

Child Mental Health, Homelessness, and the Shelter System: Evidence from Medicaid in New York City

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APPAM

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Motivation

- Dual public health crises:
 - Children's mental health
 - Homelessness
- Kids at convergence of these crises at elevated risk.
- Lack of data = difficult-to-study population.

Trends in the Percentage of High School Students Who

Experienced Persistent Feelings of Sadness or Hopelessness During the Past Year, United States, YRBS, 2013-2023

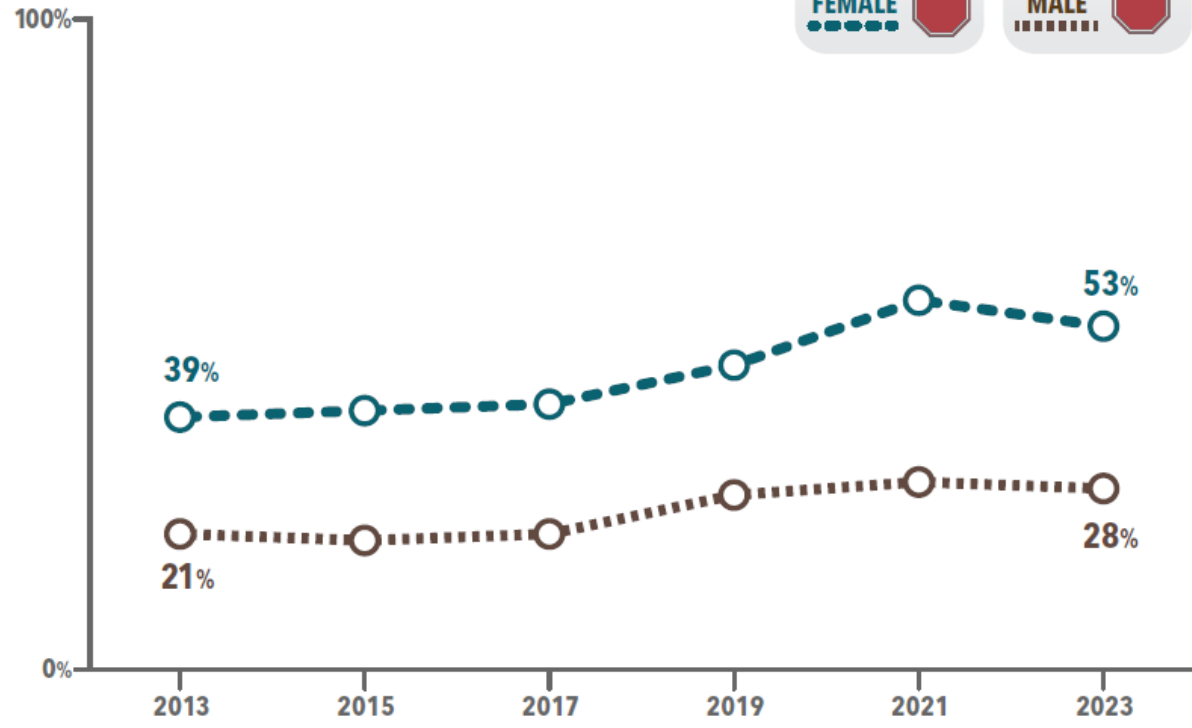
YOUTH RISK BEHAVIOR SURVEY

2013-2023

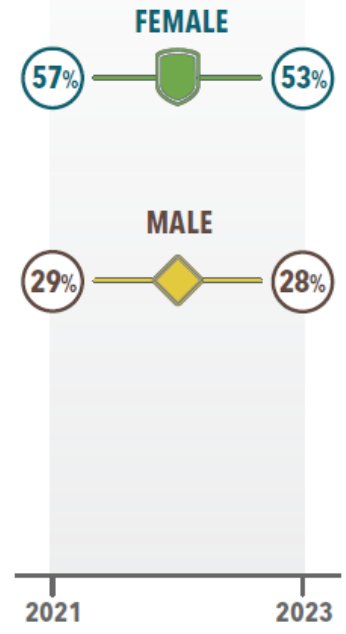
DATA SUMMARY & TRENDS REPORT



10-Year Trend by Sex



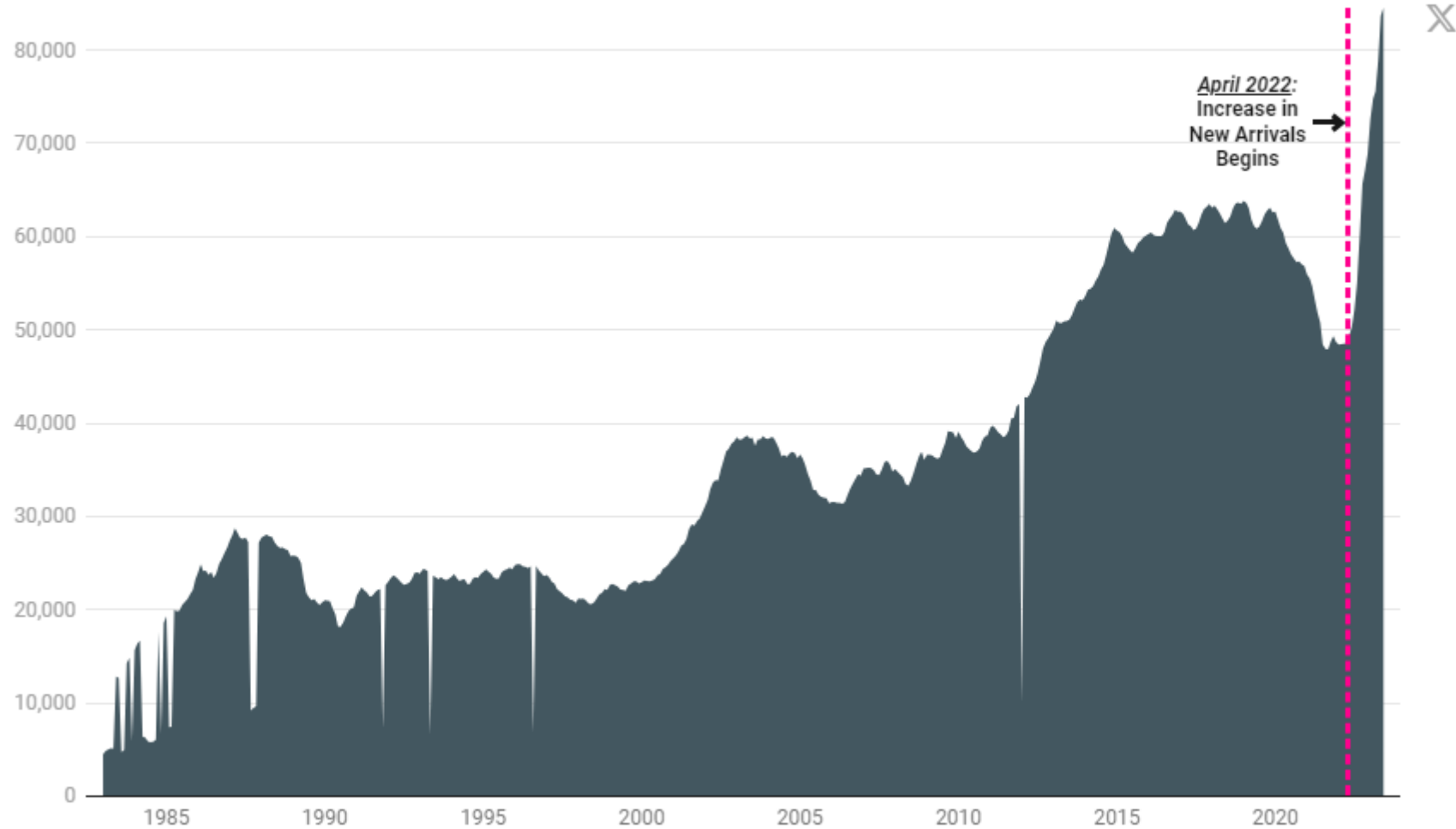
2-Year Change by Sex



Homelessness in NYC

NYC DHS and HPD Shelter Census, January 1983 to June 2023

The chart below shows the nightly average number of people sleeping in DHS and HPD shelters each month.



