

Aspects of social stratification

Social stratification involves looking at how scarce resources are distributed in society. In the United States, income is obviously one important scarce resource. Social stratification has consequences. At the individual level, income is related to life consequences, such as the quality and quantity of education, health care, and housing one obtains, and even the how long one lives. In this exercise, we will look at a few of the aspects of stratification and its consequences.

1. To begin, we will look at median income of families with children. (Half of the families have an income above the median income, half are below the median income.) Go to SSDAN KidsCount web site (www.ssdan.net/kidscount) and download the “tool_us.xls” Excel file. Open the tool_us.xls file (click on “Enable Macros” – SSDAN is a reliable source) and click on “Chart”. Then, make “MedianIncomeFamW/Child” the X variable and “Poverty” the Y variable. (Do this by clicking on the X variable box and Y variable box, respectively, and scrolling down to select the specified variable.) Year 1999 is the default year; leave it at 1999.

Once you have selected the X and Y variables, “tool_us.xls” will automatically plot the two variables against each other.

What state has the highest Median Income and what is the median income there? What state has the lowest median income and what is the median income there? (To answer the first question, move the cursor on top of the state with the highest median income. After a second, the name and data values will pop up. Then, move the cursor to the state with the lowest median income.)

What is the median income in Virginia? (You don’t have to move the cursor to every state until you find Virginia. Just click on the “Table” tab at the bottom of the Excel window, and you will get an alphabetical list of states.) What is the median income in the United States as a whole?

2. Now, let’s look at the Percent of children in poverty. You already have selected “Poverty” as the Y variable. Using the same procedures as above, identify the states with the highest and lowest Poverty rate (and the actual rate in those states) as well as the Poverty rate for children in Virginia and the United States as a whole?

What is the geographic distribution of poverty in the United States? To find out, go to the Kids Count web site (www.kidscount.org), click on “2002 Kids Count Data Book Online” click on “Maps”. Select “Percent of children in poverty” as the Indicator and follow the rest of the steps (use 1999 data). How would you describe the geographic distribution of poverty?

3. How are the Median Income and the Percent of Children in Poverty related? I would expect that the higher the Median Income in a state, the fewer children live in poverty. The relationship between Median Income and Percent of Children in Poverty is shown in the graph, called a “scatter plot”. A scatter plot is a simple graph that shows the relationship between two variables by showing a point for each case on a two-dimensional graph (in this situation, each case is a state or the District of Columbia). Looking at a scatter plot, we can get an idea about whether the two variables are related and, if so, how strong the relationship is. As you can see, there is a strong relationship between Median Income and Child Poverty.

One measure of the strength of the relationship between two variables is called a “correlation coefficient”. The correlation coefficient can vary from -1.0 to 1.0 . 1.0 means the two variables are perfectly related to each other in a positive direction; in other words, if one variable increases, the other one increases by a corresponding amount. -1.0 also means the two variables are perfectly related to each other, but in a negative direction; if one variable increases, the other one decreases by a corresponding amount. 0.0 means that the two variables are not related; a change in one variable is not predictably related to a change in the other variable. In practice, correlations are usually not close to 1.0 or -1.0 . A correlation of $.2$ is usually considered a weak relationship; a correlation of $.6$ is strong; a correlation of $.8$ is extremely strong.

What is the correlation between Median Income and Poverty?

4. Next, keep “MedianIncome” as the X variable, and make “%2-year-oldsImmunized” the Y variable. Using the same procedures as above, identify the states with the highest and lowest percent of 2-year-olds immunized (and the actual rate in those states) as well as the immunization rate for 2-year-old children in Virginia and in the United States as a whole.

Notice the relationship between Median Income and Percent of 2-year-olds immunized. It is shown in the graph. As you can see, the relationship is weaker than the relationship between Median Income and Poverty.

What is the correlation between Median Income and Percent of 2-year-olds immunized?

