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Thesis Title : **Estimating the Causal Effects of Insurance on Health Outcomes of Women in Zimbabwe: A Propensity Score Approach**

Abstract

Using a sample of 4698 females aged between 15 and 49 from Zimbabwe's 2015 Demographic Health Survey, individual women cross-sectional data, we examined the causal effects of medical insurance on three epidemiological measures of health outcomes namely Body Mass Index (BMI); Anaemic status and; Amenorrhoric status as well as access to medical services. We employed the propensity score-matching framework specified by Rosenbaum & Rubin (1983), and applied the nearest neighbour matching algorithm to estimate the Average Treatment Effects on the Treated (ATT). To estimate the propensity score, we regressed the treatment indicator; insurance dummy, on a set of risk factors, also called potential confounders, following the arguments provided by Gouda Hebe N (2016) and Richard Wyss et al (2012), in a multivariate logistic framework. We obtained an average odd ratio, or propensity score of 23%. Given the plausible argument for conditional independence assumption and the realisation of considerable overlap, or common support, we estimated the causal effects of insurance using T-effects and PSmatch2 programs in Stata and found positive and significant treatment effects of insurance on access to services. However, we obtained negative and statistically significant treatment effects, measured by the average treatment effects on the treated (ATT), of -0.12 on BMI dummy variable whilst the treatment effects on Anaemic status and Amenorrhoric status were both negative and statistically insignificant, implying that insurance has no effect on the two measures of health outcomes.

We also employed simulation based sensitivity analysis suggested and employed by Ichino A et al (2008) to test the robustness of ATT to deviations from the Conditional Independence Assumption. By simulating a confounder U, on randomly selected binary observable covariates (fertility Preference, Provincial dummy and Availability of protected water) used in the multivariate logistic model, and calibrating the ATT with and without the confounder, we found that the point estimates of ATT on BMI (assumed to be a dummy variable), Anaemic status and; Amenorrhoric status are robust to the confounding from the unobservables. Calibrating ATT on observable covariates and U resulted in marginal changes in ATT of 0.37 percentage points, 0.25 percentage points and 0.23 percentage points of BMI, Anaemic status and Amenorrhoric status, respectively. However, the point estimate of BMI continuous seems to reflect significant confounding effects. The results obtained from the study provided mixed causal effects of insurance, both of which failed to accept the null hypothesis of positive of treatment effects of insurance on the treated.