Out of School, Out of Mind? An Analysis on Public Library Use and Academic Calendars

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Introduction

- Achievement losses occur during school breaks.
  - Encouraging out-of-school learning is valuable.
- Cooper et al. (1996): summer learning losses result from differential availability of education supplements
  - Supplements are related to family income.
- Mixed evidence on low-cost and publicly provided education supplements.
  - No research related to public libraries as providers

Purpose of this Research

1. Does empirical evidence exist to indicate that public libraries are used differently during school breaks?

2. Are differences in public library use during school breaks attributable to families' socioeconomic status?

Data

- Longitudinal weekly patron-level data.
  - August 2013 and May 2016.
  - Medium-sized city in Montana.
  - One library serves the micropolitan area.
  - 7,246 patrons over 92 weeks.
- Property tax assessment.
- Block-level HH characteristics.
- Single school district.
- Weather and downtown events

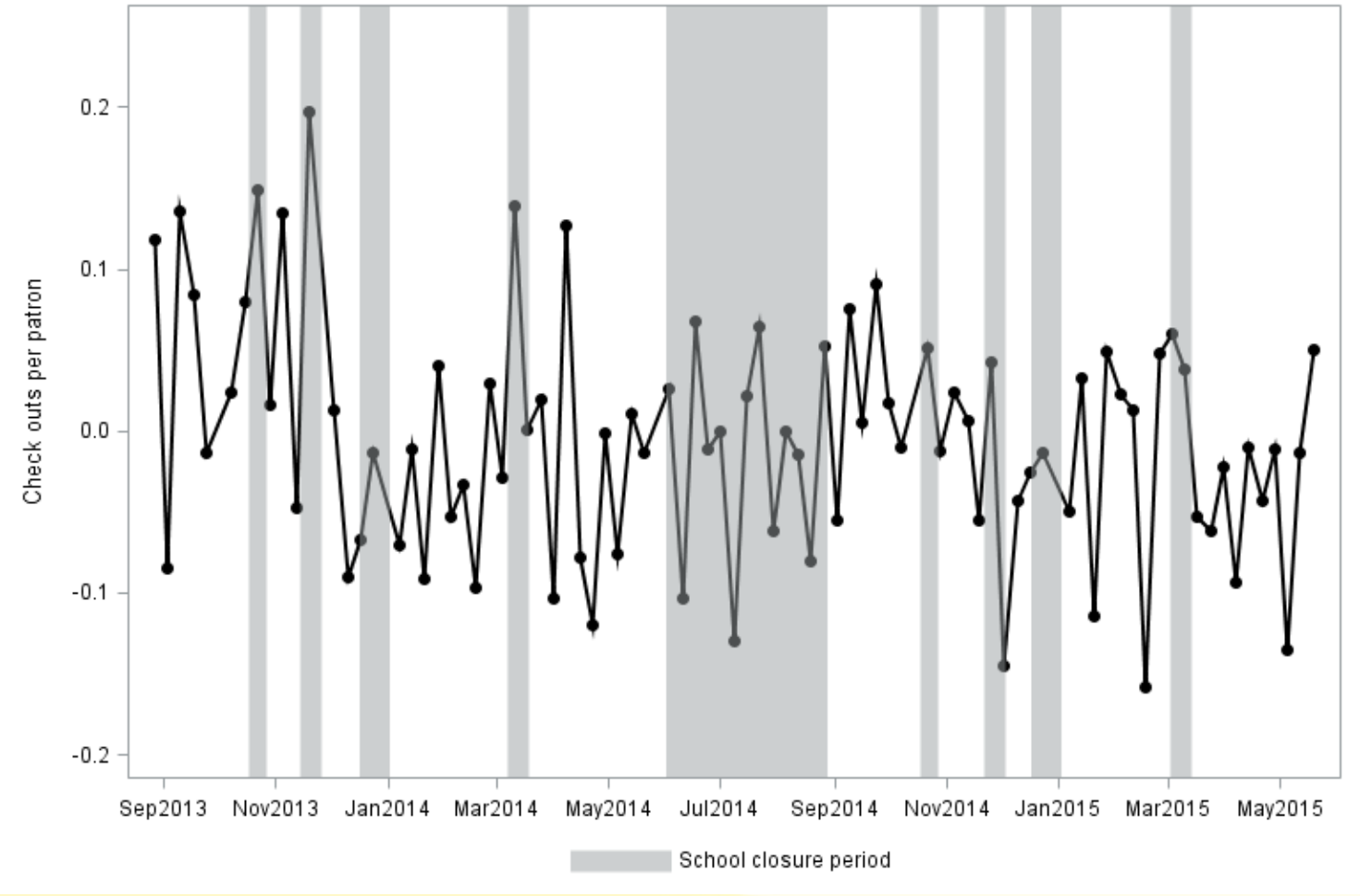
Patrons' Library Use

Table 2: Descriptive statistics of patrons' library use, weekly

Time Period	All	Frequent Patrons	Infrequent Patrons
School in session	0.87	2.01	0.24
School break	0.89	1.99	0.30
School-year break	0.90	2.07	0.31
Summer break	0.88	1.96	0.25
Overall	0.88	2.01	0.26
Observations	384,170	149,007	235,163

Notes: *Frequent* is defined by using the library at least weekly 20% during the sample period. Library use is defined as the number of items checked during a week.

