ECONOMY OF TOMORROW

FRIEDRICH EBERT STIFTUNG

Escaping the middle income trap in Indonesia

An analysis of risks, remedies and national characteristics

By Faisal Basri, Gatot Arya Putra

- The only means to escape from the low and middle income trap is through strengthening the industrial sector. Thus the role of national leadership, in this case of the President is vital and crucial. *Nawacita*[1] must be utilized for formulating effective industrial policies. To date, Indonesia is yet to possess a fundamental economy which secures the country's escape from the middle income trap. The country is weak in human capital in terms of health and education, and also in its lack of a firm vision on industrial policy. The condition is worsened by a large and widening wealth gap, whereas human capital and social harmonization are vital prerequisites for a successful industrial policy.
- In terms of quality, human capital in Indonesia is extremely poor. The cognitive ability of Indonesian students should be immediately accelerated so that economic transformation can go smoothly from low wage labor-based industries towards skilled labor-based production. Meanwhile, the school enrollment ratio for secondary and tertiary education must also be increased. Education success should be measured by education output, utilizing an international barometer as applied by PISA.
- Indonesia's export structure still fails to exhibit improvement in increasing the role of high technology-based exports, as indicated by its low and ever decreasing export contribution value. Meanwhile, the performance of the manufacturing sector is also poor.
- Accelerating high yet sustainable economic growth has become increasingly impossible for Indonesia as its capital stock and total factor productivity's progress is also unable to catch up with frontier-technology countries.
- Indonesia's economic performance is extremely sensitive to external shocks and requires a long time to recover. This is despite the fact that Indonesia's economy is now relatively more closed compared to the 1960s, if measured from the contribution of commodity exports towards Gross Domestic Product in terms of Purchasing Power Parity (PPP). The probability of Indonesia's economy being trapped in a low income level is 80 percent compared to entering a middle income level being only 16 percent. The probability of becoming a high income level economy is extremely slim - just 3 percent.

1 Nawacita are the nine agendas Joko Widodo has determined as his priorities during his presidential term of 2014 to 2019.

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Friedrich-Ebert-Stiftung Indonesia Office
Jalan Kemang Selatan II No. 2 A | Jakarta 12730 | Indonesia
Phone : +62-21-7193711 | Fax: +62-21-71791358
Email :info@fes.or.id | Website: www.fes.or.id

Responsible Person :
Sergio Grassi, Country Director

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In 2011, based on the Penn World Table (PWT) 8.1 (Feenstra, Inklaar, and Timmer 2015), Indonesia was the 16th largest economy in the world, which, purchasing power parity indicated its GDP per capita was 4725, India 3917, and China 8919. Compared in values in 2000, the GDP per capita of China, Indonesia, and India had multiplied respectively by 2,3 times, 1,6 times, and 2,1 times in 2011. Indonesia has the slowest growth. In order not to fall behind China and India, Indonesia needs to at the very least be growing more rapidly. Rapid and sustainable economic development are the key words. In terms of PPP, the three world's largest economies in 2011 were the United States of America, China, and India. In 2011, the Total Factor Productivity (TFP) of China was 0.4066, India 0.4835 and Indonesia 0.4193.In 2005, the GDP per capita of Indonesia, India, and China were respectively: 3485, 2606,3,and5854,8.

In 2014, Indonesia's gross national income per capita in terms of purchasing power parity was 10,517, based on the applicable international dollar value (see http://data.worldbank.org/indicator/NY.GDP.PCAP.PP.CD). The IMF in the World Economic Outlook database 2015 states that Indonesia's per capita gross national product based on PPP, based on the current international dollar, is 10.651. Referring to the spectacular research of Eichengreen, Park, and Shin (2012, 2013), the income floor (Gross Domestic Product per capita), based on PPP, in low income countries is 10.000. Therefore according to the World Bank and IMF, Indonesia falls under the category of a middle income country. This is a crucial moment for the nation - will Indonesia be able to escape the middle income trap? If it is trapped, will it be able to get out? Indonesia faces a great challenge in dealing with the middle income trap. Currently, there is research stating that the middle income trap can occur twice. Eichengreen, Park, and Shin (2013) explained that the economy in middle income countries will face two threats. The first threat is the trap of per capita income between 10 to 11 thousand dollars, and the second is the trap of the per capita income being between 15 to 16 thousand dollars (see Eichengreen, Barry, Donghyung, Park, and Kwanho Shin (2013), "Growth Slowdowns Redux: New Evidence on the Middle-Income Trap", NBER Working Paper, 18673, January).

Regarding economic growth, Paul Romer gave a warning with two primary questions on the economic growth model. The first is, why do frontier technology countries have increased growth all the time? If Indonesia would like to be a high income country, then as a consequence, its economic growth must be higher than that of China's, India's, and South Korea's. Secondly, why have many countries, which are not at the frontier of technology, failed to achieve higher economic growth to catch up with their lag? To have a clear answer on this question, please see http://paulromer.net/speeding-up-and-missed-opportunities-evidence/. Romer's first question is

related with the necessity of higher per capita growth in Indonesia to achieve its highest ever growth frontier in order to sustainably grow.

It is important to note that based on PWT, Indonesia only went up one rank from the 17th to the 16th largest economy in the world from 2005 to 2011. According to Romer, the economic growth target increases all the time. Future economic growth is a moving target that keeps escalating faster. Due to slow economic growth in Indonesia from 2005 to 2015, the country's economic potential to reach the frontier or the baseline for high economic growth is yet to be visible.

Romer's second question is looking for an answer as to why many countries have failed to achieve sufficient economic growth to catch up with its lag, which according to him cannot be simply attributed to poor administration, corruption, lack of social capital, or backward cultures. The question is relevant to Indonesia. If it is claimed that the post-reform administration in Indonesia is better compared to the pre-economic crisis in 1997, why is its economic performance yet to better itself? It seems that there is a lack of sufficient improvement in administration, as indicated by the existing massive corruption. Romer explained that the size of a country is crucial. In the past, countries with a small economy such as Taiwan, South Korea, Singapore, and Hong Kong were the only ones able to grow rapidly at the technology frontier. Presently however, the big economies of China and India have been able to actualize a wider opportunity to grow rapidly. The two questions led to this following query: is there an opportunity for Indonesia, as a small open economy, to grow relatively faster than those countries, and of course sustainably?

Unconvincing Motor of Economic Growth

In order to answer Romer's first question, it is necessary to identify economic growth rate in Indonesia to date, to estimate if Indonesia can advance rapidly in the future. This information is crucial so that Indonesian politicians and economic planners no longer lie nor fool the Indonesian people.

The threat coming from the slow economic development in Indonesia will be most evident if one compares it with other countries who were in a worse condition in the 1960s, but presently have surpassed Indonesia' economic performance to avoid the economic growth trap. Another simple way is to see the relative slowdown of Indonesia's economic growth motor compared with other countries that have been able to escape the middle income trap, such as South Korea. Whereas, similar to Indonesia, South Korea also went through an undemocratic regime until at least 1987, before the Asian crisis in 1998.

Based on the Penn World Table (PWT) 8.1 (Feenstra, Inklaar, and Timmer 2015), in 1960, Indonesia's capital stock was much larger than South Korea's, with Indonesia's capital stock ratio

against South Korea being2,57. However in 2011, the ratio shrunk to 0,59. Indonesia is clearly overwhelmed in competing with South Korea. The progressing ratio is real evidence of failure in building relative capital stock during all political regimes in Indonesia from the Old Order, New Order, and Reformed. Indonesia whose target for the future is not to fall behind South Korea, by narrowing the gap of ratio to the parity of one. If this can be achieved, there will be hope for Indonesia's economy, to be able to avoid the middle income trap. Capital stock is measured with the applicable PPP based on the dollar value in 2005. South Korea expanded its capital stock, therefore in 1974, it managed to exceed Indonesia's capital stock. In the 90's, Indonesia's capital stock was comparatively half of South Korea's and in 2000, the value of Indonesia's capital stock was 0,59 of South Korea's. Indonesia sinks further!

The share of gross capital formation at current PPPs in Indonesia compared to South Korea has reached an historic low. Indonesia's capacity in accumulating gross capital formation is also lower than South Korea's. It translates to a small opportunity for Indonesia to have a successful economic performance to become a high income country. In 1960, gross capital formation share in Indonesia was 0.046 smaller compared to South Korea's market share, which was 0.11. In 2011, Indonesia's value was also lower than South Korea's, with Indonesia being 0.22 and South Korea 0.33. Weak gross capital formation share in Indonesia caused lower capital stock in comparison to South Korea after 1974, even though it was higher in 1960. During the 1998 economic crisis, gross capital formation share in Indonesia decreased to 0.18 from 0.23 in 1997. Respectively from 1999 to 2002, the share was lower than 20 percent, being: 0.15, 0.17, 0.19, and 0.19. Meanwhile in 1998, South Korea's share decreased to 0.26 from 0.36 in 1997. It went up to 0.29 in 1999. Starting from 2000, South Korea already had the share of plus 30 percent, being 0.31. South Korea has exceeded the 30 percent share since 1977, contributing a share of 0.33 in that year. The lesson learned from South Korea is, if Indonesia wishes to escape the middle income trap, then its economy must achieve above 30 percent of gross capital formation share as soon as possible and maintain it continuously. This is not easy since Indonesia has never achieved a 30 percent ratio, since this share is extremely sensitive to crisis. The significance of fixed investment for success in industry was noted by Arias and Wen (2015): "For one thing, technology is not free; so, fixed investment is necessary for adopting new technologies. The implication is that policies that help attract foreign direct investment and promote domestic saving and exports of manufactured goods are more likely to overcome the barriers of technology transfers, as the experiences of Mexico and Ireland showed".

