

Effects of CHILDREN's programs

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27th February 2020

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Abstract

abstract on separate page 100 - 150 words

	Model 1	Model 2
(Intercept)	-12089.14*	3.70***
	(5192.86)	(0.33)
realSubsidy	2.61***	
	(0.57)	
realTripsSubsidy		0.00*
		(0.00)
R ²	0.43	0.05
Adj. R ²	0.43	0.04
Num. obs.	329	322
RMSE	39992.79	2.96

*** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$

Table 1: Statistical models

1 Formal requirements

all important information on title page, maybe use template
always name sources of tables and graphs
have to cite data sets

2 Examples

Equation with double index

$$\ln y_{it}^n = \beta_0 + \beta_k \ln k_{it-1}^n + \beta_n \ln n_{it} + \beta_m \ln m_{it} + \beta_t D_t + \beta_i D_i + \epsilon_{it} \tag{1}$$

List

- The firm is not incorporated in the U.S. (FIC is not equal to USA.)
- The company is from the financial or utilities sector. This is the case when the SIC code lies between 4900 and 4999 or between 6000 and 6999.
- A firm’s acquisitions are larger than five percent of the value of its total assets. This is the case when AQC over AT is larger than 0.05.

Figure

Regression fit output with texreg

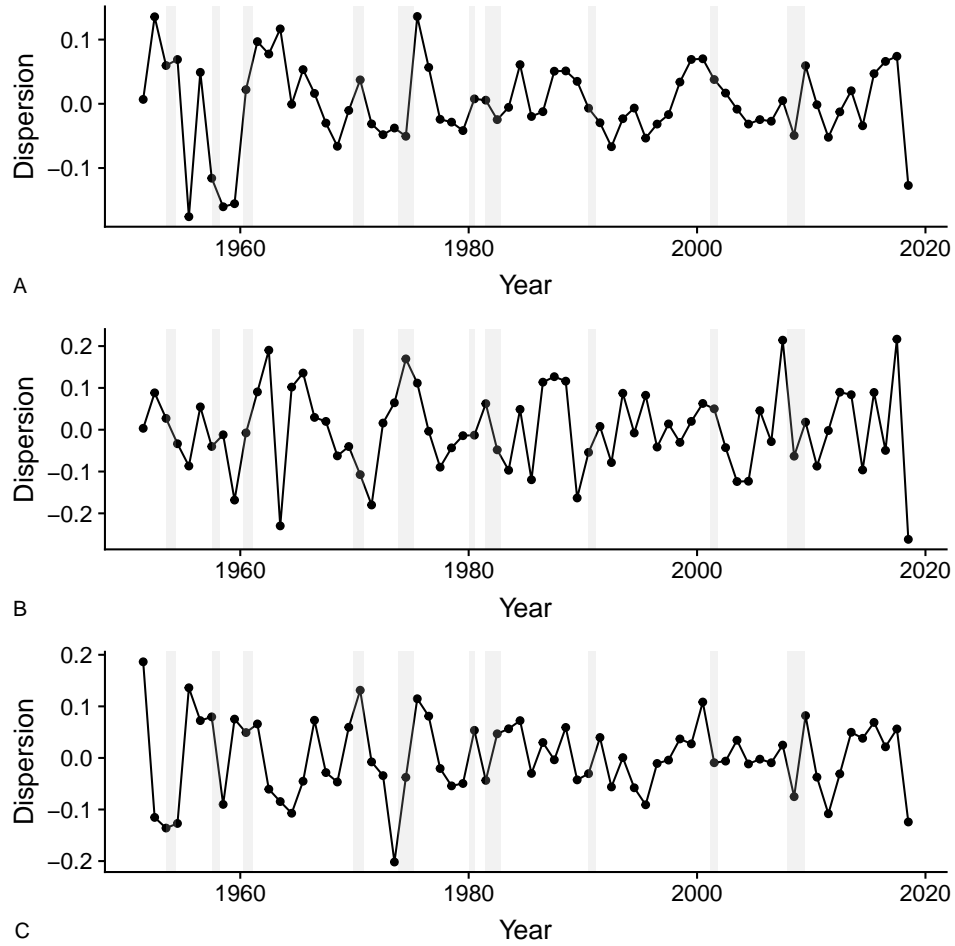


Figure 1: Dispersion in productivity levels

Note: Time series plots of approximate deviations of the three annual dispersion measures from their trends in percent. A shows the full sample, B the non-durable manufacturing sector, and C the durable manufacturing sector. After taking the natural logarithm of the dispersion measures defined in equation 1, I have isolated their cyclical components with an HP-100 filter. The shaded bars represent recessions as defined by the NBER. The year ticks refer to January 1. The dispersion measures take as their date the middle of the year, July 2. Compare Kehrig (2015), Figure 1.

