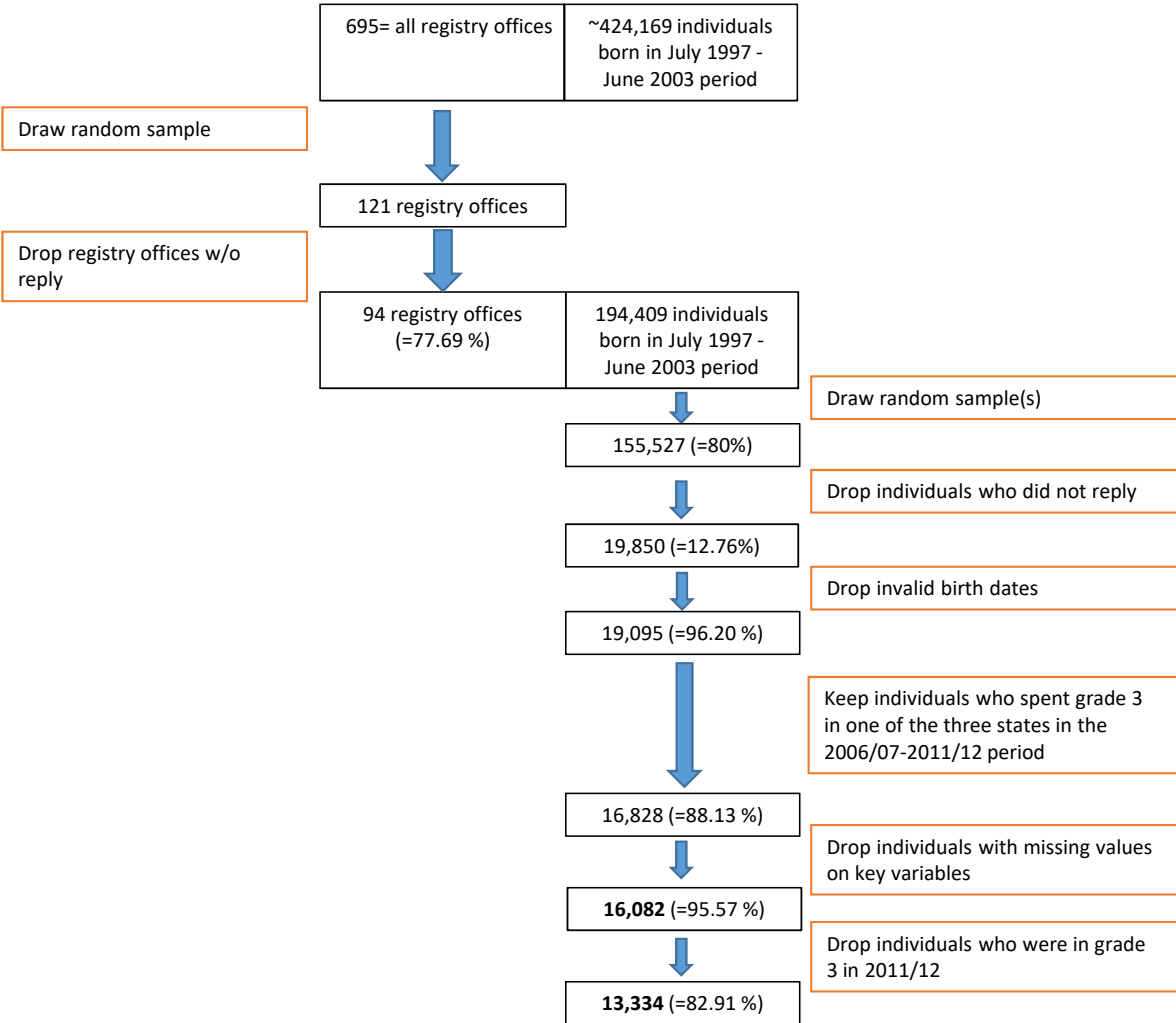ONLINE APPENDIX

The Long-Run Effects of Sports Club Vouchers for Primary School Children

Jan Marcus   Thomas Siedler   Nicolas R. Ziebarth

Appendix A: YOLO Survey

Sampling and Sample Sizes

Figure A1: YOLO Sampling and Sample Size

| 695= all registry offices | ~424,169 individuals born in July 1997 - June 2003 period |

Draw random sample

| 121 registry offices |

Drop registry offices w/o reply

| 94 registry offices (=77.69 %) | 194,409 individuals born in July 1997 - June 2003 period |

Draw random sample(s)

| 155,527 (=80%) |

Drop individuals who did not reply

| 19,850 (=12.76%) |

Drop invalid birth dates

| 19,095 (=96.20 %) |

Keep individuals who spent grade 3 in one of the three states in the 2006/07-2011/12 period

| 16,828 (=88.13 %) |

Drop individuals with missing values on key variables

| **16,082** (=95.57 %) |

Drop individuals who were in grade 3 in 2011/12

| **13,334** (=82.91 %) |

Sampling Procedure. At the beginning of 2018, a total of 424,169 individuals who were born between July 1997 and June 2002 lived in the three states of Brandenburg, Saxony, and Thuringia (Statistisches Bundesamt, 2020).[1] There were 695 registry offices in these three states.

In the first sampling stage, we randomly selected 121 out of these total of 695 registry offices (with sampling probabilities proportional to population size). About 78 percent or 94 registry offices replied. These 94 registry offices cover about 46 percent of the total target population in the three federal states (194,409 youth). Note that because we sampled registry offices proportional to population size, the share of sampled individuals is much larger than the share of sampled registry offices. Due to German data privacy regulations, we were only allowed to ask for an 80 percent random sample of all households in our target group from these 94 registry offices, as shown in Figure A2. Hence we obtained 155,527 (physical) addresses for youth in the target cohorts.

In the next step, we mailed a research invitation letter (see Figure A3) to each of these 155,527 youth and invited them to participate in our YOLO survey online. A total of 19,850 individuals replied and completed the online survey (12.76 percent). After discarding individuals with self-reported birth dates outside our target cohorts, we were left with 19,095 respondents. Of these, we considered only those who reported that they attended third grade in one of the three states. This reduced the sample size by about 12 percent to 16,828 individuals. Additionally, we only kept respondents who answered the relevant questions to construct our six main outcome variables (16,082 individuals).

