

WOMEN PARTICIPATION IN LABOR FORCE: AN ATTEMPT OF POVERTY ALLEVIATION

ABSTRACT

Background: Indonesia is one of the countries that signed up for 2030 agenda of Sustainable Development Goals of which one of the agenda is to eradicate poverty. Its National Secretariat for Sustainable Development Goals commits to halve the proportion of people, men, women, and children living in poverty measured by national poverty line. Although the poverty rate has declined over the past decade, the poverty rate of around 10% in 2016 still left about 28 million people in poverty. This paper examines one route through which the goal to eradicate poverty to be achieved, which is the enhancement of women participation in labor force. Since it is quite evident that the more women working could increase growth, it is also interesting to analyze how the women employment could reduce poverty.

Method: Using data of The National Socioeconomic Survey (SUSENAS) of Indonesia from 2011 to 2015, this paper attempts to investigate the contribution of working women to their household's income and poverty. The study will be using probit regression of panel data analysis to investigate the effect of working women to poverty in the household level along with other socioeconomic and demographic variables. We emphasized our method to control the household-size effects and women's education, so we can isolate the women's employment effect on household poverty status.

Results: The study found that panel probit regression estimates are obstructed to endogeneity problem in the women's employment status. Women's decision to be enrolled in the labor force might be influenced by the educational level or household responsibility which are not captured in the model. The study then suggest a further research on the issue of women's employment and household poverty for there are still bunch of unexplored territory on the gender issue and development. This paper has attempted to show interesting issues related to role of women into the poverty alleviation. We hope that this paper could be a catalyst to stimulate further research in the issues.

I. Introduction

Poverty has been a long and serious issue in Indonesia. Although the rate of poverty has declined over the past two decades, it still leaves millions of people living in poverty. Those are not just number, those are human being. (Sumarto and Widyanti, 2008) found that although poverty rate in Indonesia has declined consistently since 2002, people have been out of poverty are still vulnerable to get back to poverty. He stressed that a small shock could push those people back under the poverty line. Along with the high rate of growth in the past decade that ran about 5%, poverty rate has constantly decreased.

As the economic growth was increasing, the poverty rate consistently declined to 11.22% in 2014, except the period of 2005-2006 which mostly caused by the rising of world oil price. Compared to the poverty rate of 18.2% in 2001, the declining rate to 11.22% is a remarkable achievement. However, even this rate still left for about 28 million people live under poverty in Indonesia.

Table 1. Poverty and Growth in Indonesia



Source : SUSENAS

Determinants of poverty range from developmental issue such as health, education, and an access to basic infrastructures to globalization issue that involves macroeconomic variables such as foreign direct investment, balance of trade, and currency volatility.

Furthermore, the nonconsumption poverty in Indonesia is more problematic (Sumarto and Widyanti, 2008). The nonconsumption poverty, which is later basing the foundation of multidimensional poverty rate, often involves the malnutrition, maternal health, and as well as gender inequality.

