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Determinants of Working Mother in Indonesia's Agricultural and Manufacture

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Abstract: This study examined the factors influencing mothers' participation in the agricultural and manufacturing sectors and explored the impact of their employment on their welfare levels. The main factors included the husband's education level, employment sector, employment status, the mother's education level, the number of household dependents, the number of young children, and the mother's working hours. The present study employed a comprehensive analysis of 264,311 individual data points, derived from maternal and household data obtained through the National Socioeconomic Survey (Susenas) conducted in March 2022 (<https://www.bps.go.id/>). Utilising Binary Logistic Regression as a statistical method, the study aimed to elucidate relationships and patterns within the dataset, facilitating a robust understanding of the socioeconomic factors influencing maternal outcomes. The logistic regression analysis indicated that all the factors significantly influenced mothers' decisions to work. The husband's employment sector affected the wife's choice of employment sector. Mothers who work in agriculture are significantly more likely to be employed in the same field if their husbands also work in agriculture, with the odds being 5.98 times greater than those in other industries. Likewise,

mothers in manufacturing have a similar trend; if their husbands work in manufacturing, they are 7.37 times more likely to be in that industry compared to other sectors. Higher education levels of the husband and the mother, and the husband's formal sector employment, encouraged mothers to choose jobs outside agriculture and manufacturing. An increase in the number of household dependents and the mother's working hours drove mothers to work in agriculture and manufacturing. This is likely because these sectors often employ family workers (over 60 per cent in agriculture) who can accommodate flexible working hours and household management. The welfare level, measured by the Multidimensional Poverty Index (MPI), is 0.1161 for households in agriculture, compared to 0.0403 for households with mothers working in manufacturing. This indicated that households with mothers in manufacturing were more prosperous.

Keywords: working mothers, agriculture, manufacturing, welfare, Multidimensional Poverty Index

Introduction

Agriculture has the highest labour absorption rate, reaching 28.61 per cent as of 2022 (Badan Pusat Statistik, 2023). Agricultural land comprises 36.82 million hectares of food cropland (Kementrian Pertanian, 2022), 5.09 million hectares of community-managed forest (Kementrian Lingkungan Hidup dan Kehutanan, 2022), 27.82 million hectares of plantation land (Kementrian Pertanian, 2021), and 5.8 million square kilometres of marine waters, with the second longest coastline in the world (Kementrian Kelautan dan Perikanan, 2019). Nevertheless, 72.19 per cent of farmers in Indonesia are smallholders (with small plots of land or inadequate fishing equipment) with a maximum income of 18.8 million per year (Badan Pusat Statistik, 2022a).

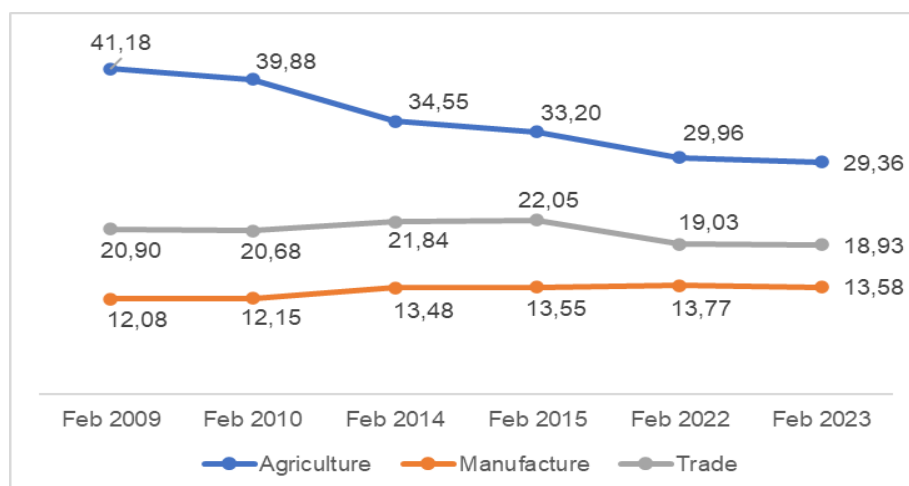
The low incomes keep farmers in poverty. Over the past ten years, agricultural poverty has ranged between 45 and 50 per cent. In 2022, the poverty rate among agricultural households reached 49.89 per cent, the highest level compared to all other sectors, which averaged 11.51 per cent (Badan Pusat Statistik, 2023b). Poverty conditions compel household members to seek employment in order to boost their income (Telaumbanua & Nugraheni, 2018). Women, especially mothers, will take on roles to meet living needs by working, even migrating to find jobs (Puspitasari et al., 2023). On the other hand, a mother is a family resource that can be optimised to improve welfare through work (Doriza, 2015). In households with lower-middle economic levels, this is often attributed to inadequate income from the husband, which may result from either low wages or a high number of dependents (Sosan, 2010).

Working mothers face challenges such as dual roles and gender income inequality. The dual roles that working mothers must undertake include completing household chores and working to earn an income (Elizabeth, 2007). To gain optimal benefits, mothers must manage their time and energy to fulfil both roles effectively. Meanwhile, gender income inequality, where women receive lower wages than men, occurs across all fields of work. Agriculture experiences not only gender wage inequality but also overall low wages (the lowest compared to other sectors in Indonesia) (Badan Pusat Statistik, 2023).

Factors suspected of driving mothers to decide to work include the husband's income, the mother's education level, the number of dependents, and the number of young children in the household. The husband's income is influenced by his education level, type of occupation, and employment status. The presence of young children adds to the mother's burden of household chores. To improve research recommendations, this study's analysis encompassed not only agriculture but also the manufacturing sector, which has seen a notable increase in labour absorption in recent years (see Figure 1).

Figure 1

Percentage of Population Aged 15 and Above Employed by Sector in Indonesia, 2009–2022



Source: Badan Pusat Statistik (2023).

