

1 **The bargaining power of female within household and choice of contraceptive methods with**
2 **side-effect of hormonal contraceptive methods in sub-Sahara Africa**

3
4 **1. Introduction**

5 It is needless to say that providing opportunity to choose contraceptive methods freely for female is
6 one of the cores of reproductive health rights defined at International Conference on Population and
7 Development (ICPD) 1994. However, Anderson (2017) reveals that bargaining power of females defines
8 sexual behavior and choice of contraceptive method with her partner. The bargaining power of female
9 within the household dissimilated between countries hiring common law and countries hiring civil law
10 because degree of property right of female is affected by both legal systems and socio-cultural background
11 of them in sub-Sahara Africa. Although male condom can prevent the couple from sexually transmitted
12 infections (STIs) and unwanted pregnancy, cooperation of male is necessary to use it because it is a burden
13 on male more than hormonal contraceptive methods. As a result, hormonal contraceptive methods such as
14 implant, injection and pill are chosen in the household of rural area of developing countries frequently
15 because it is less burden on male of using them than using male condom. However, side effect of hormonal
16 contraceptive methods is recognized often. Matsuda et al (2017) found that side effect of hormonal
17 contraceptive methods prevents females from providing labour input for farming and housework including
18 childcare in rural area of Rwanda. Furthermore, husband discontented with the situation and sees those
19 situations as laziness of his wife. In many cases, they agree to stop practicing contraception and face
20 unwanted pregnancy. Although switching from hormonal contraceptive methods to male condom is better
21 solution, it is difficult for female to negotiate using male condom with her partner because of difference of
22 bargaining power of them.

23 The purpose of this study is to examine whether legal systems, common law and civil law, which
24 affects bargaining power of female within the household through ensuring property rights, defines choice
25 of contraceptive methods after side effect of hormonal contraceptive methods is recognized by the couples
26 in sub-Sahara Africa.

27
28 **2. Data**

29 Anderson (2017) reveals that bargaining power of female within the household, gender inequality in

30 other words, has been dissimilated between countries hiring common law and countries hiring civil law as
31 indicated in the previous section. Primary used data in this study is chosen after Anderson (2017). First of
32 all, choice of the contraceptive method after having side effect by the previous hormonal contraceptive
33 method is obtained from Demographic Health Survey (DHS). Data of legal system, common law and civil
34 law, at country level is from dataset provided by La Porta, Lopez-de-Silanes, and Shleifer (2008). It does
35 not always that enforcement of the legal system is disseminated to all the nation. Furthermore, an area
36 close to boarder may be affected by legal institution of next country. Because DHS provides GPS
37 information of individual household, impact of this is examined by the distance from border. In order to
38 capture geographical feature other than distance from border to the area, geographical data such as
39 population density, elevation, land suitability for agriculture, malaria suitability index, climate, distance to
40 the capital city, distance to the sea coast is created at grid cell level as following Michalopoulos and
41 Papaioannou (2013 and 2014). This geographical data can also be indicators of physical, socio-cultural and
42 economic environment of the individuals. Ethnicity is also one of the most critical factors of choice of
43 contraceptive method based on bargaining power of female within the household. Ethnicity in the area is
44 obtained from George Peter Murdock's Ethnographic Map of Africa as following Anderson (2017). In
45 addition to data indicated above, per-capita GDP is used as an indictor of development at national level.

46

47 **3. Estimation Method**

48 Equation indicated below is estimated. Y_{rcepi} is dummy variable of choice of the contraceptive method
49 after having side effect by the previous hormonal contraceptive method, and equal one if male condom is
50 selected after side effect is recognized and equal zero if stop contraception or keep using hormonal
51 contraceptive method.

52

$$53 \quad Y_{rcegi} = \alpha_0 + \alpha_1 L_{rc} + \alpha_2 X_{rc} + \alpha_3 X_{rceg} + \alpha_4 X_{rcegi} + f(BD_{rceg}) + \delta_e + \gamma_r + \lambda_t + \epsilon_{rcegi}$$

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55 r indicates residing region of individual i , c indicates country, e indicates ethnic homeland, and g indicates
56 grid cell, respectively. L_{rc} is a variable for legal system. L is equal to one if the country hires a common
57 low legal system, and L is equal to 0 if the country hires a civil law legal system. X_{rc} is GDP per-capita and
58 X_{rceg} is a variable at grid cell level to geographical feature by distance from border to the area,

59 geographical data such as population density, elevation, land suitability for agriculture, malaria suitability
60 index, climate, distance to the capital city, distance to the sea coast is including. X_{rcegi} is a variable for
61 control of individual feature such as age and education, δ_e is a variable to capture ethnicity level as fixed
62 effect, γ_r is a variable for regional fixed effect. λ_i is Anderson (2017) estimates the relationship between
63 legal system, civil law and common law, and bargaining power of female within the household by
64 regression discontinuity (RD) approach. Anderson (2017) implement the estimation with consideration of
65 spatial correlation at the ethnicity and country level by ε_{rcegi} . In this study, hierarchical Bayes logit model
66 with structure space is estimated by MCMC (Markov Chain Monte Carlo) in order to consider
67 heterogeneity of individual and mutual effect among areas by spatial contiguity and to alleviate
68 geographical discontinuation caused by data unit based on administrative boundary.

69

70 **4. Results and Discussion**

71 Side effect of hormonal contraceptive methods prevent female from providing labour input for both
72 productive and reproductive activities because it has bad influence on the health condition. Despite of the
73 bad health status, female with less bargaining power within the household is limited to negotiate with the
74 partner because male perceives it as laziness of his partner. In addition, bargaining power of female is
75 defined by owned resource which is ensured by property right under the legal system. Those are main
76 hypothesis of this study. It is found that side effects of hormonal contraceptive methods are recognized by
77 female frequently in sub-Saharan African countries targeted by DHS. The estimation results indicate that,
78 even in the first stage of choice contraceptive method, females in common law country of sub-Saharan
79 Africa are likely to use hormonal contraceptive methods and recognize side-effects of them. Furthermore,
80 in the second stage of choice of contraceptive method after recognition of the side effect, females residing
81 in common law countries are significantly less likely to use a contraception method requiring consent from
82 her male partner. These results correspond to the central hypothesis of this study. As Anderson (2017)
83 found that positive correlation between marital property right of female and distance from border of
84 common law country in civil law country, simulated probability of choice of male condom after
85 recognition of side effect of hormonal contraceptive method has positive correlation with distance from
86 border of common law country in civil law country. The results indicate that females reside in civil law

87 country is easier to negotiate with their male partners to use male condom after recognition of side effects
88 of hormonal contraceptive methods because the marital property rights are ensured by the legal system.

89

90 **5. Summary**

91 The purpose of this study is to examine whether legal systems, common law and civil law, which
92 affects bargaining power of women within the household through ensuring property rights defines choice
93 of contraceptive methods after side effect of hormonal contraceptive methods is recognized by the couples
94 in sub-Sahara Africa. This central hypothesis is confirmed as indicated in the previous section. Side effects
95 of hormonal contraceptive methods affect health status of female and prevents female from providing
96 labour input for productive and reproductive work in the household. It means that the household likely to
97 face decreasing welfare of the household because of severer resource constraint from reducing labour input
98 of female and bargaining power of female within the household likely to be reduced because it is difficult
99 to contribute to create resources for the household. Reproductive health rights concept established in ICPD
100 in 1994 contributes to protect rights of female in terms of health, particularly. However, as this study
101 suggest, it relates to dynamics of bargaining power of female within the household as well as loss of
102 welfare of the household.

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104 **Reference**

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