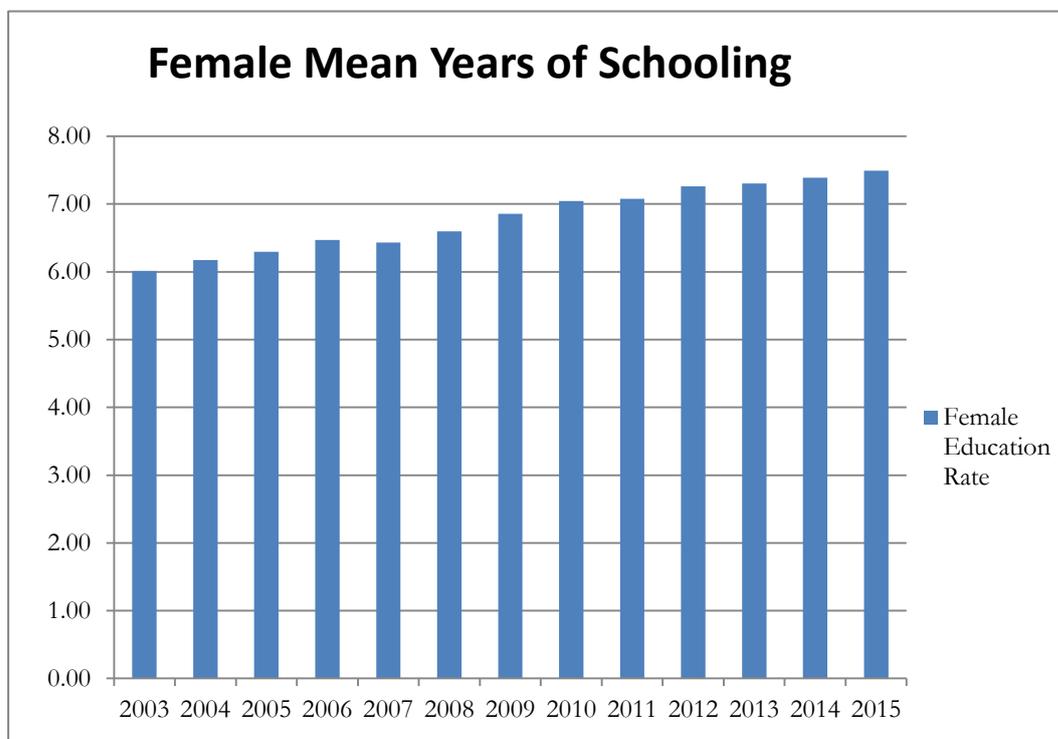
Development theory has been emphasizing the importance of health and education for the economic development. Ensuring the healthy lives for human beings in all ages is essential for the sustainable development. The rate of maternal mortality has declined for over 50% since 1990 and seventeen thousands fewer children die each day since 1990. However, there are still 6 million children under 5 year old die every year. And in the developing countries, the maternal mortality ratio is 14 times higher than the rate in the developed countries (UNDP, 2016). In Indonesia, the rate of child mortality and maternal mortality have also declined but the rates are still higher than average in certain regions, signaling the severe regional inequality. And women became the most affected group by the problems.

Large literatures have been talking about the role of gender equality in reducing poverty. Number of studies had been investigating the impact of female's education, female's health, and female labor force participation in reducing poverty rate. The work of Ester Boserup in 1970 "Women's Role in Economic Development" was pioneering. Her work which focused on women's contribution to agricultural and industrial development had inspired research on gender issues. Since then, the work encouraging the female participation in labor force had been rising. The rate of female labor participation has been rising in the developed countries in the recent years. And since 1980, growing literatures have focused on the relation between women-headed household and poverty. However, women are still suffered from the male-

female wage gap. Culture and tradition tend to make barriers for women entering the labor force. And most of the times, combination of the two creates unfavorable occupational distribution for women. In the patriarchal society, the opportunity to a better education and health is favored first to men. In the rural undeveloped regions, women are set to become a housewife or left with agricultural jobs where most men have neglected. These women in agricultural jobs are mostly untrained and uneducated, makes it harder to raise the wages, hence, the wage gap is increasing. That is, women tend to be left with certain jobs with a lower payment than men.

Female education has long been an important factor for women empowerment. A number of empirical studies found that increases in female’s education could boost female wages. Empirical evidence also shows that increasing female education leads to the improvement of human development factors such as child’s health and education (Morrison, Andrew; Raju, Dhushyanth; Sinha, 2007).