3 Outline

Descriptive statistics

dynamics of

- (- number of organizations)
- (- number of beneficiaries)
- selected ordinal outcomes, stacked
- real total subsidy
- real median subsidy per institution
- real median subsidy per beneficiary
- (- which variables have largest variance; also relevant for variable selection)

Regressions

Questions:

effect of

- healthy meals (DGE criterion) on healthy characteristics
- real meals subsidy on number of meals
- real trips subsidy on number of trips
- real meals subsidy on self-worth and day-to-day skills
- real trips subsidy on self-worth and day-to-day skills

Methods:

- simple, metric
- standardized, metric
- cumulative logit
- with control variables
- (- without outliers)
- (- imputed data)

Diff in Diff

Outlook for CHILDREN/variable selection

- double selection
- partition analysis
- (- correlation matrix)
- (- factor analysis)
- general tips

4 Introduction

the introduction should include: motivation, precise research questions, very short literature review, most important results, further proceedings

CHILDREN's aims for data analysis

CHILDREN supports organizations working with children and youth across Germany (in German: Einrichtungen der offenen Kinder- und Jugendarbeit) across Germany. We call them organizations in the following. They apply to CHILDREN for yearly grants. If approved, they are supposed to use them for specific purposes defined by CHILDREN. CHILDREN provided us with data from two of its flagship programs: Mittagstisch (we refer to this as Meals program) and Entdeckerfonds (Trips program). The organizations use money from the Meals program to finance meals, from breakfast to dinner, that they sell at concessionary prices to the children and youth that visit them. In the following, we call these children and youth who ultimately profit from CHILDREN's grants beneficiaries. The organizations also use money from the Trips program to make trips to nearby places usually unknown to the beneficiaries. Unless otherwise specified, we consider all variables to be metric, even if they are ordinal.

5 Data

6 The effect of the "Entdeckerfonds" on the beneficiaries of the program

How do children benefit from visiting social institutions that CHILDREN supports financially? So far this question could not be empirically validated. Hence, one of the biggest challenges was determining a possible solution for measuring causal effects of the programs on the beneficiaries. During the first meeting with CHILDREN, Wiltrud de Haan presented relevant information that CHILDREN supports all organizations with the Mittagstisch program. However, not all organizations do receive additional funding to provide the Entdeckerfonds program. This fact could be used for applying an empirical approach which determines causal effects of the Entdeckerfonds program by comparing a treatment with a control group. The aim of this analysis is to show that the trips provided by Entdeckerfonds program funding have a positive effect on selfworth and everyday expertise of the participating children.

Year	Beneficiaries, Meals	Beneficiaries, Trips	Organizations, Meals	Organizations, Trips
2011	3748.0		52	
2012	3556.0	2803.0	51	44
2013	4015.0	2823.0	55	42
2014	4685.0	2752.0	55	43
2015	5857.0	3823.0	55	49
2016	3075.0	3819.0	59	48
2017	4895.0	4150.0	64	48
2018	5102.5	6911.0	68	49

Table 2: Summary Statistics

7 Summary Statistics

7.1 Fundamental Dynamics

At the beginning of the time series in 2011, they supported in x institutions. In 2018, this number had increased to y . In this section, we give an overview of the dynamics of CHILDREN’s two flagship programs. We focus on the number of estimated ultimate beneficiaries, median total subsidy, median subsidy per institution, and median subsidy per beneficiary. We also look at selected outcomes, i.e. those related to health as well as self-worth and day-to-day skills. We have converted all nominal monetary variables into 2015 euros, using price indices from the Federal Statistical Office of Germany (Statistisches Bundesamt). We deflate (requested) grants as well as organizations’ total expenses for the Meals program with the price index related to food and non-alcoholic beverages (in German: Nahrungsmittel und alkoholfreie Getränke) and (requested) grants towards the Trips program with the price index for leisure, entertainment, and culture (in German: Freizeit, Unterhaltung und Kultur). These are only available after logging in on DESTATIS. The organizations also gave information about their total yearly budget. We inflate this with the general price index.

