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Objective: The aim of this study is to analyze the overall trend in factors of the non-use of modern contraceptive methods among married or cohabiting women from 2006 to 2017.

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Results: Fear of side effects and opposition from women or partners were the main reasons given by women in a union in 2006 (21.0%; 11.4%) and 2017-2018 (18.4%; 35.5%) for refusing to use modern contraceptives. At the bivariate level, except for the variable information received on family planning in 2017 and the number of child deaths, a significant association at the 1% level was established between the non-use of modern methods and the independent variables. However, a decrease in proportion was recorded in the different subgroups of variables and especially in contraceptive decision-making.

With a difference of 51 points, 70.8% of women reported not deciding to use contraceptives within the couple in 2006 versus 19.5% in 2017.

The Oaxaca-Blinder multivariate decomposition revealed that 87.5% of the observed changes in contraceptive use were due to differences in coefficients and 12.4% to differences in characteristics. Family planning information, religion, department of residence, household standard of living, number of deceased children, contraceptive decision, and husband's desire to have children were significantly associated with the non-use of modern contraceptives between 2006 and 2017.

Recommendations: Family planning programs and policies should be strengthened in all departments by involving spouses and partners more. Lifestyle improvement measures should be encouraged to ensure equitable access to contraceptives.

Keyword: Benin, family planning, contraception, reproductive health, women.

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I. INTRODUCTION

After the 1994 Cairo conference, international support for family planning impacted millions of people through its role in reducing poverty, improving health and human development. Benin has not remained on the sidelines of these changes and in its commitment to controlling its population growth. It has undertaken a series of reforms to its health system to promote reproductive health through the Ministry of Health by offering family planning services in all

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health facilities (Ministry of Health, 2012). These actions are reinforced by the remarkable support and intervention of several Technical and Financial Partners (TFPs) and Civil Society Organisations (CSOs). In 2020, the additional number of Beninese women using modern contraception was estimated at 204,000, the modern contraceptive prevalence rate at 13.0%, and the unmet need for modern contraception at 35.3% (Scoggins S and al, 2020).

In addition, it is estimated that 131,000 unintended pregnancies, 46,000 unsafe abortions and 340 maternal deaths will be averted by modern contraception in 2019. Therefore, women's use of contraceptive methods has economic, health, and social benefits for the community. Despite these efforts, the contraceptive security index in Benin remains relatively low, calling for additional initiatives to achieve the goals related to new aspirations in reproductive health and contraceptive practice (USAID, 2012). Today, opposition to the use of modern contraceptive methods, particularly among women in union, is perceptible in Beninese society, with disparities between regions. Hence the importance of understanding the obstacles to the utilization of modern contraceptives within couples. This study aims to analyze the evolution of the determinant factors of the non-use of modern contraception among women in a union in Benin between 2006 and 2017.

1.1 Literature Review

Several research studies have explored the different facets of family planning (FP), of which contraceptive practice is one of the topics of interest in demographic research (Ngo Mayack and al., 2019). Women's FP behaviors are analyzed under the prism of service supply and demand. According to Morhason-Bello IO and al (2022), the low level of family planning uptake in Nigeria is due to demand and supply side factors.

1.1.1 Service delivery approach

According to this approach, the decision to use contraception depends on the availability and accessibility of services, which consider several dimensions. Availability refers to the existence of suitable FP service centers and, above all, the availability to the population of a variety of modern contraceptive methods capable of stimulating the use of family planning services.

The accessibility of services, it refers to geographical, economic, administrative, cognitive, and psychosocial accessibility (Bertrand JT et al, 1995).

Geographical accessibility indicates the physical location of services in relation to the place of residence of households and the obstacles encountered by the latter to access the products made available. Indeed, the further away the health facility offering FP services is, the fewer women use it (Moussa Z, 2011). Accessibility to family planning services improves women's knowledge and practice of contraception.

Economic accessibility relates to the affordability of the direct and indirect costs of contraception, which are the unit selling prices of contraceptive products, the expenses related to consultation and travel as well as the waiting time in health centers influence the use of FP services (Rwenge M., and al, 2019) and therefore the choice of contraceptive method. Indeed, the high cost of modern contraception and the quality of services offered are constraints for economically disadvantaged women to use traditional methods more than modern ones. Administrative accessibility refers to the institutional and legal framework that can influence contraceptive practices. The policy context is the normative framework for FP intervention, where laws and regulations, as well as strategies and programmes that govern contraceptive behavior, are defined. For example, some laws that require a woman to have her husband's permission to use contraception restrict women's access to family planning services (Lenan G., 2009). Cognitive accessibility provides information on individuals' knowledge of contraceptive methods and FP centers. A study conducted in the Mumbunda health zone in Lubumbashi, DRC, showed that women with a high level of knowledge about contraceptive methods were twice as likely to be users of contraceptive methods as those with a low level of knowledge (Charles M., and al, 2015).

