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Does Higher Pay Increase Vulnerability to the Motherhood Penalty? Challenges for Indonesian Working Women

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Abstract
The "motherhood penalty" refers to the negative impact that becoming a mother has on women's overall economic outcomes. This study aims to determine if the severity of this penalty varies for employed and self-employed women across different income levels (poor, middle, and high). Understanding these variations can help policymakers create tailored support systems to promote gender equality and address specific challenges faced by each group. This research fills a gap by examining the extent of the motherhood penalty across women with different incomes and employment statuses. It uses ordinary least squares (OLS) regression on pooled data from the Indonesia Family Life Survey (IFLS) 2000–2014, combining data from 2000, 2007, and 2014 to account for historical economic changes and unique child ownership. The IFLS provides an eight-year work history, crucial for controlling the motherhood penalty mechanism from the forgone experience phase, a feature absent in other surveys. The findings reveal that, compared to childless women, employed mothers earn the least regardless of income level, with a woman's income decreasing as the number of children increases. However, in low-, middle-, and high-paid jobs, only high-paid working mothers experience significantly lower wages compared to their childless counterparts. Self-employed women are less likely to face the motherhood penalty. These results highlight the need for policy interventions to support employed mothers, particularly those in high-income brackets, while recognizing that self-employed women do not experience the same negative financial effects. The study concludes with policy recommendations for decision-makers and stakeholders to address these issues.

Keywords: *mother pay gap, motherhood, women employment, income level variation, employment status, childbearing*

INTRODUCTION

According to the Global Gender Gap Report 2023, the gender gap score globally increased by 0.3% points from 68.1% in 2022 to 68.4% in 2023. Furthermore, a significant drop in gender parity caused by the COVID-19 pandemic between 2020 and 2021 was discovered, suggesting that it will take 132 years to close the gender gap globally (Pal, Piaget,

Baller, and Zahidi, 2023). According to World Bank data, Indonesia has the second-lowest TPAK (labor force participation rate) among ASEAN nations. This data demonstrates the complexity of the gender inequality problem in Indonesia and the need for thoughtful, long-term solutions.

Economic growth will slow down as more workers enter the workforce. Women's economic empowerment increases income equality alongside other positive development outcomes, economic diversification, and reproductivity (IMF, 2018). In contrast, gender inequality is predicted to affect GDP by about 15% (Cuberes and Teignier, 2016). Given that two-thirds of Indonesia's female population is currently in the productive age range of 15 to 64, removing obstacles that keep women from engaging in the economy presents a significant opportunity to boost economic growth.

The motherhood penalty has received much attention in discussions surrounding the gender pay gap (Grimshaw and Rubery, 2015). The term "motherhood penalty" refers to the discrimination against women that arises from the stereotypical belief that mothers are less productive. It describes the difficulties that women encounter in their careers after becoming mothers. The time is ripe for Indonesia to investigate the motherhood penalty, as the country's experiences with gender inequality may impede efforts to prepare its golden generation for 2045 and make the best use of its demographic advantage. Based on 2019 global estimates of TPAK, even prior to the COVID-19 pandemic, mothers who were between aged 25–54 with a partner and at least one child under the age of six living at home made up 55% of the labor force. This number is significantly lower than the TPAK for fathers (97.1%) and still lags behind the overall TPAK for women, which is 62.1%. Fathers have a higher labor force participation rate than all men in the same age group (93.50%). Based on available data, differences in the distribution of household and caregiving responsibilities within the home appear to be a significant cause of disparities in labor market participation (ILO modelled estimates, ILOSTAT).

The ILO model estimates prime-age women's labor force participation rate in couple households with young children based on SDG areas. This graph shows that, in the East and Southeast Asia regions, women in two-parent households with children have the lowest TPAK (ILO-modelled estimates, ILOSTAT). It is crucial to determine the number of children a mother has to identify the extent of the penalty she experiences, in order to optimize the reduction of the gender wage gap. Consequently, this approach can alleviate the

financial difficulties faced by working mothers. It is crucial to determine the number of children a mother has to identify the extent of the penalty she experiences, in order to optimize the reduction of the gender wage gap. Consequently, this approach can alleviate the financial difficulties faced by working mothers

The "motherhood penalty" refers to the extensively documented phenomenon in which women face adverse effects on their careers after becoming mothers. These effects include decreased salaries, limited employment prospects, and a decline in occupational standing (Kahn, García-Manglano, and Bianchi, 2014). The impact of being a mother on women's careers tends to decrease as they get older, with their involvement in the workforce and their professional standing returning to normal by middle age. However, women who have three or more children may still face lower wages, even after this recovery period (Kahn et al., 2014). The penalty arises from the view that mothers are less capable and dedicated employees, which contradicts the notion of a "exemplary worker" (Burgess, 2013). Researchers have put forth many theoretical reasons for the maternity penalty. Recent studies have specifically looked at how demographic and job-related factors influence its impact. These studies have also used advanced methods to quantify the consequences of the motherhood penalty (Gough and Noonan, 2013).

The maternity penalty, which refers to the decrease in income and professional prospects experienced by women following childbirth, continues to exist in many cultural and economic settings. Research conducted utilizing United States administrative data demonstrates substantial and widespread disadvantages faced by mothers, even in environments that appear to be forward-thinking and inclusive (Almond, Cheng, and Machado, 2023). The study on reunited Germany reveals that maternal job preferences and results are influenced more by historical societal norms and institutions rather than present settings (Collischon, Eberl, and Reichelt, 2020). Research conducted across many countries suggests that the impact of work-family policies, such as parental leave and public childcare, in reducing the negative consequences faced by mothers in the workforce is influenced by cultural beliefs toward women's employment (Budig, Misra, and Boeckmann, 2012). These findings indicate that effectively resolving the negative impact of motherhood on women's careers requires a comprehensive strategy that takes into account both policy changes and cultural changes. This strategy should aim to enhance women's involvement in the workforce while also helping them balance their family obligations.

