Physicians' Responses to Medical Subsidy Programs: Evidence from Japan

Reo Takaku [1] Hiroshi Aiura [2]

[1]Hitotsubashi University : reo.takaku@r.hit-u.ac.jp

[2]Nanzan University : aiura@nanzan-u.ac.jp

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Motivation

- Uneven geographical distribution of physicians
  - Physicians' decisions about where to supply health care, and how much to supply, are extremely policy relevant.
  - In virtually all OECD countries, uneven distribution of physicians is recognized as important policy issues.
  - Japan also faces severe mal-distribution.
    - Shortage of physicians in rural area
    - Excessive concentration of physicians in Tokyo

- Uneven distribution may generate **inefficiency** in health care services provision.
  1. Physicians induce health care demand in city (Fuchs 1978).
  2. Patients in rural area cannot receive sufficient care.

How to Solve the Uneven Distribution ?

- WHO's report deeply affected Japan's policy making
  - WHO (2010) recommended to use targeted admission policies to enroll students with a rural background in education programs.

- Grobler (2015)' systematic review (Cochran Review) recommended **the expansion of health insurance in the extensive margin.**
  - Extensive margin = Whether a person is covered or not
  - HI expansion in the extensive margin may increase health care utilization in poor areas where many uninsured live.
  - Physicians may have an incentive to work in these areas.

- Some previous studies support this story.
  - Yang (2013) *International Journal for Equity in Health*
  - Chen (2017) *Health Economics*
  - Huh (2017) *mimeo*

What happens if the intensive margin is expanded ?

- **Intensive margin = Generosity of HI**
  - Intensive margin is policy relevant for many countries where UHC is already achieved.
    - Fan and Savedoff, 2014, Dieleman et al., 2017

- We may expect as below.
  1. All persons are affected by the reduction of copay together.
  2. Health care demand may increase at the same (similar) rate anywhere in the country.
  3. This may induce physicians to move urban areas, rather than rural areas.
     - Health care demand may increase more in cities.
     - Physicians with city preference may sacrifice some of their profits in order to live in cities.

This paper

- Effects of Health Insurance Expansion on Pediatricians' Practice Location Choice

- Medical Subsidy for Children and Infants (MSCI)
  - Free care program for publicly insured health services
  - Coinsurance rate: 30% - 20% ⇒ 0%
  - Different eligibility age across 1700 municipalities: 0 - 22 years old
- Data
  - Census data of clinics in Japan from 1999 to 2011
  - Eligibility age of MSCI from my original survey
    - 614 municipalities

- Main findings
  1. MSCI increases the number of patients treated by clinics.
  2. Physicians choose to work in more densely populated area under generous MSCI system.

Literature

- Numerous studies investigate the impacts of HI on **patient behavior and outcomes**.
  - Manning et al. (1987), Card and Dobkin (2009), Chandra et al. (2010), Finkelstein et al. (2012), Shigeoka (2014)

- However, recent studies emphasize health insurance systems have considerable spillover effects on providers.
  - Finkelstein (2007) *QJE*
    - A seminal paper which find the introduction of Medicare in 1965 accelrated the adoption of costly medical technologies such as intensive care unit.
  - Kondo and Shigeoka (2013) *JPubE* : Introduction of UHC in Japan
  - Freedman et al. (2015) *JPubE* : Expansion of Medicaid

HI Expansion and Primary Care Physician

- Effect on Physicians' Labor Supply
  - Enterline et al. (1978) *NEJM*: Negative
  - Garthwaite (2012) *AEJEP*: Negative
  - Buchmuller et al. (2016) *AEJEP*: Positive
- Effect on Practice Location Choice
  - Yang (2013) *International Journal for Equity in Health*
  - Chen (2017) *Health Economics*
    - Reauthorization of CHIP increased young pediatricians entering a rural/small city market.
  - Huh (2017) *mimeo*
    - Medicaid expansions on dental care and dentists' location choice

Theory of Physicians' Location Choice

General Structure

1. **Love of variety**
   - In order to illustrate the attraction of cities, we assume each city provides non-tradable goods and services.
     - i.e. high quality hair cut services in Harajyuku
2. Meanwhile, other goods and health care services are assumed to be homogeneous across cities.
   - Health care services may be homogeneous because we focus on highly-standardized primary care services.
3. Firms for non-tradable goods have monopolistic power.
   - As in Krugman (1991)'s seminal economic geography paper, monopolistic competition is assumed for the market of non-tradable goods.
4. After the regional markets reach general equilibrium, physicians choose their practice location.
   - Physicians' choice does not affects the entire region.

General Workers' Problem

- Utility maximization under budget constraint, similar with Krugman (1991)

$$\boldsymbol{U = Q^{\alpha} H^{\beta} T^{1-\alpha-\beta}}, \tag{1}$$

$$\boldsymbol{Q \equiv \left(\int_0^M q(i)^{(\sigma-1)/\sigma} dk \right)^{\sigma/(\sigma-1)}}, \tag{2}$$

where,
$\boldsymbol{q(i)}$: consumption of non-tradable goods $\boldsymbol{i}$
$\boldsymbol{\sigma}$: substitution of elasticity
$\boldsymbol{Q}$: Composite consumption of non-tradable goods
$\boldsymbol{H}$: Consumption of **homogeneous** health services
$\boldsymbol{T}$: Consumption of **homogeneous** tradable goods

Budget Constraint

$$Y = \int_0^M p(i)q(i)di + T + \theta p_h H \tag{3}$$

where, Y :income i
$p(i)$, p_h : prices of non-tradable goods i and health care services
M : Number of non-tradable goods

- Equilibrium conditions are derived by following assumptions
  1. General workers' utility maximization
  2. Firms' profit maximization under monopolistic competition
  3. Free entry

Characteristics of the Market Equilibrium

- As in other core-periphery models, the number of non-tradable goods (M_k) in region k increases as population (N_k) grows, as below.

$$M_k^* = \frac{\alpha}{\sigma n} N_k. \tag{4}$$

- If M_k increases, it reads to the reduction of general price level at equilibrium (P_k^*)

$$P_k^* = \frac{\sigma}{\sigma - 1} n_1 \left(\frac{1}{M_k} \right)^{1/(\sigma-1)}. \tag{5}$$

- Thus, people can enjoy more variety of goods in larger cities and receive lower general price level.

Physicians' Problem

- Utility function of physicians is the same with other persons.
  - They do not care about patient health improvement.
  - Probably plausible assumption for primary care physicians.

- Income of physicians in region $\boldsymbol{k}$ is determined by following equation.

$$\boldsymbol{Y_k = p_h \frac{H_k}{D_k} - c,} \tag{6}$$

where
$\boldsymbol{p_h}$: price of medical care
$\boldsymbol{H_k}$: regional health care demand
$\boldsymbol{D_k}$: number of physicians
$\boldsymbol{c}$: fixed cost to became a primary care physician
(i.e. educational costs and construction costs of his clinic)

Physicians' Indirect Utility Function

- After solving maximization problem, we obtain following indirect utility function of physicians

$$V_k = \underbrace{\left(\frac{\alpha}{P_k^*}\right)^{\alpha}}_{\text{Price}} \underbrace{\left(\frac{\beta}{\theta p_h}\right)^{\beta}}_{\text{Price of HC}} (1-\alpha-\beta)^{1-\alpha-\beta} \underbrace{\left(\frac{\beta}{\theta} \cdot \frac{N_k}{D_k} - c\right)}_{\text{Physician' Income}} \tag{7}$$

- Equilibrium is given at the point where the utility of physicians is identical for all cities.

