
possessing a driver's license	-.69	.16	4.29	.00
fortnights regularly employed since beg. of 2005	-.11	.07	1.63	.10
share of longterm unemployed	.11	.07	-1.68	.09
capable of working 6 or more hrs per day at int. 1	-.05	.23	.23	.82
very good, good or satisfactory health at int. 1	-.07	.17	.44	.66
positive wellbeing at interview 1	-.10	.15	.67	.51
good social contacts at interview 1	.00	.15	-.03	.98
number of symptoms at interview 1	.05	.05	-.92	.36
in public employment programme 2 yrs before welfare	1.04	.22	-4.83	.00
obliged to accept public workfare programmes	.41	.17	-2.41	.02
very good reading skills	.31	.13	-2.30	.02
duration of current unemployment	.19	.07	-2.56	.01
recognized severe disability	.81	.19	-4.32	.00
never changed case worker	-.34	.13	2.64	.01
job search activities: written application	-.32	.16	2.06	.04
job search activities: personal introduction at a company	-.40	.18	2.16	.03
welfare entitlement between 1 and 350 EUR	-.56	.18	3.10	.00
reluctant to commute	.39	.14	-2.71	.01
date of last out of labour force spell	.52	.25	-2.03	.04
support from other persons (not friends or family)	.48	.20	-2.41	.02
zero last earnings	.30	.13	-2.29	.02
number of observations	567			
degrees of freedom	537			
log likelihood	-270			
Efron's R squared	.282			

IA.3 Match quality

Table I.7: After matching balance tests for employment (E) vs. welfare receipt (W)

Variable	Mean(E)	Mean(W)	Bias	t-value	p-value	SD*
age	41.60	41.60	0.00	-0.03	0.98	-0.19
dummy for age > 55	0.07	0.05	0.02	0.60	0.55	3.99
female	0.44	0.44	0.00	0.00	1.00	0.00
migrant	0.30	0.28	0.02	0.43	0.67	2.85
secondary schooling or less	0.42	0.40	0.02	0.35	0.73	2.31
matriculation standard	0.23	0.20	0.03	0.85	0.39	5.64
more than one child	0.14	0.12	0.01	0.44	0.66	2.93
number of children younger than 6	0.15	0.13	0.02	0.47	0.64	3.10
couple	0.39	0.37	0.02	0.52	0.61	3.42
duration of current welfare receipt	0.33	0.32	0.01	0.23	0.82	1.50
currently in programme	0.17	0.16	0.00	0.14	0.89	0.93
longterm illness	0.07	0.07	0.00	0.00	1.00	0.00
current job seeker	0.81	0.81	0.00	-0.05	0.96	-0.33
possessing a driver's license	0.82	0.84	-0.02	-0.52	0.61	-3.42
fortnights regularly employed since beg. of 2005	0.65	0.62	0.03	0.35	0.73	2.31
regional share of longterm unemployed	-0.18	-0.07	-0.11	-1.21	0.23	-7.97
intense activation by the employment office	0.50	0.44	0.05	1.18	0.24	7.79
capable of working 6 or more hrs per day at int. 1	0.90	0.92	-0.01	-0.37	0.71	-2.46
very good, good or satisfactory health at int. 1	0.69	0.73	-0.04	-0.93	0.35	-6.14
positive wellbeing at interview 1	0.53	0.52	0.01	0.28	0.78	1.88
good social contacts at interview 1	0.46	0.47	-0.01	-0.27	0.78	-1.81
number of symptoms at interview 1	1.43	1.37	0.06	0.38	0.70	2.54
cardiovascular problems	0.12	0.10	0.02	0.45	0.65	2.99
taking care of children	0.15	0.14	0.01	0.30	0.77	1.96
welfare entitlement between 1 and 350 EUR	0.19	0.15	0.04	1.28	0.20	8.43
in public employment programme in the 2 yrs before welfare	0.06	0.05	0.01	0.42	0.67	2.79
very good reading skills	0.36	0.37	-0.01	-0.18	0.86	-1.18
job search activities: written application	0.54	0.59	-0.04	-1.03	0.30	-6.80
support from friends and remote relatives	0.54	0.53	0.01	0.11	0.91	0.73
no support	0.19	0.19	0.00	-0.10	0.92	-0.69
fortnights unemployed since beg. of 1998	0.36	0.36	0.00	-0.12	0.90	-0.79
migrant*fortnights unemployed since beg. of 1998	0.11	0.10	0.00	0.13	0.90	0.85
changed case worker several times	0.12	0.12	0.00	-0.08	0.94	-0.54
poor PC/internet competencies	0.31	0.29	0.02	0.39	0.70	2.57
end of unemployment is foreseeable	0.06	0.06	0.00	0.22	0.83	1.43
number of unemployment spells since beg. of 1998	0.20	0.19	0.01	0.50	0.62	3.32
recognized severe disability	0.10	0.09	0.01	0.26	0.80	1.72
Hesse	0.10	0.11	-0.01	-0.28	0.78	-1.87
familial conflicts	0.20	0.16	0.04	1.09	0.27	7.23
reluctant to work under bad working conditions	0.07	0.06	0.01	0.39	0.70	2.56
fortnights since last employment	0.33	0.35	-0.02	-0.34	0.73	-2.24
duration of current unemployment	0.70	0.69	0.02	0.20	0.84	1.30
2-sample Chi2 statistic (joint test for imbalance):	13.54	p-value: 1.00				
Mean absolute standardized difference:	2.75					