The motherhood penalty, a well-established phenomenon where mothers earn lower wages than childless women, has been extensively studied in sociological and economic researchBudig and England (2001) found a 7% wage penalty per child, with factors like reduced job experience only partially explaining the gap. Gough and Noonan (2013) reviewed theoretical explanations and methodological approaches to studying the penalty, highlighting variations based on demographic and job-related characteristics. Almond et al. (2023) used large-scale administrative data to reveal the persistence and magnitude of the penalty, even in contexts where it might be expected to diminish. Wang and Ackerman (2019) emphasized that the motherhood penalty affects not only pay but also perceived competence and career commitment. They noted that while mothers face wage decreases, fathers often receive a "fatherhood bonus." These studies collectively demonstrate the complex interplay of cultural and economic factors contributing to the motherhood penalty's persistence in the workplace.

Extensive research constantly proves the presence of a maternal wage penalty in various countries. Research has revealed that there are pay reductions of 4-18% per child, with variations depending on the country and demographic characteristics (Budig and England, 2001; Gangl and Ziefle, 2009; Livermore, Rodgers, and Siminski, 2011). The cost is ascribed to variables such as diminished work experience, transitions to more family-oriented employment, potential declines in productivity, and employer bias (Budig and England, 2001; Gough and Noonan, 2013). Work interruptions and job changes are the main factors contributing to the wage disparity in the United States and Britain. However, in Germany, there is a significant unexplained penalty, indicating that discrimination plays a more prominent role (Gangl and Ziefle, 2009). According to Australian research conducted by Livermore et al. (2011), the penalty resulting from delivery is observed in the form of decreased income growth over time, rather than immediate salary decreases. The impact of motherhood on a woman's career prospects and earnings is influenced by factors such as her marital status, the number of children she has, and the features of her employment. This demonstrates the intricate nature of this issue, as highlighted by studies conducted by Budig and England (2001), and Gough and Noonan (2013).

Studies on the motherhood penalty uncover its intricate characteristics and diverse effects among distinct socioeconomic cohorts. Mothers who earn low wages experience the most significant relative disadvantage, with the availability of family resources and level of work exertion having substantial effects (Budig and Hodges, 2010). Marital status and social

class have an impact on both the severity of the penalty and the decisions made by mothers regarding their workforce participation (Deming, 2022). Despite demonstrating competence, discrimination continues to exist, since successful mothers are perceived as less warm and appealing by female evaluators (Benard and Correll, 2010). The maternity penalty in China has been more severe over time, particularly for single moms who face a greater increase in fines compared to married mothers. The long-term consequences have also escalated, practically reaching the same level as short-term effects in recent years. The severity of fines is influenced by the amount of education and the sector of employment, with employees in the non-state sector suffering more significant penalties (Shen, 2022). These findings emphasize the complex and diverse characteristics of the motherhood penalty and how it contributes to the continuation of gender and socioeconomic disparities.

This study investigate the impact of motherhood on earning and how it is connected to female entrepreneurship. In their study, Herrarte and Urcelay (2022) discovered that mothers in Spain experience a wage reduction of 4.2%. This wage penalty is particularly prominent among women with higher levels of education and those employed in medium to big companies. According to Yang, Kacperczyk, and Naldi (2023), women are encouraged to engage in entrepreneurship as a means of reducing the negative impact on their wages due to parenthood, particularly if they hold high-paying or managerial roles. Burgess (2013) investigates the impression of mothers as being less capable and dedicated in the professional environment, resulting in decreased opportunities for employment and advancement. In their study, Bago and Dessy (2020) examine the correlation between motherhood and self-employment in Nigeria. They discover that there is no direct cause-and-effect relationship between the two factors. However, they do see a higher likelihood of engaging in self-employment among single moms. These studies demonstrate the intricate relationship between motherhood, wage penalties, and entrepreneurship. They indicate that societal and economic variables have a role in shaping women's professional decisions and achievements after becoming moms.

Multiple studies consistently demonstrate that becoming a mother is linked to a reduction in wages, often ranging from 5-7% each kid (Budig and England, 2001). Low-wage women face the most significant relative penalty in terms of wages, as opposed to other groups, according to Budig and Hodges (2010). The penalty for income variation is influenced by different factors depending on the income level. For poor earners, family

resources, work effort, and compensating differentials have a greater impact, whereas high earners are more affected by the loss of human capital (Budig and Hodges, 2010). Empirical research indicates that discrimination plays a role in the penalty, as mothers encounter unfavorable judgments of their abilities and receive lower salary recommendations compared to women without children, although fathers do not face similar disadvantages (Correll, Benard, and Paik, 2007). Highly competent women who leave the employment may face a significant penalty, since they are at risk of experiencing a larger decline in their skills and losing job-specific benefits (Anderson, Binder, and Krause, 2002). These findings emphasize the intricate relationship between parenting, income, and outcomes in the job market.

Studies on the maternal wage penalty demonstrate diverse effects depending on income levels and economic development. Mothers with low wages experience the most significant relative disadvantage, whereas women with high earnings have observed a reduction or complete elimination of this disadvantage with time (Budig and Hodges, 2010; Glauber, 2018). The penalty escalates with economic advancement, mostly as a result of the intricate nature of the labor market and the division of occupations (Agüero, Marks, and Raykar, 2020). Adolescent children in low-income countries might increase the amount of money their moms earn by taking up domestic chores, thus creating a wage premium (Agüero et al., 2020). The penalty for mothers in Spain is influenced by the characteristics of their partners, with those who have self-employed partners seeing a more significant salary reduction (Herrarte and Urcelay, 2022). The factors contributing to the penalty vary depending on the amount of wages. For those with low incomes, family resources and compensating differentials play a more substantial role, but for those with high earnings, the loss of human capital is more relevant (Budig and Hodges, 2010). These findings emphasize the necessity for detailed research on the negative consequences faced by mothers in various situations.

The present study seeks to address the current knowledge gap by conducting a detailed examination of the negative impact on career progression that mothers face, comparing self-employed and employed women from various income brackets. Prior research has predominantly concentrated on either the individual's work status or their income level, but never on both concurrently. This study aims to investigate the interaction between these two characteristics and their impact on the extent of the motherhood penalty.

