"CONTRACEPTION AND CAREERS: UNVEILING SECTOR-SPECIFIC EMPLOYMENT PATTERNS AMONG MARRIED WOMEN IN NEPAL"

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Abstract

Within the broader trend of declining global fertility rates and increasing contraceptive use—up by 7% worldwide between 1990 and 2019, Nepal has seen a notable rise in contraceptive adoption among married women. The proportion of users has increased from 29% in 1996 to 57% in 2022, with 43% now relying on modern methods. In this context, our study explores the relationship between contraceptive use and women's employment in Nepal, with a focus on how contraceptive methods influence sector-specific employment outcomes. Utilizing cross-sectional data from the Nepal Demographic and Health Survey (NDHS-2022), the study employs both logistic and multinomial regression analyses. The logistic regression results reveal a significant positive association between contraceptive use and employment (coefficient: 0.044, $p < 0.01$). Multinomial regression further indicates that modern contraceptive use significantly increases employment in sales and services, skilled manual sectors, unskilled manual sectors, agricultural sector and other sector. These findings highlight that integrating family planning with broader socio-economic strategies is essential for enhancing women's economic opportunities and participation across various employment sectors in Nepal.

Keywords: *Women's employment, contraceptives, logistic regression, occupation, multinomial regression*

JEL Classification Code: *J13, J24, I12, J21*

1. Introduction

The process of giving birth imposes a significant physical burden on women, which often leads to constraints on their personal and professional opportunities (Olza et al., 2018).

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Beyond the immediate physical demands of childbirth, women typically bear a disproportionate share of childcare responsibilities, which can limit their ability to engage fully in educational pursuits, career development, and skill acquisition (John et al., 2020). These caregiving duties often result in reduced time and energy for investing in their own human capital, such as further education or professional training, thereby impacting their long-term economic prospects and autonomy (Hassani-Nezhad, 2020; Moussié, 2021). However, with access to adequate knowledge, resources, and support systems—including family planning, flexible work arrangements, and community or institutional support—women can better manage the demands of both caregiving and personal growth, allowing them to more effectively balance their roles and pursue broader opportunities (Kimmel, 2006; Leuning & Ngavirue, 1995). Between 1990 and 2019, fertility rates globally decreased, while the use of contraceptive methods increased by 7% (PBB, 2020). This shows that the awareness regarding the use of family planning tools have increased over time. Women who are knowledgeable about family planning can control the timing and number of children they have, allowing them to space out births (Pekkurnaz, 2020). Having control over these factors provides women the opportunity to invest in their human capital and join the labor force. Access to modern contraception empowers women by granting them greater control over their reproductive choices. This reduces the burden of childcare and opens doors to economic opportunities (Goldin & Katz, 2002).

Women empowerment is a crucial aspect of global development, with Sustainable Development Goal (SDG) 5 emphasizing gender equality and empowerment by 2030 (*United Nations: Gender Equality and Women's Empowerment*, n.d.). SDG 5 emphasizes universal access to sexual and reproductive health and rights (5.6) and women's participation and leadership in various spheres (5.5). Access to modern contraception, by providing control over pregnancy timing, can empower women by enabling informed decisions about education, work, and economic opportunities. This empowerment extends beyond contraceptive use, influencing choices like staying in school or delaying marriage. Evidence from low- and middle-income countries is limited, with few studies exploring the link between family planning and women's empowerment (Silverman et al., 2016).

Empowering women strengthens not only individual well-being, but also fosters a more robust and equitable society. Beyond the physical constraints of childbearing, women also face social and economic barriers that further disempower them (Metcalfe et al., 2016). There are multitude of factors that affect female labor force participation in a developing economy. Some of them are fertility, use of contraceptives, age, health status, family size, number of young children, decision making rights and more (Mahato et al., 2020). These factors are quite evident in justifying the female labor force participation in underdeveloped economies like Nepal.

Different studies (Efendi et al., 2023a; Karaoğlan & Saraçoğlu, 2018; McDougal et al., 2021) suggest a two-way relationship between use of contraception and women's participation in the workforce. While some studies have focused on how increased labor market participation leads to higher rates of contraceptive use, there is growing evidence that the ability to control fertility can also be a catalyst for women's economic engagement (Islam, 2016). This study will investigate whether use of family planning methods lead to a greater involvement of women in the labor market.

Statement of Problem

Female labor force participation in economies like Nepal is influenced by a myriad of factors, encompassing age, health, family dynamics, and societal norms. These factors not only shape women's decisions to enter the labor market but also impact their earning potential and career trajectories (Miaari et al., 2023; Trends, 2011). Around 71.5% of Nepal's population, or 20.7 million people, are of working age (15 years and older), with females comprising 55.6% of this group (National Statistics Office, 2017). Nepal's employment-to-population ratio remained steady at about 81% during the 2010s but dropped to 74% in 2020 due to the COVID-19 pandemic. Despite having approximately 1.6 million more women workers than men, Nepal faces challenges due to the significant outmigration of men. As a result, the employment-to-population ratio for women is four percentage points lower than that of men (LMP, 2022).

Despite the recognized significance of women's participation, persistent challenges such as unwanted pregnancy, childcare responsibilities, and unmanaged birth gaps continue to hinder their full integration into the workforce. However, historic advancements in

contraceptive access have brought about transformative changes, empowering women to pursue education, enter the workforce at higher rates, and enhance their economic independence (Bernstein & Jones, 2019). In alignment with global initiatives such as the Sustainable Development Goals (SDGs), Nepal has set targets to promote women's reproductive health and economic empowerment by 53% in 2022 aiming 60% by 2030. As per the reports (Ministry of Health and Population, 2022), 57% of married women use contraception, up 4% from 2016. Among them, 43% use modern methods, like sterilization, injectable, and implants. Traditional methods, mainly withdrawal, are used by 15%. Trends show a rise in family planning usage from 29% in 1996 to 57% in 2022, with modern methods increasing from 26% in 1996 to 44% in 2006, stabilizing at 43% from 2011 to 2022.

This study examines whether use of family planning is significant in the context of Nepalese labor force subject to female labor force participation. By shedding light on the significance of family planning within the Nepalese labor force landscape, particularly in relation to female participation, this research contributes to the broader objective of achieving Sustainable Development Goal 5 in Nepal. This goal focuses on fostering gender equality and enhancing the empowerment of women. Furthermore, by analyzing how family planning practices influence women's labor force participation across different regions of the country, this study aims to provide valuable insights to policymakers, facilitating the development of more effective plans and policies aimed at promoting women's empowerment and economic inclusion.

Research Questions

The major research questions of this study are:

i. Is there any association between contraceptive use and labor market outcomes of women in Nepal?
ii. How does method-specific contraceptive use influence women's sector-specific employment in Nepal?

Research Objectives

The major objectives of the study are:

i. To determine if an association exists between the use of family planning methods and the participation of women in the labor force in Nepal.
ii. To determine how the method-specific contraceptive use influence women's sector-specific employment in Nepal.

2. Review of Literature

Human capital refers to the knowledge, skills, health, and values individuals acquire over time through education, training, healthcare, and other learning experiences, which enhance health and increase lifetime earnings. Becker (1964) highlights how investments in education and training enhance productivity and earnings for women, just as they do for men. He examines the trade-offs women face between career and family responsibilities, considering how marriage, childbirth, and child-rearing decisions impact their participation in the labor market and their human capital investments. Additionally, he addresses labor market discrimination, analyzing how it affects the returns on human capital for women compared to men. Goldin (1990) traces the evolution of the gender wage gap from the pre-industrial era through the late 20th century, highlighting key social, economic, and institutional factors. She discusses how industrialization entrenched gender disparities in the labor market, with women often confined to lower-paying jobs. By the 1980s, while the gap had narrowed, structural barriers and societal expectations continued to influence earnings disparities.

Becker (1960); Goldin & Katz (2002) provides a comprehensive examination of the relationship between family planning, contraception, and economic growth in developed countries. They underscore the critical role of family planning and contraceptive practices in influencing demographic trends and fostering sustainable economic development. The availability and accessibility of contraceptive methods empower individuals to prevent unintended pregnancies, space out childbirths, and achieve their desired family size. Contraception not only offers individuals greater autonomy over their reproductive health but also contributes to broader societal benefits, such as improved maternal and child health outcomes, reduced poverty rates, and enhanced women's empowerment.

