Online Appendix for 'Removing Welfare Traps: Employment Responses in the Finnish Basic Income Experiment'

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This appendix presents supplementary material to the paper analyzing the results of the Finnish basic income experiment. It comprises four sections. The first, Section A, studies the robustness of our main result by providing further evidence on the balance of the analysis groups and by showing that our regression estimate is not sensitive to changes in the definition of the outcome variable or to the inclusion of control variables. We also provide the complete OLS output for the main regression. Section B presents a heterogeneity analysis. Section C then analyzes the role of unemployment benefit supplements for active labor market programs and Section D discusses participants' awareness of the experiment.

A Robustness analysis

We start with Figure A.1, which shows trends in employment and the use of minimum unemployment benefits from 2016 to 2018. This figure supplements Figures 2 and 3 in the paper by providing past trends and presenting average days instead of shares of

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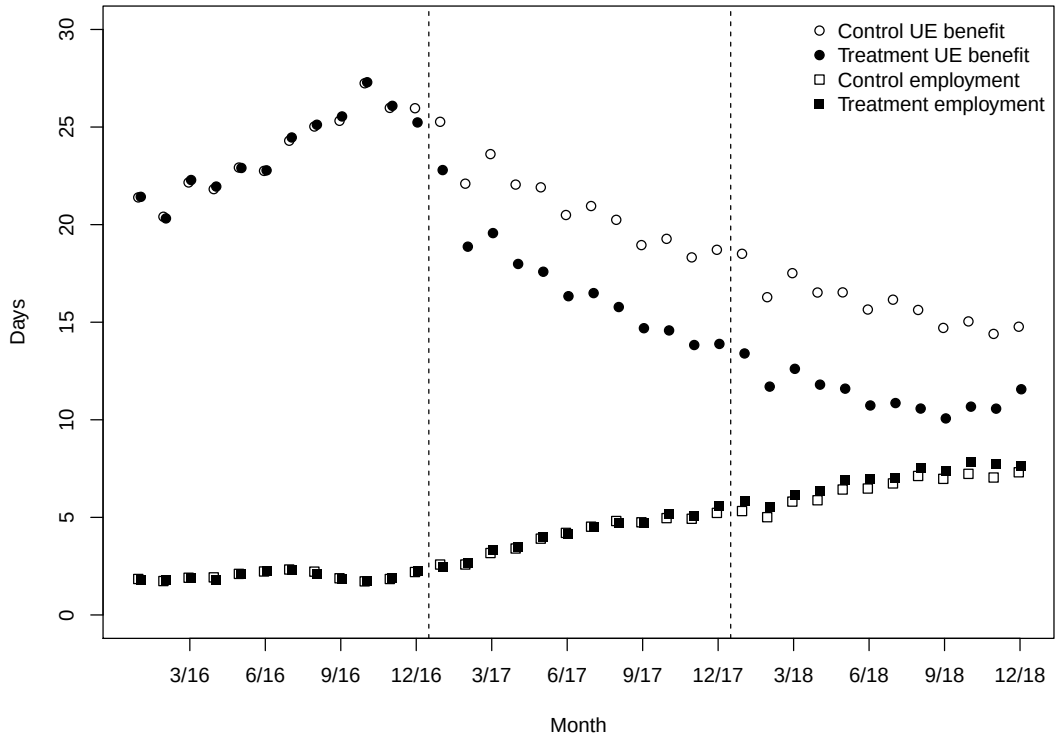

Figure A.1: Monthly trends in employment days and the use of unemployment (UE) benefits in 2016–2018.

those participants with unemployment days. In 2016, trends were almost identical for the treatment and control groups. The only exception to be seen is a small drop in the use of unemployment benefits by those in the treatment group in December, which is explained by the fact that these benefits were claimed in January 2017 and were thus already affected by the experiment. The number of days on unemployment benefits for both groups is high in 2016. Time on benefits increases over the year and peaks at 27 days in October. The target group was defined based on eligibility for benefits in October, with these paid out in November. For time in employment, the average was around 2 days per month throughout the year 2016. The number of employment days starts to increase slowly after randomization and reaches 5 days per month in October 2017. For 2017 and 2018, these trends are similar to those in Figures 2 and 3 in the paper.

Table A.1: Robustness analysis for the number of employment days.