$$V_k^* = V_l^*, \quad k \neq l \tag{8}$$

Theoretical Prediction

Lemma 2

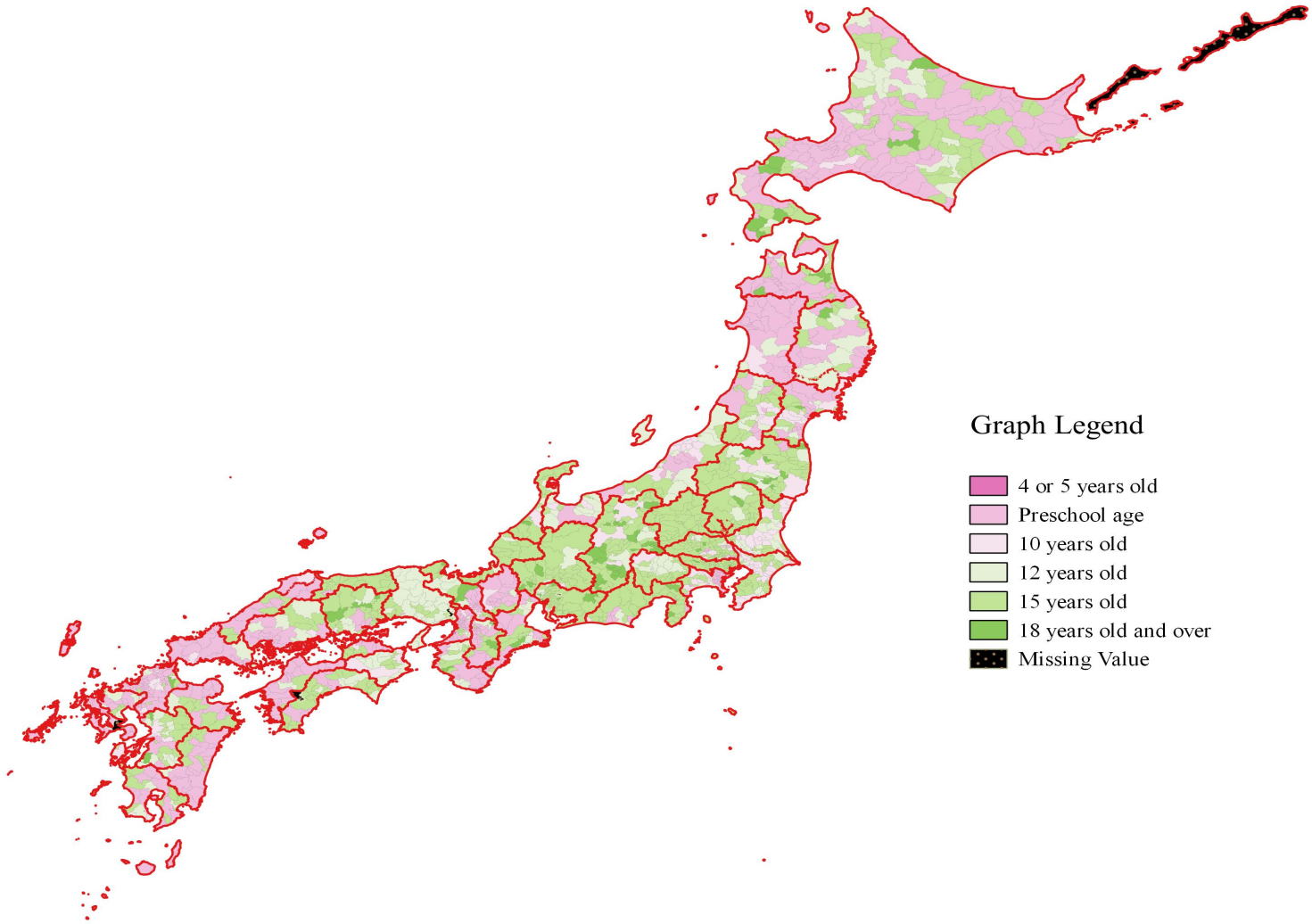
As population becomes larger, the area has the larger number of physicians per person. (that is, $\boldsymbol{D_k/N_k > D_l/N_l}$ if $\boldsymbol{N_k > N_l}$).

Proposition 2

A decrease in the co-payment rate (θ) strengthens the concentration of physicians to the areas with large population, since it increases a difference of the number of physicians per person between any two areas.

Data & Empirical Strategy

MSCI eligibility age in 2011



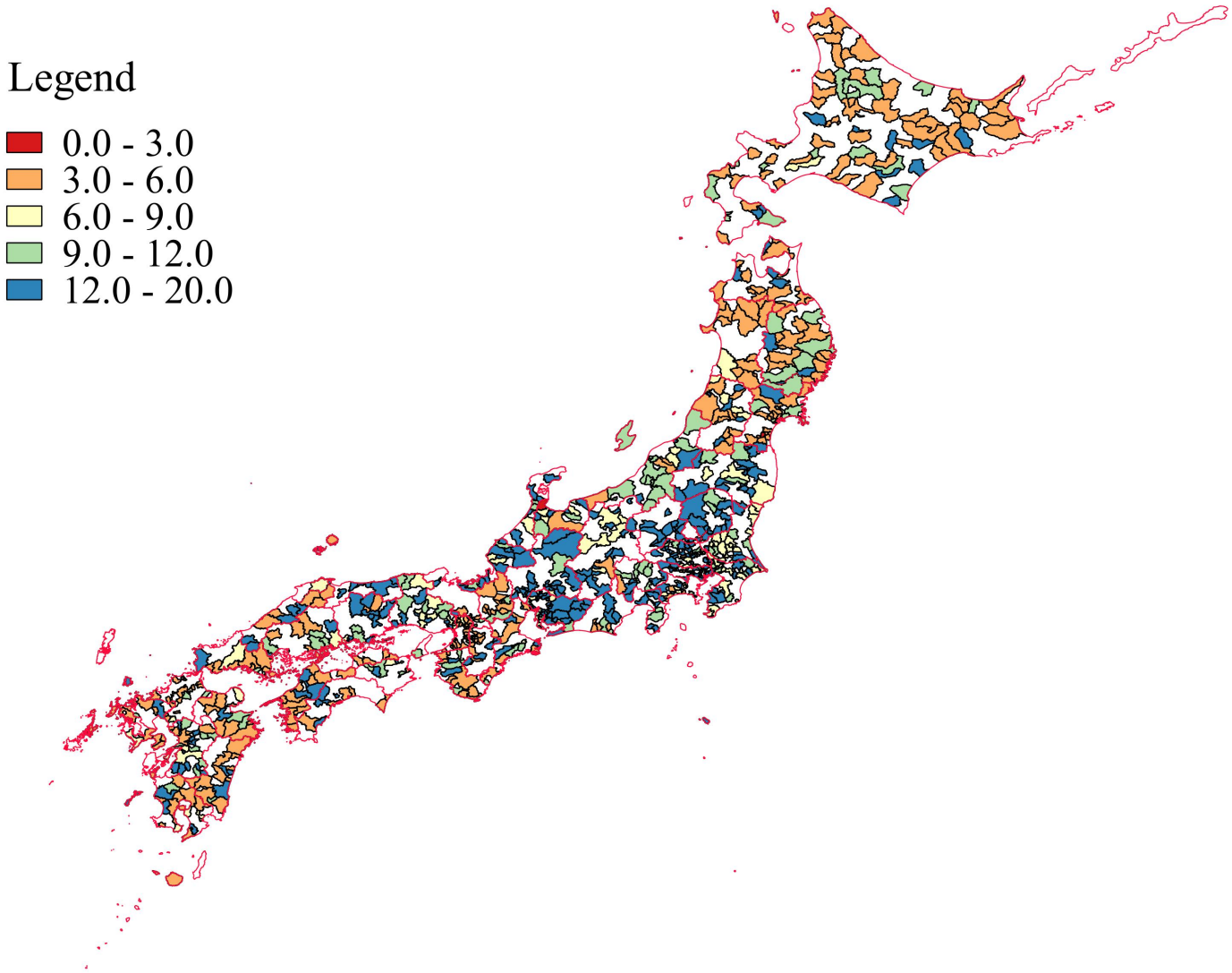
MSCI Expansion Before 2011

- No Data
  - No public organizations compile the MSCI system in all municipalities before 2010.
  - MSCI rapidly spread during this period.

- Takaku (2016) *Social Science & Medicine*
  - Original survey for the MSCI eligibility age for all municipalities from 1995 to 2012
  - Response rate: 55%, 949 out of 1740 municipalities.
    - **Population weighted response rate increases up to 75%.**
    - Many large cities answer my survey.
  - Effects on child health are uncovered in Takaku (2016).

- **In 2017, I implemented additional survey for the large cities which did not respond to my previous survey.**
  - 60 large cities additionally replied to my letter.

