Determinants of Batik Artisans' Income

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ABSTRACT

This study aims to analyze the effect of education level, working hour, age, skill variation, and work experience on the income of batik artisans. The research takes place in the village of Papringan in Banyumas District. The population consists of 180 artisans, 65 of which were selected randomly. The results of data analysis using multiple linear regression analysis shows that working hour, skill variation, and work experience have a positive and significant effect on the income of batik artisans, while the level of education and age do not have a significant effect on the income of batik artisans. The results imply that provisions of trainings to improve skills and product quality should get priority in order to increase the income of batik artisans in the village.

Keywords: batik; rural livelihood; informal sector; rural income; artisan income; determinants

1. Introduction

Batik was designated by the United Nations Educational, Scientific, and Cultural Organization (UNESCO) as Indonesia's world heritage on October 2, 2009. Batik as a cultural work of Indonesia's ancestral culture is seen as a humanitarian legacy for oral and non-material culture (masterpieces of the oral and intangible heritage of humanity) (Kaleka, 2014:6).

Banyumas Regency is one of the centers of batik production in Indonesia (Wulandari, 2011:23). One of the villages in the Banyumas District which is a center for batik production is Papringan. Many people in Papringan Village work as batik artisans. There are 180 batik artisans in Papringan Village. In the production process, usually batik artisans in Papringan Village only work as laborers, namely taking fabric from batik entrepreneurs and then after the fabric is finished, it will be sent back to the batik companies.

In making batik there are stages, namely: design, patterns using *canting*, coloring, *nglorod* (shed wax from the fabric) and *nyolet* (giving color directly to the fabric). Each stage has a different wage. For the design of every piece of batik fabric, artisans get a wage of 30,000 rupiah. To draw patterns using *canting*, artisans get a wage of 25,000 rupiah per sheet of fabric. For

coloring, the wage is 20,000 rupiah per sheet of fabric, for *nglorod* 5,000 rupiahs per sheet of fabric and for *nyolet* 20,000 rupiahs per sheet of fabric. Thus, the more skills mastered, the higher the wages received. Based on the results preliminary survey with 10 batik artisans in the village, the monthly income of batik artisans varies from IDR 550,000.00 to IDR 1,000,000.00.

Research related to factors affecting income, among other has been conducted by Sasmitha & Ayuningsasi (2017). The results show that working hours and working capital have a positive and significant effect on income. Other research related to factors influencing income were conducted by (Putri & Setiawina (2013) and (Julianto & Utari (2019). The results show that the level of education has a positive effect on income. Hismayadewi & Saskara (2019) indicate that work skills affect income. While the results of research conducted by Suryandari & Darsana (2018) show that work experience has a positive and significant effect on income. In this research, the factors that will be examined are the level of education, working hour, age, skill variation and work experience. Based on the formulation of the problem, this paper aims to analyze the effect of education level, working hour, age, skill variation and work experience on the income of batik artisans in Papringan Village, Banyumas District. This paper contributes to the existing literature by examining the effect of skill variation on income which is under-researched.

2. Literature Review

The research results of Onwumere et al. (2011), Demissie (2013), Su & Heshmati (2013), Putri & Setiawina (2013), Fadipe et al. (2014), and Julianto & Utari (2019) show that education level significantly influence income. The higher the level of education, the level of income will also increase. McDonald (2011) argues that in addition of human capital, work experience is also seen as an indicator of social capital. The study finds that work experience help smooth the way for informal access to employment. Homann & Jensen (2013) suggest that the socio-economic rank of an occupation mediates the relationship between educational attainment and income. Millán et al. (2010) suggest that in Europe, education in positively associated with self-employment survival. This means higher education will increase knowledge and creativity, thus the knowledge possessed will help someone in working so that the higher the level of knowledge they have, the better they will work. That way, the higher level of education achieved, the greater income earned. Based on the description, the research first hypotheses is proposed:

H_1 : Education level has a positive effect on the income of batik artisans in Papringan Village, Banyumas District

Batik artisans have flexible working hours because they mostly work at their home while performing various houseworks including child and elderly care. Therefore, the length of working hours depends on their decision. The results of a study conducted by Dewi (2012), Wiyasa & Dewi (2017), and Widiana & Wenagama (2019) suggest that working hour has a positive effect on income. The longer time spent by workers, the higher the chance to get extra income. This means that the long working hours will indirectly make a job more productive and is expected to generate increased income. Based on the description, the second research hypothesis is proposed:

H_2 : Working hour has a positive effect on the income of batik artisans in Papringan Village, Banyumas District.