However, in terms of human capital, based on the Penn World Table (PWT) 8.1 (Feenstra, Inklaar, and Timmer 2015), throughout history, Indonesia always loses compared to South Korea until now. Whereas human capital data is measured with index per person, based on school duration, instead of cognitive skills. In 1960, Indonesia's human capital ratio compared to South Korea was 0,70 and in 2011 was 0,62. Along this period, the lowest ratio was approximately 0,59, which occurred in 1993 to 1999. Without doubt, the Indonesian government during the

Old Order, New Order, and Reform Era did not and do not function well in building human capital.

Similar with Total Factor Productivity (TFP), based on the Penn World Table (PWT) 8.1 (Feenstra, Inklaar, and Timmer 2015),in 1960, Indonesia's TFP was 0,48relative to the United States of America, which was 1, while South Korea was 0,31 (and the United States of America was 1). TFP value is measured relative to the United States of America. Further in time, Indonesia's TFP in 2011 was 0,41 and South Korea was 0,69 (while the USA was1). During that period, Indonesia achieved its highest value of 0,65 in 1995, 0,61 in 1997, and drastically fell to 0,44 in 1998. While South Korea at the same time achieved 0,76 in 1998, 0,74 in 1997, and 0,70 in 1998. The Asian economic crisis in 1998 hit Indonesia's TFP massively, however South Korea was able to maintain its TFP above 0,70. With a relatively low performance of TFP, and prone to decline due to potential crisis, Indonesia's economy is becoming further prone during its preparation to escapethe middle income trap.

In terms of real household and government consumption, based on the Penn World Table (PWT) 8.1 (Feenstra, Inklaar, and Timmer 2015), which is also based on PPP with dollar value of 2005, in 1960, Indonesia's consumption was 2,53 times more than South Korea's. On one side, the household consumption share to Gross Domestic Product in Indonesia was 0,53, meanwhile South Korea was 0.79. In 2011, Indonesia's consumption was 0,99 times more than South Korea's. The household consumption share in Indonesia and South Korea in this year are respectively 0,61 and 0,49. In other words, the Indonesian economy is increasingly more dependent on household consumption in comparison to South Korea, however the size of the consumption is almost equal. South Korea systematically transforms its economy thus lowers down household consumption, meanwhile Indonesia increases its consumption. What about government consumption? In 2011, the share of Indonesian and South Korea government consumption were respectively 0,12 and 0,13. Meanwhile in 1960, they were respectively 0.09 and 0.18. Similar with household consumption, South Korea's economy systematically lowers down the role of government consumption towards its economy, while Indonesia does the reverse.

During the Asian crisis in 1998, based on PPP, the consumption ratio between Indonesia and South Korea achieved 1, then decreased to 0,81 in 2002. The crisis seemed to hit Indonesia more, in term of consumption, in comparison to South Korea. Indonesia's attempt to make its domestic market the alternative to the international market is very risky, due to its vulnerability of a declining domestic market caused by external shock.

Another indicator is the domestic economy absorptive capacity. In 1960, based on the Penn World Table (PWT) 8.1 (Feenstra, Inklaar, and Timmer 2015), Indonesia's absorptive capacity was 2,43 times more than South Korea's, however in 2011 it fell to0,84. The domestic economy

absorptive capacity also includes investment. During the 1998 crisis, the ratio was 0,92 and fell to 0,77 in 1999. Undoubtedly, Indonesia's absorptive capacity is not only weaker than South Korea's but also very sensitive to economic crisis. Once again, the attempt to make the domestic market as the main alternative in the economic development of Indonesia during economic crisis will cause the country to face a great risk.

Referring to Gross Domestic Product per capita, from expenditure based on PPP Converted GDP Per Capita (Chain Series), at 2005 constant prices from Penn World Table (PWT) 8.1 (Feenstra, Inklaar, and Timmer 2015), in 1960, Indonesia's Gross Domestic Product per capita was 0,73 of South Korea's GDP per capita. Meanwhile in 2011, the ratio declined to 0,17. Indonesia fell way behind. Undoubtedly, South Korea has "run" faster in comparison to Indonesia. With this data, is there any probability for Indonesia to escape the middle income trap, since its growth rate is unremarkable? It might be difficult. Regarding Romer's first question, evidently Indonesia's growth rate is not adequate. Never mind competing, the possibility is still remote to even narrow the gap in economic performance between the 2 countries.

This is clearly not the fault of Joko Widodo's administration since poor economic performance is accumulated by the Old Order, New Order and until Yudhoyono's administration. Admittedly, the task of Joko Widodo's presidency is extremely heavy, particularly in guaranteeing the escape from the middle income trap.

Human Capital Is In Critical Condition

According to Eichengreen, Park, and Shin (2013) the key to escape the trap is: "That a large share of high-tech exports is negatively associated with the likelihood of a slowdown points to the same conclusion. Intuitively, the inherited stock of human capital shapes a country's ability to move up the technology ladder and its capacity export products embodying advanced technology. As they reach middle income status, emerging markets typically import advanced technology from more developed countries. Taking the next step, which involves adapting imported technology to local conditions and embodying it in exports with high local content, requires a pool of highly skilled workers.(Page 13)."

They continued by explaining, "Other variables, from political regime changes and financial instability to trade openness and terms-of-trade shocks, also show some association with growth slowdowns. But compared to educational attainment and the structure of exports, they are less robustly related.(Page 13)".

It is interesting to review the quality of education in Indonesia. Previously, human capital based on school duration has been discussed. What about Indonesian human capital quality based on cognitive skills? It is also not satisfying. First, Indonesian students' cognitive skill is poor

in comparison to other developing countries. The most effective comparison is with Thailand, as it is also a developing country and member of ASEAN. Based on a study by PISA, from 2003 to 2012, the mathematical skill of Indonesian elementary students has been decelerating. In order to have a clearer picture, let us take a look at OECD (2013) PISA 2012 Results: What Students Know and Can Do. Student Performance in Reading, Mathematics and Science (Volume I), Paris. Decelerating means there is a trend of declining mathematical score for almost ten years. The decline indicates poorer performance of students in mathematics. Indonesia was experiencing economic growth during the period, yet the students' mathematics capacity was in decline while elementary students in Thailand were improving in mathematics during the same period. Indonesia's performance was getting poorer with the value of 0,7 in mathematics, while Thailand's was accelerating with the value of 0,2. Small economic countries, which are able to pass through middle income trap, such as Taiwan, have rapid growth of mathematic skills among elementary students, which is 1,3. To have a clearer picture, see Table 1.It is important to note that there is positive correlation between income and mathematical skills. In 2012, Indonesia was on the second last rank above Argentina, in term of percentage of students with good mathematic skills (level 5 and 6), with the total of 0,3 percent out of all students. The percentage of students with low mathematic skill was 75,7 percent (under level 2).

The tendency of decelerating performance in mathematics also occurs in reading. In 2012, Indonesia has 0.1 percent out of its total students ranked at smart level for reading (level 5 and 6), which was the second lowest out of all the countries observed. Meanwhile 55,2 percent (under level 2) of students were at poor level. The figure indicates Indonesia also tends to get a decelerating performance in reading. PSA with a student percentage of lower than one percent. Particularly in the observed period, the score lowered by 0,4.The deceleration of performance in mathematics is twice that of reading. Meanwhile elementary students in Thailand had 0.7 accelerating score in reading. This means, the elementary students in Thailand experience a more accelerated performance process for reading skills compared to mathematics, at the rate of three times faster. What about Taiwan? Amazingly, Taiwan's score in reading accelerated 1,6 times, see Table 2. Similar with mathematical achievement, elementary students in Taiwan have a reading performance acceleration score that is also higher than 1. This indicates a highly effective learning process in Taiwan.

What about in science? According to PISA in 2012, Indonesia was at the bottom rank in percentage of students reaching smart level in reading (level 5 and 6), which was under 0,1 percent, while under the category of very poor the figure stood at66,6 percent (under level 2).PISA also investigated this progress from 2006 to 2012 (see Table 3). In this period, elementary students in Indonesia experienced annual intellectual deceleration with the score of 1,9. Meanwhile in the same period the elementary students in Thailand experienced annual intellectual acceleration with the score of 3,9. A spectacular progress. Singapore achieved the score of 3,3. Meanwhile Malaysian students' also experienced deceleration, with the score of

1,4. What about Taiwan? Taiwan had an annual decelerated score in science by 1,5. However, Taiwan had a higher average score in science in comparison to students in OECD countries (see Table 4). In 2009 the, average score of science in Taiwan was 520, meanwhile in Indonesia and Thailand were respectively 383 and 425. The average score of OECD, Singapore, and Malaysia in 2009 were respectively 501, 542, and 422.

It is interesting to observe, to what extent basic education in Indonesia can narrow the performance gap with other OECD countries. In science, the gap is even wider (see Table 4). The score of Indonesian students in science keeps getting lower. Based on Pisa 2006 and Pisa 2009, the scores were respectively 393 and 383. Meanwhile, also in science, the average score of students in OECD countries in 2006 and 2009 were respectively 498 and 501. In other words, from the human capital perspective, Indonesia is falling behind from other OECD countries.