	Control mean	Estim.	*p*-val.	Estim.	*p*-val.	Estim.	*p*-val.	Estim.	*p*-val.
Outcome definition									
2017									
Primary outcome	49.06	0.85	0.72	2.60	0.26	1.92	0.39	1.54	0.44
		(2.35)		(2.29)		(2.23)		(1.98)	
No wage threshold	77.09	1.89	0.51	3.90	0.17	3.01	0.27	3.35	0.16
		(2.88)		(2.82)		(2.74)		(2.38)	
2018									
Primary outcome	77.34	5.61	0.06	7.48	0.01	6.63	0.02	6.63	0.01
		(3.02)		(2.97)		(2.87)		(2.71)	
No wage threshold	104.92	6.37	0.06	8.40	0.01	7.38	0.02	7.86	0.01
		(3.33)		(3.29)		(3.17)		(2.96)	
Control variables									
Benefit type				X		X		X	
Background characteristics						X		X	
Benefit and employment histories for 2016								X	

Note: Background characteristics are gender, age, language, family type, region type, province (NUTS 2), level and field of education, and disability indicator. Benefit and employment histories for 2016 include employment, earnings, unemployment benefits and housing benefits. Robust standard errors are in parentheses.

Table A.1 shows a robustness analysis for days in employment. The results are robust for controlling different background characteristics, which is to be expected if randomization has been carried out successfully. Controlling for unemployment benefit type in November 2016 has the largest impact on the point estimate. This is not surprising as benefit type was the only variable found to be unbalanced after the randomization. Nevertheless, all the changes in the 2017 point estimate are far from being significantly different from zero or from the preferred specification including all controls. In the preferred specification for 2017, the standard errors are reduced by 15% when compared to the specification without any control variables.

Table A.1 also shows the sensitivity of our main result to the change in the definition of employment. For our primary outcome, we use a wage threshold of €23.74

Table A.2: Effect on annual earnings distribution.

	2017				2018			
	Control mean	Estim.	S.E.	*p*-val.	Control mean	Estim.	S.E.	*p*-val.
No earnings	0.5715	-0.0139	0.0094	0.1364	0.5000	-0.0245	0.0102	0.0158
€1–3,000	0.1128	0.0050	0.0069	0.4708	0.1043	-0.0049	0.0067	0.4645
€3,001–8,000	0.1064	0.0062	0.0069	0.3661	0.1014	0.0029	0.0068	0.6707
€8,001–15,000	0.1064	0.0062	0.0069	0.3709	0.1070	0.0133	0.0072	0.0662
$\geq$ €15,001	0.1029	-0.0035	0.0062	0.5740	0.1873	0.0133	0.0084	0.1126

Note: Control variables are unemployment benefit type, gender, age, language, family type, region type, province (NUTS 2), level and field of education, disability indicator, employment in 2016, earnings in 2016, unemployment benefits in 2016, housing benefits in 2016. Standard errors in the linear probability models are robust for heteroscedasticity.

for daily earnings (as specified in our pre-analysis plan). Only employment spells with daily earnings, calculated using the dates of employment contracts and yearly earnings related to the contracts, exceeding the threshold are included in the analysis. In the alternative definition, we relax the wage threshold to the extreme and include all employment spells with positive earnings. This leads to inclusion of zero-hour contracts, which may be of very long duration, but include only a single day with actual work. In the first year, removing the wage threshold increases the average days in employment by 57% in the control group. The treatment effect increases to 3.35 days in the specification including all controls. However, the estimate still remains insignificant.

Table A.2 explores the effect of the experiment on annual earnings distribution, enabling us in turn to study the possible impact of the irregular work in more detail. 57% and 50% of the control group had no labor income in 2017 and 2018, respectively. For others, we define earnings categories based on the earnings deciles in 2017. Using linear probability models, we estimate the effect of being in these earnings categories. In line with the result for the average earnings and days in employment, all of the estimates are small and insignificant for 2017. However, the point estimates reveal an interesting pattern. The probability of having no earnings decreases by 1.39pp and the likelihood of earning from €1 to €15,000 annually increases correspondingly. This indicates that irregular work became slightly more common in the treatment group but the earnings from such employment were low. In 2018, the probability of having no

earnings decreases significantly by 2.45pp and the basic income recipients seem more likely to be in the two highest earnings categories. Here, it should be pointed out that the €15,000 threshold for the highest earnings category is still less than 40% of the median earnings for a full-time employee in Finland in 2017. Overall, our main results are not sensitive to the wage threshold or other changes in definitions of employment spells.