Psychosocial accessibility addresses social factors that may prevent a woman from comfortably adopting better contraceptive practices. These include beliefs and stereotypes about contraception etc.

1.1.2 Demand Approach

This approach encompasses three dimensions that are decisive in the decision to use or not to use contraception. These are the economic, socio-cultural, and socio-demographic dimensi--ons.

1.1.2.1 Economic dimensions of demand

Low-income households are facing financial challenges in terms of the cost of counseling, contraceptive supplies and transportation which limit their access to family planning services. According to the results of the fifth Benin Demographic and Health Survey, the percentage of women in union with a high quintile of economic well-being who use modern contraception is double their counterparts with the lowest level of economic well-being (INSAE, 2017). Furthermore, occupation (type of economic activity) is also likely to influence contraceptive practices among women. In this context, Nounké K. (2011) notes that women in the modern sector, due to specific difficulties linked to their activity, including those of reconciling the function of mother and professional, tend to control their birth by resorting to the use of contraceptives.

1.1.2.2 Socio-cultural dimensions of demand

Cultural factors are equally important in understanding couples' choice of family planning and contraception (Mbarambara P. and al, 2016). Several authors have highlighted the central role of elements of tradition in explaining reproductive behavior in families. According to Noumbissi A. and al (2000), the low prevalence of modern contraception is due to the pro-natalist mentality maintained by the norms and values of the culture that values high fertility. Indeed, the perception of children in traditional African societies reflects a preference for high fertility among couples. This does not encourage a strong demand for contraceptive methods. In Africa, not only is the child considered a gift from God that perpetuates the family lineage, it is also a gain (or wealth) for the parents and therefore supposed to ensure their economic and social development (Kouadio A and al, 2015). These social representations of the child justify couples' reluctance to regulate births through modern contraception.

Furthermore, the social environment characterized by ethnicity, place of residence during childhood and religion influences women's contraceptive practices as well as the environment in which fertility is achieved and whether or not they live with their spouse (Mayack J., and al 2017).

1.1.2.3 Socio-demographic dimensions of demand

Age appears to be one of the reasons for contraceptive failure, the immediate conse-quences of unwanted pregnancies and sexually transmitted infections and diseases (STIs). In Brazil, the work of Da Costa Leite, I. and al (2007) has shown that the risk of contraceptive failure decreases at older ages in women and this may be due to the decline in their fertility. The relationship between women's marital status and contraceptive use is established in the African context. Thus, sexually active women who are single or in a broken union (divorced, widowed) are more predisposed to the use of modern contraceptive methods than those in a conjugal union for economic and social reasons at times (Fassassi R., 2006). Women's fertility plans, which are reflected in their desire or refusal to have additional children, may lead them to adopt specific contraceptive behaviors. In this case, contraception represents a strategy for stopping births. The risk of not using contraception increases with the occurrence of childbirth and the desire of women to have both sexes in their offspring. The results of the study by Vignikin K. (2004) go to the same direction. Among other things, the gender relationship, which is illustrated by the man's involvement in favor of contraception, his opinion and the dialogue within the couple on family planning issues, was recognised as influencing the woman's contraceptive behavior. Regarding spousal exchanges, the study conducted by Charles M. and al (2015), showed that women who frequently

discussed with their partners were 6 times more likely to use modern contraceptives than those who never discussed. On the other hand, the spouse's profile, such as education level and occupation, was also admitted as a factor that may affect a woman's decision whether or not to use contraception for the total satisfaction of her FP needs.

II. METHODS

2.1 Data sources

The data for this survey comes from the Benin Demographic and Health Surveys (BDHS) conducted in 2006 and 2017-2018. Their sampling is based on a two-stage stratified cluster survey. In the first stage, clusters were chosen proportionally to their size from the list of DZs. In the second stage, households in which women were surveyed were selected randomly with equal probability from each cluster. This is a quantitative study with an analytical focus.

Married or cohabiting women aged 15-49 are the study population. According to the two survey rounds, there is a nationally representative sample of 13403 and 11169 women in a union in 2006 and 2017-2018 respectively. This data source is appropriate due to the good quality of contraception data collected.

2.2 Variables

2.2.1. Dependent variable

Information on contraceptive means or methods was collected from women in both DHS (2006 and 2017-2018). The variable to be explained is the non- use of modern contraceptive methods.

The study focuses on women in unions consisting of women aged 15-49 who are married or cohabiting at the time of the survey. The dependent variable is dichotomous, taking the value of 1 if the woman is not currently using any modern contraceptive method and 0 if she is using a modern method of contraception.

