



Medical Debt in Collections

The case of Kentucky
by Sarah Weatherbee



Background

- As of 2019, Kentucky had the sixth highest poverty rate (17%) in the nation
- Per 2017 data from the Urban Institute, 27 percent of Kentuckians “owe a collection agency for a combined \$1.5 billion in recent medical debt”
- Eastern Kentucky counties have the highest rate of people with medical debt in collections. I.e. Carter County: 52%
- Assumption: Medical debt sent to collections indicates unmanageable healthcare costs

QUESTIONS

- Is health insurance a protective factor against unmanageable medical bills? I.e. medical debt sent to collections?
 - I expect it to be
- Is there a relationship between the number of people with debt in collections and the number of people with medical debt in collections?
 - I expect a strong relationship
- Are people less likely to have debt in collections as income rises?
 - I expect yes

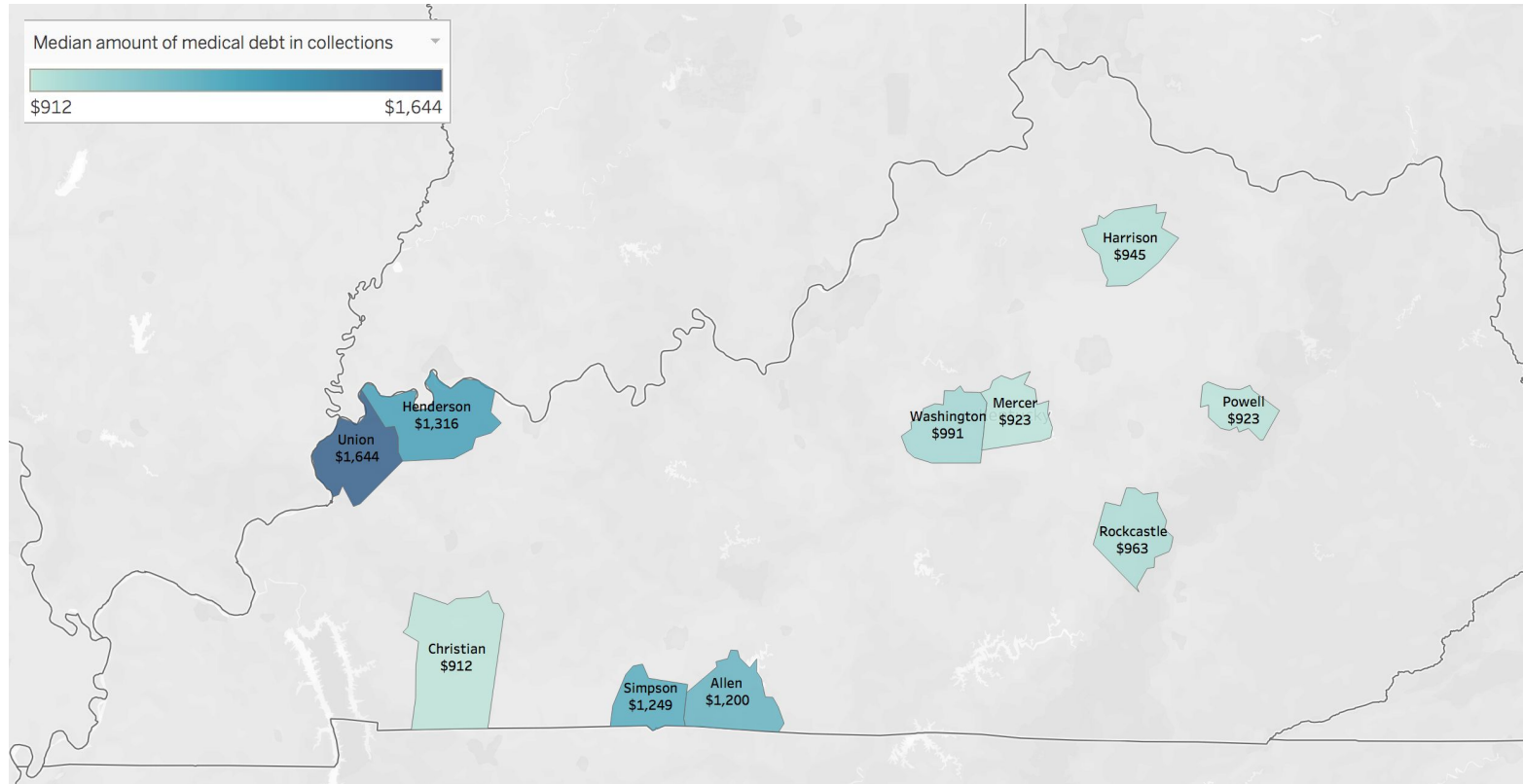
Aims of this project

- Explore data on medical debt in collections in Kentucky by county
- Examine data for correlates of medical debt in collections
- Segment data by income level for a more detailed view of correlates
 - Low income = Less than \$43,717 (Less than 25th percentile of income)
 - Mid income = Between \$43,718 & \$58,199 (Between 25th and 75th percentiles of income)
 - High income = Greater than \$58,199 (Greater than 75th percentile of income)
- Map the burden of medical debt in collections by county

