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Does Migration Outflow Reduce Income Inequality in the Sending Province?

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Abstract

Previous studies on the association between migration outflow and income inequality have shown mixed findings. Some find that migration outflow reduces income inequality, but others find that migration outflow increases income inequality. This study aims to analyze the effect of migration outflow on income inequality in Central Java Province with two control variables: mean years of schooling and minimum wage. Central Java was chosen as the research location because it is the province with the highest migration outflow. This study uses secondary, time series data for the period 2000-2018 consisting of income inequality as measured by the Gini ratio (percent), migration outflow (people), meanyears of schooling (years), and minimum wage (rupiah). Data were obtained from BPS Central Java and analyzed with multiple linear regression. The results show that migration outflow and mean years of schooling have a negative significant effect and minimum wage has a positive significant effect on income inequality. This findings imply that migration outflow and improvement of the quality of human resources through education can be solutions to reduce poverty and income inequality, while minimum wage actually increases inequality, which may be due to the large portion of population engaging in agriculture and the informal sector.

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INTRODUCTION

People movement is a pervasive feature of economic development (Mendola, 2012) and has long been used as a way to promote development and national integration goals (Côté, 2013). Promises of a better life due to large differentials in income, living standard, and public goods imply high returns to migration (Klugman, 2009; Côté, 2013). In rich regions, high incomes prevent people from migrating. But in very poor regions, income increase encourages migration outflows. This confirms the geographical traps of poverty: poor people want to move but are financially hampered (Phan & Coxhead, 2010; Guriev & Vakulenko, 2015). The substantial barriers to labor migration could result from high transportation, psychological, and informational costs due to underdeveloped financial markets (Guriev & Vakulenko, 2015) .The theory of migration network accentuates the role of social relationship in stimulating migration (Boyd, 1989). Interpersonal relationship among migrants at their origin and destination is likely to increase migration because such ties reduce migration costs and risks and extend the expected net return to migration. Moreover, the usual effects observed from social network increase the probability of the next move of prospective migrants (Massey et al., 1993). The aim of economic development is to encourage economic growth as well as income distribution. Income inequality is a crucial issue from socioeconomic and political perspectives. Inequality can influence economic growth, political stability, as well as class and ethnic conflicts (Abdullah, Doucouliagos & Manning, 2013).

The impact of migration on income inequality at origin depends on where migrants come from in the early distribution of wealth. If migration costs are substantial, migrants will notably come from the upper to middle income group, leading inequality to increase at first as they get wealthier. Conversely, if migration costs are low or there is no liquidity constraint, the low income group will be able to migrate, resulting in a higher equality (Mckenzie & Rapoport, 2007). This is true for the case of Hubei Province in China. Based on their study in Hubei Province, Zhu & Luo (2010) find that remittance tends to have an equal effect on income. Households having low marginal labor productivity (larger labor endowment as compared to land resources) have alternative to diversify income into urban sector. Therefore, migration has been a solution to absorb labor surplus in rural areas and to provide additional income. This has led to reduced poverty and income inequality in rural areas.

Remittances from international and internal migration help households not only to increase their income and consumption, but also investment and production (Cox, 1987). Therefore, remittances will be beneficial for the migrants and the remittance recipients. If the poor households receive some remittances, migration decreases poverty in the origin. If most remittances are received by the poor, poverty and inequality will decrease. However, remittance could not sufficiently compensate for the loss of income initially earned by migrants. Furthermore, migration could lead to labor shortage for the sending households, which would prevent them from addressing livelihoods with high-return but are labor-intensive (Taylor & Lopez-Feldma, 2007).

Based on insurance theory, migration is one of the strategies to deal with economic shocks when risk and financial markets are absent (Stark and Bloom, 1985; Stark, 1991). On the one hand, migrants send more money when their household members experience shocks. On the other hand, their families may rely on remittance and become poor when the migrants stop sending remittance.

Different results have been reported by previous studies. Remittance reduces poverty in Lesotho (Gustafsson & Makonnen, 1993), Guatemala and Mexico (Adams, 2006), Vietnam (Phan & Coxhead, 2010), Indonesia and Mexico (Deb & Seck, 2009), and China (Zhu & Luo, 2010), but remittance does not reduce poverty in

Mali and Senegal, where rich households receive most remittance (Azam and Gubert, 2006). Mckenzie and Rapoport (2007) and Shen et al. (2009) argue that the relationship between migration outflow and inequality is U-shaped and conclude that migration decreases inequality only for communities with relatively high level of migration in the past.