2.2.2. Independent Variables

The explanatory variables of the study take into account the supply and demand dimensions. These include: information received by the respondent on FP from community health workers, exposure to the mass media, place of residence, department of residence, religious affiliation, the woman's level of education, age, number of living children (parity), number of deceased children, the woman's professional occupation, the household's standard of living, the contraceptive decision and the husband's desire to have children

2.3 Analysis

Analysis process followed three steps. First, we describe the variation in the non-use of modern contraception according to the different characteristics. We evaluate the association between the dependent variable and each of the independent variables using the chi-square test at the 5% threshold ($p<0.05$). In the second step, we looked for the determinants of the non-use of modern contraceptive methods between 2006 and 2017 using a binary logistic estimation. We then applied the Oaxaca-Blinder multivariate decomposition method to analyze the changes observed in the evolution of modern contraceptive practice over the last eleven (11) years.

2.3.1 Oaxaca-Blinder Multivariate Decomposition Method

The Oaxaca-Blinder decomposition was used to identify and quantify the variables that contributed most to the decline in the proportion of women not using modern contraception between 2006 and 2017. In addition, the Oaxaca-Blinder decomposition technique generally describes the average difference in the variable of interest between two groups. This difference is comprized in two effects or components. First, the characteristics (or endowment) effect explains the difference between groups by the different levels of the observed characteristics. Second, the coefficient effect, again defined by the unexplained component, is closely associated with differences in the coefficients attributable to unobservable variables.

In this study, we opted for the Oaxaca-Blinder decomposition based on logistic regression. The general expression of the non-linear

decomposition of which the Oaxaca-Blinder decomposition is a part is written as

$$\overline{Y^1} - \overline{Y^2} = \underbrace{\left[\frac{1}{N^1}\sum_{k=1}^{N^1} F\left(\beta^1 X_k^1\right) - \frac{1}{N^2}\sum_{k=1}^{N^2} F\left(\beta^1 X_k^2\right)\right]}_{\text{Explained share}} + \underbrace{\left[\frac{1}{N^2}\sum_{k=1}^{N^2} F\left(\beta^1 X_k^2\right) - \frac{1}{N^2}\sum_{k=1}^{N^2} F\left(\beta^2 X_k^2\right)\right]}_{\text{Unexplained share}}$$

$\overline{Y^1} - \overline{Y^2}$ Difference in the probability of the predicted mean of the dependent variable (in this case non-use of modern contraception) between the two groups with N^1 the number of individuals in group 1 (i.e. year 2006) and N^2that of group 2 (i.e. year 2017);

F: Cumulative distribution function ;
Xk: the matrix of k independent variables and β a vector of logistic regression coefficients.

III. RESULTS

3.1 Changes in non-use of modern contraception by characteristics

The proportion of married or cohabiting women who do not use modern contraceptive methods fell between 2006 and 2017 from 93.9% to 87.6% respectively, a decrease of 6.3%.

The proportion of women not exposed to the mass media who do not use modern contraception has decreased by 7.2 percentage points between 2006 and 2017. The same is true for women in union who have not received information on FP from community health workers (6.2%). Analysis by area of residence shows that the percentage gap of married or cohabiting women in rural areas not using modern contraceptive methods is decreasing (6.2%) compared to women in urban areas (1.1%). At the departmental level, Mono experienced the greatest decline in the number of women in union who do not use modern contraception, followed by Alibori and Zou, with a 13.7%, 9.5% and 9.3% difference, respectively. On the other hand, the proportion remained unchanged among women in Couffo, with a 0-point difference. Concerning religion, the drop in the proportion of women who do not use modern contraceptive methods is high among women who practice Christianity (6.7%) between 2006 and 2017. In the same period, there was a decrease of women not using modern contraception who had no education, a reduction of 6.4 percentage points. We also note that adolescents aged 15-19 years use modern contraception less, even if their proportion fell slightly from 2006 to 2017 (2.3%). On the other hand, contraceptive prevalence is increasing among women farmers (5.3%) and in other sectors (6.5%) as well as among women from poorer (7.0%) and middle-income households (6.9%). In the same way, we record a low prevalence of non-use of modern contraception from 2006 to 2017 among women in unions who have 4 or more children. This suggests that from 4 live births onwards, women seek to control or limit their reproduction. On the other hand, women who have never had a deceased child are less likely to use contraceptive methods, by 5.8 percentage points between 2006 and 2017. The proportion of women who decide to use contraception within their couples increased significantly between 2006 and 2017. The difference in contraceptive prevalence is estimated at 51.2% when the decision is made by the woman, 44.5% when the decision is made together, and 26.1% when the decision to use contraception is made by the man alone. Women whose spouses or partners want fewer children tend to use modern contraceptive methods more. The proportion of these non-users fell from 89.6% in 2006 to 82.5% in 2017.