7.2 Trend of grants

7.3 Health relevant variables over time

7.4 Equality of opportunities relevant variables over time

8 Regressions

8.1 Empirical Approach

$$y_{it} = \beta_0 + \beta_1 x_{it} + \epsilon_{it} \quad (2)$$

In this section we use a standard OLS equation, as described in equation 1. Where

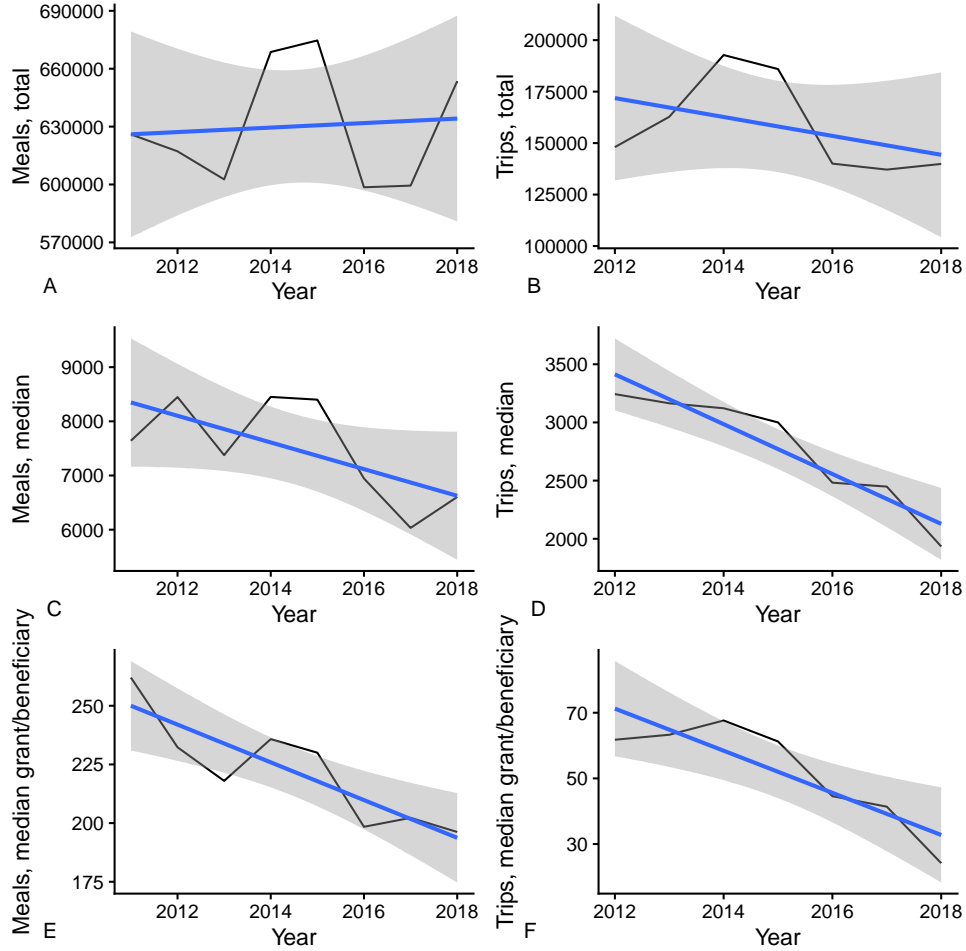


Figure 2: Yearly dynamics of total grants in Meals and Trips program

This graph shows the development of grants in the Meals compared to the Trips program. We distinguish between the sum of grants in one year, the median and the median grant per beneficiary. From left to right: Meals, Trips, from top to bottom: sum, median, median per beneficiary. We have deflated the values to 2015 euros using the price index related to food and non-alcoholic beverages (in German: Nahrungsmittel und alkoholfreie Getränke) for the Meals program and the price index related to Leisure, Entertainment and Culture (in German: Freizeit, Unterhaltung, Kultur) provided by the Federal Statistical Office of Germany (Statistisches Bundesamt).