3 Questions

- 1) Prevalence of sheltered homelessness among school-aged children receiving Medicaid in NYC?
 - How does their use of mental health care compare to more stably housed children?
- 2) What are the patterns of mental health care use around the time of shelter entry?
- 3) How do these patterns differ according to whether mental health services are available at shelters?

Data

Sources

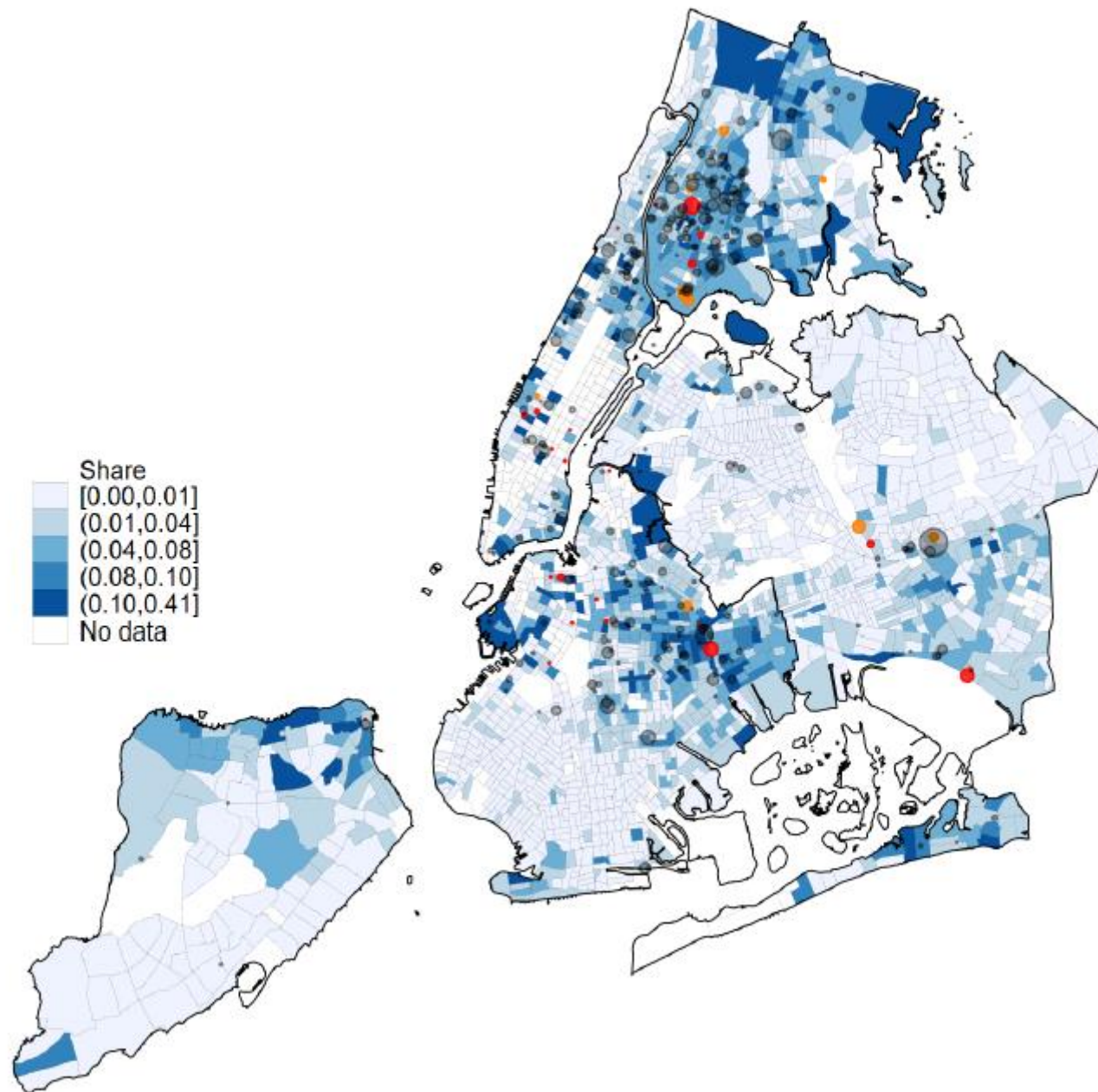
- 1) NYU HEAL NYS Medicaid claims database (2015-2020)
- 2) HUD Housing Inventory Count (2015-2022)
- 3) NYS Medicaid Enrolled Provider Listing (April 2022)

Methods

- Clean and standardize addresses
- 85% of 11.4 million unique MA addresses successfully geocode (NYC GBAT)
- Link records based on addresses

Analytical Sample

- **Criteria:** families (shared case number) w/ children aged 4-17, who had (a) 2+ years continuous coverage and (b) 1+ geocoded address.
- **Panel:** 1 observation per member per month.
- **2 Samples:**
 - 1) **10% random sample of all NYC families:** 129,901 children in 109,191 families; 5.6m obs.
 - 2) **Census of all Medicaid children aged 4-17 w/experience of sheltered homelessness.**
 - -/+8 quarters of first-observed shelter spell.
 - Continuous coverage -/+6 months of shelter entry.
 - 19,284 children in 13,464 families; 1.2m obs.; active coverage for average of 35.2 months.
 - Subpopulation of interest: children *without* pre-shelter mental health claims.



Share of Medicaid children aged 4–17 years experiencing homelessness by census tract when not in shelter, New York City, 2016–2020.

Empirical Approach

- Difference-in-differences comparing kids in shelters w/ and w/o MH services.
- Identifying assumption: parallel trends in relative time.
 - (Recent concerns about TWFE regressions not relevant here.)
- Focus on kids w/o preexisting MH treatment.

$$Y_{it} = \alpha_i + \delta_t + \beta^1 X_{it} + \beta^{POST} post_{it} + \beta^{DiD} post_{it} \times MHS_i + \varepsilon_{it}$$

- For child i in month t ,
 - δ_t : calendar month FE
 - α_i denotes a child-specific FE
 - X_i : family size FE, borough FE, a cubic in age, constant term.
 - $post_{it} = 1$ in month the family entered shelter and following months
 - β^{DiD} : change in probability of outcome associated with placement in MH shelter.

Findings

- 4.5% of Medicaid kids experience shelter during a five-year period.
- Ever-sheltered children use more mental health services.
 - Any mental health claim (+37.1%), therapy (+66.7%), mental health pharmaceuticals (+27.4%), and neurodevelopmental diagnoses (+53.2%).
 - ED (+35.2%), asthma (+56.3%), ear (-19.2%), well visits (-1.7%).
- Kids in shelters co-located with MH services more likely to receive care.
 - Observably similar pre-shelter.
 - Especially strong for kids w/o pre-shelter MH claims.
 - +40% therapy, +15% neurodevelopmental diagnosis.
 - More likely to receive SSI.
 - Stay in shelter longer.

