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# Opioid Academic in America Socio Economic Drivers 2011 - 2017

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## **Null Hypothesis**

The average income in a county does not affect the number of opioid deaths.

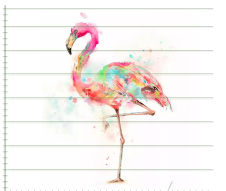
## **Alternative Hypothesis**

If the average income in a county is lower the number of opioid deaths will be higher then in counties with higher average incomes.



# Data Exploration Steps

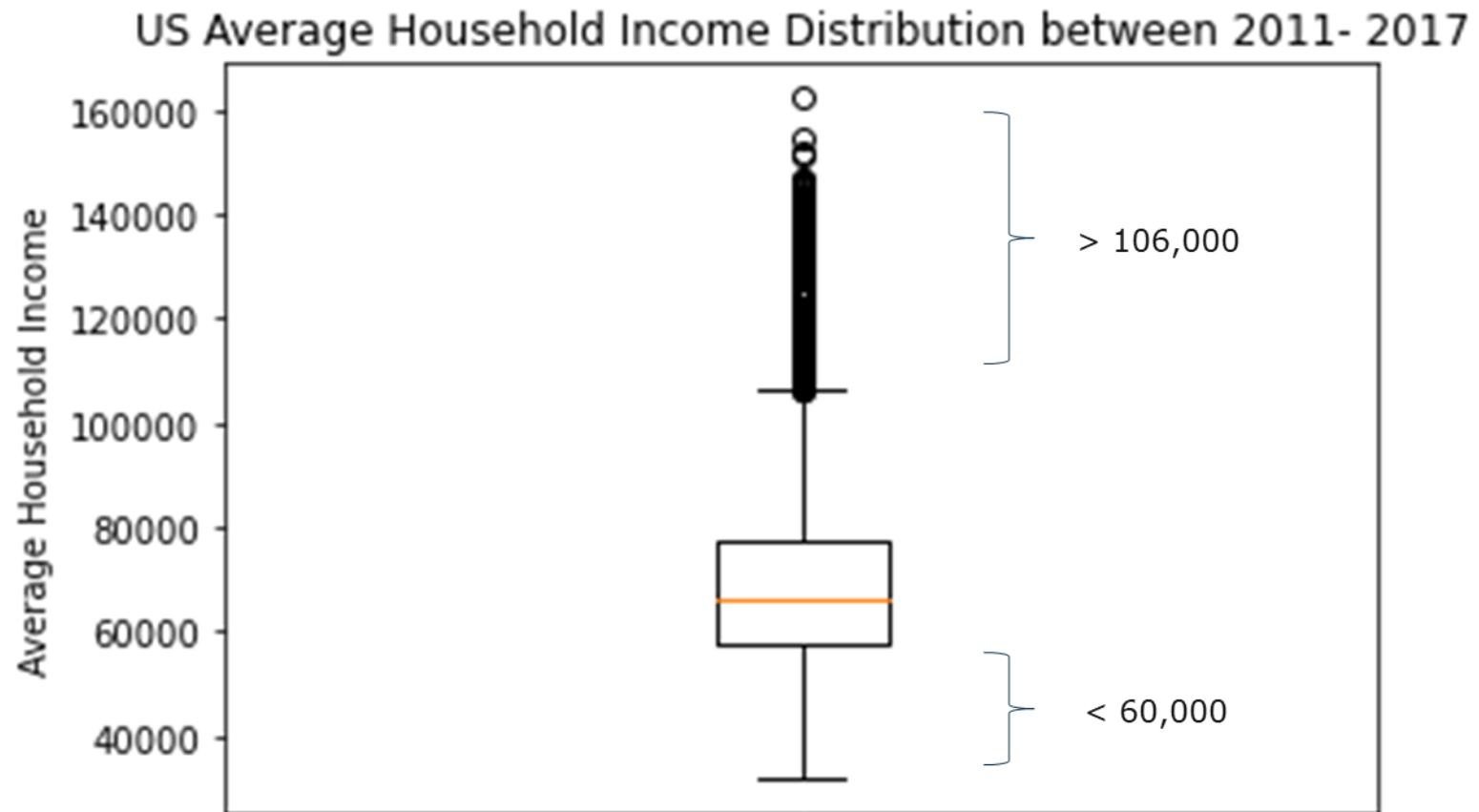
1. Set initial scope to all counties:
  - Noted middle class data unremarkable due to density
2. Observed significant correlation in lower- and upper-income segments
3. Narrowed focus to lowest and highest income segments (target populations)
4. Analyzed
  - Deaths per capita by average household income, by income segment
  - Drug type usage difference by average household income, by income segment
  - Trends of deaths per capita, by drug type and year of target populations
  - Deaths per capita state by state and noted remarkable variance in usage by income segment
  - States with highest number of opioid deaths per capita