Detrended Library Use, Weekly



Habit Formation

- Patrons may *routinely* visit the library.
  - May require change in routine to visit library during school break.
- Checked out materials have varying due dates.
  - May not be binding.
- No limit on number of checkouts.
  - Physical capability.
- Habit formation modelling
  - Literature uses lagged dependent variable.

Empirical Framework

$$C_{it} = \alpha + \beta_1 \text{Schl\_brk}_t + \beta_2 \text{Sum\_brk}_t + \beta_3 V_{i,t-1} + \beta_4 Comm_t + \delta_i + \delta_m + \delta_y + \varepsilon_{it}$$

- β_1: Percentage change in patron library use during school-year break.
- β_2: Percentage change in patron library use during summer break.
- Control of individual, monthly, school year fixed effects.

Results

Variables of Interest

- During a week with a school-year break, library use increases by 4.3%-6.0%.
- No differential effect during summer break.

Control Variables

- One additional downtown event increases library use by 1.9%.
- 1 inch increase in precipitation decreases library use by 2.9%.
- A 1% increase in property value decreases library use by 3.8%.
  - Excludes individual fixed effects.

Robustness

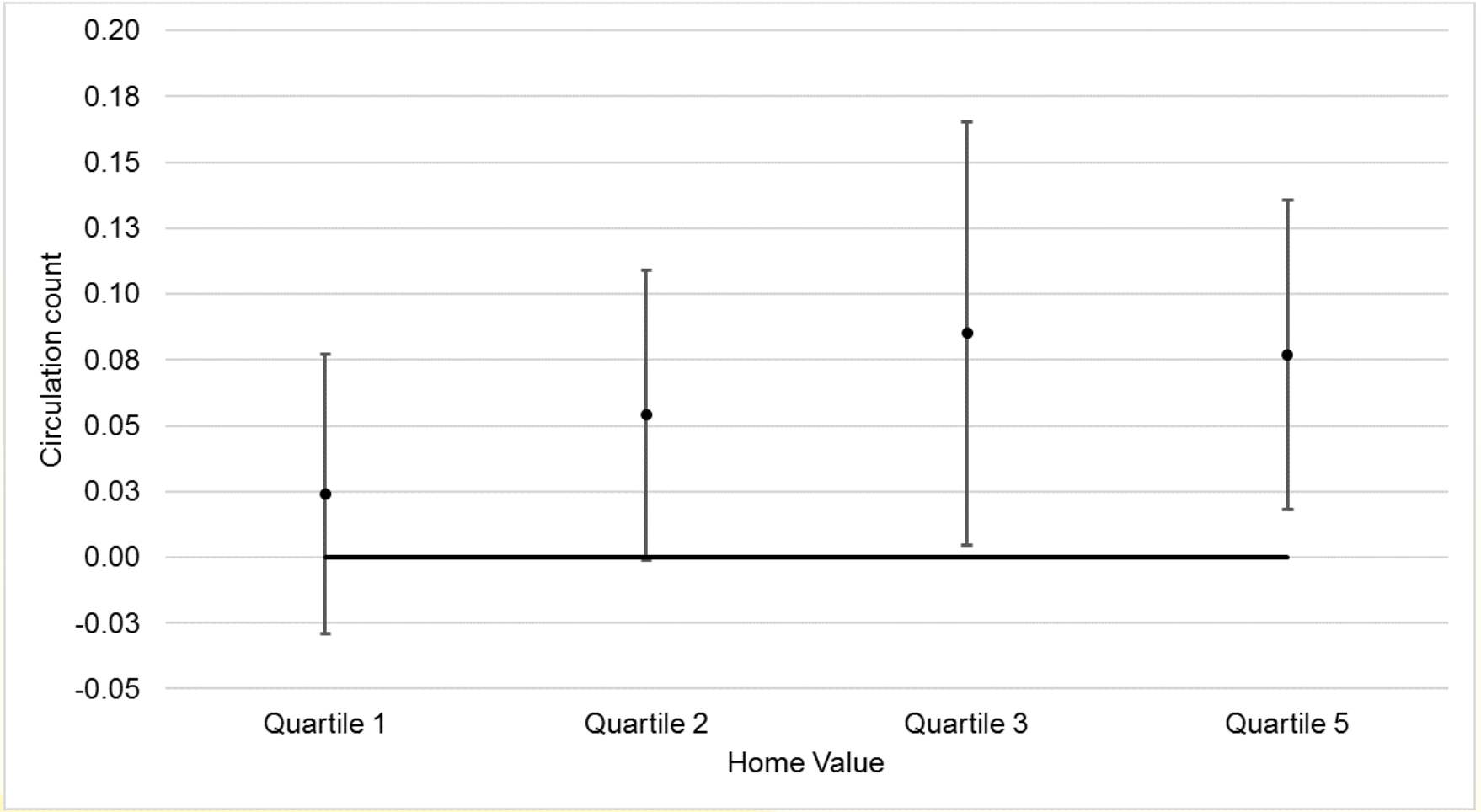
- *Robustness*: Stable estimates across alternative
  - Model specification
  - Habit formation specification
  - Estimators
- *Falsification*: No effects of school breaks for HHs with few children.
- *Timing:* No intertemporal substitution effect.

