

Women's Labor Force Participation Analysis on Formal and Informal Business Sectors

Muryani Muryani and Ginanti Permata Hatiku
Fakultas Ekonomi dan Bisnis, Universitas Airlangga
muryani2008@yahoo.co.id

Keywords: Women's Labor Force Participation, Work Sector, Individual Characteristics, Multinomial Logit.

Abstract: The purpose of this research is to know the determinant affecting the women's labor force in formal and informal sectors in Indonesia. The data used in this study is Cross Section data from the National Labor Force Survey 2014. Analysis of Multinomial Logit Regression shows that primary education, secondary education, tertiary education, age, and income significantly influence the women's labor force participation in the formal sector. Meanwhile, primary education, secondary education, tertiary education, age, marital status, and income significantly influence the women's labor force participation in the informal sector.

1 INTRODUCTION

Job opportunity for men and women is not the same. Some common issues that usually arise for women job seekers are low human resource quality and difficulty of finding jobs with a decent salary. Based on the publication of International Labor Organization of Indonesia during 2014, women's participation in the labor force is still low. In August 2014, the total labor force reached 121.87 million people increased by 1.7 million people, compared with August of 2013 the labor force as much as 120.17 million, while the open unemployment rate in Indonesia in August 2014 amounted to 5,94 percent decrease compared to August 2013 amounted to 6.17 percent (BPS, 2014). However, many women are reported to come join in the labor force during 2014. Many working women are also reported of still having full household-responsibility. Education level also has a positive relationship with women's labor force participation, meaning as the education level gets higher, the possibility of women getting jobs is also higher (Simanjuntak, 1995).

The result of this research applies in all age levels in both urban and rural areas. Further research also shows that married women tend to have higher levels of labor force participation rate than unmarried women (Dogrul, 2012).

Theoretically, the relationship of working hours and income exists, so, many people choose to have more working hours to get more income. But, a

research from Bellante and Janson (1990) shows that women with high-paying jobs tend to shorten their working hours and prefer of having longer spare time.

2 METHODS AND DATA

The type of data used in this study is secondary data in the form of cross-section data from year the 2014. Source of data sample is from *Survei Angkatan Kerja Nasional* (SAKERNAS) that contains household data from all provinces and cities in Indonesia. Selected sample data is composed of 229.103 data from women in the productive age of 15-64 years old.

This research uses both the qualitative and quantitative approaches. Qualitative approach is used to find the probability of events (Gujarati and Poter, 2009), while the quantitative approach focusses on value measurement and hypothesis testing. The quantitative approach is done through Multinomial Logit regression method. The researcher defines what the independent and dependent variables that correlate with the topic are to be processed in both urban and rural areas with the Multinomial Logit regression, with which authors analyze and interpret statistically and economically.

Here is the equation model to be used in this research:

$$LFP_{women} = \beta_0 + \beta_1 educ_{primer} + \beta_2 educ_{sekunder} + \beta_3 educ_{tersier} + \beta_4 umur + \beta_5 stat_{prkwn} + \beta_6 lokasi + \beta_7 pendapatan + u_i \quad (1)$$

LFP_{women} : Women's Labor Force Participation

- β_0 : Intercept
- $\beta_1-\beta_8$: Regression Parameter (coefficient)
- $\beta_1educprimer$: Primary Education
- $\beta_2educsekunder$:Secondary Education
- $\beta_3eductersier$:Tertiary Education
- β_4umur : Women's Productive Age (15-65 years old)
- $\beta_5statprkwn$: Marital Status
- $\beta_6lokasi$: Location
- $\beta_7pendapatan$: Income

Multinomial Logit regression is done three times with the sample from all areas in Indonesia, urban-area only, and rural-area only. Statistical analysis of all sample-testing is done through Likelihood Ratio. Significance parameter testing of each variable is done through Z-statistic and Goodness of Fit model with R-square (R²), that is also called by Pseudo R-square in the Multinomial Logit model. Coefficient interpretation to interpret the influences of independent variables to dependent variable is using RRR.

Likelihood Ratio from the Multinomial Logit regression for all areas in Indonesia, urban-area only, and rural-area only has been equal to 0.000. It means that all variables (primary education, secondary education, tertiary education, age, marital status, location, and income) are influencing the women's labor force participation significantly in the formal and informal sector.

The value of *pseudo R²* from regression analysis that is 0.3131 indicates a very good model fit. The value of *pseudo R²* for urban-area only is 0.3527, meaning that 35.27% of the variation in dependent variable is derived from the variation in independent variables in the model. Meanwhile, the value of *pseudo R²* for rural-area only is 0.2445, meaning that 24.45% of the variation in dependent variable is derived from the variation in independent variables in the model. But it must be noted that the main determinant of model quality is not the value of *pseudo R²*, but from the Z-score to test the statistical significance and the direction of the coefficient itself.

