Employment status and women's fertility: Do working women have fewer children?

Yulmardi[1]*, Erfit[2], Dios Nugraha Putra[3]

[1,2)] Department of Economics, Faculty of Economics and Business, Universitas Jambi Indonesia
[3)] Department of Accounting, Faculty of Economics and Business, Universitas Jambi Indonesia

[*] *To whom correspondence should be addressed. Email: yulmardi@unja.ac.id*

DOI:	Received:	Revised:	Accepted:	Published:
10.22437/ppd.v12i5.37432	04.10.2024	22.11.2024	27.12.2024	31.12.2024

Abstract

This study aims to analyze the differences in fertility between employed and unemployed women in Jambi City and identify the socio-economic factors influencing the number of children they have. The study applies Propensity Score Matching (PSM) to ensure a fairer comparison between the two groups and Inverse Probability Weighting (IPW) to control for other variables that may affect the relationship between employment status and fertility. The results of the analysis indicate that the average number of children is higher among unemployed women than among employed women. However, after applying IPW weighting, employment status no longer has a significant effect on the number of children. Instead, economic factors, particularly household income, play a more significant role in determining fertility. Additionally, women's age contributes to fertility differences, with older women tending to have fewer children. Meanwhile, education level and age at first marriage do not show a significant effect after weighting.

Keywords: *Fertility, Working women, Propensity Score Matching, Inverse Probability Weighting*

JEL Classification: I31, J13, J21

INTRODUCTION

The high population growth in a region can pose challenges and burdens for development. If improvements in human quality do not accompany rapid population growth, it may hinder efforts to achieve equitable welfare across various aspects of life (Komlos & Salamon, 2008). Therefore, controlling population growth is a priority to ensure the achievement of sustainable development goals.

Jambi Province, as one of the regions in Indonesia, has experienced relatively high population growth. Between 2010 and 2020, the province's population grew at an annual rate of 1.34 percent, exceeding the national average of 1.25 percent per year. One of the areas with a notably high population growth rate within Jambi Province is Jambi City, which recorded an annual growth rate of 1.27 percent. Although this percentage is below the provincial average and ranks Jambi City sixth among the 11

regencies and cities in the province, its large population has resulted in the highest population increase in the province between 2010 and 2021. Moreover, due to its limited land area, Jambi City also has the highest population density in the province (BPS Provinsi Jambi, 2022).

Population growth is influenced by three main components: fertility, mortality, and migration. Among these, fertility is the most decisive factor. Furthermore, in terms of policy, fertility is the most feasible component for direct intervention. As a result, studies on fertility play a crucial role in demographic research.

Several factors highlight the importance of fertility. First, fertility is responsible for biological reproduction and the continuity of a society. Second, fertility rates directly impact population growth; in other words, an increase or decrease in fertility rates corresponds to a rise or decline in population size. Third, uncontrolled fertility can lead to various social, economic, and political challenges, whereas fertility rates lower than mortality rates may result in a shortage of human resources for development. (Marpaung et al., 2024; Wardhana et al., 2020).

One of the key factors extensively studied in fertility research is women's participation in economic activities. In this context, various theoretical frameworks have been developed to analyze how women's employment status influences fertility decisions. One widely used approach is the opportunity cost theory proposed by Becker (Werding, 2014). According to this perspective, the family is viewed as a rational unit of production and consumption, where the decision to have children is weighed against the potential economic benefits or losses if a woman chooses to work. Employment increases the opportunity cost for women, as the time and energy required for child-rearing must compete with work and income-generating activities.

Additionally, Becker developed the Theory of Demand and Supply of Children, which conceptualizes children as "commodities" that provide a certain level of utility for parents. In this framework, working women face a higher "cost" of having children due to limited time for childcare and additional expenses such as daycare or hiring a nanny (Kamaruddin, 2017). Consequently, the decision to have children is influenced not only by biological or social factors but also by rational economic considerations.

Another commonly used approach in fertility studies is gender role theory, which highlights how societal expectations of men and women influence reproductive decisions (Lappegård et al., 2021). In societies with increasingly egalitarian values, women are encouraged to participate in the labor market, often leading to delayed marriage and lower birth rates. Conversely, in societies that uphold traditional gender roles, women—even those who work—are still expected to take on household and childcare responsibilities. This creates a dual burden that can affect fertility decisions differently, depending on how well women can balance their domestic and professional roles.

Beyond social factors, changes in societal values and norms also contribute to declining fertility rates, as explained by the Second Demographic Transition (SDT) theory. This theory emphasizes that rising individualism and gender equality encourage women to focus on personal development and career advancement (Han & Brinton, 2022; Raymo, 2015; Sobotka, 2008). With greater access to education and employment opportunities, women tend to postpone marriage and limit the number of children they have, particularly in countries with higher levels of welfare.

Meanwhile, socio-economic changes have also shifted perceptions of the value of children, as described in the Value of Children Theory. In traditional societies, children often held economic value, serving as labor within the family or as social security for

parents in old age. However, with rising education levels and expanded employment opportunities for women, the value of children has shifted toward emotional aspects, such as being a source of happiness and pride for parents (Nauck, 2014; Thomson, 2015). Under these conditions, women with greater career opportunities tend to limit the number of children they have to optimize their time between work and family.