To end this section, we provide the complete OLS output for our main regressions in Table A.3.

B Effect heterogeneity

The basic income was set to correspond to the net level of minimum unemployment benefits without supplements. The exclusion of child supplements implied that the changes in the employment incentives would be heterogeneous with respect to family type. Figure B.1 shows the use of unemployment benefits for single adults and couples with and without children. The graphs reveal that benefit use declined more for those without children, which is in line with the incentive effects. However, the use of unemployment benefits remains very common among different family types. Thus, the child supplements alone do not explain the high benefit take-up in the treatment group.

Table B.1 presents the results of the subgroup analysis for days in employment. Basic demographics, age, gender and education do not show large heterogeneity in 2017. The variation in the point estimates for the subgroups is well within their standard errors. The second year is otherwise similar, but the age group 25–44 years has a larger but insignificant estimate. For family and region type the differences are larger. Both variables are directly linked to the benefit levels. For couples with children, the employment effect is more positive and reaches significance in 2018. This is surprising given that the basic income provided less improvement for their employment incentives compared to childless households. On the other hand, the point estimates for the different region types follow the expected pattern. As housing costs are considerably higher in the capital region than in the rest of country, housing benefits have a stronger impact on effective marginal tax rates. This is realized in the negative point estimate in the capital region, while other regions show positive estimates.

To analyze the effect heterogeneity with respect to employment incentives more

Table A.3: OLS regression coefficients for days in employment (primary outcome).

	2017			2018		
	Estimate	S.E.	*p*-value	Estimate	S.E.	*p*-value
Intercept	34.84	1.05	<0.01	64.54	1.42	<0.01
Treatment group	1.54	1.98	0.44	6.63	2.71	0.01
2016 unemployment benefit type 2	6.16	0.84	<0.01	15.12	1.04	<0.01
Gender woman	0.70	0.46	0.13	0.05	0.62	0.93
Age 35–44	-7.85	0.58	<0.01	-14.48	0.78	<0.01
Age 45–59	-17.13	0.52	<0.01	-34.18	0.70	<0.01
Foreign language	-5.72	0.56	<0.01	-5.25	0.76	<0.01
Family type couple	6.48	0.67	<0.01	11.94	0.89	<0.01
Family type couple with children	12.89	0.63	<0.01	24.70	0.85	<0.01
Family type adult with children	5.55	0.63	<0.01	10.44	0.85	<0.01
Region surrounding capital	1.42	0.91	0.12	4.88	1.22	<0.01
Region other urban	-1.84	0.80	0.02	-1.01	1.06	0.34
Region rural	-2.70	0.86	<0.01	-2.66	1.14	0.02
Province Eastern	-2.54	0.77	<0.01	-2.71	1.03	0.01
Province Lapland	1.34	1.31	0.31	1.95	1.73	0.26
Province Western	2.54	0.59	<0.01	3.91	0.78	<0.01
Province Oulu	-0.23	0.84	0.78	0.15	1.13	0.89
Education level secondary	3.10	0.79	<0.01	8.94	1.08	<0.01
Education level tertiary	8.90	0.98	<0.01	20.85	1.33	<0.01
Education field 1	-0.79	1.00	0.43	-1.45	1.34	0.28
Education field 2	7.91	0.87	<0.01	8.94	1.17	<0.01
Education field 3	6.12	0.87	<0.01	7.97	1.19	<0.01
Disability	-12.86	0.47	<0.01	-25.39	0.64	<0.01
2016 employment days > 0	77.69	1.12	<0.01	65.93	1.30	<0.01
2016 earnings €1–1,500	13.88	0.90	<0.01	27.57	1.19	<0.01
2016 earnings €1,501–4,000	23.61	1.10	<0.01	33.75	1.38	<0.01
2016 earnings €4,001–8,000	34.10	1.28	<0.01	40.86	1.54	<0.01
2016 earnings $\geq$ €8,001	76.86	1.56	<0.01	67.41	1.81	<0.01
2016 unemployment days 241–364	-8.38	0.68	<0.01	-9.89	0.88	<0.01
2016 unemployment days 365–366	-8.92	0.61	<0.01	-7.02	0.85	<0.01
2016 housing benefits €1–2,500	-6.63	0.72	<0.01	-8.23	0.93	<0.01
2016 housing benefits €2,501–4,000	-9.52	0.60	<0.01	-16.77	0.81	<0.01
2016 housing benefits $\geq$ €4,001	-9.95	0.67	<0.01	-17.60	0.91	<0.01