Problem Statement

This study identified critical research gaps that must be addressed to elucidate the factors influencing maternal employment in agriculture versus manufacturing sectors, as well as the subsequent effects on household welfare. Understanding the drivers behind mothers' choices in these economic activities is essential for comprehensively assessing their implications on both family dynamics and socioeconomic outcomes. Addressing these gaps will enhance our knowledge of the intersection between gender roles, labour markets, and household welfare metrics. First, although the agricultural sector has the highest labour absorption rate in Indonesia, the economic condition of farming households is still dominated by poverty, with 49.89 per cent of rural families living below the poverty line in 2022. On the other hand, the manufacturing sector, which significantly contributes to GDP, absorbs less labour. Second, most research focuses on a single industry without directly comparing two sectors with different characteristics and economic impacts. Third, the issues of dual roles and gender wage inequality faced by working mothers in agriculture and manufacturing have not been deeply investigated regarding these sectors' differing characteristics. Fourth, research on specific factors influencing mothers' decisions to work, such as husbands' income, mothers' education level, the number of dependents, the presence of young children in the household, and mother's working hours, is still lacking, especially in the context of a comparison between the agricultural and manufacturing sectors.

Research Aim and Hypotheses

This study aimed to fill the gap by analysing and comparing the factors driving mothers to work and the level of household welfare in the agricultural and manufacturing sectors in Indonesia. The study identified significant differences between the two sectors in terms of the factors driving mothers to work, including husbands' income, mothers' education level, number of dependents, and presence of young children in the household, as well as the impact on household welfare using the Multidimensional Poverty Index (MPI) approach. Additionally, this study evaluated the household welfare of working mothers in both sectors and provided policy recommendations in order to improve the welfare of working mothers and their households.

Literature Review

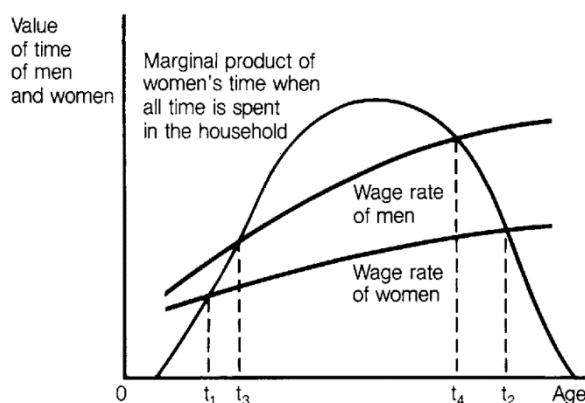
In the context of the household, the well-being is a fundamental aspiration for every family member. The involvement of women in achieving well-being by entering the labour market has become increasingly common. The participation of mothers in the agricultural and manufacturing sectors

demonstrates significant dynamics in their contribution to household economics and family welfare. In microeconomics, households play a crucial role as a factor of production by supplying labour to businesses. In return for their labour, households receive income, which serves as compensation for their work in the production process. To maximise their income effectively, households must carefully allocate their resources – such as time, skills, and finances – ensuring they make smart choices that lead to the best possible outcomes for their economic well-being. This involves balancing work, education, and leisure to achieve optimal productivity and income levels (Doriza, 2015). The income from resource use can be utilised to purchase goods and services to achieve the desired welfare.

The family economic theory proposed by Becker (1993) states that husbands and wives each have their comparative advantages in fulfilling their roles within the household. Women are biologically designed to conceive, give birth, and raise children, while men are breadwinners who fulfil the household's needs. This condition does not imply that women can only manage the household; if a woman's comparative advantage aligns more closely with working, then pursuing a career may be a viable option (Becker, 1993).

Figure 2

Variations in the Life Cycle of Women and Men



Source: Becker (1993).

At certain ages (see Figure 2), women will be more advantageous in household tasks, but they will also be more advantageous if they are involved in work (Becker, 1993).

The Role of Mothers in Household

In the past few decades, there have been changes in the working patterns of women and men as a result of economic growth, an increase in the working-age population, and socioeconomic changes in society. Some jobs previously accomplished by women have been replaced by machines. This condition has led to women losing their jobs and opting to enter the labour market (Hastuti, 2016). This includes changes in the sector of work which was previously dominated by agriculture, slowly shifting towards the manufacturing sector. When women work, they perform dual roles, namely managing household affairs and working to earn income (Elizabeth, 2007). This situation prompts women to carefully evaluate their decision to enter the workforce. On the other hand, women may experience job discrimination or wage discrimination due to the low flexibility in working (Becker, 1993).

Factors Driving Mothers to Work

Jacob Mincer (1962) argued that the participation of married women in the workforce is not only determined by their earning potential but also by the husband's income, the number of children they have, and other family characteristics. On the other hand, it was found that the demand for children depends on family income, the value of parental time (especially maternal time), the level of child quality

to be achieved, and other family variables (Becker, 1993). According to Hoffman (1974), the factors driving mothers to work include economic needs, self-actualisation, and household chores. Mothers are involved in working activities to earn income when the husband's income is insufficient to meet the needs (Suryadi & Damayanti, 2003). The desire for self-actualisation is directly proportional to the level of education and the desire for achievement; the higher the level of education or skills that mothers have, the higher the motivation to work as a form of self-actualisation of their abilities and skills (Yunita, 1999). The biological nature of mothers includes pregnancy, childbirth, and raising children (Becker, 1993). When children no longer require special attention (the older the children, the less time is needed for care, and the fewer children, the less time is needed for care), the workload of a mother in household chores will decrease. The decrease in a mother's engagement with household chores can result in feelings of boredom, prompting her to seek employment or other activities outside the home (Yunita, 1999).

Concept of Welfare

A household is considered to be in a state of welfare when various needs to support life such as clothing, shelter, and food are met (Sharpe & Swanson, 2016). According to Sen (2017), the welfare is not only about the fulfilment of physical needs, but also about the capabilities possessed by an individual. These capabilities drive individuals to enhance their welfare. The capabilities include health, education, and opportunities to access various opportunities Sen (2017).

