Productivity of Small-Scale Industrial Labor and Economic Growth in Indonesia

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Abstract. This study aims to find out and empirically test the influence of technology, health benefit, wages of Labor on the productivity of small scale industrial Labor in Indonesia. Using provincial panel data in Indonesia during the period 2014-2018, the analysis used is the panel regression method with two equations for the productivity. The best model is obtained by Random Effect. The estimation findings show, that in labor productivity equation, health benefits have negative effects and wages have positive effect, while technology has no effect on the labor productivity. The equation of economic growth equations found by the findings of productivity of small scale industry labor have positive effect, on economic growth, while the competitiveness of small scale industries has no effect.

Keywords: Industrial Labor; Economic Growth

1 Introduction

The development of the manufacturing industry sector in encouraging national economic growth cannot be separated from the role of small and medium industries (Kuncoro, 2006). The same thing was also expressed by Sulistyastuti (2004) that the large number of small industrial business units will give rise to new small industries and new entrepreneurs and will affect GDP growth. Implementation from a small business-based industry strategy starts with developing an industrial competitive climate while creating a significant impact on economic growth and equity (Tambunan, 2007).

In addition to government programs in stabilizing the small industrial sector as well as to keep its growth and survival, the reality is that in some developing countries, this sector has still not been able to catch its “legs”. That condition becomes a deep problem when comparing it to developing and develop economies are able to reach by the industries (Bowale & Akinlo, 2012).

Facts shown by the Central Bureau of Statistic (BPS) in 2015 the contribution of small industries was higher than medium and large industries in the number of business units (99.30 percent) and employment (61.75 percent) in Indonesia. However, small industries still contribute very little to the GDP of the manufacturing industry (less than 20 percent). Meanwhile, large industries with a small portion of many business-unit and absorption of labor are able to contribute almost 80 percent of GDP in the same period.

Labor productivity shows the ability of each worker to produce a certain value of output per unit time (Hasibuan, 1993). Table 1 provides information that although there has been a progressive increase in labor productivity in small industries 131.31 percent, medium industries

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44.94 percent, and large industries only 42.14 percent, the share is still very small. This situation shows that there is an expansion productivity dissimilarity with small along with large industries, as stated by Wengel and Rodriguez (2006). For this reason, it is necessary to re-examine the determinants of labor productivity in small industries and strategies for increasing them.

Table 1. Labor Productivity of the Manufacturing in Indonesia by Business Scale

Year	Labor Productivity (in million rupiah)		
	Small Scale-Industry	Medium Scale-Industry	Large Scale-Industry
2014	71,09	406,03	504,44
2015	71,64	336,12	601,66
2016	75,11	446,92	604,32
2017	105,73	430,20	696,22
2018	154,10	588,51	717,01

Source: BPS, IMK Statistics, IBS Statistic, 2019

The Grand Theory used in this study is the theory of New Growth or Endogenous-Growth Model. There are a new type of Growth-Theory (Todaro, 2003; Romer, 2016), among others (a) Human Capital Model, (b) Research & Development Model. The Human Capital Model attention to assemble of capital in several types of physical capital, human capital. An effective workforce that result in endogenous development. Meanwhile the R&D Model focuses on technological improvements that drive innovation for productivity improvement that create growth of endogenous.

Productivity is a comparison among achievement of outcomes through the use of all resources per unit time (Simanjuntak, 2001). According to Suryana (2000) what is meant by productivity is the comparison between inputs and outputs. According to Todaro (2003) what affects productivity is human capital which includes education and health. Education and health are fundamental development goals; apart from other things, they are important things. The high level of human development will have an impact on the economy with the development of community skills. Then impact on creativity and productivity.

The competitive approach originates from argumen from Adam Smith by infinite advantage assumtion. The approach describes when an economy produces products with higher and lower efficiency to produce by-products than other countries, formerly profits can be produced through the division of labor in the production of special products. Adam Smith's opinion was developed by David Ricardo in the book Principle of Political Economy and Taxation which is known as the comparative advantage (Hady: 2001). Initially Ricardo gave rise to the 19th century approach to comparative advantage known as the law of comparative, advantage. A statement that each country, is awarded a comparative, advantage and creates distinctiveness through the sale of other products (Lindert Kindleberger, 1993).

Ramayani, Aimon, and Anis (2012) who analyzed labor productivity and economic growth concluded that education; health; government investment; and private investment, have a significant impact to labor-productivity. Heshmati & Rashidghalam: (2016) conducted a study on labor-productivity in the service, manufacturing industries in Kenya and concluded that the

variables of capital intensity, wages, worker training, manager education had a significant effect, and communication technology had an insignificant effect.