Note: Education field 1 includes the humanities, natural sciences, agriculture and forestry. Education field 2 includes business, social sciences, health and services. Education field 3 includes engineering. Standard errors are heteroskedasticity-robust.

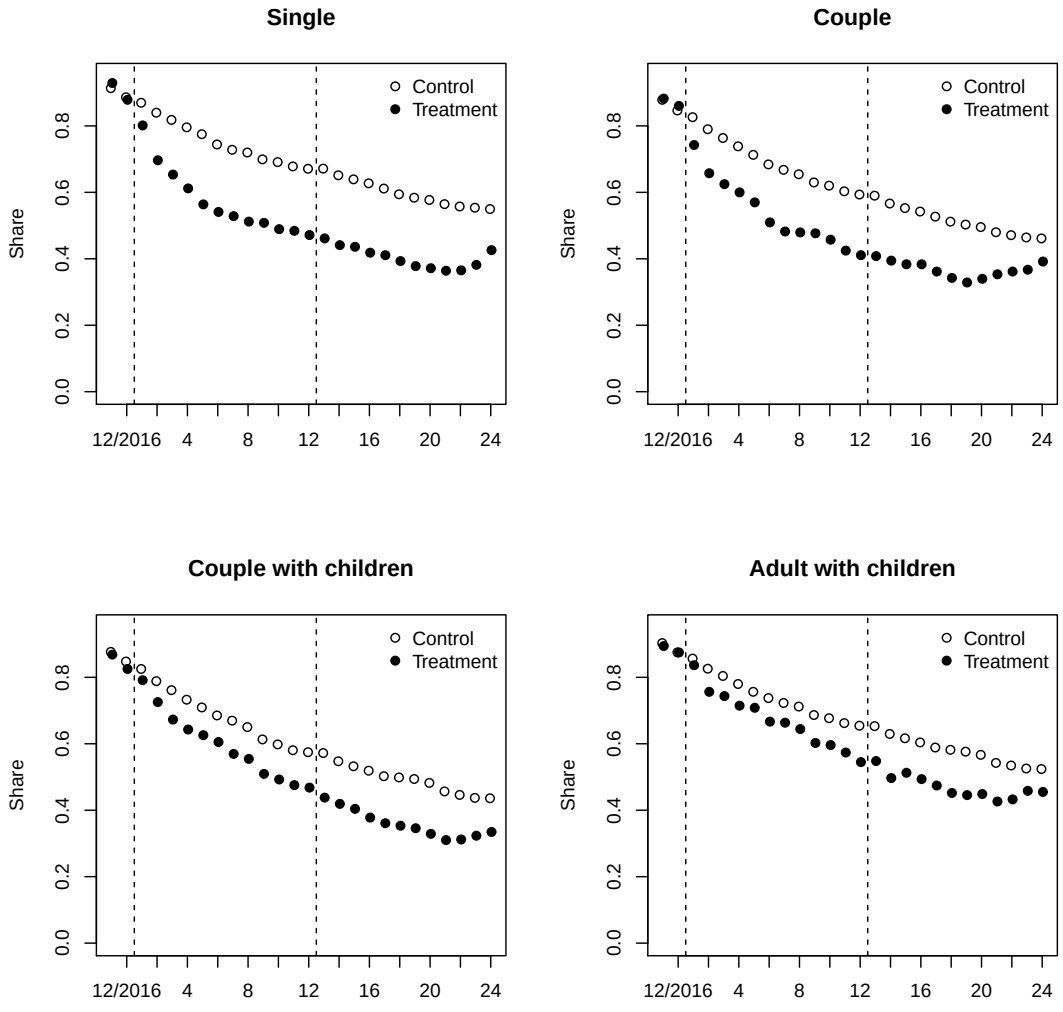

Figure B.1: Use of minimum unemployment benefits by family type between November 2016 and December 2018.