Due to the incloclusive results of the previous studies about the association between migration and income inequality at origin, the authors are interested to analyze the association between these variables in the case of Central Java. During the period of 2000-2018, the biggest number of net migration in Indonesia has been observed in Central Java.

According to Ducanes & Abella (2009), while internal migration in Indonesia is a long lasting phenomenon, international migration is limited. In 2000, approximately 10% of population lived in a province different from that of birth, while in 2006 only about 1.5% lived in foreign countries.

The Indonesian population grew from 119 million (1971) to 237 million (2010), and now ranks the world's 4th most populous nation. Beginning from the early 1950s, the government of Indonesia has promoted internal migration to the outer islands (transmigration), that aimed to relieve densely populated areas from population pressure. Approximately 90,000 households were moved during 1950-1968. By 1997, about 1.4 million households (6.5 million persons) had been relocated (Hardjono, 1988; Fearnside, 1997; Tirtosudarmo, 2009).

After the 1997 economic crisis, transmigration was ceased. Nevertheless, internal migration in Indonesia has never been kept under control. In fact, it was persistently increasing, pushed by the wage differential among provinces and the attractiveness of Jakarta and the satellite cities and the flow is predominantly in the opposite direction with regard to the government migration policy. In 1971, the size of interprovincial migration was the same as that of the colonial period (4.9%), increased to 7% (1980), 8.2% (1990) and 10.1% by 2000 (Hill et al., 2008; Tirtosudarmo, 2009). In 2000 approximately 20 million of Indonesian people were living in a province other than that of birth.

Internal migration has been a long lasting phenomenon in Indonesia. Referring to Mckenzie& Rapoport (2007), assuming that internal migration does not need costs as high as that of international migration, the low income group should have no significant barrier to move. A lot of low income population move to big cities to engange in informal sector. Because the poor reap the benefit of migration, it is hypothesized that outmigration is negatively associated with income inequality at the origin.

Two control variables are included in this study: mean years of schooling and provincial minimum wage. Investment in education is widely believed to have potential in reducing inequality. Education for the poor will enable them to catch up the upper class. This logic has become one of the rationales of the policy interventions to spread primary education across the developing countries. However, this should be taken with caution because biased government expenditure towards higher education, as is the case for many developing world, would lead to higher income inequality (Gruber & Kosack, 2014).

Education is decisive in controlling individuals' life opportunities. Even low-level education can markedly reduce the likelihood of unemployment which is a major determinant of poverty and higher level of education attainment increases earning power (Blanden, 2020). Because education produces private and social returns, uneven pattern of education attainment potentially generate economic and social inequalities.

The structure of labor force is altered due to the higher supply of educated workers, because of the transformation of unskilled into skilled workers. While in the short term this transformation may extend income inequality, it is expected to reduce in the long term as continuous increase in the supply of educated workers will drive down the wage premium enjoyed by skilled workers (Chiswick, 1968 in Abdullah, Doucouliagos & Manning, 2013).

Based on meta-regression analysis, Abdullah, Doucouliagos & Manning (2013) conclude that education can reduce the income gap because the share of upper earners decreases and that of the lower earners increases. Education has been remarkably effective in lowering inequality in Africa. Some of the results indicate that secondary schooling seems to have a more powerful effect than primary schooling. The above explanation and research findings on the association between education and inequality has led the authors to hypothesize that there is a negative association between education – in this study the mean years of schooling is used as its proxy – and income inequality.

The second control variable is minimum wage. The minimum wage policy aims to ensure that workers receive a reasonable wage while preventing poverty among them. Furthermore, redistribution of workers' income on the lowest scale of salary reduces wage dispersion and potentially increases aggregate demand through the multiplier effect. At the same time, minimum wages must be used with caution as an instrument of anti-poverty because its impact depends on the distribution of employment at the household level. As a result, they cannot be used to measure wage rates for specific target groups. Balance must be ensured in setting minimum wages. If it is too low, it might lose its target. When it is too high than the average wage, it might prevent companies from employing low-skilled workers or push them to work informally (ILO, 2011).

The minimum wage has been legally applied in Indonesia since 1989. This new system requires that minimum wages be set with reference to minimum physical needs, living costs and labor market conditions. Under these conditions the government wants to bring the minimum wage in accordance with the criteria for Minimum Physical Needs in 1994. The last criterion named KHL (Basic Minimum Needs) is determined by the Minister of Manpower Regulation Number: Per-17/Men/2005 with a broader scope containing 46 components of the needs of an unmarried worker and had been revised by the Ministry of Manpower and Transmigration through Regulation Number 13/2012 covering 60 components of living necessities. The last criterion is the basis of the minimum wage policy since 2013 onwards (Sungkar et al., 2015).

