

The Effects of Early Childhood Intervention on Child Development and Early Skill Formation. Evidence from a RCT.

Dipl.-Ök. Malte Sandner

Institut für Öffentliche Finanzen,
Leibniz Universität Hannover

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Outline

1. Early Childhood Interventions - Home Visiting
2. The *Pro Kind* Project
3. Research design to evaluate the *Pro Kind* Project
4. First Results

Early Childhood Interventions

- ▶ Early childhood is considered as crucial for life long human capital accumulation.
- ▶ Skill Formation Theory: *Self Productivity* and *Dynamic Complementarities* (Cunha & Heckman, 2007).
- ▶ Economic policy evaluation focuses on pre-school programs (e.g. Perry Preschool, (Belfield et al., 2006)).
- ▶ I present results from an **early early** childhood intervention.

Home Visiting

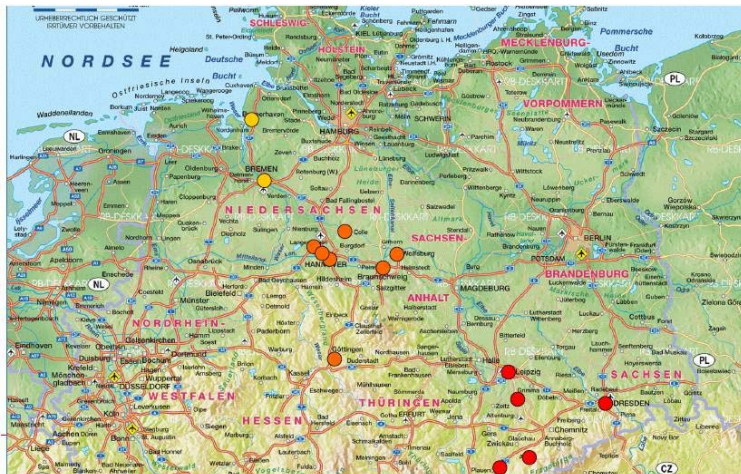
- ▶ In home visiting programs trained midwives, nurses or social pedagogues visit disadvantaged families at their own home starting already during pregnancy.
- ▶ High efficiency is supposed because home visiting
 - ▶ starts early,
 - ▶ concentrates on children from disadvantaged families,
 - ▶ alters parenting behavior.
- ▶ Little economic research on home visiting.

The Pro Kind Project

- ▶ Based on the „Nurse Family Partnership (NFP)“-Programm (Olds et al. 2004).
- ▶ Scheduled home visits by midwives, nurses or social pedagogues.
- ▶ Home visits start during pregnancy up to 2nd birthday.
- ▶ Frequency: Weekly, bi-weekly and monthly.
- ▶ Overall 52 home visits are scheduled.

The Pro Kind Project

- ▶ Domains of the home visits:
 - ▶ Maternal Health (28%)
 - ▶ Child Friendly Environment (10%)
 - ▶ Life Course Development (16%)
 - ▶ Parental Skills (20%)
 - ▶ Family and Friends (15%)
 - ▶ Social and Health Services (12%)

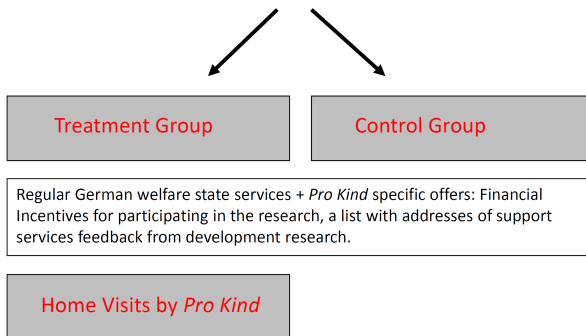


Affiliation Criteria

- ▶ First time mothers
- ▶ Affiliation from the 12th until the 28th week of pregnancy
- ▶ Economic criteria (at least one), e.g.:
 - ▶ Household receives social welfare or unemployment benefits
 - ▶ Low Income
 - ▶ Overindebtedness
- ▶ At least one psychological/social risk factor:
 - ▶ Teenage pregnancy
 - ▶ No graduation
 - ▶ Social isolation
 - ▶ Health problems (physical or mental)