Age is supposed has a negative effect on income, because older age will result in the decline in productivity so that the income generated will decrease. This means that if a person's age has passed the productive period, then their physical strength decreases so that their productivity decreases and so does income. Demissie (2013) finds the level of off farm income in rural Ethiopia is found to be influenced by age. Similar finding is reported by Onwumere et al., (2011). Ndegwa et al. (2013) studying the artisans who were trained on how to make metal silos find that the likelihood to make metal silos either at own workshop or as a hired artisan reduces with age. Based on the description, the third research hypothesis is proposed:

H_3 : Age has a negative effect on the income of batik artisans in Papringan Village, Banyumas District.

The results of Gustiana (2017) and Hismayadewi & Saskara (2019) show that skills have a positive effect on income.This shows that the higher the skill variation, the more works one can perform, so that if a person has more skills, then the higher chance for someone to increase income. Based on the description, the fourth research hypothesis is proposed:

H_4 : Skill has a positive effect on the income of batik artisans in Papringan Village, Banyumas District.

Nugraha & Marhaeni (2012) suggest that experience has a positive and significant effect on income. Millán et al. (2010) suggest a positive impact of previous experience within the labour market on self-employment survival of in Europe. The longer work experience a person has, the income level will increase.This means that high income will be obtained if someone has high experience. Ndegwa et al. (2013) who studied the artisans who were trained on how to make metal silos find that the likelihood to make metal silos either at own workshop or as a hired artisan increases with years of experience in technical work. Based on the description, the fifth research hypothesis is proposed:

H_5 : Work experience has a positive effect on the income of batik artisans in Papringan Village, Banyumas District.

3. Research Methodology

This type of this research is quantitative in nature to examine the factors that influence the income of batik artisans in Papringan Village, Banyumas District. Primary data in this study were obtained directly from batik artisans in Papringan Village, Banyumas District using the interview method based on a questionnaire. The population in this study were 180 batik artisans in the Papringan Village, Banyumas District. To determine the sample size of a population, there are various methods proposed by experts, one of which is Slovin's formula with 10 percent error tolerance resulting in minimum sample size of 65 batik artisans who were selected randomly.

Artisans income is measured in Rupiah per month. The level of education in this study is measured in years, working hour is measured in hours/week, and age in years. The skills in this study are measured by the number of skills (stages in the process of making batik) that were mastered by artisans. The skills include design, pattern drawing, *nglorod* and *nyolet*. The respondent is scored 1 if he/she possess the particular skill, and 0 otherwise. The respondent's

skill is the total score of the respondent's answers. Work experience in this study is measured in years.

This study uses multiple linear regression analysis to determine the effect of the independent variables on the dependent variable. The income model equation in this study can be functionally denoted as follows:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + ... B_n X_n + \mu_n \text{ ....(1)}$$

Because the variables in this study are measured in different units, the authors used the natural logarithm (log-linear function) with the following econometric model:

$$lnY_i = \alpha + \beta_1 lnEDU_i + \beta_2 lnWH_i + \beta_3 lnAGE_i + \beta_4 lnSKILL_i + \beta_5 lnEXP_i + \mu \text{ ....(2)}$$

where :

Y	= The income of batik artisans
α	= Constant
EDU	= Level of education
WH	= Working hour
AGE	= Age
SKILL	= Skill variation
EXP	= Work experience
$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$	= Regression coefficients
μ	= Error

The classical assumption tests in this study consist of normality test using the Jarque-Bera, a multicollinearity test using a variance inflation factor (VIF) and tolerance value, and a heteroscedasticity test using glejser. The statistical tests include the coefficient of determination, F test and t test.

4. Results

Papringan is one of the villages in Banyumas District which is located on the banks of the Serayu River. Papringan Village has abundant natural resources because it is located in the hills and mountains, where most of its area is dominated by dry land and forest land. The people in Papringan Village not only work as batik artisans, but there are those who make a living as fishermen, farmers, and traders. However, the livelihoods of the population in the Papringan Village were mostly as artisans (180 persons or 15.38% of the village population) and the smallest as village officers (12 persons or 1.03% of the village population).

4.1 Description of Variables

Respondents in this study are 65 batik artisans in Papringan Village, Banyumas District, Banyumas Regency. Characteristics of artisans as respondents include the level of education, working hour, age, skill variation and work experience. The maximum level of education of batik artisans in Papringan Village is 12 years and the minimum level is 6 years, with an average of 7 years. The maximum working hours of batik artisans is 70 hours/week while the minimum working hours of batik artisans is 12 hours/week with mean working hour of 30 hours/week. The majority of batik artisans in Papringan Village devote their working time to 28.58–36.86 hours per week with a percentage of 40% where the average working hours per day is 4-5 hours.