Moreover, in our main analysis, we disregard third graders in school year 2011/12, which further reduces the sample size to 13,334 individuals. We discard this cohort because i) the Educational Package (*Bildungs- und Teilhabepaket*) that covered sports club membership fees for welfare recipients came into effect on April 1, 2011 and therefore affected this cohort (see Section I.B) and ii) because this is the first cohort that did not receive vouchers and disappointment effects could therefore arise.

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[1]Note that this number is only an approximation as Statistisches Bundesamt (2020) only provides the numbers based on birth years.

Figure A2: Map of Resident Registries
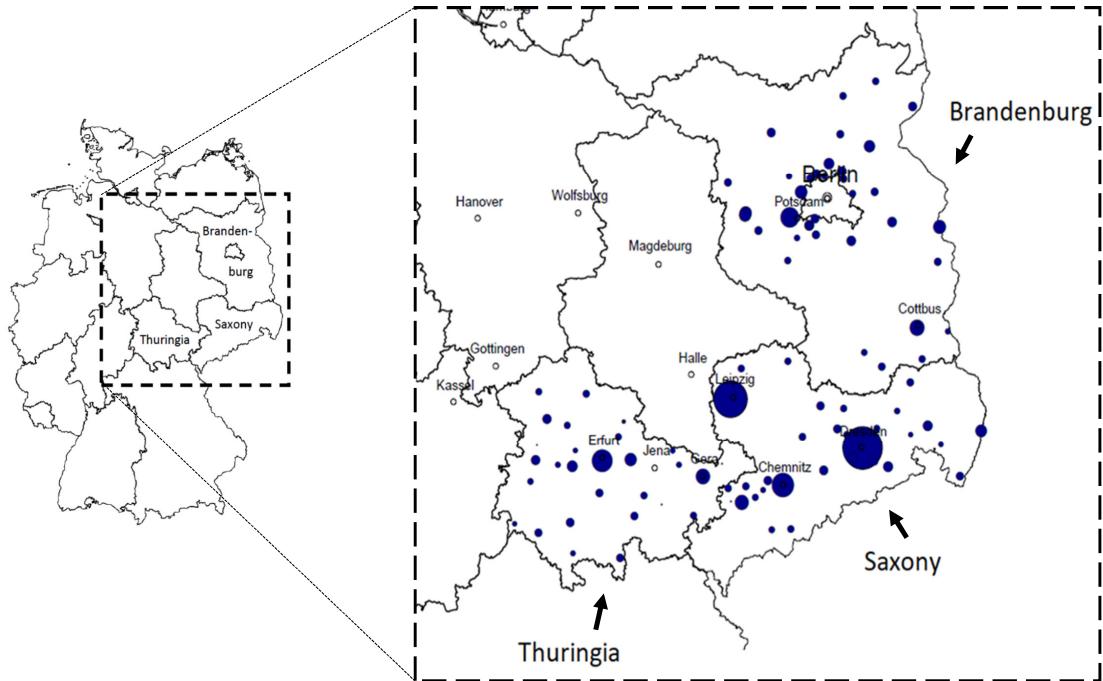
Notes: The map on the left shows all 16 German federal states. The map on the right displays the participating registries in the treatment (Saxony) and control states (Brandenburg, Thuringia). The circles are proportional to population size. *Source:* own illustration.

Figure A3: Information Letter for Survey Respondents

a) German version (original)

b) English version (translation)

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19.06.2018

Teilnahme an einer wissenschaftlichen Umfrage

Sehr geehrte Frau X,

wir sind Wissenschaftler an der Universität Hamburg und führen eine Online-Umfrage zum Freizeitverhalten von Jugendlichen und jungen Erwachsenen durch. Hiermit laden wir Sie herzlich ein, an dieser Umfrage teilzunehmen.[1] Unter allen Teilnehmenden verlosen wir zwei aktuelle iPads im Wert von je 500 Euro und zehn Amazon-Gutscheine im Wert von je 20 Euro. Die Teilnahme an der Umfrage ist freiwillig. Den Zugang zur Umfrage sowie weitere Informationen erhalten Sie mit folgenden Zugangsdaten:

Link für Sie:　　　www.umfrage-uhh.de/uc/u
Passwort:　　　　　XXYYZZ
Link für Eltern:　　www.umfrage-uhh.de/uc/eltern

Bitte geben Sie diese Zugangsdaten auch an einen Elternteil weiter. Ihre Mutter oder Ihr Vater kann unter dem zuletzt angegebenen Link mit dem gleichen Passwort wie Sie ebenfalls an der Umfrage teilnehmen.

Wir bitten Sie, bis spätestens zwei Wochen nach Erhalt dieses Briefs teilzunehmen. Herzlichen Dank!

Mit freundlichen Grüßen

...

[1] Ihre Anschrift haben wir auf Grundlage des § 46 Bundesmeldegesetz von der für Sie zuständigen Meldebehörde erhalten. Ihr Name und Ihre Anschrift werden aus unserer Datenbank gelöscht, nachdem wir Sie angeschrieben haben.

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June 19, 2018

Participation in a scientific survey

Dear Sir/Madam,

We are researchers at the University of Hamburg conducting an online survey on the leisure behavior of adolescents and young adults. We cordially invite you to take part in this survey.[1] As a thank you for participating your name will be entered into a lottery, where you will have the chance to win two new iPads worth €500 each and ten Amazon vouchers worth €20 each. Participation in the survey is voluntary. You can access the survey and obtain further information using the following access data:

Link for you:　　　　　www.umfrage-uhh.de/uc/u
Password:　　　　　　　XXYYZZ
Link for your parents:　www.umfrage-uhh.de/uc/eltern

Please pass this access data on to one parent. This parent can also take part in the survey using the same password as you via the second link listed above.

We would request that you participate within two weeks of receiving this letter at the latest. Many thanks for your help!

Yours sincerely

...

[1] We obtained your address from the registration authority where you are registered in accordance with Section 46 of the Federal Registration Act (*Bundesmeldegesetz*). Your name and address will be deleted from our database after we have written to you.