Randomized Controlled Trial

- ▶ Randomization stratified by age, community and migrational background



Enrollment Periods and Participants by Community

Federal State	Community	TG	CG	Enrollment Period
Lower Saxony	Braunschweig	32	26	
	Celle	25	15	
	Garbsen	12	10	1.11.2006
	Göttingen	13	12	-
	Laatzen	4	4	30.4.2009
	Wolfsburg	15	11	
	Hannover	52	54	
Bremen	Bremen	83	77	15.4.2007 - 15.3.2009
	Bremerhaven	29	31	
Saxony	Leipzig	44	36	
	Plauen	18	13	1.1.2008
	Muldentalkreis	12	16	-
	Dresden	43	46	31.12.2009
	Vogtlandkreis	12	10	
Σ		394	361	

	(1) Control Mean	(2) Treatment Difference No Controls	(3) Treatment Difference Community Fixed Effects
Demographic characteristics			
Age in years	21,53	-0.263 (0.316)	-0.274(0.313)
Week in pregnancy	20,3	-0.540 (0.420)	-0.528 (0.423)
Underage	0.177	0.033 (0.029)	0.035 (0.028)
Migration	0.177	-0.053** (0.026)	-0.049* (0.025)
Education risk	0.748	0.054 (0.038)	0.055 (0.038)
Income risk	0.809	0.011 (0.028)	0.012 (0.028)
Employment risk	0.856	-0.036 (0.027)	-0.040 (0.027)
No partner	0.283	0.009 (0.033)	0.004 (0.033)
Living with parents	0.267	0.014 (0.033)	0.011 (0.033)
Selected psychological risk characteristics			
Unwanted pregnancy	0.166	0.014 (0.028)	0.012 (0.028)
Isolation	0.080	-0.019 (0.019)	-0.020 (0.019)
Foster care exper.	0.194	0.039 (0.030)	0.041 (0.030)
Neglect experience	0.385	-0.009 (0.035)	-0.012 (0.036)
Lost experience	0.539	-0.045 (0.036)	-0.048 (0.036)
Violence ever	0.551	0.002 (0.036)	-0.001 (0.037)
Depression	0.133	-0.031 (0.023)	-0.031 (0.024)
Anxiety	0.177	-0.007 (0.028)	-0.008 (0.028)
Stress	0.288	0.027 (0.033)	0.028 (0.034)
Aggression	0.186	-0.041 (0.027)	-0.039 (0.027)
Sum risk factors	5.864	-0.131 (0.178)	0.035 (0.028)
Observations	361	755	755

Robust standard errors shown in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Comparison with First Time SOEP-Mothers

	Pro Kind Participants		SOEP Firsttime Mothers	
	N	%	N	%
Country of Birth				
Germany	568	86.4	568	88.8
Turkey	6	0.9	13	2.0
East-Europe	35	5.3	41	6.5
Others	48	7.3	18	2.7
Living Situation in the first 15 Years of Life				
With both parents	325	45.5	333	81.0
At least one year with just one parent	286	40.0	67	16.3
At least one year in forster care/ parents	104	14.5	11	2.7
Family Status				
Unmarried	623	86.6	179	33.9
Married	80	11.1	329	62.3
Divorced/Widowed	16	2.2	20	3.8
School Degree				
Higher degree (Abitur / Realschule)	280	37.1	455	80.9
Basic degree (Hauptschule, Ausland)	255	33.9	95	16.9
No degree (incl. Förderschule)	137	18.2	10	2.0
Still going to school	81	10.8	2	0.4
Age in Years	21,4		28,3	

Data Sources

- ▶ Telephone Interviews
- ▶ Personal Interviews
- ▶ Child Development Tests (Bayley Scales of Infant Development - BSID)
 - ▶ Mental Developmental Index (MDI)
 - ▶ Psychomotor Developmental Index (PDI)
- ▶ Language Test (Sprachentwicklungstest für zweijährige Kinder - SETK-2)

Bayley Scales of Infant Development

Bayley Scales 6 Monate

Sample Composition

Eligible invited to participate		1157	
Active refusals		263	
Passive refusals		139	
Randomized		755	
	Control	Homevisited	Total
Allocated to treatment	361	394	755
Bayley Tests			
Completed 6-mo	237 (65.7%)	265 (67.3%)	502
Completed 12-mo	205 (56.8%)	225 (57.1%)	430
Completed 24-mo	167 (46.3%)	180 (45.7%)	347

