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Intergenerational childcare: Full-time schools and Grandmother's Labour Supply

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Motivation

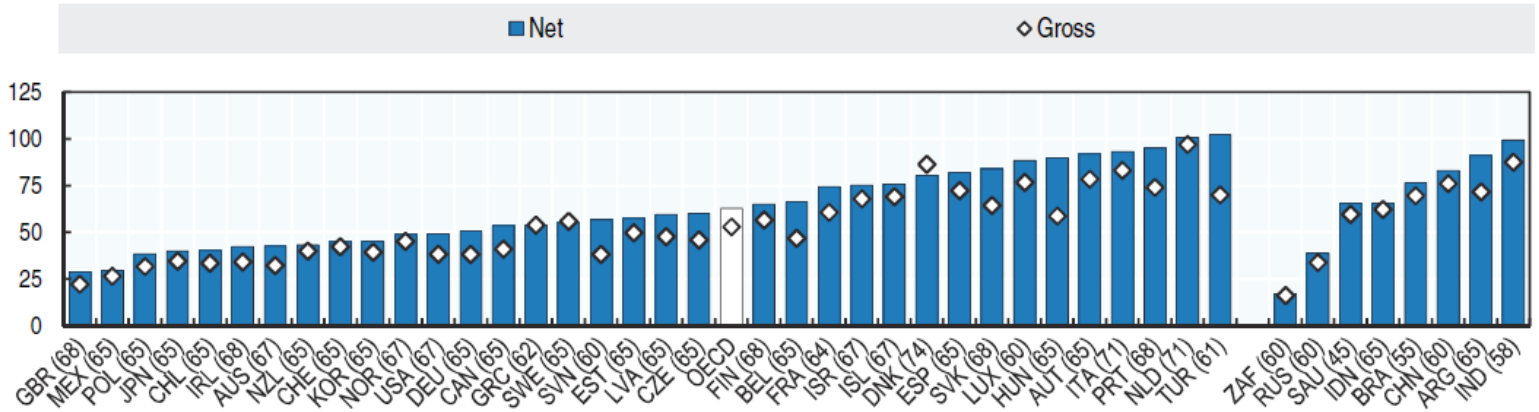
- Grandparents are more likely to provide grandchild care. They are inexpensive, flexible and reliable (Luinsdaine, 2015)
- Grandparents can be pulled from labour inducing early retirement (Hochman and Lewin, 2013).
- Worse for grandmothers given differentials in opportunity costs and cultural roles (Rupert and Zanella, 2018).

Why is this important?

- Women become grandmothers at a realtive young age (Eastern EU: 47; Mexico: 48; USA 49)
- Retirement at 65, there could be an overlap of 18 years, affecting life-cycle earnings and savings.
- Women face larger unemployment spells along with the proliferation of “pay-as-you-go” systems.
- A large proportion out of the pensions system (60% of informal work).

Why is this important?

4.9. Net pension replacement rates: Average earners



Source: OECD pension models.

StatLink http://dx.doi.org/10.1787/888933634021

In Mexico, net pensions replacement rate is of 27% for women, 30% for men (RU: 32% and 40%)

What do we do?

- We exploit timming variation of a policy extending primary school (age 6-12) from 4 to 8 hours a day (Full-Time Schools).
- Full-Time Schools work as an implicit large childcare subsidy that alleviate caregivers' time constrains.
- Outputs: LFP, employment and earnings in the formal and informal labour market for poorer and more educated grandmothers.

What do we know?

- Large evidence on the effects of child birth on mothers' LFP and how childcare alleviate restrictions (Padilla-Cabrera, 2019)
- Grandparents' availability increases mothers' LFP (Du, 2019).
- Becoming a grandparent reduces LFP in and hours worked (Backhaus, 2019)

What do we know?

- Ho (2015) on impact of childcare subsidies (n=2800). Single grandmothers' increase 3 hours worked with no effects on LFP.
- Lin (2017) exploit time-spatial variation of childcare in China. Increase of 6.7 pp in LFP
- We complement by focusing on non-working mothers and on elementary school (vs. pre-school).
- 14-years panel data allows us to provide evidence on similar pretrends.

Background: FTS

- Starts in 2007 in 500 school and reached 25,000 aiming to improve student's outcomes. Impact on test scores (Cabrera, 2019)
- Schools into the program should have: infraestructure in vulnerable areas. But these are not enforced (Padilla, 2018)
- FTS started in richer areas but now in 81% of Mexican municipalities. 60% of eligible schools.

Background: Female LFP

- 45% of Female LFP decreases to 30% by age 60. At any given age if a grandchild is present 33% (OECD: 53%).
- Only 4% enrolled in formal childcare (age 0-6). Pre-school (3-5) is large (81%) but part-time.
- Grandmothers' care 55% of working mother's children, at least 4 hours a day; 88% do not receive any money.

Data and Sample

- National Employment Survey (ENOE), Adminstrative FTS data and National Population Council (for poverty measures).
- Dynamic panel data (5 quarters). Working age grandmothres 30-65. Co-residing with grandchildren.
- We match grandmothers' information with our measure of exposure to FTS at municpality level.

Summary Statistics by intensity of treatment

	Low Intesity		*High Intensity*		*Difference*	
	Mean	Std.Dev.	Mean	Std.Dev.	Diff.	p-value
Age (years)	52.21	(6.95)	52.44	(6.74)	-0.23	0.000
Education (years)	5.24	(3.86)	6.51	(3.90)	-1.27	0.000
# of Children aged 0-15	2.46	(1.35)	2.30	(1.22)	0.15	0.000
Age of the youngest child (years)	4.50	(3.51)	4.73	(3.51)	-0.23	0.000
LFP	0.40	(0.49)	0.44	(0.50)	-0.04	0.000
Employment	0.40	(0.49)	0.43	(0.50)	-0.04	0.000
Formal Employment	0.11	(0.31)	0.13	(0.34)	-0.02	0.000
Informal Employment	0.29	(0.45)	0.30	(0.46)	-0.02	0.000
Weekly Hours Worked	14.01	(21.37)	15.14	(21.66)	-1.13	0.000
Monthly Earning (2018 pesos)	1466.09	(3360.02)	1558.80	(3513.41)	-92.71	0.004
Predicted Share of Students in FTS	0.01	(0.01)	0.22	(0.18)	-0.22	0.000

Source: ENOE 2005-2018 and FTS adminstrative data.