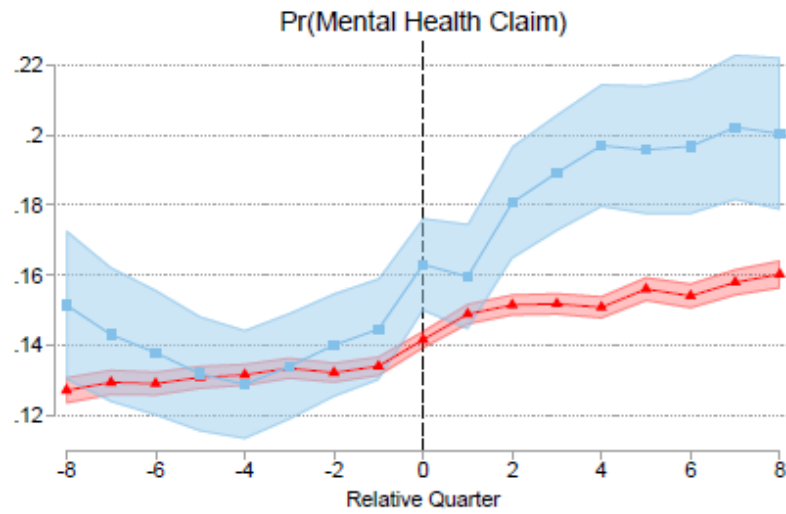
Table 1. Period Prevalence of Selected Health Characteristics^a among New York City Children on Medicaid^b by Homelessness Status, 2016-2020.

	Shelter Experience		Difference ^c	P-value of Diff.
	Ever Mean (1)	Never Mean (2)		
Observations	5,837	124,064		
Share	0.045	0.955		
Female	0.495	0.480	0.015	0.027
Age (years; mean observed)	9.30	10.25	-0.95	0.000
Family Size (persons; mean observed)	3.03	2.01	1.02	0.000
Covered Months	35.20	35.10	0.11	0.727
Months in Homeless Shelter	16.53	0.00	16.53	0.000
Medicaid Mental Health Amount (dollars per month)	165.80	131.09	34.70	0.025
Medicaid Non-Mental Health Amount (dollars per month)	196.52	223.23	-26.71	0.079
Mental Health Claim	0.384	0.280	0.104	0.000
Mental Health Therapy	0.180	0.108	0.072	0.000
Mental Health Pharmacy	0.093	0.073	0.020	0.000
Neurodevelopmental Diagnosis	0.239	0.156	0.083	0.000
Emergency Department	0.483	0.358	0.126	0.000
Well Visit	0.745	0.758	-0.013	0.044
Asthma Diagnosis	0.247	0.158	0.089	0.000
Ear Diagnosis	0.205	0.254	-0.049	0.000
Supplemental Security Income	0.092	0.044	0.048	0.000

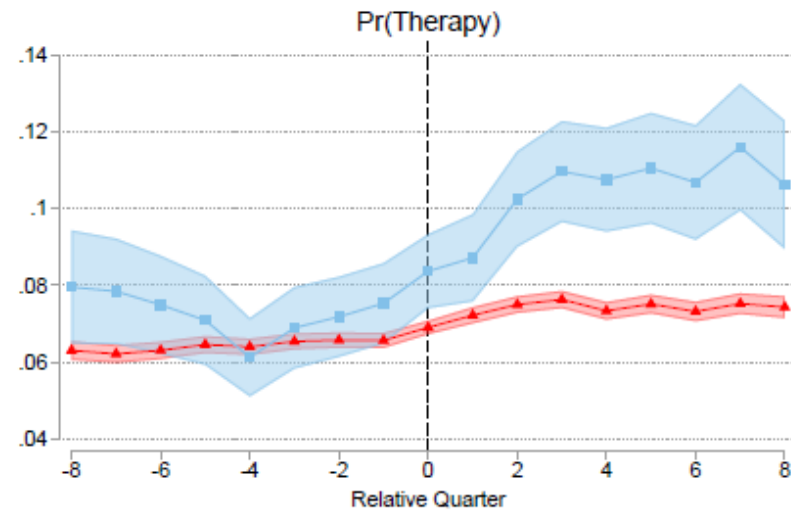
Table 2. Balance Test of Pre-Shelter^a Health Characteristics of New York City Medicaid Children^b, by Presence of Co-Located Mental Health Services in Shelter, 2016–2020

	Co-Located Mental Health		Difference ^c	P-value of Diff.
	Yes Mean (1)	No Mean (2)		
Female	0.474	0.491	-0.017	0.371
Unadjusted Age (years)	8.701	9.070		
Unadjusted Family Size (persons)	2.671	3.421		
Covered Months	10.50	10.44	0.06	0.636
Medicaid Mental Health Amount (dollars per month)	132.87	178.57	-46.06	0.268
Medicaid Non-Mental Health Amount (dollars per month)	200.55	174.47	26.29	0.344
Mental Health Claim	0.286	0.269	0.018	0.330
Mental Health Therapy	0.149	0.135	0.013	0.312
Mental Health Pharmacy	0.076	0.073	0.004	0.695
Neurodevelopmental Diagnosis	0.192	0.175	0.017	0.280
Emergency Department	0.284	0.262	0.022	0.241
Well Visit	0.617	0.575	0.042	0.043
Asthma Diagnosis	0.210	0.199	0.011	0.532
Ear Diagnosis	0.069	0.066	0.003	0.803
Supplemental Security Income	0.058	0.077	-0.019	0.070
Family Mental Health Claim	0.537	0.511	0.026	0.270
Observations	703	16,243		

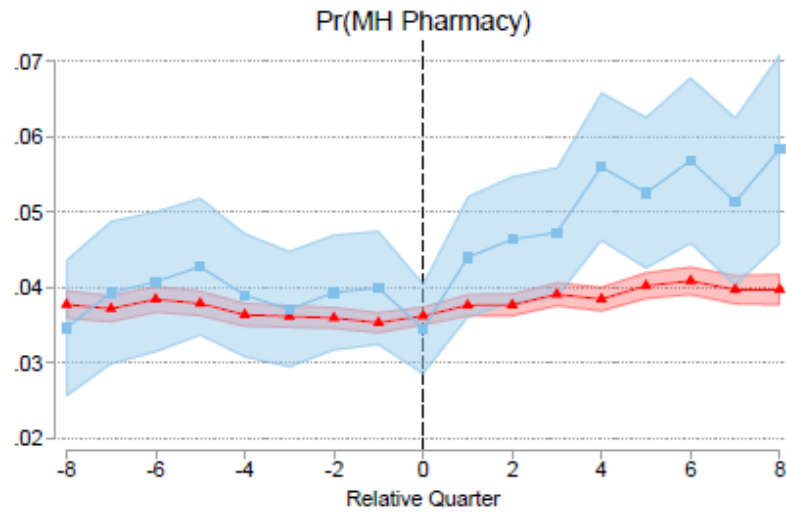
A)