Bernstein & Jones (2019) provides insights into the Economic Effects of Contraceptive Access in the United States. It discusses how expanded access to contraception in the 1960s led to a significant increase in women's college enrollment and played a crucial role in enhancing women's educational attainment, labor force participation, and career outcomes. Studies show that contraceptive access contributed to a 15% increase in women's labor force participation from 1970 to 1990. The report emphasizes the importance of ensuring continued access to contraception, especially for low-income and uninsured women, to achieve positive economic outcomes for women and future generations.

The empirical study Francavilla & Giannelli (2011) explores the role of family planning programs in promoting women's empowerment. The paper suggests a positive and significant correlation between the presence of family planning workers in local areas and women's likelihood of being employed. Particularly in rural India, family planning visits are found to have a stronger positive effect on paid work compared to unpaid work, indicating a potential empowering feedback loop through increased labor earnings.

Pekkurnaz (2020) and Efendi et al. (2023) studies the impact of women's employment status on their contraceptive choices, focusing on the influence of childcare responsibilities and the opportunity cost of childbearing. These studies reveals that employed women, including family workers, are more likely to choose modern contraceptive methods over traditional ones, particularly government employees. The results indicate significant effects of employment status on contraceptive behavior, with employed women showing a higher propensity to use contraceptive methods and prefer modern over traditional options.

McDougal et al., (2021) analyses the association between contraceptive use and women's sector-specific employment in India. The findings reveal significant variations in contraceptive use and employment across different sectors in India. Women in professional sectors were more likely to use highly effective, long-acting reversible contraception, while those in agricultural and production sectors tended to opt for permanent methods or less effective traditional contraceptives. The paper underscore the complex interplay between contraceptive use, employment opportunities, and gender dynamics, emphasizing the need for tailored interventions to support women's economic engagement in diverse sectors.

Goldin & Katz (2002) investigate the impact of birth control pills on women's educational choices, career trajectories, and marriage decisions. By examining cross-state and cross-cohort variations, their research provides a detailed understanding of how the availability of oral contraceptives has influenced women's decisions regarding education and employment. Their findings indicate that access to birth control pills has significantly enabled women to pursue higher education, delay marriage, and enter professional fields. Building on this research, Bailey (2006) explores the broader implications of contraceptive freedom on women's labor force participation. Her study focuses on how access to birth control pills has influenced women's decisions concerning work and family planning. By analyzing data on labor force participation and contraceptive access laws, Bailey generates counterfactual scenarios to estimate the potential impact of restricted contraceptive access.

Mahato et al. (2020) investigates the factors associated with contraceptive use in rural Nepal, with a specific focus on the influence of gender norms and decision-making processes. The study involved a secondary analysis of primary data collected during a cross-sectional survey conducted in 2012-2013 across four village development committees in the Syangja district of Nepal. It emphasizes the need for gender-sensitive educational interventions and family planning programs to improve contraceptive uptake in rural Nepal, recognizing the critical role of both men and women in reproductive health decision-making.

Lun et al. (2021) assess the utilization of modern contraceptive methods among youth in Myanmar, identifying the factors influencing this utilization and highlighting the need for improved reproductive health education and services targeted at young people. The study analyzes data from the Myanmar Demographic and Health Survey (2015-2016) to assess modern contraceptive prevalence rates among youth aged 15-24. The research highlights the low utilization of modern contraception, with an overall prevalence of 14.9%, and identifies factors influencing this usage. It indicates that knowledge of modern contraceptive methods significantly impacts utilization, with sexually active youth utilizing contraception more than their inactive counterparts. It emphasizes the need for targeted reproductive health programs, particularly in rural areas, to improve access to quality services and education.

Research Gap

In the context of Nepal, existing research has extensively explored the interplay between Female Labor Force Participation (FLFP), fertility, and various socioeconomic factors. However, a notable gap exists in the literature regarding the correlation between FLFP and the use of contraceptives. Similarly, on a global scale, while some studies have investigated the impact of FLFP on contraceptive use, there is a dearth of research examining the reverse relationship. This reveals a significant gap in knowledge both globally and within the context of Nepal, highlighting the need to investigate how the use of family planning methods influences FLFP. This study seeks to address this gap by exploring the effects of contraceptive use on female labor force participation.

3. Methodology

This study uses cross-sectional secondary data from Nepal Demographic and Health Survey (NDHS), 2022. The 2022 Nepal Demographic and Health Survey (NDHS) was conducted by New ERA under the Ministry of Health and Population (MOHP). It covered a wide range of topics including fertility, marriage, family planning, breastfeeding, nutrition, maternal and child health, HIV/AIDS awareness, women's empowerment, domestic violence, mental health, accidents, disabilities, food security, and other health-related issues such as smoking, tuberculosis knowledge, and hypertension prevalence. A total of 14,243 households were selected for the survey, out of which 13,833 were occupied. Among the occupied households, 13,786 were successfully interviewed, resulting in a response rate of 99.7%. Additionally, 15,238 women aged 15-49 were identified for individual interviews, with 14,845 successfully completing them, yielding a response rate of 97%. For the men's survey, 5,185 men aged 15-49 were identified, and 4,913 were successfully interviewed, resulting in a response rate of 95%.

Conceptual Framework

Literatures like Andrea Cinque & Miluka (2024); BERNHARDT (1993); Boca et al. (2005) generally focus on the negative impact of fertility on female’s labor force participation. To an extent, use of contraceptives reduces fertility thereby increasing the participation in the labor force. However, this relationship is shaped by a range of individual factors, including

a woman's age, level of education, number of children, and household wealth. Additionally, broader contextual elements, such as geographic location and caste status, play a crucial role in determining these dynamics in context of Nepal. For analyzing the effect of contraceptive use on women's labor force participation, it is important to understand the interconnectedness between women's reproductive health choices and if it leads to their participation in the workforce. Similarly, the type of contraceptive methods women choose can significantly influence their employment outcomes across various sectors, such as professional, agricultural, clerical and other skilled and unskilled jobs.

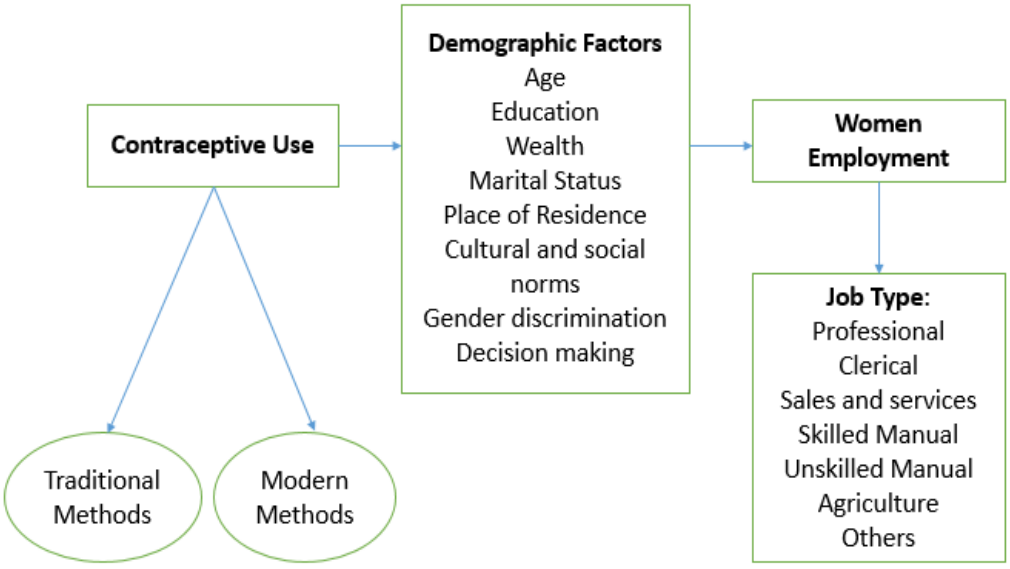

Figure 1 Conceptual Framework

Outcome variables

The main outcome of interest was women's current paid employment by sector (no current work vs. sector-specific employment. Current employment was defined by answering yes to any of the following questions: "Aside from your own housework, have you done any work in the last seven days?" Women who responded yes to this question were then asked what their occupation was. This analysis focuses on employment, defined as work done for others for payment, women were considered to have been paid if they indicated that their

earnings were either cash or cash and in-kind. Occupations were assessed by the question "What is your occupation, that is, what kind of work do you mainly do?". These occupations were then grouped into six employment sectors: professional (including professional, technical, administrative and managerial occupations); clerical; sales; skilled work; unskilled work and agricultural. These groupings followed classification prepared by NDHS dataset.