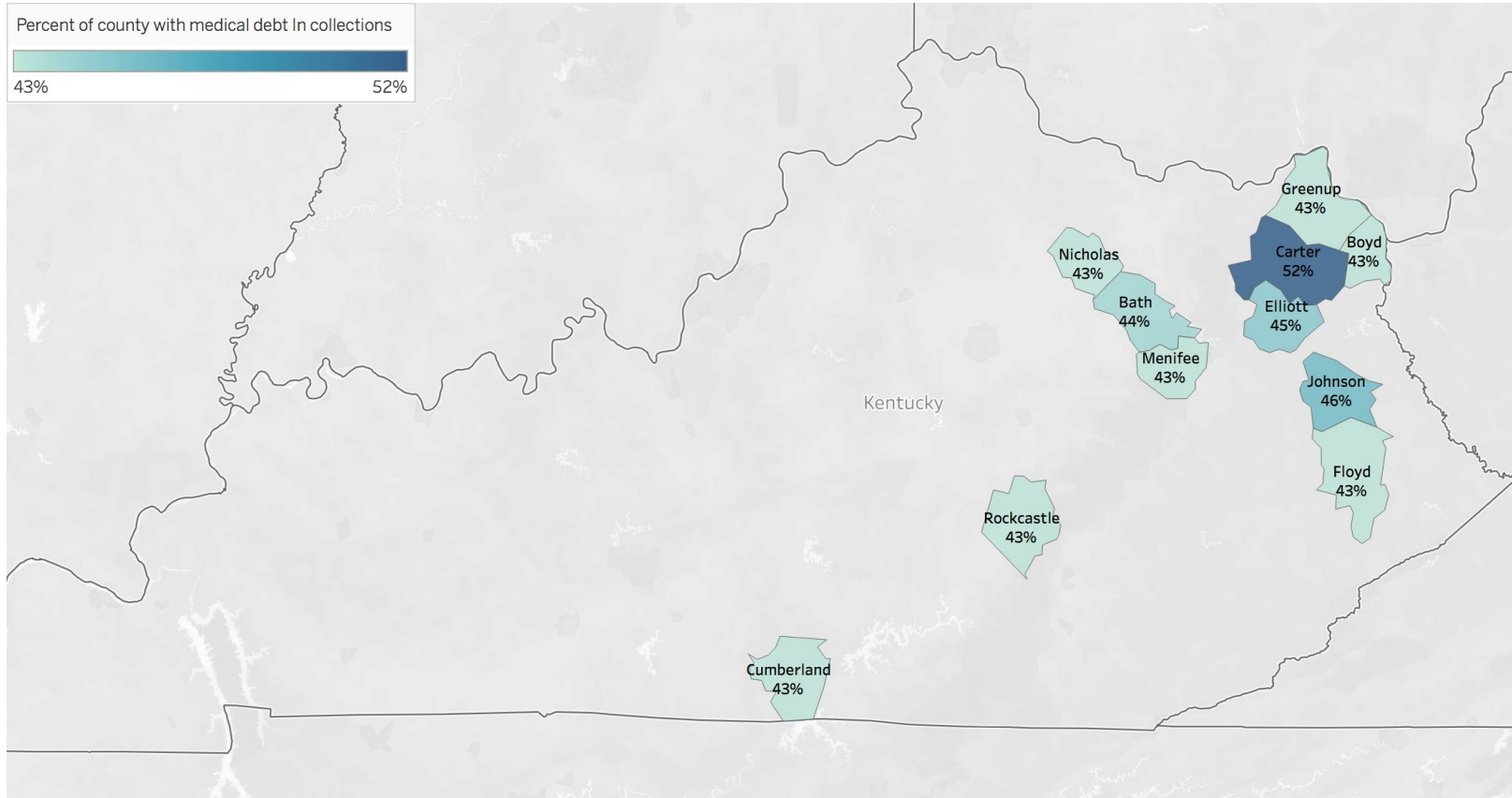
Data

- Debt in collections data from the [Urban Institute](#):
 - This data “contains 2016 and 2017 data derived from a random sample of de-identified, consumer-level records from a major credit bureau as well as estimates from summary tables of the US Census Bureau’s American Community Survey”
- County population estimates 2017 from the [Kentucky State Data Center](#)

Where amount of medical debt in collections is highest



Where the most people have medical debt in collections