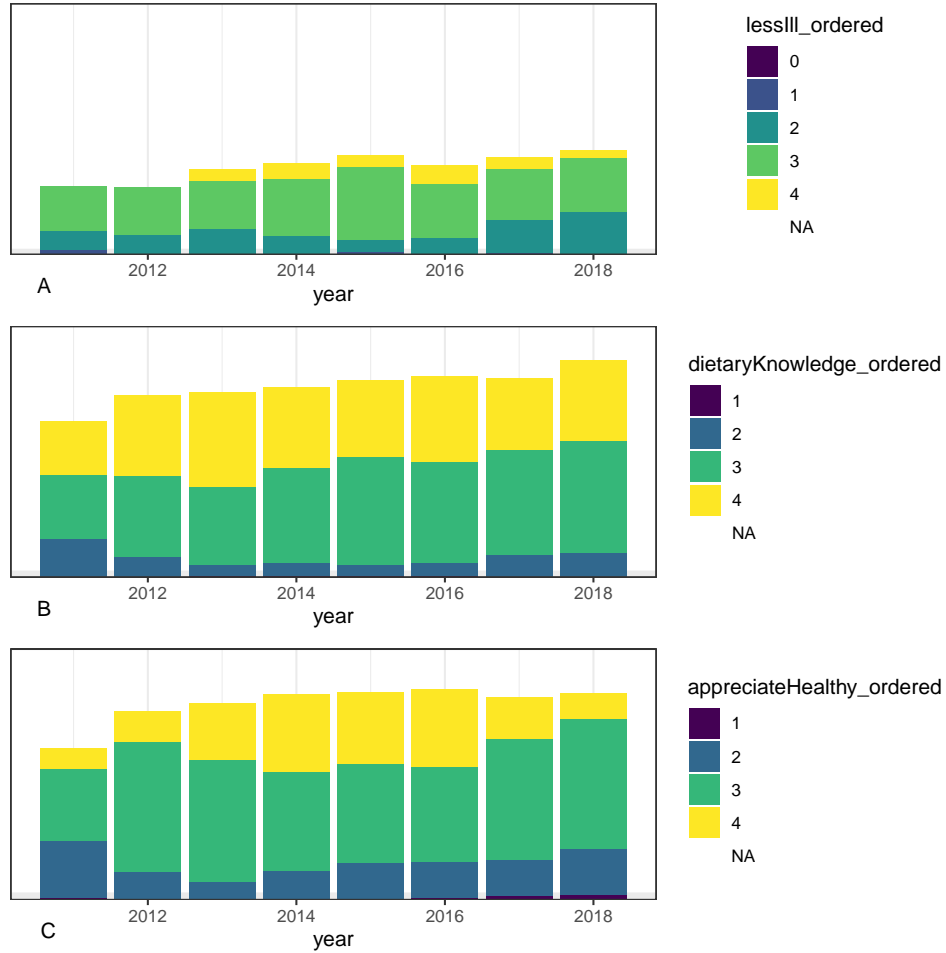


Figure 3: Health outcome over time

In its yearly surveys CHILDREN asks about three variables closely related to a healthy diet. These are the degree to which beneficiaries: are healthier (lessIll_ordered), have a growing appreciation for a healthier diet (dietaryKnowledge_ordered), and have increased their knowledge about what constitutes a healthy diet (appreciateHealthy_ordered). The x-axis plots the year. The y-axis displays the share of organizations in each category of the health outcome. The possible values are: all(coded as 4), most (3), some (2), few (1), and none (coded as 0). For example, if an organization says that most beneficiaries are healthier, then this would be coded as 3.