Predictor variables

The independent variable of interest was current contraceptive use, which was assessed by method: none, traditional and modern.

Covariates

There are several reproductive, sociodemographic and gender inequality factors that plausibly influence the relationship between contraceptive use and employment in Nepal. For reproductive history, covariates included number of children. Sociodemographic factors, such as household wealth, have also been shown to influence contraceptive use and employment in numerous settings, including Nepal. Sociodemographic covariates included the woman's age (in years); woman's education level (basic, secondary, higher); place (urban vs. rural) of residence; and household wealth quintile (poorest, poorer, middle, richer, richest).

Gender equity covariates include age at first marriage or cohabitation (under 15, 15–17 and 18 or older); decision-making involvement, that measured whether the respondent was involved in decision making (either solely or with husband/partner) about use of contraceptives.

Model Specification

The major objective of the study is to determine if a positive association exists between the use of family planning methods and the participation of women in the labor force in Nepal. In order to meet the first objective of the study, we use logistic regression model. The equation for the econometric model is given as:

$$\mathbf{Y = \alpha + \beta X + \delta Z + \varepsilon \text{ ----------(i)}}$$

where,

Outcome Variable (Y)	Female Labor Force Participation
Major Independent Variable (X)	Contraceptive Use
Covariates (Z)	Age, age squared education level, husband's employment, no. of children, place of residence, age at first cohabitation, wealth Index, decision regarding contraceptive use, son preference, ethnicity and religion of women

Here, female labor force participation is taken as dummy dependent variable which is equal to 1 if the married woman is in labor force and 0 otherwise. Use of family planning is a major explanatory variable which is measured as use and non-use of contraceptives by a woman.

Similarly, the secondary objective of the study is to determine how the method-specific contraceptive use influence women's sector-specific employment in Nepal. For this study, we use multinomial regression model. The equation for the econometric model is given as:

$$\mathbf{Y' = \alpha + \beta X' + \delta Z' + \varepsilon} \text{ ----------(ii)}$$

Where,

Outcome Variable (Y')	Sector specific employment
Major Independent Variable (X')	Method of Contraceptive Use
Covariates(Z')	Age, age squared education level, husband's employment, no. of children, place of residence, age at first cohabitation, wealth Index, decision regarding contraceptive use, son preference, ethnicity and religion of women

4. Results

Descriptive analysis is conducted on social and demographic factors such as age, educational level, wealth index, husbands' employment, number of children, age at cohabitation and more. Mean and standard deviation are employed as descriptive statistical tools in this analysis. The table represents the mean and standard deviation of the variables analyzed in this study.

Table 1 Summary statistics on selected variables

Variable	Obs	Mean	Std. Dev.
Female Currently working	11225	.679	.467
Female's occupation	11225	4.299	3.582
Use of contraceptives	11225	.569	.495
Contraceptive Methods	.	.	.
Not using any	11225	.431	.495
Modern Method	11225	.391	.488
Traditional Method	11225	.178	.383
Age	11225	32.324	8.676
Age Squared	11225	1120.085	576.724
Education	11225	1.041	.87
children	11225	2.19	1.387
residence	11225	.53	.499
Working Husband	11225	1.078	.485
Age at cohabitation	11225	.633	.691
Decision for contraceptives	11225	.141	.349
Son Preference	11143	.745	.436
Ethnics	.	.	.
Hill Brahmin	11225	.088	.284
Hill Chhetri	11225	.229	.42
Terai Brahmin	11225	.009	.096
Other Terai Caste	11225	.124	.33
Hill Dalit	11225	.114	.318
Terai Dalit	11225	.057	.231
newar	11225	.024	.155
hill janajati	11225	.218	.413
terai janajati	11225	.099	.298
muslim	11225	.036	.185
Others	11225	.001	.028
Women Religion	.	.	.
Hindu	11225	.851	.356
Buddhist	11225	.056	.229
Muslim	11225	.036	.186
Kirat	11225	.025	.157
Christian	11225	.032	.176
Others	11225	0	.019
Wealth	.	.	.
poorest	11225	.273	.445
poorer	11225	.207	.406
middle	11225	.203	.402
richer	11225	.182	.386
richest	11225	.135	.342

Source: Author's calculation using NDHS, 2022 Data

The table presents descriptive statistics for various variables related to female labor force participation among 11,225 women in Nepal. On average, 67.9% of women are currently working, and 56.9% use contraceptives, with 43.1% not using any, 39.1% using modern methods, and 17.8% using traditional methods. The average age of women is 32.3 years, and they have about 2.19 children on average; 53% reside in urban areas, and 63.3% cohabited at a younger age. The dataset also includes details on ethnic distribution, with Hill Chhetri (22.9%) and Hill Janajati (21.8%) being the most represented, and on wealth distribution, where 27.3% of women are in the poorest quintile and 13.5% in the richest.

Socioeconomic and demographic characteristics of married woman age in between 15-49 years

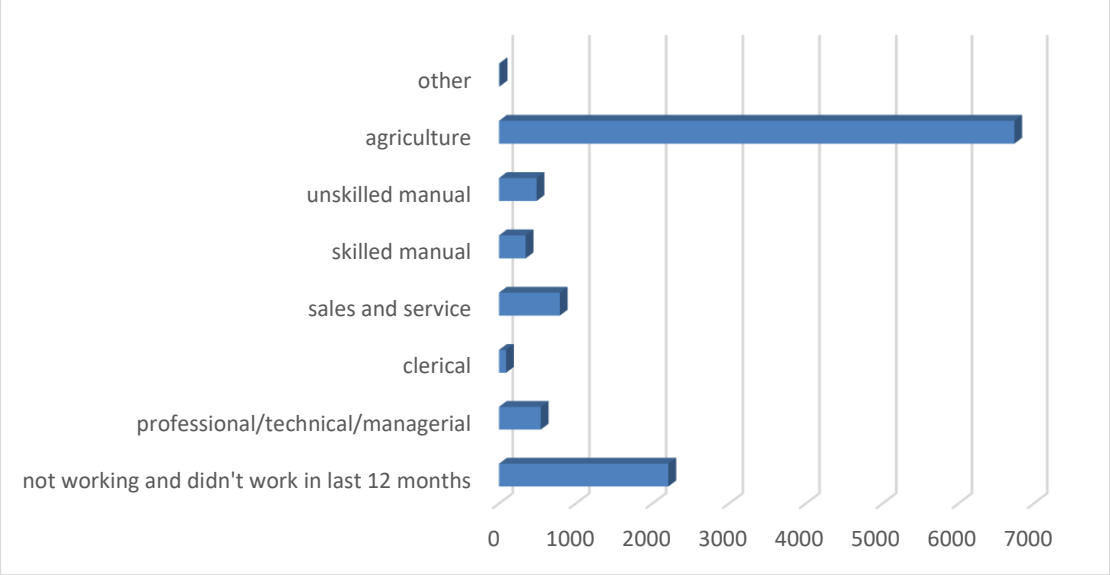

Figure 2 Occupation of married women (n = 11225)

The figure presents the distribution of occupations among married women, categorizing them based on their employment status and specific job roles. A significant portion of the women, totaling 2,208, are not currently working and have not engaged in any work over the past 12 months. The largest employment category is agriculture, with 6,742 women involved in farming or related activities, reflecting the prominence of agricultural labor among married women. In contrast, fewer women are employed in professional, technical, or managerial positions, with 544 women working in roles that require specialized skills or knowledge. The sales and service sector employs 793 women, indicating a moderate level of participation in roles such as retail or customer service. Skilled manual labor, which

involves jobs requiring specific technical abilities, accounts for 347 women, while unskilled manual labor, which involves basic, non-specialized tasks, includes 490 women. Clerical work, often associated with administrative tasks, is the least represented occupation among the specific job categories, with 92 women thus is added along with others category. Additionally, a small group of 9 women are classified under "other" occupations, which may include various roles not covered by the main categories or less common types of employment. This distribution highlights the predominance of agricultural work among married women, followed by non-working status, and the relatively lower engagement in professional, skilled, or clerical jobs. It also suggests a diverse range of economic activities among married women, with varying levels of participation in different sectors of the economy.