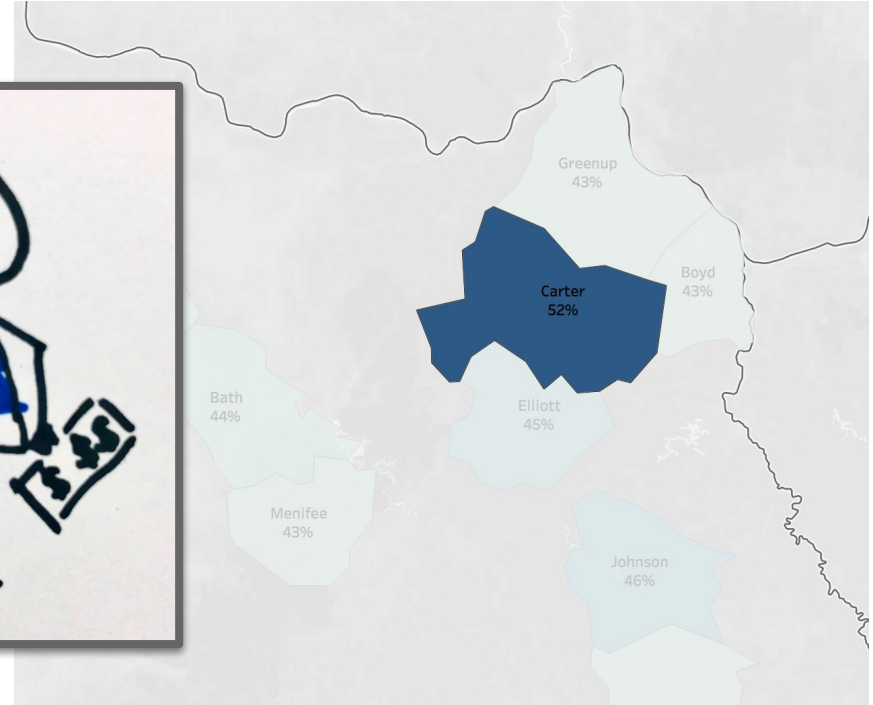
Meet Lenny of Carter County, Kentucky

Lenny was unemployed for several months, but now he has a job!

(And an affordable, but high deductible, insurance plan)

He slaughters pigs for Smithfield Foods.

His pay: \$15 per hour.
(\$31,200 per year)



Lenny recently wrecked his car and broke his leg



Now that he's employed and has health insurance, he'd get through it. Or so he thought...

The hospital fixed his leg and sent him a bill.