3 RESULTS AND DISCUSSION

Table 1: Comparison on the Result of Multinomial Logit Regression

Independent Variable	Economic Sector	Correlation		
		Indonesia	Urban	Rural
Primary Education	Formal	(+)	(+)	(+)
	Informal	(-)	(-)	(-)
Secondary Education	Formal	(+)	(+)	(+)
	Informal	(-)	(-)	(-)
Tertiary Education	Formal	(+)	(+)	(+)
	Informal	(-)	(-)	(-)
Age	Formal	(-)	(-)	(-)
	Informal	(+)	(+)	(+)
Marital status	Formal	Not significant	Not significant	(+)
	Informal	(+)	(+)	(+)
Location	Formal	Not significant		
	Informal	(-)		
Income	Formal	(+)	(+)	(+)
	Informal	(+)	(+)	(+)

Source: Regression Output of Multinomial Logit in Stata/SAKERNAS 2014.

3.1 Education Level Variable

The level of education used in this study consisted of dummy primary education, secondary education and dummy tertiary education. Usage category in education supported by research and Abdusammad Usman (2016) which states that the size of the

education being classified into four levels, namely primary, secondary, tertiary, and no education (classified by the classification of human needs according to its intensity). The result shows that more people with secondary education as the latest diploma can increase the participation rate in the formal sector by 5.265 times in all areas in Indonesia and by 4.009 times in urban areas, which is higher than the other 2

variables representing education level. However, the analysis of data shows a different result in rural areas, where more people with tertiary education as the latest diploma can increase the probability of women's labor force participation in the formal sector by 10.679 times, higher than the 2 other variables. This is because there is still a lack of labor force participation in the formal sector that is caused by limited access to education in rural areas.

In the informal business sector, the effect of those three education level variables on three group areas on women's labor force participation is insignificant, which is depicted from the negative coefficient results. It means that higher education level lowers the women's labor force participation in the informal sectors. This result is supported by a research from Dogrul (2012), that states education seems to have a negative effect towards labor force participation in the informal business sector. Women also have a higher level of participation to work in the informal sector than the formal sector. The reason behind this is because the main considerations in the informal business sector are capital and skill, instead of the level of education.

3.2 Age Variable

The result shows that age variable significantly and negatively influencing the probability of women's labor force participation in the formal sector. For example, as women get older, there is a decrease of participation by 0.995 times in all areas of Indonesia and by 0.994 times in urban areas, which can be caused by certain limitations in the formal business sector. This result is supported by Borjas (2013) that said, people usually reduce their labor participation when they are already retired. Hill (1983) also said that formal business sector has a more rigid system than informal business sector.

Furthermore, age variable seems to have a significant positive effect on women's labor force participation in the informal business sector, whether it is in all areas in Indonesia, urban-area only, or rural-area only. Using the data from all areas in Indonesia, age is proven to increase labor-force participation by 1.031 times, while in urban-area only, it successfully increases the participation rate by 1.037 times, and in rural-area only, an increase in age can increase the participation rate by 1.027 times. Antyanto (2014) said that there are many groups of elderly workers in informal business sector. This phenomenon can be caused of the public opinion that informal business sector is more secure, while overlooking the age variable of its workers.

3.3 Marital Status Variable

The analysis in this research shows that marital status has a significant and positive effect on women's labor force participation in the formal sector in rural areas by 2.031 times. Whereas in the informal business sector, marital status has a significant positive effect on the three group areas, with data from the overall area in Indonesia shows an increase by 2.020 times, in urban-area only shows an increase by 1.970 times, and in rural-area only shows an increase by 2.031 times. As Chinhui research and Potter (2006) stated that the participation of married women working for a higher percentage of income distribution and increase the percentage of female labor participation.