Various empirical studies have confirmed the relevance of the theoretical frameworks discussed above. Research has shown that women's employment status is often associated with delayed marriage age, family size regulation, and increased attention to children's education (Erfani & Pilon, 2024; Salem, 2016; Selwaness & Krafft, 2021; Shreffler, 2017; XU & CHEN, 2022). Additionally, factors such as socio-economic conditions, family support, and women's ability to balance work and domestic responsibilities also influence the relationship between women's economic participation and fertility decisions.

Based on this background, this study focuses on fertility differences between employed and non-employed women in Jambi City. Unlike previous research, which has primarily relied on descriptive analysis or conventional regression without accounting for selection bias, this study adopts a more robust approach by applying Propensity Score Matching (PSM) and Inverse Probability Weighting (IPW) simultaneously.

This approach enables a more accurate analysis of the impact of employment status on fertility by minimizing potential biases arising from individual characteristic differences between employed and non-employed women. The combination of PSM and IPW remains relatively rare in similar studies in Indonesia, particularly in urban demographic research. Therefore, this study not only provides a deeper understanding of the relationship between employment status and fertility but also offers a methodological contribution that can be applied in other demographic studies.

METHODS

Research location

This study was conducted in Alam Barajo District, Jambi City. The district was selected due to its status as the largest in terms of land area and population among the eleven districts in Jambi City. Alam Barajo covers an area of 41.56 km², accounting for 20.27 percent of the total area of Jambi City. The district's population is recorded at 108,196 people, or 17.85 percent of the city's total population (BPS Kota Jambi, 2021)

Alam Barajo District consists of five subdistricts. Two subdistricts—Kenali Besar and Mayang Mengurai—were chosen as the study sites. This selection was based on their having the largest populations compared to other subdistricts, totaling 64,734 people or 59.83 percent of the total population of Alam Barajo District (BPS Kota Jambi, 2022)

Population

The target population in this study consists of all reproductive-age couples (PUS) residing in Kenali Besar and Mayang Mengurai subdistricts. The total number of PUS in these two subdistricts is 7,646 couples (BKKBN, 2023).

Sample

The sample selection criteria required that the wife in a PUS be at least 30 years old at the time of the study, based on the assumption that women in this age group have generally experienced childbirth. From the initial population, the sample was drawn

using the snowball sampling method, with 40 employed women and 40 unemployed women as respondents.

Data collection instrument

Data collection was conducted using a questionnaire that included questions on the social, economic, and demographic characteristics of PUS families, as well as the number of live births, which served as the fertility indicator.

Analytical tools

The profiles of employed and unemployed women were analyzed descriptively using cross-tabulation frequency tables. Subsequently, to examine differences in the number of live births between employed and unemployed women while controlling for other factors influencing employment decisions and fertility, Propensity Score Matching (PSM) and Inverse Probability Weighting (IPW) techniques were applied.

Key Variables Analyzed:

- Dependent variable: Number of live births.
- Main independent variable: Employment status (1 = employed, 0 = unemployed).
- Control variables:
  - Women's age (categories: 35–39, 40–44, 45–49 years).
  - Age at first marriage (categories: <25, 25–29, ≥30 years).
  - Education level (categories: elementary school, junior high school, senior high school, diploma/bachelor's, master's/PhD).
  - Household income (categories: <4 million, 4–5.9 million, 6–7.9 million, >8 million).

Propensity Score Matching (PSM)

PSM was used to match employed women with unemployed women based on similar characteristics, allowing for a more accurate comparison of the number of children. The optimal matching model with a 1:1 ratio was applied, in which each individual in the employed group was matched with an individual in the unemployed group who had the most similar propensity score.

Balance evaluation after matching was conducted by comparing the distribution of control variables before and after matching using Standardized Mean Difference (SMD) and eCDF Mean & Max. If imbalances persisted, alternative approaches were used to improve the matching process.

Difference test for the number of children after matching

Following the matching process, a Welch Two-Sample t-test was conducted to test the mean difference in the number of children between employed and unemployed women. This test determined whether a statistically significant difference existed between the two groups after controlling for employment decision factors.

Inverse Probability Weighting (IPW)

This study also applied IPW using a logistic regression-based weighting model to ensure robust findings. Weights were calculated based on the predicted employment probability derived from the control variables. IPW allowed all individuals to remain in the analysis while assigning appropriate weights based on their likelihood of being in the employed or unemployed group.

Regression analysis after IPW

After applying weighting, a linear regression analysis was performed to measure the effect of employment status on the number of children while controlling for other variables. The regression model was formulated as follows:

$$ALH = \beta_0 + \beta_1 Bek + \beta_n X_n + \varepsilon_i$$

Where:

- ALH = Number of live births
- β_1 = Effect of employment status on the number of live births after controlling for other factors
- β_n = Effects of the set of control variables
- X_n = Set of control variables
- ε_i = Residual error

This regression analysis helps assess whether employment status remains significant after accounting for other factors or whether alternative variables play a more dominant role in determining the number of live births.

RESULTS AND DISCUSSION

Respondents' age

Based on the research findings, the majority of respondents were in the 35–39 age group (37.50%), followed by the 45–49 age group (32.50%) and the 40–44 age group (30.00%). Overall, a higher number of employed respondents were found in the 35–39 and 45–49 age groups compared to their unemployed counterparts. Conversely, in the 40–44 age group, there were more unemployed respondents than employed ones.

