***Econometric Specification***

1. Overall Effects

As a first step, we will estimate the reduced form impact of the CCT on the outcomes of interest. Following the Spatial RDD specification of Melissa Dell (2010), we will run the following regression:

Where *y* records the outcome for pregnant woman (*i)* or child (*c*) in district (*d*). is an indicator variable taking the value of 1 for Umerkot, the treated district, and 0 for Mirpurkhas, the untreated district. The term is a boundary segment fixed effect that ensures that we are comparing women and children that are within the same segment of the coverage boundary, and is the RD polynomial which will be defined as both a function of scalar distance measured between the household and the boundary separating the treatment and control, as well as the function of geographic coordinates for each observation. We control for baseline level household, parent, child, and health facility controls in to improve the precision of estimates and address any baseline imbalance, in the absence of complete randomization.

Since the observations are in geographical proximity, standard errors will be adjusted for spatial correlation and clustering. is the parameter of interest. In the absence of perfect compliance, the coefficient can be interpreted as the Intent-to-Treat Treatment Effect. In addition to the ITT, treatment effects for the compliers will be estimated using an IV-2sls regression where assignment to treatment will instrument actual beneficiary status.

1. Heterogenous Effects: We are interested in three main impact modifiers for which we will run an interaction model as a first step where will be the coefficient of interest.
   1. Empowerment: We will estimate how the treatment effect differs based on how empowered a woman is in her household (at baseline). The degree of her empowerment () will be calculated from the decision-making patterns as well as the incidence of intimate partner violence. The decision-making variable construction will closely follow the SWPER Global Index (Ewerling et al., 2017, 2020), and intimate partner violence captures controlling behavior,

* 1. Attitudes of the decision-makers: The behavior of women with respect to seeking maternal healthcare will depend on how important she thinks it is, and since she may not be the sole decision-maker in the context under study, the attitudes of her husband and any other decision-maker, such as the mother-in-law, may matter too. The four possible scenarios are: the women and other family members are in agreement and consider formal obstetric care to be important, the women and other family members are in agreement and consider formal obstetric care to be unimportant, the women and other family members are in disagreement and the woman considers formal obstetric care to be important, and the women and other family members are in disagreement and the woman considers formal obstetric care to be unimportant. The objective is to see how the CCT interacts with the attitudes of household members. An attitude score will be computed and interacted with the treatment status.

* 1. Economic Costs: Distance and Shadow Price of Labor: The distance will be calculated from the household to the nearest “CCT eligible” health facility () and the shadow price of labor () will be either defined as a function of how busy a woman is or the combined earnings loss of the woman and her company to the hospital.

1. FLOODING

Given the onset of flooding in our study area, we will revise the specification to measure how the CCT’s impact varies by the flood’s severity. This differential impact will be denoted by . Flood extent will be measured at the village level (***v***) which is the smallest geographical unit we have the geographic data/maps for.

The flood severity () variable will be a flexible combination of the area of a village that got flooded and the time it stayed flooded for.

***Differential Flood Impact by Baseline Economic Condition:***

After estimating how the flooding moderates the CCT’s impact, we will assess whether a household’s initial economic condition explains the variation, i.e., whether the severe flooding undoes the benefits of the CCT for the poorest households, or whether flooding affects everyone alike. The households’ economic or wealth condition will be gauged by the ownership of assets, employment type and frequency of income (). In addition to a fully saturated three-way interaction model based on CCT, Flood Severity, and Household Wealth, we will also use methods of machine learning, such as causal forests, to identify important breaks in the data. An obvious advantage of the ML analysis over the usual interaction term model presented above is that it will inform how the data should be grouped and observations combined on multiple dimensions to estimate the treatment effects.