Information Inequality: the Gender of Knowledge

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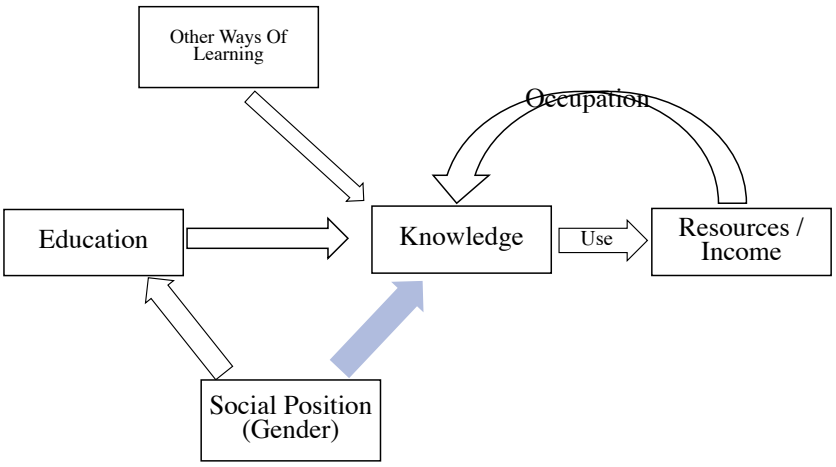
- I argue that a concept I am calling information inequality - or knowledge inequality - is important as both cause and outcome of social inequality.

Why care about information inequality?

1. Differences in information capacity itself are, by definition, a dimension of 'inequality';
   (a) Here I want to note that I do NOT mean to equate knowledge or information capacity with intelligence. Knowledge of facts is only one aspect of knowledge, after all, and IQ measures something more akin to analytic abilities.
2. Information is a potential cause of later inequality in outcomes and access to resources.
   (a) Information discrepancies enable differential access to resources and institutional positions, thereby causing later inequality as well.
3. Differences in the amount of information people have are influenced by unequal social positions in our society; and
   (a) In this research I focus on the idea that social status causes knowledge inequality.
   (b) Specifically, I focus on the impact of gender on knowledge inequality.



Methods

How does the gender gap in knowledge vary by domain?

- So I wanted to perform a wide scan analysis of knowledge inequality, looking at who has and does not have knowledge in different domains, and how those inequalities might compare to each other.
- So I wanted to ask, How does the status gap in knowledge vary by domain?
- And here I mean status in the sense of status characteristics, like gender, class, and race.
- My data include 48 nationally representative data sets from between the years 2005 and 2015, each including at least one knowledge question.

- I collected these data from places like main public opinion survey repositories, the General Social Survey and Pew Research Center.
- A question was included if it asked respondents about factual knowledge - a question with a generally agreed-upon answer
- These are true/false or multiple-choice questions that asked things like:
  - — "True or false: A laser is a concentrated soundwave. The answer is false - lasers are concentrated light waves."
  - — "Who is the vice president?"
- For each question, I mark for each individual whether they got the question correct or incorrect.
- I curated these data and categorized them by domain.
- This resulted in 16 topical domains.

Model

- For each question, I then use logistic regression to predict the probability that an individual will get the question correct.
- I regressed the outcome of correct answer on the independent variables income, gender, race and ethnicity categories, and controls education categories, and age and age squared.

Outcome	Factors
Probability that you get the question correct	Gender
	Income
	Race / Ethnicity
	Age + age^2
	(Education)

Results

How likely are women to get each answer correct compared to men?