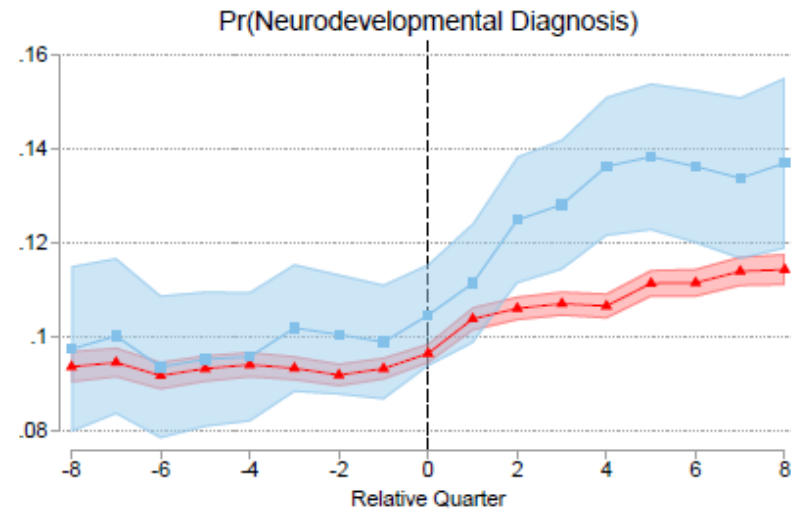
B)



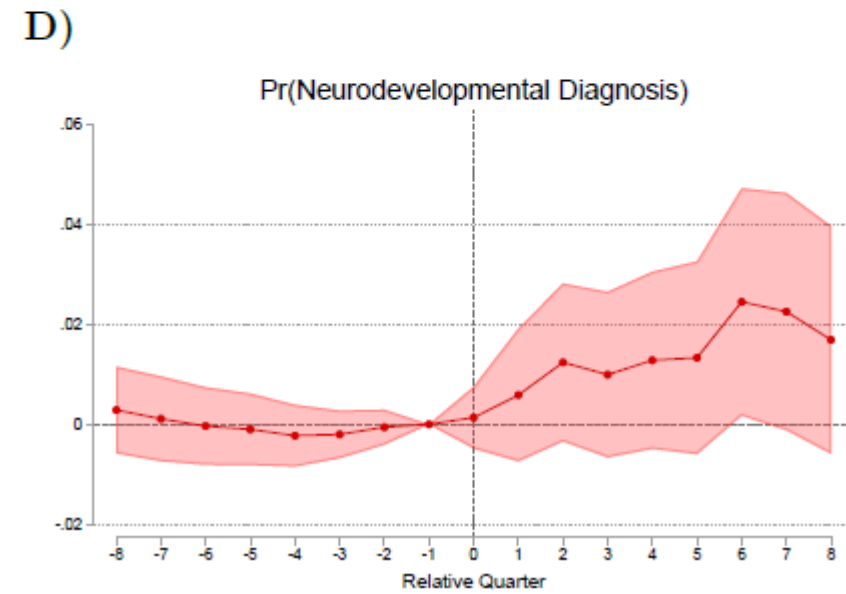
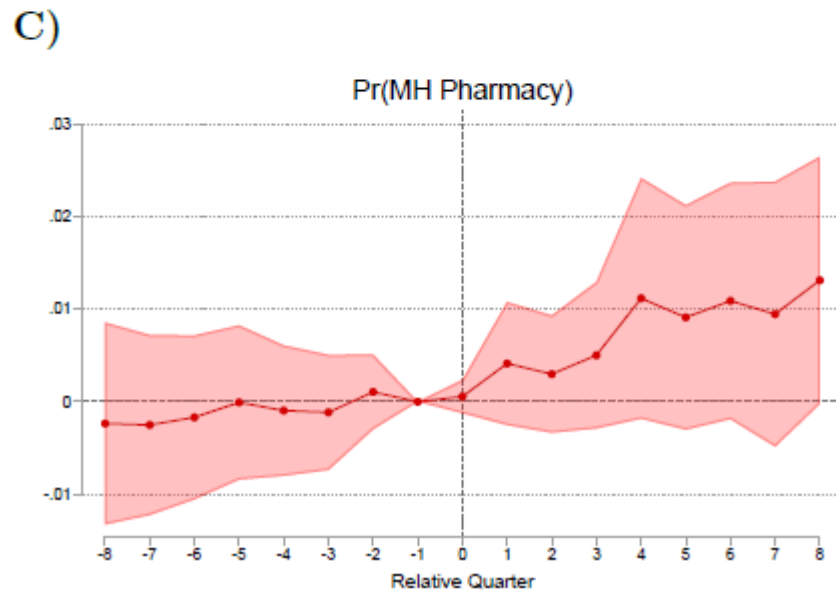
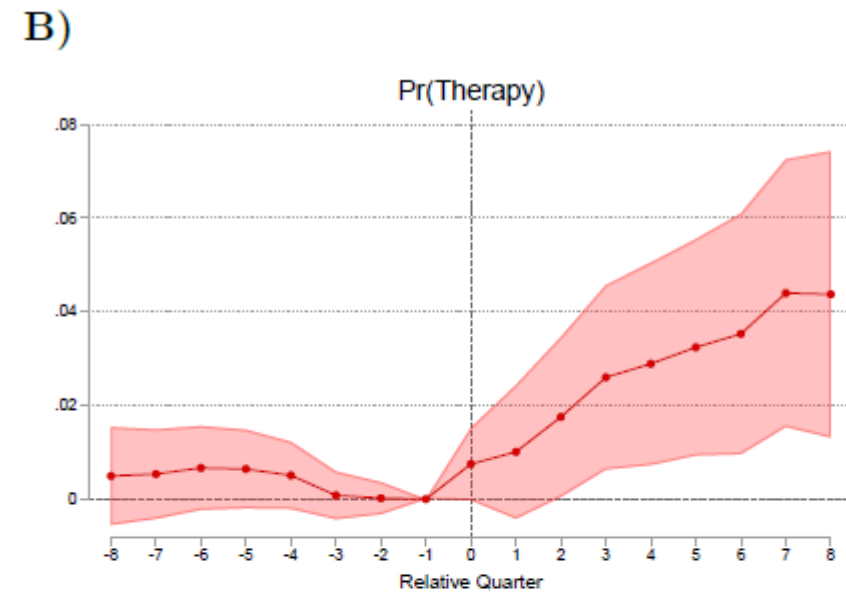
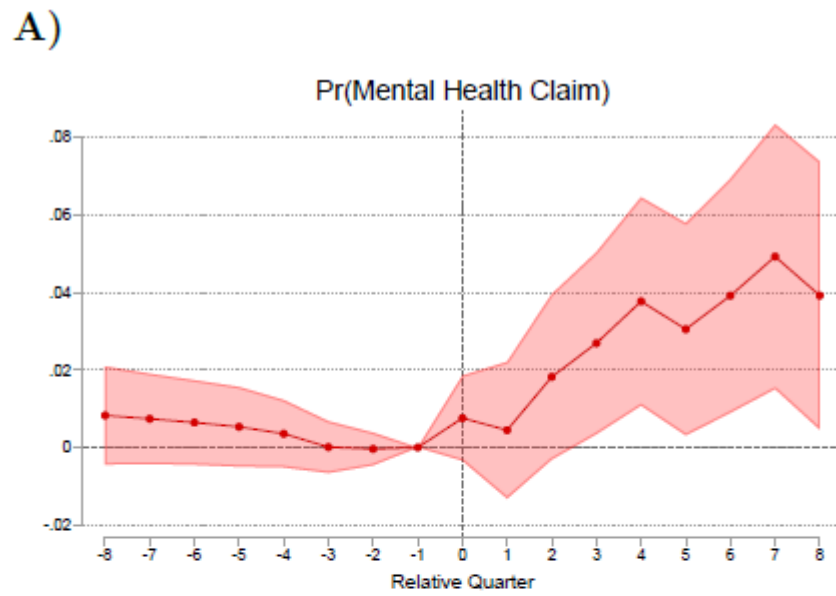
C)