In 2003, Indonesia achieved the score of 360 in mathematics, while the average score of OECD countries was 500 (see Table 5). In 2006, average score of Indonesian students in mathematics was 391, meanwhile the average of OECD was 498. The figures indicate narrower gaps due to the improvement in Indonesia's score and a deceleration in OECD's score. In 2009, the average score of students in Indonesia was 371, meanwhile in OECD it was 496. Compared to 2006, the gap was getting wider. However, compared to 2003, the gap was narrower.

In reading, the score gap is getting narrower, however it is still significantly wide (see Table 6). From2000 to 2009, the average score of elementary students in OECD countries was decelerating, from 496 to 494 in reading. Meanwhile the average score of Indonesian students was accelerating, from 371 to 401. Unfortunately, in 2012, Indonesia's score decelerated to 396.

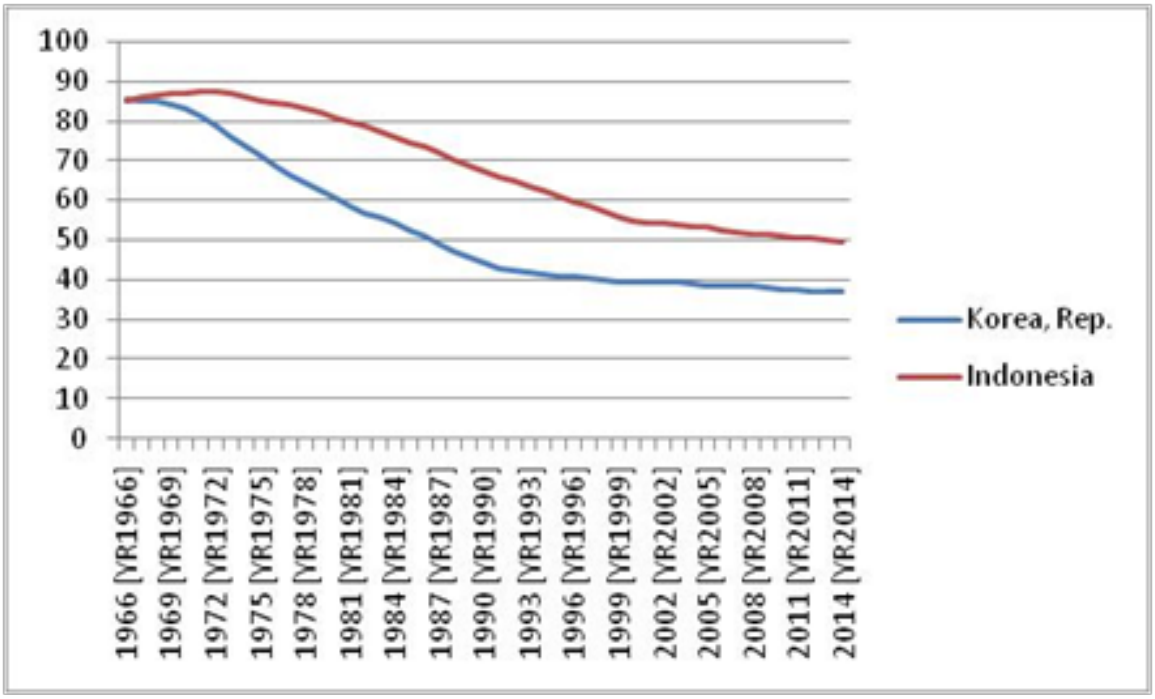
The lack of competitive human capital in Indonesia is obvious. Based on elementary students' performance in mathematics, reading, and science, it is clear that cognitive skills and school duration are not yet able to support the high economic growth necessary to be coming a technology frontier country. Based on the World Development Indicator 2012, the school enrollment ratio for secondary education in Indonesia, in 2011, was 74,8 percent, while South Korea was 95,6 percent. In tertiary education, in 2011, Indonesia achieved 27,2 percent but South Korea achieved 100 percent.

The Dependency Ratio in both countries decreases, however South Korea decreases faster compared to Indonesia. See Graph 1. Consequently, with poorer human capital quality in Indonesia, in comparison to South Korea, the productive age (15 to 64 years old) in Indonesia must bear a heavier burden than in South Korea.

Based on the Penn World Table (PWT) 8.1 (Feenstra, Inklaar, and Timmer 2015), the low quality of human resources in Indonesia is also reflected in the share of work compensation

in the Gross Domestic Products which is lower than in South Korea. In 1960, the percentages of the contribution of the workers' remuneration to Gross Domestic Product in Indonesia and South Korea were respectively 46,3 percent and 66 percent. Meanwhile in 2011, they were respectively 46,7 percent and 54,5 percent. In Indonesia, the contribution of labor value added is always under 50 percent of its Gross Domestic Product, while in South Korea it is always above 50 percent of its GDP. Workers in Indonesia receive a relatively smaller share of the development "pie", compared to workers in South Korea from 1960 to 2011.

Graph 1. Dependency Ratio



Source: World Development Indicator 2015

Education will not be effective if the educated system is not in a good state. Social security reform is a crucial prerequisite to guarantee better quality of Indonesian human capital, in order to improve technology absorptive capacity. Anders Isaksson (July 2007) noted,

"By absorptive capacity is meant a wide range of capacities, from the most basic skills in reading, writing and mathematics to scientific and other advanced capabilities. Empirical indicators usually only include R&D and human capital, the latter in a very broad sense so that it includes health and experience in addition to education. Viewing these indicators in terms of absorptive capacity, it is suggested that the effect on TFP is direct".

Good health is the primary prerequisite for labor productivity and the effectiveness of formal education and training. It is a legal obligation of the government to provide health coverage, particularly due to the decreasing labor welfare. It is ironic that in Indonesia, with lower welfare levels than developed countries, the people must bear the cost of health. Meanwhile in developed

countries, the majority of health costs are covered by the public instead of private sector. In Indonesia, only 40 percent of health expense is covered by the public sector, meanwhile the average coverage by the public sector in developed countries is 72 percent. How can Indonesia catch up with its poorer human capital? Political will is a must. According to OECD (2014) in its report on Indonesian health statistics: "Total health spending accounted for only 3.0% of GDP in Indonesia in 2012, three times less than the OECD average of 9.3%. Health spending as a share of GDP among OECD countries is highest in the United States, which spent 16.9% of its GDP on health in 2012. Health spending tends to rise with incomes, and generally countries with higher GDP per capita also tend to spend more on health. It is not surprising, therefore, that Indonesia ranks well below the OECD average in terms of health expenditure per capita, with spending of only USD 150 in 2012 (adjusted for purchasing power parity), compared with an OECD average of USD 3484. The public sector is the main source of health funding in nearly all OECD countries. In Indonesia, 40% of health spending was funded by public sources in 2012, much lower than the average of 72% in OECD countries".

Beside a weak demand for health improvement, the health system in Indonesia is also facing weak supply, OECD (2014): "With an estimated 0.3 physicians per 1000 population in 2012, Indonesia had much fewer doctors per capita than the OECD average of 3.2. Indonesia only had 1 nurse per 1000 population in 2012, also a much lower number than the OECD average (8.8 nurses)".

With such weak supply, even if the health insurance system runs well, then people will still have difficulties in accessing health facilities. Bottlenecks will occur. Thus health supply should be improved immediately.

Other basic issues of public health is the poor quality of Indonesian human resources due to inadequate vaccination. Without health, it is challenging to expect students to study well, and workers to work productively, OECD (2014): "There continues to be gaps in the vaccination rates of children in Indonesia: 64% only of children were vaccinated against diphtheria, tetanus and pertussis (DTP) in 2012, while the coverage rate was higher for measles at 80%. This is lower than the coverage rate in most OECD countries which is close to 100%".

Without strong commitment from the government to fix the public health sector, then Indonesia's target in establishing quality human capital to narrow the gap with OECD countries is even more infeasible.

The government should also have the courage to provide education subsides for doctors and nurses as well. Ideally, education for doctors and nurses should be free in Indonesia, considering health is a primary prerequisite in establishing quality human capital in any place in the world. This need is urgent. One short term solution is by easing the access for foreign

doctors and nurses to practice medicine in Indonesia.

Manufacture Exports Performance Exacerbates the Probability for Indonesia to be Trapped

Maddison (2001) reminded of the significance of the manufacturing sector, particularly in the United States of America as an innovation motor in increasing productivity, to the extent that it surpassed the United Kingdom. The manufacture sector the in USA has established research institutions, which positively interacts with university research.

Maddison (2001 page 101) noted: "The leading role in developing these twentieth century technologies was played by the United States, which had become the world leader in terms of productivity and per capita income. The driving forces of innovation had changed from the nineteenth century, with a reduced role for the individual inventor, and greater emphasis on applied scientific research of a type which the United States pioneered. It institutionalized innovation in a way the United Kingdom had never done. In 1913, there were about 370 research units in US manufacturing employing 3 500 people. By 1946 there were 2 300 units employing 118 000. In 1946 there were four scientific workers in US manufacturing per 1 000 wage earners, five times more than the ratio in United Kingdom. US government–sponsored research played a much more important role in agriculture and mining than in the United Kingdom, and the link between business firms and universities was closer (see Mowery and Rosenberg, 1989)."

The contribution of value added from the manufacturing sector towards Indonesia's Gross Domestic Product in 1966 was lower than South Korea's. However from 1996 to 2006, Indonesia's ratio exceeded that of South Korea's for several years. Yet, since 2001, the ratio in Indonesia has been systematically declining, meanwhile in South Korea it has been increasing (see Graph 2).The highest ratio in Indonesia was in 2001, which was 29,1 percent. This was also the era when Indonesia started to prioritize exports on mining and agriculture commodities. Indonesia's economy began to be increasingly less friendly to the manufacturing sector.