Table 1: Percentage of married or cohabiting women aged 15-49 not using modern contraception by selected characteristics

Independent variables	EDSB 2006		EDSB 2017-2018		Difference
	%	N	%	N	
Exposure to mass media					
Yes	91,4	6296	85,6	4409	-5,8
No	96,5	6283	89,3	5373	-7,2
Pearson chi2	p=0,000		p=0,000		
Information on FP for community health workers					
No	93,9	4200	87,7	2912	-6,2
Yes	87,5	1244	86,4	1790	-1,1
Pearson chi2	p=0,000		p=0,153		
Place of residence					
Urban	91,0	4434	85,5	3787	-5,5
Rural	95,5	8144	89,0	5995	-6,5
Pearson chi2	p=0,000		p=0,000		
Department					
Alibori	96,0	1097	86,5	1340	-9,5
Atacora	94,9	819	90,0	803	-4,8
Atlantic	94,8	1462	86,3	1131	-8,6
Borgou	93,3	1190	88,0	1215	-5,4
Hills	89,7	873	81,9	604	-7,9
Couffo	95,5	1074	95,5	710	0,1
Donga	96,1	515	94,1	674	-2,0
Coastal	89,2	925	80,8	445	-8,4
Mono	95,7	776	82,0	421	-13,7
Ouémé	91,0	1684	84,8	835	-6,2
Tray	96,6	697	94,3	668	-2,3
Zou	96,0	1466	86,7	936	-9,3
Pearson chi2	p=0,000		p=0,000		
Religion					
Endogenous	96,7	2505	91,4	1038	-5,3
Muslim	94,6	2948	89,4	3279	-5,3
Christian	92,2	6409	85,6	4937	-6,7
Without religion	95,6	683	89,0	529	-6,6
Pearson chi2	p=0,000		p=0,000		
Woman's level of education					
No	95,6	9425	89,2	6612	-6,4
Primary	91,2	2175	85,2	1689	-6,0
Secondary and above	84,3	979	83,4	1481	-0,9
Pearson chi2	p=0,000		p=0,000		
Age group					
15-19 years	97,1	648	94,8	586	-2,3
20-29 years	94,9	5272	88,8	4107	-6,1
30-39 years	92,5%	4271	84,7%	3168	-7,9%
40-49 years	93,1%	2388	87,9	1922	-5,1
Pearson chi2	p=0,000		p=0,000		
Occupation Woman					
Inactive	94,8	1565	90,9	1585	-4,0
Administration	82,2	203	80,1	293	-2,1
Agriculture	96,2	4519	90,9	2255	-5,3
Other sector	92,4	6233	85,9	5650	-6,5
Pearson chi2	p=0,000		p=0,000		
Household standard of living					
poorer	97,6	2576	90,6	1962	-7,0