5. Next, keep “MedianIncome” as the X variable, and make “%4thGradersScoring BelowBasicReadingLevel” the Y variable.(Change the year to 1998, because this is the only year available for this variable.) Using the same procedures as above, identify the states with the highest and lowest percent of 4th graders scoring below the basic reading level

(and the actual rate in those states) as well as the percent in Virginia and in the United States as a whole? **Note:** For several states, the chart shows the percent of 4th graders scoring below basic reading level to be 0. “Table” shows that the percent is actually “N/A”, which means “Not Ascertained”. Find the lowest value that is not “0” (i.e., the lowest that IS ascertained).

Notice the relationship between Median Income and Percent of 4th graders scoring below the basic reading level. It is shown in the graph. As you can see, the relationship is weaker than the relationship between Median Income and Poverty, but stronger than the relationship between Median Income and immunization of 2-year-olds.

What is the correlation between Median Income and Percent of 34th graders scoring below the basic reading level? (**Caveat:** The correlation may be in error, due to the problem is “missing data” (values “Not Ascertained”). At this time, we cannot fix this; just be aware of this problem.)

We now have an idea of how the states vary in terms of median income, child poverty, childhood immunization, and basic reading skills. We also have an idea of how Median Income is related to child poverty, the child immunization rate, and 4th grade reading level. How are the latter three variables related to each other?

6. How is child poverty related to childhood immunization? I would expect that the immunization record would be worse in states with more child poverty. Make “Poverty” the X variable and immunization the Y variable. (Make sure the year is “1999” for both variables.) What is the correlation between poverty and immunization?
7. What is the correlation between child poverty and 4th grade reading level? (The year should be 1998 for the reading variable.)
8. What is the correlation between immunization and 4th grade reading level?

We see, then, that median family income, poverty rate, immunization rate, and reading level are all interconnected.

We do not have exactly the same variables for Virginia, but we have some variables that are conceptually similar.

- a. Instead of median family income, we have per capita income (“PCINC”).

- b. Instead of the child poverty rate, we have the percent of children who qualify for free or reduced-price lunch (“LUNCH”)
- c. Instead of 4th grade reading level, we have the percent of 9th-12th graders who dropped out of school (“HSDRP”).

The variables for Virginia are found in the Excel file “tool_va.xls”. Go to SSDAN KidsCount web site (www.ssdan.net/kidscount) and download the “tool_va.xls” Excel file. Open the tool_va.xls file and make “PCINC” the X variable and “LUNCH” the Y variable. (Use the most recent data for both variables – 1999 for PCINC and 1997 for LUNCH.)

9. How is the per capita income related to the percent qualified for free or reduced-price lunch? I would expect that a larger percent would qualify for subsidized lunch in states with a lower per capita income. We can look at this relationship by looking at a scatter plot and the correlation coefficient.

What is the correlation between per capita income and “lunch” in Virginia?

Note that there are four “outliers”. “Outliers” are points that are not close to the other points. There four outliers have substantially higher per capita income, compared to the other counties and cities in Virginia. What are the four outliers? (You can find by putting the cursor on top of a point. After a second, the name of the county or city will appear, as well as the X and Y value for that place.)

10. What is the correlation between per capita income and the percent of 9th-12th graders who dropped out of public school? (Make sure the year for “HSDRP” is 1999.) There are two “outliers” for “HSDRP”. What are they?
11. What is the correlation between the percent of children who qualify for free or reduced-price lunch and the percent of 9th-12th grade students who dropped out of public school? (For “LUNCH”, you will need year 1997.) There are two “outliers”. What are they?

In Virginia, we see that per capita income, children eligible for subsidized lunch programs, and children dropping out of high school are all interrelated.

12. Thinking about states, why is the immunization rate lower in states where the median income is lower? Why is the 4th grade reading level lower in states where the median income is lower?

Thinking about children and families across the nation, what other factors do you think affect whether the child is immunized at age 2 and what his or her reading level is in 4th grade (other than the median income in the state where the child lives)?