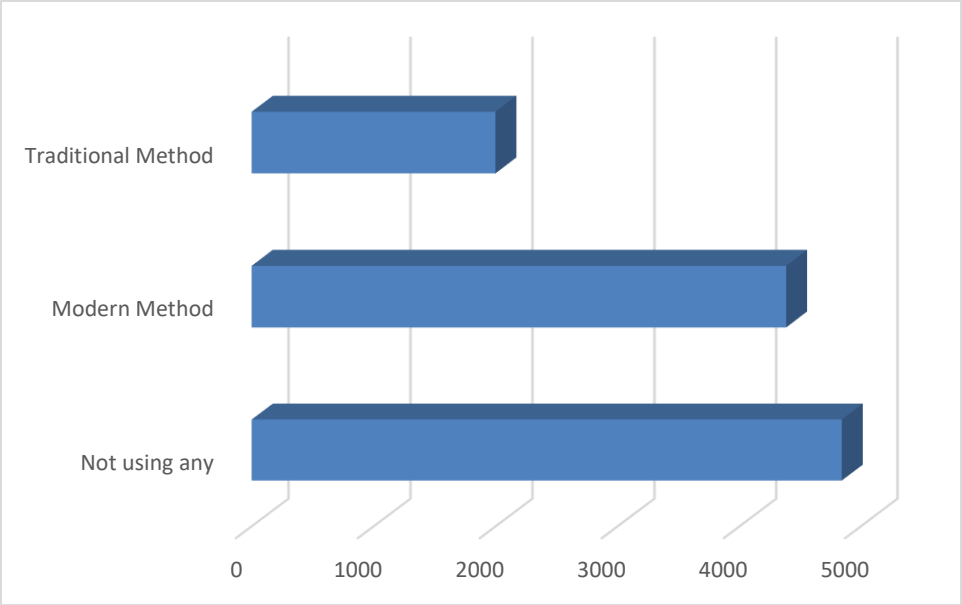

Figure 3 Type of Contraceptive Use (n = 11225)

The figure shows the distribution of contraceptive use among married women aged 15 to 49, categorized by whether they use any contraception and the type of method they use. A significant portion, totaling 4,843 women, are not using any form of contraception, making this the largest group. Among those who do use contraception, 4,384 women rely on modern methods, such as oral contraceptives, implants, IUDs, or sterilization, which are generally more effective and commonly promoted in family planning. In contrast, 1,998

women use traditional methods like withdrawal or periodic abstinence, which are less reliable but still practiced by a notable number of women. This distribution indicates that while a large number of married women in this age group are not using contraception, modern methods are preferred by those who do, with traditional methods being less common.

Table 2 OLS and Logistic regression assessing the associations between contraceptive use and employment status among married women aged 15-49 in Nepal.

VARIABLES	(1) OLS Female Currently Working	(2) Logit Female Currently Working
Use of contraceptives	0.0440***	0.0441***
	(0.0087)	(0.0084)
Age	0.0546***	0.0494***
	(0.0040)	(0.0037)
Age Squared	-0.0007***	-0.0006***
	(0.0001)	(0.0001)
Edu level	0.0027	-0.0013
	(0.0067)	(0.0068)
No. of Children	-0.0093**	-0.0089*
	(0.0046)	(0.0048)
Residence	-0.0693***	-0.0687***
	(0.0145)	(0.0144)
Working Husband	-0.0355***	-0.0347***
	(0.0103)	(0.0106)
Age at cohabitation	0.0255***	0.0230***
	(0.0066)	(0.0068)
Decision regarding	0.0170	0.0159
Contraceptives	(0.0115)	(0.0119)
Preference for son	-0.0078	-0.0059
	(0.0101)	(0.0098)
Wealth		
Poorer	-0.0164	-0.0176
	(0.0150)	(0.0159)
Middle	-0.0392**	-0.0414**
	(0.0175)	(0.0179)
Richer	-0.0636***	-0.0622***
	(0.0197)	(0.0196)
Richest	-0.1501***	-0.1421***
	(0.0244)	(0.0242)
Ethnicity	Yes	Yes

Religion	Yes	Yes
Districts	Yes	Yes
Constant	-0.3572***	
	(0.0754)	
Observations	11,143	11,129
R-squared	0.2007	

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

The analysis explores factors affecting female labor force participation in Nepal using Ordinary Least Squares (OLS) and Logit regression models. The use of contraceptives significantly increases the likelihood of employment, with coefficients of 0.0440 in OLS and 0.0441 in Logit, indicating a positive impact. Age also positively influences employment, with coefficients of 0.0546 in OLS and 0.0494 in Logit, but the effect diminishes with age, as shown by negative coefficients for age squared (−0.0007 in OLS and −0.0006 in Logit). Education does not significantly impact employment status (coefficients of 0.0027 in OLS and −0.0013 in Logit). The number of children negatively affects employment, with coefficients of −0.0093 in OLS and −0.0089 in Logit, showing that more children reduce the probability of employment. Residence has a significant negative effect on employment, with coefficients of −0.0693 in OLS and −0.0687 in Logit, suggesting urban women are less likely to be employed.

A working husband also reduces the likelihood of a woman's employment, with coefficients of −0.0355 in OLS and −0.0347 in Logit. Younger age at cohabitation is positively associated with employment, with coefficients of 0.0255 in OLS and 0.0230 in Logit. Contraceptive decision-making and son preference do not significantly affect employment status. Wealth quintiles show significant negative effects on employment, with higher quintiles associated with lower employment likelihood.

These factors are included in the model as control variables, indicated by "Yes" under both models, and their individual coefficients are mentioned in the appendix section. These fixed effects help control for district, religion and ethnicity specific factors that might

influence employment, ensuring that the estimated effects of other variables are not confounded by geographic differences.

The results provide a nuanced view of the factors influencing female labor force participation. Significant determinants include contraceptive use, age, number of children, and socio-economic status, as well as ethnic and caste identities. The findings underscore the complexity of employment dynamics and highlight disparities across different demographic and socio-economic groups. These results can inform targeted policies aimed at improving female labor force participation and addressing the barriers faced by different groups of women.

Table 3 Multinomial regression assessing the associations between current contraceptive method and current employment sector among married women aged 15-49 in Nepal