His insurance won't kick in until he pays his deductible: **\$1,500**

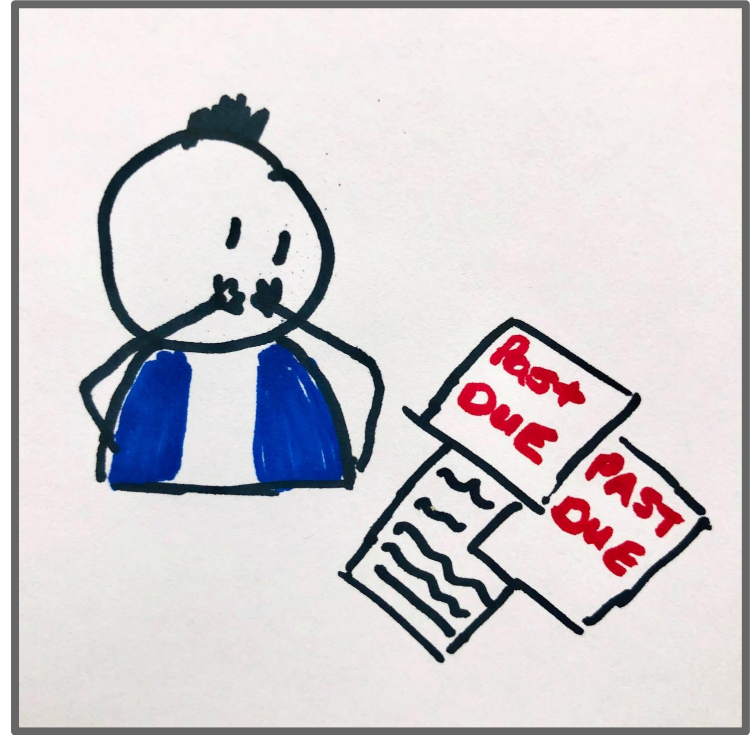
He will also have to pay **\$2,500**: The anesthesiologist for his surgery was out of network.

Now his bills are in collections

Lenny is still paying off debt from the several months he spent unemployed.

On his income, he can't keep up with payments on the hospital bill of **\$4,000**.

After not paying for three months, the hospital bill is sent to a collections agency.





The consequences

Because his bill was sent to collections, his credit score dropped.

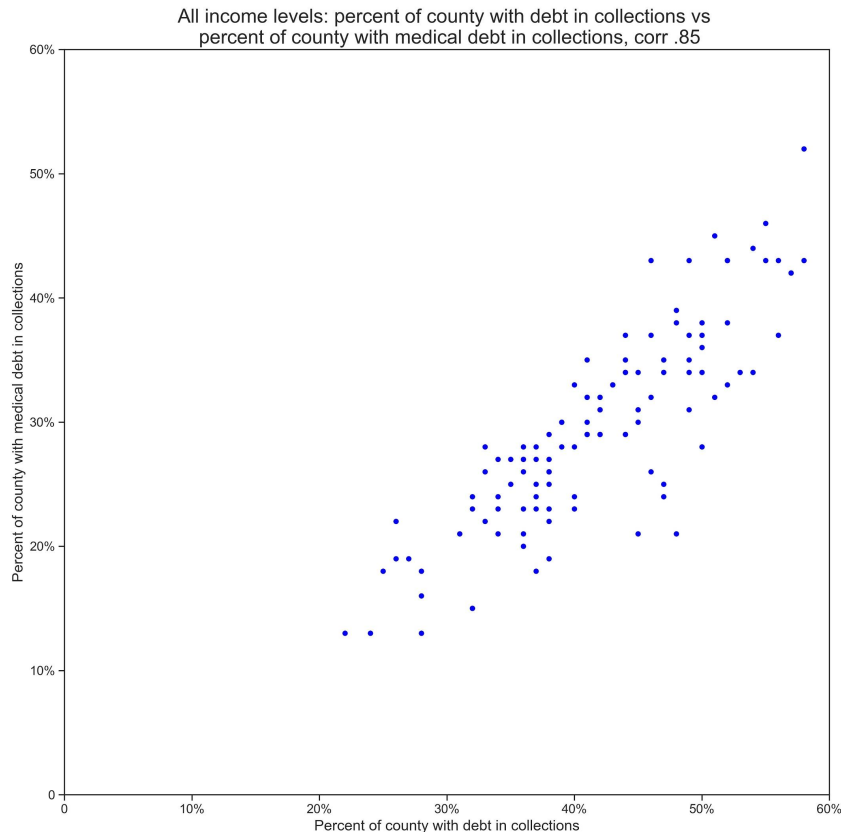
This means he will have a hard time renting an apartment, buying a house, leasing a car, even getting a better job.

