The Impact of Universal Free School Meals on Elementary School Students' School Life

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Universal free school meals

- This is part of the discussion of universal versus selective welfare benefits (Choi 2010; Shin 2010).
- The positive impact of providing free meals to poor students on health and nutrition level has been well demonstrated (Hinrichs 2009; Gordon et al. 1995; Gleason and Suitor 2003).
- There were some studies which looked at the impact of universal free school meals on students' physical health and nutrition levels (Ask et al. 2008; Murphy et al. 2010).
- Previous studies on universal FSM in South Korea focused on the students' satisfaction and perception of the program (Kim et al. 2015; Chang and Ryu 2015).

Universal free school meals

- There were few studies which looked at the impact of such programs on students' school life beyond their physical health and nutrition levels.
- It has been challenging to study the causal impact of a universal free school meals because observational studies are limited due to selection bias and the large-scale social experiments are not available.
- Evidence based policy making is critical for future policy directions.
- It has been debated whether the stigma related to such free school meals for disadvantaged students harms their school life (Shin 2010; Cho 2010).

Research question

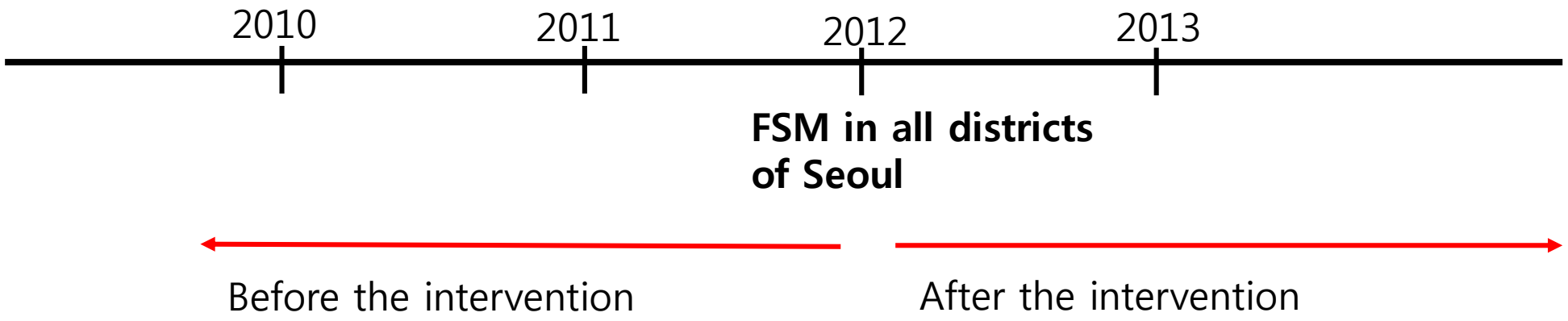
- This study would like to examine whether Universal Free School Meals improves elementary school students' school life.
  - Outcomes
    - ❖Students’ academic attitude
    - ❖Students’ relationship with their class mates
    - ❖Students’ perception of their teacher
  - Subsample analysis by low and high income neighborhoods

Preview of our findings

- It seems that universal FSM improved the students' academic attitudes, particularly in relatively lower income neighborhoods.
- It seems that universal FSM improved the students' relationship with their class mates, particularly in relatively higher income neighborhoods.
- It seems that universal FSM improved the students' perception about their teachers, particularly in relatively higher income neighborhoods.

Universal Free School Meals in South Korea

- Treatment group: elementary students in Seoul
  - Universal FSM was implemented in 2012 (Ministry of Education, Science and Technology, 2010-2013).
- Comparison group: elementary students in Daegu and Ulsan
  - Universal FSM has not yet been introduced until 2014 (Ministry of Education, Science and Technology, 2010-2013).



Data:
Korean Children & Youth Panel Survey (KCYPS)

- KCYPS collected the individual, family characteristics and school records of the first, fourth and seventh grade students in 2010.
- This panel is ideal for this study because the KCYPS followed around 7,000 students every year from 2010 to 2013
- KCYPS surveyed the school district, school life, family income, and parents' characteristics of students.
- This study is using the penal data of the first grade cohort during the period of 2010 to 2013.