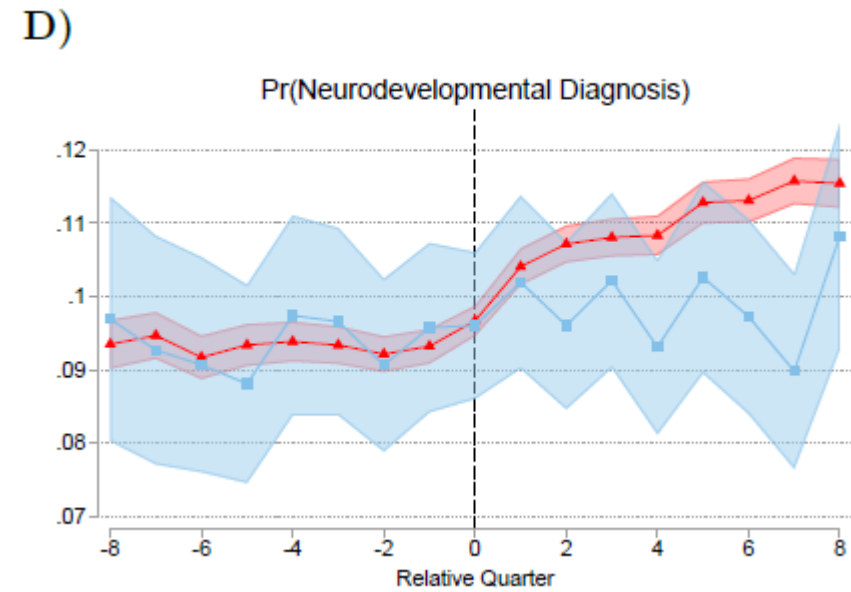
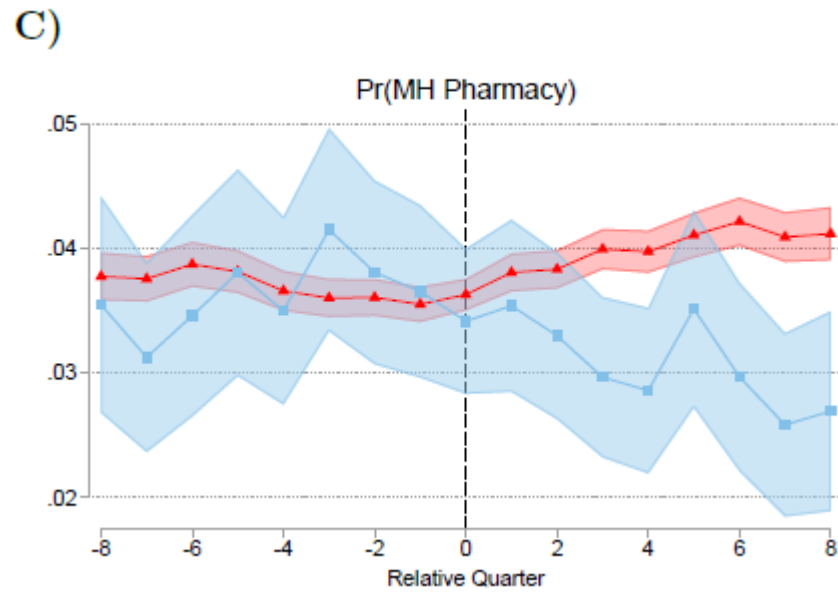
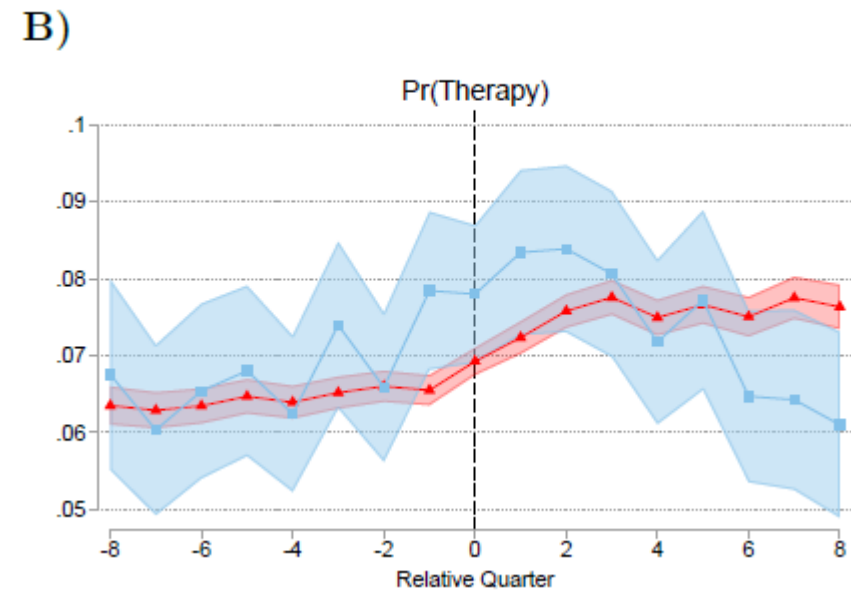
D)



Probability of selected **mental health outcomes** around homeless shelter entry, **by presence of co-located mental health services**, Medicaid children aged 4-17, New York City, 2016–2020.

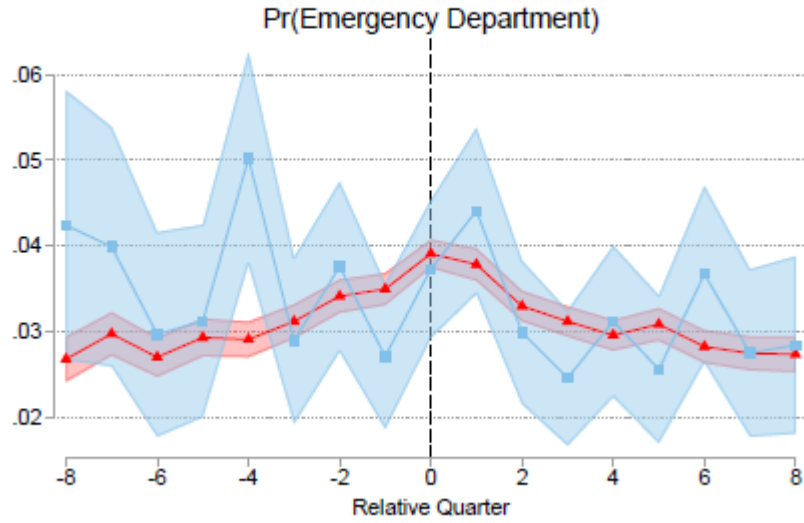


Dynamic difference-in-differences estimates of the **relationship between co-located shelter mental health services selected mental health outcomes**, Medicaid children aged 4-17 *without pre-shelter mental health claims*.

