Opioid Prescription Rates & Child Removals in Florida

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Outline

1. **Very brief background on me & this paper**
2. How an outsider discovered PDMP data
3. Background on child removals & data
4. Methodology
5. Results
6. Potential implications
7. Limitations
8. Questions / Comments
Background

• Me
  – Economist
  – Diverse/scattered research agenda
  – Goal: Use data to increase understanding of significant health questions

• Paper
  – Learned of suspected opioid/foster care relationship 1st & 2nd hand
  – Surprised by lack of existing research on question
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Discover PDMP Data

• Little/no background using population-level pharma utilization data

• Initial conjecture: Lack of research on topic reflected lack (or expense) of data

• Google search led to website for FL PDMP

• Quickly learned that underlying data are very closely held

• However, found # opioid scripts by county & year
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Child Removals

• Process
  – Grounds for removal
    • The child has been abused, neglected, or abandoned, or is suffering from or is in imminent danger of illness or injury as a result of abuse, neglect, or abandonment
  – Selected potential maltreatments (causes)
    • Physical abuse, sexual abuse, neglect, parental alcohol abuse, parental drug abuse, abandonment
Child Removals

• Data
  – AFCARS (Adoption & Foster Care Analysis & Reporting System)
    • Mandatory system to which states must report data
    • Variable used: # children removed by county, year, & cause
    • Children may be removed for multiple causes
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Methodology

• Goal
  – Investigate association between rates of child removals & opioid scripts

• Sample
  – FL counties, 2012-2015

• Dependent variables
  – # removals per 1000 children aged 0-19
    • All causes
    • Parental drug abuse
    • Parental neglect
Methodology

• Explanatory variable of interest
  – # opioid scripts per 100 capita (all ages)

• Statistical approach
  – Linear regression
  – Fixed effects
    • County
    • Year
Methodology

• Control variables
  – Additional script rates
    • Benzodiazepines
    • Stimulants
  – Pop percentages by demographic
    • Gender
    • Race
    • Ethnicity
  – Poverty rate

• Separate analyses by quartile white population proportion
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Results

- Statewide rates

All Child Removals

<table>
<thead>
<tr>
<th>Year</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Value</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

Opioid Prescriptions

<table>
<thead>
<tr>
<th>Year</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Value</td>
<td>70</td>
<td>65</td>
<td>70</td>
<td>85</td>
</tr>
</tbody>
</table>
## Results

- **Regression estimates – all counties**

<table>
<thead>
<tr>
<th>Included Counties</th>
<th>All Causes</th>
<th>Parental Drug Abuse</th>
<th>Parental Neglect</th>
</tr>
</thead>
<tbody>
<tr>
<td>All counties</td>
<td>.09</td>
<td>.07*</td>
<td>.07*</td>
</tr>
</tbody>
</table>

- 1 unit increase in script rate associated with .09-unit increase in all causes rate
- 1 “standard deviation” increase in script rate associated with 32% increase in parental neglect rate
Results

• Regression estimates – by quartile white population proportion

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<th>Parental Neglect</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st quartile</td>
<td>.17**</td>
<td>.09</td>
<td>.05</td>
</tr>
<tr>
<td>4th quartile</td>
<td>.32***</td>
<td>.30***</td>
<td>.12***</td>
</tr>
</tbody>
</table>

– Associations roughly twice as large (or larger) in 4th quartile than 1st
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Potential Implications

- Well-documented direct costs of opioid crisis
- Our results highlight an indirect cost
- State fiscal costs
  - 1 additional opioid script per 100 people statewide was associated with
    - 300 children removed due to parental neglect
    - Annual cost of $6m
- Human toll
  - Worse educational, health, legal outcomes
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Limitations

- Estimates reflect associations, not causations
- Measure # scripts, not volume of meds
- Do not reflect illicit opioids
- Do not control for diversion across counties
- Only reflect FL experience
- Can’t be completely certain that legal changes regarding removals did not affect results
- Only examining extreme outcome of removal
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Questions / Comments

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Thank you!