Table B.1: Effect on the number of employment days. Results for the primary outcome and subgroup analysis.

	2017			2018			
	Estim.	S.E.	*p*-val.	Estim.	S.E.	*p*-val.	N treated
Primary analysis							
	1.54	1.98	0.44	6.63	2.71	0.01	2000
Subgroup analysis							
Age							
25–34	1.18	3.66	0.75	5.51	5.01	0.27	670
35–44	2.96	4.15	0.47	9.75	5.64	0.08	549
45–59	0.85	2.71	0.75	5.39	3.73	0.15	781
Gender							
Men	2.31	2.61	0.37	6.46	3.67	0.08	1045
Women	0.69	3.01	0.82	6.81	4.01	0.09	955
Education							
Basic	-0.11	2.86	0.97	5.25	4.27	0.22	634
Secondary or higher	2.31	2.58	0.37	7.26	3.44	0.03	1366
Family type							
Couple with children	8.23	4.58	0.07	13.90	6.04	0.02	532
Single or couple	-0.38	2.39	0.87	2.10	3.31	0.53	1156
Adult with children	-2.74	4.65	0.56	10.98	6.69	0.10	312
Region type							
Capital region	-4.36	4.03	0.28	2.55	5.79	0.66	468
Other urban areas	3.13	2.91	0.28	7.88	4.03	0.05	886
Rural areas	3.63	3.62	0.32	7.85	4.72	0.10	646

Note: Control variables are unemployment benefit type, gender, age, language, family type, region type, province (NUTS 2), level and field of education, disability indicator, employment in 2016, earnings in 2016, unemployment benefits in 2016, housing benefits in 2016. Standard errors are heteroskedasticity-robust.

Table B.2: Effect on the number of employment days. Effect heterogeneity by the change in the participation tax rate (PTR) for monthly labor earnings of €2,000.

		2017			2018			
		Estim.	S.E.	*p*-val.	Estim.	S.E.	*p*-val.	N treated
Primary analysis								
		1.54	1.97	0.43	6.63	2.71	0.01	2000
PTR change								
Tertile	Decrease (%)							
1st	0–35.5	2.97	3.42	0.39	14.64	3.42	0.00	666
2nd	35.6–43.8	3.47	3.25	0.29	8.39	3.25	0.01	668
3rd	43.9–61.0	-1.82	3.59	0.61	-3.16	3.59	0.38	666

Note: Control variables are unemployment benefit type, gender, age, language, family type, region type, province (NUTS 2), level and field of education, disability indicator, employment in 2016, earnings in 2016, unemployment benefits in 2016, housing benefits in 2016. Standard errors are heteroskedasticity-robust.

directly, we estimate the employment effects by the changes in the participation tax rates (PTR) in Table B.2. The tax rates are simulated using Statistics Finland's SISU microsimulation model at the Social Insurance Institution of Finland.[1] The calculations are based on the observed benefit use of the full-time unemployed target population of the experiment in November 2016. To obtain PTR values for all individuals in the treatment group, the missing 20% of the values are imputed using the cell means of the variables that determine the benefit levels. These variables are gender, family type, number of children, use of social assistance and, most importantly, 20-quantiles of the rent accepted in the housing benefits. This provides 320 cell means that are exact matched for the missing 405 cases in the treatment group.

Table B.2 presents the effect heterogeneity by the PTR change in tertiles for a treated person who accepts a job with €2,000 monthly earnings. The point estimate for the employment effect turns out to be negative in the 3rd tertile in which a decline in PTRs was the largest. The other two tertiles with smaller changes in PTRs show positive employment estimates. This analysis suggests that the effect heterogeneity with

[1]The PTR calculations are based on Hämäläinen et al. (2019) and they are also discussed in Section 2.2 of this paper (Hämäläinen, K., O. Kanninen, M. Simanainen, and J. Verho, 2019. Perustulokokeilun ensimmäinen vuosi. VATT Mimeo 56.).

respect to incentive changes follows an unexpected pattern. In 2017, this heterogeneity is relatively small, and in 2018, it is slightly larger. However, the pattern is consistent with the subgroup analysis where couples with children had larger estimates than other family types. Couples with children typically have relatively high unemployment and housing benefits, which implies smaller decreases in PTR. It has to be noted, however, that these heterogeneity analyses lack power to detect differences between groups and these results should thus be interpreted with caution.