Additional Insights

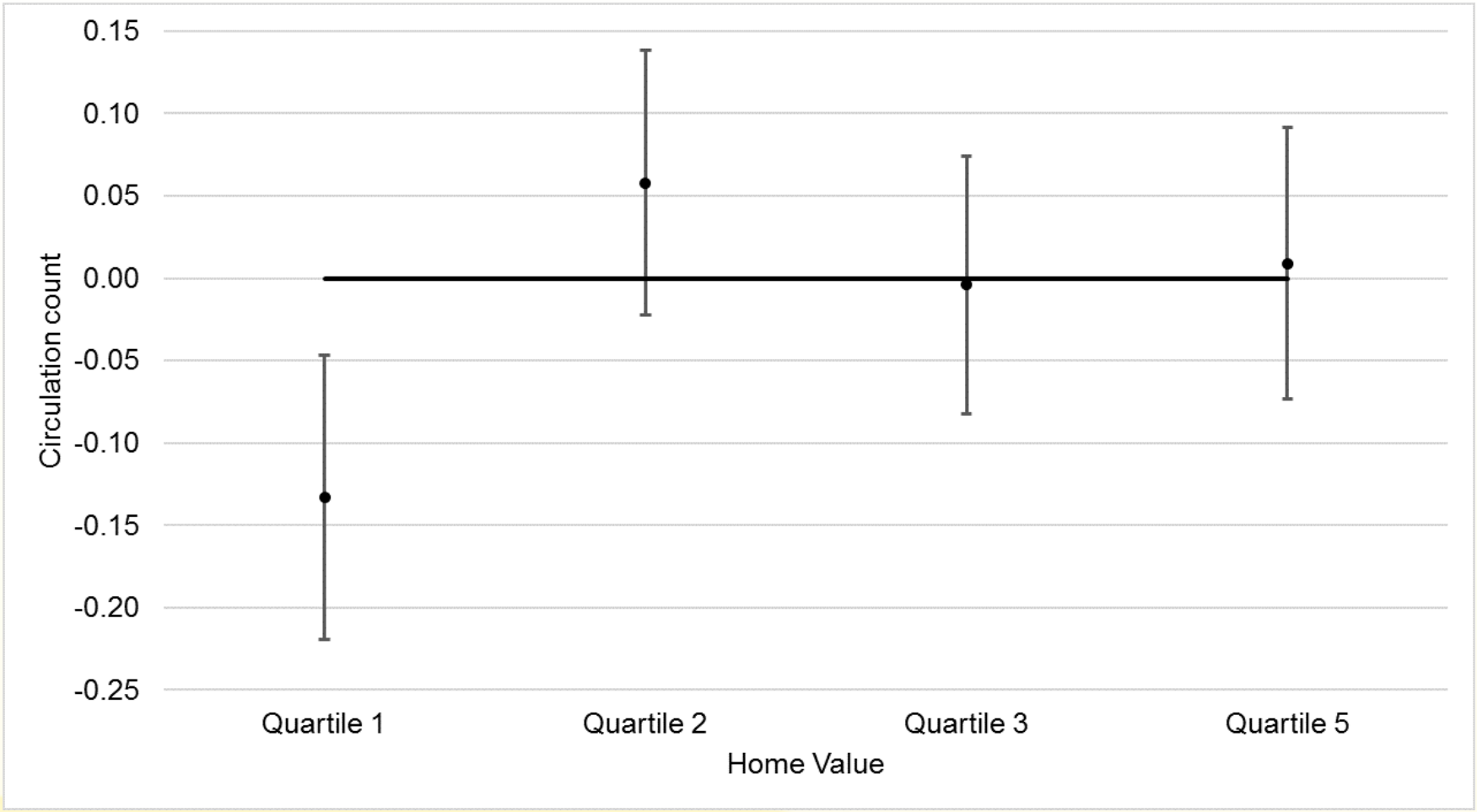
- Larger effect of school breaks for infrequent patrons.
  - 10% increase (infrequent) vs. 6% increase (frequent).

- Larger effect for those more than 1 miles away from library.
  - 6.8% to 10.6% increase library use.

School-year Results by SES



Summer Results by SES



Conclusions

- Public library potentially a low-cost academic bridge.
- Library use is differential across academic calendar.
- Library use is differential across SES.
  - Lower SES use library more.
  - Higher SES use library more during breaks.