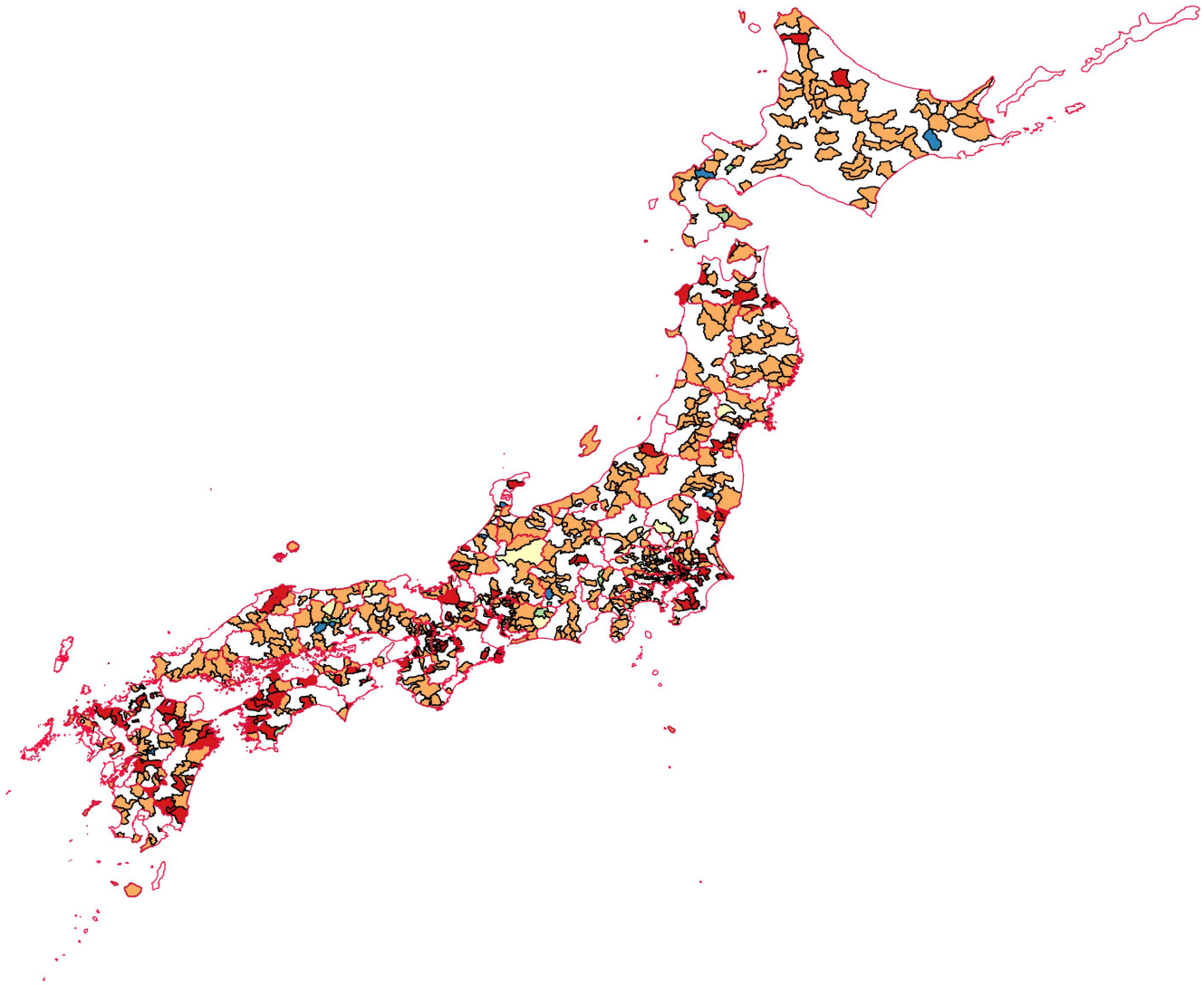
MSCI eligibility age in 2011



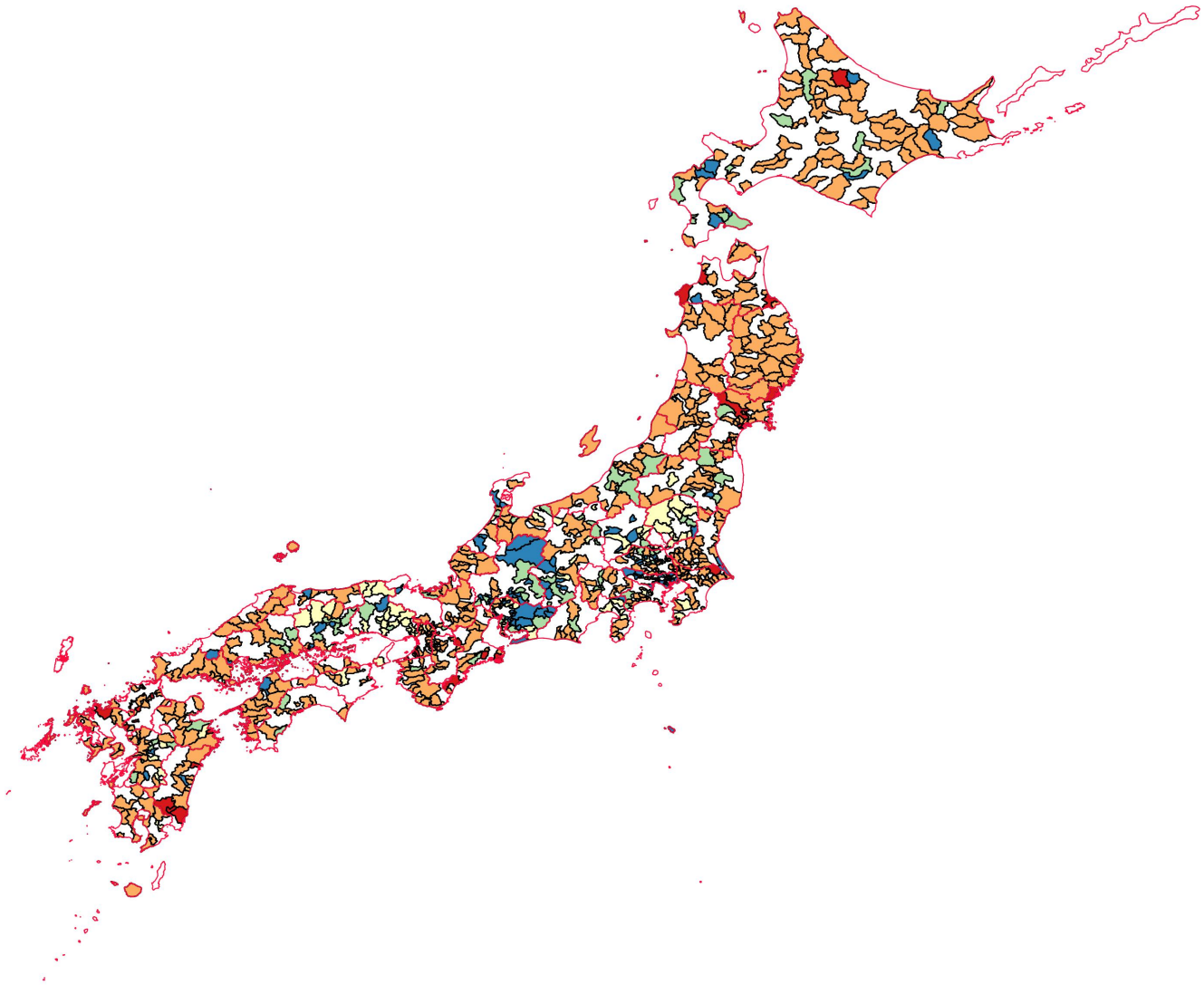
MSCI eligibility age in 1999

MSCI eligibility age in 2002

MSCI eligibility age in 2005



MSCI eligibility age in 2008



Remarks

- The number of total response was 1017, but the missing responses increase for the periods before mid-2000s.
  - The loss of record
  - Heisei Grate Amalgamation
- The number of the municipalities which provided complete responses from 1999 to 2011 was **611.**
  - Other municipalities are excluded from the analysis

Identification Strategy

- **Difference-in-Differences**
  - Regional Disparity in MSCI eligibility age: First difference
  - MSCI expansion from 1999 to 2011: Second difference

- Due to endogeneity of MSCI expansion, simple DID may not provide causal effects.
  - Common trend assumption can be violated.

Difference-in-Differences-in-Differences

- In order to make the common trend assumption more plausible, I incorporate third difference.
  - Garthwaite (2012),

- Child Clinics vs All-generation Clinics
  - Child Clinics: Only **"Pediatrics"** in their signboard
  - All-generation Clinics: Both **"Pediatrics"** and **"Internal Medicine"** in their signboard

- They share large similarities.
  - At least, they can provide primary care for children.
  - However, MSCI expansion affects child clinics more than all-gen clinics since all patients in child clinics are children.

Child Clinics and All-generation Clinics

- Since both clinics are affected by MSCI, my estimates may be the lower bound.

Econometric Specification

$$y_{it} = \alpha_0 Child_{it} + \alpha_1 Elig_{mt} + \underline{\alpha_2 * Child_{it} * Elig_{mt}} \quad (9)$$
$$+\alpha_3 X_{it} + \alpha_4 Z_{mt} + \theta_m + Year_t + \sum_{p=1}^{46} \alpha_5 T_p + \underline{\alpha_7 T * Z_{m,1999}}$$
$$+\psi_{it},$$

- **Notations**
  - $Child_{it}$: Dummy variable for child clinics
  - $Elig_{mt}$: MSCI eligibility age in municipality m in year t
  - X_{it} : Vector of clinics level covariates
  - Z_{mt} : Vector of municipality level time-varying covariates
  - θ_m: Municipality Fixed Effects
  - T_p : Prefecture specific linear trends
  - $T \times Z_{m,1999}$: Linear trends for the municipality level characteristics as of 1999
  - ψ_{it}: Error term

Clinic Level Data

- **Survey on Medical Institutions (医療施設調査)**
  1. **Census of clinics and hospitals in Japan**
  2. Ministry of Health in Japan started the SMI from 1953.
  3. SMI was held in every 3 years.
  4. I use 1999, 2002, 2005, 2008 and 2011 surveys

- **Uniqueness of SMI**
  1. Response rate is 100 %.
  2. Characteristics of clinics as of October are surveyed.
  3. Address and name of all clinics are also provided for researchers.