Table 2. Female Mean Years of Schooling in Indonesia



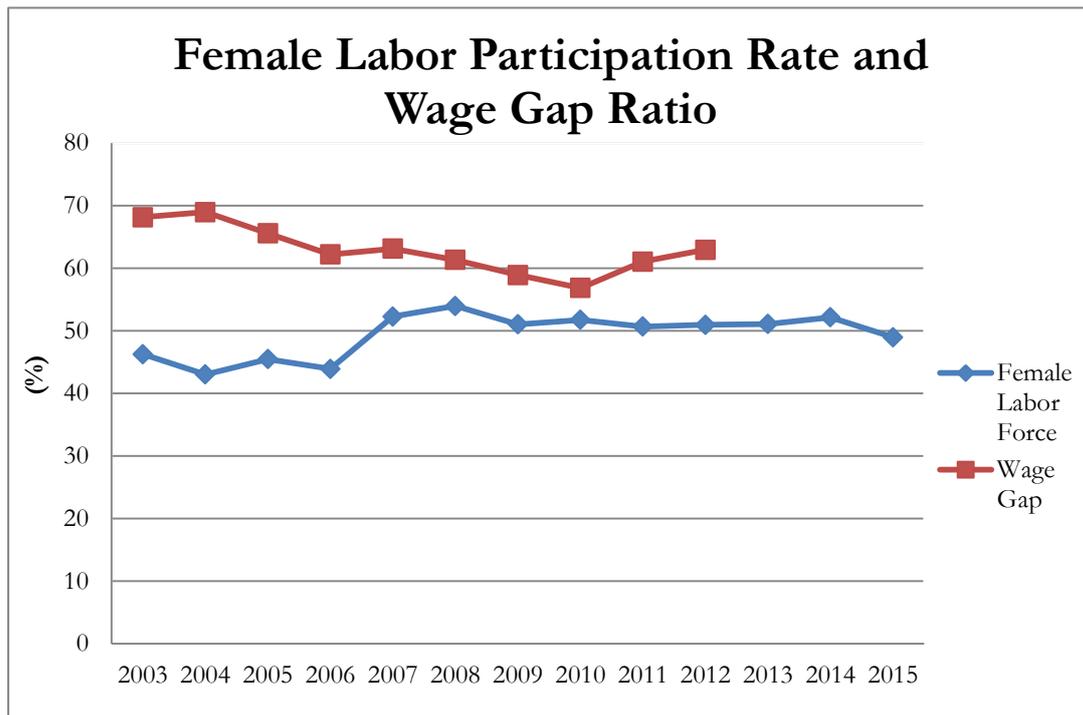
Source: SUSENAS

The average years of schooling for female aged over 25 years old in Indonesia is even less than 8 years in 2015. The low rate of average years of schooling for female is one the essential determinants for explaining the wage gap. The data confirms the issue of gender discrimination in education. These unequal opportunities are very rampant yet they are seen as a social custom that not so many people notice.

Gender unequal pay is a hindrance for women participation in the labor force. Female labor force participation has been increasing in most countries, but the increasing rate is slowing down (Tansel, 2002). In Indonesia, the female labor force participation has been fluctuating with an increasing trend, from 46% in 2003 to 48% in 2015. It reached the peak of almost 54% in 2008, but declined again to only 48% in 2015. The in-and-out of labor force for women is common as many households follow conventional life style. The women who pursue higher or tertiary degrees might work for several years, but when they decide to marry and have children, they go out of the labor force. This custom is practiced nation-wide in Indonesia. This phenomenon might have a thing to do with the male-female wage gap. When the work pay is relatively low, as they mostly face trade-off between work and kids at home, they tend to choose raising kids at home.

The graph below provides the female labor force participation rate and the wage gap ratio. The female labor force participation rate is the share of total number of female in the labor force to the total labor force. The wage gap rate is calculated as the percentage share of female average wages to male average wages. That is, the 68% wage gap ratio means that female workers only earn 68% from total wage of male workers on average.

Table 3. Female Labor Force Participation Rate and Wage Gap Ratio in Indonesia



The female labor participation rate in Indonesia was fluctuating between 40% - 54% while the wage gap ratio was fluctuating between 65% - 70%. Although we could not infer anything from the graph, the trend of higher female labor force participation might have a thing to do with the wage gap ratio. As the wage gap is diminishing, that is the pay is more equal between men and women, the more female are participating in the labor force. Certainly, the factors of why women cannot enter the labor force could not be solely inferred from the wage gap alone.