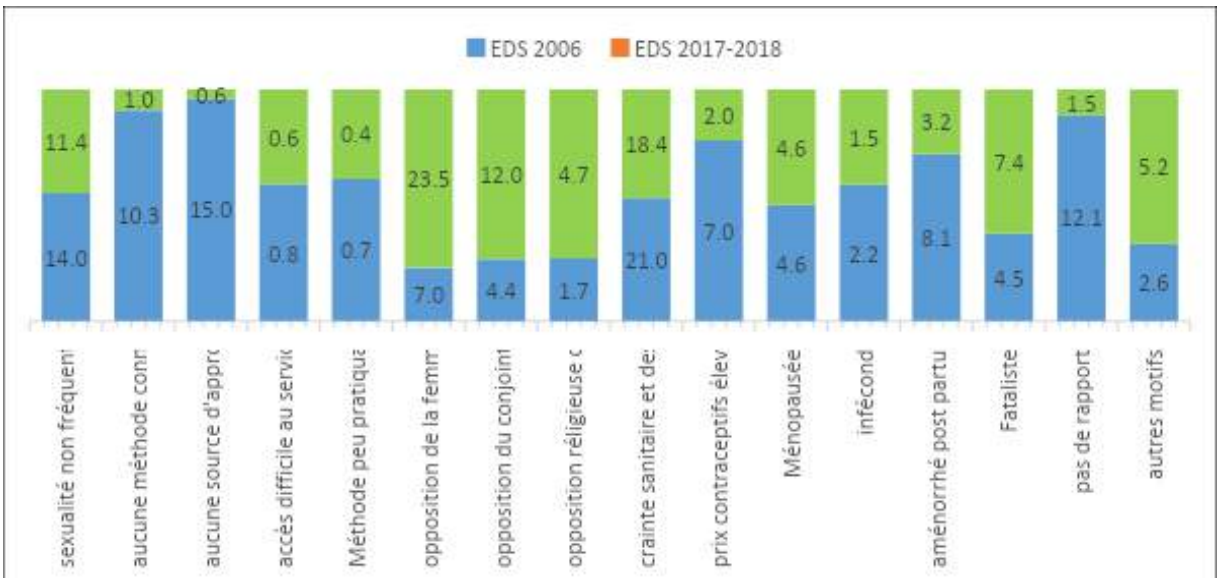
Independent variables	EDSB 2006		EDSB 2017-2018		Difference
	%	N	%	N	
Poor	96,3	2563	90,1	2000	-6,2
Medium	95,0	2595	88,1	1967	-6,9
Rich	93,3	2602	87,1	2030	-6,2
richer	86,8	2242	82,1	1823	-4,7
Pearson chi2	p=0,000		p=0,000		
Parity achieved					
0	98,6	716	98,7	607	0,1
1	95,0	1770	90,1	1491	-4,9
2	93,7	1976	89,4	1576	-4,2
3	93,7	1847	87,9	1507	-5,9
>=4	93,1	6734	84,9	4602	-8,2
Pearson chi2	p=0,000		p=0,000		
Number of children who died					
0	93,6	8067	87,8	7103	-5,8
1	93,8	2622	86,9	1716	-7,0
2	94,0	1123	87,8	631	-6,2
3	95,9	464	85,0	202	-10,9
4	96,9	186	90,7	82	-6,2
>=5	98,3	116	91,1	48	-7,2
Pearson chi2	p=0,041		p=0,517		
Contraceptive decision					
Woman	70,8	423	19,5	157	-51,2
Male	58,7	181	32,6	63	-26,1
Joint decision	61,7	801	17,2	126	-44,5
Pearson chi2	p=0,000		p=0,000		
Husband's desire for a child					
joint desire for the number of children	91,0	3675	84,2	2463	-6,9
the husband wants more children	95,2	3954	88,9	3807	-6,3
the husband wants fewer children	89,6	464	82,5	474	-7,1
Don't know	96,5	4446	90,3	3039	-6,2
Pearson chi2	p=0,000		p=0,000		

Source: EDSB data mining, 2006 and 2017-2018

3.2 Reasons for not using Modern Contraception among Women in Union between 2006 and 2017

Figure 1 shows that fear of health side effects is one of the main reasons cited by women who are not using modern contraceptive methods in 2006 and 2017, i.e. 21.0% and 18.4% respectively. In 2017, wifes (23.5%) and spouses (12.0%) did not use contraceptive methods. Moreover, while knowledge of no source of supply was the second most important reason given by women in 2006 (15%), it was relegated to last place among the causes for not using modern contraception, along with difficult access to FP services in 2017.

Similarly, infrequent sexuality (14.0% in 2006; 11.4% in 2017) and sexual inactivity (12.1%) in 2006 also played a considerable role in the non-use of modern contraceptive methods among women in a union during 2006 and 2017.



Source: EDSB data mining, 2006 and 2017-2018

Figure 1: Distribution of the proportion of women in union by reason for not using modern contraception

3.3 Explanatory factors for non-use of Modern Contraception among Women in Union between 2006 and 2017

According to the logistic estimation results presented in Table 1, information received on FP, religion, department of residence, household standard of living, number of deceased children, couple's decision to use contraceptives, and spouse's desire for additional children are the factors statistically associated with non-use of modern contraceptive methods among women in a union between 2006 and 2017.

On the one hand, in 2006 women who did not receive FP information from community health workers were twice as likely not to use modern contraceptive methods. Nevertheless, this factor does not influence women's contraceptive practice in 2017. Women of the endogenous (or traditional) religion were twice as likely not to use modern contraception as Christian women in 2017, while the risk was lower among women without religion (55.4%) in 2006. The results reveal that women in Alibori, Atacora, Borgou, Collines and Donga were less likely not to use contraception with a decrease in risk between 2006 and 2017. On the other hand, in 2017, women living in poorer households were less likely to use contraceptive methods compared to women from families with a very high standard of living, with 2.51 times the risk for the poorest and 2.04 times the risk for the wealthy economic class counterparts. It is also noted that in 2006, women who have had at least 4 children die have a high risk (10.26 times) of rejecting contraceptive methods. In 2017, this risk was estimated at 1.27 times for women who have lost only one (1) child compared to those who have never had a child die.