During the literature review, several critical research gaps were identified that justify the need for further investigation into the involvement of working mothers in the agricultural and manufacturing sectors. Although a substantial body of research has examined the role of women in household economies and the determinants influencing their participation in the labour force, a significant gap remains in the literature regarding the comparative analysis of the effects of maternal employment in agricultural versus manufacturing sectors on household welfare. This gap includes an insufficient understanding of how sectoral differences affect the distribution of time and income, as well as overall household well-being. Secondly, while Becker's (1993) family economics theory outlines comparative advantages in household roles, further research is needed to explore how shifts in employment sectors impact the dual roles of mothers in different contexts. Therefore, this study is crucial for filling these gaps by thoroughly analysing the driving factors behind mothers' employment and their effects on household welfare in both sectors.

Methods

This study utilised microdata from the Survei Sosial Ekonomi Nasional (Susenas) conducted in March 2022 (<https://www.bps.go.id/>). The dataset contains a variety of important information, including demographic details, gender, marital status, employment status, educational background, health-related data, and information on fertility and contraception, as well as consumption patterns for food and non-food items. The March 2022 Susenas data consisted of 339,584 household respondents containing 1,237,946 individual data points. However, this study used data from 264,311 individuals, specifically mothers who had partners, including data on other household members (such as the husband, children, and other household members living in the respondent's home) and household-level data covering sanitation, asset ownership, and other household-level data.

The independent variables used in this study included the husband's years of schooling, the husband's employment sector, the husband's employment status, the mother's years of schooling, the number of household dependents, and the number of young children. The variable for the husband's/mother's years of schooling was the number of years of education completed by the husband/mother. The variable for the husband's employment sector was a dummy variable that included not working (code 0), working in agriculture (code 1), working in manufacturing (code 2), and others (code 3). The husband's employment status variable included informal worker (code 0) and formal worker (code 1). The variable for the number of household dependents is the number of people

who live, sleep, and eat in the respondent's home. The variable for the number of young children in the household is the number of young children who live, sleep, and eat in the respondent's household. The dependent variable for households with mothers employed in agriculture was defined as a binary indicator: mothers working in agriculture were coded as 1, while those in non-agricultural sectors or not employed were coded as 0. The dependent variable for households with mothers working in the manufacturing sector is whether the mother works in the manufacturing sector (code 1) or in non-manufacturing sectors, including not working (code 0).

The analysis used in this study included descriptive analysis and inferential analysis. The descriptive analysis consisted of tables and graphs containing the characteristics of households with mothers working in agriculture and the manufacturing sector. These characteristics included the husband's education level, the husband's employment sector, the husband's employment status, the mother's education level, the number of household dependents, and the number of young children in the household. The inferential analysis used binary logistic regression to model the factors driving mothers to work based on the independent variables (Faruk et al., 2020).

Model Description

$$g(x) = \beta_0 + \beta_{11} X_{11} + \beta_{12} X_{12} + \beta_{13} X_{13} + \beta_{21} X_{21} + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 \quad (1)$$

The model was used to test the relationship between the independent and dependent variables for mothers working in the agricultural (model 1) and mothers working in the manufacturing (model 2) (see Table 1).

Table1

Model Explanation

$g(x) = Y$ (model 1)	: A mother working in agriculture or other sectors was represented as a dummy variable, where 0 = not working and working in other sectors (non-agricultural), and 1 = working in agriculture.
$g(x) = Y$ (model 2)	: A mother working in manufacture or other sectors was represented as a dummy variable, where 0 = not working and working in other sectors (non-manufacture), and 1 = working in manufacture.
β_0	: regression parameter estimation
$\beta_1 \dots \beta_6$	: estimation of regression parameters or coefficients
X_1	: Husband's employment sector (0 = jobless/ not working, 1 = agriculture, 2 = manufacturing, and 3 = other)
X_2	: Husband's employment status (0 = formal, 1 = informal)
X_3	: Husband's years of schooling (years)
X_4	: Mother's years of schooling (years)
X_5	: Number of household members (people)
X_6	: Number of young children (children)
X_7	: Mother's working hours

The approach of the Multidimensional Poverty Index (MPI), which was revised by Alkire and Santos in 2010, is utilised to assess household welfare. The measurement with MPI included three dimensions: health, education, and living standards. From these three dimensions, ten indicators were outlined. The education dimension consisted of 3 indicators: years of schooling, school participation, and literacy rate. The health dimension consisted of 2 indicators: calorie consumption and protein consumption. The living standards dimension consists of 6 indicators: access to electricity, sanitation, and drinking water source, type of flooring, fuel, and asset ownership. Each indicator had its weight. Some variables in the MPI indicators have been adjusted according to the availability of Susenas data (BPS DIY, 2017). Indicators that did not meet the standards were given a score of 1 and those that met the standards were given a score of 0 (see Table 2).

Tabel 2*Indicator of Multidimensional Poverty Index*

Dimention/ Indicator	Household Poverty Criteria	Weighting
(1)	(2)	(3)
Education Dimension		
Years of Schooling	There are household members who have completed less than six years of education	1/9
School Participation	There are children aged up to 14 years who are not attending school.	1/9
Literacy	There are household members aged 15 years and above who are illiterate	1/9
Health Dimension		
Caloric Consumption	Household caloric consumption is less than 70% of the nutritional adequacy level	1/6
Protein Consumption	Household protein consumption per day is less than 80% of the nutritional adequacy level	1/6
Dimension of Adequate Living Standards		
Access to Electricity	No access to electricity	1/18
Sanitation	Inadequate sanitation	1/18
Drinking Water Source	No access to clean drinking water	1/18
Type of Flooring	The type of flooring is soil	1/18
Cooking Fuel	Wood or other fuels	1/18
Asset	Does not have more than 1 asset, except for a car	1/18

Source: BPS DIY (2017).