Regarding the women in labor force, many studies focused the attention to the impact of working women to the family structure; whether the children are being neglected or not, or if the role of husband is changing. Study from (Bell, 1974) highlighted the impact of working women on the family income. She found that most families depend on the man's earnings for their household income. She also found that the lower the household income is, the more wives in the family are working. In the middle income family, the wife's earnings may have propelled the family into the middle income status. The study from (Goldin, 1995) found that female labor force participation rate has a U-shaped with respect to national income

across countries. At the low levels of income, the female labor participation rate is high and as the income keeps rising, the rate of female participation in labor force is decreasing. But then it rises again as the income keeps rising. This inferred that in the low level of economic development, the women need to participate in the labor force to help boosting family income, despite the works are limited in the agricultural and low-paid jobs. But as the national income is rising, increased earning for men stops women to participate in labor force. And as the national income keeps rising to the high level of economic development, women are better educated and employed that they engage again in labor force.

Household well-being depends on individual well-being inside the households and for a while, role of female in contributing household's welfare might have been undermined. Empirical studies have shown that returns to education for women are frequently larger than returns to education for men. Improvements in women's productivity and earnings accelerate poverty reduction and economic growth (Morrison, Andrew; Raju, Dhushyanth; Sinha, 2007). Women's productivity is strongly related with women's empowerment. And women empowerment is strongly affected by the opportunities of accessing the resources for human development such as education, health, and employment. The equal opportunities for women and men are thus central to the development in general.

II. Objectives

There have been many studies regarding the impact of women employment to poverty reduction but for Indonesia's case, the study is still rare. Yet the question if the women participation in the labor force could actually reduce poverty is highly needs addressing. Our hypothesis is that women participation in the labor force could actually reduce poverty. Likewise, this paper will address the question by providing econometric model on the probability of a household being poor given the share of women's earning to total household earning. The result of the study will have a policy implication in encouraging women

employment and eradicating discrimination against women in the work place. The combination of the two is the central ingredient for women empowerment and the better economic development.

III. Literature Reviews

(Rani and Schmid, no date) assessed the relationship between employment and poverty in India. Using probit model analysis, they specifically investigated the role of education level and status of employment on the poverty. They found that employment status and educational level are highly important in reducing poverty both in rural and urban area. However, to be merely working does not guarantee to escape poverty. Rather, the working household members with high educational level are substantial in reducing the risk of poverty in household level. The paper did not specify the role of women employment in the analysis whereas, having working women could be one route to reduce the risk poverty as well.

(Kabeer and Mahmud, 2004) assessed the relationship between globalization, women's employment and poverty in Bangladesh. They explored the idea of women's employment in the garment sector that is highly growing due to globalization in relation to household poverty reduction. They did not find conclusive evidence if women's employment in the manufacturing industry could significantly reduce the poverty. They instead found that the manufacturing industry was exploiting the women's employment for its low level of wages. However, the employment for women in this industry has changed the patriarchal history in Bangladesh that used to regard men as the breadwinner and sole provider into giving women more self-reliance to stand on their own feet.

(Morrison, Andrew; Raju, Dhushyanth; Sinha, 2007) investigated the links between gender inequality, poverty, and economic growth. Using cross-country analysis, they found that gender inequality exacerbated poverty level. The greater the gender equality in resources such

as education and employment could reduce the likelihood of household being poor. Female labor force participation also played an essential role in keeping household from poverty when the macroeconomic shocks strike.

(Huong, Tuan and Minh, 2003) using probit regression model for Vietnam data in 1997-1998, they found that household income from farming and non-farming activities, household size, educational level of the household head, household areal status, and information support from the government are the most substantial factors affecting the household poverty status. However, they did not differentiate the household income between the wife and the husband. Their result confirmed that binary model could be a great advantage in assessing the household poverty status in relation to household and household member characteristics.

IV. Data and Methodology

Using The National Socioeconomic Survey (SUSENAS) of Indonesia, this paper attempts to investigate the impact of share of women's earnings to total household income on household poverty status. The National Socioeconomic Survey (SUSENAS) of Indonesia is a large-scale multi-purpose socioeconomic surveys that cover a nationally representative sample typically composed of 200,000 households. Each survey contains a core questionnaire consists of household roster listing sex, age, marital status, educational attainment of all household members. The core is supplemented by modules collecting the information on health status, education, household income and expenditure, and employment.