The neo-classical theory says that an increase in the minimum wage will reduce labor, unemployment increases which will ultimately have an impact on increasing poverty and inequality. Abdulah (2013) and Sungkar et al. (2015) find that minimum wage has a significant positive effect on income inequality.

Most areas of Central Java are rural areas where agriculture has been the most important livelihood. Furthermore, there are more non-farm informal workers in Indonesian rural areas. BPS recorded 54.75 percent in 2018. Agriculture and informal sectors are not included in the required minimum wage. These reasons have led the authors to hypothesize that the provincial minimum wage is positively associated with income inequality in Central Java.

RESEARCH METHODS

This study analyzes the association between migration outflow and income inequality at the origin. Two control variables are included in the model: mean years of schooling and minimum wage. The type of data used in this study is secondary, time series data during the period of 2000-2018 in Central Java Province, which consist of income inequality (measured through Gini ratio, in percent) as the dependent variable and migration outflow (measured in persons), mean years of schooling (measured in years), and provincial minimum wage (measured in rupiah) as the independent variables. Secondary data were obtained from the Central Statistics Agency (BPS) publication of Central Java province.

To address the research question about the effect of migration outflow, mean years of schooling, and minimum wage on income inequality in the province of Central Java, multiple linear regression analysis is employed with the following model:

$GR = \beta_0 + ß_1 MO + ß_2 MYS + ß_3 MW + e$

where:

GR = Gini ratio
$\beta_{0,1,2,3,}$ = regression coefficients
MO = migration outflow (persons)
MYS = mean years of schooling (years)
MW = provincial minimum wage (Rp)
e = error term

Classical assumption test is undertaken to produce the best Best Linear Unbiased Estimator (BLUE). The classical assumption testing includes the tests for normality, multicollinearity, heteroscedasticity, and autocorrelation. Afterwards, coefficient of determination is calculated, and hypotheses are tested by performing F test and t test.

RESULTS AND DISCUSSION

Figure 1 shows that income inequality has been fluctuating in Central Java during the period of 2000-2018 with an increasing trend. Neverheless, the figure has declined since 2016. The Gini index is an indicator used to measure income wealth disparities betweenpopulation in an area. Gini index values range between 0and 1, where the value is close to 0, it can be said that the distribution of income and wealth between residents is more equal, and vice versa.