Notes: Bold and italic: Bias significant at the 1% level. Bold: Bias significant at the 5% level. Italic: Bias significant at the 10% level. *SD= standardized difference. According to Rosenbaum and Rubin (1985), an absolute standardized difference of more than 20 is 'large'.

Table I.8: After matching balance tests for programme participation (P) vs. welfare receipt (W)

Variable	Mean(P)	Mean(W)	Bias	t-value	p-value	SD*
age	44.40	44.30	0.10	0.13	0.90	1.14
dummy for age > 55	0.08	0.07	0.01	0.32	0.75	2.95
female	0.56	0.56	0.00	0.00	1.00	0.00
migrant	0.24	0.30	-0.06	-1.36	0.17	-12.45
secondary schooling or less	0.45	0.41	0.04	0.73	0.47	6.68
more than one child	0.11	0.10	0.01	0.19	0.85	1.76
couple	0.37	0.36	0.02	0.33	0.74	3.01
duration of current welfare receipt	0.39	0.40	-0.01	-0.29	0.78	-2.60
current job seeker	0.69	0.69	0.00	0.00	1.00	0.00
possessing a driver's license	0.65	0.65	0.00	-0.01	0.99	-0.08
fortnights regularly employed since beg. of 2005	0.46	0.42	0.04	0.50	0.62	4.52
East Germany	0.37	0.36	0.01	0.26	0.79	2.40
share of longterm unemployed	0.07	0.01	0.06	0.59	0.55	5.42
capable of working 6 or more hrs per day at int. 1	0.84	0.84	0.00	0.00	1.00	-0.04
very good, good or satisfactory health at int. 1	0.61	0.62	-0.01	-0.18	0.86	-1.67
positive wellbeing at interview 1	0.48	0.48	0.00	0.00	1.00	-0.01
good social contacts at interview 1	0.44	0.48	-0.04	-0.88	0.38	-8.07
number of symptoms at interview 1	1.74	1.73	0.01	0.07	0.94	0.64
contact with several case workers	0.10	0.10	0.00	-0.10	0.92	-0.94
in public employment programme 2 yrs before welfare	0.20	0.24	-0.05	-1.41	0.16	-12.91
number of counselling interviews in last 6 months	1.70	1.63	0.07	0.33	0.74	3.03
fortnights unemployed since beg. of 1998	0.45	0.46	-0.02	-0.41	0.69	-3.71
duration of last employment before unemployment	41.58	46.20	-4.62	-0.62	0.54	-5.63
zero last earnings	0.48	0.47	0.00	0.07	0.94	0.64
last earnings > 1000	0.30	0.30	0.01	0.11	0.91	1.01
number of unemployment spells since beg. of 2005	0.13	0.12	0.00	0.24	0.81	2.19
migrant*urban area	0.09	0.11	-0.02	-0.67	0.51	-6.08
taking care of underage children	0.09	0.09	-0.01	-0.17	0.86	-1.59
my environment is interested in my job situation	0.78	0.81	-0.04	-0.89	0.37	-8.15
obliged to accept public workfare programmes	0.22	0.25	-0.03	-0.92	0.36	-8.35
2-sample Chi2 statistic (joint test for imbalance):	3.59	p-value: 1.00				
Mean absolute standardized difference:	9.47					

Notes: Bold and italic: Bias significant at the 1% level. Bold: Bias significant at the 5% level. Italic: Bias significant at the 10% level. *SD= standardized difference. According to Rosenbaum and Rubin (1985), an absolute standardized difference of more than 20 is 'large'.