Empirical strategy

- Fixed effects model with Difference-in-Differences estimators
  - Treatment group: elementary students in Seoul
    - Universal FSM was implemented in 2012 (Ministry of Education, Science and Technology, 2010-2013).
  - Comparison group: elementary students in Daegu and Ulsan
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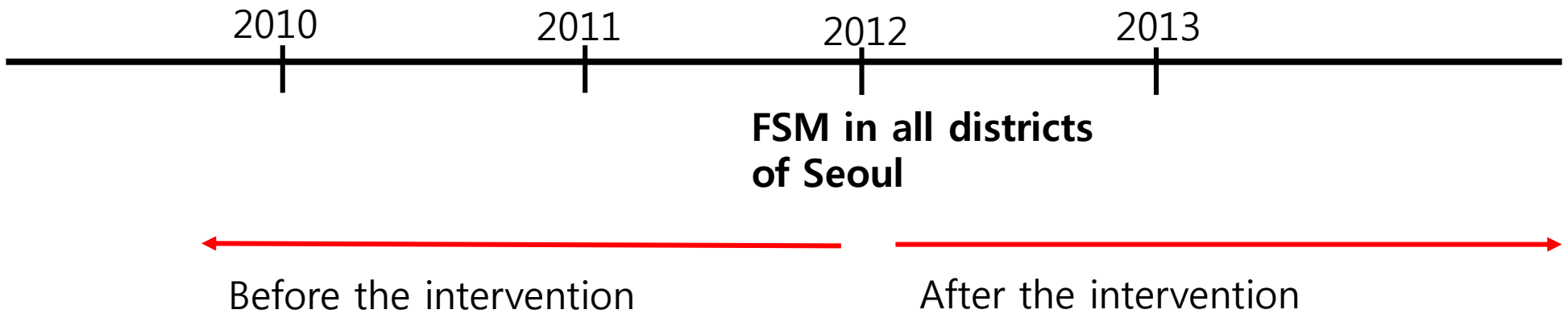

Empirical strategy

- Fixed effects model with Difference-in-Differences estimators

$$y_{it} = \alpha_i + \delta_1 D_i^T + \delta_2 D_{it}^{2011} + \delta_3 D_{it}^{2012} + \delta_4 D_{it}^{2012} + \delta_5 D_i^T D_{it}^{2011} + \delta_6 D_i^T D_{it}^{2012} + \delta_7 D_i^T D_{it}^{2013} + \beta X_{it} + u_{it}$$

- Outcomes: y_{it}
  - students' concentration on their studies during the class (=1)
  - having a good relationship with friends in school (=1)
  - students' perception that their teacher is friendly to them (=1)
- Treatment and comparison groups: D_i^T
  - Treatment group: elementary students in Seoul
  - Comparison group: elementary students in Daegu and Ulsan
- Year indicators: D_{it}^{2011}, D_{it}^{2012}, and D_{it}^{2013}
  - Year indicators for 2011, 2012 and 2013
  - Year 2010 as base year
- Control variables: X_{it}
  - parents' age, square term of the parents' age, whether having both mom and dad, parents' education, whether, at least, one of their parents is working, whether both of their parents are working and family income.

Empirical strategy

- Fixed effects model with Difference-in-Differences estimators

$$y_{it} = \alpha_i + \delta_1 D_i^T + \delta_2 D_{it}^{2011} + \delta_3 D_{it}^{2012} + \delta_4 D_{it}^{2012} + \delta_5 D_i^T D_{it}^{2011} + \delta_6 D_i^T D_{it}^{2012} + \delta_7 D_i^T D_{it}^{2013} + \beta X_{it} + u_{it}$$

- DID estimators
  - Pre-program test: $\delta_5$should be 0 for the parallel assumption
  - Post-program effect: δ_6 for 2012 and δ_7 for 2013

Districts in Seoul by real estate price

13 districts in Seoul with the higher real estate price	12 districts in Seoul with the lower real estate price
Songpa-Gu	Dongdaemun-Gu
Gangnam-Gu	Gwanak-Gu
Seocho-Gu	Gangseo-Gu
Gangdong-Gu	Jongrho-Gu
Yangcheon-Gu	Seodaemun-Gu
Seongdong-Gu	Geumcheon-Gu
Yeongdeungpo-Gu	Guro-Gu
Dongjak-Gu	Eunpyeong-Gu
Yongsan-Gu	Gangbuk-Gu
Jung-Gu	Jungrang-Gu
Gwangjin-Gu	Dobong-Gu
Seongbuk-Gu	Nowon-Gu.
Mapo-Gu;	

Sources: the Korean Appraisal Board (KAB)

Table 2. Impact of universal FSM on students' concentration on their studies during the class

	Districts with the higher real estate price (N=1424)		Districts with the lower real estate price (N=1221)		All (N=1772)	
	OLS	FE	OLS	FE	OLS	FE
Districts in Seoul (=1)	-0.073*		-0.058		-0.067*	
	(0.041)		(0.048)		(0.035)	
Districts in Seoul (=1) × Year 2011 (=1)	0.043	0.044	-0.018	0.007	0.018	0.030
	(0.051)	(0.053)	(0.067)	(0.068)	(0.047)	(0.047)
Districts in Seoul (=1) × Year 2012 (=1)	0.120**	0.104*	0.118*	0.156**	0.119**	0.125**
	(0.058)	(0.060)	(0.066)	(0.070)	(0.050)	(0.051)
Districts in Seoul (=1) × Year 2013 (=1)	0.059	0.047	0.160**	0.199***	0.097*	0.104*
	(0.066)	(0.069)	(0.069)	(0.074)	(0.055)	(0.057)
Year 2011 (=1)	-0.035	0.002	-0.030	-0.027	-0.032	-0.007
	(0.033)	(0.039)	(0.033)	(0.039)	(0.033)	(0.039)
Year 2012 (=1)	-0.124***	-0.058	-0.119***	-0.109**	-0.120***	-0.073
	(0.035)	(0.048)	(0.035)	(0.048)	(0.034)	(0.050)
Year 2013 (=1)	-0.146***	-0.048	-0.138***	-0.124*	-0.140***	-0.072
	(0.039)	(0.064)	(0.039)	(0.065)	(0.038)	(0.066)
Control	Yes		Yes		Yes	