VARIABLES	Professional/Technical/Managerial	Sales and service	Skilled manual	Unskilled manual	Agriculture	Others
Modern Methods	0.3113**	0.4236***	0.4102***	0.3675***	0.2288***	0.7021***
	(0.1365)	(0.1061)	(0.1431)	(0.1277)	(0.0724)	(0.2489)
Traditional Methods	0.3357**	0.4303***	0.3701**	0.1118	0.0508	0.5653**
	(0.1434)	(0.1235)	(0.1663)	(0.1554)	(0.0882)	(0.2778)
Age	0.4766***	0.4527***	0.4329***	0.4055***	0.2091***	0.4618***
	(0.0558)	(0.0503)	(0.0576)	(0.0536)	(0.0270)	(0.1117)
Age Squared	-0.0055***	-0.0057***	-0.0059***	-0.0053***	-0.0022***	-0.0057***
	(0.0008)	(0.0007)	(0.0009)	(0.0008)	(0.0004)	(0.0016)
Education	1.6254***	0.1446*	-0.0618	-0.5606***	-0.1949***	0.7081***
	(0.1124)	(0.0786)	(0.0932)	(0.0929)	(0.0561)	(0.1739)
Residence	-0.8731***	-0.3036**	-0.0834	-0.0290	-0.5889***	0.2046
	(0.1606)	(0.1390)	(0.1663)	(0.1747)	(0.1165)	(0.2853)
No. of children	-0.2913***	-0.1371**	-0.2810***	-0.1858***	-0.0411	-0.2832**
	(0.0844)	(0.0566)	(0.0691)	(0.0597)	(0.0335)	(0.1359)
Age at first cohabitation	0.2141**	0.2791***	0.1691	0.3872***	0.2014***	0.1776
	(0.1023)	(0.0789)	(0.1041)	(0.0786)	(0.0513)	(0.1816)
Husband Currently Working	-0.0202	0.0931	0.1388	0.0491	0.0605	0.2039
	(0.1839)	(0.1084)	(0.1149)	(0.1321)	(0.0653)	(0.1393)
Son preference	0.1005	-0.0368	-0.2338*	0.1316	0.0573	-0.1327
	(0.1212)	(0.1019)	(0.1200)	(0.1334)	(0.0723)	(0.2363)
Poorer	-0.2045	0.2431	-0.4889*	-0.5717***	-0.5443***	-0.6549
	(0.2253)	(0.2208)	(0.2698)	(0.2113)	(0.1346)	(0.4530)
Middle	-0.5993***	0.3542*	-0.3163	-0.5693***	-0.9254***	-1.1175**
	(0.2229)	(0.2138)	(0.2800)	(0.2146)	(0.1492)	(0.4640)
Richer	-0.3657	0.6159***	-0.3332	-0.8192***	-1.4516***	-0.4372
	(0.2258)	(0.2013)	(0.2839)	(0.2130)	(0.1480)	(0.3558)
Richest	-0.7388***	0.3220	-0.6453**	-1.8135***	-2.8495***	-0.9471**
	(0.2501)	(0.2159)	(0.3011)	(0.2428)	(0.1879)	(0.4136)
Buddhist	0.2690	-0.0654	0.4947*	-0.6646**	-0.2433	-0.1226
	(0.2395)	(0.2111)	(0.2918)	(0.2852)	(0.1617)	(0.4558)
Muslim	-1.5604***	0.2437	-0.2646	-0.6506	-0.3828	-10.9280***
	(0.5539)	(1.4560)	(0.4900)	(0.5227)	(0.6970)	(0.6418)
Kirat	-0.3082	-0.4764	0.9321*	-0.3307	-0.1691	-1.2260

	(0.4715)	(0.4322)	(0.5229)	(0.4793)	(0.2872)	(1.0693)
Christian	0.0907	-0.5322*	0.2659	0.0212	-0.3632*	-0.0841
	(0.3319)	(0.3004)	(0.2892)	(0.2803)	(0.1981)	(0.6060)
Others	-13.8554***	-15.0648***	-15.5026***	-15.5392***	-0.4842	-14.9493***
	(1.2851)	(1.4320)	(1.2375)	(1.0025)	(1.3842)	(0.8732)
Hill Chhetri	0.0143	0.2356	0.3107	0.5823*	0.0626	0.0164
	(0.1917)	(0.1635)	(0.3222)	(0.3156)	(0.1723)	(0.3196)
Terai Brahmin	-1.5745***	-1.4281***	-0.6674	-1.3065	-2.0667***	-17.1988***
	(0.4855)	(0.4531)	(0.8160)	(0.8109)	(0.3946)	(0.3619)
Other Terai Caste	-0.9920***	-1.0998***	0.4082	-2.3361***	-0.9862***	-1.4395***
	(0.2372)	(0.2210)	(0.3491)	(0.4620)	(0.1966)	(0.5304)
Hill Dalit	-0.4573*	-0.0604	1.3091***	1.2201***	-0.2058	-0.6259
	(0.2478)	(0.2067)	(0.3534)	(0.3292)	(0.1853)	(0.5469)
Terai Dalit	-1.6523***	-1.6393***	0.6559*	-0.2762	-1.3534***	-0.1210
	(0.5168)	(0.3733)	(0.3894)	(0.3887)	(0.2237)	(0.5353)
Newar	0.2059	0.4806**	1.7428***	1.0363**	-0.4954**	-0.1565
	(0.3332)	(0.2330)	(0.3724)	(0.4703)	(0.2190)	(0.4635)
Hill Janajati	-0.0889	0.2272	0.8714**	0.9420***	0.0729	0.1807
	(0.2387)	(0.1837)	(0.3496)	(0.3283)	(0.1843)	(0.3987)
Terai Janajati	-0.0717	0.2687	1.6237***	1.6898***	0.5166**	0.3266
	(0.2662)	(0.2041)	(0.3394)	(0.3562)	(0.2176)	(0.4810)
Muslim	0.5572	-1.9445	0.6717	-0.9485	-1.0479	-10.4728***
	(0.5656)	(1.5380)	(0.5494)	(0.6063)	(0.7105)	(0.7270)
Others	-17.7963***	-1.2345	-16.6986***	-16.4671***	-2.2151***	-17.8451***
	(0.9752)	(1.3414)	(0.6574)	(0.6328)	(0.5877)	(0.9802)
Constant	-11.8446***	-9.5279***	-9.2366***	-7.8588***	-1.4333***	-11.8106***
	(0.9670)	(0.9075)	(0.9575)	(0.9001)	(0.4799)	(1.7594)
Observations	11,143	11,143	11,143	11,143	11,143	11,143
R-squared						

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

The regression results highlight key factors influencing women's employment across various occupational categories in Nepal. Women using modern contraceptives are significantly more likely to be employed in all sectors: professional/technical/managerial (0.3113), sales and service (0.4236), skilled manual (0.4102), unskilled manual (0.3675), agriculture (0.2288), and others (0.7021). Traditional methods also have significant positive associations with professional/technical/managerial (0.3357), sales and service (0.4303), and skilled manual (0.3701) employment. Age positively affects employment across all sectors, with the strongest effects in professional/technical/managerial (0.4766) and sales and service (0.4527). However, age squared is negatively associated across all sectors, indicating diminishing returns with increasing age. Education significantly boosts employment in professional/technical/managerial roles (1.6254), while it negatively impacts unskilled manual (-0.5606) and agricultural (-0.1949) employment. Urban residence significantly reduces the likelihood of employment in professional/technical/managerial (-0.8731), sales and service (-0.3036), and agriculture (-

0.5889) sectors.

Similarly, having more children significantly decreases the likelihood of employment in professional/technical/managerial (-0.2913), sales and service (-0.1371), skilled manual (-0.2810), and unskilled manual (-0.1858) sectors. A later age at first cohabitation significantly increases employment in unskilled manual (0.3872) and sales and service (0.2791) roles. Wealthier women are generally less likely to be employed, particularly in agriculture, with poorer (-0.5443), middle (-0.9254), richer (-1.4516), and richest (-2.8495) statuses showing significant negative associations. The richest category also shows a significant negative association with professional/technical/managerial (-0.7388), skilled manual (-0.6453), and unskilled manual (-1.8135) roles. Terai Brahmin women are significantly less likely to be employed in professional/technical/managerial (-1.5745), sales and service (-1.4281), and agriculture (-2.0667) roles. Terai Dalit women are less likely to work in professional/technical/managerial (-1.6523) and agricultural (-1.3534) sectors. Conversely, Newar and Hill Janajati women show increased likelihoods of employment in skilled manual (1.7428 and 0.8714, respectively) and unskilled manual (1.0363 and 0.9420) roles.

Overall, these results suggest that contraceptive use, age, education, urban residence, number of children, wealth status, ethnicity, and religion significantly influence women's employment in Nepal.

5. Discussion

The positive association between contraceptive use and employment suggests that women who can control their reproductive health are more likely to participate in the workforce. This could be due to the greater autonomy and planning ability that contraceptive use provides, allowing women to balance work and family responsibilities more effectively (Mangimela-Mulundano et al., 2022). Age also emerges as a significant factor, with older women showing a higher probability of employment. This could be attributed to several factors, such as greater work experience, established family support systems, or the reduced burden of child-rearing as children grow older. However, the analysis reveals a non-linear effect of age, where the probability of employment increases up to a certain age before declining. This might reflect the realities of the job market in Nepal, where opportunities

for older women could be limited by physical demands of certain jobs or societal expectations regarding retirement and aging.

Interestingly, education level does not significantly impact employment status in this sample. This could be due to several reasons: the quality and relevance of education, gender biases in the job market, or cultural norms that prioritize men's employment over women's, regardless of educational attainment (Ahmed & Hyndman-Rizk, 2020; Tanakam et al., 2020). However, education plays a pivotal role in women's employment, particularly in professional, technical, and managerial roles. The strong positive association for highly educated women in these sectors highlights the value of educational attainment in accessing skilled employment. Conversely, the negative association with unskilled manual and agricultural work indicates that education provides a pathway out of low-skilled, labor-intensive jobs. This pattern underscores the critical need for educational policies that support women's access to quality education, which can significantly alter their employment trajectories.