Table I.9: After matching balance tests for employment (E) vs. programme participation (P)

Variable	Mean(E)	Mean(P)	Bias	t-value	p-value	SD*
age	41.50	42.40	-0.90	-0.65	0.51	-4.85
female	0.44	0.42	0.02	0.31	0.76	2.30
migrant	0.31	0.28	0.03	0.45	0.65	3.33
secondary schooling or less	0.41	0.49	-0.08	-1.15	0.25	-8.58
more than one child	0.13	0.17	-0.04	-0.80	0.43	-5.93
couple	0.39	0.38	0.01	0.19	0.85	1.38
duration of current welfare receipt	0.31	0.38	-0.07	-1.01	0.32	-7.48
current job seeker	0.82	0.83	-0.01	-0.22	0.82	-1.67
possessing a driver's license	0.82	0.77	0.05	0.73	0.46	5.45
fortnights regularly employed since beg. of 2005	0.65	0.57	0.08	0.65	0.52	4.83
share of longterm unemployed	-0.16	-0.10	-0.06	-0.43	0.67	-3.20
capable of working 6 or more hrs per day at int. 1	0.90	0.89	0.01	0.20	0.84	1.50
very good, good or satisfactory health at int. 1	0.70	0.70	0.00	-0.04	0.97	-0.31
positive wellbeing at interview 1	0.52	0.51	0.02	0.21	0.83	1.59
good social contacts at interview 1	0.46	0.42	0.04	0.62	0.54	4.61
number of symptoms at interview 1	1.46	1.54	-0.07	-0.34	0.74	-2.51
in public employment programme 2 yrs before welfare	0.05	0.06	-0.01	-0.22	0.83	-1.61
obliged to accept public workfare programmes	0.14	0.16	-0.02	-0.37	0.71	-2.72
very good reading skills	0.38	0.35	0.03	0.37	0.71	2.75
duration of current unemployment	0.67	0.64	0.04	0.27	0.78	2.03
recognized severe disability	0.10	0.12	-0.02	-0.35	0.72	-2.63
never changed case worker	0.55	0.52	0.03	0.42	0.67	3.14
job search activities: written application	0.54	0.51	0.03	0.47	0.64	3.50
job search activities: personal introduction at a company	0.21	0.25	-0.03	-0.66	0.51	-4.94
welfare entitlement between 1 and 350 EUR	0.19	0.17	0.02	0.41	0.68	3.05
reluctant to commute	0.26	0.19	0.07	1.02	0.31	7.56
date of last out of labour force spell	0.32	0.33	-0.02	-0.44	0.66	-3.27
support from other persons (not friends or family)	0.13	0.13	0.00	0.07	0.95	0.50
zero last earnings	0.38	0.36	0.03	0.35	0.73	2.59
2-sample Chi2 statistic (joint test for imbalance):	9.46	p-value:	1.00			
Mean absolute standardized difference:	3.44					

Notes: Bold and italic: Bias significant at the 1% level. Bold: Bias significant at the 5% level. Italic: Bias significant at the 10% level. *SD= standardized difference. According to Rosenbaum and Rubin (1985), an absolute standardized difference of more than 20 is 'large'.

IA.4 Instrument-based identification and semiparametric IV estimation

As at least a subset of identifying assumptions underlying any causal analysis is not testable, it would be valuable to have available alternative identification strategies that appear to be equally credible. Ideally, both strategies should lead to similar results, or at least not contradict each other. Below we argue that there exists an instrumental variable (IV) strategy that also identifies the health effects of employment vs. remaining on welfare.