- **Geo information of clinics**
  1. Using Arc-GIS Version 10, all clinics are spatially merged with the Population Census 2010.

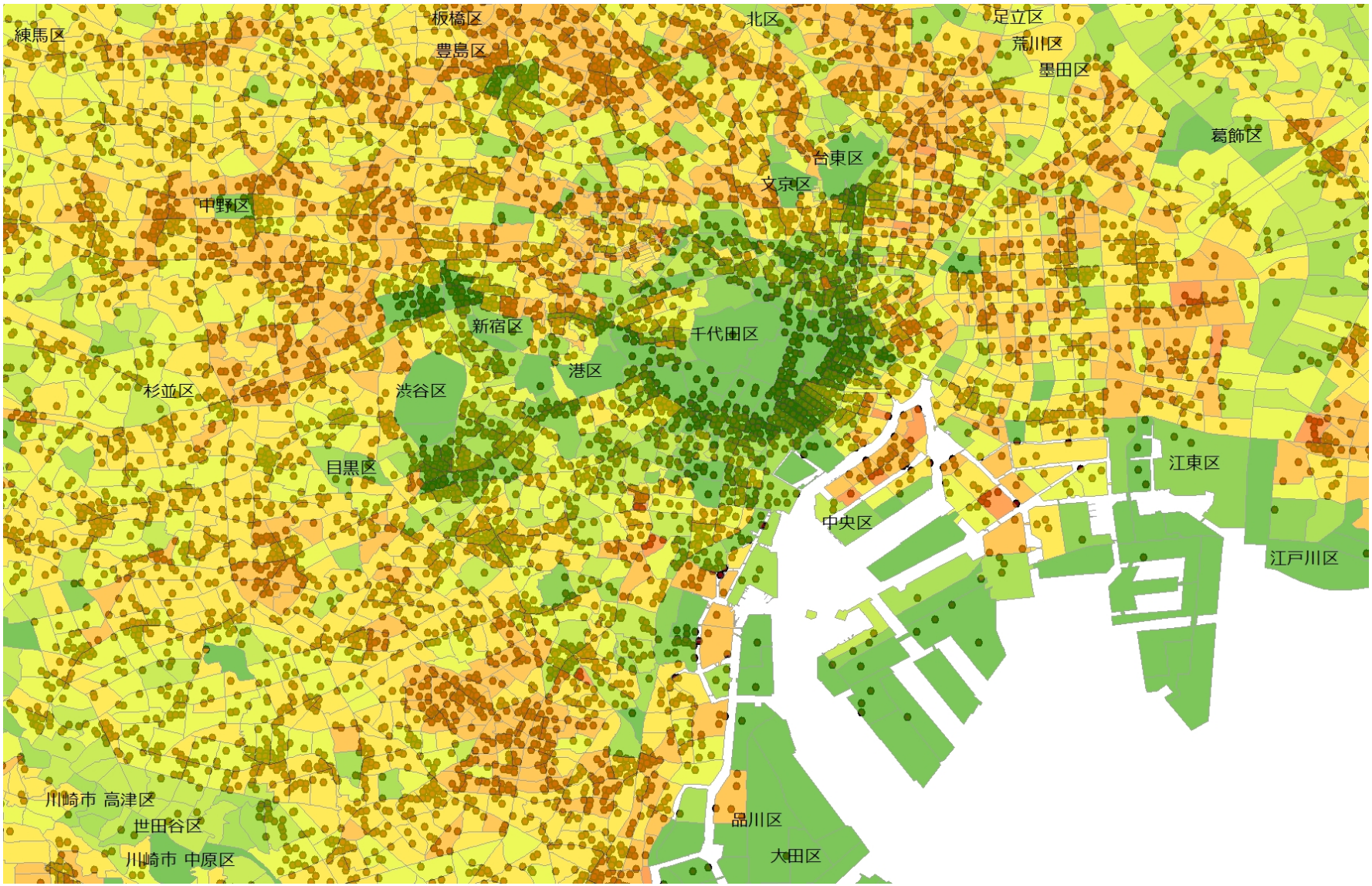
Main Outcome Variables

- **Number of Visits per Clinics per Month**
  1. Total visits
  2. First visits
  3. Follow-up visits
  4. Off-hour visits

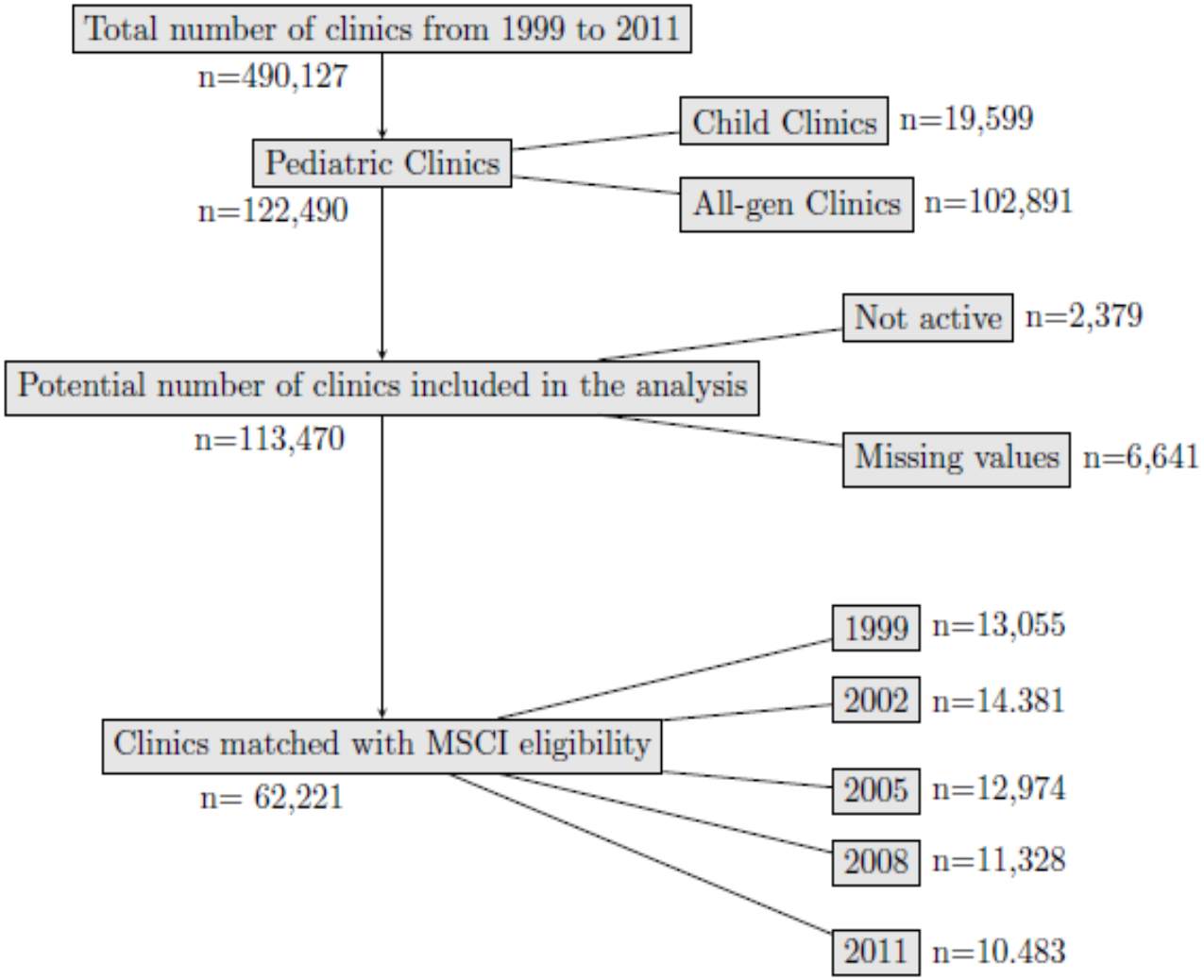
- **Characteristics of Practice Location**
  1. $\frac{\text{Population density within a radius of 1/3/5 km}}{\text{Population density in the smallest administrative area } (cyoume) \text{ where a clinics is located.}}$
     - Number of the smallest administrative area is about 21 thousands.

- **Physicians' Labor Supply**
  1. Number of consultation Days per Week
  2. Monday, Tuesday,$\cdots\cdots$ and Sunday.
  3. Opening hours : AM/PM/Overtime hours

Population and Clinics' Location



Flowchart of the Sample Construction



Summary Statistics: Outcomes

- Child and all-gen clinics seem to be similar.