The average age of the respondents was 40.3 years. A more detailed distribution of respondents' employment status by age group is presented in Table 1.

Table 1. Distribution of reproductive-age women by employment status and age group in Jambi City, 2023.

Age group	Not employed	Employed	Total
35 - 39	14 (35.00)	16 (40.00)	30 (37.50)
40 - 44	14 (35.00)	10 (25.00)	24 (30.00)
45 - 49	12 (30.00)	14 (35.00)	26 (32.50)
Total	40 (100.00)	40 (100.00)	80 (100.00)
Average age	42.50	41.00	41.75

Source: Field research, 2023

Note: Numbers in parentheses indicate percentages.

Age at first marriage of respondents

The age at first marriage is a key factor influencing the number of children a woman has. Women who marry at a younger age experience a longer reproductive period, increasing their chances of having more live births (Islam & Rahman, 2020; Nagdeve et al., 2023). Conversely, marrying at a more mature age can contribute to controlling the number of children within a family.

As shown in Table 2, half of the respondents married for the first time between the ages of 20–24 years. The 25–29 age group was the second largest, accounting for 38.75%, while only 11.25% of respondents married for the first time at 30–34 years.

Table 2. Distribution of reproductive-age women by employment status and age at first marriage in Jambi City, 2023.

Age at first marriage	Not employed	Employed	Total
20 - 24	26 (65.00)	14 (35.00)	40 (50.00)
25 - 29	10 (25.00)	21 (52.50)	31 (38.75)
30 - 34	4 (10.00)	5 (12.50)	9 (11.25)
Total	40 (100.00)	40 (100.00)	80 (100.00)
Age at first marriage	24.25	25.88	25.06

Source: Field research, 2023
Note: Numbers in parentheses indicate percentages.

When analyzed by employment status, a notable difference in patterns emerges. The majority of unemployed women married at a younger age (65% in the 20–24 age group), whereas a higher proportion of employed women married at a more mature age (52.50% in the 25–29 age group). However, in the 30–34 age group, the distribution between employed and unemployed women is relatively balanced.

Overall, the average age at first marriage among respondents was 25.06 years, with unemployed women marrying at a younger average age than their employed counterparts. This difference suggests that employment status may influence the decision regarding the timing of the first marriage, possibly due to aspirations related to education and career advancement before marriage.

Educational attainment of respondents

Education level is a crucial factor influencing an individual's employment opportunities. Table 3 shows that the majority of respondents (77.50%) had completed at least a senior high school (SLTA) education, with 40.00% having attained a diploma (D3) or bachelor's degree (S1) and 3.75% reaching a master's (S2) or doctoral degree (S3). Meanwhile, 18.75% of respondents had only completed junior high school (SLTP), and 5.00% had completed only elementary school (SD).

Table 3. Distribution of reproductive-age women by employment status and educational attainment in Jambi City, 2023

Education level	Not employed	Employed	Total
Elementary School (SD)	4 (10.00)	0 (0.00)	4 (5.00)
Junior High School (SLTP)	10 (25.00)	1 (2.50)	11 (13.75)
Senior High School (SLTA)	20 (50.00)	10 (25.00)	30 (37.50)
Diploma/Bachelor's (D3/S1)	6 (15.00)	26 (65.00)	32 (40.00)
Master's/Doctorate (S2/S3)	0 0.0	3 7.5	3 3.8
Total	40 (100.00)	40 (100.00)	80 (100.00)

Source: Field research, 2023
Note: Numbers in parentheses indicate percentages.

A clear pattern emerges when examining education levels by employment status. The majority of employed respondents (72.50%) had higher education (D3/S1 or above), with 65.00% holding a D3/S1 degree and 7.50% completing an S2/S3 degree. In contrast, unemployed respondents tended to have lower education levels, with 85.00% having completed no more than a senior high school (SLTA) education and 35.00% not completing SLTA.

These findings indicate a strong correlation between higher education and greater employment opportunities. Most unemployed respondents had completed only junior high school (SLTP) or lower, whereas employed respondents were more likely to have a D3/S1 degree or higher. This reflects the importance of access to higher education in increasing workforce participation and expanding economic opportunities in Jambi City.

Family income

Family income in this study includes the total earnings of the household head and the wife, regardless of whether she is employed. Table 4 shows that the majority of respondent families (37.50%) had an income in the Rp 2,000,000–Rp 3,999,000 range per month. Additionally, 27.50% of families earned Rp 6,000,000–Rp 7,999,000, while 18.75% fell within the Rp 8,000,000–Rp 9,999,000 category. A smaller portion (13.75%) earned between Rp 4,000,000–Rp 5,999,000, and only 5.00% of families had an income of Rp 10,000,000 or more.

Table 4. Distribution of reproductive-age women by employment status and family income in Jambi City, 2023.