The maximum age of the batik artisans is 80 years while the minimum age is 23 years with the mean of 46 years.

The skill of the artisans in making batik is one of the important factors. In the process of making batik people must have special expertise. In making batik there are some skills that must be possessed, namely making batik designs, patterns using *canting*, coloring etc. The skills of batik artisans in Papringan Village are measured by the number of skills (stages in the process of making batik) that are mastered by the artisans. There are five skills/stages in the process of making batik, namely design, drawing patterns using *canting*, coloring, *nglorod* and *nyolet*. The maximum number of skill of batik artisans is 5, this means that batik artisans master all stages in the process of making batik. The minimum skill of batik artisans is 1, meaning that batik artisans only master 1 of the 5 stages in making batik. Most batik artisans master one stage with 47 respondents (72.31%). This shows that the majority of batik artisans in Papringan Village do not master all of the skills in the process of making batik.

Work experience is one of the factors that influences income. Work experience can be measured by how long a person is in carrying out a job. The longer a person works in that field, the ability will increase. Likewise with batik artisans, the longer the artisans pursue batik production, the more skilled they will be so that the resulting production will be better. The work experience of batik artisans in Papringan Village was measured in years. The maximum work experience of batik artisans is 50 years, and the minimum work experience is 1 year with the mean of 14 years. Most of the artisans have work experience as artisans for 8-14 years with a percentage of 32.31%.

The income in this study is the total amount of income received by respondents as batik artisans within one month and was measured in rupiah. The maximum income of batik artisans is Rp2,000,000.00, while the minimum income is Rp400,000.00 with the mean of Rp774,615.00. This shows that there is a considerable difference in income received by batik artisans.

4.2 Results of Data Analysis

The classical assumption test in this study consists of normality, multicollinearity, and heteroscedasticity. Normality test is performed with the Jarque-Bera method. Data are declared normally distributed if the value of Jarque-Bera (JB) $\leq$ Chi-Squares (X^2). The Jarque-Bera (JB) value is 4.615 while the Chi-Square (X^2) value is 11.070, meaning that the standardized residual values are normally distributed. Multicollinearity test is performed using the variance inflation factor (VIF) and tolerance value. The tolerance value is greater than 0.10 and the VIF value is smaller than 10, which means that there is no symptom of multicollinearity. Heteroscedasticity test is performed by the glejser method, namely by regressing the independent variables on the absolute value of the unstandarized residuals. The significance value of the independent variable is greater than $\alpha = 0.05$. So it can be concluded that the regression model of the effect of education level, working hour, age, skill variation and work experience on income does not contain heteroscedasticity symptom.

Table 1. Results of Multiple Linear Regression Analysis

Variable	Coefficient	Beta	t statistic	Sig.

A constant	12.224		17.449	0.000
EDU	0.128	0.108	0.967	0.338
WH	0.169	0.210	2.085	0.041
AGE	0.012	0.012	0.092	0.927
SKILL	0.252	0.505	5.018	0.000
EXP	0.142	0.386	3.032	0.004
Adjusted R^2	0.434			
N	65			
F table	10.817			

Source: SPSS 24, data processed

Based on the table, the following regression estimation can be written :

$ln\hat{Y} = 12.224 + 0.128\ lnEDU + 0.169\ lnWH + 0.012\ lnAGE + 0.252\ lnSKILL + 0.142\ lnEXP$

Coefficient of determination (Adjusted R^2) is used to measure the extent to which the model is able to explain the variation of the dependent variable. Based on Table 4.18 the Adjusted R^2 value is 0.434, this means that education level, working hour, age, skill variation and work experience simultaneously can explain 43.4% of the variation of income, while 56.6% is influenced by other variables not included in the model.

5. Discussion

The result show that the level of education does not affect the income of batik artisans in the Papringan Village, Banyumas District. This result is not in line with Millán et al. (2010), Onwumere et al. (2011), Demissie (2013), Su & Heshmati (2013), Putri & Setiawina (2013), Fadipe et al. (2014) and Julianto & Utari (2019) which show that the level of education has a positive significant effect on the level of income. McDonald (2011) argues that in addition of human capital, work experience is also seen as an indicator of social capital. The study finds that work experience help smooth the way for informal access to employment. Homann & Jensen (2013) suggest that the socio-economic rank of an occupation mediates the relationship between educational attainment and income. In this study the level of education does not affect the income of artisans because the batik artisan is one type of work which is categorized as the trained workforce. Trained workers are workers who have expertise in certain fields through training and/or work experience. This skilled workforce needs training repeatedly so that they are able to master the job (Adianto & Fedryansyah, 2018). Therefore artisans do not need higher education to produce a work but rather require expertise and training.