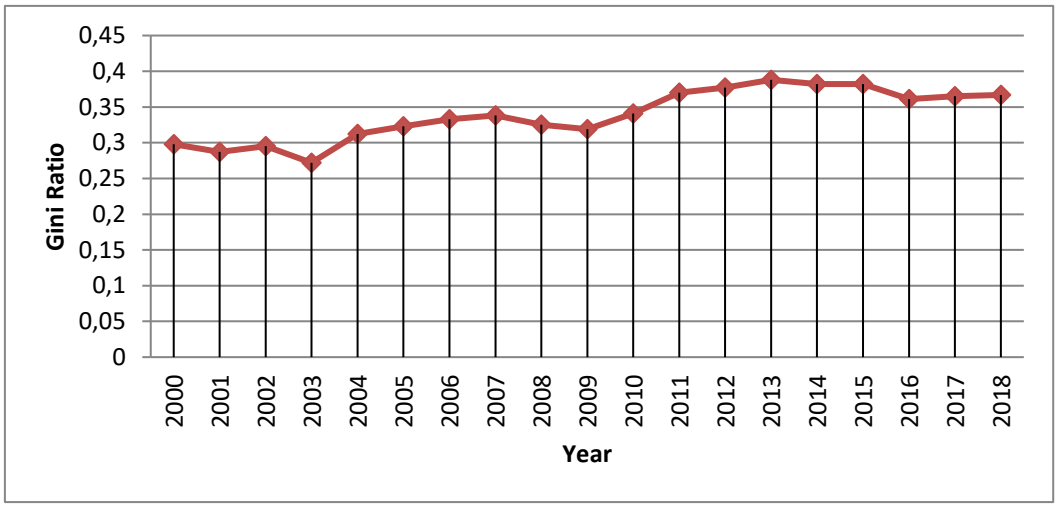

Figure 1. Gini ratio in Central Java 2000-2018

Figure 2 displays the development of migration outflow from Central Java during 2000-2018. The figure shows that migration outflow from Central Java Province has been fluctuating but has indicated a significant increase since 2010. Data from the 2010 Population Census show that the provinces in Java Island dominate the migration inflow and outflow until 2010. The provinces receiving most migrants are West Java with more than one million with distribution of 44.29 percent from DKI Jakarta, 24.74 percent from Central Java, and 30.97 percent from other provinces. As for migration outflow, Central Java is the largest province, i.e.0.9 million migrants with a distribution of 26 percent to West Java, 22.01 percent to DKI Jakarta, 9.46 percent to Banten, and the remaining 42.53 percent to other provinces in Indonesia. The largest migrant sending provinces are the Province of Central Java (18.7 percent), DKI Jakarta (16.9 percent), and West Java (11.4 percent). This shows that Java is a region with the highest population mobility in Indonesia (Allo, 2016). Figure 3 shows an increasing trend during 2000-2018. The mean years of schooling is one component of the Human Development Index in terms of education other than literacy rate. According to BPS (sirusa.bps.go.id), the mean years of schooling is defined as the number of years spent by the population in undergoing formale education.

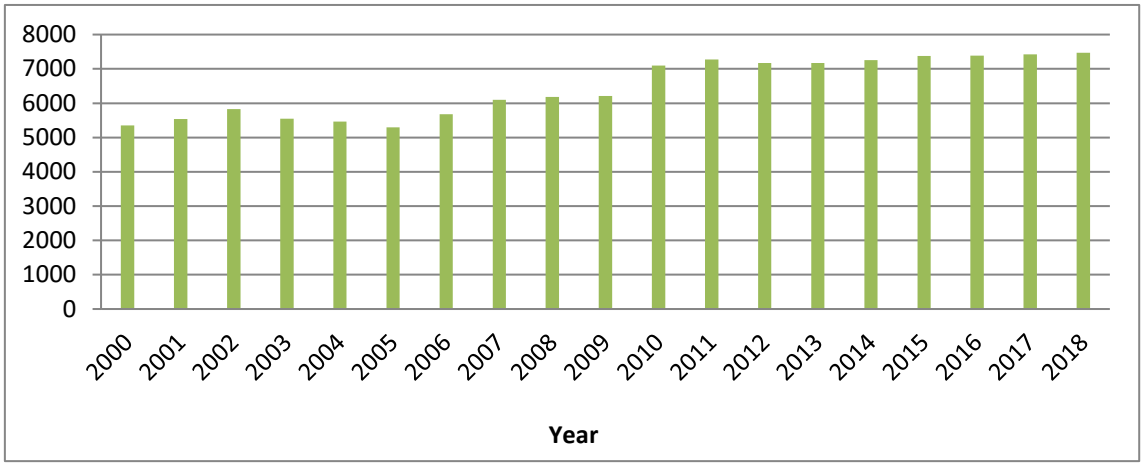

Figure 2. Migration outflow from Central Java 2000-2018 (persons)

People who graduated from elementary school is calculated as long as schooling for 6 years, graduated from junior high school 9 years, senior high school 12 years, regardless of whether they fail a grade or not. For example the Indonesian mean years of schooling in 2016 was 7.95 years. This means that on average Indonesians aged 25 years and over have been schooling for 7.95 years or almost finished grade 8.

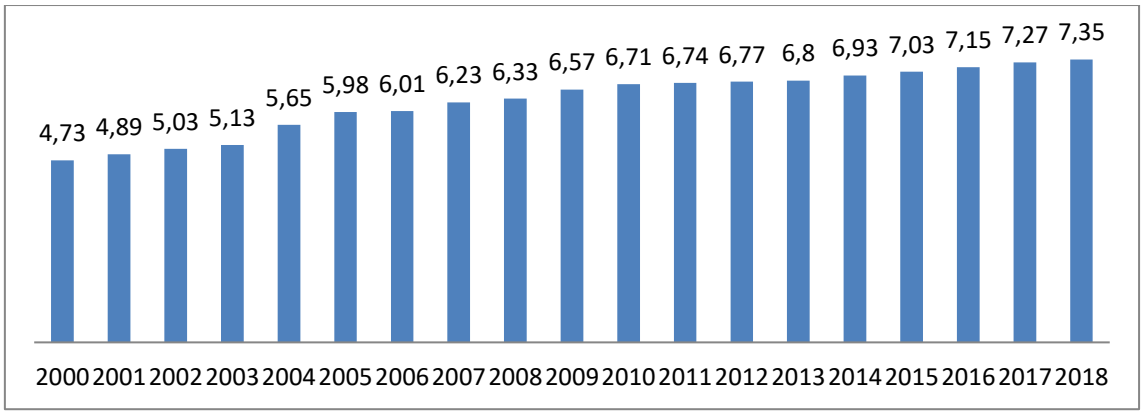

Figure 3. Meanyears of schooling in Central Java Province 2000-2018 (years)