	Difference TG/CG MDI 6 months (1)	Difference TG/CG MDI 12 months (2)	Difference TG/CG MDI 24 months (3)
<i>Demographic characteristics</i>			
Age in years	0.085 (0.416)	0.173 (0.465)	0.020 (0.507)
Week in pregnancy	-0.205 (0.538)	-0.306 (0.583)	0.035 (0.634)
Underage	-0.004 (0.035)	0.004 (0.037)	0.038 (0.037)
Migration	-0.050 (0.032)	-0.055 (0.035)	-0.020 (0.038)
Education risk	0.060 (0.054)	0.034 (0.045)	0.080 (0.065)
Income risk	0.022 (0.038)	0.017 (0.043)	0.018 (0.043)
Employment risk	-0.029 (0.037)	-0.051 (0.041)	-0.027 (0.043)
No partner	0.016 (0.042)	0.053 (0.046)	0.037 (0.048)
Living with parents	-0.016 (0.041)	0.017 (0.045)	-0.001 (0.047)
<i>Selected psychological risk characteristics</i>			
Unwanted pregnancy	0.013 (0.034)	0.048 (0.038)	0.043 (0.039)
Isolation	-0.013 (0.023)	0.003 (0.026)	0.021 (0.028)
Foster care exper.	0.015 (0.036)	0.029 (0.039)	0.054 (0.039)
Neglect experience	-0.003 (0.045)	0.002 (0.050)	0.005 (0.053)
Lost experience	-0.052 (0.046)	-0.079 (0.051)	-0.096* (0.053)
Violence ever	-0.030 (0.046)	-0.053 (0.051)	-0.030 (0.027)
Depression	-0.014 (0.028)	0.019 (0.032)	0.026 (0.033)
Anxiety	0.025 (0.033)	0.031 (0.038)	-0.008 (0.039)
Stress	0.034 (0.043)	0.047 (0.048)	0.032 (0.050)
Aggression	-0.062* (0.034)	-0.085** (0.038)	-0.071* (0.040)
Sum risk factors	-0.178 (0.220)	-0.099 (0.241)	-0.081 (0.252)
Observations	466	388	346

Robust standard errors shown in parentheses. Estimates include community fixed effects.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

	Difference Baseline MDI 6 months (1)	Difference Baseline MDI 12 months (2)	Difference Baseline MDI 24 months (3)
<i>Demographic characteristics</i>			
Age in years	-0.911*** (0.324)	-1.77*** (0.308)	-2.136*** (0.315)
Week in pregnancy	-1.720*** (0.449)	-0.856** (0.427)	-0.803* (0.429)
Underage	0.049 (0.031)	0.085*** (0.030)	0.104*** (0.029)
Migration	-0.019 (0.027)	0.000 (0.026)	-0.015 (0.025)
Education risk	0.081** (0.034)	0.136*** (0.033)	0.146*** (0.037)
Income risk	0.092*** (0.028)	0.113*** (0.028)	0.057** (0.029)
Employment risk	0.055** (0.027)	0.099*** (0.027)	0.072*** (0.027)
No partner	0.021 (0.036)	-0.016 (0.034)	0.000 (0.033)
Living with parents	-0.016 (0.035)	-0.014 (0.034)	0.033 (0.033)
<i>Selected psychological risk characteristics</i>			
Unwanted pregnancy	0.018 (0.029)	0.015 (0.029)	0.002 (0.028)
Isolation	0.015 (0.022)	-0.006 (0.019)	-0.007 (0.019)
Foster care exper.	0.088*** (0.033)	0.106*** (0.031)	0.112*** (0.030)
Neglect experience	0.049 (0.038)	0.040 (0.036)	0.035 (0.036)
Lost experience	0.002 (0.039)	0.028 (0.038)	0.040 (0.037)
Violence ever	0.050** (0.024)	0.044** (0.022)	0.047** (0.020)
Depression	0.051* (0.026)	0.025 (0.024)	0.013 (0.023)
Anxiety	0.031 (0.029)	0.020 (0.027)	0.034 (0.027)
Stress	0.003 (0.036)	0.000 (0.034)	0.022 (0.034)
Aggression	0.026 (0.030)	0.040 (0.028)	0.009 (0.028)
Sum risk factors	0.666*** (0.192)	0.724*** (0.181)	0.624*** (0.177)
Observations	755	755	755