South Korea managed to escape the middle income trap by maintaining the performance of the manufacturing sector, which is consistent with its economy. South Korea's key to its success is not possessed by Indonesia. The decreased contribution of the manufacturing sector's value added indicates the failure of Indonesia, in competing with the manufacturing sector of other countries that depend on low wage labor as well as with that of the developed countries which depend on high skilled labor who have a high capacity as well as the capability to innovate. Indonesia is simply not able to manage the transformation from natural resources-based growth, with low wages, to higher technology-based economic growth!

Graph 2. Market Share of Manufacture Value Added towards Gross Domestic Product

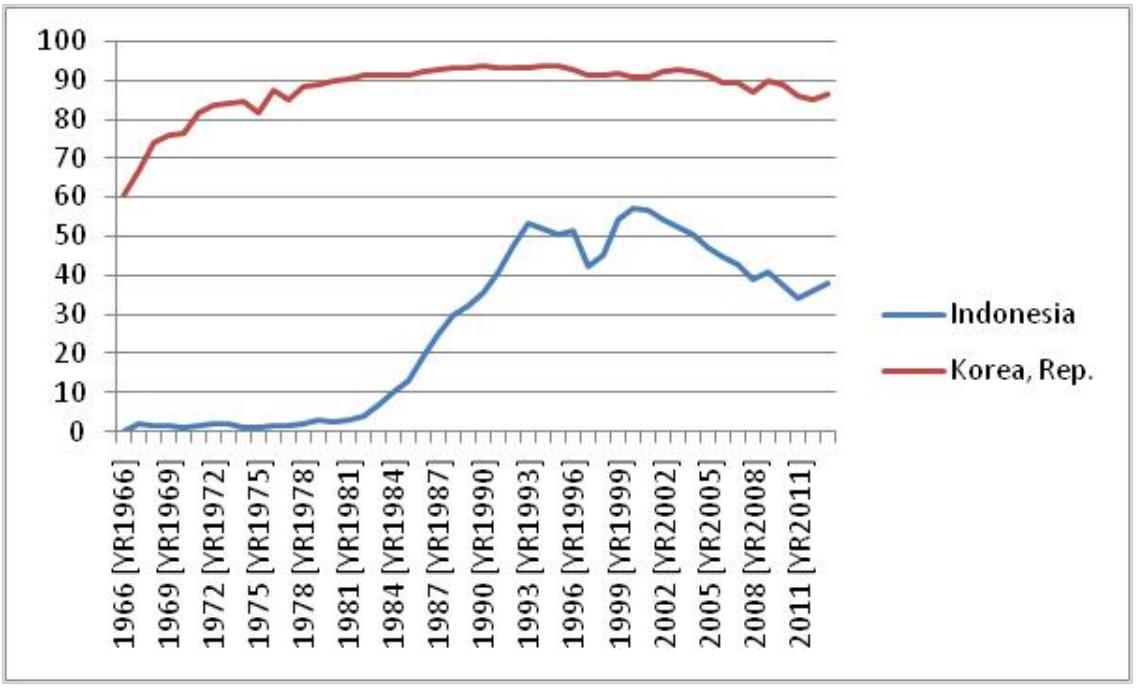
Source: World Development Indicator 2015

The contribution of manufacture exports to the commodities export total in South Korea is not only above 80 percent, but also indicates a stable growth. Meanwhile in Indonesia, it is still under 40 percent to date, with a fluctuating trend with the inclination to decline. See Graph 3 for more details. What is referred to as manufacture here is that of commodities in SITC sections 5 (chemicals), 6 (basic manufactures), 7 (machinery and transport equipment), and 8 (miscellaneous manufactured goods), excluding division 68 (non-ferrous metals).The Asian economic crisis in 1998 affected both countries, when there was the trend of decline in manufacture export's contribution. However the impact was greater in Indonesia, as it was falling from the ratio of 50 percent to below 40 percent. Even though in South Korea the ratio was also declining, but it was still approximately at the 80 percent level. It is clear that the external shock caused the development of the manufacturing sector in Indonesia to become unsustainable. Crises stemming from external shock is a serious threat for Indonesia if it wishes to avoid the middle income trap.

In terms of the contribution of share of merchandise exports to Gross Domestic Product at current PPPs, in 1960 in Indonesia and South Korea were respectively 0,39 and 0,009.It indicates that since the very start, Indonesia's economy was in the form of a small open economy, meanwhile South Korea was a small and relatively closed economy. The economic transformation in both countries then indicates that the level of economic openness increases in South Korea, meanwhile it decreases in Indonesia. Indonesia adopted an import substitution strategy in the

New Order era while during that period South Korea adopted an export promoting strategy. In 1973, the share contribution declined in Indonesia, and increased in South Korea, to respectively 0,24 and 0,14. In 1980, the share of Indonesia and South Korea was respectively 0,23 and 0,25. It is evident that the role of commodities exports to GDP in Indonesia keeps on decreasing, while it increases in South Korea. The value in 1988, which was the era of the highest import substitution in Indonesia, was 0,095 and South Korea was 0,26. During 1998 economic crisis, the ratio in Indonesia was 0,14 and in South Korea 0,28. In 2011, Indonesia was 0,19, but South Korea had achieved 0,46.

Graph 3. Share of Manufacturing Export to Merchandise Export

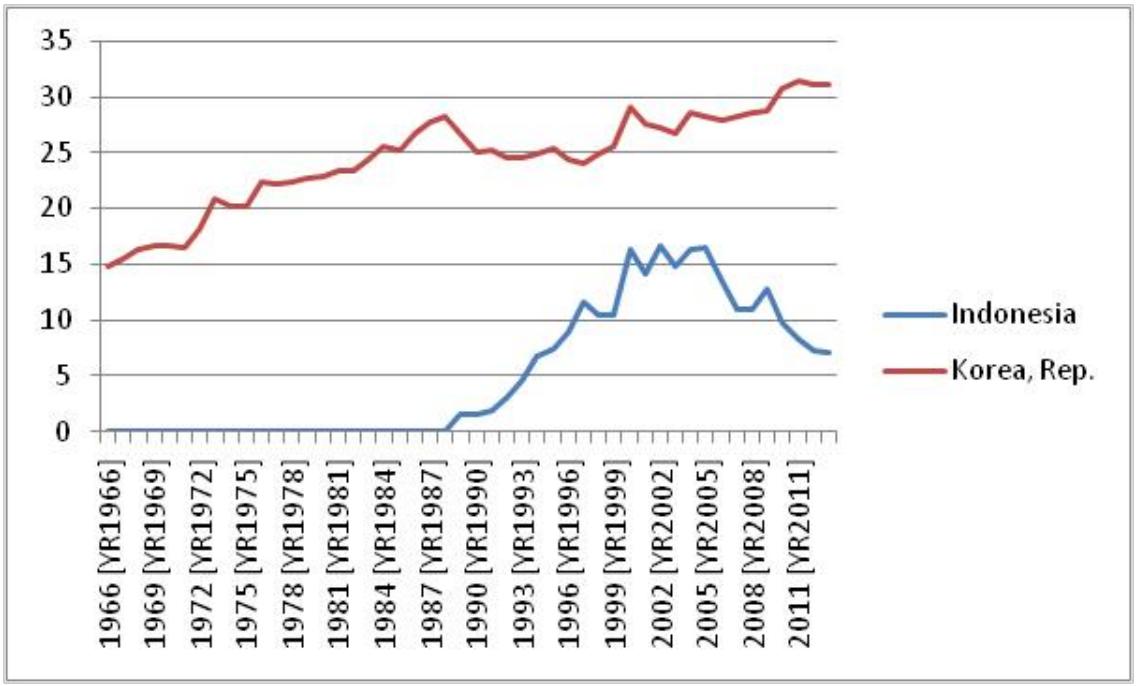


Source: World Development Indicator 2015

High technology based-exports are products with high R&D intensity, such as in aerospace, computers, pharmaceuticals, scientific instruments, and electrical machinery. In Graph 4,it is clear that high technology-based export's contribution to South Korea's total export has been massive since the 60's and tends to keep on increasing, until exceeding the ratio ceiling of 30 percent. Meanwhile Indonesia had a ratio of under 5 percent in the 60's with the trend increasing in the 90'sand peaked in early 2000 at 16 percent. The ratio since then has been systematically declining in mid-2000 towards five percent.

Eichengreen, Park, and Shin (2012, 2013)have warned that the poor ratio is a serious threat to any middle income country that wishes to escape the terrible middle income trap. Implicitly, this also indicates that relatively, Indonesia is yet to possess adequate manpower with tertiary education in industries such as aerospace, computers, pharmaceuticals, scientific instruments,

Graph 4. High Technology Based-Exports (% of manufactured exports)



Source: World Development Indicator 2015

and electrical machinery. Although their number is increasing, the rate is much lower compared to South Korea. Indonesia also falls behind in terms of quality. The trend is reflected in the school enrollment ratio for tertiary education in Indonesia, which is far behind South Korea. From the progress of export value, it is apparent that the gap of high technology based exports between South Korea and Indonesia keeps widening. Indonesia's value of high technology based-exports is stagnant, under the category of very poor performance (Graph 5).