After the assessment was conducted on all indicators, each indicator was calculated using the following formula.

$$c_i = I_1W_1 + I_2W_2 + I_3W_3 + \dots + I_nW_n \quad (2)$$

where:

c_i = total score of household i

I_i = value of indicator for household i (0 or 1)

W_i = weighting for indicator of household i

In households where the value of c_i was more significant than 1/3, the household was categorised as poor. Then, the multidimensional headcount ratio (H) with the intensity of poverty (A) was calculated using the formula:

$$H = \frac{q}{n} \quad (3)$$

where:

H = multidimensional headcount ratio

q = the number of individuals classified as poor

n = population

$$A = \frac{\sum_{i=1}^n c_i(k)}{q} \quad (4)$$

where:

A = intensity of poverty

$c_i(k)$ = the score of household i

q = the number of individuals experiencing multidimensional poverty

Calculating the *MPI* using the formula:

$$MPI = H \times A \quad (5)$$

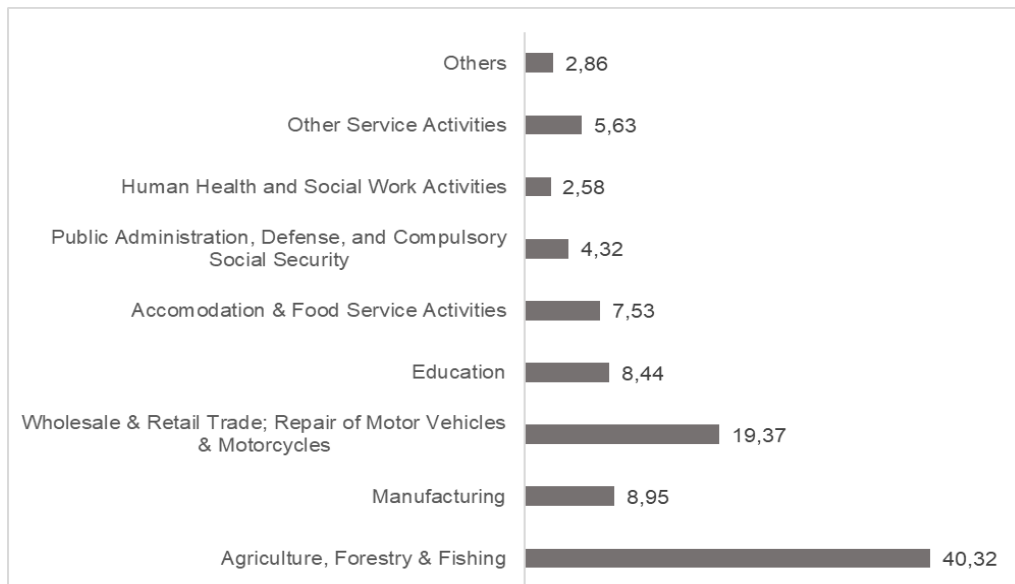
Results

Characteristics of Mothers

Based on Susenas data from March 2022 (<https://www.bps.go.id/>), 50.1 per cent of mothers do not work, while only 49.9 per cent of mothers work. Among working mothers, when broken down by sector, the most significant percentage is mothers working in agriculture, reaching 40.32 per cent, especially in the sub-sector of food crops and legumes (51.86 per cent).

Figure 3

Percentage of Working Mothers by Sector



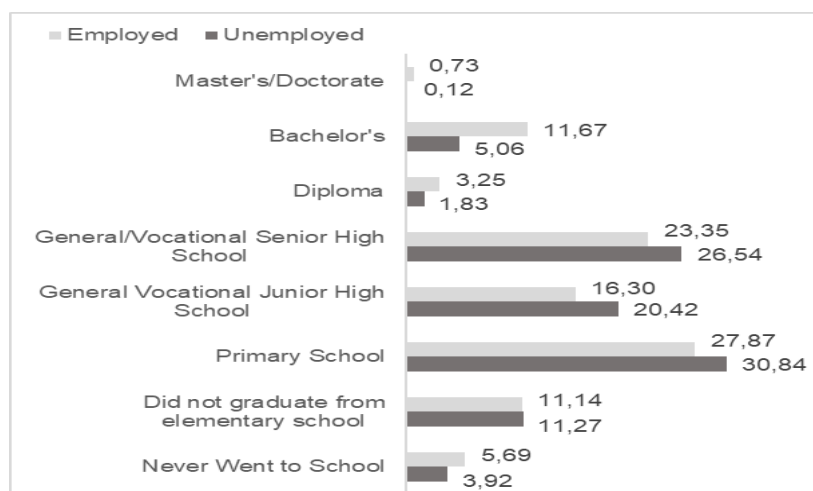
Source: Susenas 2022 (<https://www.bps.go.id/>).

Meanwhile, mothers working in the manufacturing are only 8.95 per cent (see Figure 3). The proportion of mothers with informal worker status in both sectors is high. In agriculture, it is 91 per cent, and in the manufacturing, it is 57.55 per cent.

Looking at the level of education completed, most mothers have a low level of education (at most completing junior high school), both among working and non-working mothers, with percentages reaching 61.00 per cent (working) and 66.45 per cent (non-working). At the higher education level (diploma, bachelor's, and master's/doctorate), the percentage of working mothers is higher than non-working mothers. Mothers with higher education generally work in the government administration, education, and health sectors. Mothers with diplomas and bachelor's degrees also choose to work in the trade sector (see Figure 4).