This study conducts a thorough investigation of the motherhood penalty over a long period of time by applying ordinary least squares (OLS) regression to pooled data from the Indonesia Family Life Survey (IFLS) from 2000 to 2014. The IFLS data offers a comprehensive longitudinal dataset, encompassing eight-year work histories, enabling a meticulous analysis of career paths and income fluctuations over time. This technique mitigates the constraints of cross-sectional studies, which frequently overlook the enduring consequences of parenting on women's professional trajectories. This study primarily examines the varying degrees of effects experienced by different groups of women upon becoming moms. The objective is to ascertain whether women who are employed or self-employed are more prone to experiencing adverse career outcomes after becoming mothers, and whether the impact is more severe for women with higher salaries. The research question in this study is: How does the motherhood penalty differ between employed and self-employed women across various income levels?

Examining the disparities in the motherhood penalty between employed and self-employed women across different income levels offers valuable insights into systemic injustices, workplace biases, and societal norms that perpetuate this phenomenon. Analyzing how the motherhood penalty varies based on employment status can equip researchers with crucial data to inform employers and policymakers on the need for tailored support mechanisms for working mothers and self-employed individuals of any gender. This knowledge, irrespective of parental status, has the potential to foster a fairer and more inclusive work environment for all employees.

Moreover, delving into the impact of the motherhood penalty at varying income brackets among women can deepen our understanding of the underlying factors contributing to income disparities among working mothers. This knowledge can inform the development of targeted policies aimed at mitigating economic inequalities faced by working mothers, such as implementing flexible work arrangements and enhancing childcare support services.

This study utilized the IFLS data from 2000, 2007, and 2014. Data collection for the IFLS is "normally" collected every seven years. The re-contact rate of IFLS 4 (2007) was 90.6% (IFLS 1, 2, 3 living households) and 93.5% (original IFLS1 households). The re-contact rate for IFLS 5 (2014) was 90.5% (IFLS 1, 2, 3 and 4 respondents living households) and 92% (original IFLS 1 households). By utilizing IFLS, individuals are presented with a unique opportunity to monitor the enduring connections and consequences of economic

growth while also understanding the distributional and behavioral impacts caused by substantial economic disruptions.

IFLS gathers information on a wide variety of specific topics. The data gathered includes employment status, earnings, educational attainment, and other elements necessary to comprehend an individual's professional trajectory. This degree of specificity enables a more profound examination. Furthermore, IFLS provides data continuity through multiple waves of survey administration, enabling researchers to monitor changes and trends over time. This study's unit of analysis consists of working women in IFLS 3, 4, and 5. Unpaid workers were not included in this study.

Data and Unit of Analysis

Variables

Dependent Variable

The natural logarithm of women's income is the dependent variable in this study, which aligns with the prevailing research on motherhood penalties. To construct this variable, the income from each woman's primary job and any additional job is aggregated.

The critical independent variables: Motherhood, employment status, and income level

The key independent variable in this study is the interaction between a woman's motherhood status and her employment status. Motherhood status is further delineated based on the number of children a woman has, including those without children, those with one child, two children, three or four children, and more than four children. Furthermore, the female subpopulation was examined based on income level.

Control Variables

In this study, all models incorporate additional variables, such as individual and household variables, adjusted for the IFLS year. The variable "year" is controlled to consider the influence of temporal changes or trends on women's income. By regulating the "year" variable, this study can account for the effects of these temporal changes in the analytical model, making it possible to separate the impact of other variables that may vary over time. The quadratic form is utilized in certain control variables to facilitate the capture of nonlinear patterns that may arise.

Applying regression analysis using ordinary least squares (OLS) to investigate the motherhood penalty

OLS regression analysis is a statistical technique that allows researchers to examine the relationship between an independent and dependent variable. By applying OLS regression analysis, researchers can estimate the magnitude and significance of the motherhood penalty by controlling for other relevant factors. OLS regression analysis has been applied in several previous studies to analyze the motherhood penalty. Agüero and Marks (2011) examined the motherhood penalty in 21 developing countries using OLS regression and found that the presence of children does not affect the likelihood of work or its intensity, although it does impact the type of work a woman pursues. Budig et al. (2012) define a mother as a woman aged 25–49 with children at home, using OLS models to estimate the gross effect of motherhood on annual earnings. Their study highlights significant motherhood penalties in many countries, indicating disparities in earnings between mothers and childless women.

Dupuy and Fernández-Kranz (2011) analyzed the motherhood penalty using a variable mix of gross and net monthly pay, using OLS regression; they found that labor market institutions significantly influence the family wage gap, defined as the wage disparity between mothers and non-mothers. S. Harkness and Waldfogel (2003)- analyzed the motherhood penalty in seven developed countries using OLS linear probability models and a Heckman selection model, finding significant variation across these countries in the effects of children on women's employment and hourly wages. Using OLS regression, Kumlin (2007) analyzed the motherhood penalty among mothers, namely those aged 20–65 with children at home. OLS regression estimates the relationship between the dependent variable (logarithm of hourly wage) and independent variables such as education level, gender, and workplace characteristics. Nestić (2007) also used OLS and quantile regression to analyze the motherhood penalty; they found that mothers in the private sector at the top of the wage distribution in the private sector earn lower wages than women without children. Simonsen and Skipper (2012) used OLS and fixed effects regression, finding that for women, the OLS estimates are quite close to the results using twin fixed effects, suggesting a positive selection into parenthood that is not accounted for in the simple OLS model.