For Lenny and others like him, having health insurance does not mean that medical bills will be affordable.

Now, back to the data...

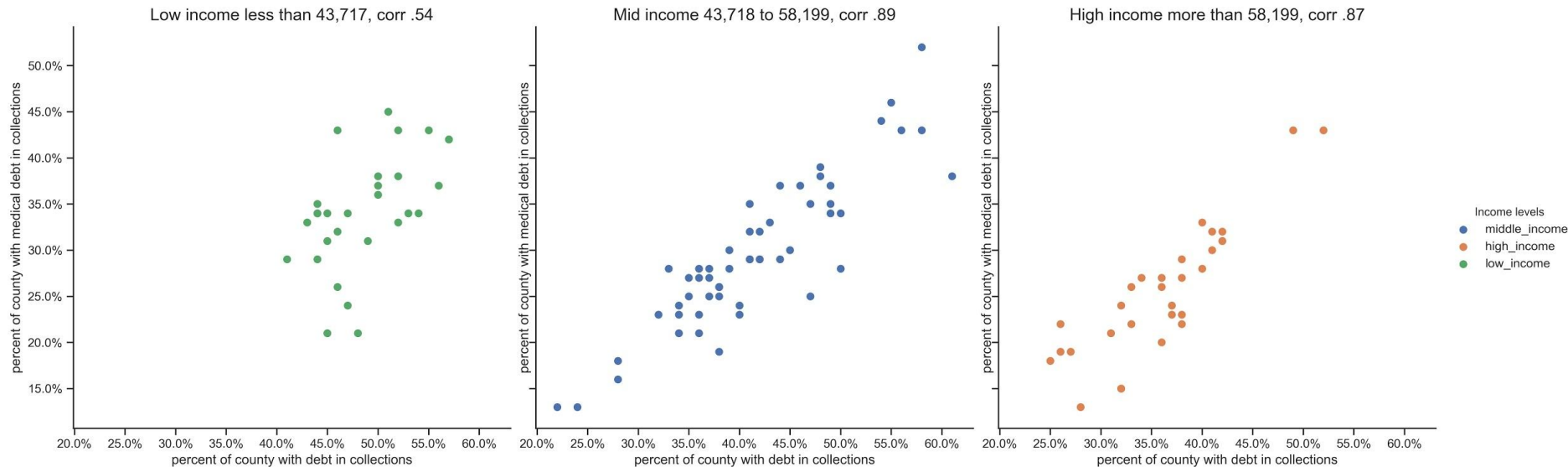
Overall Data

- There is a strong correlation between percent of county with debt in collections and percent of county with medical debt in collections
- For individuals such as Lenny who have debt in collections, it is highly likely that debt is medical debt.