Figure 4

Percentage of Employed - Unemployed Mothers by Education Level



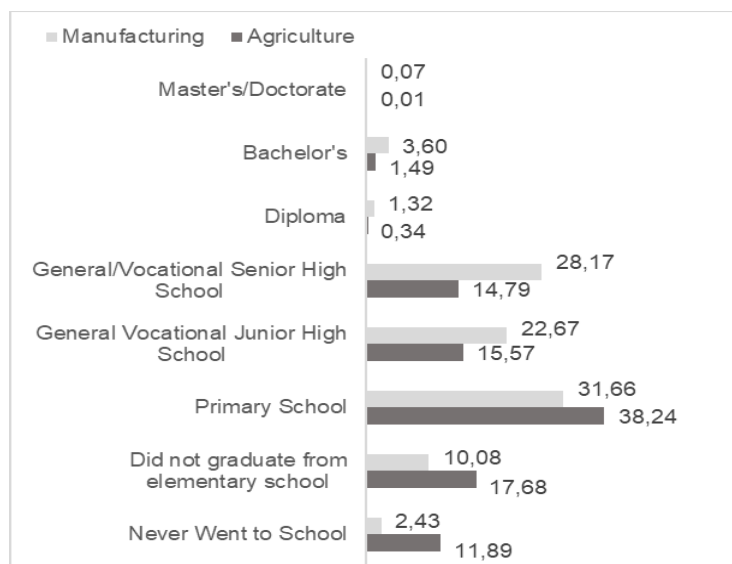
Source: Susenas 2022 (<https://www.bps.go.id/>).

Characteristics of Working Mothers in Agriculture and Manufacturing

Based on the level of education, mothers working in agriculture have a higher percentage compared to those working in manufacturing. At the level of no schooling, not completing elementary school, and completing elementary school or equivalent, agriculture has a higher percentage. Meanwhile, in the manufacturing sector, the percentage is higher at the junior high school or equivalent, senior high school or equivalent, diploma, bachelors, and master's/doctorate levels.

Figure 5

Percentage of Education Level of Working Mothers by Sector



Source: Susenas 2022 (<https://www.bps.go.id/>).

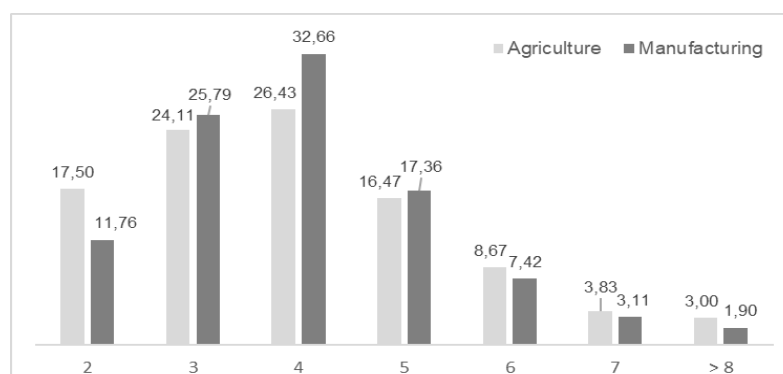
The highest percentage of education level for mothers working in agriculture is completing elementary school or equivalent at 38.24 per cent, while in the manufacturing sector; it is also completing elementary school or equivalent with a percentage of 31.66 per cent, and completing senior high school or equivalent at 28.17 per cent (see Figure 5).

The average number of dependents in households where mothers work in agriculture and manufacturing is around 4 people. The number of dependents in households with mothers working in agriculture is higher for households with more than 5 dependents and 2 dependents (indicating only

husband and wife). Meanwhile, in the manufacturing sector, the percentage is higher for households with 3–5 dependents (see Figure 6).

Figure 6

Percentage of Working Mothers by Sector and Number of Household Dependents



Source: Susenas 2022 (<https://www.bps.go.id/>).

The majority of households with working mothers in agriculture and manufacturing do not have toddlers. The percentage without toddlers is 78.04 per cent in households where mothers work in agriculture and 73.49 per cent in households where mothers work in manufacturing. Meanwhile, those who have children mostly have only one child.

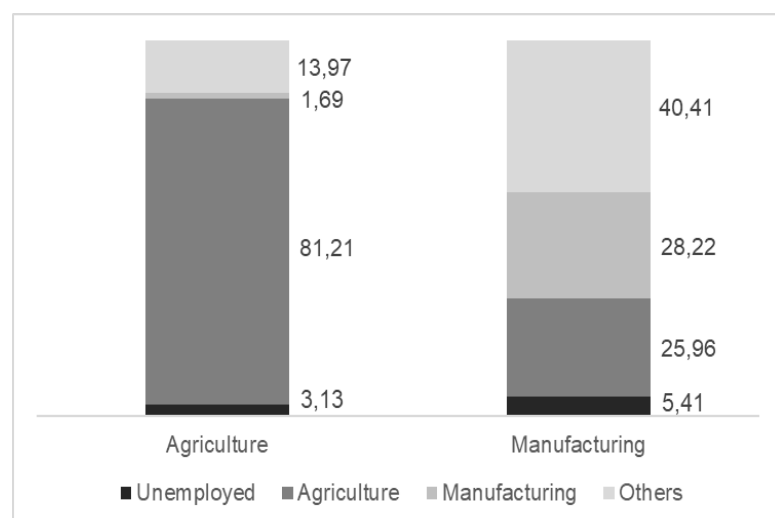
According to the age percentage of working mothers in agriculture, the graph exhibits a smoother trend compared to the manufacturing sector. Moreover, mothers employed in agriculture face a significant drop in participation after their 50s, whereas the manufacturing sector starts to see a decline beginning at age 40.

Characteristics of Husbands of Women Working in Agriculture and Manufacturing

In households where the mother works in agriculture, it is common for the husband to also work in the same sector, accounting for 81.21 per cent. Conversely, in households where the mother works in the manufacturing sector, the husbands' field of employment is more varied. There are 5.41 per cent who are unemployed, 28.22 per cent work in the manufacturing sector, 25.96 per cent husbands work in agriculture, and 40.41 per cent work in other sectors (see Figure 7).