# Questions

1. Does average annual household income affect per capita opioid deaths?
2. What is the break down by opioid type (cause of death) for lowest and highest income segments
3. What is the trend in opioid deaths among highest and lowest income segments by drug type?
4. What States of the country have the highest number of deaths?



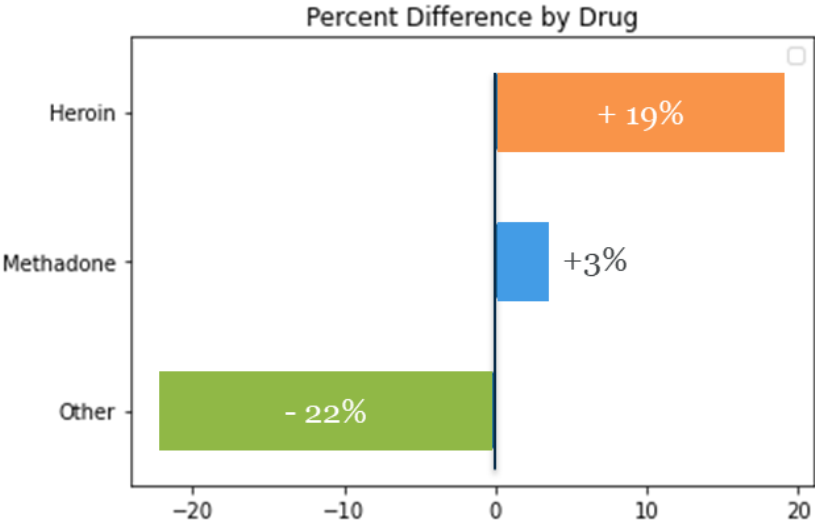
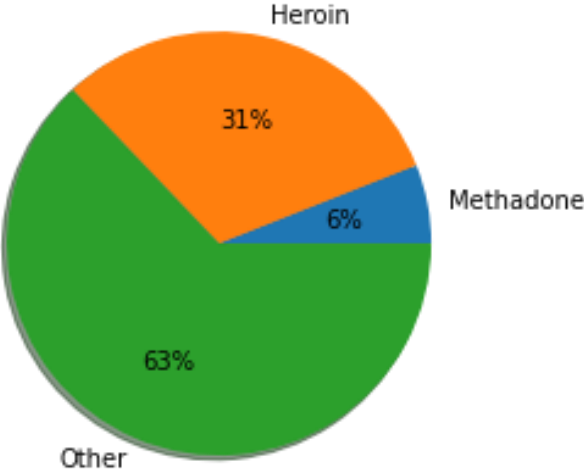