Regression Models

This research's empirical investigation uses the following OLS (Ordinary Least Square) regression model:

$$\begin{aligned} ln\, income_i = {} & \beta_0 + \beta_{01} employment\_motherhood_{01} + \beta_{02} employment\_motherhood_{02} \\ & + \beta_{03} employment\_motherhood_{03} + \beta_{04} employment\_motherhood_{04} \\ & + \beta_{10} employment\_motherhood_{10} + \beta_{11} employment\_motherhood_{11} \\ & + \beta_{12} employment\_motherhood_{12} + \beta_{13} employment\_motherhood_{13} \\ & + \beta_{14} employment\_motherhood_{14} + \beta_2 year + \beta_3 women\_age + \beta_4 women\_agesq \\ & + \beta_5 spouse + \beta_6 child\_age + \beta_7 HHH + \beta_8 sexHHH + \beta_9 HHHage + \beta_{10} HHHagesq \\ & + \beta_{111} educ_1 + \beta_{112} educ_2 + \beta_{113} educ_3 + \beta_{14} educ_4 + \beta_{12} migrate + \beta_{13} fulltimejob \\ & + \beta_{14} workint + \beta_{15} workexp + \beta_{16} sqworkexp + \beta_{17} tenure + \beta_{18} sqtenure + \beta_{19} formalin \\ & + \beta_{20} hh\_nonlabour + \beta_{21} hh\_assetvalue + \beta_{22} indi\_nonlabour + \beta_{23} indi\_assetvalue \\ & + \beta_{24} farmHH + \varepsilon_i \end{aligned}$$

Where:

$ln\, income_i$	= ln of women's income
$employment\_motherhood$	= interaction of women's employment status and women's motherhood status
$year$	= year of IFLS
$women\_age$	= women age
$women\_agesq$	= women age square
$spouse$	= spouse ownership status
$child\_age$	= child age
HHH	= whether the unit of analysis acts as head of household or not
$sexHHH$	= sex of head of household
$HHHage$	= age of head of household
$HHHagesq$	= age of head of household square
$educ$	= women's education level
$migrate$	= women's migration experience
$Full-time$	= whether women are full-time workers or non-full-time workers
$workint$	= work interruption experience
$workexp$	= length of time working in a full-time job (in years)
$sqworkexp$	= length of time working in a full-time job (in years) square
$tenure$	= long time working at current job
$sqtenure$	= long time working at current job square
$formalin$	= work status (formal vs informal)
$hh\_nonlabour$	= household non-labor income
$hh\_assetvalue$	=household asset value
$indi\_nonlabour$	= individual non-labor income
$indi\_assetvalue$	= individual asset value
$farmHH$	= whether the woman in the unit of analysis is in a farming household

General micro-level mechanisms

According to the linked lives paradigm (Elder, Johnson, and Crosnoe, 2003), individuals' decisions impact their children's lives, and family members' behavior, development, and life events are interconnected. Parenting techniques, such as the involvement of moms and grandparents, can filter the transmission of inequality across generations, resulting in educational homogamy that gives children from privileged backgrounds cumulative advantages. Child development and the behavior of parents and other family members are intertwined, with parents and children influencing one another. Mothers' decision to return to work after giving birth may be influenced by their children's cognitive and socioemotional development.

According to the economic theories of Becker (1981) and Hays (1998), when children require more care, mothers have more employment opportunities, leading to household specialization and a lower labor market return for less developed mothers. While Hays's (1998) study indicates that norms related to "being a good mother" may formatively influence maternal decisions, extending maternal employment interruptions after childbirth, and Becker's (1981) argument supports this.

Motherhood penalty: Past research

Mothers of children aged 0 to 3 saw a penalty in their hourly pay of about 4.2%; this penalty increased significantly when one partner worked for themselves. Only highly educated women and those employed by medium-sized and large companies were found to be subject to the wage penalty (Herrarte and Urcelay, 2022). According to a study on the midlife motherhood penalty, mothers experience different career penalties depending on their stage of life. In particular, motherhood has a diminishing effect on both occupational status and labor force participation as women age. The effect of having children on women's labor force participation is greatest when the women are younger, and it disappears by the time they are in their 40s and 50s (Kahn et al., 2014).

Mothers' earnings can be indirectly impacted by experience, education, and human capital depreciation. Children may also impact these factors due to the time mothers spend away from the workforce and the lost opportunities to accumulate more human capital (Moore and Wilson, 1982). Earnings can be indirectly impacted by the depreciation of human capital when a mother is raising her children and is not working. Thus, due to the time they spend out of the workforce, as well as to the loss of accumulating more human capital (such

as work experience), mothers with younger children may see a greater impact on their earnings (Moore and Wilson, 1982).

An individual's level of education can significantly impact their income. Higher education is frequently seen as a path to social mobility linked to higher incomes. Research has shown that, even after considering various factors (e.g., educational background, skill set, and life experiences), higher-education graduates from lower socioeconomic backgrounds still make less money than their counterparts from higher socioeconomic backgrounds. This implies that although education can "level the playing field" to some extent, other elements (e.g., family history and experiences gained after graduation) still affect earnings (Crawford and Erve, 2015). The quality of higher education (as determined by variables such as the number of researchers published per student, the number of teachers per student, and the number of applicants per admitted student) has been found to have varying effects on women's early career earnings. For example, the earnings of women and humanities graduates of any gender were positively correlated with the teacher-to-student ratio, which suggests that educational attainment and the particular field of study can impact earnings outcomes (Suhonen, 2014).

Research conducted on community college students has demonstrated that a variety of factors (e.g., gender, age, economic status, and degree completion) can be used to predict post-college earnings for students in a variety of career clusters (Maguire, Starobin, Laanan, and Friedel, 2012). Work disruptions, such as time spent unemployed or out of the workforce, can significantly affect a person's income. Research has indicated that work disruptions can decrease pay, especially if they occur frequently or recently (Arulampalam, 2000; Spivey, 2005). Work disruptions can have a long-lasting impact on earnings; some people report wage losses years after they return to the workforce (Arulampalam, 2000). According to an Australian study on severe early childhood caries, there was no overall relationship between maternal employment and the frequency of severe early childhood caries; however, there was a significant interaction with family structure, indicating that the child's age may be relevant in this situation.

Motherhood penalties vary in advantages and disadvantages for women.