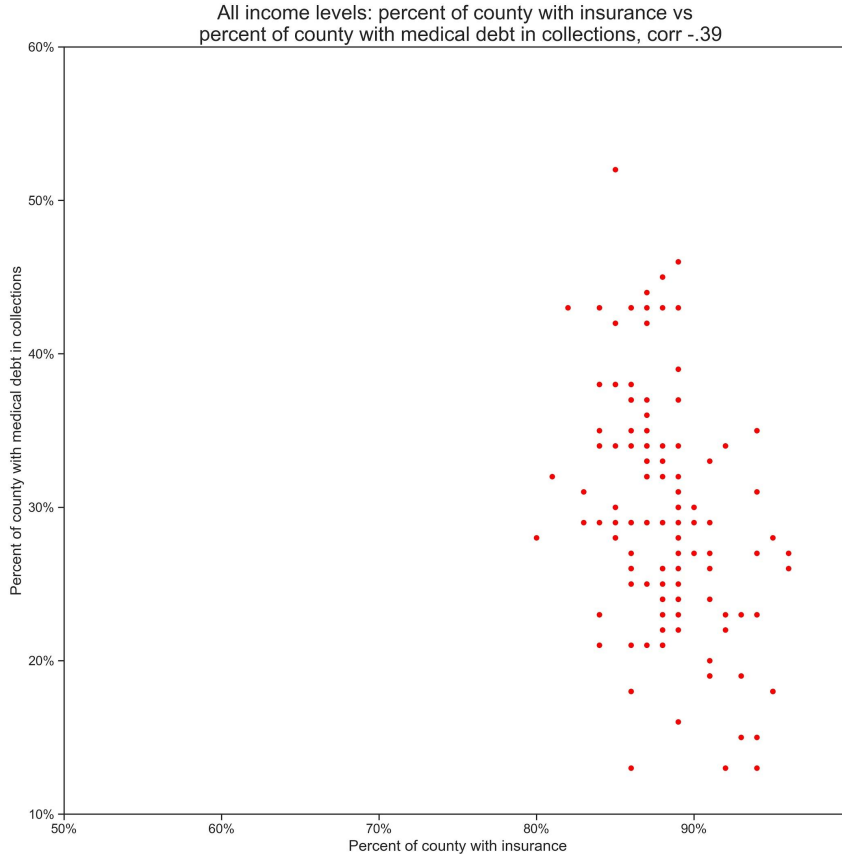


By income

The correlation between percent of county with debt in collections and percent of county with medical debt in collections is stronger at the middle and upper income levels



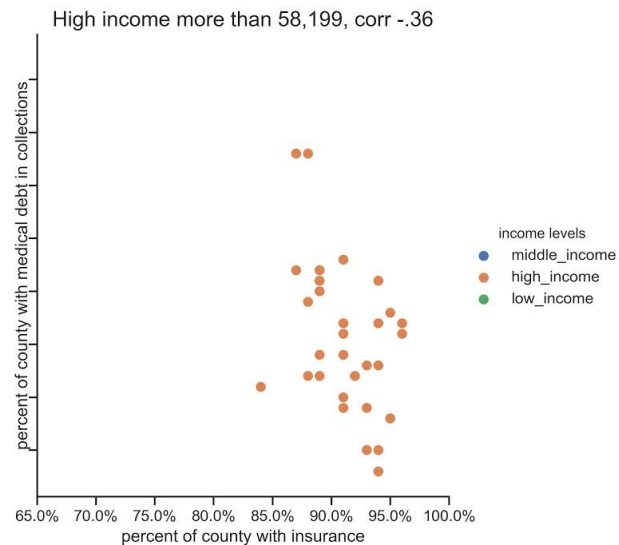
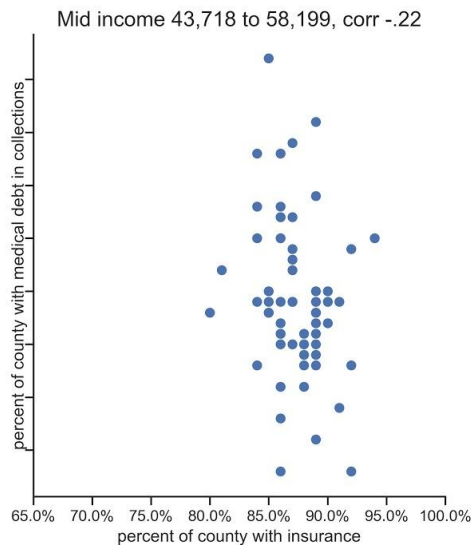
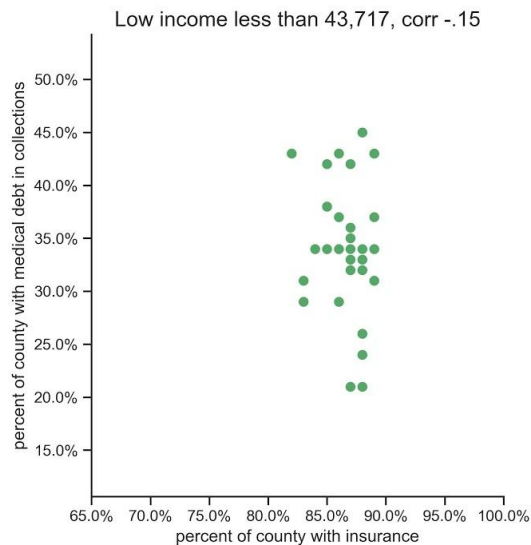
Overall Data