Ttest Results: Pvalue~0.002

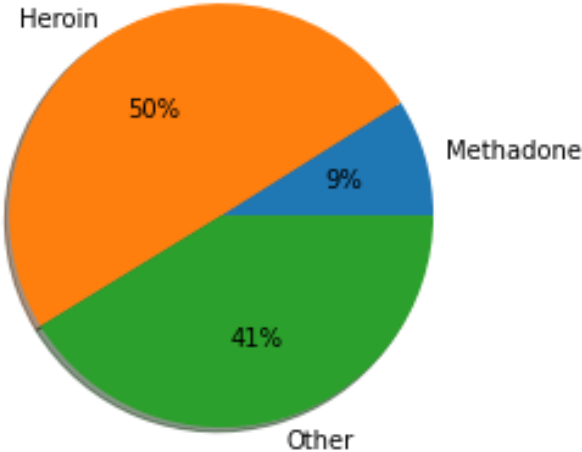


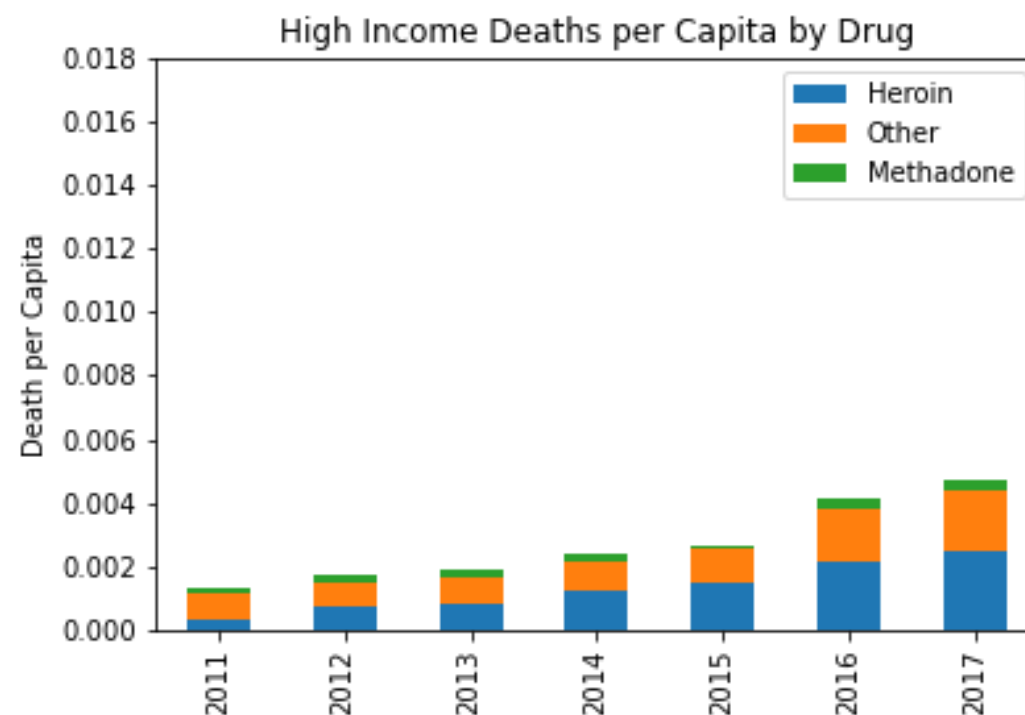
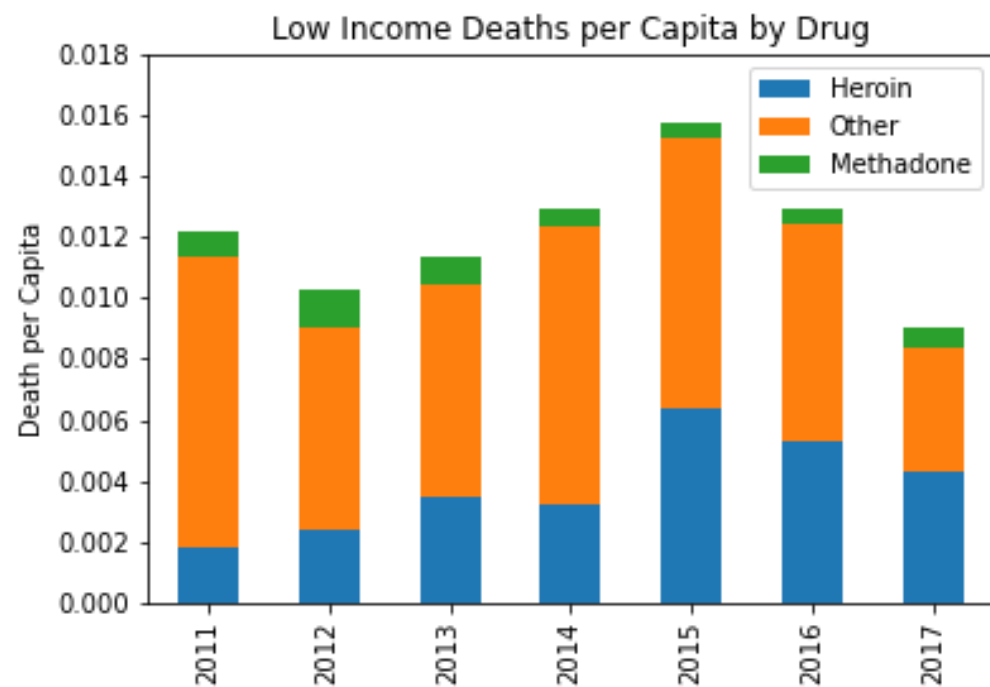
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Death by Drug Type for the Lowest Income