According to studies on the motherhood penalty, women with high levels of skill and income suffer the most severe overall penalties—including those resulting from lost experience due to time spent out of the workforce (England, Bearak, Budig, and Hodges,

2016). This is especially evident for low-wage women, who bear the high cost of parenthood; the penalty is determined mainly by compensating differentials, work effort, and family resources (Budig and Hodges, 2010). Unobserved heterogeneity and human capital inputs also affect the penalty; medium-skill mothers experience more severe and protracted wage losses (Anderson, Binder, and Krause, 2003). The motherhood wage penalty is also more prominent in the private sector than the public sector, with no unexplained penalty found after considering various factors (Duvivier and Narcy, 2015).

How are motherhood penalties varied by women's employment status and wage level?

Research has identified numerous factors that affect the motherhood penalty's severity. According to Yu and Kuo (2017), research, occupations with greater autonomy, fewer teamwork demands, and less competitive pressure have less severe penalties. Budig et al. (2012) emphasized the importance of work–family policies and societal perceptions, noting that public childcare and parental leaves are more advantageous in nations that strongly support mothers' employment. Halldén, Levanon, and Kricheli-Katz (2016) further highlighted the influence of family policies even more, finding that a reduction in the penalty was linked to a high percentage of children receiving publicly funded daycare and extended paid maternity leave.

RESULTS

This study's findings are displayed using both inferential and descriptive analysis.

Descriptive Analysis

Demographic Characteristics

The study involved 5,287 participants from IFLS 2000, 5,944 participants from IFLS 2007, and 8,002 participants from IFLS 2014 (Table 1). The participants in this study are mostly childless women (5,788 self-employed women and 6,520 employed women). Generally, the participants in productive age (95.38 %). The overall descriptive analysis can be seen in **Table 1.**

Table 1. Demographic characteristics of participants and descriptive statistics of ln income (all population)

Demographic Characteristics		Total Subject (N)	Percentage (%)	Ln Income	
				Mean	SD
Employment_motherhood status	Self-employed without children	5,788	30.10	11,24	4,07
	Self-employed with one child	1,644	8.55	11,94	3,67
	Self-employed with two children	776	4.03	11,94	3,85
	Self-employed with three or four children	539	2.80	11,98	3,86
	Self-employed with more than four children	199	1.03	11,45	4,05
	Employed without child	6,520	33.90	12,22	3,24
	Employed with one child	2,336	12.15	12,56	3,12
	Employed with two children	899	4.67	12,72	3,39
	Employed with three or four children	430	2.24	12,57	3,29
	Employed with more than four children	101	0.53	11,37	3,79
Women's age	15–64	18,345	95.38	12,04	3,54
	65+	888	4.62	9,86	4,63
Spouse	Have spouse	13,114	68.18	12,10	3,54
	Do not have a spouse	6,119	31.82	11,60	3,79
Children's age	0–5	16,618	86.40	11,87	3,66
	6–12	1,855	9.64	12,53	3,28
	More than 12	760	3.95	12,02	3,71
As household head	Not as the Household head	15,559	80.90	12,08	3,50
	As the Household head	3,674	19.10	11,37	4,09
Sex of household head	Women	4,799	24.95	11,49	3,99
	Men	14,434	75.05	12,09	3,49
Women's education level	University	2,364	12.30	13,53	2,80

	Senior High School/ equivalent	4,706	24.48	12,64	3,18
	Junior High School/ equivalent	2,796	14.55	12,00	3,50
	Elementary school/ equivalent	4,015	20.89	11,61	3,51
	Did not finish elementary school/ did not go to school	5,342	27.79	10,85	4,06
Work sector	Informal sector	10,080	52.41	11,35	3,99
	Formal sector	9,153	47.59	12,59	3,05
Household non-labor income	0	16,578	86.2	11,92	3,66
	More than 0	2,655	13.8	12,08	3,42
Household asset	0	98	0.51	10,60	4,90
	More than 0	19,135	99.49	11,95	3,62
Individual non-labor income	0	17,935	93.25	11,95	3,64
	More than 0	1,298	6.75	11,91	3,44
Individual asset	0	9,341	48.57	11,70	3,81
	More than 0	9,892	51.43	12,17	3,44

Table 2. OLS regression results on the effect of motherhood and employment status on women's income

	All population	**Low income Sub-population**	**Middle income Sub-population**	**High income Sub-population**
(1)	*(2)*	*(3)*	*(4)*	*(5)*
Employment_motherhood status				
(0#0) Self-employed without children	ref	ref	ref	ref
(0#1) Self-employed with one child	-0.148	-0.0499	-0.0170	0.0163
	(0.114)	(0.247)	(0.0191)	(0.0384)
(0#2) Self-employed with two children	-0.365**	-0.296	-0.0095	-0.0096
	(0.146)	(0.324)	(0.0247)	(0.0467)
	-0.304*	-0.171	0.0298	0.0175
	(0.169)	(0.384)	(0.0294)	(0.0513)
	-0.268	-0.558	0.0425	0.0589

(0#3) Self-employed with three or four children	(0.258) -0.353*** (0.0931)	(0.527) 0.213 (0.200)	(0.0449) -0.0525*** (0.0155)	(0.0890) -0.386*** (0.0327)
(0#4) Self-employed with more than four children	-0.582*** (0.122)	0.0699 (0.283)	-0.0501** (0.0204)	-0.403*** (0.0395)
(1#0) Employed without child	-0.682*** (0.150)	-0.815** (0.392)	-0.0217 (0.0262)	-0.342*** (0.0443)
(1#1) Employed with one child	-0.654*** (0.193)	0.0444 (0.477)	-0.0345 (0.0349)	-0.323*** (0.0550)
(1#2) Employed with two children	-1.133*** (0.352)	-0.373 (0.692)	-0.0540 (0.0589)	-0.346** (0.1399)
(1#3) Employed with three or four children				
(1#4) Employed with more than four children				
Year	0.0914*** (0.00485)	-0.117*** (0.0122)	0.0112*** (0.000878)	0.0387*** (0.0018)
Women age	0.115*** (0.0114)	0.0423* (0.0221)	0.00732*** (0.00211)	0.00862* (0.0046)
Women age square	-0.00127*** (0.000126)	-0.000313 (0.000234)	-7.59e-05*** (2.43e-05)	-8.00e-05 (0.0001)
Spouse				
0 have spouse	ref	ref	ref	ref
1 do not have a spouse	0.0276 (0.0758)	0.0876 (0.158)	-5.63e-05 (0.0131)	0.0462* (0.0262)
Children age	0.0179** (0.00729)	0.0206 (0.0164)	0.0007 (0.0012)	0.0013 (0.0023)
As household head				
0 Not as the household head	ref	ref	ref	ref
1 As the household head	-0.155 (0.127)	-0.429 (0.272)	0.0237 (0.0214)	-0.0148 (0.0433)
Sex of household head				
0 Women	ref	ref	ref	ref
1 Men	0.116 (0.110)	0.110 (0.243)	0.0160 (0.0184)	-0.0199 (0.0357)
Age of household head	-0.00923***	-0.0078	-0.000792*	-0.00211**