Identification Strategy

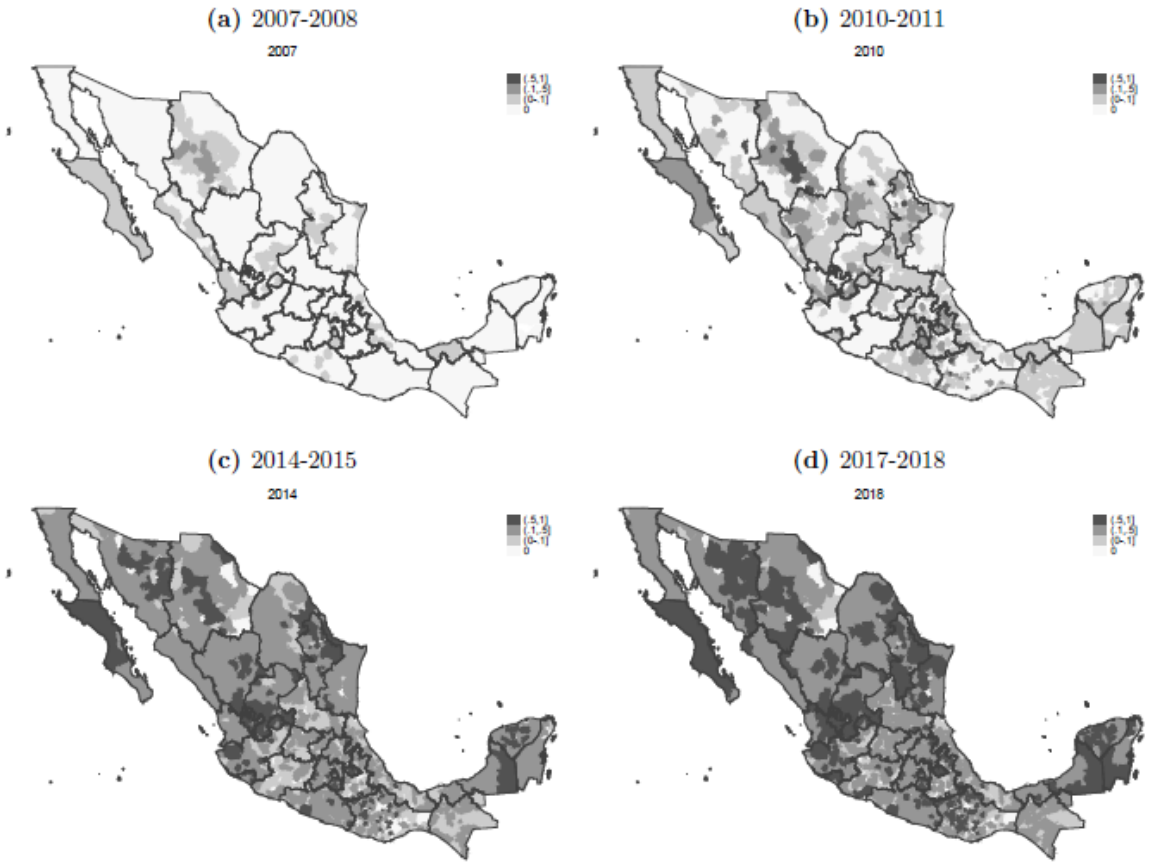
- We only observe school enrollment and in FTS may be correlated with mothers LFP.
- Our treatment variable is the share of predicted FTS seats in a municipality at a given quarter:

$$FTS_{mt} = \frac{\sum_{s \in m} \bar{e}_s FT_{st}}{\sum_{s \in m} \bar{e}_s} \tag{1}$$

- $\bar{e}_s$: proxy for school capacity (average 2001-2006) and FT_{st} is a dummy variable indicating school s adopted FTS.

Full-Time Schools: Time-Spatial Variation

Figure 1: Predicted Share of FTS Seats by Academic Year



Notes: Each panel separately shows the geographic distribution of municipalities' predicted share of FTS seats in a given academic year. Predicted shares of FTS seats were constructed using annual school-level census data on enrollment and participation in the FTS program from the Ministry of Education.

