

Excel 2: Rates and ratios

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Journalists love to compare what's happening in our coverage areas to other places. But how do you compare the number of murders in Corpus Christi (population 307,953) to the number of murders in New York City (population 8,244,910)? We use rates and ratios to "level the playing field" so comparisons can be made across large or small areas.

Definitions

Ratios are comparisons between two values with the same units. Ratios are commonly written as 2:1, or 2 to 1. Percentages are essentially ratios that are less than one. ($1:3 = .33 = 33\%$)

Rates are special cases of ratios that make comparisons between two numbers with *different* units. Some everyday examples include rate of speed (65 miles per hour) or gas mileage for your car (35 miles per gallon).

Examples of rates and ratios

Crime: Comparing homicide rates by population, auto theft rates by zip code, police department's murder case clearance rates, officer to inmate ratio in jails

Health: disease rates per capita, costs of various diseases per capita, nurse to patient ratio of hospitals

Politics and government: comparing spending of various city departments, campaign spending per vote

Business: unemployment rates, economic growth rates, foreclosure rates, administrative costs for nonprofits compared with overall budget,

Education: student to teacher ratios, graduation rates, test scores, per pupil spending

Questions to ask yourself when using rates and ratios

- Does it make sense to compare the two values in my ratio? This is the most basic question, but take time to make sure your comparison is useful and makes sense.

- What universe do I want to use when finding a rate? In other words, does it make sense to use the entire population, or should I use only a segment (population age 18 and up, number of households in the city, etc.)?
- Is my rate or ratio easy to understand? If your rate is a very small number (such as .00035 murders per capita) it is a good idea to multiply by 10,000 or 100,000 and express the rate in terms of 35 murders per 100,000 people.
- Did my rate break down for areas of smaller populations? If so, you might want to compare only the largest areas, or areas of similar size to yours.
- Am I clear with my readers/viewers about how I found this rate? There's often not a right or wrong answer on which numbers to plug into your ratio. Just make it clear for your readers what you were comparing.