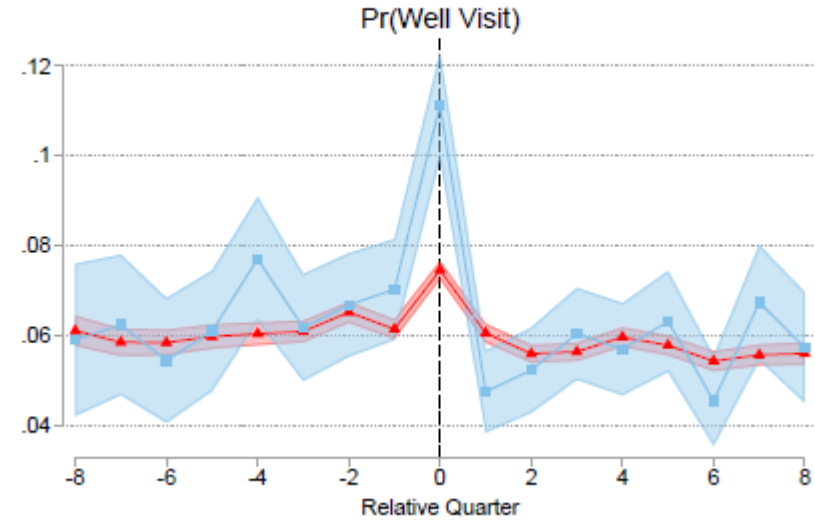


Probability of selected **mental health outcomes** around homeless shelter entry, by **presence of co-located primary care**, Medicaid children aged 4-17.

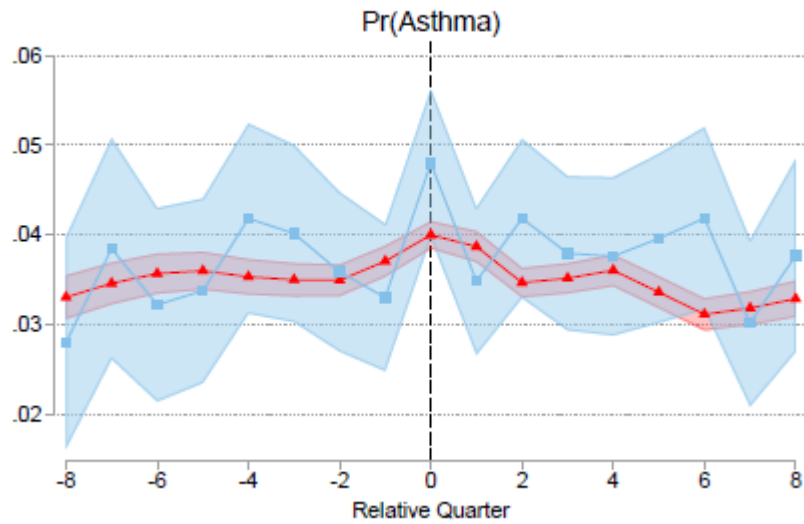
A)



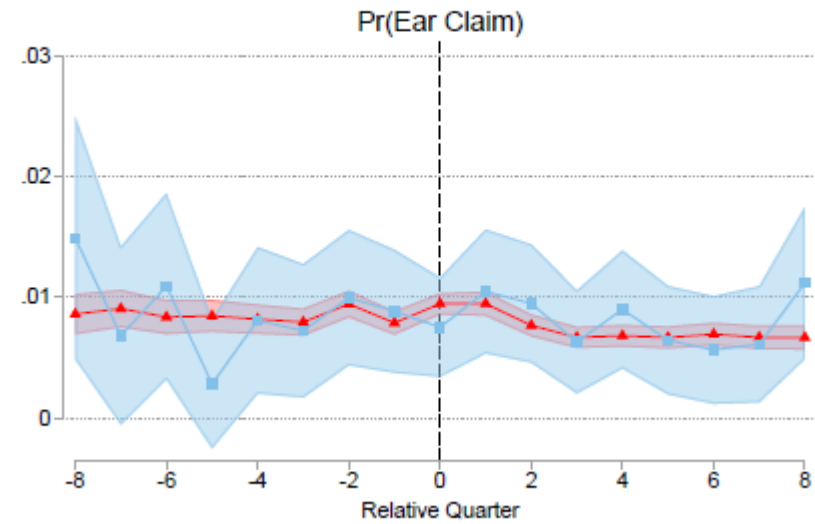
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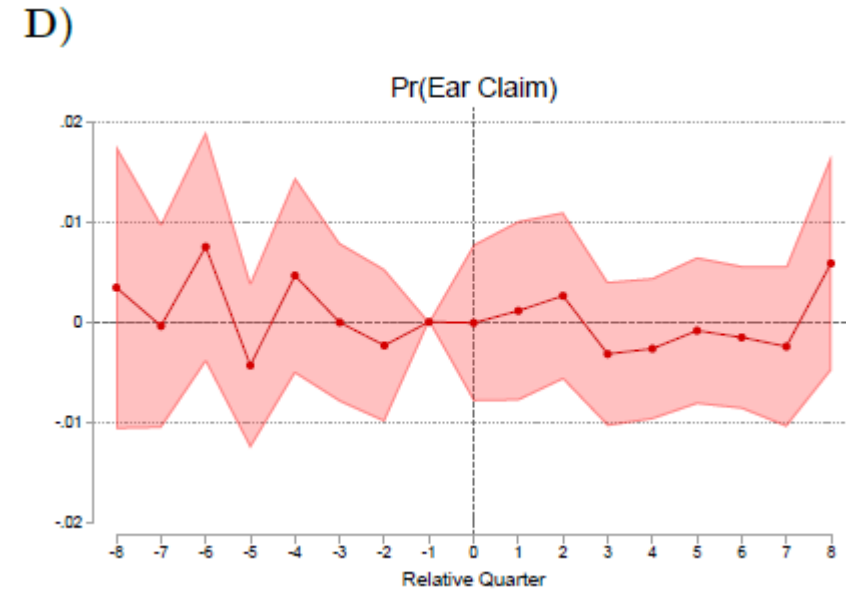
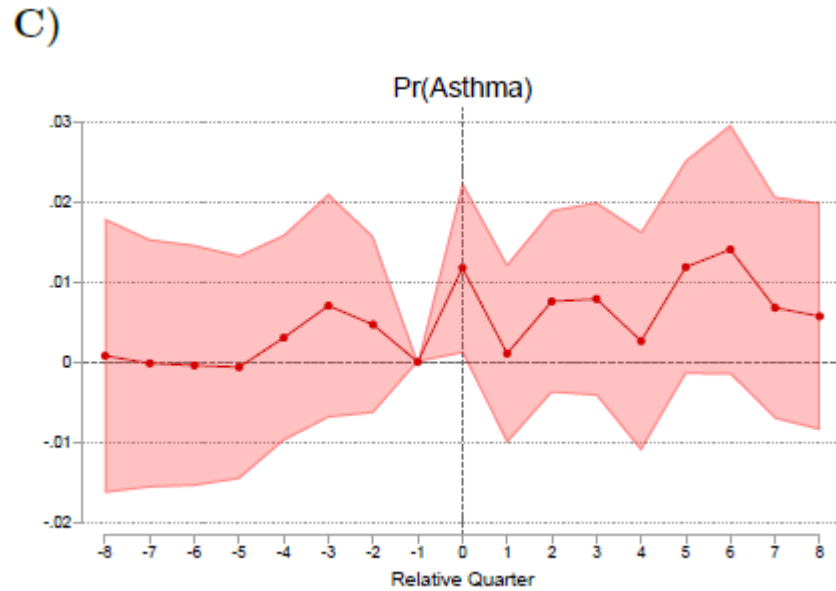
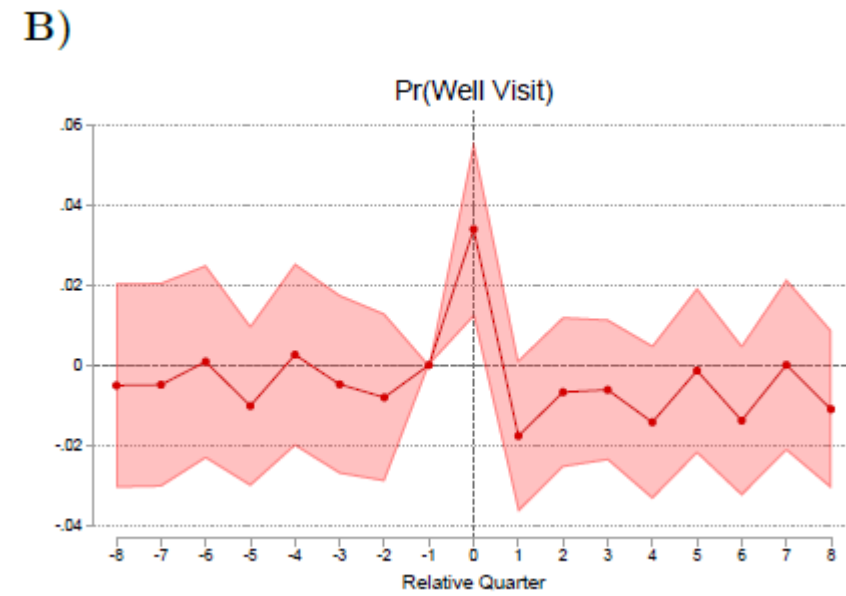
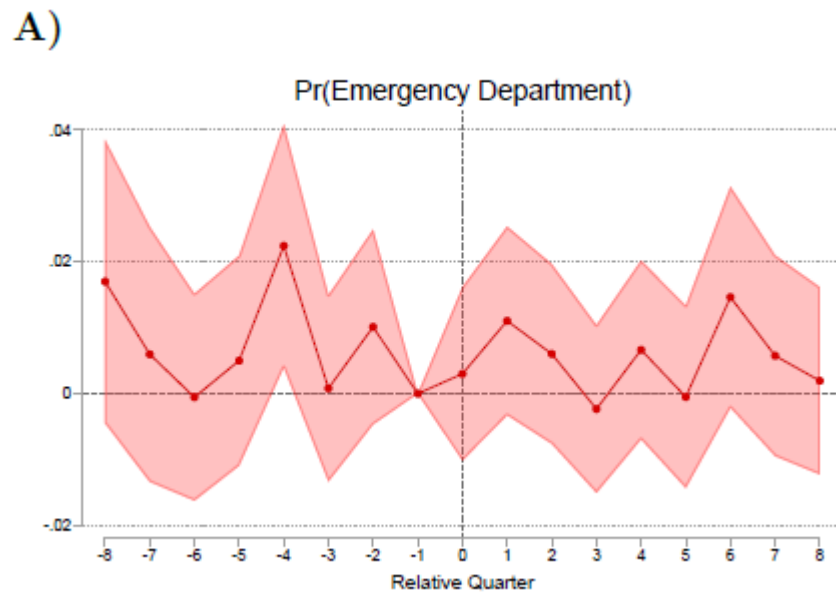
C)



