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Impact of intra-household resource allocation on bargaining power for contraceptive use in the rural household of Sub-Saharan Africa: A case study in rural area of Rwanda

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1. Introduction

Understanding intra-household resource allocation has been an active area of research in various research horizons. The collective household model allows us to consider intra-household resource allocation as a result of bargaining between husband and wife in the household. Family planning of the household to define scale of the family, number of children in other words, is also considered as result of bargaining among them. Studies to understand decision of family planning in the household, quantitative studies are limited (Quisumbing and Maluccio; 2000). In addition, the impacts of chosen family planning strategy including methods on intra-household resource allocation are also limited. The purpose of this study is to understand decision making of family planning including choice of devices and impacts of it in intra-household resource allocation by applying frame work of collective household model.

2. Bargaining power for contraceptive use and Intra-household resource allocation

Household in rural area of Rwanda including research area in this study have both knowledge of importance of family planning for their livelihood and accessibility to modern contraceptive devices, however, they feel that hormone contraceptive devices, implant, and injection, which are most preferred, have side effects such as headache, dizziness, nausea, bleeding, and back pain. Those side effects cause changing bargaining power of wife with husband and changing intra-household resource allocation. At first stage, wife can provide her labour input for agriculture and contribute to resource of the household with husband. Under the circumstances, they agree to practice contraception. However, wife cannot provide labour supply at same level before practicing contraception because of side effects of contraceptive devices. Then, at second stage, household faces more severe resource constraint. Furthermore, husband is discontented with the situation and sees those situations as laziness of his wife. In many cases, they agree to stop practicing contraception. At final stage, they agree to stop practice contraception and renew intra-household resource allocation. Because of changing bargaining power of wife, husband takes an initiative for intra-household resource allocation.

3. Research area and Data

Series of household survey, March 2015, September 2015, and March 2016, implemented at two sectors, Rukara and Mwiri in Kayonza District, Eastern province of Rwanda to collect data from 120 households for each sector. Same households had been targeted during the survey period to build panel data. Because of high TFR, returnee from refugee camp in neighboring countries located during several civil wars and a calamitous genocide in 1994 and migration, population is increasing rapidly and almost all residents face severe resource constraint, land constraint.

4. Estimation

First of all, the impact of owned resource by wife on status of contraception in the household is estimated by using binary probit model, equation (1).

$$y_{iht} = \begin{cases} 1, & \text{if } X'_{iht}\beta_h + \varepsilon_{iht} > 0 \\ 0, & \text{Others} \end{cases} \quad \varepsilon_{iht} \sim i. i. d. N(0, \sigma^2) \quad (1)$$

y_i is status of contraception. $y_i = 1$ if they practice contraception and $y_i = 0$ if not. x_i is vector of explanatory variables. Estimated labour supplies of wife in terms of time under non-side effect case and side effect case of contraceptive devices are hired as an indicator of owned resource by wife. Estimated revenue of agricultural products including self-consumption is also hired to reflect impact of owned resource by wife. Collected data is panel data. h and t indicate household and time, respectively.

Second, impacts of owned resource by wife under non-side effect case and side effect case on intra-household resource allocation, for children are estimated by equation (2).

$$y_{ht} = X'_{ht}\beta_h + \varepsilon_{ht} \quad \varepsilon_{ht} \sim i. i. d. N(0, \sigma^2) \quad (2)$$

The indicator of intra-household resource allocation, y_{ht} , is expenditure share of sharable goods, expenditure share of cloths and food wear for children to total expenditure of them in the household. Indicators of resource by wife under non-side effect case and side effect case in equation (1) is also hired. Other variables for the household such as holding land size, education levels of parents, number of family members, and total expenditure of the household are included to identify idiosyncratic factor of the household. In order to obtain stable results, Bayesian estimation methods, Markov Chain Monte Carlo (MCMC), is hired. Estimation algorithm for it is Gives Sampler.

5. Result and discussion

Estimation results of equation (1) indicate that estimated labour supplies of wife and revenue of agricultural products including self-consumption have impacts of decision making of contraception in the household. It is inferred that decreasing owned resources, which are labour supply and cultivating crops, let wife decrease her bargaining power with husband and prevent her from contraception. It leads unwanted pregnancy to have larger family size causing more severe resource constraint. In addition to estimation results of (1), it is ascertained that decreasing owned resources have negative impacts on intra-resource allocation for children in the household. Preventing wife from contraception causes both decreasing bargaining power with husband and unwanted pregnancy to increase family size. Those both factors decrease make intra-household resource allocation for children in the household sever. It is ascertained that larger number of children in the household are allocated smaller share of expenditure for non-sharable goods from collected data. Instead of decreasing expenditure for non-sharable goods of children, increasing expenditure for non-sharable goods of husband is found.

6. Summary

This study reveals the dynamics of relation between family planning strategies and intra-household resource allocation. Rwanda which is recognized as the country implements successful family planning policy is chosen as case study area. Residents in rural area of Kayonza district, Eastern province have well knowledge of contraception and access to modern contraceptive devices. They use hormone contraceptive methods because of their socio-cultural background based on agreements between wife and husband. The agreements rely heavily on bargaining power from owned resource such as labour supply and cultivated crops by wife and husband. However, owned resource by wife decreases because side effect of those contraceptive devices let her prevent from working. The household does not only face more sever resource constraint but also renew intra-household resource allocation for children. At last, they must decide to stop practicing contraception. This circumstance is a sort of vicious circle of poverty.