

# Applied Statistics HW 1

1. This question asks you to use the GapMinder site <https://www.gapminder.org/tools>, we discussed in class.
  - a. find at least 3 interesting behaviors that we did not discuss in class. Describe the behavior and the countries involved, and use internet search to determine what events likely contributed to the behavior.

- b. Change the variable on the y-axis from “Life Expectancy” to “Babies per woman”. How have those values changed over time in the world in general, and what relation is there between the country’s per-capita income (x-axis) and the babies-per-woman variable. Is there an overall pattern? Are there exceptions to that pattern?
- c. Continuing from the previous variable, read about the Great Chinese Famine<sup>1</sup> and describe how its effects can be seen in the babies-per-woman graph.

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<sup>1</sup>[https://en.wikipedia.org/wiki/Great\\_Chinese\\_Famine](https://en.wikipedia.org/wiki/Great_Chinese_Famine)

2. In a study on how well wood surfaces resist weathering, various wooden panels were prepared and then exposed to the weather. The following variables were measured. For each of them determine what type it is, and explain what other information you may need to know in order to determine that, if it is not automatically clear.
- a. The type of wood (pine, cedar etc)
  - b. The type of water repellent (either solvent-based or water-based)
  - c. The thickness of the paint applied, in millimeters
  - d. The color of the paint
  - e. The number of months of exposure to the weather
  - f. The latitude of the point of origin of the planks

3. You are about to do a national poll, and here are some of the variables you will be measuring, so these are the kinds of questions you will be asking individuals. Decide what type of variable they are. Some might be unclear on purpose, you will have to provide your own clarification.

a. What political party they support.

b. How old they are.

c. What year they were born in.

d. How many people live in their household.

e. What is the highest level of education they have received (high school bachelors, masters, phd)

f. The number of years they spent on their education.

g. Marital Status.

h. Income Bracket (0-25000, 25000-50000, 50000-100000, 100000 or more).

i. Number of cars owned.

j. Surface area of their house, in square feet.