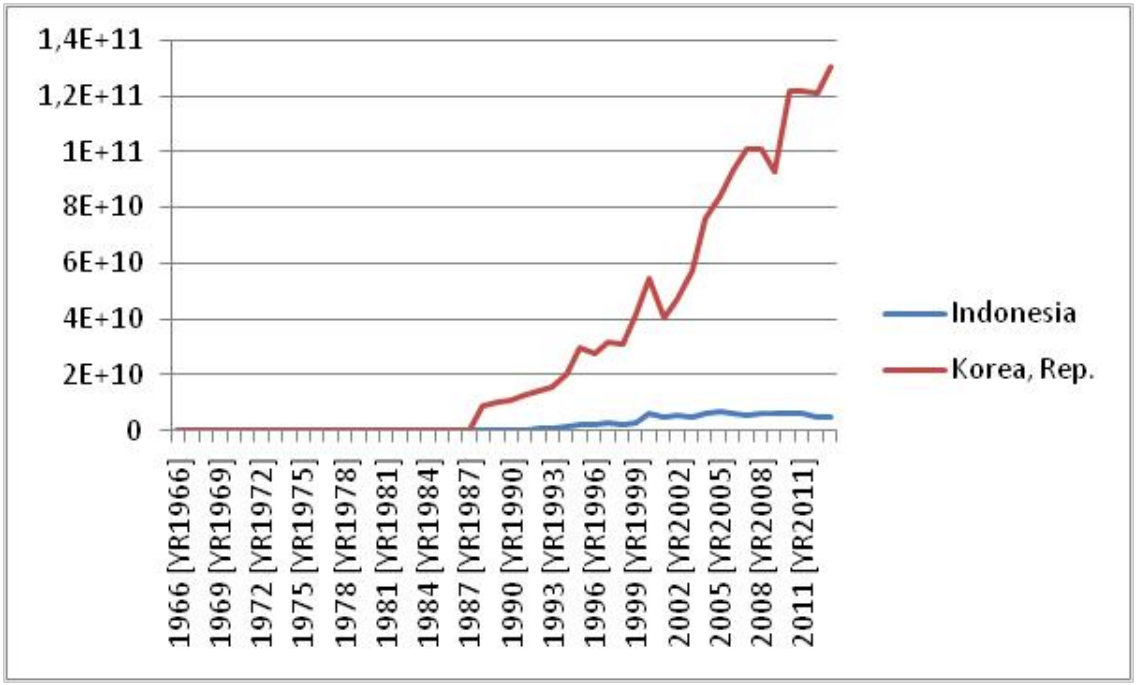
The high competitiveness of South Korea's economy and the weak competitiveness of Indonesia's are reflected in the progress of their current account balances (see Graph 6 and 6.a), in which South Korea keeps producing surplus and Indonesia keeps generating deficit. The condition shows that economic development strategy in Indonesia must take a significant turn in order to escape the middle income trap. Indonesia should be able to transform its economy towards high skilled and creativity-based manufacture, thus able to change its current account balance into a positive value.

Another influential factor for low income countries to fall into the middle income trap is currency depreciation. Too frequent depreciation in order to improve competitiveness of low wages based-exports will hamper the economic transformation to high skilled based-exports (Eichengreen, Park, and Shin (2012, 2013)). Indonesia implemented currency depreciation (Rupiah) during the Old Order, New Order, and Reform Order. In 1960, the value of Rupiah to US dollar was 0,075, then weakened to 4 in 1965. In 1998, the value fell into 10.013 Rupiah

per US dollar, then climbed up to 8.770,4 Rupiah per US dollar in 2011. South Korea's currency was also getting weaker during the similar period. However, in net, the weakening of the Rupiah occurred massively compared to Won. By calculating the value of Rupiah to Won, the systematic weakening is clear; from 0,005738731 Rupiah per Won in 1964, to 7,91345212 Rupiah per Won in 2011, see Graph 7. Won also depreciated against the US dollar from 63,13 Won per US dollar in 1960 to 1.108,3 Won per US dollar in 2011.

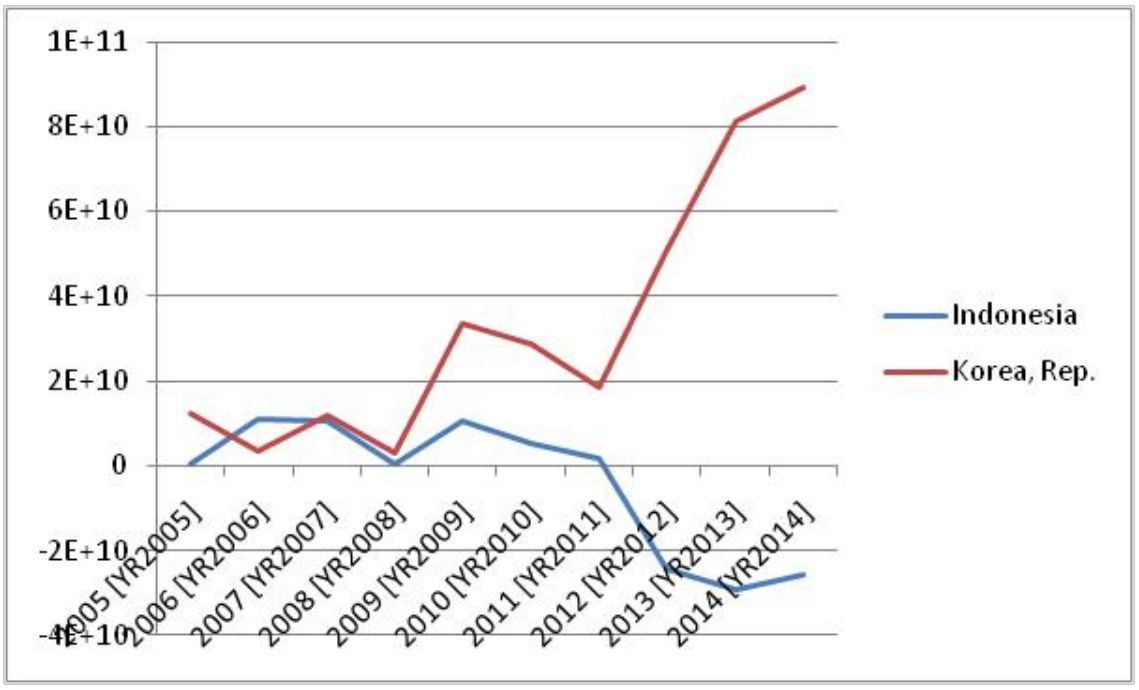
Indonesia still has an opportunity as its population structure is yet to burden its development with senior citizens (see Graph 8). Even in comparison to South Korea with almost 18 percent of senior citizens, Indonesia has only reached 8 percent. However, this condition needs to be complemented with higher quality human capital. If human capital quality cannot be improved immediately, this opportunity will disappear.

Graph 5. High-Technology Based-Exports (current US$)



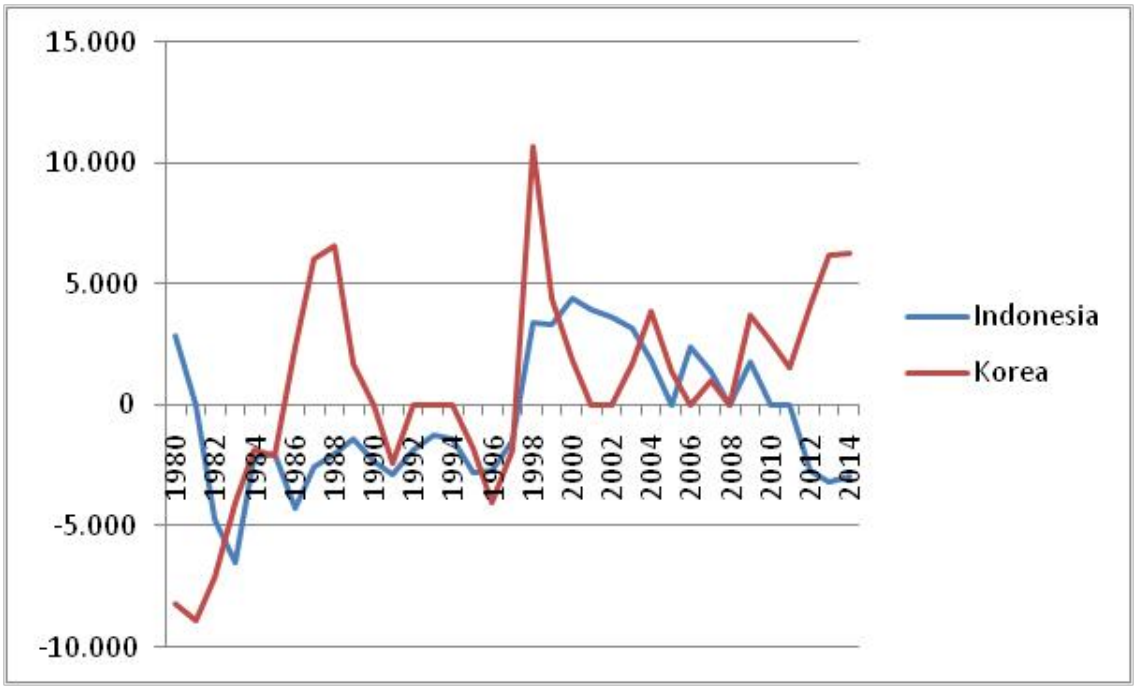
Source: World Development Indicator 2015

Graph 6. Current Account Balance (current US$)