Identification based on instrumental variables hinges on the availability of a variable that is correlated with the welfare state but has no direct effect on the outcome, an *instrument*. We argue that the indicator variable 'possession of a driver's licence' is, at least conditional on other observed factors, a valid instrument for the welfare-to-employment transition. It is quite intuitive that the possession of a driver's license has a positive correlation with the probability to find work. Firstly, a driver's license increases the mobility and the likelihood to accept jobs that are more distant from home. Secondly, it represents a form of human capital that might be substantial for jobs targeted at low-educated individuals (e.g., carrier services). Indeed, the data show a positive correlation between license possession and transition into employment, significant at the 5 % level. The variation in the instrument is quite substantial, as only 62% of the individuals in the sample have a driver's license, which is more than 10% less than the German average.²

However, for the instrument to be 'valid' it must be plausible that there are no direct effects of license possession on health. This may be challenged in the case of a recently obtained driver's license, which abruptly increases mobility and the possibility to extend social

² According to the survey "Typologie der Wünsche 2006/2007" which was conducted in 2006/07 and is representative for the German population older than 13. For details, see <http://de.statista.org/statistik/diagramm/studie/32090/umfrage/besitz-pkw-fuehrerschein/#info>. The difference is plausible given that we observe a particular share of the German population that is poorer, less educated, and less attached to the labour market than the average.

contacts, and might affect mental health for this reason. It, therefore, seems advisable to exclude individuals that obtained their licenses rather recently. Even though the data do not contain the licence's issue date, they contain information on the age at which individuals usually receive their driver's license. The share of license possessors conditional on age increases steadily up to the age of 26 when it reaches its peak (roughly 75%) and declines slowly afterwards to 62% for the age group 60-65. This suggests that increases below 26 are mainly growth driven, i.e., they are caused by individuals who recently passed the driving test. The moderate declines above 26 are most likely due to cohort effects as older generations (and among them, particularly women) are less likely to ever obtain a driver's license. To reinforce the plausibility of the instrument, we therefore exclude individuals younger than 26.

The instrument validity (exclusion restriction) is also violated if some characteristics are jointly related to license possession and health. Two potential confounders already mentioned are age (cohort effects) and gender (role models). Furthermore, the instrument is correlated with the socio-economic status (income, wealth, education, and profession) if wealthier individuals are more inclined to invest in a driver's license.³ We would also expect that marital status, household composition and the presence of children are joint determinants, as families might prefer to invest in private mobility whereas single households might not. Urbanization and the availability of public transport as substitute for private mobility are further potential determinants. Social networks, milieu, and migration background might also shape preferences concerning driving. Effort and ability reflect the non-monetary cost of passing the driving test.

³ This argument is supported by the results in "Typologie der Wünsche 2006/2007", where 84.1% of the highest income group (4000 EUR and more per month), but only 54.2% of the lowest income group (up to 499 EUR) possess a driver's license.

Finally, it seems plausible that the possession of a driver's license varies with initial health and disability status. The German Road Traffic Law itself states, albeit very broadly, that only persons who are physically and mentally fit and have not harshly or repeatedly violated the traffic regulations or penal laws are 'suitable' to drive a car (see § 2 paragraph 4 of the German "Straßenverkehrsgesetz"). Note, however, that with the exception of an obligatory eye test, physical and mental health is not checked when obtaining the driver's license for the first time. Health checks only take place when intending to regain a driver's license after its withdrawal due to the violation of legal regulations (e.g. drunk driving). Still, the latter case might bear some relevance in the population considered.

It can be reasonably argued that all factors discussed are also related to the health outcomes in one or the other way. This implies that the instrument is only valid conditional on the aforementioned confounders. Our data allow us to either directly observe or to proxy these factors potentially related to the instrument and the outcomes in most cases. However, one shortcoming is that the survey does not cover information on blindness and sight defects. Furthermore, the way health is reported in the survey might not perfectly reflect the criteria which are crucial for the obligatory health checks (after the withdrawal of the license). Despite these issues, we still think that the conditional validity of the instrument is close to being satisfied. Descriptive statistics for potential IV confounders are provided in the internet appendix.

Under some conditions, the IV approach identifies the so-called local average treatment effect (LATE), which is in our case the mean effect of employment on health among those individuals not working without driver's license and working with a licence. It is thus the average causal effect for those who comply in the sense that they switch from welfare to employment if they are provided with a driver's license. If the health effects are heterogeneous, one could expect the LATE to differ from the other causal effects presented in the previous

sections, as it refers to a different population, namely the compliers. See Imbens and Angrist (1994) and Angrist, Imbens, and Rubin (1996) for an in depth discussion of the LATE parameter and its identifying assumptions.