Family income	Not employed	Employed	Total
2.000-3.999	30 (75.00)	0 (0.00)	30 (37.50)
4.000-5.999	6 (15.00)	3 (7.50)	9 (11.25)
6.000-7.999	3 (7.50)	19 (47.50)	22 (27.50)
8.000-9.999	1 (2.50)	14 (35.00)	15 (18.75)
>= 10.000	0 (0.00)	4 (10.00)	4 (5.00)
Total	40 (100.00)	40 (100.00)	80 (100.00)
Average family income	3.750	7.950	5.850

Source: Field research, 2023
Note: Numbers in parentheses indicate percentages.

There is a clear difference in income distribution based on the wife's employment status. Most families where the wife is not employed (75.00%) fall within the Rp 2,000,000–Rp 3,999,000 income range, with an average household income of Rp 3,750,000 per month. In contrast, families where the wife is employed tend to have higher income levels, with 47.50% earning Rp 6,000,000–Rp 7,999,000 and 35.00% in the Rp 8,000,000–Rp 9,999,000 range. The average income of families with employed wives reaches Rp 7,950,000, nearly double that of families where the wife does not work.

These findings highlight the significant role of women's income in improving household economic well-being. Families with an employed wife are more likely to fall into the upper-middle income category. In contrast, families with a non-working wife

are more concentrated in the lower-middle income group. This underscores the importance of women's participation in the workforce as a means of enhancing family living standards and economic stability in Jambi City.

Differences in fertility between employed and unemployed women

The number of live births reflects the fertility level of women in a given population. In this study, the number of births experienced by respondents was analyzed based on employment status. Table 5 shows that the majority of respondents (53.75%) had two live births, while 23.75% had three children. 18.75% of respondents had one child, and only 3.75% had four or more children.

Table 5. Distribution of reproductive-age women by employment status and number of live births in Jambi City, 2023.

Number of live births	Not employed	Employed	Total
1	5 (12.50)	10 (25.00)	15 (18.75)
2	19 (47.50)	24 (60.00)	43 (53.75)
3	13 (32.50)	6 (15.00)	19 (23.75)
>=4	3 (7.50)	0 (0.00)	3 (3.75)
Total	40 (100.00)	40 (100.00)	80 (100.00)
The average number of children	2.35	1.90	2.12

Source: Field research, 2023

Note: Numbers in parentheses indicate percentages.

When comparing respondents based on their employment status, a clear difference in fertility patterns emerges. Employed women tend to have fewer children, with an average of 1.90 live births, compared to 2.35 among unemployed women. The proportion of employed women with one child (25.00%) is higher than that of unemployed women (12.50%). In contrast, unemployed women are more dominant in the three-child category (32.50%) and in having four or more children (7.50%). Notably, no employed respondents had four or more children.

Testing differences in fertility between employed and unemployed women

The results of matching using the Propensity Score Matching (PSM) method indicate that before matching, there was a significant difference in the probability of employment between employed and unemployed women. This is evident from the distance variable, which had a Standardized Mean Difference (SMD) of 12.33 (Table 6). This disparity suggests that the two groups had very different characteristics, making it necessary to perform matching to ensure a fairer comparison in analyzing fertility differences.

After matching, most variables showed an improved balance between the employed and unemployed groups. However, some variables still displayed significant differences.

One of the most imbalanced variables was age at first marriage. Women who married at a younger age (First Marriage Age Group 1) were more prevalent in the unemployed group, with an SMD of -0.629. Conversely, those who married at an older age (First Marriage Age Group 2) were more likely to be in the employed group, with an SMD of 0.5507. This suggests that women who marry earlier are more likely to

remain unemployed, whereas those who marry later are more likely to participate in the workforce.

Table 6. Summary of balance for all data (PSM matching results)

Variable	Mean Treated	Mean Control	Std. Mean Diff.
Distance	0.9875	0.0125	12.3329
Age Group 1 (35–39 years)	0.4	0.35	0.1021
Age Group 2 (40–44 years)	0.25	0.35	-0.2309
Age Group 3 (45–49 years)	0.35	0.3	0.1048
First Marriage Age Group 1 (<25 years)	0.35	0.65	-0.629
First Marriage Age Group 2 (25–29 years)	0.525	0.25	0.5507
First Marriage Age Group 3 (≥30 years)	0.125	0.1	0.0756
Education Level 1 (Elementary School)	0	0.1	-0.4714
Education Level 2 (Junior High School)	0.025	0.25	-1.4412
Education Level 3 (Senior High School)	0.25	0.5	-0.5774
Education Level 4 (Diploma/Bachelor's)	0.65	0.15	1.0483
Education Level 5 (Master's/Doctorate)	0.075	0	0.2847
Household Income <4 million	0	0.75	-2.4495
Household Income 4–5.9 million	0.075	0.15	-0.2847
Household Income 6–7.9 million	0.475	0.075	0.801
Household Income 8–9.9 million	0.35	0.025	0.6814
Household Income ≥10 million	0.1	0	0.3333

Education level also remained a significant differentiator between the two groups. Women with lower education levels, such as elementary and junior high school graduates, were more commonly found in the unemployed group. In contrast, those with higher education, particularly diploma or bachelor's degrees, were predominantly in the employed group, with an SMD of 1.0483. This highlights the role of education in employment decisions, as women with higher education levels have greater opportunities to enter the labor market.