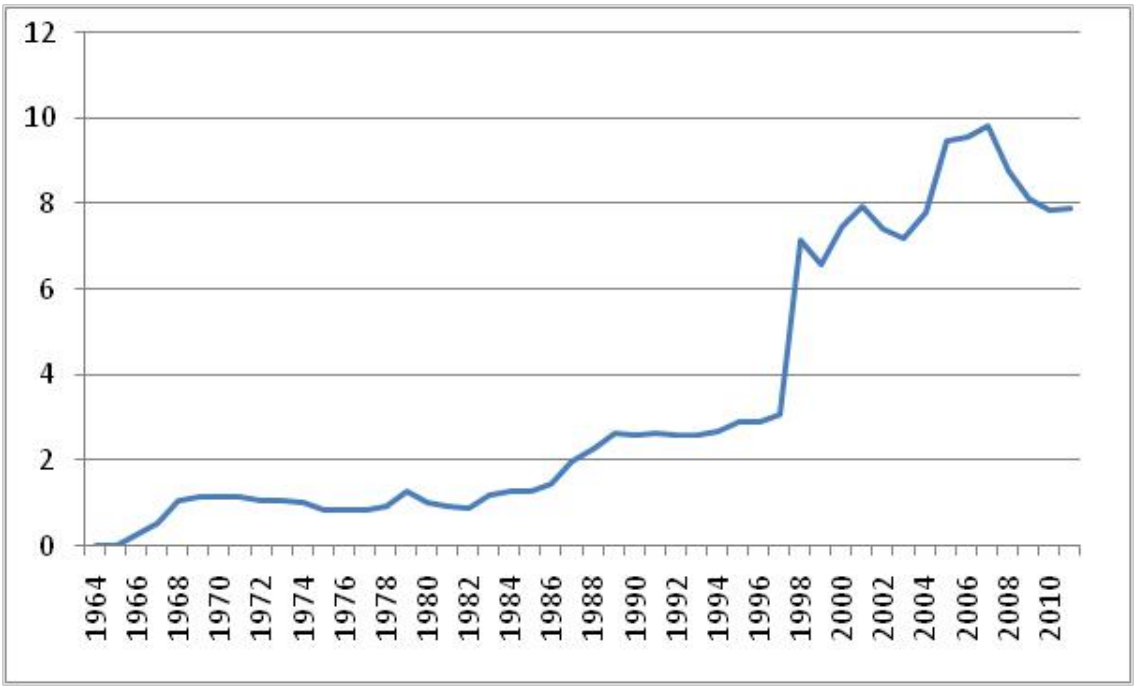
Source: World Development Indicator 2015

Graph 6a. Current Account per GDP (in Percent)



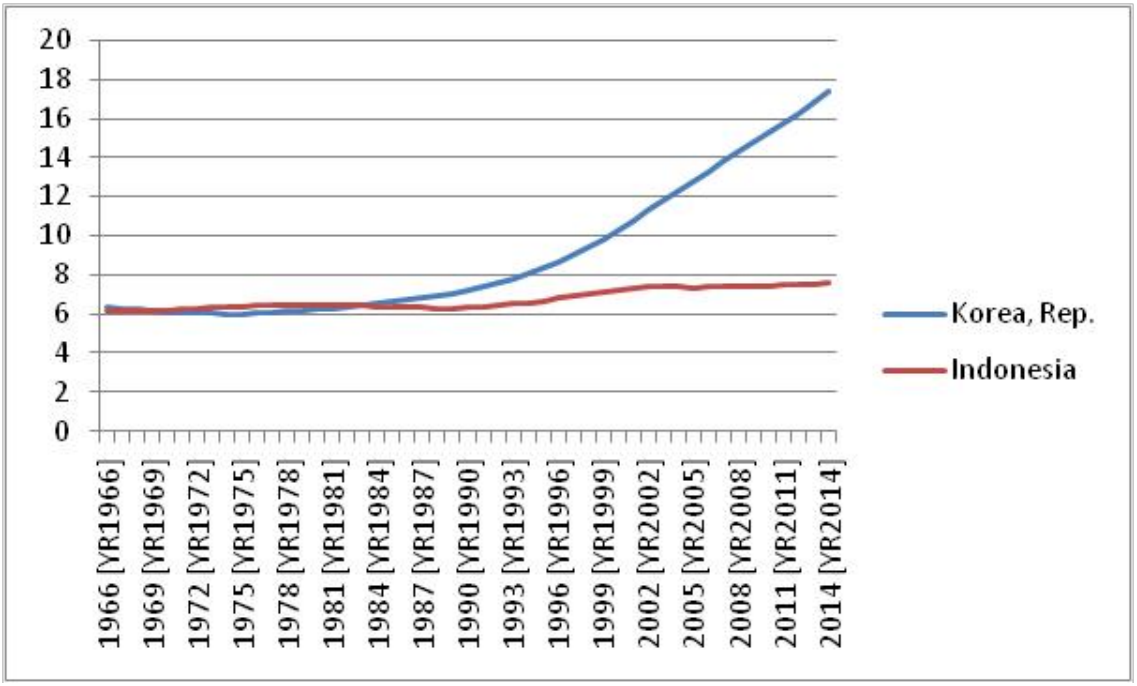
Source: World Economic Outlook 2015 Data Base

Graph 7. Depreciation Progress of Rupiah's Exchange Rate to Won



Source: Calculated by utilizing Penn World Table (PWT) 8.1
(Feenstra, Inklaar, and Timmer 2015)

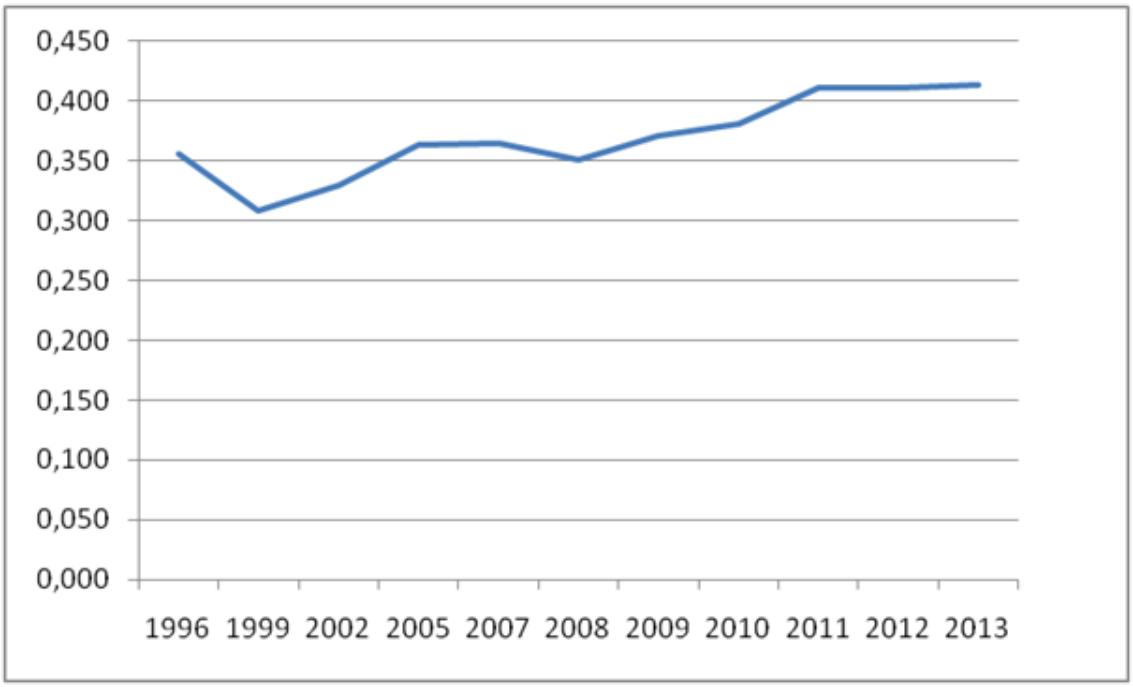
Graph 8. Age Dependency Ratio, Old (% of working-age population)



Source: World Development Indicator 2015

Serious Threat of Income and Workers' Welfare Discrepancy

Graph 9. Discrepancy in Gini Ratio in Indonesia



Source: Welfare Indicator 2015, Statistics Indonesia.

Income inequality is an extremely serious indicator to identify if Indonesia is able to pass through the middle or low income trap. Taiwan and South Korea are countries which have relatively have minor income inequality. Rodrik (1994) noted: "In Korea and Taiwan, unlike in so many other developing countries, these additional requirements were present. Why? One important factor was clearly the availability of relatively skilled labor, enabling the formation of a competent bureaucracy. In addition, an exceptionally high degree of equality in income and wealth - one of the other initial conditions mentioned earlier - was important as well. How exactly did the latter help? The absence of large inequities meant several things (Page 91-92).

He further elaborated the first benefit of equal income distribution in a country: "First, neither government had to contend with powerful industrial or landed interest groups. Such powerful groups had been decimated by the Japanese occupation (Korea), the settlement by the mainland Chinese (Taiwan), and land reform (both countries). Therefore, policy making and implementation could be insulated from pressure group politics. In both countries, the implementation of growth-oriented policies required a number of institutional reforms, including the centralization of functions previously distributed among multitudes of ministries and agencies, and the creation of new bureaucracies. These institutional reforms could be undertaken relatively autonomously, and with little pressure from the push and pull of daily politics. Economic laws

and regulations could be written by technocratic elites, with little concern for their effect on organized pressure groups."