	(0.0025)	(0.0053)	(0.0004)	(0.0009)
Age of household head square	8.44e-06***	7.12e-06	5.83e-07	1.65e-06*
	(2.66e-06)	(5.57e-06)	(4.48e-07)	(9.46e-07)
Women's education level				
0 University	ref	ref	ref	ref
1 Senior High School/equivalent	-0.580***	0.746**	-0.0703***	-0.240***
	(0.0884)	(0.328)	(0.0167)	(0.0208)
2 Junior High School/equivalent	-1.017***	0.889***	-0.145***	-0.373***
	(0.0997)	(0.335)	(0.0179)	(0.0270)
3 Elementary school/equivalent	-1.223***	1.209***	-0.176***	-0.450***
	(0.0950)	(0.322)	(0.0175)	(0.0281)
4 Did not finish elementary	-1.656***	0.798**	-0.186***	-0.461***
school/did not go to school	(0.0981)	(0.328)	(0.0183)	(0.0309)
Migration experience				
0 never migrated	ref	ref	ref	ref
1 have migrated	0.0104	-0.1540	-0.0053	0.0612**
	(0.0875)	(0.1839)	(0.0149)	(0.0297)
Full-time job				
0 Full-time job				
1 pekerja tidak penuh	-1.243***	-0.540***	-0.0711***	-0.0769***
	(0.0508)	(0.112)	(0.0090)	(0.0173)
Work interruption				
(0 Has not experienced work	ref	ref	ref	ref
interruptions)	-0.108*	-0.257*	-0.0093	-0.0029
1 Has experienced work interruptions	(0.0582)	(0.149)	(0.0101)	(0.0165)
Work experience	-7.91e-05**	-0.000119	-1.35e-05**	1.69e-05
	(3.70e-05)	(9.80e-05)	(6.14e-06)	(1.18e-05)
Work experience square	9.85e-09	3.19e-08	-3.13e-09**	3.47e-09
	(9.40e-09)	(3.43e-08)	(1.46e-09)	(2.57e-09)
Tenure	0.0296***	-0.0249**	0.00249***	0.0134***
	(0.00507)	(0.0101)	(0.000932)	(0.0019)
Tenure square	-0.000726***	-0.000207 (0.000166)	-4.72e-05***	-0.000143***
	(9.25e-05)		(1.81e-05)	(4.22e-05)
Work sector (formal informal)				
0 informal sector				
1 formal sector	0.872***	-0.102	0.0677***	0.255***

	(0.0860)	(0.193)	(0.0140)	(0.0296)
Household non-labor income	6.63e-10	5.69e-09	6.22e-11	-9.10e-11
	(1.07e-09)	(4.48e-09)	(2.21e-10)	(2.28e-10)
Household asset	2.24e-09***	-4.43e-09*	1.54e-10	8.01e-10***
	(5.32e-10)	(2.42e-09)	(1.09e-10)	(1.13e-10)
Individual non-labor income	7.24e-11	-8.59e-08**	4.40e-10	1.21e-09
	(3.21e-09)	(3.86e-08)	(3.19e-10)	(2.22e-09)
Individual asset	3.03e-09***	-6.20e-09**	-2e-12	1.30e-09***
	(5.14e-10)	(2.96e-09)	(1.57e-10)	(1.02e-10)
Farm household				
0 Farm household				
1 Not a farm household	0.699***	1.009***	0.0201**	0.0434**
	(0.0570)	(0.121)	(0.0100)	(0.0185)
Constant	-172.8***	242.8***	-9.620***	-63.40***
	(9.762)	(24.5019)	(1.7663)	(3.6241)
Observations	19222	7000	6062	6160
R-squared	0.1464	0.0607	0.0763	0.2323
Adj R-square	0.1448	0.0560	0.0709	0.2280

***Standard errors in parentheses;* ****p<0.01 ***p<0.05, **p<0.1, *p<0.15**

After undergoing the influence of 23 control variables, most employed and self-employed women experienced a notable alteration in their earnings after becoming mothers (Table 1). Self-employed women with one child do not experience a significant disparity in wages compared to self-employed women with no children. Employed women with children face a more significant wage disparity compared to self-employed women without children, which is even more significant than the wage gap experienced by self-employed women with children.

Self-employed women experience a decline in their income as the number of children increases. Specifically, those with one child face a 14% reduction in earnings, whereas those with two children see a more significant decrease of 36%. Furthermore, self-employed women with three or four children experience a 30% decline in their income, whereas those

with more than four children see a slightly lower reduction of 28%. These statistics highlight the impact of motherhood on the financial outcomes of self-employed women, emphasizing the challenges they face in balancing work and family responsibilities.

The earnings of employed women are significantly lower based on the number of children they have. The income of employed women without children is 35% lower than that of self-employed women without children. With one child, employed women's income decreases by 58%; with two children, it drops by 68%. Women with three or four children earn 65% less. Lastly, the income of women with more than four children is significantly reduced—113% less than that of self-employed women without children.

The year, women's age, square of women's age, age of children, age of the household head, square of the age of the household head, level of education of women, full-time job status, work experience, tenure, square of tenure, work sector (formal or informal), household assets, individual assets, and the status of being a farm household are all control variables that have a significant impact on women's income.