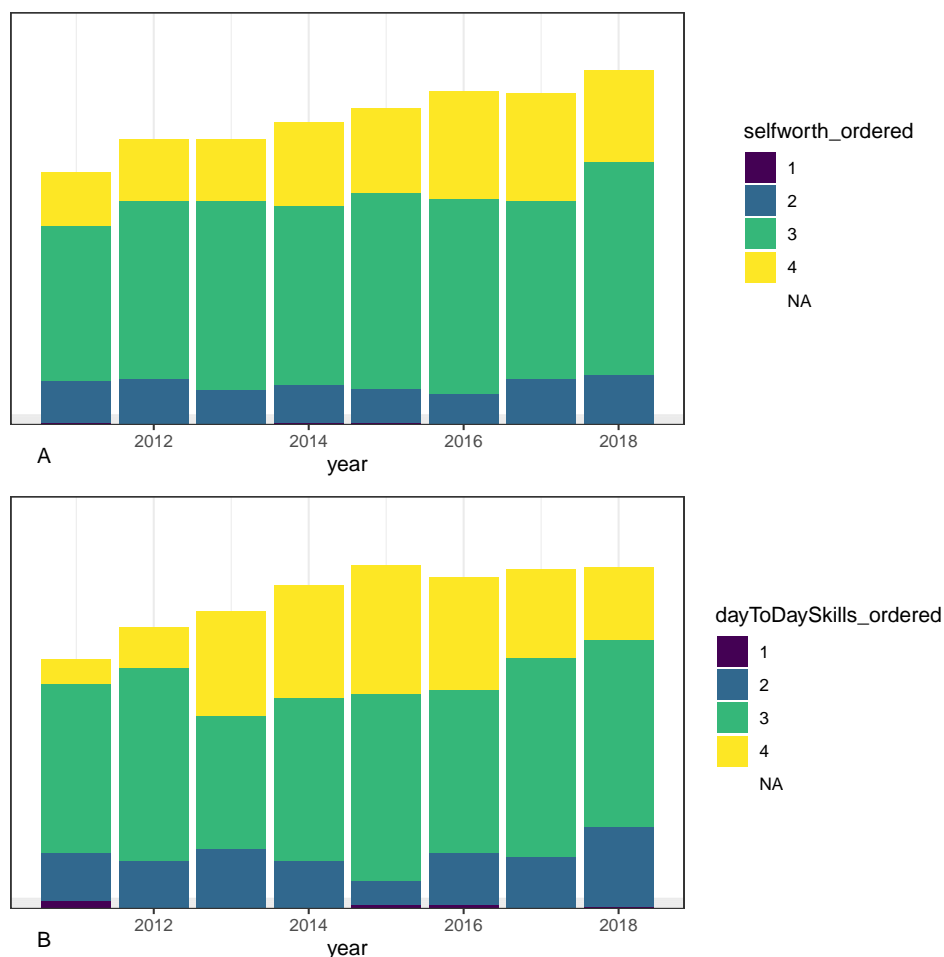


Figure 4: Equality of opportunities over time

In its yearly surveys CHILDREN has always asked about two variables closely related to increasing the beneficiaries' equality of opportunities. These are the degree to which beneficiaries: have more selfworth (selfworth_ordered) and have a growing understanding for everyday expertise (dayToDaySkills_ordered). The x-axis plots the year. The y-axis displays the share of organizations in each category of the health outcome. The possible values are: all (coded as 4), most (3), some (2), few (1), and none (coded as 0). For example, if an organization says that most beneficiaries have more selfworth, then this would be coded as 3.

	MealsNo	Trips No	Meals No	Trips No	Meals No	Trips No
(Intercept)	-12089.14*	3.70***	-12089.14*	3.70***	-12250.60**	3.62***
	(5192.86)	(0.33)	(5192.86)	(0.33)	(4524.09)	(0.33)
realSubsidy	2.61***		2.61***		2.72***	
	(0.57)		(0.57)		(0.51)	
realTripsSubsidy		0.00*		0.00*		0.00*
		(0.00)		(0.00)		(0.00)
R ²	0.43	0.05	0.43	0.05	0.45	0.05
Adj. R ²	0.43	0.04	0.43	0.04	0.45	0.05
Num. obs.	329	322	329	322	440	334
RMSE	39992.79	2.96	39992.79	2.96	39601.41	2.93

*** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$

Table 3: Grants Regressions

needed, we modified the given data, by using weights, excluding outliers and by scaling relevant variables. We also compared the results with the actual dataset to the results we gained by using a dataset in which we imputed necessary data. (DESCRIBE METHODS EXACT)

8.2 Variables of interest: Number of trips and number of meals

As the first variables of interest we consider the number of meals the organizations recorded and the number of trips the organizations made together with the beneficiaries. In this case, we use standard OLS in a first equation, exclude outliers from the variables 'mealsNo' and 'tripsNo' to obtain a believable value and compare to the imputed dataset. TableX shows the regression results.

The first two columns are simple OLS models, in column 3 and 4 outliers are excluded and in column 5 and 6 data is imputed. (DESCRIBE RESULTS) (COMPARE TO SUMMARY STATISTICS)

8.3 Variables of interest: Health variables

In the next section, we want to explore the influence of the DGE Criterion on relevant health outcomes.

In the following equation we use standardized variables in a standard OLS approach. The results are as well compared to the output with the imputed dataset, where we also use scaled coefficients.

```
## Warning in gzfile(file, "rb"): kann komprimierte Datei './ANALYSIS/Tables/Expand.L
nicht öffnen. Grund evtl. 'No such file or directory'
## Error in gzfile(file, "rb"): kann Verbindung nicht öffnen
```