This paper is using panel SUSENAS data from 2011 – 2014 of the total 344,012 observations. The sample was restricted to a household with wives, working or not working, in which they have complete information on the employment status and earning.

As the focus of the analysis is to investigate the impact of women's employment on the poverty in household level, the variable of household poverty status as a dependent variable used here takes a binary variable representing poor and non-poor. The poverty status was

measured using the provincial poverty line from Statistics Indonesia (BPS). Let the Y be the household poverty status, if the i household is among the poor category, $Y_i = 1$, otherwise $Y_i = 0$. Now let P_i be the probability that $Y_i = 1$ and $(1 - P_i)$ is the probability that $Y_i = 0$.

Supposed Y^* , a latent variable, is defined as

$$Y_i^* = \alpha + X_i\beta + \varepsilon \quad (1)$$

Where Y^* is the poverty status and that X is a vector of factors that determines Y^* . Then we observe

$Y_i = 1$ if $Y_i^* > 0$ and

$Y_i = 0$ if otherwise

If it is assumed that the model is normally distributed with the same mean and variance, we could investigate the standard probit model:

$$P_i = \text{Prob}(Y_i = 1 | X) \quad (2)$$

The probit regression measures the association between probability of being poor or not poor, as the dependent variable, and the women's employment characteristics, especially the share of women's earnings in the household, women employment status, as well as household and women's characteristics, as the independent variables.

The share of women's earnings is calculated as the percentage share of wife's earnings to total household income in one household. The women's employment status takes a binary variable of working or not working.

A panel probit model regression is applied in this study to ascertain each of distinct effect of each of the independent variables. The study also tested the hypotheses relating to the significant role of the independent variables and the sign of the effects, as well as interpreting the impacts of these independent variables on the household poverty status. The study applied a panel probit model regression as the income and expenditures data typically contains non-negligible errors (Gaiha, 1988). Income is usually measured individually but expenses and poverty are often measured in the household level. It would be safer to analyze

the probability of expenditures falling within a specified interval. Other authors have used binary dependent variables for similar studies.

The household size can affect household expenditure in a way that the bigger the household size is, the more pressure they have on the household expenditure. However, household size could also have a positive effect on household income as the more members in the household can contribute more to the total household income.

The household head's working sector enters as the dummy variable regarding the status of working in a farming (agricultural) sector and non-farming. As the 60% of poverty happened in the rural areas which consist of 80% farming sector, the variables of working sector might affect the poverty status of the household. Number of children that the women have was also entered in the model. Women's educational variable was entered as the women's years of schooling. Women's number of weekly working hour was also specified in the model. The other variable is the women's age of their first marriage. The earlier the women are married, the more possible for them not to be engaged in the employment. The summary of the statistics is presented as below.

Variable	Obs	Mean	Std. Dev.	Min	Max
year	1071599	2012.5	1.117797	2011	2014
poor	1071599	0.103326	0.304384	0	1
femshare	390635	29.98946	28.56378	0	100
hhsiz	1071599	4.015474	1.67392	1	30
farm	1071599	0.353935	0.478189	0	1
nchild	1071598	3.118014	2.053182	0	30
agemarried	1071599	20.18379	4.082403	12	64
femed	785634	8.087121	3.703929	1	16
femwh	523329	34.99955	18.49284	0	98

V. Results

The average number of poor households is 10.5% and the transition of poverty from year to year of the analysis could be seen as follow.

Household Poverty Status in period t_0	Household Poverty Status in period t_1		Total
	0 (not poor)	1 (poor)	
0 (not poor)	87.38	12.62	100
1 (poor)	61.36	38.64	100
Total	82.8	17.2	100

On average, there are 38.64% households that are never getting out of poverty, while there are 12.62% households that were not poor in the previous period but getting into poverty in the next period. This could mean that as much as 12.62% of households are vulnerable to the poverty.