	All	Study Sample	Child	All-Gen
Number of Visits				
Total Visits	1,015	983	1,036	971
First Visits	126	123	197	106
Follow-up Visits	889	860	839	864
Off-hour Visits	17	17	27	15
Practical Location Choice				
Population within 1 KM	11,136	13,278	12,655	13,419
Population within 3 KM	6,434	7,775	7,096	7,928
Population within 5 KM	5,295	6,434	5,743	6,590
Population Density in SAA	8,247	9,849	9,490	9,931
Population Density : SAA age $<$ 15	957	1,140	1,168	1,134
Population Density : SAA 15 $<=$ age $<$ 65	6,334	7,569	7,154	7,663
Population Density : SAA age $>$ 65	1,772	2,092	1,877	2,140
Rural	0.25	0.14	0.08	0.15
Consultation Day				
Total Consultation Day	5.59	5.57	5.65	5.56
Obs.	113470	62221	11479	50742

Summary Statistics: Covariates

- Covariates seem to be balanced.
- Other clinical specialties are also included in the analysis.

	Child Mean	All-Gen Mean
Clinic Level Covariates		
New Opening Clinics	0.17	0.13
Government-Owned Clinics	0.01	0.03
Other Public Clinics	0.00	0.00
Cooperate Clinics	0.39	0.38
Individually-Owned Clinics	0.60	0.60
Bed	0.08	0.11
Municipality Level Covariates		
Total Population	645,362	557,874
Proportion of Children Aged Less Than 15	0.14	0.14
Proportion of Elderly Aged Over 65	0.19	0.19

Validity Checks

Three Threats for the Identification

1. **Endogeneity of the MSCI Expansion** :
   - Expansion of MSCI is highly endogenous.
   - Regional unobservable factors may affect the estimated results.
2. **Endogeneity of Specialty Choice**
   - Characteristics of clinics may change before and after MSCI expansion due to selective market entry.
   - Clinics can change their specialty.
3. **Migration of Clinics**
   - Clinics can move to the municipalities with generous MSCI.

Endogeneity of the MSCI Expansion

- In the main analysis I allow the endogeneity of MSCI expansion by directly controlling for the interaction term of linear trend and city-level characteristics as of 1999.

- Conceptually, the expansion of MSCI eligibility age from 1999 to 2011 is determined by the city-level exogenous characteristics at the baseline year, as below,

$$\begin{aligned} \boldsymbol{Elig_{m,2011} - Elig_{m,1999} = \beta_0 Elig_{m,1999} + \beta_1 X_{m,1999}} \\ \boldsymbol{+ Pref_p + \nu_{mt},} \end{aligned} \tag{10}$$

Determinants of the MSCI Expansion

- Household characteristics and the number of pediatric clinics as of 1999 may predict future expansion of MSCI.

	(1)	(2)	(3)	(4)
Eligibility age as of 1999	-0.618***	-0.800***	-0.642***	-0.843***
	[0.076]	[0.079]	[0.081]	[0.084]
Population	-0.000***	-0.000***	0	-0.000*
	[0.000]	[0.000]	[0.000]	[0.000]
Share of Children	-26.870**	14.143	-34.662***	-6.798
	[11.160]	[11.259]	[11.757]	[14.060]
Share of the Elderly	-0.752	20.044***	-6.436	-4.232
	[6.724]	[5.782]	[8.807]	[8.079]
N. of Pediatric Clinics			3.016***	2.223***
			[0.896]	[0.834]
Share of Nuclear Household			-12.644***	-10.517***
			[2.478]	[2.799]
Share of One-Person Household			-17.994***	-11.549***
			[3.210]	[3.336]
Average Taxable Income	0.719**	-0.21	0.603	-0.165
	[0.361]	[0.323]	[0.408]	[0.418]
Land Price			0.000***	0.000**
			[0.000]	[0.000]
Prefecture FEs	no	yes	no	yes
Obs	611	611	611	611

Endogeneity of Specialty Choice

- The probability to be a child/pediatric clinic is not affected by the MSCI.
- Choice of specialty depends on the education in medical school, rather than cost sharing policy.

	(1) Ped	(2) Child
Elig	0.000	0.000
	[0.000]	[0.001]
Sample	All Clinics	Pediatric Clinics
Year FEs	yes	yes
Municipality FEs	yes	yes
Prefecture Specific Trends	yes	yes
Linear Trends of City Characteristics	yes	yes
Obs.	224402	60784
R2	0.129	0.198
Mean of Dependent Variable	0.271	0.183

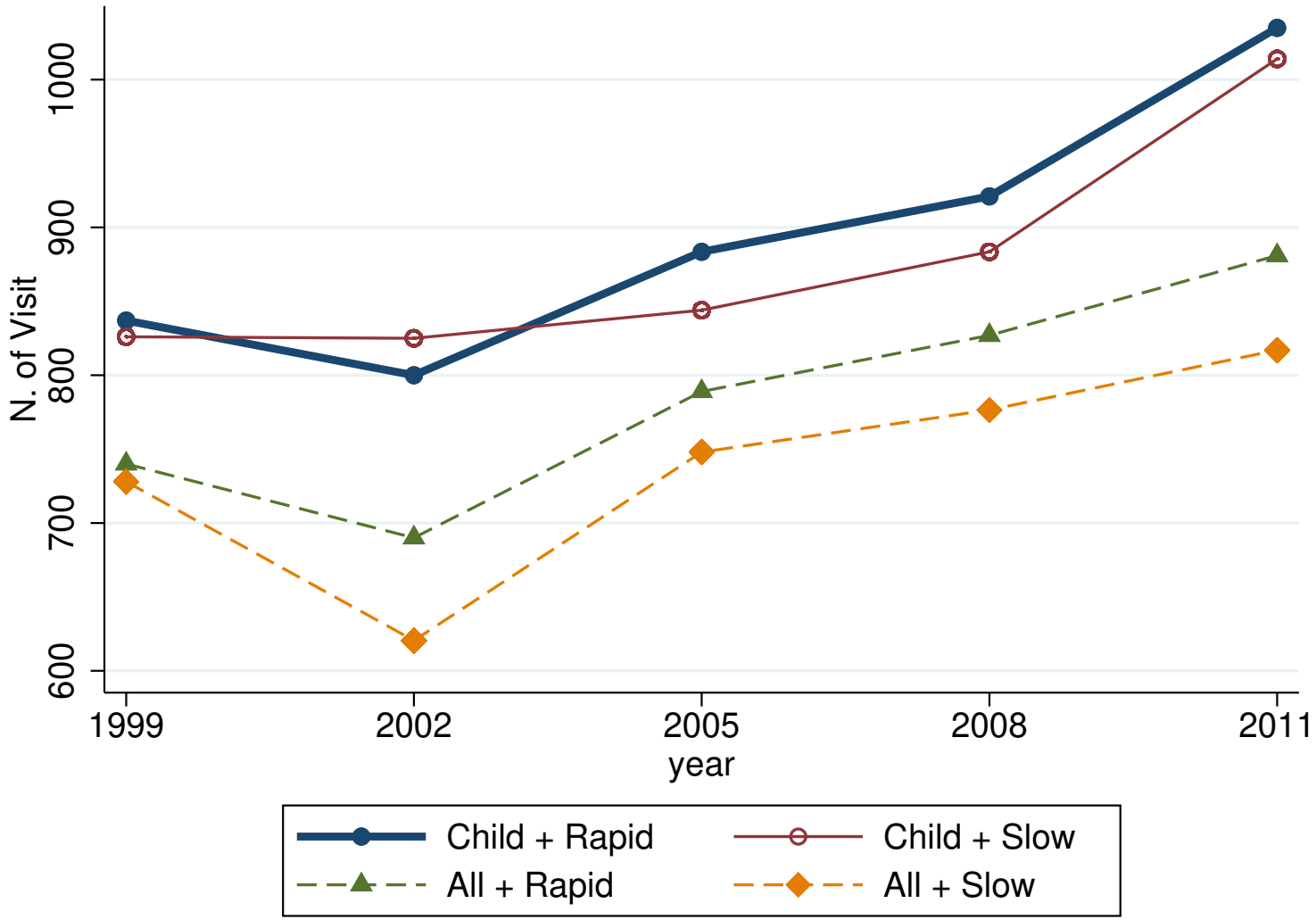
Selective Migration of Clinics

- The number of child/all-gen clinics is not associated with the MSCI eligibility age.
  - Inter-municipality migration of clinics is negligible.