Anwar, Darsono; Agustono: (2014) evaluated the competitiveness, of the rattan furniture industry using Porter's Diamond; RCA'OLS. Findings concluded that the competitiveness of the rattan furniture industry is strong. There is a significant influence between export prices, exchange rates, and government program on competitiveness, of the rattan furniture industry. Competitiveness (RCA). Raf (2012) analyzed the competitiveness of small industries use the Porter's Diamond-model factor analysis methods OLS.

The results conclude that the variables of infrastructure human resources and technology having significant impact while the variables from products government policies have no significant effect, Lantu, Triady, Utami, Ghazali(2016) organized a research of developing a model for increasing the competitiveness of small scale industry in Indonesia. The conclusion conclude consists of six important factors to build the competitiveness of that industry in a province are the business environtment business capabilities, policies, and infrastructure studies, technology, financial support, partnerships as well as productivity of labor performance.

This research wants to describe empirically test the level of labor-productivity result also competitiveness of small industries along with the aspects that affect them as well as strategies to increase them in supporting economic growth. The results obtained are an initial analysis of the performance of small industries measured by labor productivity work and competitiveness.

This, empirical fact describes if the, government expectations on improvement activities that have been carried out so far have no produced maximum outcomes (Kuncoro; 2006) The problem of small industry performance in terms of its role in GDP and its development reflects progress the its share is too small from large business. These conditions make thinking about the performance of small industries in Indonesia which have not developed significantly. This means that there are fundamental problems that need serious attention that must be studied scientifically about the factors that influence the performance of small industry in encouraging economic-growth.

2 Research Methods

The study is explanatory by describing the causal relationship between the effect of labor productivity and the competitiveness of small industries on economic growth in Indonesia. Analysis using quantitative and qualitative concepts. This study used secondary data related to small industries registered in Indonesian Micro, and Small-Industry Statistic. Data were collected from BPS. Data realted to competitiveness of smal industries were obtained form Commodity and Trade Database of the World Integrated Trade Solution (WITS).

Small Industry Labor Productivity Model:

$$PR_{it} = \beta_0 + \beta_1 TEK_{it} + \beta_2 TKS_{it} + \beta_3 W_{it} + \varepsilon_1 \quad (1)$$

Economic Growth Model:

$$PE = \propto_0 + \propto_1 PR + \propto_2 DS + \varepsilon_2 \quad (2)$$

Which:

The analysis technique used inthis research is panel data regression. Panel data is-data that.has dimensions of space_time. Based'on the study objectives.analytical model=is in.this, study is as=follows : PR (SMI labor productivity), DS (IKM competitiveness), PE (Economic

growth), TEK (Technology), TKS (Health Benefits), W (Wages), t= t year, where t = 2017 to 2018 , β_1, β_2, β_3 = parameter estimation, β_0 = intercept, ε = error term.

3 Results and Discussion

3.1 Result

The Influence of Technology, Health Benefits, Wages on the Productivity of Small Industry Workers in Indonesia.

This study was discussed by Panel Least Squares (PLS) method, which shows that the statistical modelis representative enough to analyze the effect of technology, health benefits, and labor wages on the productivity of small. Industry workers in Indonesia. In this study there are two equations that are analyzed [a] the effect of technology, health benefits, labor wages to labor productivity; [b] the.effect of labor productivity, competitiveness to economic growth. The conclusion of Hausman test the chosen modelis a random effect.

Regression analysis of equation (1) the results describe a statistical F value.of 184.958. The value of the coefficient of determination obtained is 0,741. This.value means that the variation in the value of labor productivity in Indonesia can be explained by technology variables, health benefits, labor wages, of 74.1 percent while the remaining 26,9 percent is explained by other variables outside model.