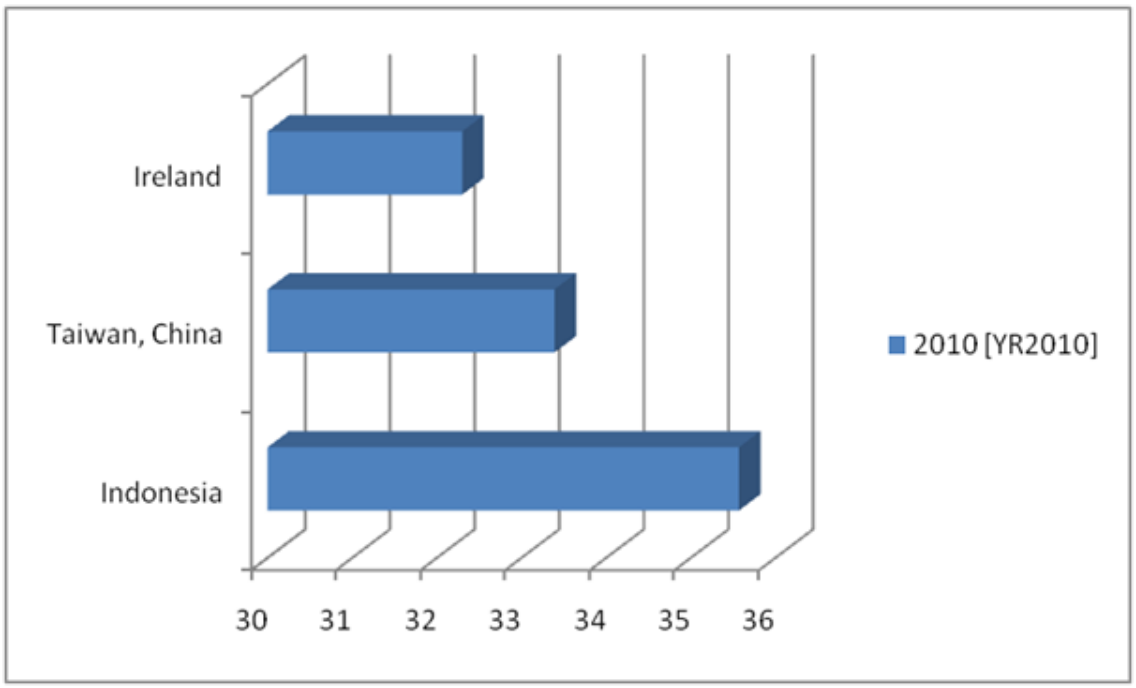
He then added: "Second, the absence of large-scale inequities meant that governments felt no immediate need to undertake redistributive policies. The analytical literature on the political economy of growth suggests that regimes which inherit large inequalities are constantly under pressure to implement growth-retarding policies An example is the pursuit of populist fiscal and microeconomic policies (as in much of Latin America) which engender high inflation, stop)—go cycles and low growth. The political leadership in Taiwan and Korea could concentrate on expanding the pie instead."

Finally, he ended his explanation on the significance of equal welfare to the success of industrial policy: "Third, and related to the above, the fact that the top political leaders were free to focus on economic goals meant that they could supervise the bureaucracy closely. This is important because interventionist regimes are prone to two fatal problems having their origin in the bureaucracy. The first is that interventions naturally generate opportunities for rent seeking. A weak or poorly supervised bureaucracy is incapable of reining in rent seeking (or becomes part of it). A strong bureaucracy, on the other hand, can choke off entrepreneurial incentives by sticking too closely to the letter of the law and imposing too many cumbersome restrictions aimed at rooting out rent seeking. In both Taiwan and Korea, the top political leaders closely monitored the bureaucracy to make sure that the bureaucrats assisted rather than hindered private entrepreneurship. President Park, in particular, was famous for his daily involvement in the implementation of his economic policies, and his willingness to override the bureaucracy at a moment's notice when businessmen had legitimate complaints".

A similar point is also addressed by Booth (1999). Beyond the points mentioned above, Booth also expounded on how South Korea and Taiwan had relatively minor income inequality compared to Thailand, Malaysia, and Indonesia. He noted: "The last significant point of difference between the North East Asian and the South East Asian experiences of accelerated economic growth concerns the distributional outcomes. I have already emphasized that an important part of the colonial legacy in South East Asia were the substantial income disparities between urban and rural areas, between regions and between ethnic groups, which persisted in the immediate post-independence era. Most countries in the region embarked on a process of accelerated growth after 1960 with greater income differentials than in South Korea or Taiwan".

Chart 1 indicates the Gini coefficient between Indonesia, Taiwan, and Ireland in 2010. In that year, Taiwan and Ireland had achieved relatively high Gross Domestic Product due to their industrial policies. Taiwan benefited from its domestic investment capacity and Ireland benefited from Foreign Direct Investment.

Chart 1. Gini Coefficient 2010



Source: World Development Indicator 2015.

In contrast with South Korea and Taiwan, the income inequality in Indonesia keeps worsening (see Graph 8). Indonesia is facing a more challenging condition compared to South Korea and Taiwan in order to escape the middle as well as low income trap, due to income inequality. Moreover, the Gini coefficient of Indonesia has exceeded the safe limit. Since 1998 to date, the Gini coefficient in Indonesia has been worsening. Since 1999, with a Gini ratio of 0,355, it rapidly climbed up to 0,413 in 2013. The ratio has exceeded 0,40 since 2011 under Yudhoyono's presidency. Chronologically, the Gini ratio in 2007, 2008, 2009, 2010, 2011, 2012, and 2013 were respectively 0,364, 0,35, 0,37, 0,38, 0,41 0,41, and 0,413. This translates to a serious and worsening ratio. During the period 1999 to 2013, the Gini ratio had fallen down by 34,1 percent. The 1998 economic crisis evidently caused more inequality in income distribution. It is important to note that these figures are from Statistics Indonesia, using Susenas (National Socio-Economic Survey) data, with an expenditure approach. This translates to wider actual income inequality compared to the calculation by the Bureau of Statistics of Indonesia as stated above. Besides Susenas data, only Indonesia Family Life Survey (IFLS) data that can be used to calculate the Gini coefficient in Indonesia. With IFLS data, based on the calculation by Fields *et al*. (2003: 73), the Gini Coefficient in Indonesia during 1993 and 1997 was 0.56. Since the New Order, Indonesia has been going through massive income inequality.

Still referring to the Bureau of Statistics of Indonesia's data, income inequality both in rural and urban areas keeps worsening, however in urban areas, it is relatively much worse. In rural areas, income inequality in the year 2005, 2006, 2007, 2008, 2009, 2010, and 2011 were

respectively 0.27, 0.28, 0.3, 0.3, 0.29, 0.32, and 0.34. The figures translate to 25,9 percent of widening income inequality during the period. Meanwhile in urban areas, income inequality in the year 2005, 2006, 2007, 2008, 2009, 2010, and 2011, were respectively 0.32, 0.35, 0.37, 0.37, 0.37, 0.38, and 0.42. The figures translate to 31,25 percent of widening income inequality in cities. The condition occurred because workers in urban areas were trapped in the service sector instead of manufacturing and consequently, those workers received low wages. Furthermore, becoming members of trade unions was difficult as was gaining access to minimum wages. Outside of Indonesia, the same condition has also occurred in other ASEAN countries. Booth (1999, Page 34) noted: "But the high urban rural income disparities common in South East Asia suggest a rather different explanation. Many people stay in rather poorly remunerated agricultural jobs because they doubt that they can find non-agricultural employment, and those that do move into non-agricultural jobs tend to find them in services rather than manufacturing. It is striking that a considerably higher proportion of non-agricultural employment in Indonesia, Thailand, Malaysia and the Philippines was in services compared with Taiwan, South Korea and Japan at similar levels of income."

In Indonesia, the manufacturing sector receives higher wages than the service sector, which is also higher than the minimum wage. The average ratio of manufacture labors' income to minimum wages keeps declining, from 1,84 in 2004 to 1,42 in 2010. The average ratio of labors' income in the hospitality sector to minimum wages is also declining, from 1,65 in 2004 to 1,29 in 2010. The average ratio of labors' income in the non-oil mining sector to minimum wages is relatively constant from 3,57 in 2004 to 4,10 in 2010. Another labor welfare issue is the high ratio between the minimum physical needs of workers and the minimum wages. In 2004, the ratio was 1,08 and in 2008 it was 1,13. Therefore, minimum wages no longer cover the minimum physical needs of labor.