Identification Strategy

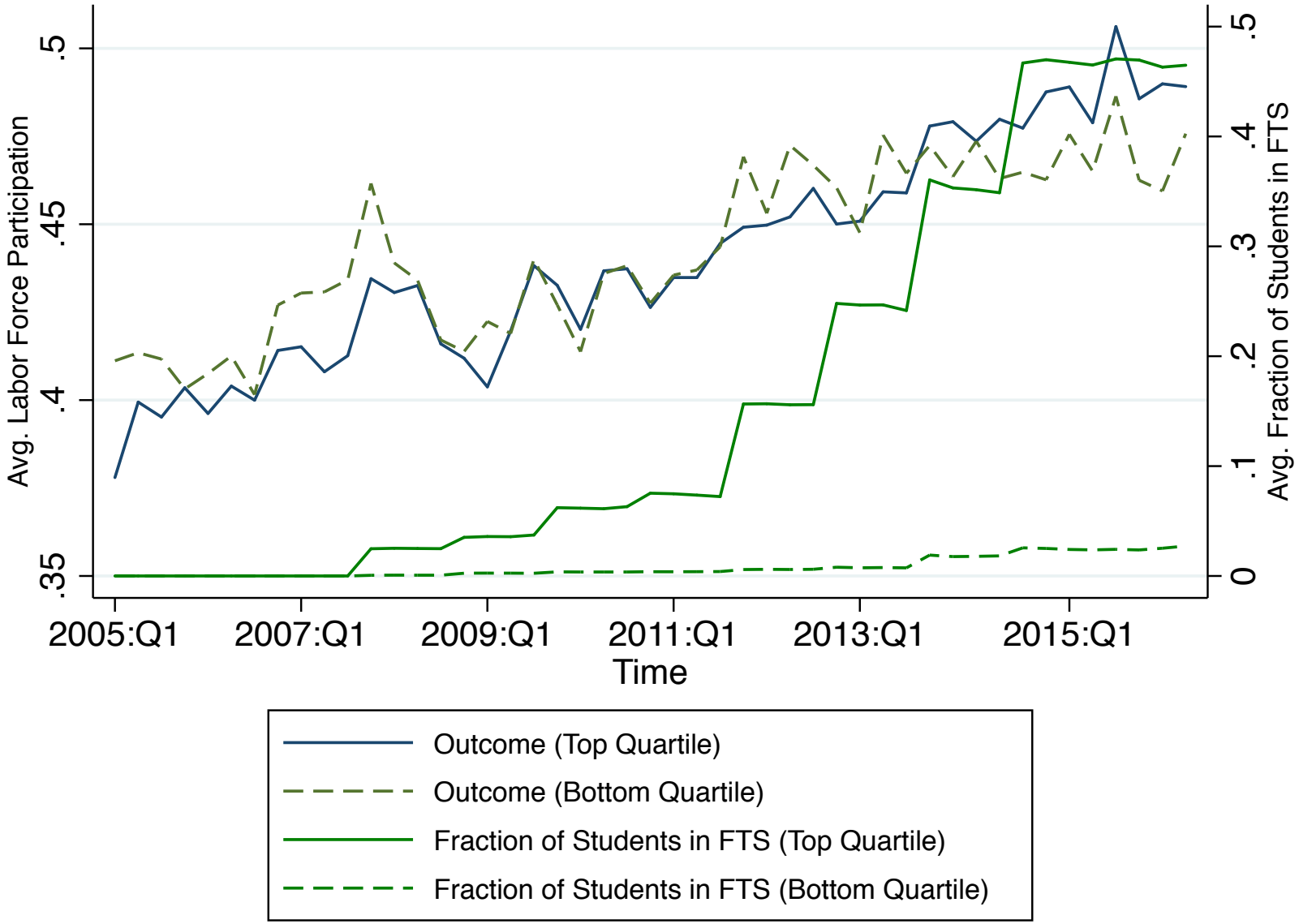
- Large differences design. i.e. within-individual variation in access to full-time schools from 1Q to 5Q.

$$\Delta_4 Y_{imt} = \Delta_4 FTS_{mt}\delta + \gamma_t + \Delta_4 X_{imt}\beta + \Delta_4 u_{imt} \quad (2)$$

- FTS_{mt} is the fraction of predicted FTS seats in municipality m at quarter t; X_{imt}; γ_t are year-by-quarter fixed effects;

- (δ) is the cumulative ITT effect of the FTS program on the change in labor outcomes over the 5-quarter period.

LFP Across Time



Results

Estimated Effects on LFP

	(1)	(2)	(3)	(4)	(5)
Fraction of Students in FTS	0.120**	0.121**	0.137**	0.149**	0.156**
	(0.053)	(0.054)	(0.058)	(0.059)	(0.061)
Lead 1				0.009	0.003
				(0.051)	(0.052)
Lead 2					-0.001
					(0.054)
N	44771	44691	44495	40795	37253
Cohort-by-time fixed effects	No	Yes	Yes	Yes	Yes
Education-by-time fixed effects	No	No	Yes	Yes	Yes
Youngest-by-time fixed effects	No	No	Yes	Yes	Yes

*, **, *** Significant at the 10%, 5%, and 1% levels, respectively.

Results

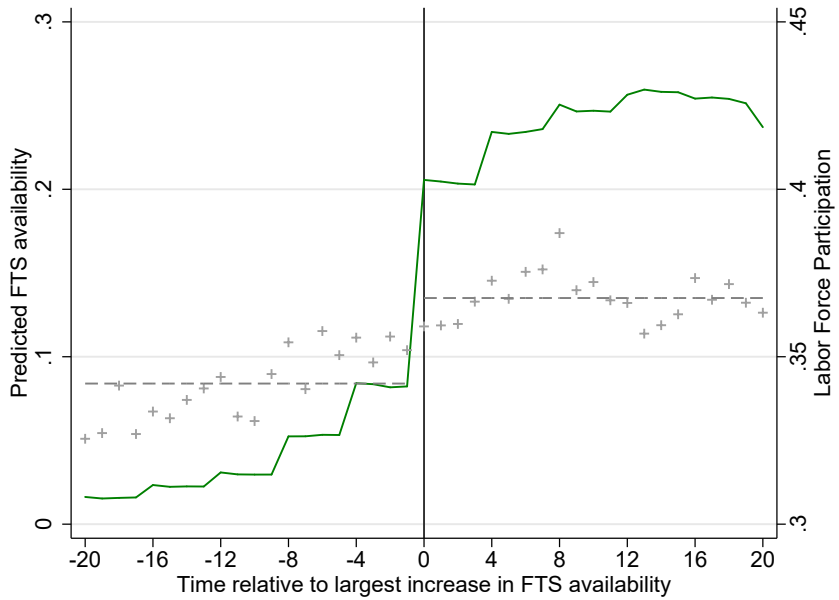
Estimated Effects on Employment

	(1)	(2)	(3)	(4)	(5)
Fraction of Students in FTS	0.112**	0.111**	0.122**	0.133**	0.139**
	(0.054)	(0.055)	(0.058)	(0.059)	(0.061)
Lead 1				-0.005	-0.009
				(0.051)	(0.052)
Lead 2					-0.016
					(0.053)
N	44771	44691	44495	40795	37253
Cohort-by-time fixed effects	No	Yes	Yes	Yes	Yes
Education-by-time fixed effects	No	No	Yes	Yes	Yes
Youngest-by-time fixed effects	No	No	Yes	Yes	Yes

