

# OHIO POPULATION NEWS

Issue 39

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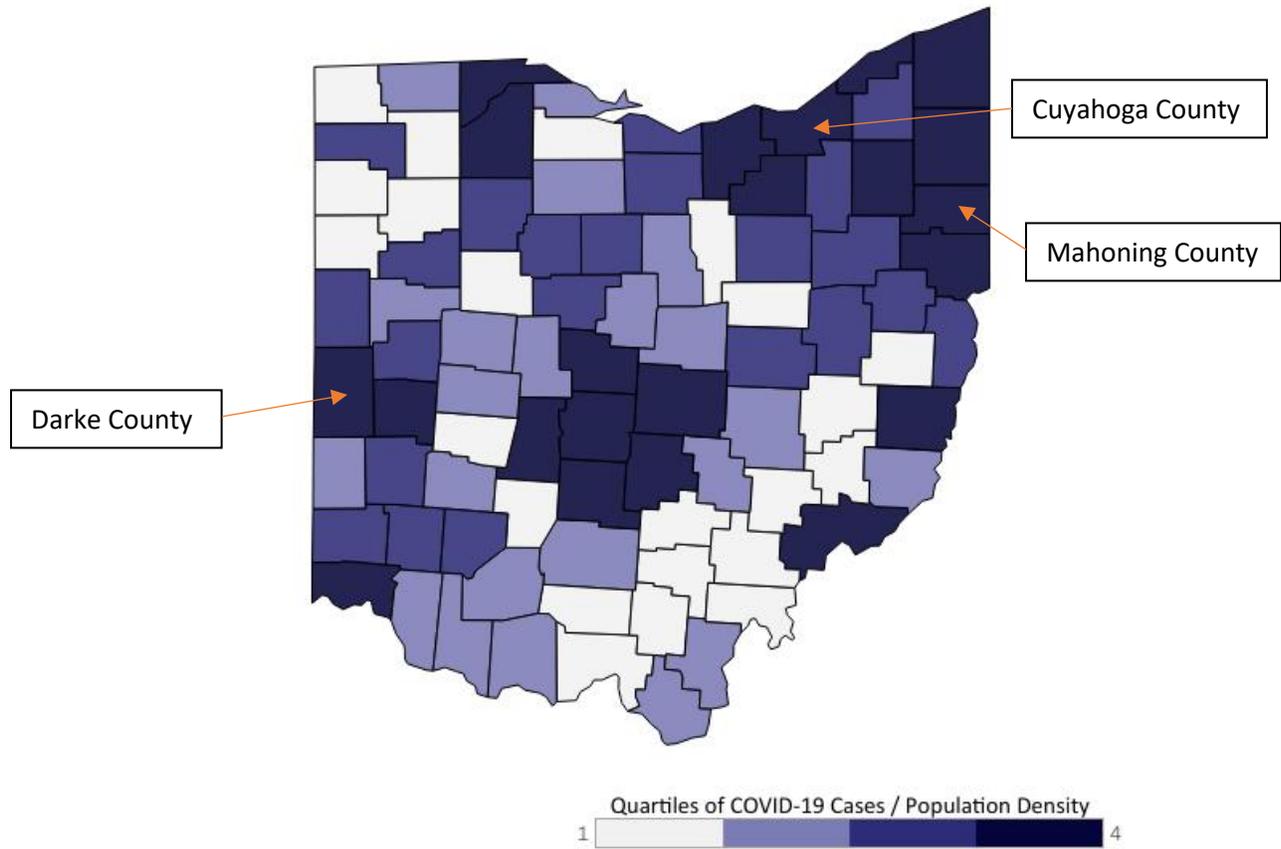
## Rate of Confirmed COVID-19 Cases per Population Density

Population density is recognized as one of the contributing factors associated with COVID-19 transmission. To better understand the role population density might play in the pattern of transmission in the state of Ohio, we computed a rate of confirmed cases (as of 4/7/2020) per population density at the county level where:

$$\text{rate} = \text{number of COVID-19 cases per county} / \text{the population density of the county}$$

We then computed the quartiles of the rate where the darkest shaded counties have the highest rate per density and the lightest have the lowest rate per density.

Figure 1. County-level Quartiles of the Rate of Confirmed COVID-19 Cases per Population Density in Ohio



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Sources: Confirmed COVID-19 cases - Ohio Department of Health COVID-19 Ohio Dashboard <https://coronavirus.ohio.gov/wps/portal/gov/covid-19/dashboards> retrieved 4/7/2020 @ 2:10 pm. Population density - U.S. Census Bureau Decennial Census 2010. Map created in Tableau Public [https://public.tableau.com/views/COVID-19CasesforOhioCounties\\_04-06-20/Dashboard1?:display\\_count=y&publish=yes&:origin=viz\\_share\\_link](https://public.tableau.com/views/COVID-19CasesforOhioCounties_04-06-20/Dashboard1?:display_count=y&publish=yes&:origin=viz_share_link)

Note: The number of confirmed cases represents only a fraction of all infected persons in the population. The number is impacted by several factors, including health seeking behavior, test kit availability, test result turnaround, health systems factors to name a few.

Table 1. Top Five Ranked Counties by COVID-19 Rate per Population Density as of 4/7/20

Rank	County
1	Cuyahoga
2	Mahoning
3	Lucas
4	Lake
5	Darke

- Cuyahoga County has the highest rate of COVID-19 cases per population density.
  - While Cuyahoga County is number 5 in terms of population density among counties, two of the ten most populated cities in Ohio are in Cuyahoga County (Cleveland and Parma).
  - Of the ten most populated cities, Cleveland and Parma are, in fact, the two most densely populated cities at 5,107 and 3,999 people per square mile, respectively.
- Population density is not destiny.
  - Mahoning County has the 2<sup>nd</sup> highest rate of COVID-19 cases per population density but is the 9<sup>th</sup> most densely populated county. The city of Youngstown, in Mahoning County, is the 9<sup>th</sup> most populated city in Ohio at 64,734 people but has the lowest population density among the ten most populated cities at 1,919 people per square mile.
  - Darke County has the 4<sup>th</sup> highest rate per population density but is 61 out of 88 in population density with only 88 people per square mile. Greenville—the county seat—is the most populated city with around 13,000 people.

Table 2. Top Five Ranked Counties by Number of COVID-19 Cases as of 4/7/20

Rank	County	Number of Cases
1	Cuyahoga	911
2	Franklin	703
3	Hamilton	411
4	Lucas	347
5	Mahoning	300

Source: Ohio Department of Health COVID-19 Ohio Dashboard <https://coronavirus.ohio.gov/wps/portal/gov/covid-19/dashboards> retrieved 4/7/2020 @ 2:10 pm.

Table 3. Top Five Ranked Counties by Population Density

Rank	County	Population Density
1	Franklin	2,203
2	Hamilton	1,947
3	Summit	1,289
4	Montgomery	1,152
5	Cuyahoga	1,018

Source: U.S. Census Bureau Decennial Census 2010

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