For semi-parametric LATE estimation, we use procedures that take the form of a ratio of two propensity score matching estimators. They were proposed by Frölich (2007) as an extension to Imbens and Angrist (1994), who discuss identification for an unconditionally valid instrument, for the case when the instrument Z is only valid conditional on observed factors X .⁴ Let $p_Z(x)$ denote $\Pr(Z=1|X=x)$, the conditional probability to possess a driver's license given the observed factors. The LATE is given by

$$\gamma = \frac{\int E[Y | p_Z(X) = p_Z(x), Z = 1] - E[Y | p_Z(X) = p_Z(x), Z = 0] f_{p_Z(x)}(p_Z(x)) dp_Z(x)}{\int E[D | p_Z(X) = p_Z(x), Z = 1] - E[D | p_Z(X) = p_Z(x), Z = 0] f_{p_Z(x)}(p_Z(x)) dp_Z(x)}$$

where Y is the health outcome, D denotes the welfare state, and $f_{p_Z(x)}(p_Z(x))$ denotes the density of $p_Z(X)$.

Thus, the LATE can be estimated by (i) matching the health outcomes Y in the subgroups $Z=1$ and $Z=0$ on the estimated $p_Z(X)$, (ii) matching the employment states D in the subgroups $Z=1$ and $Z=0$ on the estimated $p_Z(X)$, and (iii) computing the ratio of the former to the latter. Frölich (2007) shows that this method is consistent and asymptotically normal under regularity conditions. Here, $p_Z(X)$ is estimated by probit regression and the specification and coefficient estimates are provided further below. For either matching step, we use the same methods as for estimation under the CIA. Note that the matching procedure for the numerator yields the estimate for the intention to treat effect (ITT), while the one for

⁴ Of course, the potential confounders under IV identification and estimation need not be the same as the ones under the CIA.

the denominator estimates the proportion of the compliers. Thus, the LATE is equal to the ITT inflated by the share of compliers. While identification is only feasible if compliers exist, estimation is only precise if the share of compliers is not too small, implying that the instrument is sufficiently relevant.

Even though semi-parametric estimators may be less precise than parametric 2SLS, they seem preferable for several reasons. Firstly, the functional form assumptions of 2SLS are far from being innocuous. Secondly, 2SLS does not allow controlling for additional covariates in a general form when the instrument is only conditionally valid. Thirdly, as our outcome variables are binary in most cases, a linear 2SLS model would constitute a gross misspecification.

A problem of IV based inference in finite samples is that the moments of the estimator may not exist such that t-statistics are misleading. We therefore bootstrap the LATE estimates 4999 times to approximate their distributions. This allows us to compute p-values and confidence intervals. The LATE estimates are reported in Table I.12 along with quantiles of the effects' distributions obtained from the bootstrap replications and the estimates of the intention to treat (ITT) effects. Due to the small proportion of compliers (roughly 15%) the LATE estimates are rather imprecise (none is statistically different from zero at the 10% level) and should not be taken at face value. We merely use them to check the robustness of the matching estimates. In fact, each of the latter is included in the 90% confidence interval of the respective LATE estimate.

Table I.10: Before matching means of potential IV confounders

Socio-economic and personal characteristics	without driver's license	with driver's license
	(364 obs)	(1014 obs)
age	.43	.44
female	.55	.47
migrant	.31	.30
number of children younger than 6	.14	.16
no children	.55	.51
cohabiting	.39	.39
lone parent	.07	.08
no school-leaving qualifications	.05	.02
elementary schooling	.02	.00
secondary schooling (Hauptschule)	.52	.38
secondary schooling (Realschule)	.26	.37
matriculation standard	.13	.22
no professional degree	.28	.15
vocational education	.53	.58
technical school, college or university	.20	.33
very good or good PC/internet competencies	.26	.46
satisfactory PC/internet competencies	.17	.22
poor PC/internet competencies	.50	.30
longterm illness	.16	.16
recognized severe disability	.19	.12
very high or high willingness to commute	.52	.43
many friends get along fairly well without job	.28	.16
Earnings and benefit entitlement		
income before welfare: unemployment benefits	.35	.42
income before welfare: unemployment assistance (prior to 2005)	.16	.12
income before welfare: social assistance	.18	.09
last monthly earnings	.05	.08
zero last monthly earnings	.05	.05
welfare entitlement between 1 and 350 EUR	.18	.16
welfare entitlement between	.30	.23
welfare entitlement between	.24	.25
welfare entitlement between	.15	.19
Position in last job		
clerk / employee	.07	.19
skilled worker	.11	.10
unskilled worker	.20	.15
apprentice	.01	.01
Labour market and welfare history		
duration of current welfare receipt	.42	.35
duration of current unemployment	1.28	.89
currently job seeker	.56	.65
fortnights since last employment	.42	.39
mean duration of welfare receipt since beg. of 2005	1.32	1.17
fortnights regularly employed since beg. of 2005	.37	.48
fortnights in minor employment since beg. of 2005	.22	.24
duration of last employment	.13	.19