Figure A4: Duration of Survey in Minutes
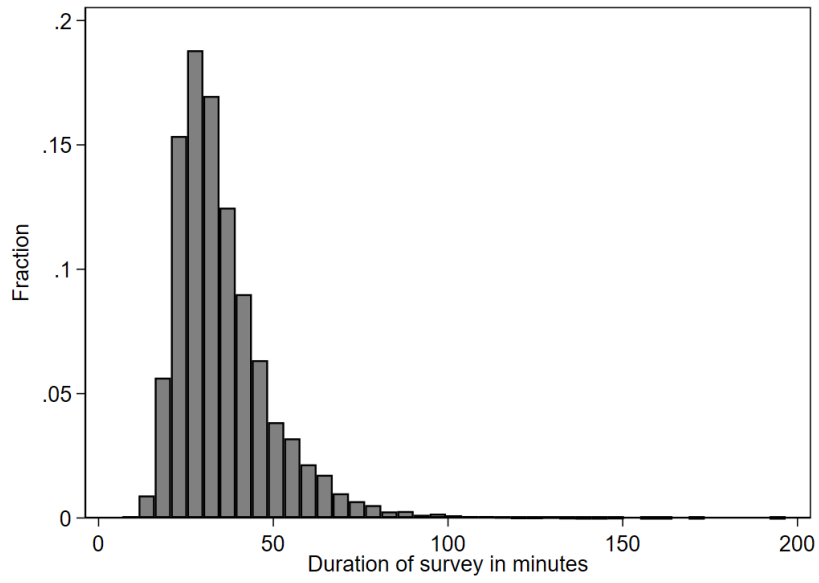
Notes: The figure displays the minutes needed to complete the YOLO survey for the individuals in the main analysis sample.
Source: YOLO survey.

Table A1: Stylized School Cohort Development

Birth date	School enrollment (1)	In 3rd grade (2)	C2SC voucher (3)
July 1997–June 1998	2004	2006/2007	No
July 1998–June 1999	2005	2007/2008	No
July 1999–June 2000	2006	2008/2009	Yes
July 2000–June 2001	2007	2009/2010	Yes
July 2001–June 2002	2008	2010/2011	Yes

Notes: The table displays the stylized relationship between birth cohorts and school cohorts as well as their eligibility status for the C2SC voucher. The relationship is stylized in the sense that it does not consider deviations from this path (e.g., red-shirting, grade repetitions), which are, however, incorporated in the construction of the main treatment indicator.

Table A2: Summary Statistics: Treatment vs. Control States

Variable	Treatment state (1)	Control states (2)	Norm.diff. (3)
Background characteristics			
Female	0.57	0.57	0.01
Has siblings	0.87	0.84	0.06
Born in Germany	0.96	0.97	-0.02
Parent not born in Germany	0.14	0.12	0.04
Newspaper at home	0.54	0.63	-0.12
Art at home	0.73	0.72	0.02
Academic track	0.49	0.50	-0.02
Sports club age 4-7	0.52	0.56	-0.06
Music lessons age 4-7	0.47	0.45	0.04
$\geq$ 1hr sports per week	0.89	0.89	0.00
$\geq$ 2hrs sports per week	0.76	0.77	-0.02
$\geq$ 3hrs sports per week	0.62	0.64	-0.03
Sport is important	0.57	0.57	0.00
Very good health	0.26	0.28	-0.04
Obese (BMI>30)	0.04	0.04	-0.02
Ever smoked cigarettes	0.53	0.57	-0.06
Current smoker	0.20	0.22	-0.02
Ever consumed alcohol	0.81	0.84	-0.05
Alcohol in last 7 days	0.51	0.52	-0.02
Age at survey	17.56	17.42	0.07
City	0.76	0.44	0.50
Outcomes			
Program known	0.32	0.03	0.60
Voucher received	0.18	0.00	0.45
Voucher redeemed	0.11	0.00	0.34
Member of sports club	0.41	0.43	-0.02
Weekly hours of sport	4.63	4.70	-0.01
Overweight (BMI>25)	0.15	0.17	-0.03

Notes: The table displays descriptive statistics for the main analysis sample, separately for Saxony (treatment state) and Brandenburg and Thuringia (control states). Norm. diff. stands for the "normalized difference", which is defined for each variable x as $ND_x = (\overline{x_1} - \overline{x_0})/\sqrt{(s_{x1}^2 + s_{x0}^2)}$, where $\overline{x_1}$ and $\overline{x_0}$ are the sample means of the two groups and s_{x1}^2 and s_{x0}^2 the corresponding variances. According to Imbens and Wooldridge (2009), a normalized difference of more than 0.25 indicates substantial covariate imbalance.
Source: YOLO survey.

Table A3: Registry vs. Self-Reported Socio-Demographics

	Percentage survey = registry (1)	N (2)
Female	0.995	13,331
German nationality	0.995	13,040
Year of birth	0.993	12,105
Month and year of birth	0.985	12,105
Day, month, and year of birth	0.974	12,105

Notes: The table displays the share of individuals in our main sample for which the registry information matches the self-reported information.
Source: YOLO survey and registry information.

Table A4: Administrative Data: YOLO Participants vs. Non-Participants

Variable	YOLO-participants (1)	Non-participants (2)	Norm. diff. (3)
Female	0.56	0.47	0.13
German nationality	0.96	0.90	0.15
Saxony	0.55	0.51	0.05
Year of birth 1997	0.06	0.09	-0.08
Year of birth 1998	0.12	0.18	-0.11
Year of birth 1999	0.15	0.17	-0.05
Year of birth 2000	0.18	0.16	0.03
Year of birth 2001	0.19	0.15	0.07
Year of birth 2002	0.19	0.15	0.08
Year of birth 2003	0.08	0.07	0.03

Notes: The table compares YOLO participants with non-participants based on registry information.
Source: Registry information.

Table A5: Comparison of YOLO and SOEP Participants

Variable	YOLO (1)	SOEP (2)	Norm. diff. (3)
Socio-demographic variables			
Female	0.57	0.54	0.04
German citizenship	0.96	0.98	-0.06
Born in Germany	0.95	0.97	-0.07
Has siblings	0.86	0.86	0.00
Still in school	0.84	0.94	-0.24
Leisure time activities			
Does sport	0.72	0.74	-0.03
Does sport in a club	0.31	0.31	0.00
Involved in music	0.33	0.32	0.01
Music lessons outside school	0.25	0.19	0.11
Watches TV, videos	1.39	1.37	0.02
Plays computer games	2.46	2.59	-0.06
Listens to music	1.21	1.15	0.08
Plays music, sings	3.65	3.88	-0.11
Does sport	2.30	2.38	-0.05
Dances or acts	4.17	4.02	0.09
Reads	2.68	2.76	-0.05
Does volunteer work	4.35	4.49	-0.10
Does nothing	2.32	2.02	0.18
Best friend	2.25	2.07	0.14
Youth/recreation centre	4.76	4.38	0.30
Church/religious events	4.59	4.48	0.09
Personality traits and attitudes			
Risk attitude	5.56	5.72	-0.05
Internal locus-of-control	0.00	0.11	-0.07
External locus-of-control	-0.03	0.05	-0.06
Works carefully	5.65	5.16	0.27
Communicative	5.04	5.12	-0.04
Abrasive towards others	3.40	3.22	0.08
Introduces new ideas	4.81	4.73	0.04
Often worries	5.08	5.00	0.03
Can forgive others	5.70	5.60	0.06
Is lazy	4.20	4.07	0.05
Is outgoing/sociable	4.77	4.97	-0.09
Importance of aesthetics	4.76	4.42	0.13
Is nervous	4.32	4.24	0.03
Carries out duties efficiently	5.49	5.07	0.25
Is reserved	4.23	4.32	-0.04
Is considerate, friendly	6.00	5.95	0.03
Has a lively imagination	5.35	5.24	0.05
Is relaxed/unstressed	4.48	4.15	0.15
Is curious	5.50	5.21	0.16
Is positive about oneself	4.97	4.90	0.03