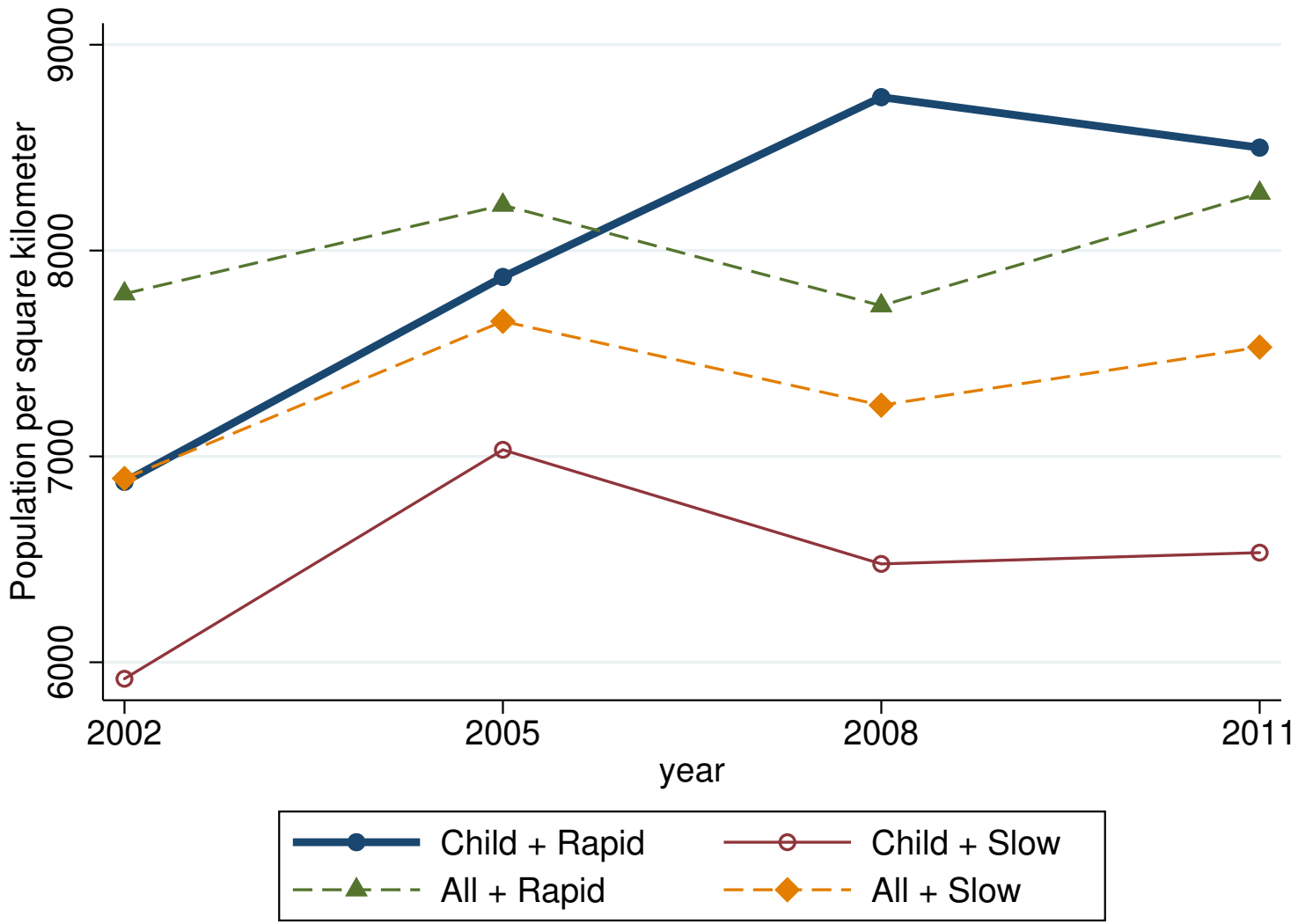
	Child Clinic	All-Gen Clinic
	(1)	(2)
Elig	0.01	0.01
	(0.012)	(0.042)
Population	0.000***	0.00
	0.000	0.000
Share of Child	6.598	-15.73
	(4.776)	(10.854)
Share of Elderly	10.637**	56.971**
	(4.445)	(15.997)
Observations	3,058	3,058
R-squared	0.58	0.84
N. of Municipality	614	614
Mean of Dep.	4	21
sd	11	50
min	0	0
max	154	835

Main Results

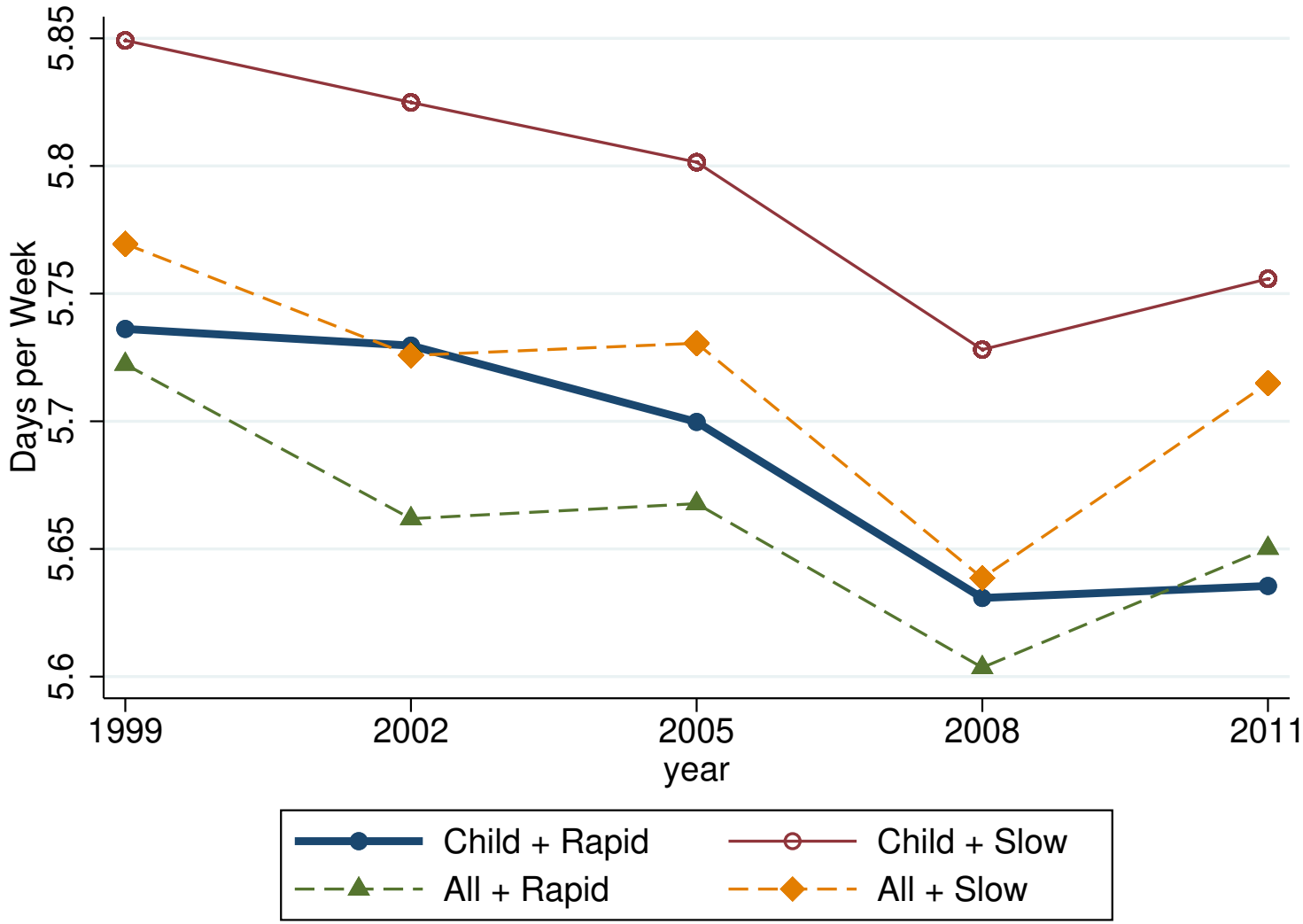
Common Trend : Visits



Common Trend : Population Density around the Clinics' Location



Common Trend : Consultation Days



Effects on Monthly Number of Visits

- Extension of MSCI eligibility age by 1 year old increases monthly number of patients by 6.68 children.
  - **Price elasticity is approximately -0.06** ($<$ -0.2 by RAND)

	(1)	(2)	(3)
Child Clinic	169.641***	169.681***	-26.736
	[21.439]	[21.441]	[29.681]
Elig	-1.073	-1.105	-0.53
	[1.914]	[1.934]	[1.832]
Elig * Child Clinic	6.219**	6.207**	6.648***
	[2.440]	[2.437]	[2.314]
Year FEs	yes	yes	yes
Municipality FEs	yes	yes	no
Clinic FEs	no	no	yes
Prefecture Specific Trend	no	yes	yes
Linear Trends of City Characteristics	no	yes	yes
Obs.	60,784	60,784	60,784
R2	0.27	0.27	0.87

Detailed Results on Monthly Number of Visits

- Robust increases in first visits
  - Follow-up: less effects
  - Off-hour: no effects