Death by Drug Type for the Highest Income



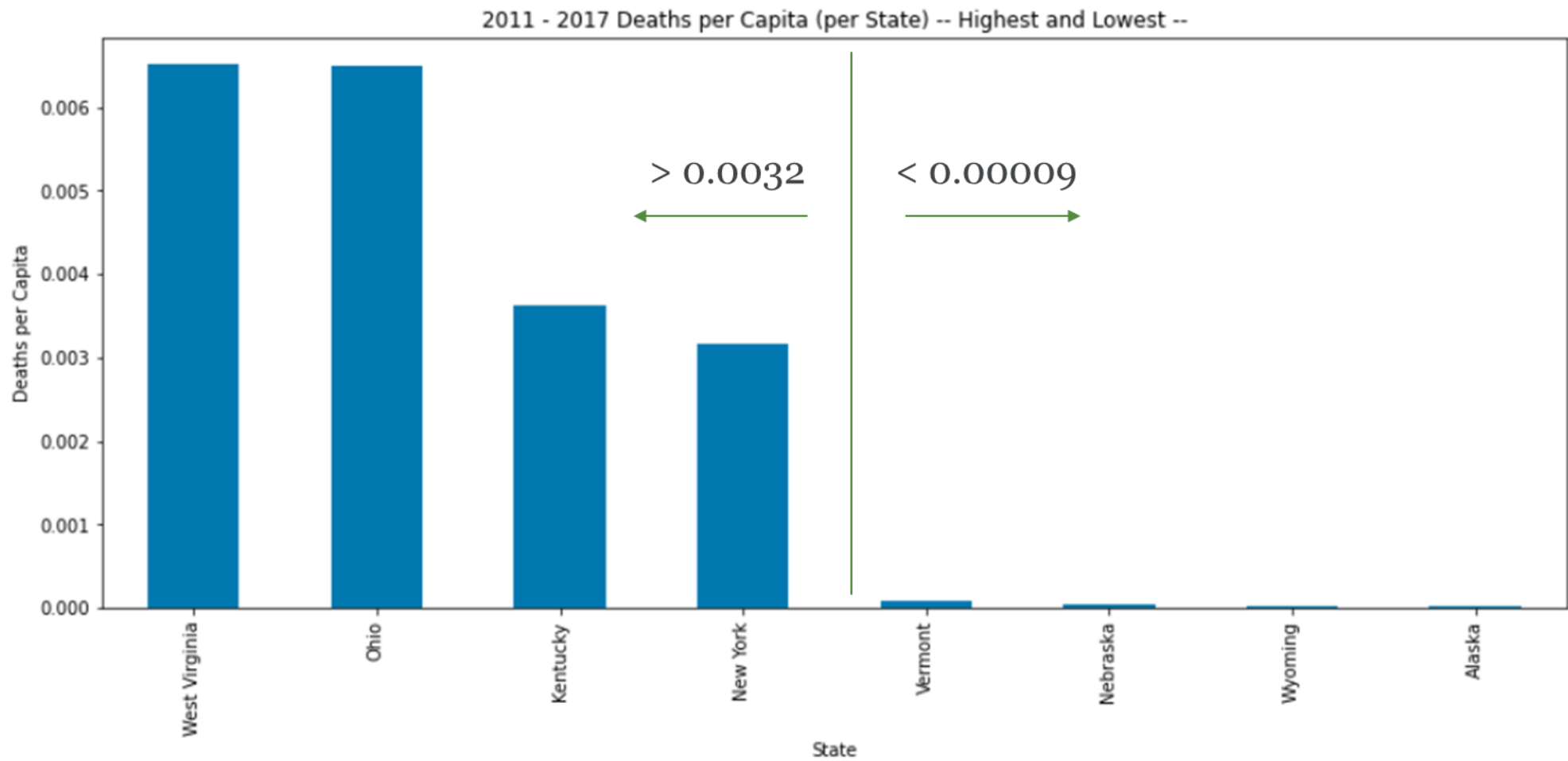


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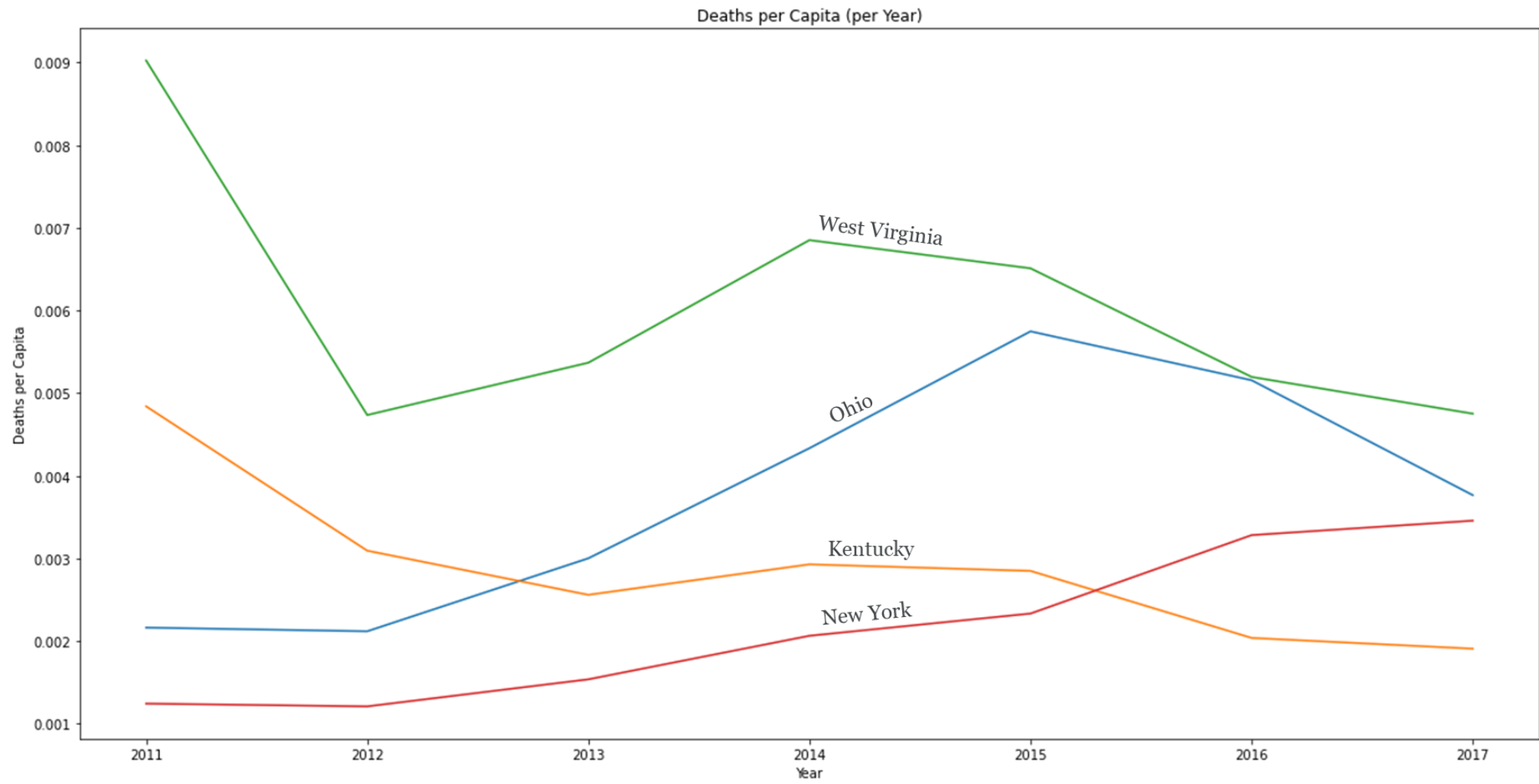
0.003351



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## Challenges

### Scope Shift

- Initial scope included all Counties
- Unremarkable data in middle income segments
- Shifted to focus on lower- and upper-income segments

### Next Steps

- Education level impact on average opioid death per capita
- GDP-EHSA spending impact on average opioid death per capita
- Population density impact on average opioid death per capita
- Non-US Born Status impact on average opioid death per capita
- Scope expansion to include international populations
- Drill down into Opioid categories





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