Notes: The table compares YOLO participants with SOEP participants. We use the SOEP youth questionnaire and the year respondents turned 17. To make the two samples comparable, both are restricted to individuals born between July 1997 and July 2000 (2000 is the last available cohort in the SOEP youth questionnaire and July 1997 is the first cohort in YOLO), who live in Saxony, Brandenburg, or Thuringia. SOEP observations are weighted with SOEP weights. Imbens and Wooldridge (2009) provide details on how to calculate the normalized difference. The construction of the locus of control variables follows Peter and Spiess (2016) for the pooled SOEP-YOLO sample.
Source: YOLO survey and SOEP.

**Table A6:** Survey Participation as Outcome in DD Framework

	Cohorts 1997-2003	Cohorts 1997-2002
	(1)	(2)
Voucher	0.004	0.007
	(0.004)	(0.006)
N	141,758	120,528

Notes: The table displays the "effect" of the voucher program on participation in the YOLO survey based on our DD framework in equation (2) and registry information on state and date of birth. The treatment indicator is assigned based on birth dates. The binary outcome takes on the value one if an individual participated in the survey and zero otherwise.
Source: Registry information.

Appendix B: Empirical Results YOLO

**Figure B1:** Sports Disciplines for which Vouchers Were Redeemed
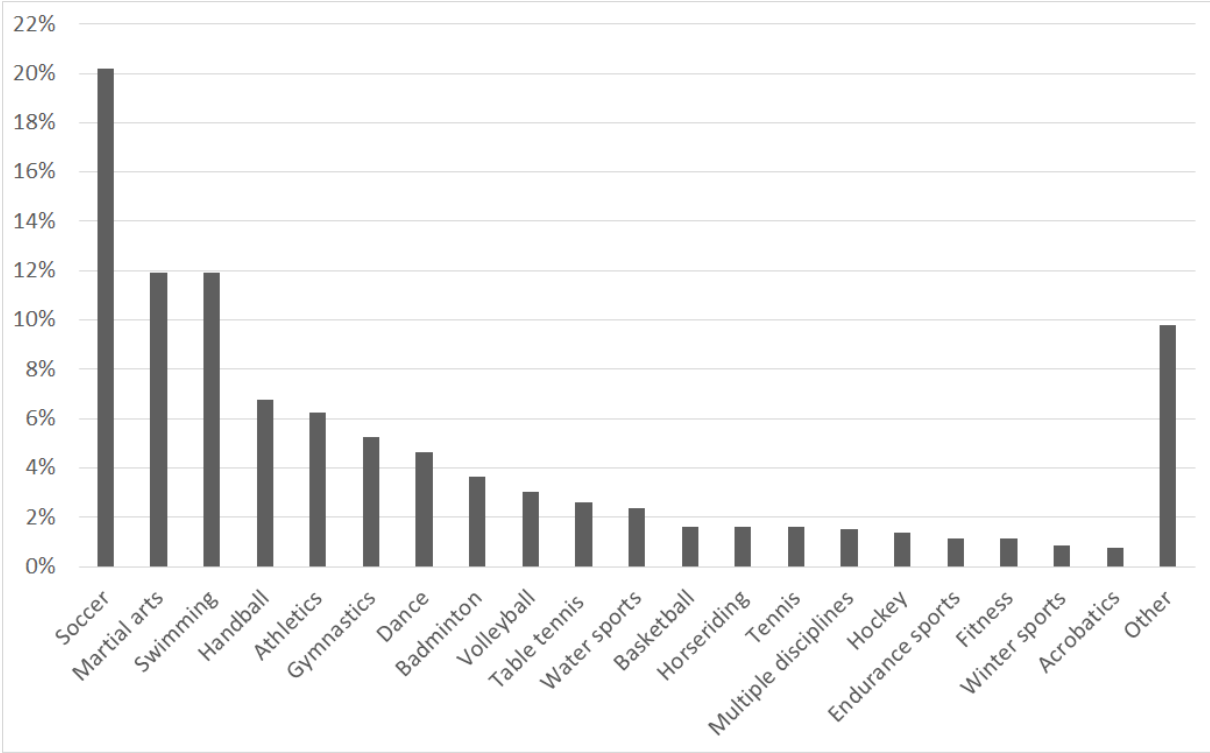
Notes: The figure displays the sports disciplines for which vouchers were redeemed. The sample includes only respondents who answered that they redeemed the voucher (N=798).
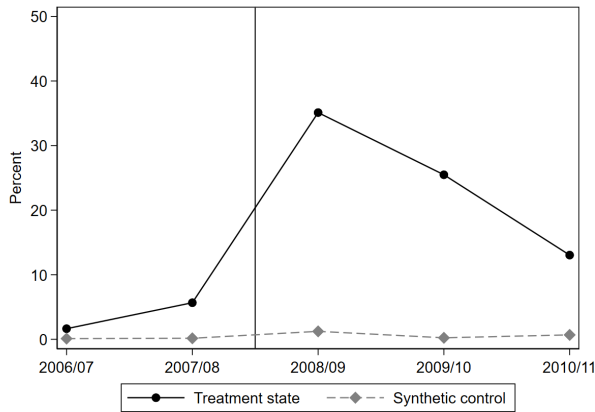*Source*: YOLO survey.