D)

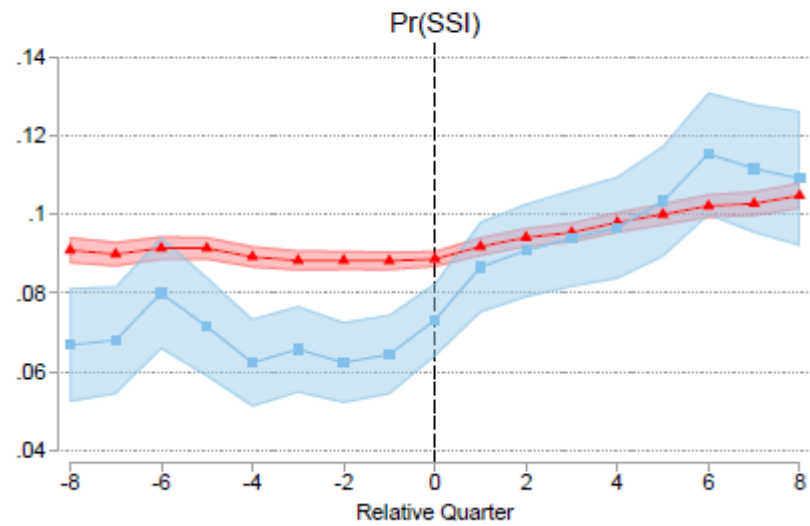


Probability of selected **physical health outcomes** around homeless shelter entry, by presence of on-site mental health services.

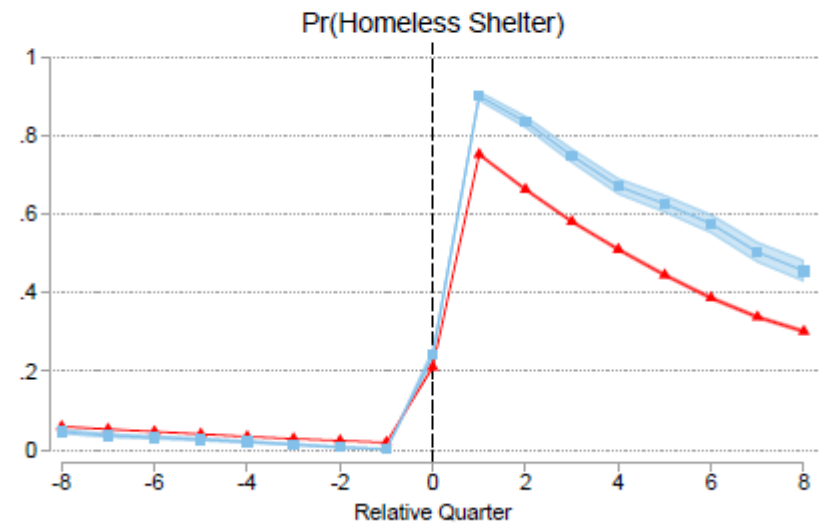


Dynamic DID, co-located shelter mental health services and the probability of selected physical health outcomes, Medicaid children aged 4-17 *without pre-shelter mental health claims*.

