The link between economic conditions and overdose deaths in OH, WV, KY, and PA

Michael Betz
Assistant Professor, Dept. of Human Sciences
Overview

1. Supply-side drivers
2. Demand-side drivers
Supply vs. Demand Side Theories
Overview

1. Supply-side drivers
2. Demand-side drivers

- Overdose Death Rate
- Prescription Rate

- All Drugs
- Prescription opioids
- Prescription rates

- **All Drugs**
- **Prescription opioids**

- **Prescription Rate**
- **Overdose Death Rate**

Data source: The Ohio State University

- All Drugs
- Prescription opioids
- Prescription rates

- All Drugs
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Drug Reformulations

• 2010 Abuse-resistant OxyContin released
• 2012 Kentucky, Ohio, and West Virginia
• 2015 Pennsylvania

OxyContin Reformulation 2010

OxyContin Reformulation 2010

- All Drugs
- Prescription opioids
- Prescription rates

1999 2001 2003 2005 2007 2009 2011 2013 2015

Overdose Death Rate

Prescription Rate

- All Drugs
- Prescription opioids
- Prescription rates

OxyContin Reformulation 2010

KY, OH, WV PDMPs

OxyContin Reformulation 2010

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Prescription Rate

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KY, OH, WV PDMPs

Overdose Death Rate

Prescription Rate

1999 2001 2003 2005 2007 2009 2011 2013 2015

All Drugs  Prescription opioids  Prescription rates

- **All Drugs**
- **Prescription opioids**
- **Prescription rates**

**Key Points**
- **OxyContin Reformulation 2010**
- **KY, OH, WV PDMPs**
Overview

1. Supply-side drivers

2. Demand-side drivers
### Leading Causes of Death Under 55 in 2016

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Demand-side Factors

- Community economic disadvantage
- Mental health problems
- Relational problems
- Health conditions (chronic pain, sedentary life styles, etc.)
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US and Ohio Unemployment Rates 2000-16

US
Ohio

Unemployment rates

1. Mask type of job
Panel A. Smoothed changes in employment by skill percentile, 1980–2005

Source: Autor and Dorn (2013)
Ohio’s Industries

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<th>Industry</th>
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<th>2015</th>
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<td>Manufacturing</td>
<td>15.4</td>
<td>10.4</td>
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<td>Government and government enterprises</td>
<td>12.1</td>
<td>11.5</td>
</tr>
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<td>Retail trade</td>
<td>11.7</td>
<td>10.1</td>
</tr>
<tr>
<td>Health care and social assistance</td>
<td>9.9</td>
<td>12.8</td>
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Unemployment rates

1. Mask type of job

2. Mask LF participation
Labor Force Participation 1948-2016

Source: BLS
Figure 3: Fraction Working Zero Weeks During the Year, Males 21-55, By Education, CPS

Source: Kofi, Hurst, Schwartz 2018
Figure 2: Annual Hours Worked, Males 21-55, By Education, CPS

Source: Kofi, Hurst, Schwartz 2018
Men NLF express much lower levels of meaning to their daily lives than LF men

• Not so for women

Half of prime age men NLF use daily pain medication (Krueger 2017)
Ohio Overdose Rates by Education Level

Rate per 100,000

- HS Grad
- Some college
- Associates
- Bachelors
In 2016, ~2.1 million people with opioid use disorder

Could account for 78% of non-boomer LFP drop

Could be 100% in KY, OH, PA, WV
The Fading American Dream

Percent of Children Earning More than their Parents, by Year of Birth

Source: Chetty et al. 2014
Academic Research

• Hollingsworth et al. 2017
• Kreuger 2017
• Betz and Jones 2018
• Kofi, Hurst, Schwartz 2018
• Ruhm 2018; Currie, Jin, Schnell 2018
Figure 7: U.S. Quarterly Real Output Index for the Manufacturing Sector (2000Q1 = 100)

Source: Kofi, Hurst, Schwartz 2018
Figure 8: Labor Share Index for US Manufacturing and Private Non-Farm Business Sectors (Year 2000 = 100)

Private Business Labor Share Index

Manufacturing Labor Share Index

Source: Kofi, Hurst, Schwartz 2018
One more robot per thousand workers reduces the Employment/Pop Ratio by about 0.18-0.24 percentage points

Source: Acemoglu and Restrepo 2017
Carnegie Mellon Reels After Uber Lures Away Researchers

Uber staffs new tech center with researchers poached from its collaborator on self-driving technology

Robot spending will hit $188 billion by 2020, report predicts
Robotics and related services are expected to reach new heights, driven by an expanding market.

Amazon opens grocery store with no checkouts
January 22, 2018
Currently 47 million workers with HS degree or less

Driving: 3.4 million
Grocery store attendants: 2.4 million
Fast food counter workers: 3.7 million
Takeaways

1. US drug crisis is more than a supply problem
2. Local economic conditions influence ODs
3. Coming automation will likely exacerbate
Thank You!
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