Figure B2: Development of Outcome Variables—Synthetic Control Group

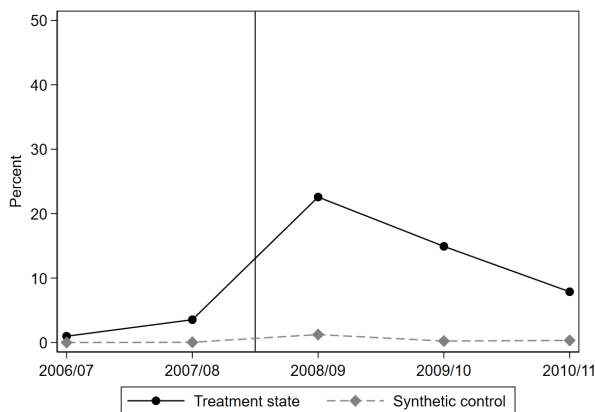**Panel A: Awareness & take-up**

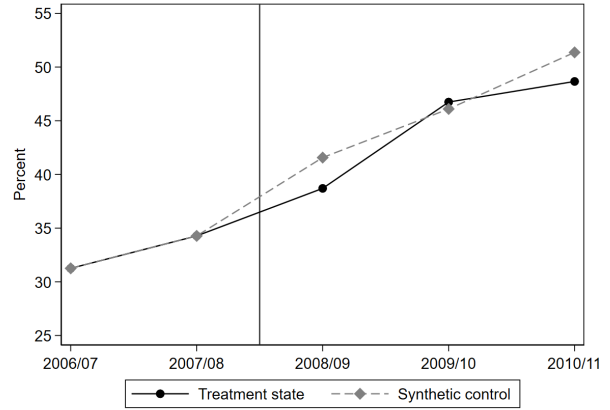a) Program known
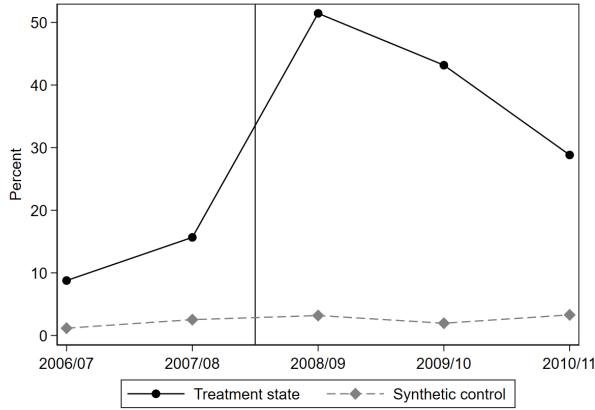
b) Voucher received
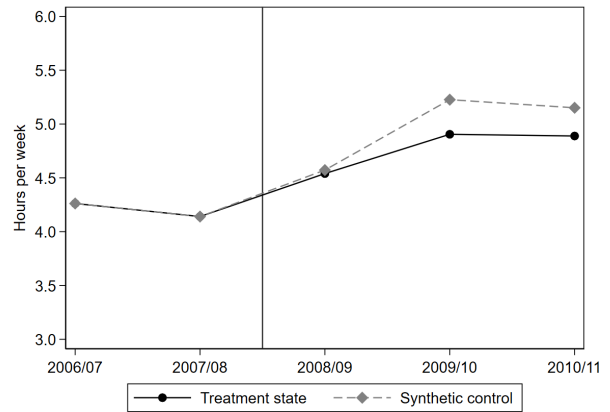

c) Voucher redeemed

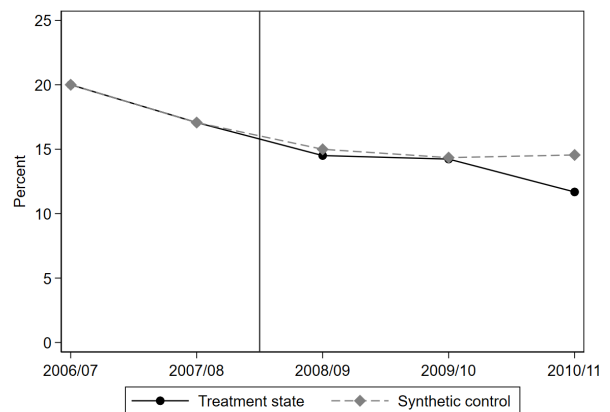

Panel B: Physical activity

d) Sports club member

e) Weekly hours of sport

f) Overweight

Notes: The figures show the main outcome variables by the school year during which YOLO respondents attended the third grade, before and after the start of the C2SC initiative. The figures compares the treatment state of Saxony to a synthetic control group based on municipalities in Brandenburg and Thuringia. See the notes to Table 7 for further details on the construction of the synthetic control group. *Source*: YOLO survey.

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Figure B3: Outcome Difference—Treatment vs. Control States

Panel A: Main results

a) Sports club member

Panel B: Synthetic control

d) Sports club member
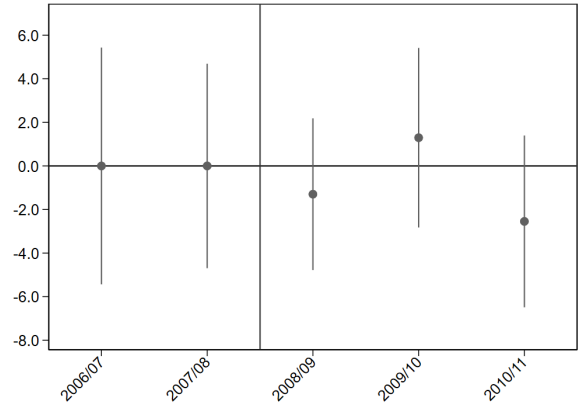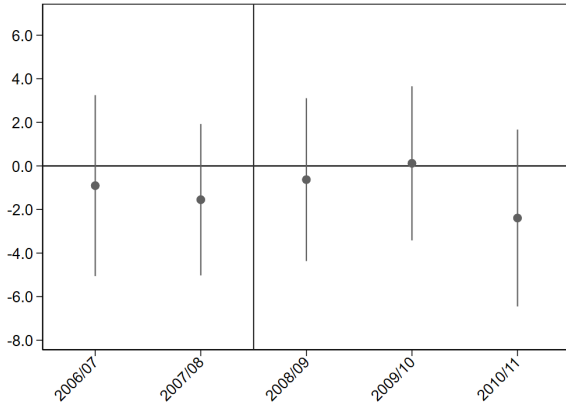
b) Weekly hours of sport

