Computational Formulas

CRIMES

Crime rate – A crime rate describes the number of crimes reported to law enforcement agencies for every 100,000 persons within a population. A crime rate is calculated by dividing the number of reported crimes by the total population. The result is then multiplied by 100,000. For example, in 2014 there were 48,650 robberies in California and the population was 38,499,378. This equals a robbery crime rate of 126.4 per 100,000.

$$\frac{48{,}650}{38{,}499{,}378} = 0.0012636 \times 100{,}000 = 126.4$$

Clearance rate – A clearance rate describes the percentage of clearances reported to the number of crimes reported. A clearance rate is calculated by dividing the number of clearances by the number of crimes reported. The result is multiplied by 100. For example, in 2014 there were 1,091 clearances for homicide crimes and 1,697 homicides reported. This equals a homicide clearance rate of 64.3 percent.

$$\frac{1{,}091}{1{,}697} = 0.64289 \times 100 = 64.3 \text{ percent}$$

ARRESTS

Arrest rate – An arrest rate describes the number of arrests made by law enforcement agencies per 100,000 total population or per 100,000 population considered to be at risk for arrest. Regardless of the population used, both rates are calculated in the same manner. An arrest rate is calculated by dividing the number of reported arrests by the desired population. The result is multiplied by 100,000.

For example: 1) In 2014, there were 439,958 total felony arrests and the total population was 38,499,378, which equates to a 1,142.8 arrest rate; 2) In 2014, there were 439,958 total felony arrests and the population at risk (10-69 years of age) was 30,190,364, which equates to a 1,457.3 arrest rate.

1) $\frac{439{,}958}{38{,}499{,}378} = 0.0114276 \times 100{,}000 = 1{,}142.8$ per 100,000 population

2) $\frac{439{,}958}{30{,}190{,}364} = 0.0145727 \times 100{,}000 = 1{,}457.3$ per 100,000 population at risk

ADDITIONAL INFORMATION

Percent change – A percent change describes the change in number or rate from one year to another. A percent change is calculated by subtracting the base-year data from the current-year data. The result is divided by the base-year data and multiplied by 100. For example, in 2014 the robbery crime rate was 126.4. In 2009, the robbery crime rate was 172.6. The percent change in rate from 2009 to 2014 is a 26.8 percent decrease.

$$\frac{126.4 - 172.6}{172.6} = -0.26767 \times 100 = -26.8 \text{ percent}$$

Populations at risk – The Arrest tables in this report (16, 17, 22, and 27) include three comparison populations: total (10–69 years of age), adult (18–69 years of age), and juvenile (10–17 years of age).

When a series of rates is calculated using different populations, the rate calculated for the total will not equal the sum of the rates for the parts. For example, the arrest rate calculated using the total at-risk population will not equal the sum of the juvenile arrest rate (based on the juvenile at-risk population) and the adult arrest rate (based on the adult at-risk population).

Also, the percent changes calculated for these at-risk rates cannot be added. This is because the percent change in the total arrest rate is the result of independent changes in both the number of arrests and the at-risk populations of adults and juveniles.