C Benefit supplements for program participants

Table C.1 examines how common different types of benefit supplements for participants in active labor market programs were among the target population. The first and third column include the whole target population of the basic income experiment, that is, individuals who were receiving unemployment benefits from the Social Insurance Institution of Finland (SII) in November 2016. The second and fourth column limit the sample to those who spent at least one working day in an active labor market program either during the year 2017 or 2018, respectively. Subsidized jobs are excluded here, as the participants in these programs are paid a wage instead of unemployment benefits.

The first column of Table C.1 reveals that an average person in the target population spent 78 working days, or 3.5 months, in active labor market programs in 2017. The third column shows that the time spent in programs declines by 9 working days during the second year of the experiment. Columns 2 and 4 show that around half of the target group participated in active programs on both years of the experiment, and that a program lasted over six months on average. As expense compensation is nontaxable, the participants' taxable equivalent supplements during participation periods were €1,017 in 2017 and €706 in 2018, when using the standard SII withholding tax rate of 20%. This is additional to the combined amount of regular unemployment benefit and child supplement payments of €7,600 that the program participants received in 2017, forming a considerable part of the total unemployment benefit.

Table C.1: Mean expense compensations and supplements paid to unemployment benefit recipients.

	2017		2018	
	All	ALMP participants	All	ALMP participants
Share of individuals, %	100	53.97	100	47.50
Days in ALMP	78.10	144.71	69.01	145.29
Days with expense compensation	39.58	73.19	24.49	51.17
Days with benefit supplement	18.47	34.12	11.64	24.22
Expense compensation (€)	369.65	682.79	226.24	472.21
Benefit supplements (€)	88.33	163.20	55.47	115.41

Note: Days refer to working days. Active labor market program (ALMP) participants exclude those in subsidized employment.

D Awareness of the experiment and media attention

One possible explanation for the small changes in benefit take-up, participation in public employment services and, ultimately, employment is that participants were simply not cognizant of the fact that they had been randomized into the treatment group of an experiment. We claim that this was unlikely, at least on a large scale. Figure D.1 shows that contacts asking for guidance and making inquiries increased significantly among the treatment group during the first few months of the experiment. Information letters were sent to the group members on 28 December 2016, which is likely to have prompted a higher contact rate. The contacts increased in December 2016 and the first three months of 2017, after which the difference between the groups becomes insignificant. This implies that many individuals in the treatment group knew about the experiment and asked for more information. In the case of other contact types, there were no significant differences between the two groups.

The basic income experiment was also widely discussed in the media when it was planned and implemented. Figure D.2 shows the Google searches in Finnish for "basic income" or "basic income experiment" versus "disability pension". There are spikes in early 2015, when the new government came into office. The government had written in its program that it would run a basic income experiment and the Google searches show a concurrent spike. The smaller spikes between 2015 and 2017 coincide with