- There is a weak-moderate negative correlation between percent of county with medical debt in collections and percent of county with insurance
- ➔ As we saw with Lenny, insurance is not a strong protective factor against unaffordable medical bills

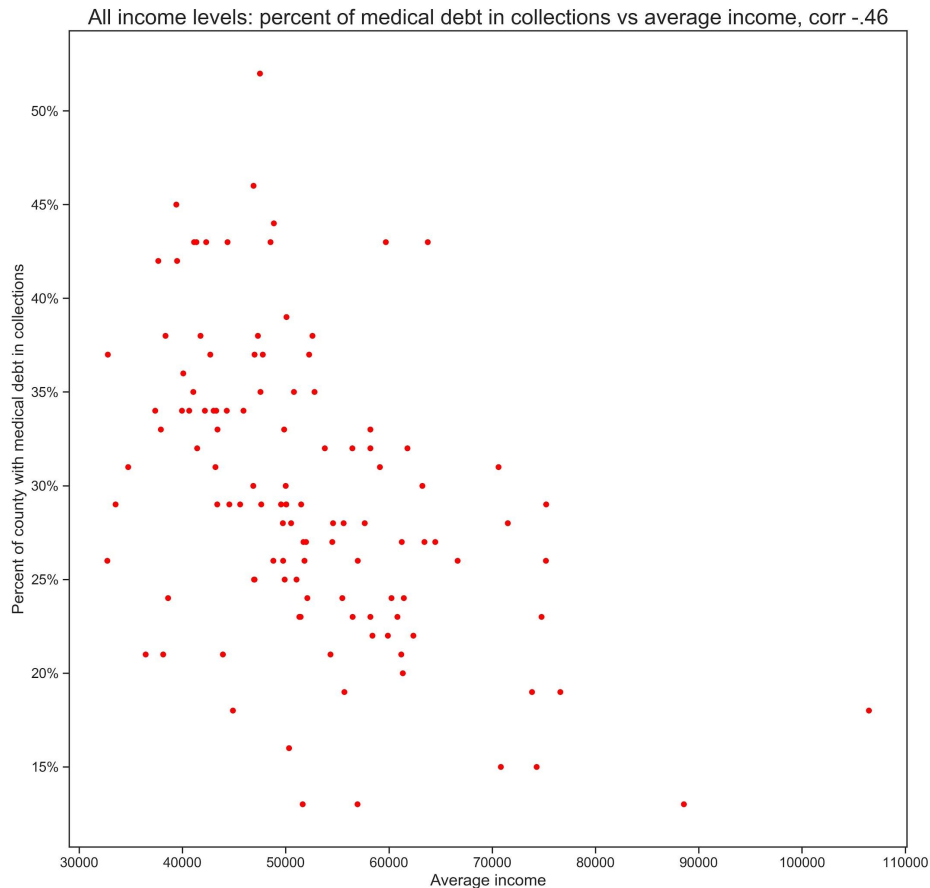
By income

The negative correlation between percent of county with medical debt in collections and percent of county with insurance approaches significance as income level rises



Overall Data

- There is a moderate negative correlation between percent of county with medical debt in collections and income.
- Those with lower incomes like Lenny are less likely to have a pricier insurance plan that helps keep medical bills manageable



By income

Only in higher income counties is there a significant relationship (-.47) between income and the percent of county with medical debt in collections.