Women receive 9% more income with each successive wave of the IFLS. As a woman's age increases by one year, her income increases by 11%. Nevertheless, including the squared significance of women's age reveals a nonlinear trend in the correlation between age and income. In simpler terms, there exists a specific age at which women's income reaches its maximum value, commonly referred to as the "peak age."

With each additional year of a child's age, women's income increases by 1.9%. With each additional year in the household head's age, women's income declines by 0.9%. Nevertheless, squaring the age of the household head reveals a nonlinear trend in the correlation between the age of the household head and women's income. Essentially, there exists an optimal age for household heads that signifies the threshold at which women's income is at its minimum level.

A woman's income is considerably lower as her education level decreases. Women who engage in part-time employment experience a staggering 124% decrease in earnings compared to their counterparts who are employed full-time. Women's income increases by 2.9% for each additional year of work tenure they accumulate. Nevertheless, quadratic tenure highlights a nonlinear correlation between the duration of women's employment and earnings.

Women employed in the formal sector receive a staggering 87% higher remuneration than their counterparts engaged in the informal sector. Women's income tends to increase in proportion to the amount of assets they possess, both at the household and individual level. Women in households that are not engaged in agricultural activities earn 69% higher incomes than women in households that are involved in agricultural work.

The examination of subgroups based on income level also incorporates the 23 control variables employed in the previous model. Within the low-income and middle-income subpopulations, none of the categories of self-employed women with children exhibit notable variations in income compared to those without children.

Additionally, the need for more employed women is of little importance. In contrast, within the high-income subgroup, employed women earn considerably less than self-employed women without children. The earnings of employed women are significantly lower than those of self-employed women without children. The income disparity is 39% for employed women without children, 42% for those with one child, 35% for two children, 33% for three or four children, and 32% for those with more than four children.

The earnings of employed women decrease significantly lower based on the number of children they have. Without any children, their income is 39% lower compared to self-employed women without children. With one child, their income is 42% lower; with two children, it is 35% lower; with three or four children, it is 33% lower; and with more than four children, it is 32% lower. This earnings disparity highlights the challenges employed women face in balancing their work and family responsibilities. The control variables that significantly impact women's income within the subpopulation based on income level closely resemble those in the previous model.

DISCUSSION

All Population

Most working women (whether employed or self-employed) experience a substantial decline in income after giving birth, as indicated by various studies (Budig, 2006; Daniel, Lacuesta, and Rodríguez-Planas, 2013; S. E. Harkness, 2016). S. E. Harkness (2016) reports a noticeable decrease in employment rates and wage growth among first-time mothers. Factors such as self-employment also play a significant role in shaping the effect of motherhood on earnings. In particular, nonprofessional self-employed women, particularly

wives and mothers, tend to suffer the most severe reductions in earnings (Budig, 2006). The decline in earnings for mothers is worsened by the move toward part-time employment, reduced accumulation of experience, and shifts to lower-wage positions (Daniel et al., 2013).

Self-Employment and Employed Motherhood Penalty

Numerous studies consistently indicate that women who are employed and have earn notably less than women who are employed but do not have children. Research has shown that working mothers receive lower hourly wages than their childless counterparts (Bunchmann, 2012). When transitioning between employers, women often adjust various aspects of their jobs, such as work schedules and stress levels, which may help elucidate the wage disparity associated with motherhood (Felfe, 2012). Factors such as human capital and unobserved differences among individuals explain a significant portion of the wage differential between mothers and women without children, with mothers typically facing the more substantial wage decrease upon re-entering the workforce (Anderson et al., 2003). Additionally, the earnings of self-employed women overall have decreased due to factors such as marriage, family size, and the amount of time spent on household chores (Hundley, 2000).

Numerous studies consistently demonstrate that women who are employed and have children encounter a notable discrepancy in wages when compared to self-employed women who do not have children. Moreover, it has been observed that the wage gap is more pronounced among the former group (Hundley, 2000; Joshi, Paci, and Waldfogel, 1999). This disparity can be attributed to various factors, including employment continuity and work experience (Joshi et al., 1999; Levine and Moock, 1984). The impact of motherhood on various job aspects, such as working hours and stress levels, may also contribute to this wage disparity (Felfe, 2012).

Income Level and the Motherhood Penalty

Studies indicate a steady growth in women's earnings, especially among those making $20,000 or more yearly, as shown by Levy and Murnane (1992). The upward trajectory is anticipated to persist, particularly regarding retirement income, where women are projected to experience a notable increase compared to men, according to Even and Macpherson (2004). Additionally, the representation of women in higher income brackets has been progressively rising, reducing the income disparity between affluent women and men, as highlighted by Boschini, Gunnarsson, and Roine (2020). Studies indicate that women tend

to experience a rise in income as their children mature, indicating a decrease in the motherhood penalty as women dedicate more hours to work (Goldin, Kerr, and Olivetti, 2022).

Control Variables

Research shows a connection between having older children and being married, which is linked to higher income levels (Depew and Price, 2018). Women in households where the head of the household is elderly or too young tend to exert significant effort and accumulate higher earnings compared to women residing in households with a youthful head of the household. Various studies have shed light on the intricate dynamics of women's household economic roles. For instance, Liu, Esteve, and Treviño (2017) found that female-headed households in Latin America do not necessarily face poorer living conditions, challenging the common assumption that female-headed households are at an economic disadvantage.

Cb (1991) emphasized the need to examine the division of economic responsibilities within households, especially in poverty and gender inequality. Furthermore, Commuri and Gentry (2005) and Bielby and Bielby (1988) delved into the effects of women's economic contributions on resource allocation and work effort within households. Commuri and Gentry (2005) observed that separate financial pools are often utilized in households where women are the primary breadwinners. Bielby and Bielby (1988) also suggested that women may dedicate more effort to work than men, particularly in similar family situations and market human capital. These studies highlight the intricate and multifaceted nature of women's household economic roles.