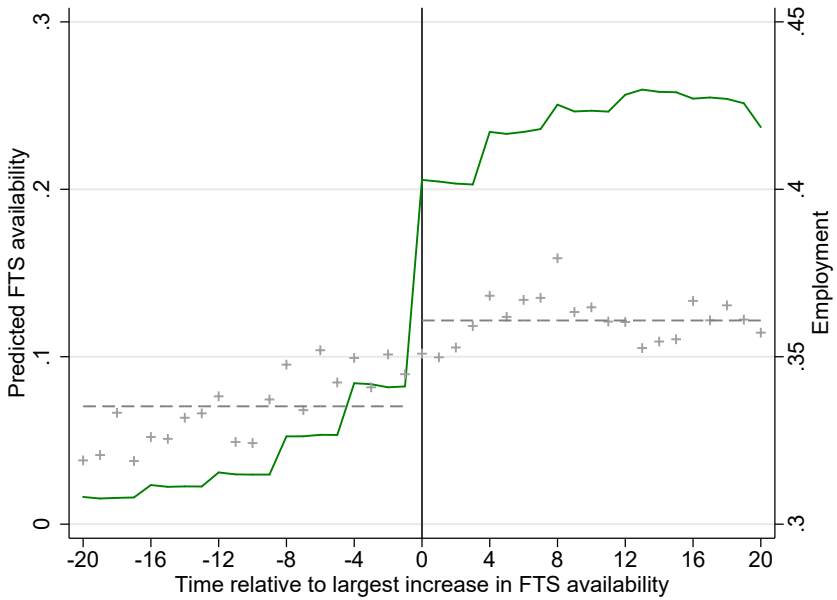
*, **, *** Significant at the 10%, 5%, and 1% levels, respectively.

Interpretation of Results

FTS Availability and Grandmothers' LFP and Employment



(a) Labor Force Participation



(b) Employment

Robustness Checks

Estimated Effects on Labor Outcomes by Gender

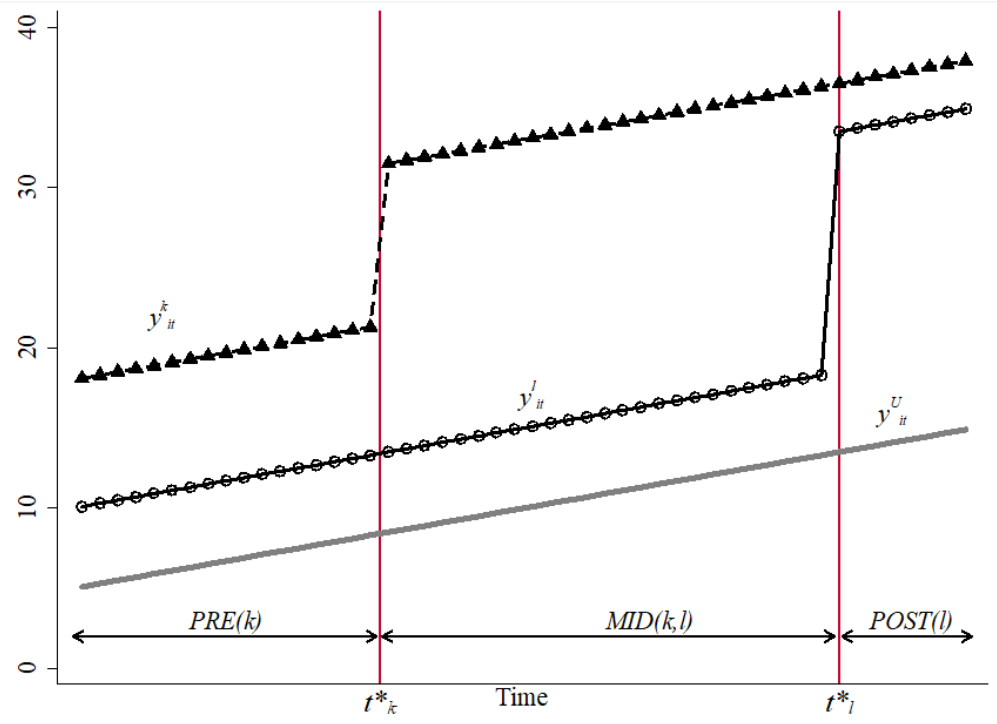
	LFP	Employment	Hours Worked	Log Earnings
	(1)	(2)	(3)	(4)
Panel A: Grandmothers without Elementary-School-Age Grandchildren				
Overall	-0.004	-0.016	0.185	0.220
	(0.072)	(0.073)	(2.721)	(0.568)
N	28434	28434	28434	28434
Panel B: Grandfathers with Elementary-School-Age Grandchildren				
Overall	-0.014	-0.026	-3.166	0.199
	(0.061)	(0.067)	(4.381)	(0.843)
N	25776	25776	25776	25776

*, **, *** Significant at the 10%, 5%, and 1% levels, respectively.