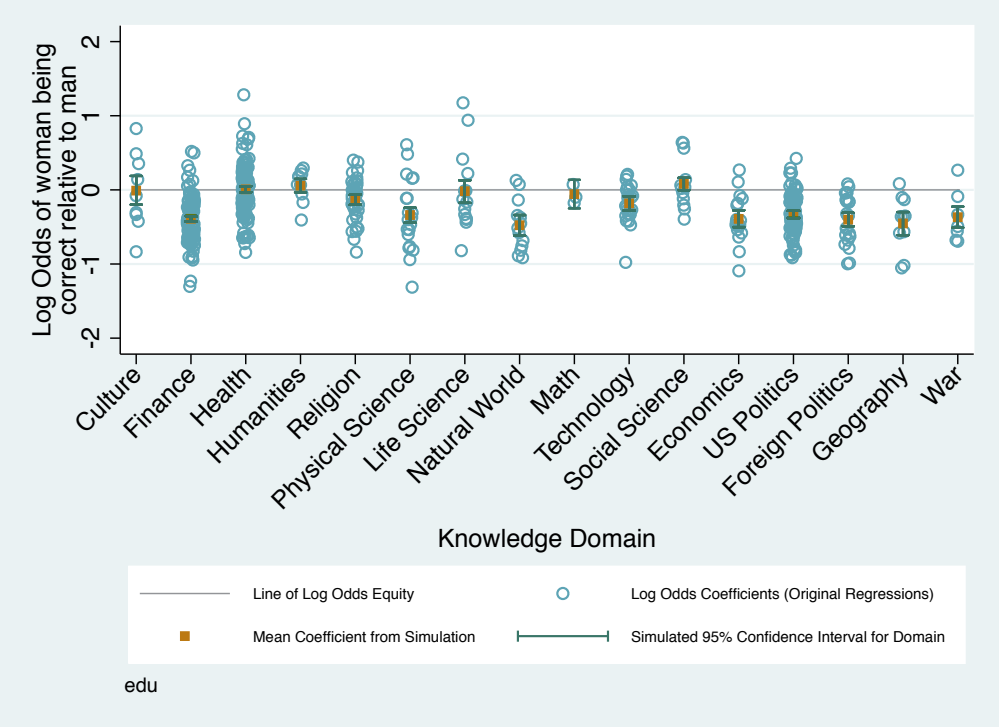


Figure 1: No mean gender difference in 5/16 domains

- So here we see that each blue dot represents an individual question. I have taken about 400 questions and divided them into these 16 domains across the x-axis.
- The yellow square is the mean knowledge level within each domain, and the confidence interval represents 95% simulated certainty around that mean for each domain.
- If there were no difference in the average difference between men and women, we would see the confidence interval bar across the 0 line.
- Here I tested whether gender had a significant effect on knowledge within each entire domain. For each domain, the simulated mean and confidence intervals allow us to see whether there is a significant difference between the 2 gender groups and the direction of that difference.
- While there is no average gender difference in 5 of the 16 domains, men have greater average knowledge in 10 domains.
- Women have greater average knowledge in the domain of social science.
- One interesting difference I would like to focus your attention on is that men have greater average knowledge than women in the domain of religion. This is a surprising result given that U.S. women are much more likely to report that religion is "very important" in their lives, and women are largely responsible for the religious education of children.

What proportion of questions are women more likely to answer correctly?

- For each of these 400 questions, I tested whether the gender difference in knowledge with significant.
- In social science, I found that women answered nearly 20% of the questions correctly more often than men.

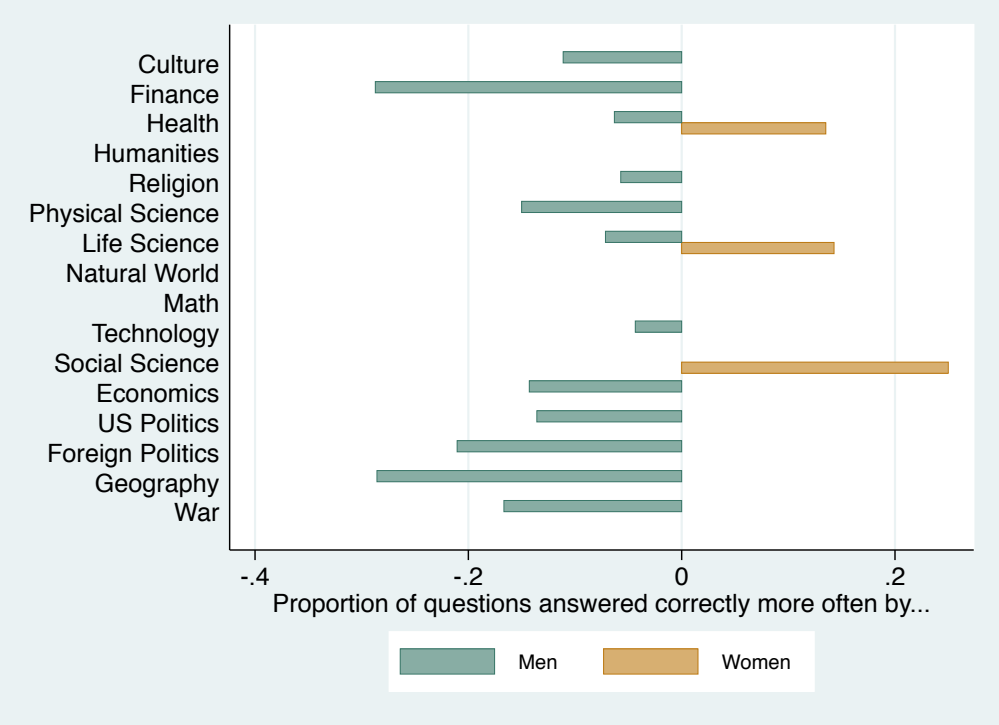


Figure 2: Men answer greater proportion of questions correctly in 69% of domains

- We also see that women answer greater proportion questions correctly in the domain of health.
- One reason we might consider this to be notable is that men's poor health outcomes are typically explained by behavioral differences. Here we see that differences in health outcomes might also be explained by a relatively large enter disparity in health knowledge.
- Men are particularly advantaged in the domains of finance, physical science, foreign politics, geography, and war.
- Overall, Men answer a greater proportion of questions correctly in 69% of the domains, while women answer a greater proportion of questions correctly in 12.5% of the domains.

Relevance

- People have studied knowledge gaps in many of these domains before. What is unique to my study is gathering these domains all together in one comparative framework, allowing us to look at the structured acquisition of knowledge.