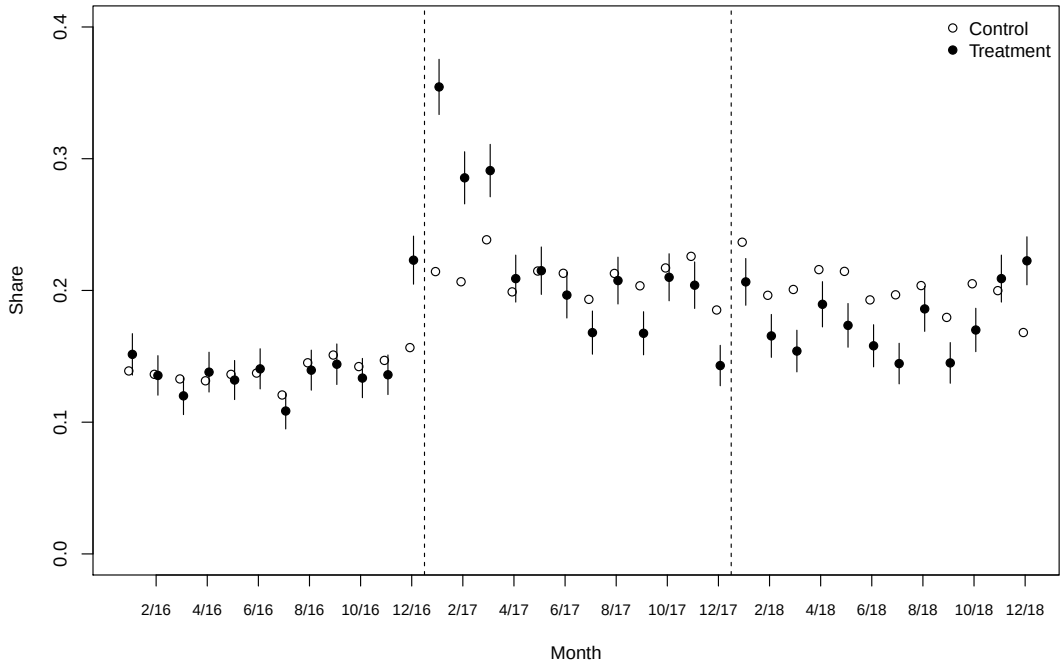

Figure D.1: Contacts with the Social Insurance Institution of Finland regarding social benefits in 2016–2018. The monthly shares of individuals with contacts registered as request for guidance and inquires.

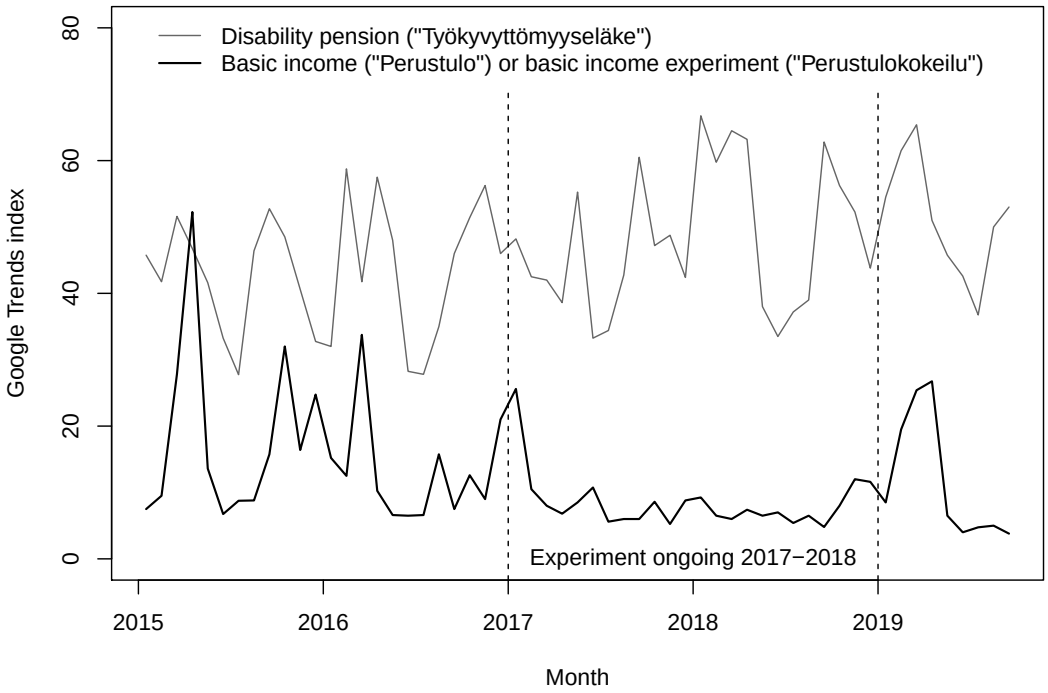

Figure D.2: Popularity of Google search queries for "basic income" [in Finnish]. The monthly Google Trend indices for "basic income" or "basic income experiment" versus "disability pension", included as a reference.

the public discussions about the implementation of the experiment. At the start of the experiment, there are clear spikes in December and January. The search frequency is not particularly high during the experiment, but there is a clear jump again in early 2019, when the preliminary results of the experiment were released. The index for disability pension acts as a baseline for search activity for social benefits. However, the disability pension has 132,000 recipients, which explains the higher level of search activity at all times except when the government program was announced.