It is also noted that when the woman or the spouse/partner decides to use contraception alone, the probability of the woman using it within the couple were lower than if the decision was made by mutual agreement. This probability is estimated at 2.03 in 2006 and 2.12 in 2017 respectively. On the other hand, women whose husbands are undecided about their desire to have more children are 1.38 times more likely not to use modern contraceptive methods in 2006.Still, the effect of this variable was not significant in 2017.

Table 2: Relative risks of not using modern contraception among women in aunion between 2006 and 2017

Independent variable	EDSB-2006	EDSB-2017
	Model 1	Model 2
Exposure to mass media (Ref=Yes)		
No	0,859^{ns}	0,916^{ns}
Information on FP for community health workers (Ref=Yes)		
No	2,014***	0,996^{ns}
Religion (Ref=Christian)		
Endogenous	1,149^{ns}	2,052**
Muslim	1,015^{ns}	0,861^{ns}
Without religion	0,446**	1,290^{ns}
Place of residence (Ref=Urban)		
Rural	0,819^{ns}	1,027^{ns}
Department of residence (Ref=Coastal)		
Alibori	0,020***	0,364**
Atacora	0,098***	0,176***
Atlantic	1,884**	1,234^{ns}
Borgou	0,222***	0,131***
Hills	0,586*	0,147***
Couffo	0,354***	0,810^{ns}
Donga	0,328**	0,185**
Mono	0,436**	0,667^{ns}
Ouémé	0,839^{ns}	1,126^{ns}
Tray	0,188**	0,519^{ns}
Zou	1,094^{ns}	0,421**
Woman's level of education (Ref= Secondary and above)		
No	1,108^{ns}	0,804^{ns}
Primary	1,341^{ns}	0,860^{ns}
Age group (Ref=15-19yrs)		
20-29 years	1,310^{ns}	1,267^{ns}
30-39 years	1,478^{ns}	1,243^{ns}
40-49 years	0,922^{ns}	1,312^{ns}
Occupation of the woman (Ref=Administrative)		
Inactive	0,841^{ns}	0,746^{ns}
Farmer	1,380^{ns}	0,822^{ns}
Other sector	0,965^{ns}	0,871^{ns}
Household standard of living (Ref=Highest)		
poorer	1,035^{ns}	2,510**
Poor	1,277^{ns}	0,861^{ns}
Medium	1,300^{ns}	1,184^{ns}
Rich	1,027^{ns}	2,041***
Number of living children (Ref=0 child)		
1	0,861^{ns}	0,749^{ns}
2	0,747^{ns}	0,612^{ns}
3	0,615^{ns}	0,647^{ns}
4 or more	0,388^{ns}	0,315^{ns}
Number of children who died (Ref=0 child)		
1	1,273^{ns}	1,666**
2	1,049^{ns}	1,498^{ns}
3	2,075^{ns}	0,546^{ns}
4 or more	10,260**	3,385^{ns}
Contraceptive decision within the couple (Ref= joint decision)		
Woman	2,032***	1,135^{ns}

Independent variable	EDSB-2006	EDSB-2017
	Model 1	Model 2
Male	1,073^{ns}	2,118***
Spouse's desire for children (Ref=spousal desire for number of children)		
the husband wants more children	1,270^{ns}	0,967^{ns}
the husband wants fewer children	1,001^{ns}	0,557^{ns}
Don't know	1,384*	0,917^{ns}
Nickname R^2	0,154	0,129
chi2	222,540	116,637

Exponentiated coefficients ^{ns} p < 1,* p < 0.10,** p < 0.05,*** p < 0.01

3.4 Analysis of sources of change in contraceptive practices among women in union from 2006 to 2017

3.4.1 Analysis of differences due to characteristics

The result of the multivariate decomposition analysis showed that the composition effect accounts for 12.4% of the total difference in contraceptive prevalence. In other words, 12.4% of the difference in the proportion of women not using modern contraception is explained by differences in the characteristics of respondents between the 2006 and 2017 periods. In addition, the decrease in the proportion of women in union who do not use modern contraceptive methods is attributable to compositional factors such as: religion, department of residence, household standard of living, number of deceased children, and the person responsible for making decisions on contraceptive use within the couple. In addition, we note that a positive change in the behavior of women in union with regard to contraceptive methods residing in the departments of northern Benin (Alibori: 5.21%, Borgou: 2.52%, Atacora: 1.29%) has strongly contributed to the decrease in contraceptive prevalence among women who do not use modern methods. Women in the southern departments (Atlantique: 0.48977 and Zou: 0.54476) also contributed to this decline, but only slightly.

Similarly, women in endogenous religious unions (1.17%), women of wealthy economic class (0.64%) and women whose spouses adhere to contraceptive use (1.06%) contributed positively to the evolution of contraceptive practices between 2006 and 2017. Furthermore, although women from poorer households and those with one (01) child influence the upward trend in contraceptive practices, their effects are less noticeable with negative contributions of 1.29% (poorer) and 0.14% (1 child) respectively.