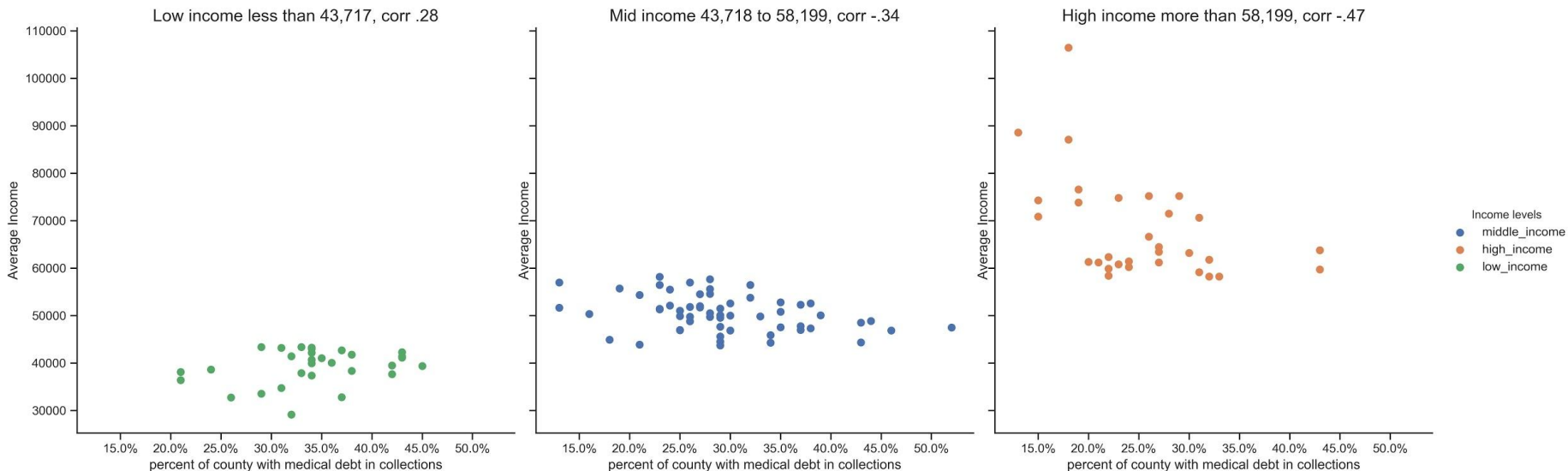


Tableau Dashboard

https://public.tableau.com/shared/CW2XM8XZQ?:display_count=y&origin=viz_share_link

Outcomes

- I expected to find a relationship between the number of people with medical debt in collections and number of people with debt in collections, and I did. Correlation: .85.
- I expected to find a relationship between average income and number of people with medical debt in collections, and I did. Correlation: -.46

Outcomes Continued

- I expected to find a relationship between the number of people with health insurance and number of people with medical debt in collections, and I didn't find a strong one. The correlation was $-.39$
 - Broken down by income levels the correlations are not significant, but approaches significance as income goes up
 - Low income correlation: $-.15$
 - Mid income correlation: $-.22$
 - High income correlation: $-.36$
- This suggests that insurance options for those at lower income levels do little to make healthcare costs manageable (i.e. high deductible plans that cost less but leave them paying more in the event of injury or illness)

Next Steps

- Analyze the same data for other states
- Look closer at the top counties with the highest percent of people with medical debt in collections
 - Poverty rate
 - Health outcomes
 - Income inequality
 - Types of health insurance

Notes/Limitations

- For counties with missing data, I replaced NaN's with the median value for that column.
 - Median debt in collections NaN's were replaced with 1295
 - Median medical debt in collections NaN's were replaced with 623
 - Percent of county with medical debt in collections NaN's were replaced with .29
- The debt data is from 2017 while the bankruptcy data is from 2019
- The data only offers a snapshot in time; I could not look at how characteristics have changed through the years

Sources

Background information

<https://www.kentucky.com/news/health-and-medicine/article233354582.html>

Medical debt in collections data

https://apps.urban.org/features/debt-interactive-map/?type=medical&variable=perc_debt_med&state=21

County bankruptcy data

<https://www.uscourts.gov/statistics-reports/caseload-statistics-data-tables?tn=&pn=All&t=534&m%5Bvalue%5D%5Bmonth%5D=&y%5Bvalue%5D%5Byear%5D=2017>

County population estimates

<http://ksdc.louisville.edu/data-downloads/estimates/>

County boundaries

<https://www.uky.edu/KGS/gis/bounds.htm>