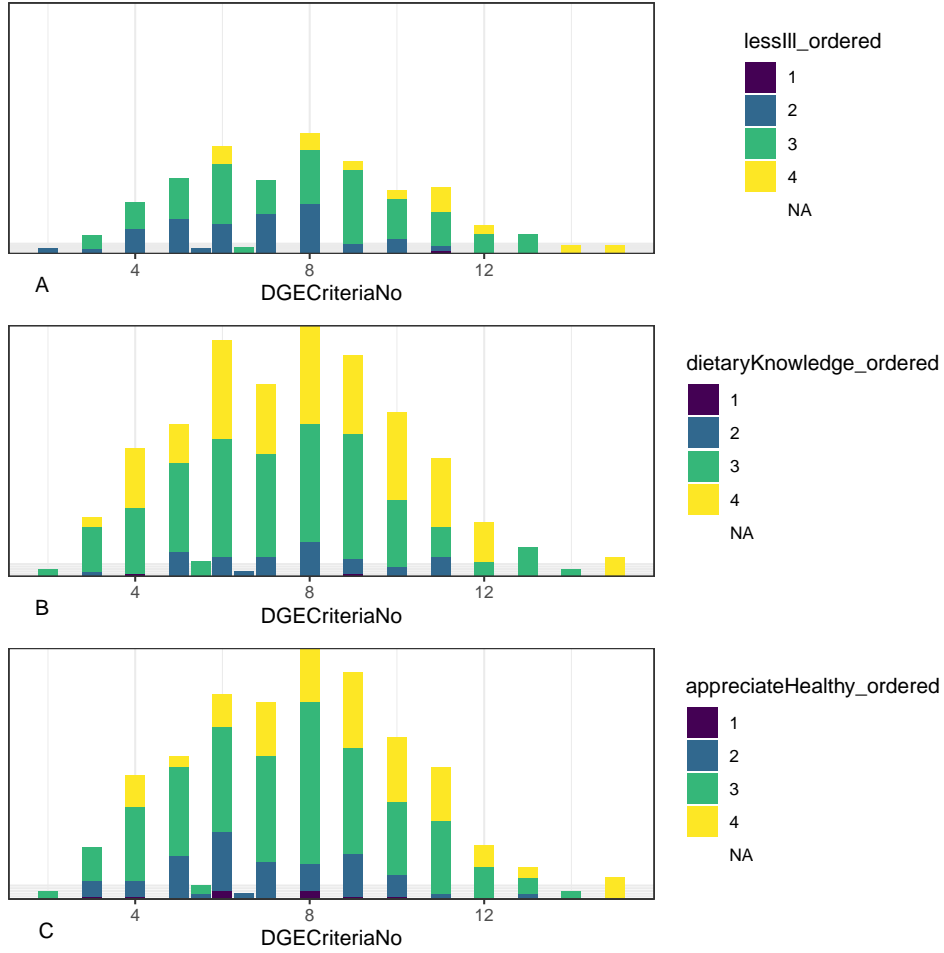


Figure 5: Health Outcomes versus Healthy Meals

DGECriteriaNo is an index that captures how healthy the meals in an organization are. It is based on the criteria of the German Nutrition Society (Deutsche Gesellschaft für Ernährung). According to information from CHILDREN, they ask the organizations to send them their menus. An ecotrophologist collaborating with CHILDREN assessed the menus. In its yearly surveys CHILDREN asks about three variables closely related to a healthy diet. These are the degree to which beneficiaries: are healthier (lessIll_ordered), have a growing appreciation for a healthier diet (dietaryKnowledge_ordered), and have increased their knowledge about what constitutes a healthy diet (appreciateHealthy_ordered). The x-axis plots the index for a healthy diet. The y-axis displays the share of organizations in each category of the health outcome. The possible values are: all(coded as 4), most (3), some (2), few (1), and none (coded as 0). For example, if an organization says that most beneficiaries are healthier, then this would be coded as 3.

	LessIll	DietaryKnowledge	AppreciateHealthy	LessIll	DietaryKnowledge
(Intercept)	0.02 (0.08)	0.02 (0.07)	−0.03 (0.07)	0.09 (0.07)	0.02 (0.06)
DGECriteriaNoScaled	0.33*** (0.08)	0.11 (0.06)	0.27*** (0.07)	0.25*** (0.07)	0.12* (0.05)
R ²	0.12	0.01	0.06	0.07	0.02
Adj. R ²	0.11	0.01	0.06	0.07	0.01
Num. obs.	121	214	213	177	275
RMSE	0.91	0.98	1.02	0.94	0.96

*** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$

Table 4: Health Outcome Regressions

	selfworth	dayToDaySkills	selfworth	dayToDaySkills	selfworth	dayToDaySkills
(Intercept)	−13.42* (5.88)	−13.48* (5.89)	9.20*** (1.84)	8.25*** (1.78)	−0.06 (0.06)	−0.16** (0.06)
realSubsidy	0.00*** (0.00)	0.00*** (0.00)			0.00 (0.00)	0.00*** (0.00)
realTripsSubsidy			0.00*** (0.00)	0.01*** (0.00)		
R ²	0.46	0.46	0.32	0.34	0.00	0.03
Adj. R ²	0.45	0.45	0.31	0.34	0.00	0.03
Num. obs.	428	426	184	177	430	428
RMSE	41.50	41.59	21.93	21.36	1.00	0.98

*** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$

Table 5: Equal Opportunities Regressions

8.4 Variables of interest: selfworth and everyday expertise as proxies for equality of opportunities

Empirical Approach

The baseline of the empirical approach is the determination of the treatment and control group. Using the data provided by children we specify the treatment group as all organizations that receive funding for both the Entdeckerfonds and the Mittagstisch program. On the other hand, the control group represents all organizations that do not receive funding from CHILDREN to provide the Entdeckerfonds.