3.4.2 Analysis of differences due to coefficients

The analysis reveals that 87.5% of the total differences in contraceptive prevalence are due to coefficient differences. Of this, for an identical characteristic composition between the two periods, differences in the proportion of women not using modern contraceptive methods decreased by 35.82 percentage points. The coefficient difference reflects the effects associated with unobserved factors that could be the improvement over time of FP service offerings and reproductive behaviors of the population.

With regard to the observed variables, information on FP, religion, department of residence, standard of living and the couple's decision to use contraception are the factors significantly associated with the positive change observed in the use of modern contraceptive methods. Women in the department of Collines (8.70%) and those who take the lead in the couple (7.01%) in terms of contraceptive use have a preponderant share in the decline in the proportion of women not using FP over the periods 2006 and 2017. Women in a union who do not receive information on FP (9.97%) and who belong to poorer households (3.97%) show negative contributions to the observed percentage decline in non-users of modern contraceptive methods.

Table 3: Breakdown of the decline in contraceptive prevalence among women not using modern contraceptive methods in Benin from 2006 to 2017

Features	Effect of characteristics (E)		Effect of coefficients (C)	
	Coefficient	Share (%)	Coefficient	Share (%)
Aggregate effects	-0,050221	12,4	-0,35382	87,5
Constant			-0,25534	63,198
Information on FP for community health workers (Ref=Yes)				
No	7,7336E-05	0,019141	0,040272**	-9,9673
Religion (Ref=Christian)				
Endogenous	-0,0047382**	1,1727	0,012256	-3,0335
Muslim	-0,003239	0,80165	-0,0043047	1,0654
Without religion	0,00069595	-0,17225	0,0077251*	-1,912
Department (Ref=Coastal)				
Alibori	-0,021063**	5,2132	0,0092831**	-2,2976
Atacora	-0,0052091***	1,2892	0,0034626	-0,857
Atlantic	-0,0019789	0,48977	-0,01662	4,1136
Borgou	-0,010164***	2,5156	-0,0066568	1,6476
Hills	0,0091662***	-2,2686	-0,035148**	8,6992
Couffo	0,00040829	-0,101 05	0,0067433	-1,669
Donga	-0,0000018788**	0,000465	-0,0034446	0,85254
Mono	-0,0019886	0,49218	0,0030201	-0,74747
Ouémé	-0,001716	0,42471	0,0093718	-2,3195
Tray	-0,0025104	0,62134	0,0016197	-0,40087
Zou	-0,0022011**	0,54476	-0,015247*	3,7736
Household standard of living (Ref=Highest)				
poorer	0,0052311**	-1,2947	0,016045*	-3,9712
Poor	-0,00098084	0,24276	-0,0089547	2,2163
Medium	0,00036702	-0,09083 8	-0,0030457	0,75381
Rich	-0,0025917**	0,64146	0,030238**	-7,4838
Number of children who died (Ref=0 child)				
1 child	0,00056687**	-0,1403	0,010062	-2,4905
2 children	-0,00087913	0,21758	0,0049978	-1,237 ;
3 children	0,00025217	-0,062411	-0,0056867	1,4075
>= 4children	-8,7023E-05	0,021538	-0,0015746	0,38971
Contraceptive decision within the couple (Ref=joint decision)				
Woman	0,0038849	-0,96151	-0,028337**	7,0135
Male	-0,0042858**	1,0607	0,020996*	-5,1966

Exponentiated coefficients ^{ns} $p < 1$, * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

IV. DISCUSSIONS

From 2006 to 2017, at least 85% of women in union in Benin are not using modern contraceptive methods. The results show that this high prevalence of non-use of contraception is explained both by reasons given by non-users and by a number of socio-demographic, cultural and economic factors related to households.

Fear of side effects of contraceptive products and opposition from women are the real reasons for the rejection of modern contraception among women in a union from 2006 to 2017. The fear of health risks associated with the adoption of modern methods could be explained by the multiplicity of information sources, preconceived ideas, rumors or unfortunate experiences of some women. Studies have found similar results.

Bakyono R. and al (2020) found that the reluctance of married or cohabiting rural women in Burkina Faso was related to preconceived ideas and the resulting side effects. In Dibindi, DRC, although women are aware of modern

contraceptive methods, they refuse to use them because of the side effects (Ntambue A.M and al, 2017). However, the study by Rakotoarizay A.J.R. (2004), proves that contraceptive products produce side effects but not systematically in all women.