The number of children negatively impacts women's employment across most sectors, reflecting the ongoing challenge of balancing work and family life in Nepal. This association is particularly strong in professional and skilled occupations, where the demands of childcare can be a significant barrier. Later age at first cohabitation positively influences employment in some sectors, indicating that women who delay marriage and childbearing are better able to participate in the workforce. This highlights the importance of policies that support delayed marriage and empower women to make reproductive choices that align with their career goals (Gutiérrez-Domènech, 2008; Smith et al., 2012).

Residence also significantly impacts employment outcomes. Women residing in urban areas are less likely to be employed compared to those in rural areas. In Nepal, rural women have higher employment rates due to the prevalence of agriculture, which provides accessible work opportunities that do not require formal education or skills. Economic necessity drives many rural women to participate in these activities to support their families. In contrast, urban employment often requires higher education and skills, creating barriers for women from lower socio-economic backgrounds, while cultural norms in cities

may also discourage women from working outside the home (Moussié, 2021). The employment status of a woman's husband is associated with a decreased likelihood of her own employment. This could be reflective of traditional gender roles in Nepal, where a working husband might reduce the economic necessity for a woman to seek employment. This finding underscores the influence of familial and societal norms on women's labor market participation, highlighting the need for a shift in gender expectations to support greater female workforce engagement.

Ethnicity and religion also play crucial roles in shaping employment outcomes. For example, Terai Brahmin and Terai Dalit women show significantly lower likelihoods of employment in certain sectors, which may reflect both cultural restrictions and socio-economic barriers specific to these groups. Conversely, Newar and Hill Janajati women are more likely to be employed in skilled manual and unskilled manual roles, indicating varying cultural norms and economic needs among ethnic groups. These findings highlight the need for targeted interventions that address the specific challenges faced by different ethnic and religious groups in Nepal, promoting inclusive economic opportunities for all women.

Additionally, starting cohabitation at an early age is associated with a higher likelihood of employment. This could be due to the fact that early cohabitation often leads to earlier childbearing and, subsequently, earlier completion of child-rearing responsibilities, allowing women to enter the workforce sooner. Meanwhile, higher wealth is associated with a lower likelihood of employment, with wealthier women being less likely to be employed meaning wealthier families do not need additional income from women's work or societal norms.

Overall, the results reflect a complex interplay of factors influencing women's employment in Nepal, where cultural norms, economic necessity, and access to resources like education and contraception play significant roles. Addressing these multifaceted challenges requires a comprehensive approach that includes improving access to education and family planning, challenging traditional gender norms, and creating supportive work environments that accommodate women's needs across different stages of their lives.

6. Conclusion and Recommendations

Women's participation in the labor force in Nepal is gradually increasing but remains significantly lower than that of men. Expanding access to contraceptives could play a key role in supporting women's employment; however, it's important to recognize that effective solutions must consider the broader social and gender equity contexts that influence women's decisions about family size and employment. Economic empowerment goes beyond mere participation in the labor market; it also involves enhancing women's choice, potential, and decision-making skills. To truly empower women, Nepal needs to invest in education and skills development, strengthen family planning services, and create supportive work environments. Expanding access to quality education and vocational training can equip women with the necessary skills to succeed. Improving access to modern contraceptive methods and supporting policies that delay marriage and childbearing can help women balance work and family life. Addressing socio-cultural barriers by challenging traditional gender norms and promoting gender equality can create a more inclusive environment. Lastly, investing in rural infrastructure, expanding access to essential services, and promoting policies that reduce poverty and inequality can help level the playing field for women across the country. By implementing these measures, Nepal can create a more equitable labor market that empowers women to participate fully in the economy and contribute to national development.

References

Ahmed, R., & Hyndman-Rizk, N. (2020). The higher education paradox: Towards improving women's empowerment, agency development and labour force participation in Bangladesh. *Gender and Education*, *32*(4), 447–465. https://doi.org/10.1080/09540253.2018.1471452

Andrea Cinque, C. P., & Miluka, J. (2024). How does fertility affect female employment? Evidence from albania. *The Journal of Development Studies*, *60*(8), 1227–1245. https://doi.org/10.1080/00220388.2024.2322969

Bailey, M. J. (2006). More Power to the Pill: The Impact of Contraceptive Freedom on Women's Life Cycle Labor Supply. *The Quarterly Journal of Economics*, *121*(1), 289–320.

Becker, G. S. (1960). An Economic Analysis of Fertility. In *Demographic and Economic Change in Developed Countries* (pp. 209–240). Columbia University Press. http://www.nber.org/chapters/c2387

Becker, G. S. (1964). *Human Capital*. National Bureau of Economic Research.

BERNHARDT, E. M. (1993). Fertility and Employment. *European Sociological Review*, *9*(1), 25–42. https://doi.org/10.1093/oxfordjournals.esr.a036659

Bernstein, A., & Jones, K. (2019). The Economic Effects of Contraceptive Access: A Review of the Evidence Key Findings from the Literature. *The Institute for Women's Policy Research (IWPR)*, *September*, 1–3.

Boca, D. D., Pasqua, S., & Pronzato, C. (2005). Fertility and employment in italy, france, and the UK. *Labour (Committee on Canadian Labour History)*, *19*(s1), 51–77. https://doi.org/10.1111/j.1467-9914.2005.00323.x

Efendi, F., Sebayang, S. K., Astutik, E., Reisenhofer, S., & McKenna, L. (2023a). Women's empowerment and contraceptive use: Recent evidence from ASEAN countries. *PLoS ONE*, *18*(6 June), 1–15. https://doi.org/10.1371/journal.pone.0287442

Efendi, F., Sebayang, S. K., Astutik, E., Reisenhofer, S., & McKenna, L. (2023b). Women's empowerment and contraceptive use: Recent evidence from ASEAN countries. *PLOS ONE*, *18*(6), e0287442. https://doi.org/10.1371/journal.pone.0287442

Francavilla, F., & Giannelli, G. C. (2011). Does family planning help the employment of women? The case of India. *Journal of Asian Economics*, *22*(5), 412–426. https://doi.org/10.1016/j.asieco.2011.06.001

Goldin, C. (1990). UNDERSTANDING THE GENDER GAP. *NBER SERIES ON LONG-TERM FACTORS IN ECONOMIC DEVELOPMENT*.

Goldin, C., & Katz, L. F. (2002). The power of the pill: Oral contraceptives and women's career and marriage decisions. *Journal of Political Economy*, *110*(4), 730–770. https://doi.org/10.1086/340778

Gutiérrez-Domènech, M. (2008). The impact of the labour market on the timing of marriage and births in Spain. *Journal of Population Economics*, *21*(1), 83–110. https://doi.org/10.1007/s00148-005-0041-z

Hassani-Nezhad, L. (2020). Female Employment and Childcare. *IZA Discussion Paper No. 13839*, 55. http://dx.doi.org/10.2139/ssrn.3726441

Islam, A. (2016). Prevalence and Determinants of Contraceptive use among Employed and Unemployed Women in Bangladesh. *International Journal of MCH and AIDS (IJMA)*, *5*(2), 92–102. https://doi.org/10.21106/ijma.83

John, N. A., Tsui, A. O., & Roro, M. (2020). Quality of Contraceptive Use and Women's Paid Work and Earnings in Peri-Urban Ethiopia. *Feminist Economics*, *26*(1), 23–43. https://doi.org/10.1080/13545701.2019.1632471

Karaoğlan, D., & Saraçoğlu, D. Ş. (2018). *Women's Education, Employment Status and The Choice of Birth Control Method: An Investigation for the Case of Turkey Method*.

Kimmel, J. (2006). Child Care, Female Employment, and Economic Growth. *Community Development*, *37*(2), 71–85. https://doi.org/10.1080/15575330609490208

Leuning, C. J., & Ngavirue, B. (1995). Safe child care and women's empowerment in the developing world. *Health Care for Women International*, *16*(6), 537–550. https://doi.org/10.1080/07399339509516208

LMP. (2022). Labour market profile. *Danish Trade Union Development Agency*, *2017*, 1–42.

