LEAD-CRIME HYPOTHESIS- OVERVIEW

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WHAT IS IT?

- Lead poisoning diminishes the development of children’s brains such that there is
  - increase in aggression
  - reduction in impulse control
  - impairment of executive functions

- Several correlations between reductions of leaded gasoline and violent crime exist

- Suggestion: The move away from leaded gasoline may have been a primary driver of the drop in crime in the U.S, that began in the 1990’s and has continued today.
Studies in China, New Zealand, and the United States all show that the more lead people were exposed to as children, the more problems they faced, both behaviorally and educationally (Reyes, 2014; Liu et al., 2014; Beckley et al., 2018)

Study done by researchers Stephen Billings and Kevin Schnepel in North Carolina:
POPPULATION STUDIES

A timeline of lead reduction

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>1970</td>
<td>CDC sets acceptable blood-lead level of 40 μg/dL</td>
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<tr>
<td>1973</td>
<td>EPA mandates a phaseout of leaded gasoline</td>
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<tr>
<td>1978</td>
<td>CPSC bans residential lead paint</td>
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<tr>
<td>1991</td>
<td>CDC sets acceptable blood-lead level of 10 μg/dL</td>
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<tr>
<td>1996</td>
<td>EPA eliminates lead from all U.S. motor fuel</td>
</tr>
<tr>
<td>2012</td>
<td>CDC describes blood-lead level of &gt;5 μg/dL as elevated</td>
</tr>
</tbody>
</table>

GETTING THE LEAD OUT

Economists hypothesize that regulation of leaded gasoline and lead paint in the 1970s caused crime rates to drop in the U.S. about 20 years later. CPSC = Consumer Product Safety Commission. SOURCES: Rick Nevin, FBI Uniform Crime Reporting Statistic
Divorce rate in Maine correlates with
Per capita consumption of margarine

- Margarine consumed
- Divorce rate in Maine

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6/13/2019
Age of Miss America correlates with Murders by steam, hot vapours and hot objects

Murders by steam Age of Miss America

- Murders by steam
- Age of Miss America

1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009

18.75 yrs 20 yrs 21.25 yrs 22.5 yrs 23.75 yrs 25 yrs

8 murders 6 murders 4 murders 2 murders

tylervigen.com
Population Studies - Spurious Correlations

Number of people who drowned by falling into a pool correlates with Films Nicolas Cage appeared in.

- **Swimming pool drownings**
  - 1999: 80 drownings
  - 2000: 100 drownings
  - 2001: 100 drownings
  - 2002: 140 drownings
  - 2003: 120 drownings
  - 2004: 100 drownings
  - 2005: 80 drownings
  - 2006: 100 drownings
  - 2007: 140 drownings
  - 2008: 120 drownings
  - 2009: 100 drownings

- **Films Nicolas Cage appeared in**
  - 1999: 0 films
  - 2000: 2 films
  - 2001: 2 films
  - 2002: 4 films
  - 2003: 6 films
  - 2004: 4 films
  - 2005: 2 films
  - 2006: 2 films
  - 2007: 4 films
  - 2008: 2 films
  - 2009: 0 films

- **Legend**
  - Nicholas Cage
  - Swimming pool drownings
POPULATION STUDIES (CONTINUED)
States that reduced leaded gasoline before others saw a reduction in crime sooner

Multiple cities has strong correlations between lead/air levels and assaults 22 years later

Even neighborhood-level data in New Orleans showed correlation
POPULATION STUDIES (CONTINUED)

- Gap shrinkages between:
  - Rural vs urban
  - Caucasian vs African-American

- Children closer to busy roads in RI

- Cities with lead pipes vs other materials
POSSIBLE ISSUES WITH DATA

- Brennan Center report- Leaded gasoline largely outlawed by 1985, yet violence rates continued to fall after 2005

- Looking at different data sets than FBI crime statistics produces different results (NCVS data)

- May not be quite enough data to make a firm conclusion

- Does not necessarily account for sociological concerns
OTHER CONCERNS

- Multiple other hypotheses for crime drop:
  - CompStat
  - Increase in police
  - Increase in incarceration
  - Increase in abortion rate
  - Cell phone usage
  - Decreased crack use

- Generally difficult for those who’ve studied with a sociological lens to look at biological causes
REFERENCES


- Drum, K. (2017, 6/5/). Here’s a very powerful sharp study that bolsters the lead-crime hypothesis. Retrieved from https://www.motherjones.com/kevin-drum/2017/06/powerful-study-lead-crime-hypothesis/