Household income was another variable that remained imbalanced. Households with lower income (<4 million rupiah per month) were predominantly in the unemployed group, with an SMD of -2.4495. On the other hand, households with higher income (>6 million rupiah per month) were more prevalent in the employed group, with SMD values of 0.8010 and 0.6814. This suggests that women from higher-income households are more likely to work, potentially due to better financial stability and career opportunities, whereas those from lower-income households may have limited access to employment opportunities.

Overall, while matching successfully reduced some disparities between the two groups, significant imbalances remained in education, first marriage age, and household income. This indicates that a woman's decision to work or not is influenced not only by individual factors but also by broader socio-economic conditions. Therefore, when analyzing the relationship between employment status and fertility, it is essential to consider how these factors interact and shape women's decisions regarding work and family life.

In addition to assessing the balance between employed and unemployed women through mean comparisons and Standardized Mean Difference (SMD), the quality of matching can also be evaluated using the Empirical Cumulative Distribution Function (eCDF). This metric reflects differences in variable distributions between the two groups before and after matching. Two key indicators in this evaluation are eCDF Mean

and eCDF Max, where smaller values indicate better balance between matched groups, as shown in Table 7.

Table 7. Empirical Cumulative Distribution Function (eCDF) values

Variable	eCDF Mean	eCDF Max
Distance	0.5426	0.975
Age Group 1 (35–39 years)	0.05	0.05
Age Group 2 (40–44 years)	0.1	0.1
Age Group 3 (45–49 years)	0.05	0.05
First Marriage Age Group 1 (<25 years)	0.3	0.3
First Marriage Age Group 2 (25–29 years)	0.275	0.275
First Marriage Age Group 3 (≥30 years)	0.025	0.025
Education Level 1 (Elementary School)	0.1	0.1
Education Level 2 (Junior High School)	0.225	0.225
Education Level 3 (Senior High School)	0.25	0.25
Education Level 4 (Diploma/Bachelor's)	0.5	0.5
Education Level 5 (Master's/Doctorate)	0.075	0.075
Household Income <4 million	0.75	0.75
Household Income 4–5.9 million	0.075	0.075
Household Income 6–7.9 million	0.4	0.4
Household Income 8–9.9 million	0.325	0.325
Household Income ≥10 million	0.1	0.1

The results in Table 7 show that the distance variable, which represents the probability of employment based on individual characteristics, has an eCDF Mean of 0.5426 and an eCDF Max of 0.9750, indicating a large difference in distribution between the groups before matching. Although matching has reduced some differences, certain variables still exhibit imbalances.

One of the most imbalanced variables is age at first marriage, with the highest eCDF Mean values found in First Marriage Age Group 1 (0.3000) and First Marriage Age Group 2 (0.2750). This confirms previous findings that women who married younger were more likely to be in the unemployed group, while those who married later were more likely to be employed.

Education level also shows significant distribution differences, particularly for women with diplomas or bachelor's degrees, who have an eCDF Mean of 0.5000. This reinforces the notion that women with higher education levels are more likely to participate in the workforce compared to those with lower education levels.

Household income remains another imbalanced variable, especially among families earning less than 4 million rupiah per month, which has an eCDF Mean of 0.7500. This indicates that a large proportion of unemployed women come from lower-income households.

Overall, while Propensity Score Matching (PSM) has helped reduce many differences between the two groups, the eCDF Mean and eCDF Max values suggest that key variables such as age at first marriage, education level, and household income still show notable disparities. This finding highlights that individual choices do not solely determine the decision to work or not but are also shaped by broader socio-economic conditions. Therefore, further analysis should explore how these factors interact to influence both employment status and fertility decisions among women.

After the matching process, a t-test was conducted to examine whether there was a significant difference in the number of children between employed and unemployed women. This test aimed to determine whether employment status was directly

associated with the number of children a woman had after other factors were balanced through matching. The detailed results are presented in Table 8.

Table 8. T-test results after matching

Group	The mean number of children	p-value	95% CI (Lower)	95% CI (Upper)
Unemployed women	2.35	0.0068	0.1282	0.7718
Employed women	1.9			

The analysis in Table 8 shows that the average number of children among unemployed women was 2.35, while employed women had an average of 1.90 children. This means that unemployed women had 0.45 more children on average than their employed counterparts.

The statistical test yielded a p-value of 0.0068, indicating that this difference was statistically significant at the 1% level. In other words, there is strong statistical evidence that unemployed women have more children than employed women.

Additionally, the 95% confidence interval (CI) for the difference in the number of children between the two groups ranged from 0.1282 to 0.7718. This suggests that despite variations in the sample, the overall trend consistently indicates that unemployed women tend to have more children than employed women.

While these results highlight a significant difference, the analysis remains descriptive and does not yet account for other factors that may influence fertility. The observed difference may not be solely due to employment status. Still, it could also be influenced by other factors such as education level and household income, which were previously found to still exhibit imbalances even after matching.

Researchers need to conduct further regression analysis to determine whether employment status is truly the main factor driving differences in fertility. A regression model would allow for controlling additional variables that might affect fertility outcomes, providing a more comprehensive understanding of the relationship between employment and the number of children.

To further investigate whether the difference in the number of children between employed and unemployed women is truly caused by employment status or influenced by other factors, a regression analysis was conducted using Inverse Probability Weighting (IPW). This method controls for variables that may affect the number of children, such as age, age at first marriage, education level, and household income. By doing so, the analysis determines whether employment status remains a significant factor after accounting for these variables.