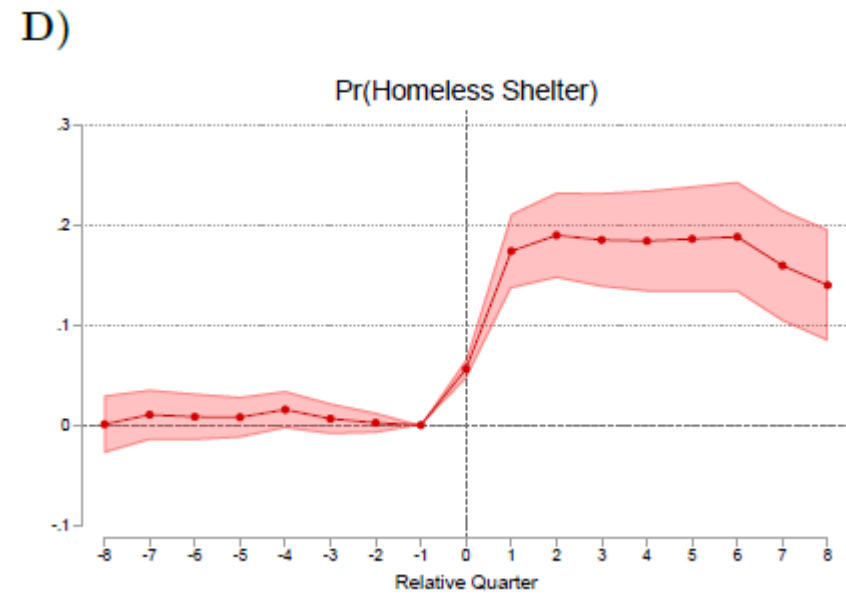
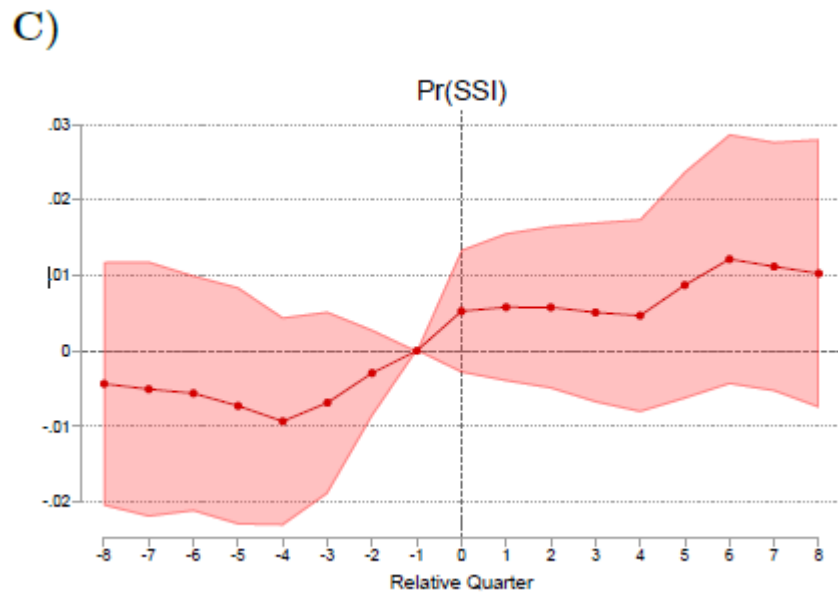
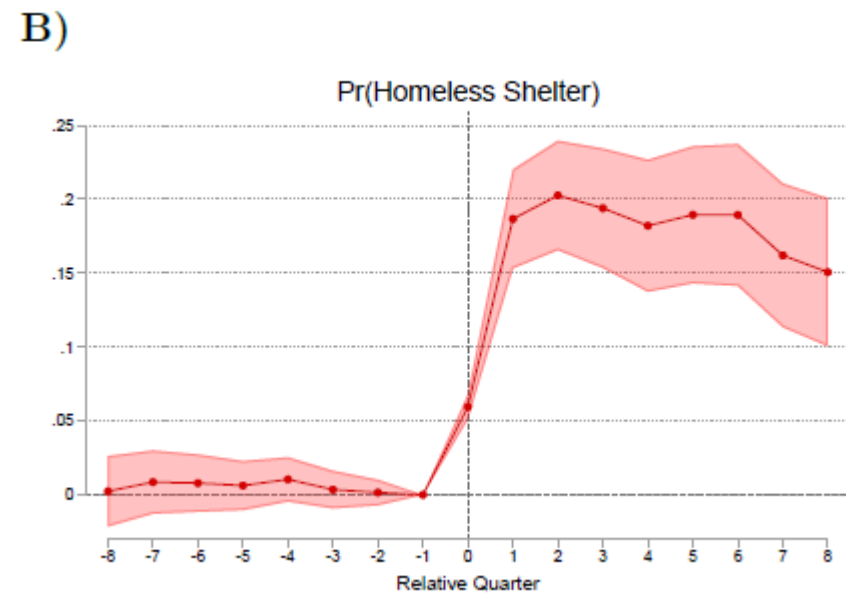
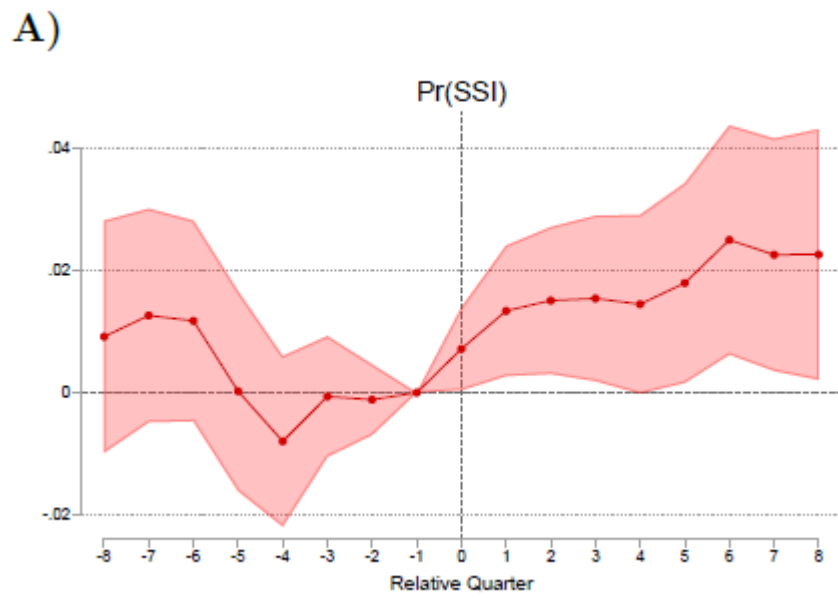
A)



B)



Probability of **public benefits** around homeless shelter entry, by **presence of on-site mental health services**.



Dynamic DID, co-located shelter mental health services and the probability of selected public benefit outcomes, Medicaid children aged 4-17 *without pre-shelter mental health claims*.

Discussion

- **Policy Implications**

- In 2022, 6 of 225 family shelters w/ on-site mental health services.
- Local Law No. 35 of 2023: MH professionals at every family shelter by 2025.
- Shelter may be important point of access to MH services.

- **Future Research**

- Deterioration of health vs. increased access to services?
- Observe children for average of only 3 years.
- HUD PIT data misses hotels, scattered-site units, doubled-up families.
- Unstably covered children.
- Evictions & housing court.

Appendix

Equations

$$Y_{it} = \alpha_i + \delta_t + \beta^1 X_{it} + \beta^{POST} post_{it} + \beta^{DiD} post_{it} \times MHS_i + \varepsilon_{it}, \quad (2)$$

$$Y_{it} = \alpha_i + \delta_t + \gamma_{r(t,e_i)} + \beta^1 X_{it} + \sum_{\substack{-8 \leq r \leq 8 \\ r \neq -1}} \beta_r^{DiD} \mathbf{1}[R_{i,(t,e_i)} = r] \times treatment_i + \varepsilon_{it} \quad (3)$$