	Municipality FEs			Clinic FEs		
	First	Follow-Up	Off-hour	First	Follow-Up	Off-hour
	(1)	(2)	(3)	(4)	(5)	(6)
Child Clinic	39.303***	113.096***	12.943***	-32.084***	-5.253	6.851
	[7.013]	[21.545]	[2.864]	[12.071]	[29.591]	[7.883]
Elig	-1.150***	-0.247	0.293	-1.528***	0.548	0.232
	[0.419]	[2.008]	[0.262]	[0.486]	[1.870]	[0.358]
Elig * Child Clinic	5.527***	2.025	-0.328	6.912***	0.439	-0.275
	[0.817]	[2.472]	[0.299]	[1.010]	[2.238]	[0.518]
Municipality FEs	yes	yes	yes	no	no	no
Clinic FEs	no	no	no	yes	yes	yes
Prefecture Specific Trend	yes	yes	yes	yes	yes	yes
Obs.	60,784	60,784	44,893	60,784	60,784	44,893
R2	0.15	0.26	0.04	0.66	0.85	0.46

Effects on Practice Location Choice

- No effects on the population within 3 km
  - Existing clinics do not move due to high fixed costs (Escarse (1998))

	(1)	(2)	(3)
Child Clinic	132.70	118.89	1.80
	[84.331]	[85.904]	[4.256]
Elig	5.30	2.97	0.09
	[3.757]	[3.455]	[0.251]
Elig * Child Clinic	-13.23	-13.72	0.04
	[9.880]	[9.996]	[0.325]
Year FEs	yes	yes	yes
Municipality FEs	yes	yes	no
Clinic FEs	no	no	yes
Prefecture Specific Trend	yes	yes	yes
Obs.	62,221	62,221	62,221
R2	0.889	0.889	0.990

Effects on Practice Location Choice

- **Large effects on newly established clinics (Escarse (1998))**
  - When eligibility age is raised by 10 years, these new clinics choose to be located in 10% more densely populated area.

	(1)	(2)
Child Clinic	-341.434*	-451.123**
	[177.713]	[190.865]
Elig	-23.18	-12.79
	[24.393]	[23.876]
Elig * Child Clinic	63.734***	70.435***
	[20.471]	[21.699]
Covariates	no	yes
Year FEs	yes	yes
Municipality FEs	yes	yes
Clinic FEs	no	no
Prefecture Specific Trend	yes	yes
Obs.	3,698	3,698
R2	0.888	0.890

Alternative Measures for the Practice Location

- Results are robust for alternative measures.
- A bit smaller impacts for broader metrics

Definition of Location Characteristics	(1)	(2)	(3)
Population Density within 1 Km	119.793***	120.612**	119.761**
	[46.088]	[46.953]	[46.496]
Population Density within 3 Km	63.734***	65.118***	70.435***
(Baseline)	[20.471]	[21.307]	[21.699]
Population Density within 5 Km	34.687**	35.326**	41.018***
	[14.162]	[14.738]	[15.059]
Population Density : SAA	109.540**	115.202**	112.424**
	[51.609]	[52.228]	[54.692]
Hospital Level Covariates	no	yes	yes
Municipality Level Covariates	no	no	yes

Why Pediatricians Open Their Clinics in Cities ?

- Pediatricians choose densely populated area because of
  1. financial considerations
     - Higher health care demand due to subsidy
  2. Leisure time preferences

Definition of Location Characteristics	(1)	(2)	(3)
Population Density : SAA age $<$ 15	8.705	9.402	8.351
	[7.155]	[7.200]	[7.681]
Population Density : SAA 15 $<=$ age $<$ 65	92.129**	96.397**	95.723**
	[40.334]	[40.849]	[42.169]
Population Density : SAA age $>$ 65	20.718**	21.526**	22.486**
	[9.554]	[9.799]	[10.020]
Hospital Level Covariates	no	yes	yes
Municipality Level Covariates	no	no	yes

- Pediatricians do not respond to child population.

Effects on the N. of Consultation Days

- **Physicians reduce the number of consultation day.**
  - Full sample: Statistically significant but negligible effects

	Days	Days>4	Days>5	Days>6
	(1)	(2)	(3)	(4)
Panel A. Municipality FEs				
Elig * Child Clinic	-0.006**	-0.001	-0.002	0.000
	[0.003]	[0.001]	[0.001]	[0.000]
Obs.	60,784	60,784	60,784	60,784
R2	0.14	0.11	0.18	0.04
Panel B. Newly Established Clinics				
Elig * Child Clinic	-0.005	0.001	-0.003	-0.002
	[0.010]	[0.002]	[0.005]	[0.002]
Obs.	3,698	3,698	3,698	3,698
R2	0.22	0.23	0.24	0.15

Which Day of a Week ?

- Physicians may not work on Wednesday, Friday and Saturday under generous MSCI.
- But the impacts are negligible.

	Mon	Tue	We	Thu	Fri	Sat	Sun
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Child Clinic	0.018***	0.018***	0.018*	0.010	0.019***	0.032***	-0.011*
	[0.005]	[0.005]	[0.010]	[0.011]	[0.005]	[0.006]	[0.006]
Elig	0.001	0.001	0.001	-0.001	0.001	0.001	-0.001
	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]	[0.000]
Elig * Child Clinic	-0.001	-0.001	**-0.002****	-0.001	**-0.001****	**-0.002*****	0.002***
	[0.000]	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]
Year FEs	yes	yes	yes	yes	yes	yes	yes
Municipality FEs	yes	yes	yes	yes	yes	yes	yes
Means of Dep.	0.96	0.95	0.89	0.82	0.96	0.92	0.05
Obs.	62,159	62,159	62,159	62,159	62,159	62,159	62,159