The results in Table 9 show that employment status does not have a significant effect on the number of children. The coefficient for employment status is 0.117 with a p-value of 0.8039, indicating that after controlling for other factors, the difference in the number of children between employed and unemployed women cannot be solely attributed to employment status. This contrasts with the previous t-test results, which showed a significant difference, suggesting that fertility differences are more likely influenced by other factors related to the decision to work, such as household income and demographic characteristics.

One significant factor affecting the number of children is women's age. Women aged 40–44 years (Age Group 2) have significantly fewer children compared to those aged 35–39 years, with a coefficient of -0.8828 and a p-value of 0.0363, indicating statistical significance. However, there is no significant difference in the number of children between women aged 45–49 years (Age Group 3) and those aged 35–39 years,

as indicated by a p-value of 0.8035. This suggests that the difference in fertility is more pronounced in the transition from ages 35–39 to 40–44 years, but it becomes less noticeable after age 45.

Table 9. Regression results after weighting (IPW)

Variable	Estimate	Std. Error	t value	p-value
Intercept	2.5	0.3534	7.074	<0.001
Employment Status (Employed = 1)	0.117	0.4695	0.249	0.8039
Age Group 2 (40–44 years)	-0.8828	0.413	-2.137	0.0363
Age Group 3 (45–49 years)	-0.1364	0.546	-0.25	0.8035
First Marriage Age Group 2 (25–29 years)	0.3284	0.3524	0.932	0.3548
First Marriage Age Group 3 (≥30 years)	0.2465	0.5908	0.417	0.6779
Education Level 2 (Junior High School)	-0.2086	0.4147	-0.503	0.6167
Education Level 3 (Senior High School)	0.7128	0.5372	1.327	0.1891
Education Level 4 (Diploma/Bachelor's)	0.9174	0.7029	1.305	0.1963
Education Level 5 (Master's/Doctorate)	1.2508	1.0771	1.161	0.2497
Household Income 4–5.9 million	-1.3229	0.4298	-3.078	0.0030
Household Income 6–7.9 million	-1.3832	0.5983	-2.312	0.0239
Household Income 8–9.9 million	-1.6942	0.7176	-2.361	0.0212
Household Income ≥10 million	-1.6445	1.1969	-1.374	0.1741

Meanwhile, age at first marriage and education level did not show a significant influence on the number of children after weighting. This contradicts findings from previous studies (Fianti et al., 2022; Glick et al., 2015; Nag & Singhal, 2013; Solang et al., 2021; Zenebe Gebre, 2020).). Although prior analysis revealed imbalances in education and first marriage age, when these factors were controlled in the regression model, their effect on the number of children became insignificant. This suggests that these variables may be more related to the decision to work rather than directly influencing fertility outcomes.

The most influential factor affecting the number of children in this model was household income, which aligns with findings from previous studies (Córdoba & Ripoll, 2016; Docquier, 2004; Țarcă et al., 2022). The regression results indicate that higher household income is associated with fewer children. Households earning 4–5.9 million rupiah per month had significantly fewer children, with a coefficient of -1.3229 and a p-value of 0.0030, confirming statistical significance at the 1% level. A similar trend was observed in households earning 6–7.9 million and more than 8 million rupiahs, where the negative effect on the number of children remained significant ($p < 0.05$). This finding suggests that economic factors play a more significant role in fertility decisions than employment status itself.

Based on these findings, it can be concluded that although the initial t-test showed a difference in the number of children between employed and unemployed women, the regression analysis demonstrates that this difference is not directly caused by employment status. Instead, household economic conditions, particularly income level, have a far greater impact on determining the number of children a woman has. Additionally, women's age also plays a role in fertility decisions, with older women tending to have fewer children. Conversely, education and age at first marriage do not have a significant effect after weighting, suggesting that while these factors may be related to employment status (GELO et al., 2011; Gunarathne et al., 2024; Huete-Morales & Vargas-Jiménez, 2018; Steiber et al., 2016),, they do not directly determine fertility outcomes.

CONCLUSION AND RECOMMENDATIONS

Conclusion

This study analyzed the differences in fertility between employed and unemployed women in Jambi City, considering various socio-economic and demographic factors. The findings indicate that, on average, unemployed women have more children than employed women. Before matching using Propensity Score Matching (PSM), there were significant differences in characteristics between the two groups, particularly in age at first marriage, education level, and household income.

However, after further analysis using Inverse Probability Weighting (IPW), it was found that employment status does not have a significant effect on the number of children when other factors are controlled. Instead, household income emerges as the most influential factor, with higher-income households tending to have fewer children. Additionally, women's age also plays a role, as older women tend to have fewer children. Meanwhile, education level and age at first marriage do not show a significant effect after weighting.

These findings suggest that although employed women generally have fewer children than unemployed women, this difference is not directly caused by employment status itself but rather by broader economic factors, such as household income and financial stability.

Recommendations

One of the key challenges faced by working women is the limited availability of affordable and high-quality childcare services. Many women struggle to balance their professional and family responsibilities due to the lack of accessible daycare options. Expanding affordable childcare facilities would provide a practical solution, allowing women to remain in the workforce without having to compromise their decision to have children.