Religious discourses and practices influence both women's behavior and their attitudes towards contraception. The present study, like those of Smaïla O. and al (2022) in Burkina Faso and Iqramul H. and al (2017) in Bangladesh, found a significant association between religion and contraceptive use. Indeed, our work shows that in 2017, women in unions of endogenous religion are less likely to use modern contraceptive methods compared to Christian women. This result demonstrates the weight of culture in Beninese society as in most African countries. Furthermore, despite the influence of Western cultures, traditionalists remain supportive of trends that encourage increased reproduction. Consequently, they spread messages that discourage the use of all modern methods that can regulate birth. This may justify the rejection of modern contraceptives by some women.

Region of residence was found to be significantly associated with non-use of modern contraceptive methods in 2006 and 2017, respectively. Compared to women in the Littoral, most women residing in the other departments are less likely not to use contraceptives. This result is due to the various actions carried out by all development actors in the area of FP over many years, especially in the regions of northern Benin, which are known for their high fertility and very low contraceptive use. This favorable response is also due to the community development efforts noted throughout the country in recent years aimed at improving the well-being of the population.

Among others, women from higher social classes are more likely to use contraceptives than those from poorer categories (Igbodekwe F.C. and al, 2014). The same trend is evident in this study.

Thus, the likelihood of non-use of contraception is higher in the economically poorer category of women. Nduku and Simon-kengne (2022) came to the same results showing that poor Zambian women are more likely to not use any contraceptive method. These results indicate that the improvement in household economic well-being and women's status has not changed in a way that can significantly and sustainably influence women's contraceptive behavior.

In this study, the number of living children does not influence the non-adoption of modern contraceptive methods among married or cohabiting women. On the other hand, non-use of contraceptives is related to the number of deaths of children registered by the couple. It is believed that the concern to replace non-living offspring leads couples to opt for high fertility by rejecting all forms of contraception. This is what emerges from the work of Mwanza N V. and al. (2022) in the DRC, where the risk of not using contraception increases among women with fewer than four living children. Similarly Palamuleni M. (2013) in Malawi showed that contraceptive use increases with the number of children couples have alive.

In addition, joint decision making between partners to use contraception is a key determinant of contraceptive use among women in union during the period 2006-2017. A similar result is found in the work of Yina H. and al. (2022) among women of reproductive age in Mbeya, Tanzania.

These researchers showed that most women who had discussed family planning issues with their husbands or partners were in favor of contraceptive use, in contrast to women who had never discussed these topics with their spouses. It is therefore clear that the involvement of men in FP policies and programmes is necessary for their success and therefore actions should be taken to encourage couples to discuss FP more.

Thus, the husband's desire to have an additional child and lack of information about FP are risk factors for non-use of modern contraception in 2006. Tiruneh F. N. and al. (2016) had established a negative relationship between husbands' (spouses') desire for children and modern contraceptive use among Ethiopian

women in union. Asratie M.H. and al (2022) also found that the likelihood of non-use of contraceptives increases when husbands want more children or are unaware of their desire for children while the likelihood is lower among Ethiopian women in union who have received information about FP.

This highlights, on the one hand, the importance and social representation of the child in African society as mentioned in the literature review and the need to provide the couple in general with information on FP for behavioral change to improve their sexual and reproductive health on the other hand.

V. CONCLUSIONS

This study found that over the period 2006-2017, there is a downward trend in the proportion of married or cohabiting women who are not using modern contraceptives. This decrease of 6.3% is attributable to changes in characteristics and coefficients. In this regard, women in a union who have received information on FP, of endogenous religion or no religion, residing in the northern departments, economically poorer or richer, having a deceased child and whose decision to use contraceptives within the couple emanates from the woman or her partner are groups that have contributed overall to the positive evolution observed in the use of modern contraceptive methods between 2006 and 2017. On the other hand, despite this modest progress, the proportion of women who do not adopt modern contraceptives is still high. Fear of side effects and opposition from wives or husbands are the main reasons cited by women who refuse contraceptive methods. Among others, information on FP, religion, department of residence, household standard of living, number of deceased children, contraceptive decision and husband's desire to have children are the main factors of resistance to contraceptive use among married or cohabiting women in 2006 and 2017 respectively.

In light of these results, three actions can be taken. First, it is strongly recommended that development actors and the public authorities strengthen the various components of FP programmes throughout the country. Secondly, it is necessary to develop information and communication strategies directed mainly towards religious elites and disadvantaged populations for a positive change in behavior related to contraception and fertility. Finally, policies aimed at promoting reproductive health and the socio-economic conditions of women should be improved.

Conflict of Interest Statement

The authors state that there is no conflict of interest.

Ethical Approval

The data used for the estimates do not include confidential information about individuals or animals that may raise ethical concerns.

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