Determining the treatment and control group this way, however, was a problem.

Therefore we used the cleaned data set and only determined the control group - all organizations that have no values/answers for the questions of the Entdeckerfonds. We assume that these organizations did not receive the funding for the Entdeckerfonds and therefore are the control group in our analysis. All organizations that gave answers to at least one question of the survey part regarding the entdeckerfonds are considered the

	selfworth	dayToDaySkills	selfworth	dayToDaySkills	selfworth	dayToDaySkills
(Intercept)	-13.42*	-13.47*	9.25***	8.33***	-0.06	-0.16**
	(5.88)	(5.89)	(1.82)	(1.74)	(0.06)	(0.06)
realSubsidy	0.00***	0.00***			0.00	0.00***
	(0.00)	(0.00)			(0.00)	(0.00)
realTripsSubsidy			0.00***	0.00***		
			(0.00)	(0.00)		
R ²	0.46	0.46	0.32	0.34	0.00	0.03
Adj. R ²	0.45	0.45	0.31	0.34	0.00	0.03
Num. obs.	428	427	186	180	430	429
RMSE	41.50	41.54	21.83	21.21	1.00	0.98

*** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$

Table 6: Equal Opportunities Regressions, imputed data

treatment group. Our analysis is based on this very strong definition of the treatment and control group.

Because we do not have data for the entdeckerfonds survey for the control group as this group is not observed we use the answers of the mittagstisch survey for our analysis. Therefore our possible dependent variables are limited as most of the questions are specific to the meals program.

As the dataset does not include the variables for the Entdeckerfonds survey for the control group, the potential outcomes regarding the Entdeckerfonds are not observed. Therefore we have to use the survey answers from the Mittagstisch survey.

Generally our data set contains variables from the years 2011 until 2018.

The constellation of the treatment and control group varies from year to year. Assumption: erhalten der treatment gleichbedeutend wie ein verlust

Possible variables as dependent variables how we determined that: The used variables should not be specific to the mittagstisch but more general and should also apply to the context of the Entdeckerfonds possible variables selfworth, day to day skills used these variables because these variables could be influenced both by the mittagstisch and entdeckerfonds and are not specific to the entdeckerfonds

looked at the general trends of these two variables with the difference of the treatment and control group to look at whether our idea makes sense

linear regression just to look at whether there are effects

add controls and fixed effects time and id fixedeffects – λ explain why (id: specific effects of being in Bayern for example or the subsidy amount) how fixed effects are implemented

which control variables we use how we determined which controls

Ende?? the dataset does not allow a channel analysis but these could be possible channels that might explain the effects we find

<i>Dependent variable:</i>				
	selfworth			
	(1)	(2)	(3)	(4)
Constant	2.796*** (0.065)	2.870*** (0.095)	2.774*** (0.092)	2.847*** (0.107)
treatEF	0.249*** (0.074)	0.320*** (0.097)	0.253*** (0.075)	0.333*** (0.100)
ID fixed effects	No	No	Yes	Yes
Time fixed effects	No	Yes	No	Yes
Observations	430	430	430	430
R ²	0.026	0.035	0.026	0.036
Adjusted R ²	0.024	0.017	0.022	0.015
Residual Std. Error	0.642 (df = 428)	0.644 (df = 421)	0.642 (df = 427)	0.645 (df = 420)
F Statistic	11.417*** (df = 1; 428)	1.916* (df = 8; 421)	5.752*** (df = 2; 427)	1.724* (df = 9; 420)
<i>Note:</i>				
*p<0.1; **p<0.05; ***p<0.01				

Table 7: Regression Results

9 Factor Analysis

10 Conclusion

11 Appendix

11.1 A1: Cumulative Odds Regression

Outliers?

	Estimate	Std. Error	z value	Pr(> z)
(Intercept):1	-2.799	1.109	-2.523	0.012
(Intercept):2	1.653	0.582	2.841	0.004
(Intercept):3	4.667	0.738	6.322	0
DGECriteriaNo	-0.291	0.075	-3.883	0.0001

Table 8: Propodss Regression Results: Less Ill

	Estimate	Std. Error	z value	Pr(> z)
(Intercept):1	-4.009	0.803	-4.996	0.00000
(Intercept):2	-1.047	0.425	-2.465	0.014
(Intercept):3	1.445	0.430	3.365	0.001
DGECriteriaNo	-0.089	0.052	-1.712	0.087

Table 9: Propodss Regression Results: Dietary Knowledge

	Estimate	Std. Error	z value	Pr(> z)
(Intercept):1	-1.603	0.486	-3.298	0.001
(Intercept):2	0.586	0.413	1.419	0.156
(Intercept):3	3.052	0.471	6.483	0
DGECriteriaNo	-0.199	0.053	-3.744	0.0002

Table 10: Propodss Regression Results: Appreciate Healthy

11.2 A2: Partition

In addition to the factor analysis described in section 6, we would like to introduce to a another dimensionality reduction method called partition.