Beyond childcare, policies that support a better work-life balance are essential in helping women manage both their careers and family lives. Governments and private companies should implement measures such as flexible working hours, extended maternity leave, and incentives for businesses that foster family-friendly work environments. These policies would enable women to remain in the workforce while also fulfilling their roles within the family.

Additionally, education and public awareness play a crucial role in shaping fertility decisions. Programs that promote family planning and gender role equality can help reduce societal pressures on women regarding work and childbearing. Raising awareness about financial planning before having children can also empower couples to make more informed and responsible decisions about family size.

This study underscores the finding that economic factors, particularly household income, have a more significant impact on fertility decisions than employment status itself. Future research could explore other contributing factors, such as social norms, personal preferences, and the effectiveness of existing population policies, to gain a deeper understanding of the complex dynamics influencing fertility choices.

REFERENCES

BKKBN. (2023). *Kampung Keluarga Berkualitas*. https://kampungkb.bkkbn.go.id/

BPS Kota Jambi. (2021). *Kota Jambi dalam Angka 2021*. BPS Kota Jambi. https://web-api.bps.go.id/download.php?f=kGzOnb/QbAT2H2MNORTCkVRxN011Q25ZYW5COVBVVUhxYk55dnVta1BpUU82QXBjSnRKY2VUYjRWU3h4cDcxYVF

KVXlYVFROd1YxMnJSMDRwZFZGRy9UTG9nQmpteTlva0Vsc1c2bWxHb1RyWmY3QXlXQjlmZUh3aVc3WXRFMjNjWnhrZ2dWRzhQWDdWVFdFckE1SktjQU9PVmh3Wk5RS0

BPS Kota Jambi. (2022). *Kecamatan Alam Barajo dalam Angka 2021*. BPS Kota Jambi. https://web-api.bps.go.id/download.php?f=lhRCpvobBLeb9MgBJwHVnU0rOVR4MzJkWDNBZDlvaytObXFnMCtNN3EyNFVTdHo2YnpLWDVpbVhwY1haRXBPYVh6dEo4WU5iSHNaRTVpb2JVMDh4YTAzOEd3cmFaR0N1amVHRFpSdTBQQjZjTFpYb0g2b0JUN1VTblJCc01UY3dDZll3SjZmQytZNW1RSDRKODFPaCtkalZxa1R1enZQeD

BPS Provinsi Jambi. (2022). *Analisis Profil Penduduk Provinsi Jambi*. BPS Provinsi Jambi. https://web-api.bps.go.id/download.php?f=hVOcy9ThxuOYo2111xq4uEJ5U2pmZVVKMk1RYk9FejlHRE43eTlta2h1bDRKUitQVnYvdjVaOS9OdEt1Q2RPcmprakdZdEJpNytVZWROZGJtZU5iWjNndm45WC9mWnVmQm1DaWtPbTkvdy9MSXRRNjV0RmVEQUZ4aC91UEZyRGJsNHpUMm5iaDNoKzBKYU9FeVAxdjAwdExzSTJlQ2ozZU

Córdoba, J. C., & Ripoll, M. (2016). Intergenerational Transfers and the Fertility–Income Relationship. *The Economic Journal*, *126*(593), 949–977. https://doi.org/10.1111/ecoj.12197

Docquier, F. (2004). Income Distribution, Non-convexities and the Fertility–Income Relationship. *Economica*, *71*(282), 261–273. https://doi.org/10.1111/j.0013-0427.2004.00369.x

Erfani, A., & Pilon, L. (2024). Gender Equality in the Division of Housework and Fertility Intentions in Canada: The Moderating Effect of Employment and Education. *Journal of Family Issues*. https://doi.org/10.1177/0192513X241299419

Fianti, R., Sugiarto, D. W., Damayanti, R., & Ariawan, I. (2022). Hubungan Usia Pertama Menikah dengan Keluaran Kesehatan Reproduksi pada Wanita Usia Subur di Provinsi Nusa Tenggara Barat (Analisis Data ICMM Tahun 2016). *Media Publikasi Promosi Kesehatan Indonesia (MPPKI)*, *5*(10), 1276–1287. https://doi.org/10.56338/mppki.v5i10.2655

Gelo, J., Smolić, Š., & Strmota, M. (2011). Sociodemografske Odrednice Zaposlenosti Žena U Hrvatskoj. *Drustvena Istrazivanja*, *20*(1), 69–88. https://doi.org/10.5559/di.20.1.04

Glick, P., Handy, C., & Sahn, D. E. (2015). Schooling, marriage, and age at first birth in Madagascar. *Population Studies*, *69*(2), 219–236. https://doi.org/10.1080/00324728.2015.1053513

Gunarathne, L., Apputhurai, P., Nedeljkovic, M., & Bhowmik, J. (2024). Investigating Pathways Linking of Women's Education Status and Empowerment to Intimate Partner Violence Among Married Women in Sri Lanka: A Structural Equation Modeling Approach. *Journal of Interpersonal Violence*. https://doi.org/10.1177/08862605241279980

Han, S. W., & Brinton, M. C. (2022). Theories of Postindustrial Fertility Decline: An Empirical Examination. *Population and Development Review*, *48*(2), 303–330. https://doi.org/10.1111/padr.12490

Huete-Morales, M. D., & Vargas-Jiménez, M. (2018). Modelling part-time employment in Spain: do women opt for fewer hours or do they have no choice? *Journal of Gender Studies*, *27*(7), 815–833. https://doi.org/10.1080/09589236.2017.1316248

Islam, M. A., & Rahman, A. (2020). Age at first marriage and fertility in developing countries: A meta analytical view of 15 Demographic and Health Surveys. *Clinical Epidemiology and Global Health*, *8*(3), 775–779. https://doi.org/10.1016/j.cegh.2020.01.018

Kamaruddin, R. bt. (2017). Socio-economic factors on demand for children in Malaysia. *International Journal of Economic Research*, *14*(10), 361–374.