The result shows that working hour has a positive and significant influence on the income of batik artisans in the Papringan Village, Banyumas District. This is in line with Dewi (2012) and Widiana & Wenagama (2019) which show that there is a positive and significant relationship between working hour and income. Therefore, it is expected that workers are able to maximize their working hours in order to increase income.

The result shows that age does not affect the income of batik artisans in the Papringan Village, Banyumas District. This result supports Putri & Setiawina (2013) which shows that age does not

affect the income of poor households in the village of Bebandem Karangasem. This shows that the older persons are more productive, because the quality of work is better so that it can increase income. However, the level of productivity of a person will increasingly decline as age gets older so that decreased productivity will cause income to decline. Ndegwa et al. (2013) who studied the artisans who were trained on how to make metal silos find that the likelihood to make metal silos either at own workshop or as a hired artisan reduces with age. Sasmitha & Ayuningsasi (2017) suggest that the age factor is very influential in jobs that rely heavily on the strength and physical abilities of the workforce. But in this study artisans are jobs that do not rely too much on strength and physical abilities so that a person's age and productivity do not affect the income of batik artisans.

The result shows that the skill variation has a positive and significant effect on the income of batik artisans in the Papringan Village, Banyumas District. This finding is consistent with Hismayadewi & Saskara (2019) which suggest that skill has a significant effect on income. The results of other studies conducted by Irawan & Mulyadi (2016) show that skills influence business success. The higher skills possessed will increase business success as indicated by increased income.

The result shows that work experience has a positive and significant effect on the income of batik artisans in the Papringan Village, Banyumas District. This finding is consistent with Widiana & Wenagema (2019) and Chung et al. (2015) which indicate that work experience has a positive and significant effect on income and supports the finding of Millán et al. (2010) who suggest a positive impact of previous experience within the labour market on self-employment survival. Ndegwa et al. (2013) who studied the artisans who were trained on how to make metal silos find that the likelihood to make metal silos either at own workshop or as a hired artisan increases with years of experience in technical work.

6. Conclusion

Based on the results of research, it can be concluded that working hours, skills and work experience have a positive and significant effect on the income of batik artisans in Papringan Village, Banyumas District, while education level and age do not affect the income of batik artisans. Working hour has a positive and significant effect on the income of batik artisans in Papringan Village. Therefore, it is expected that artisans can utilize their time well in order to obtain maximum income.

Skill variation has a positive and significant effect on the income of batik artisans in Papringan Village. In relation to skills, it is expected that individual artisans improve their skills so that they can increase income. Furthermore, the government should provide training and quality improvement to batik artisans both in production and marketing so as to increase the skills and knowledge of artisans which later be used as to increase income.

Work experience has a positive and significant effect on the income of batik artisans in Papringan Village. The longer the artisans works as a artisans, the more experience he/she gets so the income increases. Work experience is not only gained by working longer but work experience can be obtained from the trainings. For this reason, it is hoped that the artisans will

participate in trainings held by various communities and governments, so that work experience will increase leading to higher income.

As for research limitation, the coefficient of determinations in this study is 43.4% implying that there are many factors that affect income that have not been examined in this study. Therefore, future research is recommended to explore other variables not included in the model.

References

Adianto, J. & Fedryansyah, M. (2018). Peningkatakan kualitas tenaga kerja dalam menghadapi Asean Economy Community. *Jurnal Pekerjaan Sosial*, *1*(2), 77–86. https://doi.org/10.24198/focus.v1i2.18261

Chung, J., Park, J., Cho, M., Park, Y., Kim, D., Yang, D., & Yang, Y. (2015). A study on the relationship between age, work experience, cognition, and work ability in older employees working in heavy industry. *Journal of Physical Therapy Science,* 27 (1), 155-157. https://doi.org/10.1589/jpts.27.155

Demissie, A. (2013). Determinants of income diversification among rural households: The case of smallholder farmers in Fedis district, Eastern Hararghe Zone, Ethiopia. *Journal of Development and Agricultural Economics*, 5(3), 120–128. https://doi.org/10.5897/jdae12.104

Dewi, P.M. (2012). Partisipasi tenaga kerja perempuan dalam meningkatkan pendapatan keluarga. *Jurnal Ekonomi Kuantitaif Terapan*, 5 (2), 119-124