e) Weekly hours of sport
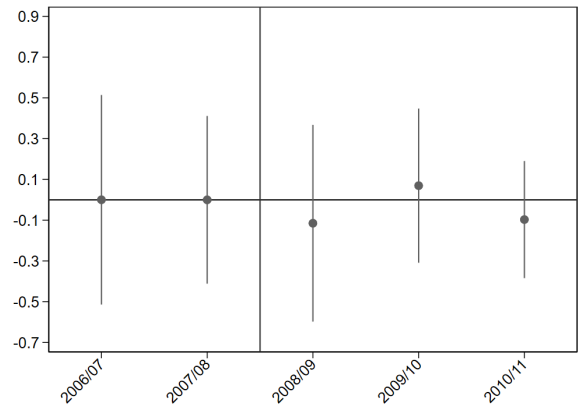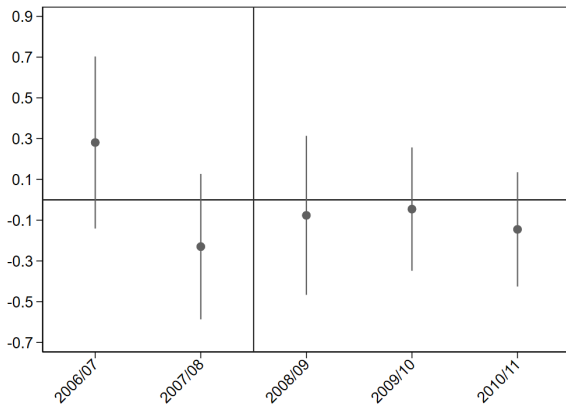
c) Overweight

f) Overweight
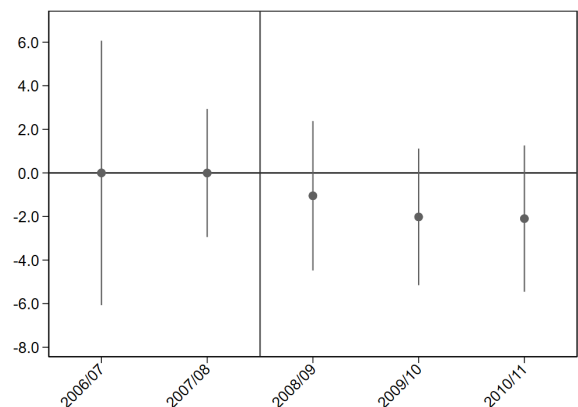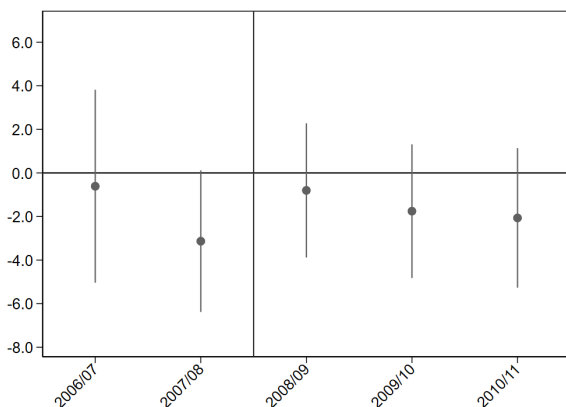
Notes: While Figures 1 and B2 display the mean of the main outcome variables for the treatment and control states, this figure displays the *differences* between the treatment and control states based on the main sample (Panel A) and on the synthetic control group (Panel B). Note that these are simple averages and not adjusted for covariates.
Source: YOLO survey.

Table B1: Difference-in-Differences: Heterogeneity

	Sports club age 4-7		Newspaper		Art at home		Academic track		Female		Urban	
	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Panel A: Awareness & take-up												
Program known												
Voucher	0.254***	0.293***	0.277***	0.271***	0.247***	0.299***	0.192***	0.306***	0.201***	0.283***	0.256***	0.297***
	(0.025)	(0.012)	(0.025)	(0.017)	(0.014)	(0.018)	(0.013)	(0.017)	(0.019)	(0.010)	(0.017)	(0.016)
Voucher received												
Voucher	0.193***	0.210***	0.196***	0.206***	0.188***	0.211***	0.140***	0.223***	0.156***	0.215***	0.183***	0.227***
	(0.016)	(0.010)	(0.020)	(0.014)	(0.014)	(0.012)	(0.007)	(0.014)	(0.013)	(0.012)	(0.009)	(0.017)
Voucher redeemed												
Voucher	0.118***	0.126***	0.130***	0.120***	0.106***	0.133***	0.080***	0.135***	0.092***	0.132***	0.085***	0.156***
	(0.014)	(0.009)	(0.016)	(0.007)	(0.009)	(0.007)	(0.009)	(0.010)	(0.007)	(0.009)	(0.007)	(0.011)
Panel B: Physical activity												
Member of sports club												
Voucher	0.015	0.006	0.009	0.008	-0.001	0.021	-0.002	0.011	0.011	0.013	0.027	0.019
	(0.026)	(0.021)	(0.042)	(0.024)	(0.029)	(0.021)	(0.039)	(0.019)	(0.024)	(0.030)	(0.022)	(0.029)
Weekly hours of sport												
Voucher	0.328	-0.218	0.065	-0.118	-0.292	0.198	-0.099	-0.001	-0.126	0.263	0.028	0.148
	(0.223)	(0.201)	(0.272)	(0.222)	(0.242)	(0.172)	(0.242)	(0.168)	(0.207)	(0.258)	(0.201)	(0.209)
Overweight												
Voucher	0.006	0.001	0.015	0.004	0.017	-0.004	-0.006	0.011	-0.018	0.012	-0.015	0.007
	(0.025)	(0.020)	(0.026)	(0.021)	(0.019)	(0.022)	(0.036)	(0.018)	(0.020)	(0.025)	(0.021)	(0.024)
N	5,722	7,609	5,192	8,142	5,576	7,666	3,612	9,643	6,661	6,601	5,717	6,759

Notes: The table displays the effect of the C2SC initiative for various subgroups as indicated by the column header. Robust standard errors allowing for clustering at the municipality level are in parentheses (* $p<0.1$, ** $p<0.05$, *** $p<0.01$). Each column in each panel represents one DD estimate based on the subsample as indicated by the column header. Models are based on equation (2) with municipality fixed effects.
Source: YOLO survey.