Komlos, J., & Salamon, P. (2008). The poverty of growth with interdependent utility functions. *The Journal of Socio-Economics*, *37*(6), 2242–2247. https://doi.org/10.1016/j.socec.2008.01.012

Lappegård, T., Neyer, G., & Vignoli, D. (2021). Three dimensions of the relationship between gender role attitudes and fertility intentions. *Genus*, *77*(1), 15. https://doi.org/10.1186/s41118-021-00126-6

Marpaung, V., Sinaga, R. H., Rahmadayanti, R., & Lumantungkup, R. D. (2024). Analisis Dampak Kependudukan terhadap Tingkat Fertilitas di Kelurahan Pahlawan, Kec. Medan Perjuangan Tahun 2023. *Triwikrama: Jurnal Ilmu Sosial*, *5*(8), 1–5.

Nag, A., & Singhal, P. (2013). Impact of Education and Age at Marriage on Fertility among Uttar Pradesh Migrants of Ludhiana, Punjab, India. *The Anthropologist*, *15*(2), 225–230. https://doi.org/10.1080/09720073.2013.11891310

Nagdeve, D. A., Nagdeve, D. A., & Pradhan, M. R. (2023). Determinants of The First Birth Interval Among Women in India. *Journal of Family & Reproductive Health*. https://doi.org/10.18502/jfrh.v17i4.14595

Nauck, B. (2014). Value of Children and the social production of welfare. *Demographic Research*, *30*, 1793–1824. https://doi.org/10.4054/DemRes.2014.30.66

Raymo, J. M. (2015). Second Demographic Transition. In *International Encyclopedia of the Social & Behavioral Sciences* (pp. 346–348). Elsevier. https://doi.org/10.1016/B978-0-08-097086-8.31083-2

Salem, R. (2016). The gendered effects of labour market experiences on marriage timing in Egypt. *Demographic Research*, *35*, 283–314. https://doi.org/10.4054/DemRes.2016.35.11

Selwaness, I., & Krafft, C. (2021). The Dynamics of Family Formation and Women's Work: What Facilitates and Hinders Female Employment in the Middle East and North Africa? *Population Research and Policy Review*, *40*(3), 533–587. https://doi.org/10.1007/s11113-020-09596-6

Shreffler, K. M. (2017). Contextual Understanding of Lower Fertility Among U.S. Women in Professional Occupations. *Journal of Family Issues*, *38*(2), 204–224. https://doi.org/10.1177/0192513X16634765

Sobotka, T. (2008). Overview Chapter 6: The diverse faces of the Second Demographic Transition in Europe. *Demographic Research*, *19*, 171–224. https://doi.org/10.4054/DemRes.2008.19.8

Solang, S. D., Maitimo, B. I., Winokan, J. J., Pratiwi, D., & Bohari, B. (2021). Determinants of Fertility among Women of Childbearing Age in North Sulawesi Province, Indonesia. *Open Access Macedonian Journal of Medical Sciences*, *9*(E), 127–131. https://doi.org/10.3889/oamjms.2021.5691

Steiber, N., Berghammer, C., & Haas, B. (2016). Contextualizing the Education Effect on Women's Employment: A Cross-National Comparative Analysis. *Journal of Marriage and Family*, *78*(1), 246–261. https://doi.org/10.1111/jomf.12256

Țarcă, V., Țarcă, E., & Luca, F.-A. (2022). The Impact of the Main Negative Socio-Economic Factors on Female Fertility. *Healthcare*, *10*(4), 734.

https://doi.org/10.3390/healthcare10040734

Thomson, E. (2015). Children, Value of. In *International Encyclopedia of the Social & Behavioral Sciences* (pp. 498–501). Elsevier. https://doi.org/10.1016/B978-0-08-097086-8.31063-7

Wardhana, A., Kharisma, B., & Noven, S. A. (2020). Dinamika Penduduk dan Pertumbuhan Ekonomi di Indonesia. *Buletin Studi Ekonomi*, *25*(1), 22–40.

Werding, M. (2014). Children are costly, but raising them may pay. *Demographic Research*, *30*, 253–276. https://doi.org/10.4054/DemRes.2014.30.8

XU, L., & CHEN, Y. (2022). Fertility decisions, living arrangement and women's labor market performance. *Systems Engineering - Theory & Practice*, *42*(6), 1530–1543. https://doi.org/https://doi.org/10.12011/SETP2021-3003

Zenebe Gebre, T. (2020). Free Primary Education, Timing of Fertility, and Total Fertility. *The World Bank Economic Review*, *34*(3), 730–748. https://doi.org/10.1093/wber/lhz003