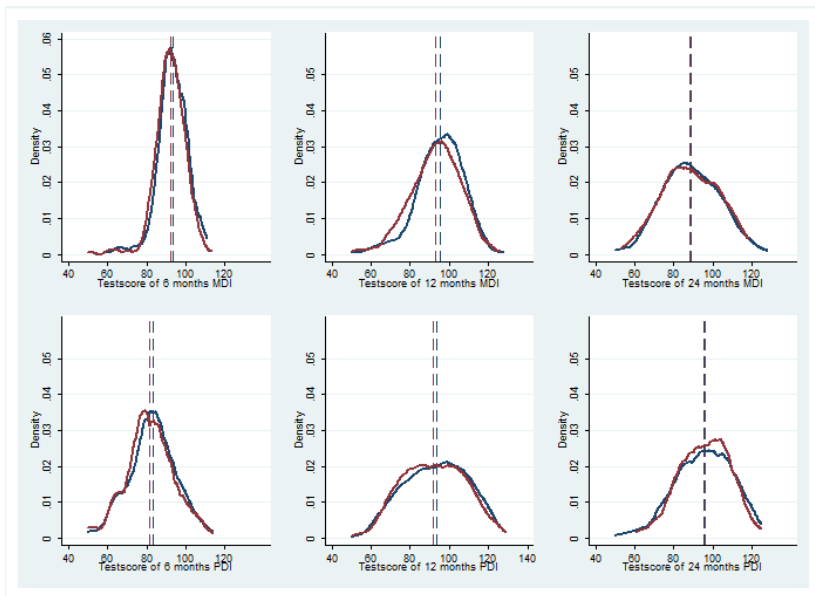
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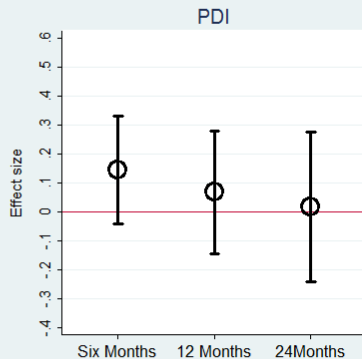
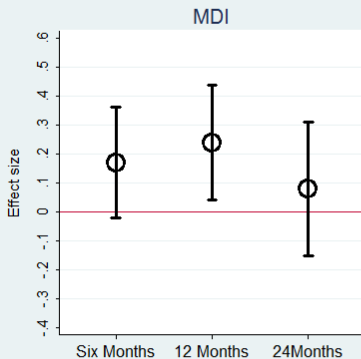
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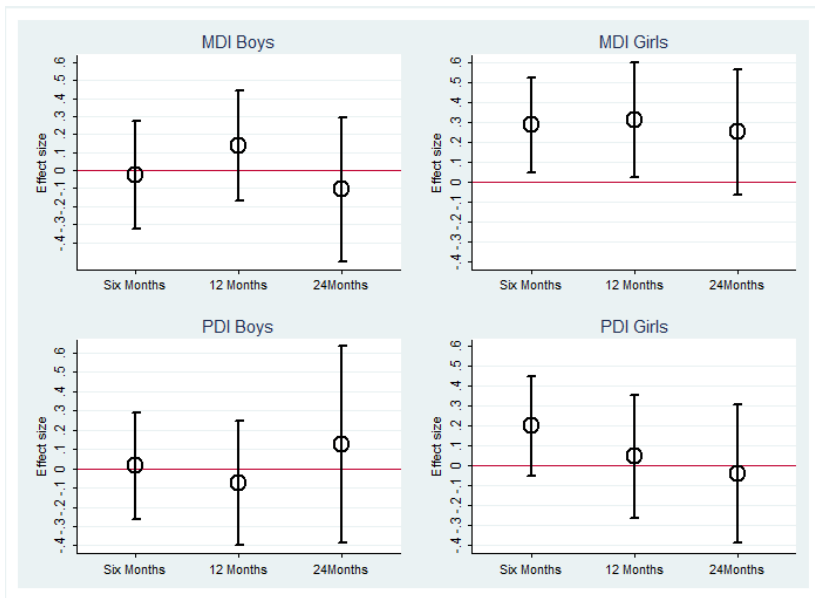
BSID for the Whole Sample