Mahato, P. K., Sheppard, Z. A., van Teijlingen, E., & De Souza, N. (2020). Factors associated with contraceptive use in rural Nepal: Gender and decision-making. *Sexual and Reproductive Healthcare*, *24*. https://doi.org/10.1016/j.srhc.2020.100507

Mangimela-Mulundano, A., Black, K. I., & Cheney, K. (2022). A cross-sectional study of women's autonomy and modern contraception use in Zambia. *BMC Women's Health*, *22*(1), 550. https://doi.org/10.1186/s12905-022-02101-5

McDougal, L., Singh, A., Kumar, K., Dehingia, N., Barros, A. J. D., Ewerling, F., Atmavilas, Y., & Raj, A. (2021). Planning for work: Exploring the relationship between contraceptive use and women's sector-specific employment in India. *PLoS ONE*, *16*(3 March), 1–16. https://doi.org/10.1371/journal.pone.0248391

Metcalfe, A., Talavlikar, R., Du Prey, B., & Tough, S. C. (2016). Exploring the relationship between socioeconomic factors, method of contraception and unintended pregnancy. *Reproductive Health*, *13*(1), 1–8. https://doi.org/10.1186/s12978-016-0151-y

Miaari, S. H., Khattab, N., & Sabbah-Karkabi, M. (2023). Obstacles to labour market participation among Arab Palestinian women in Israel. *International Labour Review*, *162*(4), 587–614. https://doi.org/10.1111/ilr.12386

Ministry of Health and Population, N. N. E. and ICF. 2022. (2022). Nepal Demographic and Health Survey 2022: Key Indicators Report. *Ministry of Health and Population(Nepal)*, 3.

Moussié, R. (2021). Childcare services in cities: Challenges and emerging solutions for women informal workers and their children. *Environment and Urbanization*, *33*(1), 117–130. https://doi.org/10.1177/0956247820987096

National Statistics Office. (2017). *Report on the Nepal Force Survey, 2017/2018*. 1–166.

Olza, I., Leahy-Warren, P., Benyamini, Y., Kazmierczak, M., Karlsdottir, S. I., Spyridou, A., Crespo-Mirasol, E., Takács, L., Hall, P. J., Murphy, M., Jonsdottir, S. S., Downe, S., & Nieuwenhuijze, M. J. (2018). Women's psychological experiences of physiological childbirth: A meta-synthesis. *BMJ Open*, *8*(10), e020347. https://doi.org/10.1136/bmjopen-2017-020347

PBB. (2020). World Fertility and Family Planning 2020. In *Department of Economic and Social Affairs Population Division*.

Pekkurnaz, D. (2020). Employment Status and Contraceptive Choices of Women With Young Children in Turkey. *Feminist Economics*, *26*(1), 98–120. https://doi.org/10.1080/13545701.2019.1642505

Silverman, R., Birsdall, N., & Glassman, A. (2016). Can Access to Contraception Deliver for Women's Economic Empowerment? What We Know – and What We Must Learn | Center For Global Development. *Center for Global Development* , 1–4.

Smith, C. A., Paulson Stone, R., & Kahando, S. (2012). A model of women's educational factors related to delaying girls' marriage. *International Review of Education, 58*(4), 533–555. https://doi.org/10.1007/s11159-012-9309-1

Tanakam, T., Takahashi, K., & Otsuka, K. (2020). *Increasing female education, stagnating female labor force participation, and gains from marriage: The case of rural Bangladesh*. https://api.semanticscholar.org/CorpusID:204806319

Trends, E. (2011). *KILM 1. Labour force participation rate*. *2020*, 8–10.

United Nations: Gender equality and women's empowerment. (n.d.). Retrieved May 8, 2024, from https://www.un.org/sustainabledevelopment/gender-equality/

Appendix 1

Operational definition

Variables	Definition
Labor Force Participation	Binary variable 1= if the individual is currently working otherwise zero
Occupation	Categorical variable Women's occupational sectors Not working, professional/technical, Clerical, Sales and Services, Skilled Manual, Unskilled Manual, Agricultural, Other Dummy variable is created for each category keeping not working as base
Contraceptive Use	Binary Variable 1 = if a woman uses any contraceptives otherwise zero
Method of Contraceptive Used	Categorical variable Types of Contraceptives Not using any, Pill, IUD, Injections, Male condom, Female sterilization, Male sterilization, Periodic abstinence, Withdrawal, Other traditional, Implants, Lactational amenorrhea, Other modern method Dummy variable is created for each category keeping not using any as base
Age	Continuous variable Individual's age
Age Squared	Continuous variable Square of individual's age
Education	Categorical variable No education, Basic, Secondary, Higher Dummy variable is created for each category keeping no education as base
Wealth Index	Categorical variable Poorest, Poorer, Middle, Richer, Richest Dummy variable is created for each category keeping poorest as base.
Religion	Categorical variable Hindu, Buddhist, Muslim, Kirat, Christian, Others Dummy variable is created for each category keeping Hindu as base

Ethnicity	Categorical variable Hill Brahmin, Hill Chhetri, Terai Brahmin, Other Terai Caste, Hill Dalit, Terai Dalit, Newar, Hill janajati, Terai janajati, Muslim, Others Dummy variable is created for each category keeping hill brahmin as base.
Husband Currently Working	Binary Variable 1= if the husband is currently working, or otherwise zero
Decision Regarding Contraceptive	Categorical variable It represents who makes the decision regarding the use of contraceptives. Respondent, Husband, Joint decision, Someone else, Other Dummy variable is created for each category keeping respondent as base
Number of children	Categorical variable It represents the number of children in household. No child, One child, Two children, Three or more children Dummy variable is created for each category keeping no child as base
Age at first Cohabitation	Categorical variable It represents the age when respondent first cohabitated. 18+, 15-17, below 15 Dummy variable is created for each category keeping 18+ as base
Place of Residence	Binary Variable It represents the place of work of respondent Rural = 0 Urban = 1

Appendix 2

OLS and Logistic regression assessing the associations between contraceptive use and employment status among married women aged 15-49 in Nepal.

VARIABLES	OLS Female currently working	Logit Female currently working
Use of contraceptives	0.0440***	0.0441***
	(0.0087)	(0.0084)
Age	0.0546***	0.0494***
	(0.0040)	(0.0037)
Age Squared	-0.0007***	-0.0006***
	(0.0001)	(0.0001)
Education	0.0027	-0.0013
	(0.0067)	(0.0068)
No. of children	-0.0093**	-0.0089*
	(0.0046)	(0.0048)
Place of residence	-0.0693***	-0.0687***
	(0.0145)	(0.0144)
Working Husband	-0.0355***	-0.0347***
	(0.0103)	(0.0106)
Age at first cohabitation	0.0255***	0.0230***
	(0.0066)	(0.0068)
Decision maker for contraceptives	0.0170	0.0159
	(0.0115)	(0.0119)
Preference of son	-0.0078	-0.0059
	(0.0101)	(0.0098)
Hill Chhetri	-0.0304	-0.0305
	(0.0193)	(0.0188)
Terai Brahmin	-0.2447***	-0.2217***
	(0.0567)	(0.0545)
Other Terai Caste	-0.0853**	-0.0771***
	(0.0342)	(0.0295)
Hill Dalit	-0.0574**	-0.0636***
	(0.0231)	(0.0233)
Terai Dalit	-0.1725***	-0.1613***
	(0.0386)	(0.0353)
newar	0.0358	0.0258
	(0.0348)	(0.0305)
hill janajati	-0.0245	-0.0251
	(0.0211)	(0.0210)
terai janajati	0.0374	0.0229
	(0.0318)	(0.0268)