Table I.10: Before matching means of potential IV confounders (continued)

	without driver's license (364 obs)	with driver's license (1014 obs)
fortnights employed since beg. of 1998	.24	.32
fortnights unemployed since beg. of 1998	.53	.39
fortnights job seeking since beg. of 1998	.04	.02
fortnights out of labour force since beg. of 1998	1.12	1.22
Regional characteristics		
normalized population density	.69	.57
normalized ride time to next metropolitan area	-.17	-.05
regional unemployment rate	.11	.11
normalized regional share of long-term unemployed	-.09	-.09
Pre-transition outcomes		
health (scale)	2.54	2.52
very good, good or satisfactory health at interview 1	.55	.56
work capacity per day (scale)	3.24	3.37
capable of working 6 or more hours per day	.73	.81
psychosomatic symptoms	.43	.41
mental symptoms	.34	.32
physical symptoms	.52	.54
number of symptoms	1.86	1.76
gastro-intestinal problems	.16	.14
cardiovascular problems	.24	.20
nerval problems, anxieties	.21	.20
allergies, skin problems	.19	.19
problems with back, neck, spine, intervertebral discs	.44	.45
problems with bones, joints	.31	.29
problems with sleeping	.27	.24
other symptoms	.04	.04
no symptoms	.26	.25
often lethargic and depressed	.26	.21
often meeting friends	.55	.57
I know that I am needed	.79	.75
often lonely	.67	.70
positive wellbeing at interview 1	.49	.50
good social contacts at interview 1	.40	.44

Table I.11: Probit estimates for the instrument “possession of a driver’s license”

Variable	Coefficient	Standard error	t-statistic	p-value
constant	.96	.43	2.22	.03
age	-1.46	.81	-1.80	.07
dummy for age > 50	.39	.14	2.74	.01
female	-.16	.11	-1.46	.14
couple	-.07	.09	-.75	.46
no children	-.22	.13	-1.62	.10
migrant	-.07	.16	-.44	.66
migrant*female	-.07	.18	-.40	.69
secondary schooling or less	-1.93	.38	-5.13	.00
age* secondary schooling or less	3.75	.88	4.25	.00
migrant*secondary schooling or less	.60	.18	3.30	.00
secondary schooling or less*no children	-.38	.18	-2.07	.04
no professional qualification	-.23	.11	-2.09	.04
higher vocational qualification / higher education	.26	.11	2.43	.02
income before welfare: social assistance	-.38	.13	-2.95	.00
mean unemployment duration since beg. of 1998	-.19	.04	-4.33	.00
fortnights out of labour force 1998-2002	.51	.10	5.28	.00
employed 3.5 years before interview 1	.59	.15	3.87	.00
capable of working 6 or more hrs per day at int. 1	.13	.11	1.12	.26
very good, good or satisfactory health at int. 1	-.09	.10	-.93	.36
positive wellbeing at interview 1	-.10	.10	-1.02	.31
good social contacts at interview 1	.06	.10	.58	.56
number of symptoms at interview 1	.00	.03	.13	.89
many friends get along fairly well without job	-.26	.10	-2.63	.01
very good or good PC/internet competencies	.52	.10	5.05	.00
satisfactory PC/internet competencies	.42	.11	3.86	.00
very high or high willingness to commute	-.30	.09	-3.40	.00
I know many welfare recipients	-.22	.09	-2.58	.01
position in last job: clerk / employee	.35	.14	2.49	.01
I like to make myself acquainted with new tasks	.42	.18	2.29	.02
recognized severe disability	-.26	.12	-2.24	.03
job search activities: personal introduction at a company	-.29	.12	-2.47	.01
mean duration of welfare receipt since beg. of 2005	.08	.04	2.02	.04
ride time to next metropolitan area in minutes	.07	.05	1.44	.15
population density	-.12	.06	-2.05	.04
number of observations	1378			
degrees of freedom	1343			
log likelihood	-636			
Efron's R squared	.225			