Figure 7

Percentage of Husbands by Field of Employment of Wife and Husband

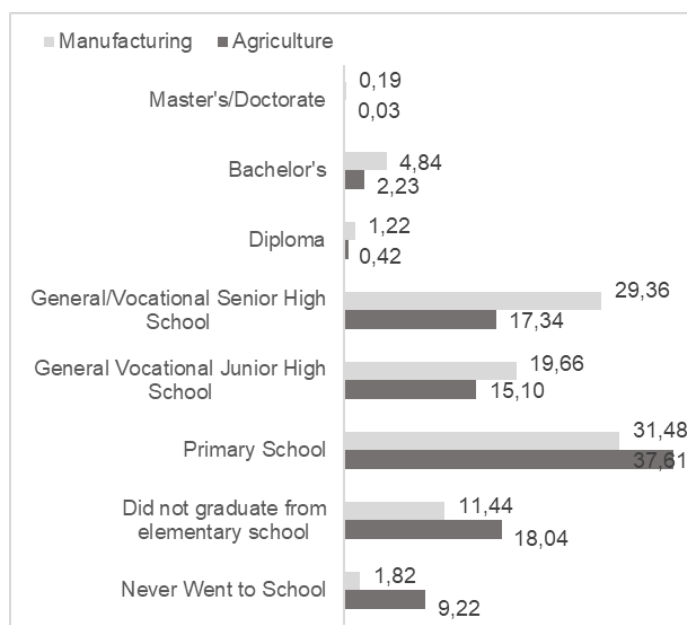


Source: Susenas 2022 (<https://www.bps.go.id/>).

Based on the level of education, the percentage of husbands with low education levels is still relatively high. The highest percentage at the elementary school/equivalent level is 37.61 per cent in households where the wife works in agriculture and 31.48 per cent in the manufacturing sector. In the manufacturing sector, there is a relatively high percentage of education levels besides elementary school/equivalent, namely at the high school/equivalent level, which is 29.36 per cent (see Figure 8).

Figure 8

Percentage of Husband's Education Level by Field of Employment of Wife



Source: Susenas 2022 (<https://www.bps.go.id/>).

When analysed from the husband's perspective, in households where the husband works in agriculture, the majority of wives also work in agriculture, with a percentage of 70.54 per cent. Meanwhile, in households where the husband works in the manufacturing sector, the majority also work in the manufacturing sector, with a percentage of 43.97 per cent.

The employment status of wives working in agriculture with husbands working in agriculture is mostly informal workers and family workers/unpaid workers, accounting for 67.20 per cent. Wives employed in the manufacturing sector, while their husbands work in agriculture, show that a significant portion are formal workers with employee status, comprising 41.99 per cent. In contrast, those classified as informal workers, either as family or unpaid workers, account for 36.26 per cent.

Level of Welfare

The measurement of welfare level in this study utilises the Multidimensional Poverty Index (MPI) approach, consisting of 3 dimensions detailed into 11 indicators. Table 3 contains the results of the calculation for each indicator:

Table 3

Calculation Results of MPI Indicators

Dimention/ Indicator	Household Poverty Criteria	Mother Job	
		Agriculture	Manufacture
(1)	(2)	(3)	(4)
Education Dimension			

Dimention/ Indicator	Household Poverty Criteria	Mother Job	
		Agriculture	Manufacture
(1)	(2)	(3)	(4)
Years of Schooling	There are household members who have completed less than six years of education	42,05	24,62
School Participation	There are children aged up to 14 years who are not attending school.	1,05	0,06
Literacy	There are household members aged 15 years and above who are illiterate	16,90	8,31
Health Dimension			
Caloric Consumption	Household caloric consumption is less than 70% of the nutritional adequacy level	13,62	13,12
Protein Consumption	Household protein consumption per day is less than 80% of the nutritional adequacy level	9,50	3,69
Dimension of Adequate Living Standards			
Access to Electricity	No access to electricity	5,53	0,85
Sanitation	Inadequate sanitation	34,69	18,38
Drinking Water Source	No access to clean drinking water	43,83	21,88
Type of Flooring	The type of flooring is soil	10,52	4,46
Cooking Fuel	Wood or other fuels	39,98	18,66
Asset	Does not have more than 1 asset, except for a car	29,42	14,50

Source: Susenas 2022 (<https://www.bps.go.id/>).

Based on the fulfilment of household standards for people with low incomes with MPI indicators, households with mothers working in agriculture generally have higher scores. These indicators, households with working mothers are poorer, according to the 10 multidimensional poverty indicators. Indicators with percentages above 20 per cent for households with mothers working in agriculture include years of schooling (42.05 per cent), sanitation (34.69 per cent), drinking water source (43.83 per cent), fuel (39.98 per cent), and asset ownership (29.42 per cent). Meanwhile, for households with mothers working in the manufacturing sector, only the indicators of years of schooling (24.62 per cent) and drinking water source (21.88 per cent) exceed 20 per cent.

Table 4

Percentage of Poor Households According to MPI Indicators and Mother's Education Level

Education	Mother Job	
	Agriculture	Manufacture
(1)	(2)	(3)
Never Attended School	61,83	27,92
Did Not Graduate Elementary School	18,84	14,26
Elementary School/Equivalent	9,58	5,62
Junior High School/Equivalent	7,57	3,28

Education	Mother Job	
	Agriculture	Manufacture
(1)	(2)	(3)
Senior High School/Equivalent	8,50	2,49
Diploma	2,20	0,65
Bachelor's Degree	7,91	1,43
Master's/Doctoral Degree	0,00	0,00

Source: Susenas 2022 (<https://www.bps.go.id/>).

Poverty with MPI indicators at each level of maternal education reveals that households with lower-educated mothers generally have a high percentage of poverty. In households where mothers work in agriculture and have never attended school, 61.83 per cent are in poor conditions, while in manufacturing, it's only 27.92 per cent. An interesting condition arises where mothers with bachelor's degrees actually have a higher percentage of poverty compared to those with diplomas. Generally, as indicated in Table 4, higher levels of maternal education are associated with a lower percentage of poverty.

MPI Score

The MPI (Multidimensional Poverty Index) for households with mothers working in agriculture is higher than those working in the manufacturing sector. In households where mothers work in agriculture, the MPI is 0,1161, which means that out of 100 households with mothers working in agriculture, there are approximately 12 households in multidimensional poverty. Meanwhile, in households where mothers work in the manufacturing sector, the MPI value is 0,0403, indicating that out of 100 households with mothers working in manufacturing, there are approximately 4 households in multidimensional poverty.