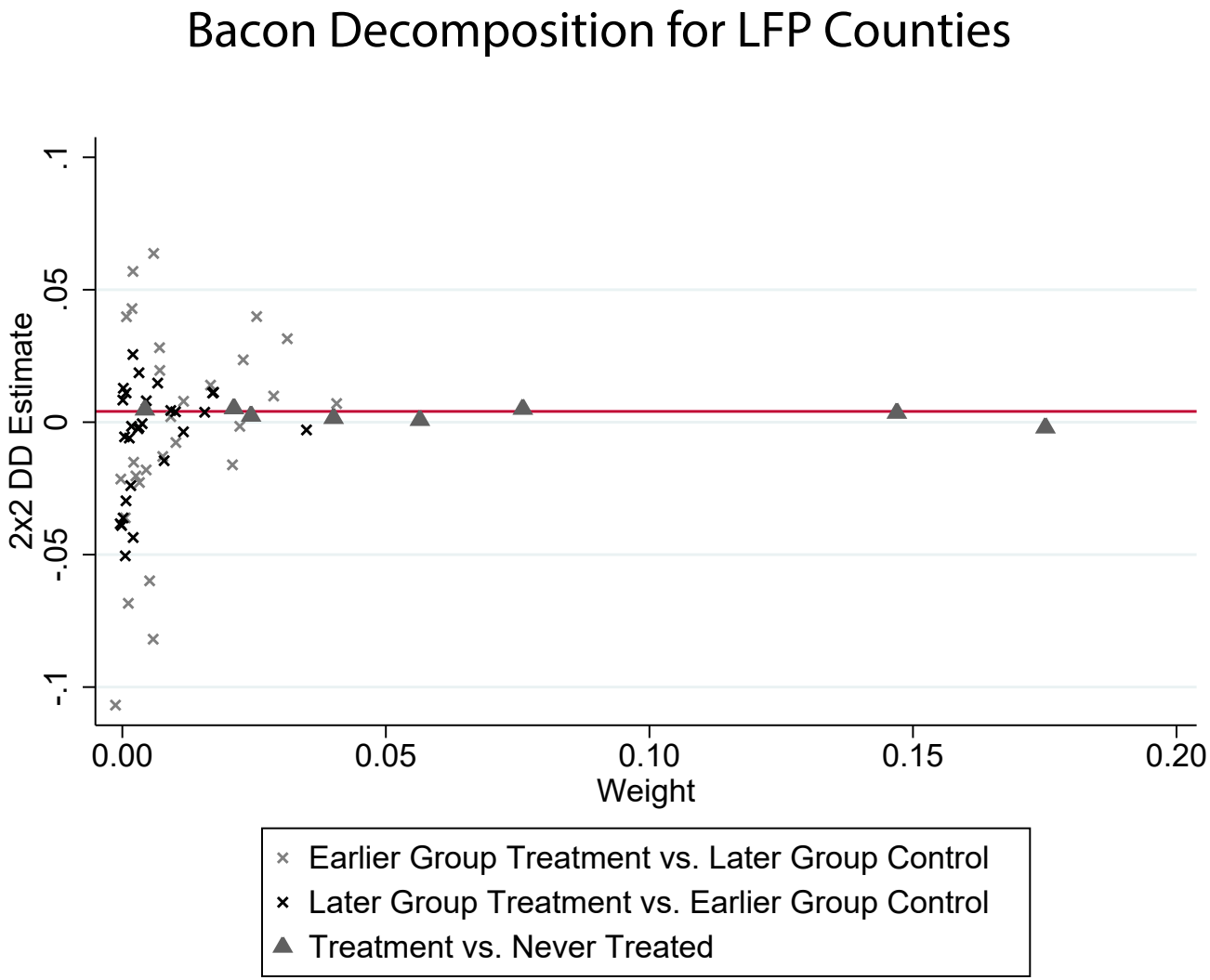
Robustness Checks

DD is a weighted average of canonical “2x2” (Goodman-Bacon 2019)