Table I.12: LATE estimates

	LATE	2.5 th percentile	5 th percentile	95 th percentile	97.5 th percentile	ITT estimate
Work capacity per day (scale, 1: < 3 hrs, 4: 8+ hrs)	.23	-.76	-.53	1.19	1.40	.03
Capable of working 6 or more hours per day (binary)	.10	-.29	-.21	.58	.69	.02
Health (scale , 1: very good, 5: poor)	.37	-1.18	-.91	1.54	1.91	.06
Very good, good or satisfactory health (binary)	-.11	-.61	-.47	.51	.63	-.02
Prevalence of psychosomatic symptoms (binary)	-.51	-.98	-.84	.23	.34	-.08
Prevalence of mental symptoms (binary)	.03	-.65	-.50	.40	.51	.00
Prevalence of physical symptoms (binary)	-.09	-.89	-.66	.37	.47	-.01
Number of symptoms (integer)	-.80	-2.54	-2.12	.53	.77	-.12
Gastro-intestinal problems (binary)	-.04	-.65	-.54	.30	.38	-.01
Cardiovascular problems (binary)	-.56	-1.18	-.99	.05	.13	-.08
Nerval problems, anxieties (binary)	-.07	-.62	-.49	.32	.42	-.01
Allergies, skin problems (binary)	-.09	-.57	-.45	.44	.58	-.01
Probl. w. back, neck, spine, intervertebral discs (bin.)	-.40	-1.58	-1.24	.02	.10	-.06
Problems with bones, joints (binary)	.24	-.13	-.06	.88	1.09	.04
Problems with sleeping (binary)	.05	-.53	-.38	.46	.56	.01
Other symptoms (binary)	-.08	-.41	-.33	.05	.08	-.01
No symptoms (binary)	.11	-.31	-.24	.57	.71	.02
Often lethargic and depressed (binary)	.19	-.27	-.17	.59	.73	.03

Notes: Bold and italic: Effect significant at the 1% level. Bold: Effect significant at the 5% level. Italic: Effect significant at the 10% level. Quantiles from bootstrap with 4999 replications.

Table I.13: Average health effect estimates for employment vs. welfare receipt (EW), programme participation vs. welfare receipt (PW), and employment vs. programme participation (EP) using the sample weights for stratification

	EW	p-value	PW	p-value	EP	p-value
Work capacity per day (scale, 1: < 3 hrs, 4: 8+ hrs)	.15	.02	.12	.12	.02	.88
Capable of working 6 or more hours per day (binary)	.10	.00	.03	.35	.07	.13
Health (scale , 1: very good, 5: poor)	-.14	.26	-.11	.34	-.11	.44
Very good, good or satisfactory health (binary)	.05	.30	.01	.87	.07	.32
Prevalence of psychosomatic symptoms (binary)	.01	.83	-.01	.81	.05	.32
Prevalence of mental symptoms (binary)	-.08	.02	.05	.27	-.11	.09
Prevalence of physical symptoms (binary)	.01	.82	-.02	.72	.07	.29
Number of symptoms (integer)	-.11	.34	.12	.40	-.01	.95
Gastro-intestinal problems (binary)	-.01	.75	.00	.90	.02	.59
Cardiovascular problems (binary)	.03	.37	.04	.31	-.02	.67
Nerval problems, anxieties (binary)	-.08	.01	.04	.31	-.08	.09
Allergies, skin problems (binary)	.01	.72	-.02	.59	.04	.31
Probl. w. back, neck, spine, intervertebral discs (bin.)	.01	.84	-.05	.47	.07	.29
Problems with bones, joints (binary)	.03	.58	.03	.55	.07	.29
Problems with sleeping (binary)	-.06	.07	.07	.13	-.11	.08
Other symptoms (binary)	-.03	.03	.01	.87	-.01	.51
No symptoms (binary)	.04	.33	-.01	.86	.01	.84
Often lethargic and depressed (binary)	-.06	.07	.00	.93	-.06	.17

Notes: Bold and italic: Effect significant at the 1% level. Bold: Effect significant at the 5% level. Italic: Effect significant at the 10% level. P-values from bootstrap with 2999 replications.