Various studies have consistently demonstrated the significant impact of women's educational attainment on their earning potential. Woodhall (1973) and Kingdon and Unni (2001) have both concluded that higher levels of education are associated with higher earning capacity for women. Kingdon and Unni (2001) further emphasize that although women may face a wage disadvantage due to fewer years of education, this is counteracted by the wage-advantage effect of their higher returns on education. On the other hand, Karlin, England, and Richardson (2002) and Frenette and Coulombe (2007) have drawn attention to the persistent gender wage gap, which they attribute to factors such as occupational segregation and women's tendency of women to choose traditional disciplines. These scholars argue that,

despite women's increasing educational achievements, gender discrimination and occupational choices continue to play a significant role in shaping women's earnings.

Numerous studies have consistently indicated that women who engage in part-time employment experience a notable decline in earnings compared to their full-time counterparts (Connolly and Gregory, 2008; Hirsch, 2005; Main, 1988; Manning and Petrongolo, 2008). Likewise, a robust body of research demonstrates that women's earnings tend to rise in correlation with the number of years they spend in the workforce (Coleman, 1998; Kambourov and Manovskii, 2009; Munasinghe, Reif, and Henriques, 2008). The previous study demonstrated that women working in the formal sector receive notably higher salaries than their counterparts in the informal sector (Williams and Gashi, 2022).

Nevertheless, the causes of this inequality are multifaceted, involving variables like education and skill development (Behar, 2013). Despite these variations, women generally earn lower salaries than men but receive more significant salary increases (Harris, Gilbreath, and Sunday, 2002). Studies consistently indicate that women residing in households that are not involved in agricultural pursuits typically earn more than those in agricultural households (Itunnu, 2021; Newman, 2000). This phenomenon is often linked to their involvement in non-farm activities, a trend that is more commonly observed in low- and medium-income households (Chowdhury, 2009).

Motherhood Penalty by Income Level and Employment Status

Among the high-income subgroup, employed women earn significantly lower wages than self-employed women without children. Women who possess exceptional skills and are compensated generously face the most severe consequences when it comes to motherhood, commonly referred to as the motherhood penalty. This penalty is particularly harsh for Caucasian women, as observed in England et al. (2016). The underlying reasons for this phenomenon can be attributed to the adverse effects of motherhood on job performance and the presence of discriminatory practices by employers, as highlighted by Budig and England (2001). Moreover, labor market dynamics play a significant role in shaping this penalty, as interruptions in work and subsequent transition into jobs more accommodating to motherhood contribute substantially to the wage losses experienced by these women, as indicated by Gangl and Ziefle (2009). However, it is essential to note that the specific mechanisms driving this penalty may vary across different countries, with statistical

discrimination playing a more prominent role in specific contexts, as suggested by Gangl in the same study.

CONCLUSION

The aim of this study was to ascertain whether women who are employed or self-employed are more susceptible to encountering unfavorable career consequences after becoming moms, and to evaluate if the effect is more pronounced for women with greater incomes. Our work provides a detailed examination of the parenting penalty, examining how it varies across different employment statuses and income levels. This research offers important insights into the complexity of gender disparity in the labor market.

This research demonstrates notable variations in the income of employed and self-employed women following childbirth within the general populace, with employed women experiencing a more pronounced effect. Whereas self-employed women with one child do not exhibit significant wage discrepancies compared to women without children, employed women face a substantial decrease in income, surpassing the wage disparity that self-employed mothers encounter. Both employed and self-employed women witness a gradual decline in income as the number of children increases, underscoring the substantial impact of motherhood on their financial circumstances. Focusing on income strata, only highly paid employed women encountered a noteworthy wage reduction compared to childless self-employed women. Furthermore, a range of control variables (e.g., age, educational attainment, employment status, professional experience, and household attributes) significantly impact women's income levels, underscoring the multifaceted nature of the wage gap among women in Indonesia.

Based on the study's findings, it is recommended that policies be implemented to address the challenges faced by employed and self-employed women, particularly about the motherhood penalty and income disparities. *First,* governments and employers must prioritize adopting family-friendly policies, such as paid parental leave, flexible working arrangements, and subsidized childcare. These measures can assist women in effectively balancing their work and family responsibilities, thereby reducing the financial impact of motherhood on their earnings and promoting gender equality in the workforce.

Second, efforts should be made to expand initiatives that support female entrepreneurship and provide resources, training, and financial assistance to self-employed

women, especially mothers. Accessible entrepreneurial support programs can help mitigate the decline in income experienced by self-employed women with children, empowering them to sustain their businesses while managing their family obligations.

Third, improving access to quality education and vocational training for women, particularly those from marginalized communities, is crucial. This is essential in enhancing their earning potential and reducing income disparities based on educational attainment. Enhancing educational attainment is a viable strategy for women in Indonesia to circumvent the motherhood penalty. Lusiyanti and Wicaksono (2020) have identified that educational level and socio-demographic factors significantly influence women's likelihood of participating in the workforce. Their findings indicate that as women attain higher levels of education, their probability of employment increases. Moreover, socio-demographic factors such as being the head of the family and age positively affect women's employment prospects. Conversely, factors like marital status, the presence of young children in the household, and residing in urban areas tend to decrease this probability (Lusiyanti & Wicaksono, 2020, p. 225). Thus, higher education not only boosts women's employability but also equips them to better manage socio-demographic challenges, thereby reducing the impact of the motherhood penalty.

Fourth, it is important to strengthen social safety nets through affordable healthcare, housing assistance, and income support programs. These measures can provide a financial buffer for women, especially during critical life stages such as motherhood.

Fifth, it is essential to combat workplace discrimination through legislative measures, effective enforcement of anti-discrimination laws, and awareness campaigns. This will contribute to creating inclusive work environments that value diversity and provide equal opportunities for career advancement. Doing so can narrow the wage gap and mitigate the motherhood penalty experienced by employed women.

Sixth and finally, continued data collection and research investment are vital in monitoring women's employment, earnings, and socioeconomic status trends. This will facilitate evidence-based policy development and targeted interventions.

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