DD with variation in timing

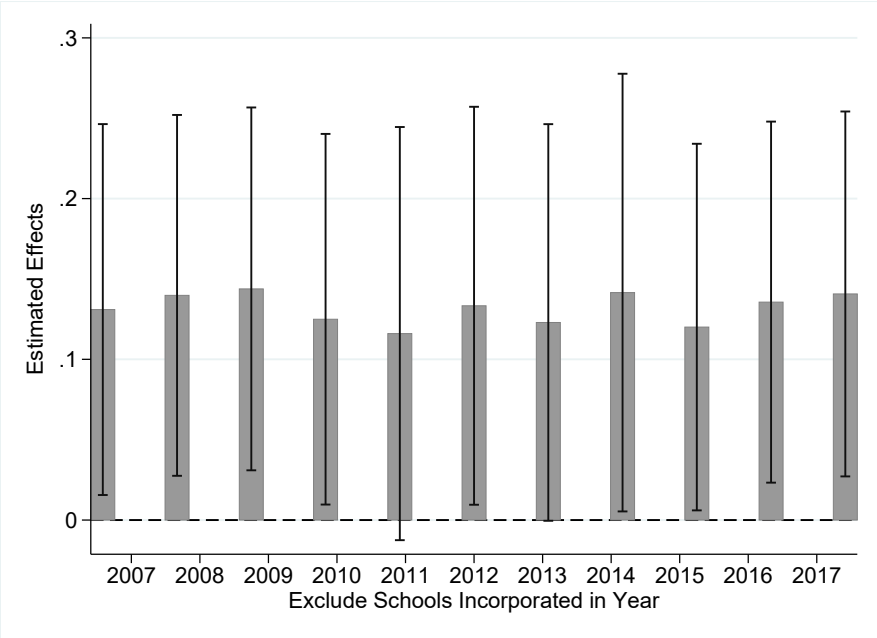


Robustness Checks

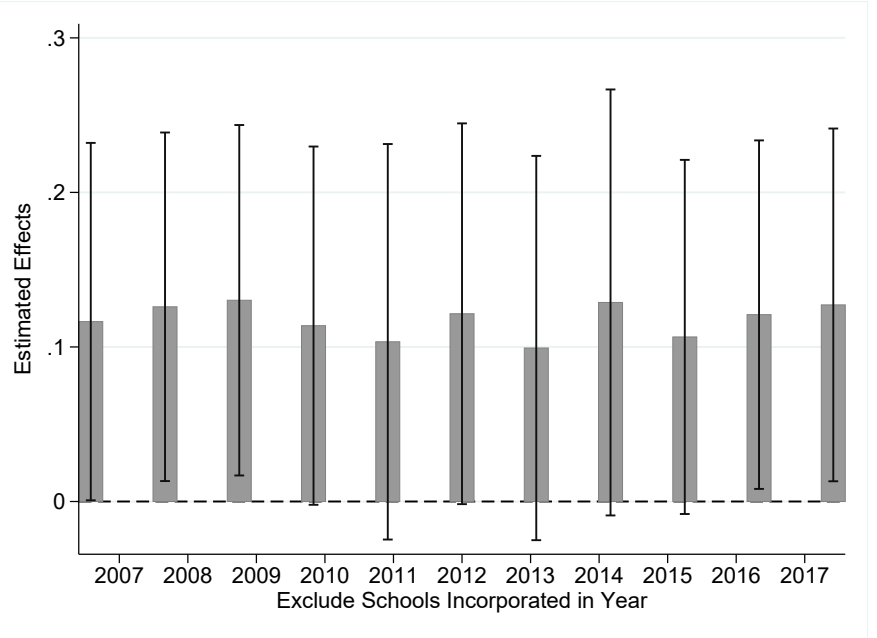


Robustness Checks

Overall results excluding each cohort of schools



(a) Labor Force Participation



(b) Employment

Heterogenous Effects

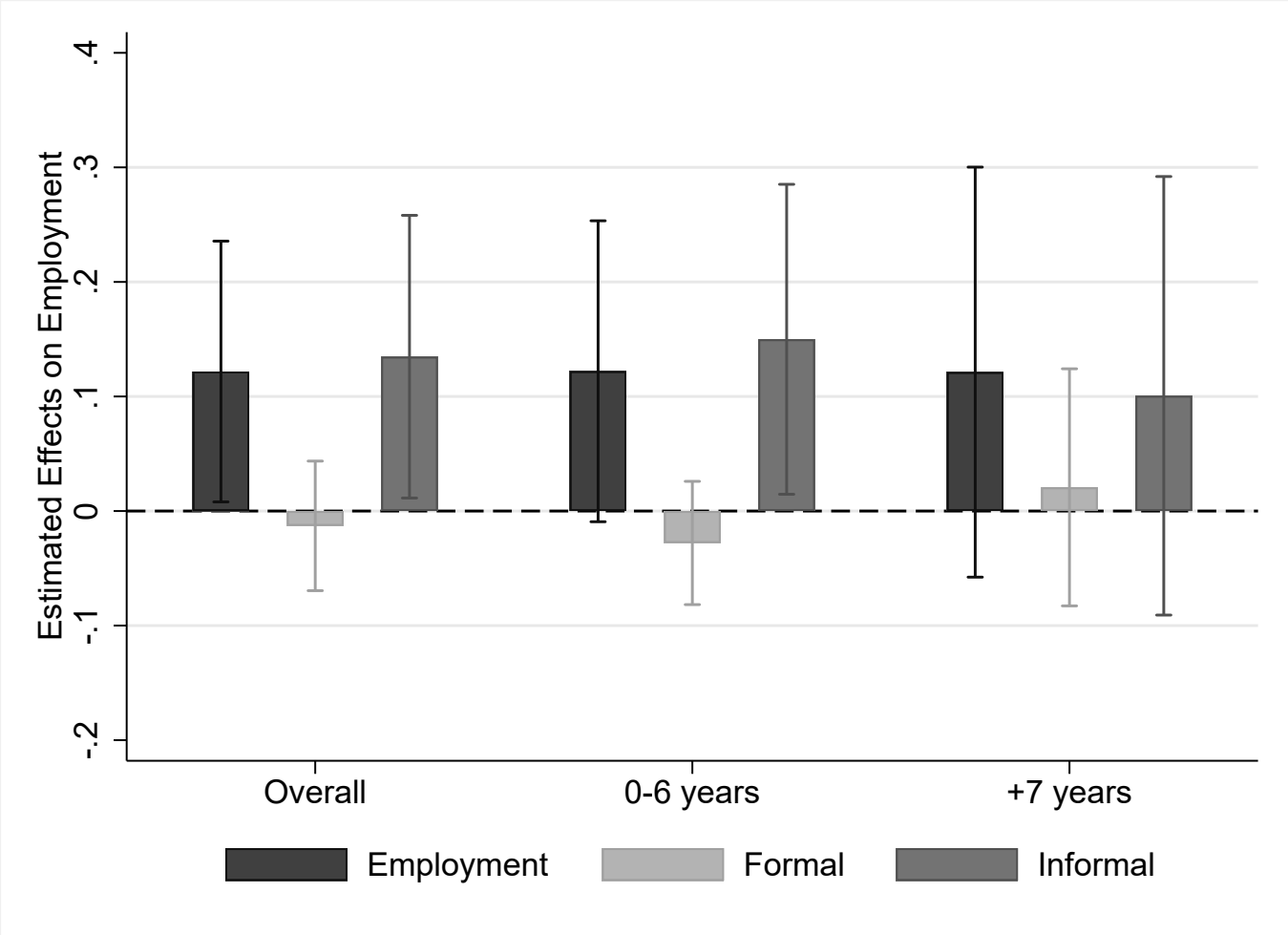
Estimated Effects on Labour Outcomes by Education and Poverty

	LFP	Employment	Hours Worked	Log Earnings
	(1)	(2)	(3)	(4)
Below Median	0.130*	0.122*	1.355	0.433
	(0.067)	(0.067)	(2.839)	(0.463)
Above Median	0.152*	0.121	-0.870	0.232
	(0.089)	(0.091)	(3.827)	(0.741)
N	44495	44495	44495	44495
Low Poverty	0.112	0.112	-1.621	-0.409
	(0.076)	(0.074)	(3.014)	(0.575)
High Poverty	0.137**	0.115*	1.358	0.711
	(0.065)	(0.065)	(2.860)	(0.457)
N	44256	44256	44256	44256

*, **, *** Significant at the 10%, 5%, and 1% levels, respectively.