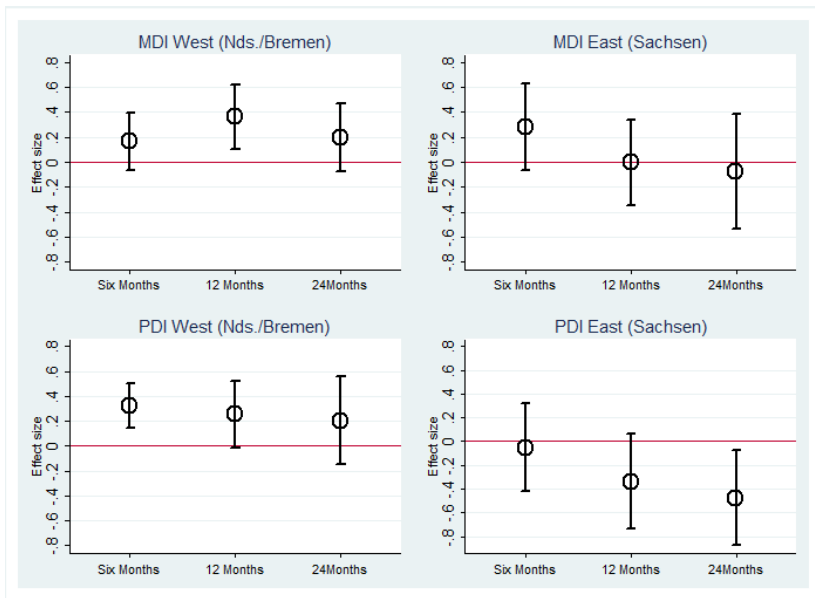
		Whole Sample		Boys		Girls	
			n		n		n
6 Months Test Scores							
MDI	92.77 (7.93)	466		91.95 (8.43)	219	93.51 (7.38)	247
PDI	82.35 (12.37)	482		81.99 (12.90)	223	82.66 (11.91)	259
12 Months Test Scores							
MDI	94.22 (12.64)	393		93.90 (12.58)	187	94.50 (12.71)	206
PDI	92.57 (16.09)	375		92.68 (16.25)	169	92.48 (16.00)	206
24 Months Test Scores							
MDI	88.66 (14.56)	299		87.20 (14.46)	133	89.83 (14.58)	166
PDI	95.63 (13.94)	262		93.84 (14.34)	113	96.99 (13.52)	149

Standard deviation in parentheses



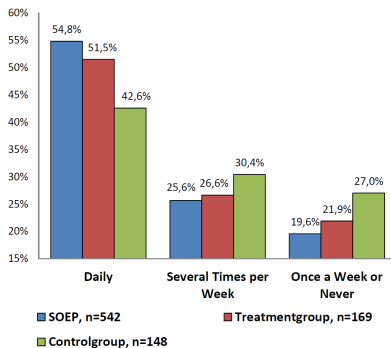




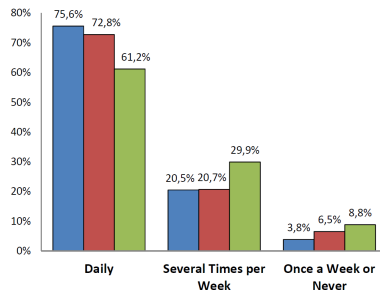


Effect of Pro Kind on Maternal Investments, 24 Months

Singing Children's Songs with or to the Child in the last 14 Days



Looking at picture books in the last 14 Days



Effect of Pro Kind on Time Father Spend with Child

	Hours in TG	N TG	Hours in CG	N CG	Diff	p-value
Hours Father spent at 3 Months	3.42	279	3.22	257	0.205	0.757
Hours Father spent at 15 Months	5.08	221	2.85	193	2.224	0.009
Hours Father spent at 27 Months	6.67	180	4.44	162	2.228	0.077

Conclusion

- ▶ Pro Kind was successful in acquiring a disadvantaged sample and in implementing a RCT.
- ▶ *Pro Kind* has an impact on Infant Development.
- ▶ Girls benefit more of *Pro Kind*. In line with results from pre-school programs (Anderson, 2008).
- ▶ Small effects in childhood can have a big life long impact.

Thank You for Your Attention



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