The&result of F test shows that the variables of technology health benefits, labor wages together have a significant effect on economic growth in South Sumatra. The calculated F value is 184.958 by a significant level of 0,000. The equation for the labor productivity function is as follows:

PR = 6112.575 + 2.68E-08TEK - 4.81E-05TKS + 3.70E-05W

Table 2. The Effect of Technology, Health Benefits, and Labor Wages on Labor Productivity of Small-Scale-Industries, in Indonesia

VARIABLE	TEK	TKS	W
Coefficient	2,680	-4,810	3,700
Probabilities	0,2493	0,0026	0,0000
t-statistic	1,155469	-3,052343	48,20835
R Square	0,7409	0,7409	0,7409
Adjusted R Square	0,7369	0,7369	0,7369
F-Statistic	184,9580	184,9580	184,9580
Durbin_Watson	1,673965	1,673965	1,673965
Jarque-bera	0,090125	0,090125	0,090125
Glejser Test (Heterokedasticity)	0,6891	0,0501	0,603

Source : data processed; 2020

Furthermore the results of the t-test, indicate, that the technology, variable, (TEK) is, not significant because the probability-value:0.2493 is greater than 0,05. The health benefit variable (TKS) has a probability value of 0.0026 which, is smaller, than 0,05 which means that health benefit (TKS) has an impact to labor productivity (PR), the labor wage (W) has a probability value of 0,0000 less than 0.05 means that the labor wage variable (W) has a significant influence on labor productivity (PR).

The Influence of Labor Productivity and Competitiveness of Small Industries on Economic-Growth in Indonesia

Based on the Hausman test the model chosen is fixed effect regression analysis equation 2) the results show the F statistic value of 430.8945. The value of the coefficient of determination is 0,988. This value means that the variation in the value of economic-growth in Indonesia can be explained by the variable of labor productivity competitiveness of small industries by 98.8 percent while the remaining 0.2 percent is by other variables outside the model.

The results of the F-test together show that the variables of labor productivity and the competitiveness of small industries together have a significant effect on economic growth in Indonesia. The calculated F-value obtained: 430.8945 by a significance level of 0.000. The equation for the function of economic growth is as follows.

$$PE = 193603.6 + 2{,}756387PR - 8{,}1007DS$$

Table 3. The Effect of Labor Productivity and Small-Scale Industries on Economic-Growth in Indonesia

VARIABLE,	PR	DS
Coefficients	2,756387	-8,1007
Probabilitas	0,0000	0,0017
t-statistic	5,928155	-3,196645
R Square	0,988	0,988
Adjusted R Square	0,986	0,986
F-Statistic	430,8945	430,8945
Durbin_Watson	1,6299	1,6299
Jarque-bera	0,406117	0,406117
Glejser Test (Heterikedasticity)	0,0630	0,2910

Source: data processed, 2019

Furthermore the results of the t test show that the labor-productivity (PR) variable has a significant positive effect on economic-growth because the probability value of 0.0000 is greater

than 0,05. The competitiveness variable (DS) has a probability value of 0.0017 which is smaller than 0.05 meaning that competitiveness variable (DS) has an effect on economic growth (PE).

3.2 Discussion

The technology coefficient is positive but has no significant effect on the productivity of small-industrial workers as measured by the output value divided by the number of provincial small industrial workers in Indonesia. Means that the value of technology calculated from the value of machine repair in small industries indicates the increasing cost of machine repairs carried out by small-industries does not have an impact on increasing labor productivity. The coefficient of health benefits with a negative sign indicates that the increase in health benefits provided to workers will reduce labor productivity. This means that the increase in health benefits which is not accompanied by an increase in the welfare of the workforce will have an impact on decreasing the productivity of small industry workers.

The variable coefficient of labor wages has a positive and significant effect on labor productivity in small-industries show that when there is an progress in labor wages it will have a impact on increasing labor productivity in small-industries in Indonesia. Likewise a decrease in labor wages will encourage a decrease in the productivity of small industrial workers. The coefficient of labor-productivity is positive and significant to economic-growth in Indonesia as measured by the value of GRDP based on constant-prices by province in Indonesia. This means that labor productivity calculated by dividing the output value by the number of small industrial workers indicates that the increase in output value or the decrease in the number of workers employed has a significant impact on increasing economic-growth in Indonesia.

4 Conclusion

The technology variable has no effect on labor productivity the health benefits variable has a negative effect on the productivity of small industrial workers and the wage variable has a positive effect on the productivity of small industrial workers in Indonesia. The labor productivity variable has a positive effect on economic growth in Indonesia while the competitiveness variable has no effect on economic growth in Indonesia.

Labor productivity in small industries can be boosted by increasing the wages of workers in accordance with the work obtained in the company. Company leaders are expected to pay attention to wages in the company so that employees do not decrease their productivity. The provision of wages to workers must be in line with the increasing cost of living, so that the welfare of the workers also increases. In increasing labor productivity, companies or agencies have a policy of providing appropriate health benefits to their workers so that they can increase production. Providing health benefits as a reward for employee performance can be an effective way because it makes the workforce more enthusiastic motivated to work and instills a sense of trust in the workforce.

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