The dynamics of number of working women in Indonesia is fluctuating between 54% - 65%. Yet, the determinants of female labor force participation are not the central concern in this paper. Somehow, the decreasing trend urges the need to address the women employment issue more seriously.

Number of Working Women in Indonesia

Year	Working	Not Working
2005	34.68119	65.31881
2006	33.5847	66.4153
2007	42.71636	57.28364
2008	44.43491	55.56509
2009	42.88555	57.11445
2010	43.16838	56.83162
2011	44.23526	55.76474
2012	44.38072	55.61928
2013	44.82839	55.17161
2014	45.34648	54.65352

The result of the panel probit regression model is presented in the table below.

Probit Regression Results

Variables	Probit Coefficient	Marginal Effect	Z	P > Z
Household areal status (urban/rural)	-0.443142 (0.015711)***	-.0524286	-28.21	0.000
Women status of employment	-0.225828 (0.024138)***	-.026718	-9.36	0.000
Women's share of total household income	0.002131 (0.000149)***	.0002521	14.27	0.000
Household size	0.225435 (0.007158)***	.0266715	31.50	0.000
Household head working in agricultural sector	0.059456 (0.008013)***	.0070343	7.42	0.000
Number of children	0.012718 (0.002016)***	.0015047	6.31	0.000
Age when the woman first married	0.000619 (0.001008)	.0000732	0.61	0.539
Women's years of schooling	-0.092157 (0.003013)***	-.0109032	-30.58	0.000
Women's working hour in week	-0.007847 (0.000321)***	-.0009284	-24.45	0.000
Constant	-1.529310 (0.052109)***		-29.35	0.000
Number of obs:	344,012			
Wald Chi2:	1052.7			

The result of the maximum likelihood estimation above showed that most of independent variables are significant. However, the result did not support the hypotheses that women employment characteristics, both employment status and their earnings, reduce the poverty. This must be the case when the independent variables investigated are highly endogenous. The decision of women to be enrolled in the employment must be affected by some unobservable variables not specified in the model. The endogeneity problem cannot be solved using a panel probit regression model since the estimation results must be biased. Hence, it could not be interpreted.

To fix the endogeneity problem, the structural model approach must be used. The GSEM could be one of the potential model that can be used for this paper.

VI. Conclusion

The model and estimation we presented above allowed us to analyze the likelihood determinant of poverty on household level. However, the result is far from robust and consistent and our knowledge is far from complete.

The household poverty status is indeed determined by various household characteristics. Female labor force participation rate, however, is essential to further address the issue of gender equality. And gender equality is a substantial factor for the greater economic development. Women's employment as the variable of interest is suspected to be endogenous so to further analyze the issue, the structural model approach has to be used to get robust and consistent estimates.

VII. References

- Bell, C. S. (1974) 'Working Women's Contributions to Family Income', *Eastern Economic Journal*, 1(3 (July)), pp. 185–201.
- Goldin, C. (1995) 'The U-shaped Female Labor Force Function in Economic Development and Economic History', *Investment in Women's Human Capital*, pp. 61–90.
- Huong, P. L., Tuan, B. Q. and Minh, D. H. (2003) *Employment Poverty Linkages and Policies for Pro-poor Growth in Vietnam, Issues in Employment and Poverty*.
- Kabeer, N. and Mahmud, S. (2004) 'Globalization, Gender, and Poverty: Bangladeshi Women Workers in Export and Local Markets', *International Development*, 109(16), pp. 93–109. doi: 10.1002/jid.1065.
- Morrison, Andrew; Raju, Dhushyanth; Sinha, N. (2007) *Gender Equality, Poverty and Economic Growth, Policy Research*.
- Rani, U. and Schmid, J. P. (no date) 'Household Characteristics, Employment, and Poverty in

India', pp. 1–46.

Sumarto, S. and Widyanti, W. (2008) 'Multidimensional Poverty in Indonesia: Trends, Interventions, and Lesson Learned', *MPRA Paper*.

Tansel, A. (2002) *Economic Development and Female Labor Force Participation in Turkey: Time-Series Evidence and Cross-Province Estimates*.

UNDP (2016) *Sustainable Development Goals*.