QUOTES FROM PAPER, describe method

In the following a threshold of 0.4 is used, meaning that the reduced variable consists of variables which explain each other to at least 40 percent. It might be meaningful to

	Estimate	Std. Error	z value	Pr(> z)
(Intercept):1	-4.855	0.584	-8.315	0
(Intercept):2	-1.268	0.143	-8.893	0
(Intercept):3	1.514	0.150	10.109	0
realSubsidy	-0.00001	0.00001	-1.332	0.183

Table 11: Propodss Regression Results: Equality of opportunities, selfworth

	Estimate	Std. Error	z value	Pr(> z)
(Intercept):1	-3.543	0.343	-10.330	0
(Intercept):2	-0.736	0.132	-5.563	0.00000
(Intercept):3	1.764	0.157	11.249	0
realSubsidy	-0.00003	0.00001	-4.070	0.00005

Table 12: Propodss Regression Results: Equality of opportunities, everyday expertise

decide to use only one of the variables a reduced variable consists of or a summarizing one for future surveys to avoid redundancy. Table x shows the obtained results of the dimensionality reduction and displays x variables which haven't been reduced, and x reduced ones.

```
## Error in print.default(m, ..., quote = quote, right = right, max = max):
ungültiges 'digits' Argument
```

{Ehrenwörtliche Erklärung aller Teilnehmer

	Variable, Meals	Mapping, Meals	Information, Meals
1	participateMore	participateMore	1.00
2	tasksLunch	tasksLunch	1.00
3	ownIdeas	ownIdeas	1.00
4	stayLonger	stayLonger	1.00
5	dietaryKnowledge	dietaryKnowledge	1.00
6	appreciateHealthy	appreciateHealthy	1.00
7	foodCulture	foodCulture	1.00
8	lessIll	lessIll	1.00
9	betterTeamwork	betterTeamwork	1.00
10	moreRegularSchoolVisits	moreRegularSchoolVisits	1.00
11	addressProblems	addressProblems	1.00
12	reduced_var_1	moreConcentrated	0.66
13	reduced_var_1	moreBalanced	0.66
14	reduced_var_2	monthlyCooks	0.42
15	reduced_var_2	weeklyCooks	0.42
16	reduced_var_2	shoppers	0.42
17	reduced_var_2	easyDishes	0.42
18	reduced_var_3	dayToDaySkills	0.43
19	reduced_var_3	moreIndependent	0.43
20	reduced_var_3	selfworth	0.43
21	reduced_var_3	moreOpen	0.43
22	reduced_var_3	moreConfidence	0.43
23	reduced_var_3	proud	0.43
24	reduced_var_4	betterReading	0.53
25	reduced_var_4	betterNumbers	0.53
26	reduced_var_4	betterGrades	0.53
27	reduced_var_5	influenceHome	0.41
28	reduced_var_5	cookAtHome	0.41
29	reduced_var_5	askRecipes	0.41

Table 13: Partition of outcomes, Meals

	Variable, Trips	Mapping, Trips	Information, Trips
1	tripsSuggestions	tripsSuggestions	1.00
2	tripsDecisions	tripsDecisions	1.00
3	tripsOrganization	tripsOrganization	1.00
4	tripsCostCalculation	tripsCostCalculation	1.00
5	tripsBudget	tripsBudget	1.00
6	tripsMoney	tripsMoney	1.00
7	tripsReview	tripsReview	1.00
8	tripsPublicTransport	tripsPublicTransport	1.00
9	tripsMobility	tripsMobility	1.00
10	tripsAdditionalActivities	tripsAdditionalActivities	1.00
11	tripsSelfworth	tripsSelfworth	1.00
12	tripsFrustrationTolerance	tripsFrustrationTolerance	1.00
13	reduced_var_1	tripsSuccess	0.68
14	reduced_var_1	tripsSelfEfficacy	0.68
15	reduced_var_2	tripsNewPlaces	0.60
16	reduced_var_2	tripsNewCommunities	0.60
17	reduced_var_2	tripsNewIdeas	0.60
18	reduced_var_2	tripsSocialSkills	0.60
19	reduced_var_3	tripsSpecificSkills	0.46
20	reduced_var_3	tripsDayToDaySkills	0.46

Table 14: Partition of outcomes, Trips