Table I.14: Survey questions related to health

<p>Current overall health <i>How would you describe your current overall health state?</i></p> <ol style="list-style-type: none">1: very good2: good3: satisfactory4: less than satisfactory5: bad9: I don't know, N.A. <p>Health related deficiencies <i>Do you have one or more of the following troubles?</i></p> <ol style="list-style-type: none">1: Gastro-intestinal problems2: Cardiovascular problems3: Nerval problems, anxieties4: Allergies, skin problems5: Problems with back, neck, spine, intervertebral discs6: Problems with bones, joints7: Problems with sleeping8: other troubles9: no troubles <p>Daily work capacity <i>For how many hours per day are you able to work over a longer time span?</i></p> <ol style="list-style-type: none">1: less than 3 hours2: 3 to less than 6 hours3: 6 to less than 8 hours4: 8 hours and more9: I don't know, N.A. <p>Statements concerning your personality <i>Please tell me whether the following statements rather apply to you or rather do not apply to you.</i></p> <p>...</p> <p>(10) I often feel lethargic and depressed</p> <p>...</p> <ol style="list-style-type: none">1: rather applies to me2: rather does not apply to me9: I don't know, N.A.

Welfare receipt in Germany

In Germany, welfare payments are made to people with no or insufficient income to support themselves and dependent household members. At least about half of all recipients are unemployed individuals who are ineligible for unemployment insurance payments (so-called unemployment benefits I, UBI) or who have become ineligible because of exhaustion of their UBI claim.⁵ For this reason, the welfare payments are named unemployment benefits II (UBII), but they are commonly referred to as Hartz IV.⁶ In summary, German welfare recipients have unfavourable employment histories, are (long-term) unemployed, or employed with very low earnings.

The welfare payments are means-tested. The test is based on the wealth and income of all individuals in the household. The standard benefit per adult was 345 € in the period we consider and is 351 € in 2009. The amount households receive for partners and children is lower. Accommodation and heating costs are also covered (up to a maximum) and paid directly to the property owners. The welfare payments also include compulsory social insurance contributions (in particular health and pension insurance). Further costs for special needs like initial equipment for a newborn child or a washing machine etc. might be covered as well.

Access to welfare is conditional. Claimants who are capable of working at least 15 hours per week have to register with the local employment office and are obliged to participate in

⁵ UBI eligibility requires contribution to unemployment insurance (i.e. being employed in a job subject to social insurance) for at least 12 out of 24 months prior to becoming unemployed. Depending on the length of contributory employment and age the maximum claim varies between 6 and 24 months. The replacement rate is 67% (60%) of previous average net income with (without) dependent children, respectively.

⁶ From 2002 to 2005 a series of four reforms of the German unemployment insurance and welfare system have been implemented. In the public discussion they were dubbed after the chairperson of the commission proposing the reforms, Peter Hartz.

welfare-to-work programmes if requested. The welfare recipients' rights and obligations are usually set out in writing in a so-called integration contract. This binding agreement between the employment office and the welfare recipient contains obligations concerning programme participation and job search activities as well as services provided by the employment office. Non-compliance and/or the rejection of 'acceptable' job offers can be sanctioned by temporary benefit cuts.⁷

The number of welfare recipients in Germany amounted to roughly 4.5 million in January 2005. It increased steadily during 2005 - partly due to the so-called Hartz IV reforms, which introduced the current system - and reached a peak of 5.5 million in April 2006. Since then it has declined to just below 5 million in August 2008. In January 2005, there were 2.3 million unemployed persons receiving welfare benefits. This number increased during the following months to peak at roughly 3 million at the beginning of 2006. Since then the share of unemployed among welfare recipients declined to 2.2 million in August 2008.

⁷ According to the legislation, almost any job is acceptable, even if it does not correspond to the individual's former profession or education.

References

- Angrist, J. D., G. W. Imbens, and D. B. Rubin (1996): "Identification of Causal Effects Using Instrumental Variables", *Journal of the American Statistical Association*, 91, 444–472.
- Frölich, M. (2007): "Nonparametric IV estimation of local average treatment effects with covariates", *Journal of Econometrics*, 139, 35-75.
- Imbens, G. W., and J. D. Angrist (1994): "Identification and Estimation of Local Average Treatment Effects," *Econometrica*, 62, 467-475.
- Rosenbaum, P., and D. Rubin (1985): "Constructing a Control Group Using Multivariate Matched Sampling Methods that Incorporate the Propensity Score", *The American Statistician*, 39, 33-38.