Logistic Regression

The results of logistic regression and several testing stages were conducted before the regression of variables suspected to be influencing factors of mothers working in agriculture and manufacturing. The former model is as follows:

Model 1. Factors Driving Mothers to Work in Agriculture

$$g(x) = -2,535 + 1,789 X_{11} - 0,577 X_{12} - 0,380 X_{13} - 0,384 X_{21} - 0,030 X_3 - 0,104 X_4 + 0,053 X_5 - 0,134 X_6 + 0,046 X_7 \quad (6)$$

Model 2. Factors Driving Mothers to Work in Manufacture

$$g(x) = -3,735 + 1,997 X_{12} - 0,596 X_{13} - 0,098 X_{21} - 0,024 X_3 - 0,030 X_4 + 0,024 X_5 - 0,085 X_6 - 0,035 X_7 \quad (7)$$

The results of the tests using SPSS are as follows (see Table 5):

Table 5

Test Results and Logistic Regression

Variables/Descriptions	Mothers Job			
	Agriculture		Manufacture	
(1)	(2)	(3)	(4)	(5)
Goodness of Fit Test				
	Value	Sig	Value	Sig

Variables/Descriptions	Mothers Job			
	Agriculture		Manufacture	
(1)	(2)	(3)	(4)	(5)
Pearson Chi-Square	166.383	2,699	96.097	1,559
Simultan Test/ Omnibus				
Likelihood Ratio Chi-Square	83.343	0,000	15.369	0,000
Parsial Test				
Variables	B	Odd Ratio	B	Odd Ratio
(Intercept)	- 2,535***	.	- 3,735***	.
[Husb_job=3,00]	- 0,380***	0,684	0,006	1,005
[Husb_job =2,00]	- 0,577***	0,562	1,997***	7,369
[Husb_job =1,00]	1,789***	5,986	- 0,596***	0,551
[Husb_job =,00]	0	.	0	.
[Husb_job_stat=1,00]	- 0,384***	0,681	- 0,098***	0,907
[Husb_job_stat=,00]	0	.	0	.
Husb_years_schol	- 0,030***	0,971	- 0,024***	0,976
Mother_years_schol	- 0,104***	0,901	- 0,030***	0,971
Household_member	0,053***	1,054	0,024***	1,025
Number_young_child	- 0,134***	0,875	-0,085***	0,919
Mother's working hours	0,046***	1,047	0,035***	1,035

*** Significant at $\alpha = 5\%$.

Source: Susenas 2022 (<https://www.bps.go.id/>).

The Goodness of Fit test reveals a significance value greater than 0.05, leading to the acceptance of H_0^* for both models concerning mothers employed in agriculture and the manufacturing sector. This suggests that the logistic regression model is suitable for explaining the factors influencing mothers' decisions to work in these industries.

The simultaneous test results with the Omnibus test show a significance value < 0.05 , rejecting H_0^* , for both models of mothers working in agriculture and in the manufacturing sector. Therefore, it is concluded, with a 95% confidence level, that there is at least one independent variable capable of explaining the factors driving mothers to work in agriculture and manufacturing.

The partial test results show a significance value < 0.05 , rejecting H_0^{***} , for all independent variables suspected to influence a mother's decision to work. These independent variables include the husband's field of work, the husband's employment status, the husband's education level (years of schooling), the mother's education level (years of schooling), the number of dependents, and the number of toddlers in the household.

Based on the regression coefficient (b) results, the conclusions of the regression for mothers working in agriculture are as follows: mothers with husbands working in agriculture tend to decide to work in agriculture more than in non-agricultural sectors. Likewise, if the husband is employed in a non-

agricultural industry, the wife is likely to be engaged in a non-agricultural role as well. If the husband's employment status is in the formal sector and has a higher education level, the tendency for the wife to work in the non-agricultural sector is higher. Also, households where the mother works in agriculture and has more dependents tend to choose agriculture over non-agricultural sectors.

For mothers working in the manufacturing sector, the regression results yield the following conclusions: households, where the husband works in agriculture, tend to have the wife decide to work in the manufacturing sector rather than outside manufacturing. However, when the husband is employed in manufacturing or another sector, the wife is more likely to pursue opportunities in non-manufacturing fields. Conversely, mothers whose husbands hold formal jobs, possess higher educational qualifications, and have more toddlers are more inclined to work in the manufacturing sector instead of non-manufacturing industries. Conversely, having more dependents leads mothers to choose non-manufacturing sectors.

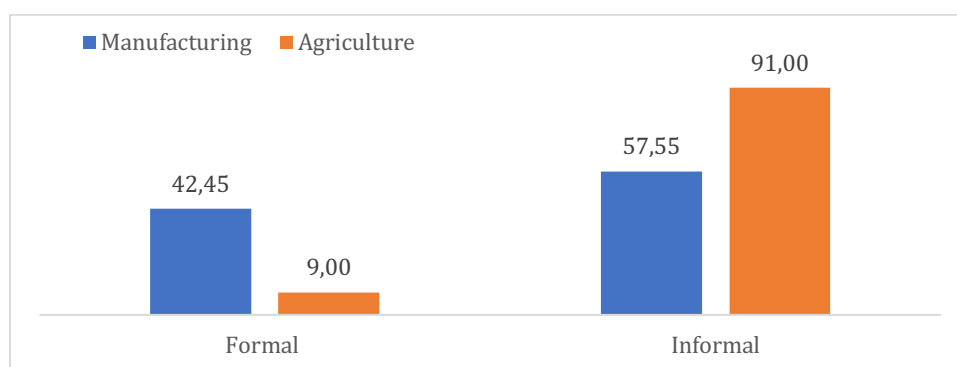
Discussion

The research findings indicate that the variables influencing mothers' decisions to work in agriculture or manufacturing include the husband's employment sector, the husband's employment status (formal-informal), the husband's years of education, the mother's years of education, the number of household members, the number of young children, and the mother's working hours. The findings indicate that the husband's occupation plays a significant role in influencing the mother's employment choices. Consequently, mothers are more likely to pursue careers in the same sectors as their husbands, such as manufacturing or agriculture. If the husband works in agriculture, the mother is about six times more likely to work in agriculture compared to other sectors. Similarly, if the husband works in manufacturing, the mother is about seven times more likely to work in manufacturing compared to other sectors.