Fadipe, A.E.A., Adenuga, A.H., Lawal, A. (2014). Analysis of income determinants among rural households in Kwaran State, Nigeria. *Trakis Journal of Sciences*, 12 (4): 400-404, https://doi.org/10.15547/tjs.2014.04.010

Gustiana, C. (2017). Pengaruh biaya produksi, pengalaman, dan keterampilan terhadap pendapatan usahatani kakao (*Theobroma cacao*) di Kecamatan Karang Baru Kabupaten Aceh Tamiang. *Agrisamudra*, 4 (2) : 67-76

Hismayadewi, D. R. & Saskara, I.A.N. (2019). Pengaruh keterampilan kerja, jam kerja, lama usaha terhadap pendapatan pengrajin industri kerajinan mozaik di Desa Tegallalang Kabupaten Gianyar. *E-Jurnal Ekonomi Pembangunan Universitas Udayana*, 8(7), 1473-1501

Homann, M. & Jensen, U. (2013). *Does Better Education Cause Higher Income?* Hamburgisches WeltWirtschaftsInstitut (HWWI) Research Paper 145, retrieved from http://hdl.handle.net/10419/88917

Irawan, A. & Mulyadi, H. (2016). Pengaruh keterampilan wirausaha terhadap keberhasilan usaha (Studi kasus pada distro anggota Creative Independent Clothing Community di Kota Bandung. *Journal of Business Management and Enterpreneurship Education*, 1 (1), 213-223

Julianto, D. & Utari, P. A. (2019). Analisa pengaruh tingkat pendidikan terhadap pendapatan individu di Sumatera Barat. *Ikraith Ekonomika*, 2 (2), 122-131

Kaleka, N. (2014). *Membatik Dengan Media Kayu*. Yogyakarta: Arcitra.

McDonald, S. (2011). What you know or who you know? Occupation-specific work experience and job matching through social networks. *Social Science Research*. 40(6), 1664–1675, https://doi.org/10.1016/j.ssresearch.2011.06.003

Millán, J. M., Congregado, E., & Román, C. (2010). Determinants of self-employment survival in Europe. *Small Business Economics*, 38(2), 259–263. https://doi.org/10.1007/s11187-010-9289-0

Ndegwa, M. K., De Groote, H., Gitonga, Z.M. (2013). *Assessment of Metal Silo Business Up-take among the CIMMYT-Trained Artisans in Kenya*. Paper presented at the African Association of Agricultural Economists (AAAE) Fourth International Conference, September 22-25, 2013, Hammamet, Tunisia. https://doi.org/10.22004/ag.econ.161479

Nugraha, N.T.A. & Marhaeni, A.A.I.N. (2012). Pengaruh jam kerja, pengalaman kerja, dan pendidikan terhadap pendapatan karyawan industri bordir di Kota Denpasar. *Jurnal Ekonomi Kuantitatif Terapan*, 1 (2), 100-110.

Onwumere, J., Alamba, C.S. & Onwusiribe, C.N. (2011). Determinants of self employment and income among agribusiness households in Abia State, Nigeria. *Journal of Agriculture and Social Research*, 11(2), 174 -182.

Putri, A. D. & Setiawina, N. D. (2013). Pengaruh umur, pendidikan, pekerjaan terhadap pendapatan rumah tangga miskin di Desa Bebandem. *E-Jurnal Ekonomi Pembangunan Universitas Udayana*, 2 (4), 173-180.

Sasmitha, N.P.R. & Ayuningsasi, A.A. K. (2017). Faktor-faktor yang mempengaruhi pendapatan pengrajin pada industri kerajinan bambu di Desa Belega Kabupaten Gianyar. *E-Jurnal Ekonomi Pembangunan Universitas Udayana*, 6 (1), 64-68.

Su, B., & Heshmati, A. (2013). Analysis of the determinants of income and income gap between urban and rural China. *China Economic Policy Review*, 02(01), 1350002. https://doi.org/10.1142/S1793969013500027

Suryandari, K.K., & Darsana, I.B. (2018). Faktor-faktor yang mempengaruhi pendapatan dan kesejahteraan pengrajin industri kerajinan anyaman bambu di Kecamatan Susut. *E-Jurnal Ekonomi Pembangunan Universitas Udayana*, 7(4), 677-707.

Widiana, W. A. & Wenagama, I.W. (2019). Pengaruh jam kerja dan pengalaman kerja terhadap pendapatan dan kesejahteraan pekerja pada industri genteng. *Jurnal Ekonomi dan Bisnis Universitas Udayana*, 8(7), 772-884

Wulandari, A. (2011). *Batik Nusantara*. Yogyakarta: C.V. Andi Offset.