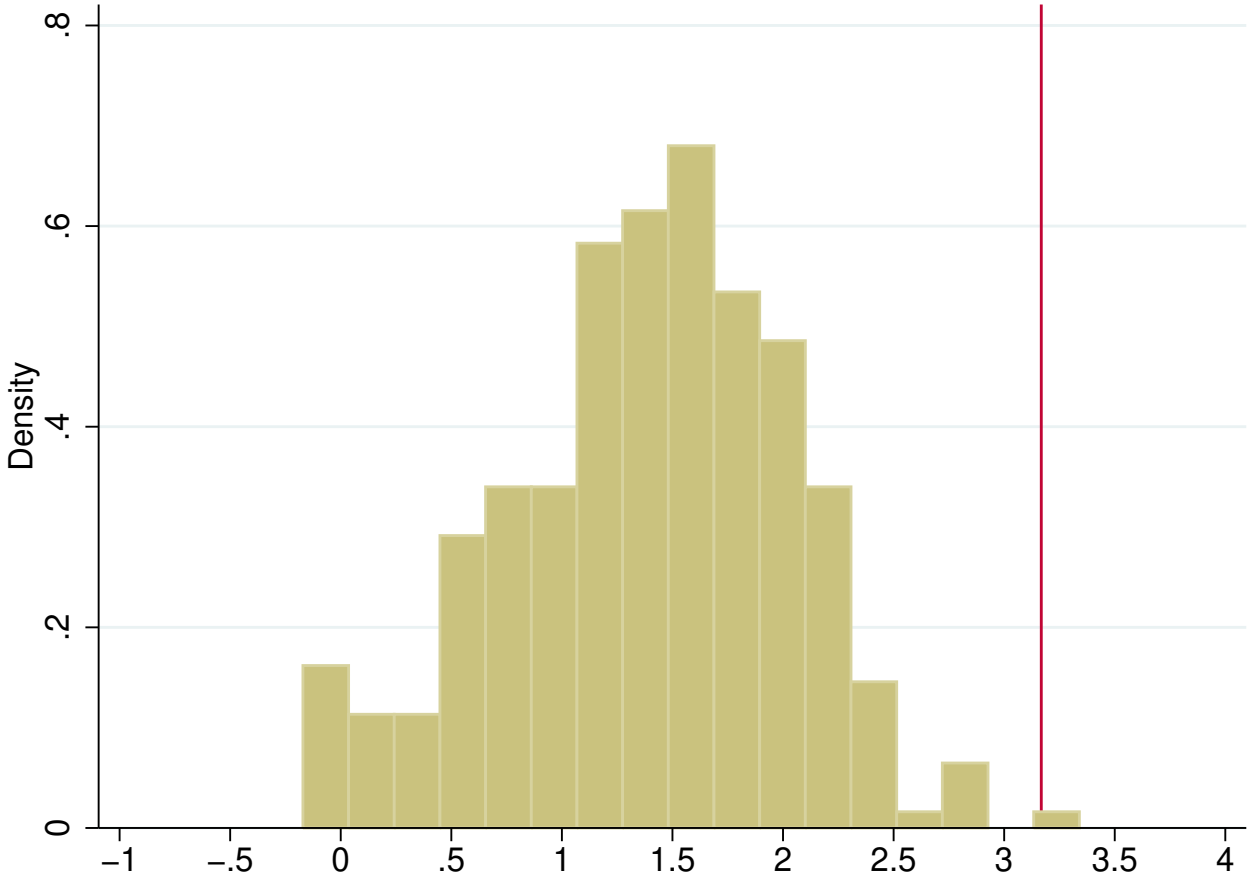
Robustness Checks

Placebo Tests

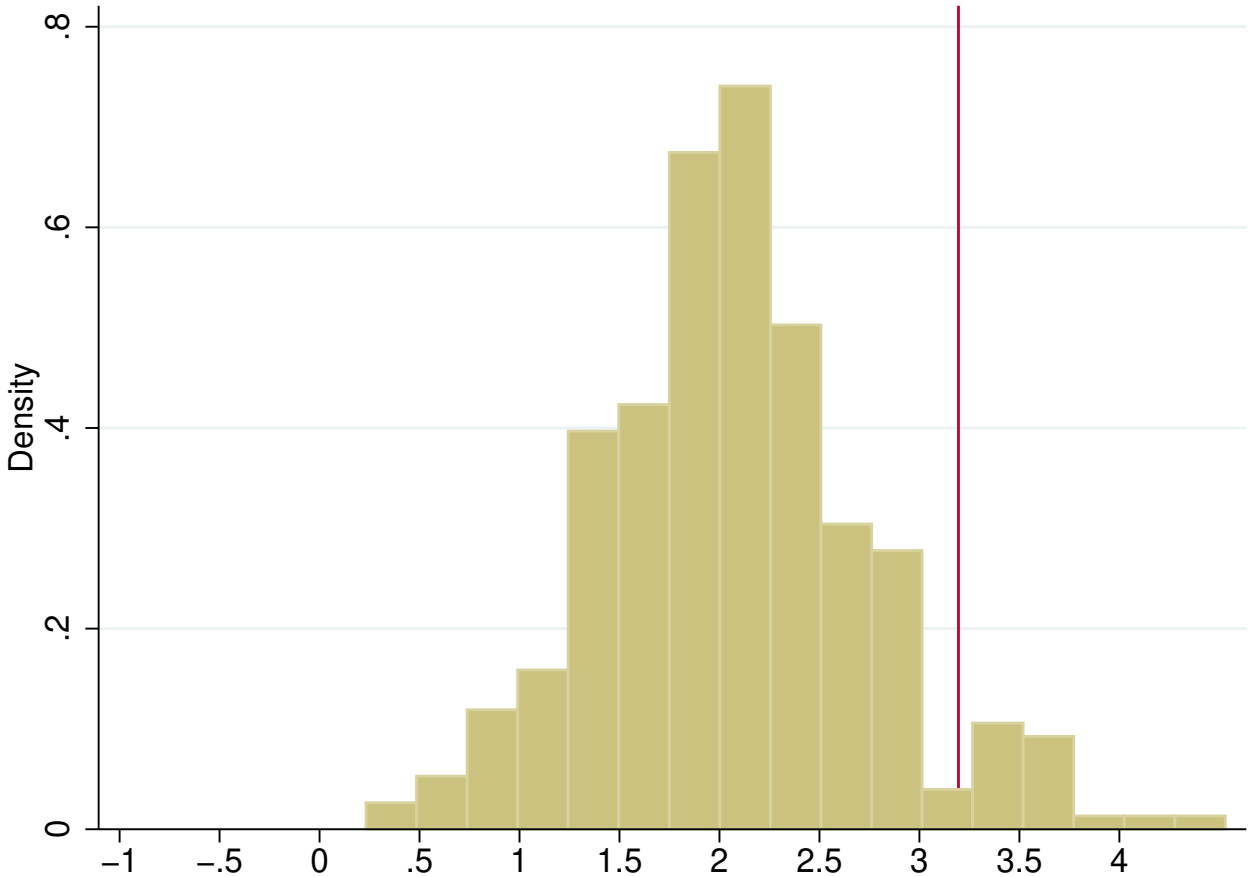
- Randomly replace MSCI eligibility age only for treatment group (i.e. child clinics), while leaving MSCI eligibility age of all-generation clinics unchanged.
- Implement the same triple differences analysis for the sample of *true* control group and treatment group which are assigned *placebo* MSCI eligibility age.
- Run step 1 and step 2 by 300 times, and store t statistics
- Plot the distribution of 300 placebo t statistics and compare them with *true* one

Number of Visits

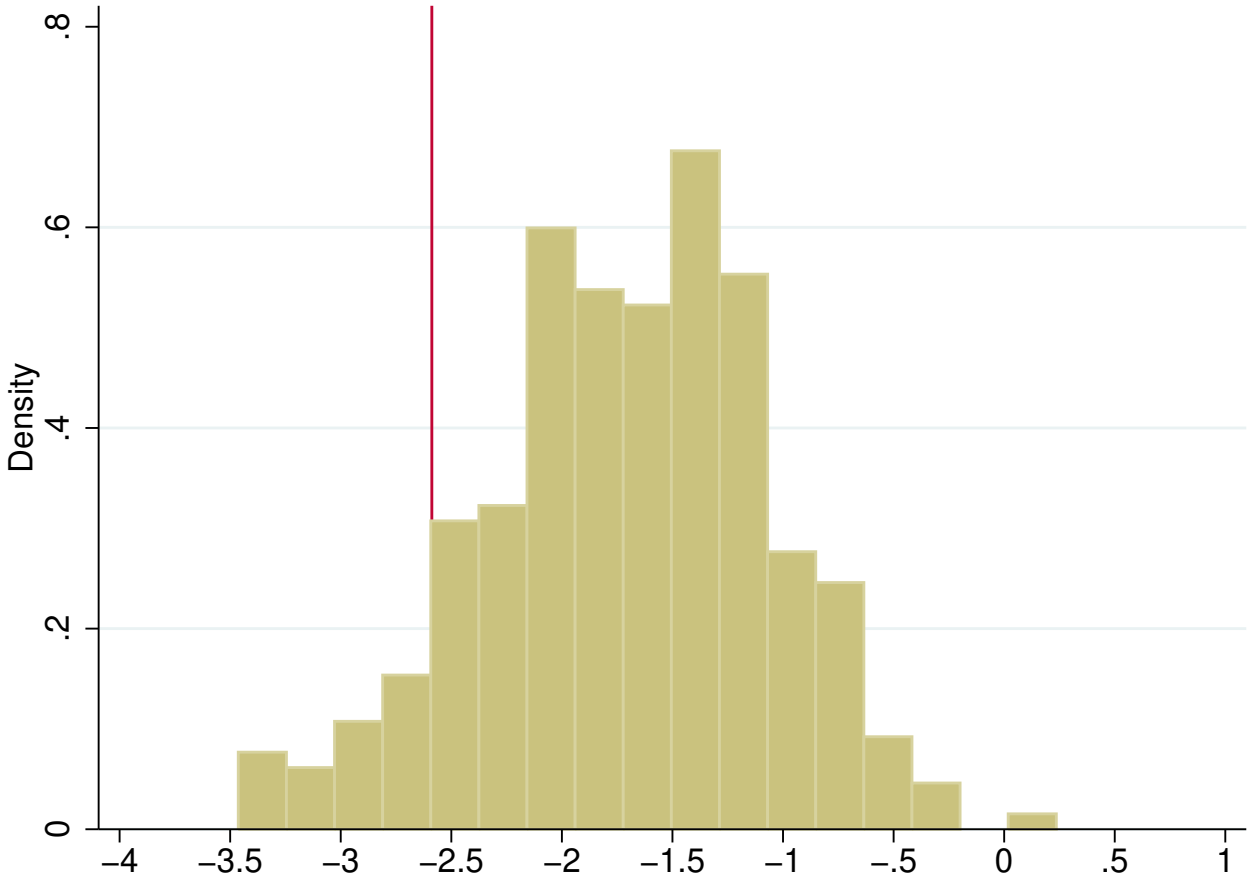
- Placebo samples cannot replicate the *true* result.
  - My main results are not obtained just by chance.



Population within 3 km



Number of Consultation Days



Conclusion

- **New quasi-experimental study on the effects of large scale expansion of health insurance system**
  - Census of clinics merged with municipality-level MSCI eligibility age
  - Triple differences analysis is employed as in Garthwaite (2012).

- **Three Major Findings**
  1. MSCI increases the number of visits.
  2. MSCI accelerates physicians' concentration into densely populated area.
     - Sharpe contrasts with previous studies on the effects of the intensive margin
  3. Physicians slightly reduce their labor supply under generous MSCI system.
     - But the magnitude is negligible.

- **Limitations**
  - 40% of clinics are dropped from analysis.
  - Further analysis with physician-level data are needed.

Thank You Very Much