An interesting finding is that most mothers working in agriculture and manufacturing choose to work as informal workers. Specifically, 91.00 per cent of mothers working in agriculture are informal workers, primarily as family workers. Meanwhile, 57.55 per cent of mothers working in manufacturing are informal workers, mostly self-employed (see Figure 9).

Figure 9

Percentage of Working Mothers by Sector and Employment Status in 2022



Source: Susenas 2022 (<https://www.bps.go.id/>).

Mothers' choice to work in the informal sector is related to their dual roles and responsibilities. According to Dumauli (2023), women working informally have higher satisfaction levels. This relates to family responsibilities, as working informally allows women to balance their roles and responsibilities as mothers and workers. By working informally, mothers can easily complete all their responsibilities, such as breastfeeding, caring for children, and cleaning the house. This is supported by studies conducted by Campaña et al. (2020) and Rios-Avila et al. (2021), which found that working in the informal sector allows mothers to manage their working hours to fulfil their various duties, including

domestic tasks and market work (to earn income). The choice of flexible (informal) work for mothers is common in many countries, driven partly by the responsibility of childcare, leading mothers to leave formal jobs or switch to more manageable informal work (Berniell et al., 2023).

However, mothers in the informal sector generally have low incomes, limited social protection, and uncertain job security (ILO, 2015). This situation negatively impacts household welfare due to the low contribution of mothers' income. A study conducted by Aronsson et al. (2023) underscores the detrimental effects of mothers employed in the informal sector, revealing a decrease in the health outcomes of female workers of reproductive age and their children. This is especially evident in relation to the use of antenatal services and the nutritional status of children.

The study also found that households with mothers working in manufacturing have a much lower multidimensional poverty index (0.0403) than those working in agriculture (0.1161). This suggests that households with mothers working in manufacturing have a welfare level nearly four times higher than those working in agriculture. Furthermore, an examination of mothers' educational levels in relation to their employment sectors – whether in manufacturing or agriculture, as illustrated in Table 3 – reveals that higher educational attainment is typically associated with lower levels of the multidimensional poverty index (MPI). This trend is observed in agriculture and manufacturing, although households with mothers working in agriculture have higher poverty levels. However, this study did not further investigate the correlation between mothers' employment sector and welfare levels or the correlation between mothers' education levels and welfare levels.

Another limitation of this study is that the independent variables used can only explain 42.6 per cent of the decision for mothers to work in agriculture and only 18.6 per cent of the decision for mothers to work in manufacturing. This indicates that other factors influence mothers' decisions to work in the agricultural or manufacturing sectors. Therefore, further research that includes additional independent variables influencing mothers to work in manufacturing or agriculture would be highly beneficial.

Conclusions and Implications

Based on the discussion in the previous sections, agriculture has the highest labour absorption, including the number of mothers working in agriculture. The involvement of mothers working in agriculture generally follows their husbands' employment sectors, with mothers typically engaged in informal work (often as family labour or unpaid). This suggests that mothers provide extra labour to support their husbands' work without being recognized as earners. The educational attainment of mothers engaged in agriculture tends to be low, with many having completed only elementary school or less, reflecting a similar trend among their husbands.

Mothers working in the manufacturing sector account for only 8.95 per cent. The employment field of mothers working in the manufacturing sector mostly does not match their husbands' employment sector (manufacturing). The education level of mothers working in the manufacturing sector tends to be higher than that of their husbands working in agriculture.

Factors such as the husband's employment field, status, education level, mother's education level, number of dependents, and number of toddlers in the household significantly impact a mother's decision to work in agriculture and the manufacturing sector.

Another finding from the regression analysis is that mothers with husbands working in agriculture tend to choose to work as farmers. However, if the husband works in a non-agricultural sector, holds a formal job, has a higher education level, or if the mother has a higher education level or more toddlers, she tends to choose non-agricultural sectors. This pattern varies in households where the mother is employed in the manufacturing sector. If the husband works in agriculture, the wife chooses the manufacturing sector. However, if the husband works in manufacturing or another sector, she chooses

non-manufacturing sectors. Husbands with formal employment status, higher education levels, higher education levels for the mother, and more toddlers tend to decide to work in the manufacturing sector.

Regarding welfare levels, households with mothers working in agriculture have a much lower level of welfare than those working in the manufacturing sector. This is visible from the MPI values of each group. Descriptively, it is also found that the higher the mother's education level, the smaller the proportion of households meeting multidimensional poverty indicator criteria.

The limitations of this study lie in the scope of the variables used. The independent variables used in this study can only explain the dependent variable by 26 per cent for mothers working in agriculture and only 8.6 per cent for mothers working in the manufacturing sector. This indicates that there are still stronger variables influencing mothers' decisions to work in agriculture or manufacturing.

Suggestions for Future Research

Based on the above conclusions, the provided recommendations include:

1.The optimisation of the Agricultural Sector: Agriculture needs to be optimized to increase its income, considering it is Indonesia's largest employer. One solution offered in agricultural management is through agricultural diversification with government assistance, given that the education level of most farmers is low.

2.The enhancement of the Mother's Role from Being Assistant to Managing Agricultural Products: The role of mothers in the family, which initially was only assistants to their husbands' work as family labourers, can be elevated to managing agricultural products. Mothers can acquire skills in managing agricultural products through proper training and mentoring. This is important, considering that most mothers have a low level of education. Managing agricultural products can provide better job alternatives than being family labourers in the agricultural sector.

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Conflict of Interest

None.

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