muslim	-0.2590*	-0.2276
	(0.1483)	(0.1476)
Others	-0.2335	-0.2152
	(0.1693)	(0.1809)
Buddhist	-0.0018	-0.0023
	(0.0209)	(0.0225)
Muslim	0.1018	0.0706
	(0.1446)	(0.1105)
Kirat	-0.0138	-0.0140
	(0.0362)	(0.0363)
Christian	-0.0238	-0.0279
	(0.0247)	(0.0259)
Others	-0.1819	-0.2045
	(0.1445)	(0.1393)
Poorer	-0.0164	-0.0176
	(0.0150)	(0.0159)
Middle	-0.0392**	-0.0414**
	(0.0175)	(0.0179)
Richer	-0.0636***	-0.0622***
	(0.0197)	(0.0196)
Richest	-0.1501***	-0.1421***
	(0.0244)	(0.0242)
Taplejung	0.1487***	0.1611***
	(0.0132)	(0.0176)
Sankhuwasabha	0.3323***	0.3903***
	(0.0256)	(0.0505)
Solukhumbu	0.3160***	0.4008***
	(0.0197)	(0.0238)
Okhaldhunga	0.2639***	0.2789***
	(0.0260)	(0.0297)
Khotang	0.3095***	0.3434***
	(0.0352)	(0.0310)
Bhojpur	0.1505**	0.1636**
	(0.0697)	(0.0732)
Dhankuta	0.2173***	0.2362***
	(0.0581)	(0.0649)
Terhathum	-0.0050	0.0026
	(0.0836)	(0.0897)
Panchthar	0.1981***	0.2153***
	(0.0578)	(0.0675)
Ilam	0.0874**	0.1042***
	(0.0393)	(0.0398)
Jhapa	0.1081***	0.1264***
	(0.0347)	(0.0390)
Morang	-0.0003	0.0230
	(0.0507)	(0.0528)

Sunsari	0.2258***	0.2419***
	(0.0727)	(0.0779)
Udayapur	0.2224***	0.2313***
	(0.0484)	(0.0470)
Saptari	0.2590***	0.2664***
	(0.0555)	(0.0481)
Siraha	0.1128**	0.1379***
	(0.0518)	(0.0531)
Dhanusha	0.0265	0.0529
	(0.0571)	(0.0598)
Mahottari	-0.0077	0.0166
	(0.0448)	(0.0478)
Sarlahi	-0.0206	0.0088
	(0.0499)	(0.0546)
Rautahat	0.0551	0.0728*
	(0.0398)	(0.0423)
Bara	-0.1302***	-0.1191**
	(0.0496)	(0.0544)
Parsa	0.1700***	0.1864***
	(0.0622)	(0.0667)
Dolakha	0.2791***	0.3327***
	(0.0322)	(0.0372)
Sindhupalchok	0.2878***	0.3343***
	(0.0230)	(0.0250)
Rasuwa	0.2412***	0.2668***
	(0.0428)	(0.0493)
Dhading	0.3184***	0.3703***
	(0.0548)	(0.0687)
Nuwakot	0.1000***	0.1205***
	(0.0383)	(0.0407)
Kathmandu	0.3293***	0.3341***
	(0.0342)	(0.0320)
Bhaktapur	0.1121*	0.1286**
	(0.0631)	(0.0620)
Lalitpur	0.2659***	0.2880***
	(0.0489)	(0.0597)
Kavrepalanchok	0.3127***	0.4272***
	(0.0205)	(0.0318)
Ramechhap	0.2689***	0.3049***
	(0.0280)	(0.0364)
Sindhuli	0.1732***	0.1860***
	(0.0483)	(0.0534)
Makwanpur	0.0718*	0.0977**
	(0.0387)	(0.0427)
Chitawan	0.2135***	0.2358***
	(0.0445)	(0.0524)

Gorkha	0.2765***	
	(0.0266)	
Mustang	0.2993***	0.3476***
	(0.0447)	(0.0654)
Myagdi	0.0937*	0.1170**
	(0.0551)	(0.0549)
Kaski	0.3013***	0.3299***
	(0.0222)	(0.0366)
Lamjung	0.2459***	0.2656***
	(0.0350)	(0.0416)
Tanahu	0.2895***	0.3096***
	(0.0498)	(0.0543)
Nawalparasi east	0.1973***	0.2146***
	(0.0561)	(0.0597)
Syangja	0.0225	0.0340
	(0.0837)	(0.0833)
Parbat	0.2903***	0.3199***
	(0.0271)	(0.0357)
Baglung	0.0890	0.0946
	(0.0849)	(0.0907)
pyuthan	-0.0255	-0.0120
	(0.0712)	(0.0669)
gulmi	0.2966***	0.3419***
	(0.0309)	(0.0462)
Argakhachi	0.2851***	0.3248***
	(0.0577)	(0.0673)
Palpa	0.1074**	0.1200**
	(0.0464)	(0.0475)
Nawalparasi west	0.0968	0.1149
	(0.0751)	(0.0741)
rupandehi	0.0298	0.0533
	(0.0524)	(0.0529)
Kapilbastu	-0.0004	0.0299
	(0.0801)	(0.0833)
Dang	0.1834***	0.2057***
	(0.0572)	(0.0624)
Banke	0.0690	0.0914
	(0.0702)	(0.0654)
Bardiya	0.2420***	0.2773***
	(0.0471)	(0.0495)
Dolpa	0.1123***	0.1181***
	(0.0220)	(0.0275)
Mugu	0.2712***	0.3170***
	(0.0202)	(0.0218)
Humla	0.4167***	0.4557***
	(0.0223)	(0.0269)

Jumla	0.2611***	0.2911***
	(0.0415)	(0.0486)
Kalikot	0.3033***	0.3353***
	(0.0257)	(0.0297)
Dailekh	0.1529**	0.1715**
	(0.0658)	(0.0675)
Jajarkot	0.2810***	0.3023***
	(0.0522)	(0.0585)
Rukum west	0.2933***	0.3125***
	(0.0653)	(0.0621)
salyan	0.3216***	0.3639***
	(0.0262)	(0.0320)
surkhet	0.1106***	0.1340***
	(0.0402)	(0.0429)
bajura	0.4050***	0.4327***
	(0.0361)	(0.0256)
bajhang	0.3683***	0.4066***
	(0.0275)	(0.0261)
darchula	0.3416***	0.3920***
	(0.0256)	(0.0250)
baitadi	-0.0091	0.0001
	(0.0595)	(0.0629)
dadeldhura	-0.3133***	-0.2956***
	(0.0506)	(0.0425)
doti	-0.2101***	-0.1978***
	(0.0672)	(0.0614)
achham	0.2452***	0.2673***
	(0.0297)	(0.0374)
kailali	0.0844	0.1046*
	(0.0567)	(0.0597)
kanchanpur	0.0557	0.0774
	(0.0836)	(0.0852)
Constant	-0.3572***	
	(0.0754)	
Observations	11,143	11,129
R-squared	0.2007	

Source: Author's calculation using NDHS, 2022 Data

Appendix 3

OLS regression assessing the associations between contraceptive method and occupation among married women aged 15-49 in Nepal.

VARIABLES	OLS Female Occupation
Modern Methods	0.4908**
	(0.1981)
Traditional Methods	0.2875
	(0.2712)
Age	0.3149***
	(0.0703)
Age Squared	-0.0039***
	(0.0010)
Education	0.2223
	(0.1388)
Residence	0.0856
	(0.1771)
No. of Children	-0.1030
	(0.0702)
Age at first cohabitation	0.1176
	(0.1087)
Working Husband	0.1497
	(0.1488)
Poorer	-0.4579**
	(0.2124)
Middle	-0.8197***
	(0.2279)
Richer	-0.7295***
	(0.2736)
Richest	-1.4712***
	(0.4521)
Buddhist	-0.2942
	(0.4586)
Muslim	-0.6431
	(0.7418)
Kirat	-0.7345
	(0.4557)
Christian	-0.1600
	(0.4600)
Others	-0.5583
	(1.0016)
Hill Chhetri	-0.1385
	(0.4680)
Terai Brahmin	-3.2911***

	(0.5303)
Other Terai Caste	-1.4444***
	(0.4942)
Hill Dalit	-0.5511
	(0.4771)
Terai Dalit	-0.8502
	(0.5428)
newar	-0.6789
	(0.7789)
hill janajati	0.0107
	(0.5192)
terai janajati	0.0970
	(0.5450)
muslim	-1.3486
	(0.8360)
Others	-3.4846***
	(0.8796)
Constant	-0.2459
	(1.1815)
Observations	11,225
R-squared	0.0126

Source: Author's calculation using NDHS, 2022 Data