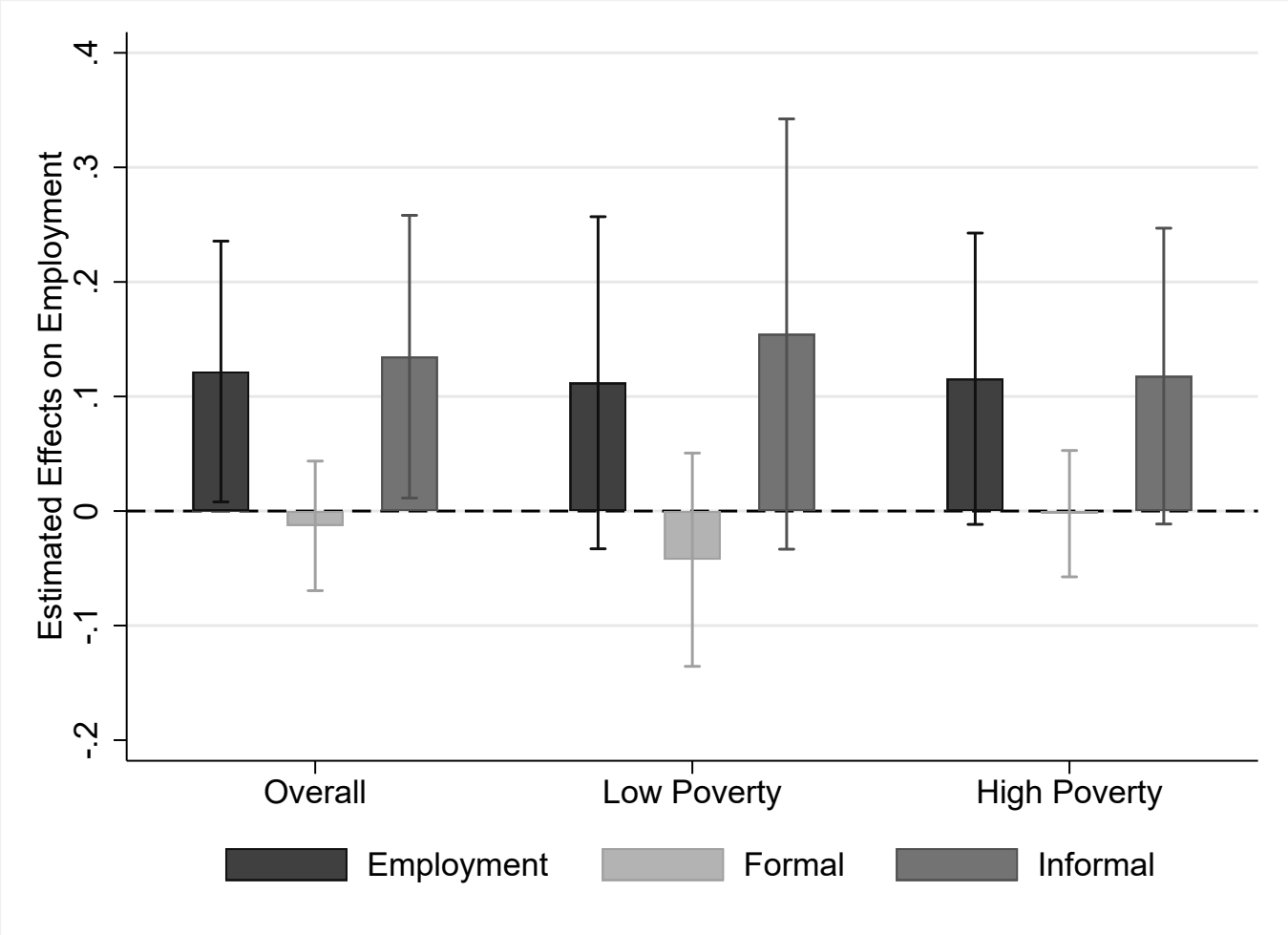
Further Results

Effects on Formal and Informal Employment by Education



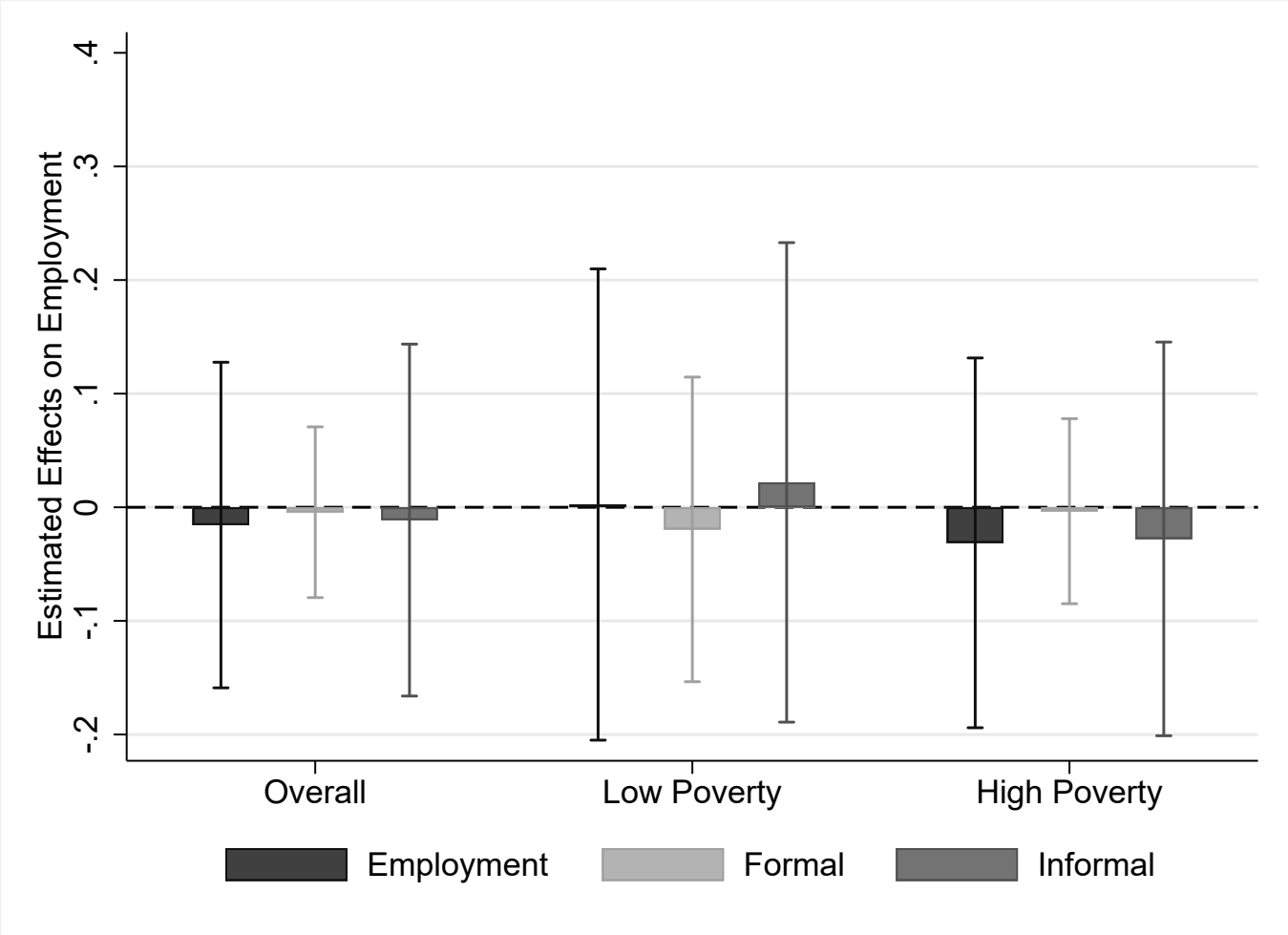
Further Results

Effects on Formal and Informal Employment by Poverty



Further Checks

Grandmothers without Elementary-School-Age Grandchildren



Further Checks

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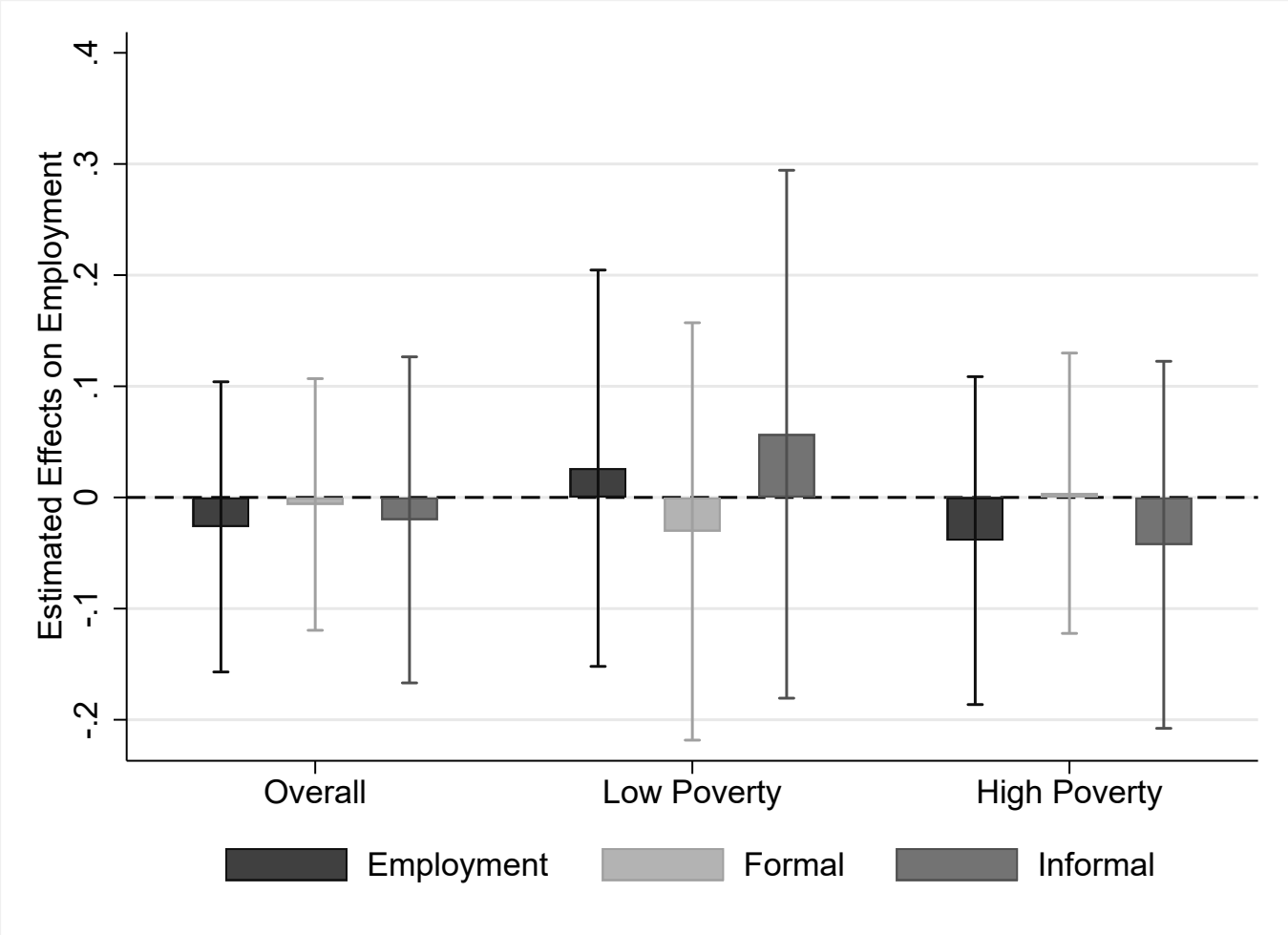

Discussion

- Our results are consistant to the literature showing intergenerational childcare reduces employment and LFP.
- We contribute to the scarce evidence on childcare effects on grandmothers. Our results coincide on non-effects for men, and vary on education and poverty (Lin, 2007)
- Budget contrains are important if we consider that poorer women with lower education opt to increase labour supply.
- Public childcare provision on female LFP extend to older women potentially reducing economic and social costs for the elder.