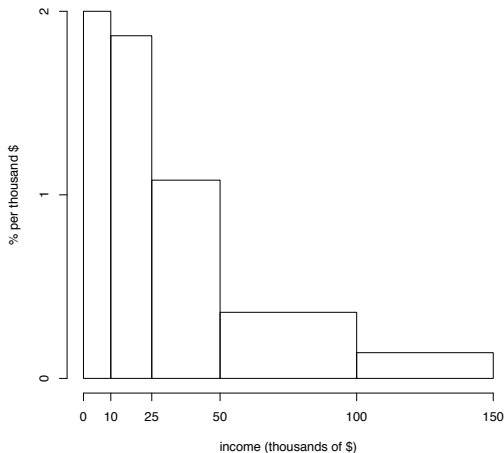# Units on the horizontal axis
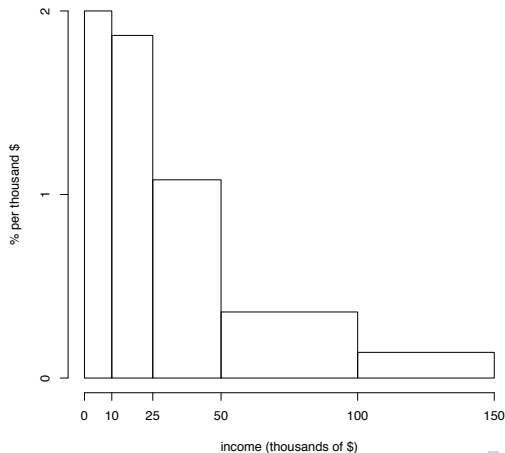
variable: income      units: thousands of dollars

# Units on the vertical axis

units of height: percent per thousand dollars

# The data

**the distribution table, along with the heights of the bars**

| income (thousands of dollars) | percent | height (% per thousand dollars) |
|:---:|:---:|:---:|
| $0 - 10$ | 20 | $20/10 = 2.00$ |
| $10 - 25$ | 28 | $28/15 = 1.87$ |
| $25 - 50$ | 27 | $27/25 = 1.08$ |
| $50 - 100$ | 18 | $18/50 = 0.36$ |
| $100 - 150$ | 7 | $7/50 = 0.14$ |

- The 10-25 bar has more people than the 0-10 bar (28% versus 20%).

# What do the heights measure?

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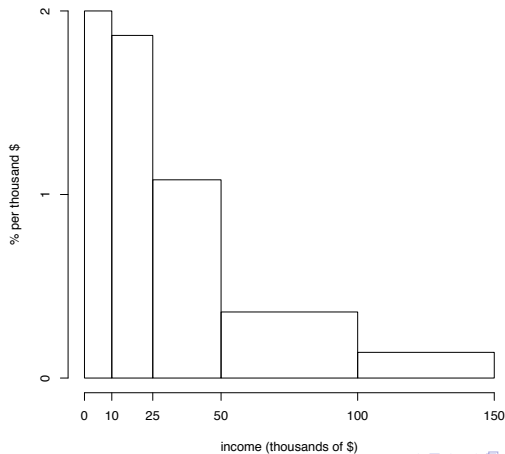So heights *do not* measure "percent of people." Areas measure that.

• Heights measure "percent of people per unit on the horizontal axis"

That's **density**, or crowdedness in the interval.

The 10-25 bar has more people than the 0-10 bar, but it is less crowded.

# Height and crowdedness

units: percent per thousand dollars

# Calculations with the height

| income (thousands of dollars) | percent | height (% per thousand dollars) |
|:---:|:---:|:---:|
| $0 - 10$ | 20 | $20/10 = 2.00$ |
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**Assuming** that the people are uniformly distributed within the bars,

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- about 2% have incomes in the range $5,000 to $6,000

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**Under the assumption of uniformity within bars,**
% in a subinterval = height of bar $\times$ width of subinterval