3.4 Location Variable

This research uses 3 variables that explain locations; urban-area and rural-area. Our analysis shows that location has a significant and negative relationship with women's labor force participation in the informal sector, which means that women in urban areas are less likely to work in the informal business sector by 0.371 times than women in rural areas. It is like a study conducted by Contreras (2011) which states that a great competition in urban areas makes it possible to be able to work in urban areas smaller than the rural region

3.5 Income Variable

Formal business sector usually pays their workers higher than the informal business sector. But the result of this research shows that the relationships between women's labor force participation with income in all 3 groups areas and in both formal and informal business sectors are positive and significant. This research's analysis shows that any increase in income results in the increase of participation rate by 100%. This is consistent with research Bibi and Asma (2012) which states that income is an important variable in determining the labor force participation of women and act as an incentive to work. In many previous studies that found that the formal sector tend to have higher wages than the informal sector

4 CONCLUSIONS

Based on the results of this research and the discussion that have been done on the determinant affecting the women's labor force participation in formal and informal sectors in Indonesia using

Multinomial Logit regression, the conclusions are drawn as follows:

- People with higher education levels have a higher probability to work in the formal sector than in the informal sector, while in the informal sector, people with an education degree have lower probability than those who do not work. This is because the main considerations in the informal business sector are capital and skill, instead of the level of education. Marital status also has a significant and positive relationship with women's labor force participation in both formal and informal sectors. Women's labor force participation in formal sector continues to decrease with age, while in the informal sector, age does not show any effect on women's labor force participation. Finally, any increase in income results in the increasing probability of labor force participation of women in both informal and formal sectors. (These conclusions apply to all the group area, which is all areas in Indonesia, urban-area only, and rural-area only);
- Based on *Multinomial Logit* regression, the three education variables (primary, secondary, and tertiary education), age, marital status, location, and income is simultaneously and significantly affect the preferences of female labor force in selecting job sector, whether it is in formal or informal. Partially, the result of testing in all areas in Indonesia on primary education, secondary education, tertiary education, age, and income variables show a significant relationship in formal and informal business sectors. Marital status and location variables also influence the women's labor force participation in the informal sector. While in urban-area only, primary education, secondary education, tertiary education, age, and income variables show a significant relationship in formal and informal business sectors, and marital status variable shows a significant relationship in informal sectors. Furthermore, primary education, secondary education, tertiary education, marital status, and income show a significant relationship in formal and informal business sectors in rural-area only, while age has a significant effect in the informal sectors in rural-area only.

Here are some recommendations and suggestions for further research:

- The data used in this research shows that women's labor force tends to work in the informal sector. Government should support and help them by giving them training that will increase their expertise and by providing them with increased micro and small enterprise loans to help some additional capital assistance, so they can increase their production and overall, we hope they can help in maximizing our economic growth;
- It is the author's hope that further research will be done more dynamically, where the observation is done on several years with an updated data. Furthermore, we hope that further research will include factors other than those being examined in this research.

REFERENCES

- Antyanto, I. N., 2015. Analisis Faktor-Faktor yang Mempengaruhi Tenaga Kerja Memilih Sektor Informal Sebagai Mata Pencaharian (Studi Kasus Pada Pasar Penampungan Sementara Merjosari, Malang). *Jurnal Ilmiah Mahasiswa FEB*. 3(1).
- Bellante, D., Janson, M., 1990. *Ekonomi Ketenagakerjaan*, Lembaga Penerbit Fakultas Ekonomi Universitas Indonesia. Jakarta.
- Bibi, S., Asma, A., 2012 Impact of Internal Marketing on Market Orientation and Business Performance
- Borjas, G. J., 2013. *Labour Economic*, Mc-Graw-Hill Companies, Inc. New York, 6th edition.
- BPS, 2014 *Berita Resmi Statistik: Tingkat Pengangguran Terbuka (TPT) tahun 2014*, [Online] Available at: www.bps.go.id pada 4 Juli 2017
- Chinhui, J., Simon, P., 2006. Changes in Labor Force Participation in the United States. *Journal of Economic Perspective*. 20 (3): 27-46
- Contreras, D. G., 2011. Tournaments Incentives for Teachers: The Case of Chile. *Working Paper*.
- Dogrul, H. G., 2012. Determinants of Formal and Informal Sector Employment in The Urban Areas of Turkey. *International Journal of Social Sciences and Humanity Studies*. Vol 4, No 2.
- Gujarati, D. N., Poter, D. C., 2009. *Dasar-dasar Ekonometrika*, Salemba Empat. Jakarta, 2nd edition.
- Hill, M. A., 1983. Female Labor Force Participation in Developing and Developed Countries-Consideration of the Informal Sector. *The Review of Economics and Statistics*. 65 (3): 459-468.
- Simanjuntak, P. J., 1985. *Pengantar Ekonomi Sumber daya Manusia*, Lembaga Penerbit Fakultas Ekonomi Universitas Indonesia. Jakarta.
- Usman, O., Abdussamad, S., 2016. Education and Labor Force Participation of Woman in North Cyprus: Evidence from Binomial Logit Regression Model. *MPRA Paper*. No 7.