Notes: *** p<0.01, ** p<0.05, * p<0.1

Table 3. Impact of universal FSM on having a good relationship with friends in school

	Districts with the higher real estate price (N=1424)		Districts with the lower real estate price (N=1221)		All (N=1772)	
	OLS	FE	OLS	FE	OLS	FE
Districts in Seoul (=1)	-0.088**		-0.011		-0.055*	
	(0.035)		(0.034)		(0.028)	
Districts in Seoul (=1) × Year 2011 (=1)	0.020	0.025	-0.011	0.001	0.006	0.017
	(0.044)	(0.045)	(0.040)	(0.041)	(0.036)	(0.036)
Districts in Seoul (=1) × Year 2012 (=1)	0.087*	0.096**	-0.016	0.002	0.045	0.064*
	(0.046)	(0.047)	(0.045)	(0.046)	(0.037)	(0.038)
Districts in Seoul (=1) × Year 2013 (=1)	0.104***	0.107***	0.017	0.058	0.068**	0.093***
	(0.040)	(0.041)	(0.045)	(0.049)	(0.034)	(0.035)
Year 2011 (=1)	0.009	-0.013	0.007	-0.007	0.011	-0.012
	(0.026)	(0.029)	(0.026)	(0.034)	(0.026)	(0.030)
Year 2012 (=1)	0.026	-0.015	0.020	0.001	0.027	-0.011
	(0.025)	(0.037)	(0.025)	(0.051)	(0.025)	(0.039)
Year 2013 (=1)	0.034	-0.027	0.029	0.003	0.037	-0.020
	(0.025)	(0.044)	(0.024)	(0.068)	(0.025)	(0.048)
Control	Yes		Yes		Yes	

Notes: *** p<0.01, ** p<0.05, * p<0.1

Table 4. Impact of universal FSM on students' perception that their teacher is friendly to them.

	Districts with the higher real estate price (N=1424)		Districts with the lower real estate price (N=1221)		All (N=1772)	
	OLS	FE	OLS	FE	OLS	FE
Districts in Seoul (=1)	-0.057**		0.009		-0.032	
	(0.026)		(0.022)		(0.020)	
Districts in Seoul (=1) × Year 2011 (=1)	0.060*	0.038	-0.005	-0.001	0.034	0.023
	(0.031)	(0.031)	(0.032)	(0.032)	(0.025)	(0.025)
Districts in Seoul (=1) × Year 2012 (=1)	0.077*	0.070*	0.034	0.036	0.060*	0.057*
	(0.040)	(0.042)	(0.037)	(0.040)	(0.032)	(0.033)
Districts in Seoul (=1) × Year 2013 (=1)	0.081**	0.075*	-0.024	-0.007	0.040	0.045
	(0.039)	(0.040)	(0.041)	(0.042)	(0.032)	(0.033)
Year 2011 (=1)	-0.016	-0.020	-0.017	-0.028	-0.015	-0.019
	(0.015)	(0.021)	(0.016)	(0.020)	(0.016)	(0.020)
Year 2012 (=1)	-0.040*	-0.060*	-0.043*	-0.072**	-0.040*	-0.057*
	(0.023)	(0.035)	(0.023)	(0.034)	(0.022)	(0.033)
Year 2013 (=1)	-0.026	-0.063	-0.029	-0.075*	-0.025	-0.058
	(0.023)	(0.044)	(0.022)	(0.042)	(0.022)	(0.039)
Control	Yes		Yes		Yes	

Notes: *** p<0.01, ** p<0.05, * p<0.1

Findings

- It seems that universal FSM improved the students' academic altitudes, particularly in relatively lower income neighborhoods.
- It seems that universal FSM improved the students' relationship with their class mates, particularly in relatively higher income neighborhoods.
- It seems that universal FSM improved the students' perception about their teachers, particularly in relatively higher income neighborhoods.

Policy Implications

- Universal FSM seems to help elementary students.
  - Universal FSM may reduce the stigma of disadvantaged students and improve the students' school life with peers and teachers, particularly in relatively higher income neighborhoods.
  - Universal FSM may reduce the lunch-related worries of students and improve their academic concentration during school time, particularly in relatively lower income neighborhoods.

Thank you.