Table B2: Alternative Aged-Based Difference-in-Differences Models

	Within Saxony estimation		Within treated cohort estimation	
	DD	Event	DD	Event
	(1)	(2)	(3)	(4)
Overall effect	-0.002		0.011	
	(0.009)		(0.008)	
(Placebo) Effect at age 7		-0.016		-0.004
		(0.010)		(0.008)
(Placebo) Effect at age 8		-0.012		-0.001
		(0.012)		(0.009)
Effect at age 9		-0.015		0.015
		(0.012)		(0.010)
Effect at age 10		-0.007		0.009
		(0.013)		(0.011)
Effect at age 11		-0.009		0.002
		(0.013)		(0.011)
Effect at age 12		-0.004		0.014
		(0.013)		(0.011)
N	53,984	53,984	69,752	69,752

Notes: The DD models use retrospective sports club membership information by child age. Columns (1) and (2) use treated and untreated cohorts only from Saxony (6,748 individuals observed at eight different ages) along with age and cohort fixed effects. Columns (3) and (4) use third graders from 2008 to 2010 ("treated cohorts") in Saxony, Brandenburg, and Thuringia (8,719 individuals observed at eight different ages) along with age and state fixed effects. Robust standard errors allowing for clustering at the municipality level are in parentheses (* $p<0.1$, ** $p<0.05$, *** $p<0.01$). The uneven columns show the average effect whereas the even columns show event study estimates by child age.
Source: YOLO survey.

Table B3: Characteristics of Parents of Sports Club Members

Variable	Non-member (1)	Member (2)	Difference (3)	Norm. diff. (4)	N (5)
Highest school degree	0.43	0.53	-0.10***	-0.14	2,800
Middle school degree	0.50	0.44	0.06***	0.09	2,800
Lowest school degree	0.06	0.03	0.03***	0.10	2,800
Age	46.66	47.17	-0.51*	-0.05	2,727
Member of sports club	0.20	0.36	-0.16***	-0.26	2,814
Sport 1	3.43	3.99	-0.56***	-0.19	2,782
Sport 2	3.18	3.46	-0.28***	-0.10	2,761
Sport 3	3.11	3.39	-0.27***	-0.09	2,759
Sport 4	2.99	3.40	-0.41***	-0.14	2,753
Sport 5	3.13	3.40	-0.27***	-0.09	2,735
Sport 6	2.55	2.91	-0.36***	-0.14	2,753
Sport 7	3.99	4.57	-0.58***	-0.17	2,776
Sport 8	3.03	3.56	-0.53***	-0.18	2,753
Sport 9	3.28	3.65	-0.37***	-0.12	2,756
Sport 10	3.14	3.66	-0.51***	-0.17	2,755
Sport 11	3.70	4.43	-0.73***	-0.22	2,763
Exercising index	-0.38	0.29	-0.67***	-0.17	2,655

Notes: The table compares the characteristics of parents according to their children's sports club membership status at age eight. The variables "Sport 1-Sport 11" refer to the responses to 11 statements about exercising. Parents could answer on a Likert Scale from 1 (totally disagree) to 7 (totally agree). The statements are : (1) Exercising is something that I do regularly. (2) Exercising is something that I do automatically. (3) Exercising is something that I do without explicitly reminding myself. (4) Exercising is something that I feel I need if I don't do it. (5) Exercising is something that I do without thinking about it. (6) Exercising is something that would be exhausting for me not to do. (7) Exercising is something that is part of my weekly routine. (8) Exercising is something that would be difficult for me not to do. (9) Exercising is something that I do without the need to think about it. (10) Exercising is something that is typical for me. (11) Exercising is something that I have been doing for a long time.
Source: YOLO survey.

Table B4: Socio-Demographics of Children who Redeemed the Voucher

Variable	Redeemer (1)	Non-redeemer (2)	Difference (3)	Norm. diff. (4)	N (5)
Female	0.57	0.58	-0.01	-0.01	5,025
Has siblings	0.88	0.86	0.02	0.04	4,965
Born in Germany	0.97	0.96	0.01*	0.06	4,993
Parent not born in Germany	0.10	0.15	-0.05***	-0.11	4,995
Newspaper at home	0.64	0.55	0.09***	0.13	4,992
Art at home	0.81	0.73	0.08***	0.13	4,998
Academic track	0.68	0.59	0.09***	0.13	4,997
Sports club at age 4, 5, 6, or 7	0.67	0.51	0.16***	0.23	4,670
Music lessons at age 4, 5, 6, or 7	0.54	0.47	0.07***	0.10	4,670
Number of sports clubs (ZIP code)	16.02	15.64	0.38	0.02	5,027

Notes: The table compares the characteristics of children in treated cohorts in Saxony according to whether they redeemed the voucher or not. Norm. diff. stands for the "normalized difference", which is defined for each variable x as $ND_x = (\overline{x_1} - \overline{x_0})/\sqrt{(s_{x1}^2 + s_{x0}^2)}$, where $\overline{x_1}$ and $\overline{x_0}$ are the sample means of the two groups and s_{x1}^2 and s_{x0}^2 the corresponding variances. According to Imbens and Wooldridge (2009), a normalized difference of more than 0.25 indicates substantial covariate imbalance.
Source: YOLO survey.

Table B5: Difference-in-Differences: Alternative Methods of Inference

	rob (1)	conv (2)	Cluster municip. (3)	states (4)	twoway (5)	cohort (6)	Wild cluster bootstrap Testing under H_0 Radem. (7)	Mammen (8)	Webb (9)	Testing under H_1 Radem. (10)	Mammen (11)	Webb (12)
Panel A: Awareness & take-up												
Program known												
p-value	0.000	0.000	0.000	0.000	0.000	0.014	0.008	0.016	0.005	0.004	0.001	0.000
Voucher received												
p-value	0.000	0.000	0.000	0.000	0.000	0.027	0.019	0.017	0.018	0.000	0.002	0.000
Voucher redeemed												
p-value	0.000	0.000	0.000	0.000	0.000	0.035	0.017	0.028	0.019	0.001	0.002	0.000
Panel B: Physical activity & overweight												
Member of sports club												
p-value	0.631	0.637	0.636	0.224	0.244	0.565	0.372	0.352	0.389	0.346	0.350	0.341
Weekly hours of sport												
p-value	0.991	0.991	0.991	0.977	0.987	0.993	0.990	0.976	0.994	0.990	0.991	0.996
Overweight												
p-value	0.779	0.768	0.795	0.679	0.637	0.774	0.731	0.720	0.747	0.726	0.748	0.745

Notes: The table displays *p*-values for alternative methods of inference using our preferred model specification in column (3) of Table 2. (1) is based on robust standard errors, (2) on conventional standard errors, and (3)-(6) on clustered standard errors, where the level of clustering is the municipality in (3), the state in (4), the cohort and the municipality (two-way clustering) in (5), and the state*cohort group in (6). The *p*-values in (7)-(12) are based on wild cluster bootstrap procedures with state*cohort groups as clusters, where testing is under the null hypothesis in (7)-(9) and under the alternative hypothesis in (10)-(12). (7) and (10) apply Rademacher weights, while (8) and (11) use Mammen weights, and (9) and (12) Webb weights. All wild cluster bootstrap specifications are estimated with the help of the user-written Stata-program BOOTTEST (Roodman et al., 2010).
Source: YOLO survey.

