Microeconometrics I 2022 - Assignment 2

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Due: TBD

In a developing country, a state-funded health insurance policy targets poor groups in the population. The government conducts a survey that is used to calculate an index, the IFH, and households that cross a certain threshold, cumulatively with other criteria, become eligible. The households don't know how this index is calculated using what they answer in the survey, and they don't know what the cut-off is.

We are going the study the effect of having access to a state funded health insurance on the use a few medical services. We will focus on a district of this country, and in the informal workers, for simplicity.

The full eligibility criteria are, cumulatively

- Calculated IFH below 55
- Water bill below 20
- Electricity bill below 20

You have access to a database (`dataset_trab2_rdd.csv`), as follows

- `hh_id` Household identifier
- `ifh` IFH index as calculated by the government agency
- `water_bill`, `electricity_bill` Value of the corresponding utilities bills
- `woman`, `age`, `educ`, `nb_hh_members`, `hh_woman`, `pc_income`, `pc_spend`, `formal` Covariates, respectively 'member is woman', 'member age', 'member years of education', 'number of members in that household', 'household headed by a woman', 'per-capita income', 'per-capita spending', 'member works in the formal sector'
- `medicines`, `hosp_sugery`, `dental`, `vaccines`: Outcome variables, respectively a binary value if the member has bought medicines, has went to hospital or undergone surgery, has used dental care, or has taken vaccines in the period considered

Using the dataset above, conduct the following analyses, looking at the effect of this policy on each of the four outcomes (medicines, hospital and surgery, dental, vaccines)

1. Discuss the idea of relying on RDD to estimate the causal effects of this policy. For example, discuss under which conditions this could be a reasonable idea, which kind of institutional details or data you could look into to (in)validate this strategy, and so on.
2. Discuss how you would estimate the RDD (for example, fuzzy vs sharp, which variables you would use, and so on).
3. Conduct the data analysis to estimate the treatment effects and evaluate (whenever possible) whether the assumptions for the RDD are reasonable in this setting. If you believe this is a reasonable approach, think of that as your research paper, where you are trying to convince others that you have a great paper. If you don't believe this is a reasonable approach, make the case that we should not believe in these results.