Figure 4 presents the minimum provincial wage during 2000-2018 which shows an increasing trend. A significant increase is observed in 2017. Based on the Republic of Indonesia Government Regulation No. 78 of 2015 concerning Wages, the determination of the minimum wage is carried out annually based on the needs of a decent living and with due regard to productivity and economic growth.The model has been tested for normality, multicollinearity, heteroscedasticity, and autocorrelation.

The results confirm that the data are normally distributed and the model is free from multicollinearity, heteroskedasticity, and autocorrelation. R^2 is 0.91093 which means that the independent variables (migration outflow, mean years of schooling and provincial minimum wage) are able to explain the variation of income inequality by 91.09 percent and the rest is explained by other variables not included in the model. Regression estimation

results at Table 1 show that the migration outflow has a coefficient of -0.004693.

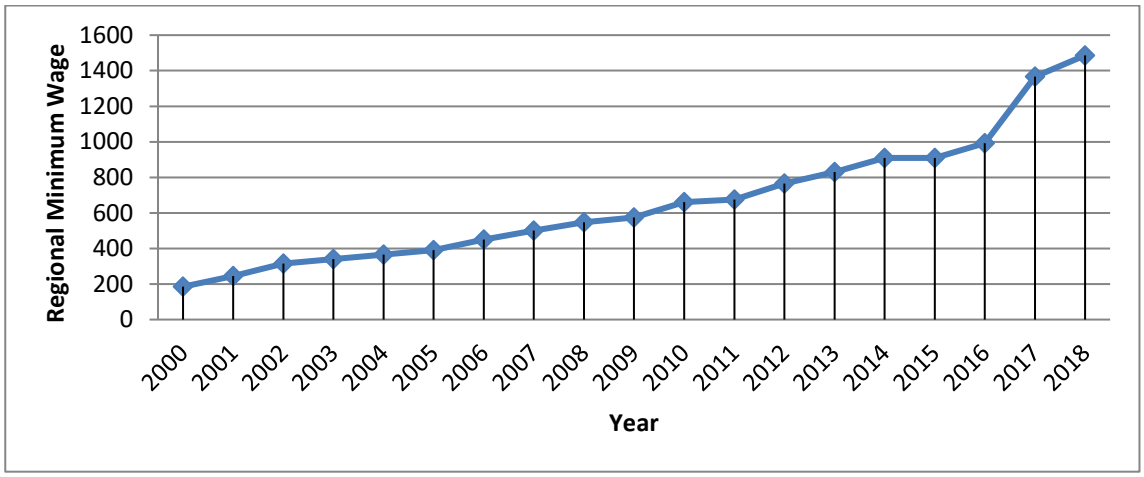

Figure 4. Minimum wage of Central Java Province 2000-2008 (Rp000)

The following table shows the regression output on the effect of migration outflow, mean years of schooling, and the provincial minimum wage on income inequality in Central Java Province during 2000-2018.

Table 1. Results of linear regression estimation

Variables	Coefficient	Prob.
Constant	16.821170	0.0000
Migration outflow (MO)	-0.004693	0.0332
Mean years of schooling (MYS)	-8.09E-06	0.0000
Minimum Wage (MW)	0.007974	0.0009

This shows that migration outflow has a negative and significant effect on inequality at α=5 percent, which means that the first hypothesis is suppoted. The result confirms the findings of previous research that remittance reduces poverty in Lesotho (Gustafsson & Makonnen, 1993), Guatemala and Mexico (Adams, 2006), Vietnam (Phan & Coxhead, 2010), and China (Zhu & Luo, 2010).

Previous studies provide explanation why such finding is observed. Cox (1987) argues that remittances from international and internal migrants help households to increase income, consumption, investment, and production. Therefore, remittances are beneficial for the migrants and the remittance recipients. If some remittances are received by the poor, migration decreases poverty in the origin, and thus reduced income inequality. The negative association between internal migration outflow and income inequality in Vietnam by Phan &

Coxhead (2010) is true for migration flows into trade-oriented industrial centers. Mckenzie & Rapoport (2007) and Shen et al. (2009) argue that the relationship between emigration and inequality is U-shaped and conclude that migration reduces inequality only for communities with relatively high level of migration in the past. This could be appropriate for the case of Central Java with long lasting experience in internal migration.