Table B6: Limits of Confidence Intervals

Outcome	$\hat{\beta}$	95% CI	90% CI
	(1)	(2)	(3)
Panel A: Base DD (Table 2, col. (1))			
Member of sports club	0.004	0.035	0.028
	(0.019)		
Weekly hours of sport	-0.069	0.196	0.137
	(0.161)		
Overweight	0.005	-0.021	-0.016
	(0.016)		
Panel B: Main specification (Table 2, col. (3))			
Member of sports club	0.009	0.040	0.033
	(0.019)		
Weekly hours of sport	-0.002	0.260	0.202
	(0.159)		
Overweight	0.004	-0.022	-0.017
	(0.016)		
Panel C: Synthetic control (Table 6, col. (1))			
Member of sports club	-0.008	0.028	0.020
	(0.022)		
Weekly hours of sport	-0.048	0.284	0.211
	(0.202)		
Overweight	-0.017	-0.055	-0.046
	(0.023)		
Panel D: With 2011/2012 cohort (Table 4, col. (3))			
Member of sports club	-0.014	0.011	0.005
	(0.015)		
Weekly hours of sport	-0.148	0.048	0.005
	(0.119)		
Overweight	0.005	-0.011	-0.008
	(0.01)		

Notes: The table displays the 95% (column [2]) and 90% (column [3]) limits of confidence intervals (CI) for the C2SC effect on the outcomes in the first column, based on different specifications as indicated by the panel headers. More specifically, the table shows, based on one-sided tests and the hypothesized sign of the effect, the upper limit of the confidence interval for the outcomes *member of sports club* and *weekly hours of sport* as well as the lower limit for *overweight*.

Source: YOLO survey.

Table B7: Power Calculations

Outcome	Pseudo treatment effect		
	3 units (1)	4 units (2)	5 units (3)
Panel A: Base DD (Table 2, col. (1))			
Member of sports club	0.616	0.779	0.899
Weekly hours of sport	0.706	0.872	0.952
Overweight	0.691	0.885	0.967
Panel B: Main specification (Table 2, col. (3))			
Member of sports club	0.628	0.804	0.905
Weekly hours of sport	0.707	0.882	0.959
Overweight	0.656	0.838	0.956
Panel C: Synthetic control (Table 6, col. (1))			
Member of sports club	0.635	0.815	0.930
Weekly hours of sport	0.793	0.920	0.973
Overweight	0.743	0.937	0.988
Panel D: With 2011/12 cohort (Table 4, col. (3))			
Member of sports club	0.728	0.905	0.969
Weekly hours of sport	0.826	0.949	0.992
Overweight	0.918	0.983	0.996

Notes: The table shows the statistical power of different DD model specifications as indicated by the panel headers. The simulations use data from the YOLO survey, artificially induce pseudo treatment effects as indicated by the column headers and 1,000 replications. First, we randomly assign 30 municipalities—the same number that is actually treated—to the treatment group and the other municipalities to the control group. Then we artificially introduce treatment effects of different magnitudes in indicated by the column headers. Next, we run each DD model 1,000 times. Based on the hypothesized sign of the effect sizes, we add increases of 3, 4, and 5 percentage points as pseudo treatment effects for *member of sports club*; for *weekly hours of sport*, we add increases of 0.3, 0.4. and 0.5 hours; and for *overweight*, we add *de*creases of 3, 4, and 5 percentage points. Each cell indicates the share of the 1,000 replications for which the models reject the null hypothesis of statistically significant effects at the 10 percent significance level in one-sided tests. For example, the simulation for the second row of Panel A in column (2) indicates that our base DD model in Table 2 can correctly identify an increase of 0.4 weekly hours of sport at the 90 percent certainty level in 86 percent of all 1,000 replications.
Source: Simulations based on YOLO survey.

Appendix C: School Examination Data

Table C1: Descriptive Statistics—School Health Examination Data

Variable	Mean	Std. Dev.	Min.	Max.	N
	(1)	(2)	(3)	(4)	(5)
Age in months	144.993	7.070	120	183	6,794
Female	0.502	0.5	0	1	6,794
Height in cm	154.236	8.158	127	186	6,794
Weight in kg	46.108	11.471	22	140	6,794
BMI	19.2026	3.636	10.54	42.31	6,794
Obese	0.0596	0.2377	0	1	6,794
Overweight	0.1099	0.3129	0	1	6,794
Underweight	0.1097	0.3125	0	1	6,794
Hypertension	0.078	0.268	0	1	6,794
Motor skill disorder	0.004	0.065	0	1	6,794
Emotional Disorder	0.036	0.186	0	1	6,794
Weak posture	0.115	0.319	0	1	6,794

The table shows descriptive statistics for our administrative School Health Examination Data from one county in Saxony. "Std. Dev." stands for standard deviation and "N" indicates the number of unique students in our data. *Source*: School Health Examination Data from Public Health Service (*Öffentlicher Gesundheitsdienst*).

Table C2: Regression of Objective Health Outcomes on Treated and Control Cohorts

	Obese (1)	Overweight (2)	Motor skill disorder (3)	Emotional disorder (4)
Treated	-0.014	0.007	-0.002	0.000
	(0.014)	(0.005)	(0.002)	(0.014)
Age in months	0.002***	0.000	0.000	0.002***
	(0.000)	(0.001)	(0.000)	(0.000)
Female	0.007	-0.019**	-0.001	-0.025***
	(0.008)	(0.008)	(0.001)	(0.005)
Month of examination	X	X	X	X
Observations	6,794	6,794	6,794	6,794
R-squared	0.003	0.002	0.001	0.007

Notes: The table shows four separate regressions where the column headers indicate the objective health data used as outcome variable. *Treated* is a dummy indicating whether the cohort was treated whereas *age in months* and *female* are control variables, see main text for details. Robust standard errors in parentheses are clustered at the examination date level. *** p<0.01, ** p<0.05, * p<0.1.
Source: School Health Examination Data from Public Health Service (*Öffentlicher Gesundheitsdienst*).

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