Based on their study in Hubei Province China, Zhu & Luo (2010) find that remittance tends to have an equal effect on income. Households having low marginal labor productivity (larger labor endowment as

compared to land resources) have alternative to diversify income into urban sector. Therefore, migration has been a solution to absorb labor surplus in rural areas and to provide additional income. This has led to reduced poverty and income inequality in rural areas. Supporting evidence is provided by Lu (2012) who shows that migration has improved the nutritional intake of households with migrants, highlighting the importance of remittance in improving nutritional status of resource-constrained households.

Regression results show that the mean years of schooling has a coefficient of -8.09E-06. This shows that the mean years of schooling has a negative significant effect on income inequality at a α=1 percent. This means that the second hypothesis is supported. Investment in education is widely believed to have potential in reducing inequality. Education for the poor will enable them to catch up the upper class. This logic has been one of the rationales of the policy interventions to spread primary education across the developing countries (Gruber & Kosack, 2014). Blanden (2020) conclude that education will persistently play a substantial role in determining individuals' wellbeing and therefore, education distribution remains precarious for broad spectrum of inequalities.

Based on meta-regression analysis, Abdullah, Doucouliagos & Manning (2013) conclude that education has reduced the income gap between high-end and low-end of the population. Education has been remarkably effective in lowering inequality in Africa. Some of the results indicate that secondary schooling seems to have a more powerful effect than primary schooling.

Regression estimation results show that the provincial minimum wage has a coefficient value of 0.007974. This shows that the provincial minimum wage has a positive significant effect on income inequality at α=1 percent. This means that the third hypothesis is supported.

This result supports the finding of Sungkar et al. (2015) that minimum wage has a significant positive effect on income inequality. This implies that using minimum wage in the short term as a strategic tool to reduce inequality of income is not useful. Instead of reducing income inequality, it even triggers an increase in the income inequality index. Bird and Manning (2008) explain this situation as a consequence of the structure of labor in Indonesia, where those working in the informal sector are not directly affected by the rise in minimum wages. They are affected mainly as consumers and suffer the effects of price increase.

CONCLUSION

This study finds that migration outflow and mean years of schooling have a negative significant effect and provincial minimum wage has a positive and significant effect on income inequality. The finding of negative effect of migration outflow on inequality supported the hypothesis of Mckenzie and Rapoport (2007) and Shen et al. (2009) on the U-shaped relationship between migration outflow and inequality and conclude that migration reduces inequality only for communities having relatively high level of migration in the past.

There are policies to encourage migration. For example, improvement of road infrastrucure and transportation modes can increase the likelihood of migration. Vocational training programs provide production and business skills which facilitate employment in urban areas. Furthermore, the government can provide protective policies and social security programs togive support to migrants (Nguyen et al., 2011).

However, based on their research in Indonesia and Mexico, Deb & Seck (2009) find contradictory results. Even though migration can significantly increase income or consumption, it adversely affects health and emotional well-being of migrants and their left families. Lu (2010) demonstrates that migration inflicts substantial costs on mental health and risk behavior as shown by higher levels of smoking in Indonesia. This has challenged the theories of migration as most of them consider only economic motivation such as wage and income into the optimisation decision. This omission is not acceptable because deteriorating health clearly increases the cost of

medical care. Furthermore, emotional well-being is also substantial in deciding to migrate. As for policy implication, migration have advantages and disadvantages, and therefore, anticipation measures should be well defined.

The finding of negative effect of education with mean years of schooling as proxy on inequality confirms the rationale of promoting education worlwide to improve equality. However, this should be taken with caution. Biased government expenditure towards higher education, as is the case for many developing world, would even lead to higher inequality (Gruber & Kosack, 2014). This calls for future research to use other proxies for education because they may have different results on inequality.

The finding of positive effect of minimum wage on inequality implies that using minimum wage in the short term as a strategic tool to reduce inequality of income is not useful. Instead of reducing income inequality, it even triggers an increase in the income inequality index. Bird and Manning (2008) explain this situation as a consequence of the structure of labor in Indonesia, where those working in the informal sector are not directly affected by the increase in minimum wages. They are affected mainly as consumers and suffer the effects of price increase.

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