The average ratio of labors' income to minimum wages will keep declining in the future. The declining trend is clear, as the ratio in 2004 was 1,59 and kept declining to 1,29 in 2008, 1,31 in 2009, and 1,33 in 2010. Therefore systematically, the average welfare of labors is in decline. The income ratios of manufacture and hospitality labors are estimated to keep declining in the future. Both ratios indicate a declining trend since 2004, meanwhile the economic growth relatively indicates improvement during similar period. This means the growing economy does not increase welfare for labors in both sectors. It is not impossible that the ratios in both sectors will reach the value of one or even below in several following years. Non-oil mining laborers have a better level of welfare compared to manufacturing and hospitality laborers. The income ratio in the non-oil mining sector was 3,57 in 2004 and 4,1 in 2010. It was 5,19 in 2007, fell down to 3,71 in 2008, and 3,06 in 2009; undoubtedly due to the economic crisis in developed countries, particularly the United States of America. In 2004, the ratio climbed back up to 4,1, which indicates that the demand of non-oil mining commodities was still high. Meanwhile the income ratio of the manufacturing sector to minimum wages in 2004 was 1,84 and kept falling

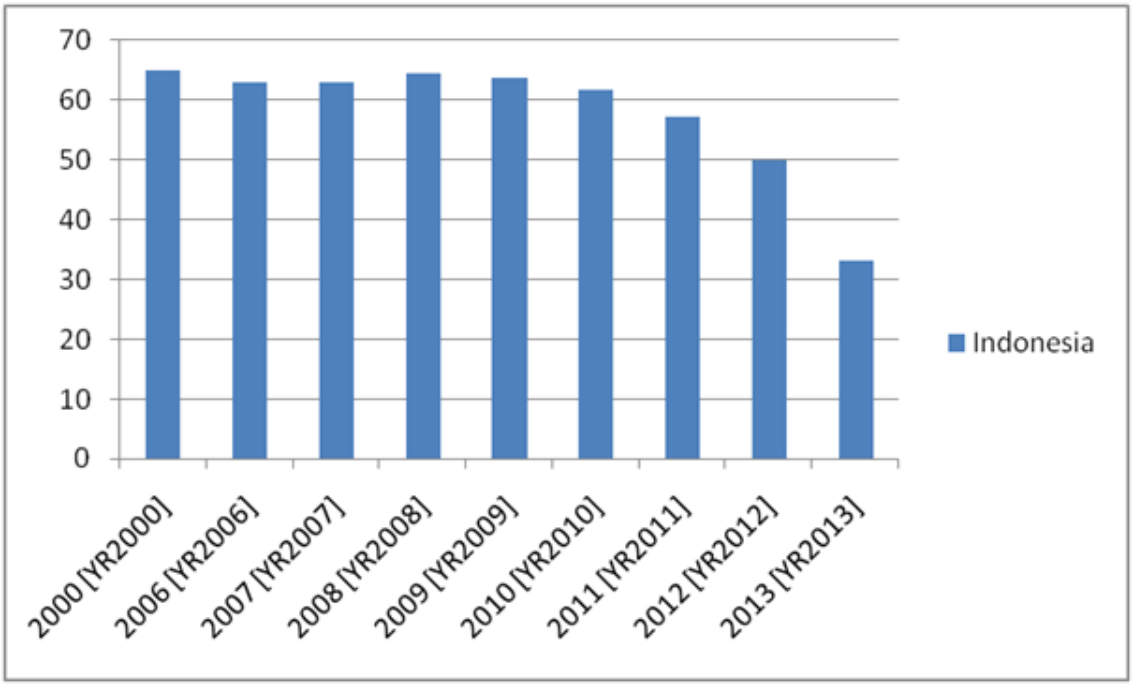
down to 1,37 in 2009. In the hospitality sector, the ratio fell harder from 1,65 in 2004 to 1,29 in 2010. Manufacturing and hospitality laborers will encounter a more difficult life in the future.

Based on education level, the average income ratio of uneducated laborers to minimum wages is getting worse, with the value of below 1. The ratio in 2004 was 0,64 and in 2010 was 0,51. Meanwhile the average income ratio of laborers who did not graduate elementary school to minimum wage in 2004 was 0,78 and in 2010 was 0,68. The average income ratio of laborers who graduated elementary school to minimum wages keeps declining. It was 1 in 2004 and 0,78 in 2010. Therefore in the near future, in terms of remuneration for laborers with an education level less than that of elementary school, not only the ratio trend is decreasing, but they will earn less than minimum wages. The average income ratio of labors with middle school education background also tends to decline compared to minimum wages. The ratio was 1,3 in 2004 and 1,14 in 2010. A similar trend also occurs in laborers with high school backgrounds, although with an improving ratio. It was 1,93 in 2004 and 1,48 in 2010. The average income ratio of laborers with vocational high school background is declining as well. The ratio to minimum wages was 2,02 in 2004 and 1,52 in 2010. Similarly with laborers with a three-year diploma, the average income ratio to minimum wage was 3,03 in 2004 and 2,13 in 2010. The declining ratio also occurs in laborers with a bachelor degree with the ratio of 3,04 in 2005 to 2,84 in 2010.Therefore it can be inferred that the present and future development will worsen the labors' welfare. One of the reasons why the income ratio to minimum wages keeps declining is due to the entrance of labor under the category of vulnerable employment into the labor market.

Vulnerable employment is unpaid family workers and own-account workers as a percentage of total employment, also exhibits a trend of improvement (See Chart 2). The majority of them are estimated to enter the low wage service sector, instead of the manufacturing sector, thus further pressuring labors' wages. Also see Booth (1999, Page 34).

In 2011, four provinces with the highest poverty consecutively were Papua (31,98 percent), West Papua (31,92 percent), Maluku (23 percent), and East Nusa Tenggara (21,23 percent). Meanwhile in 2006, those four provinces were consecutively Papua (41,52 percent), West Papua (41,34 percent), Maluku (33,03 percent), and East Nusa Tenggara (29,34 percent). Ironically, since 2011 to 2013, Papua and West Papua were the provinces with the Gini ratio of above 40 percent.

Chart 2, Vulnerable employment, total (% of total employment)



Source: International Labor Organization, Key Indicators of the Labor Market database. World Development Indicator 2015.

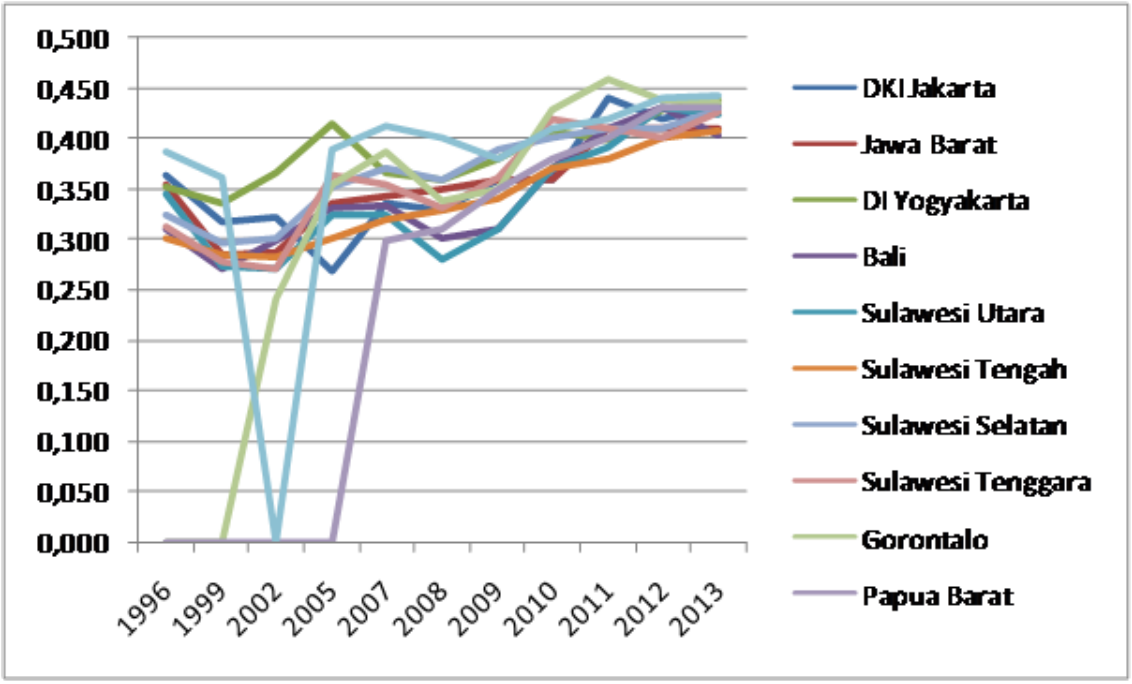
Booth (1999) has warned that unequal wealth distribution occurs in regions with abundant natural resources, and this situation may provide opportunity for separatist movements in those regions. It is extremely difficult to develop an economy in which long-term investment commitment is required, if security cannot be managed. Booth (1999) explained: "But large income disparities can have destabilizing effects. In both Malaysia and Indonesia, there are very considerable regional disparities in poverty, and some resource-rich regions such as Sabah in East Malaysia, and Irian Jaya in Eastern Indonesia have high incidences of poverty relative to the national average. This is partly due to the system of resource taxation which drains a large part of the profits from exploitation of minerals and timber off to the center (Booth 1996: 199-202). In the longer run such a system is bound to fuel regional tensions, and even lead to separatist movements".

The threat of low economic growth in regions with high wealth disparity has also been proven empirically by cross section data between countries, as studied by Alesina and Rodrik (1994: 485); who concretely presented their findings: "Inequality in income and land distribution is negatively associated with subsequent growth".

Which translates to - the more unequal the income and wealth in society, the lower potential for economic growth there will be. This is a serious warning for Indonesia which is attempting to avoid the middle and low income trap.

Until 2013, there are already ten provinces with the gini ratio of above ten percent (see Graph 10). This is an extremely serious threat for Indonesia in its attempt to escape the middle and low income threat. It is interesting to note that even though provinces in the island of Java have relatively better infrastructures compared to others outside, the poverty percentage in West Java, Central Java, Yogyakarta, and East Java, is still higher than provinces in Kalimantan 2011. The figures indicate that the existence of plentiful infrastructure fails to reduce poverty. Whereas the World Bank focuses on infrastructure development so that Indonesia is able to escape from middle and low income trap. The issue lies in the fact that Java is the basis of industries in Indonesia, thus the weakening of industrial sector in provinces in Java will harm laborers directly.

Graph 10. Provinces WithGini Ratio Above 40 Percent in 2013

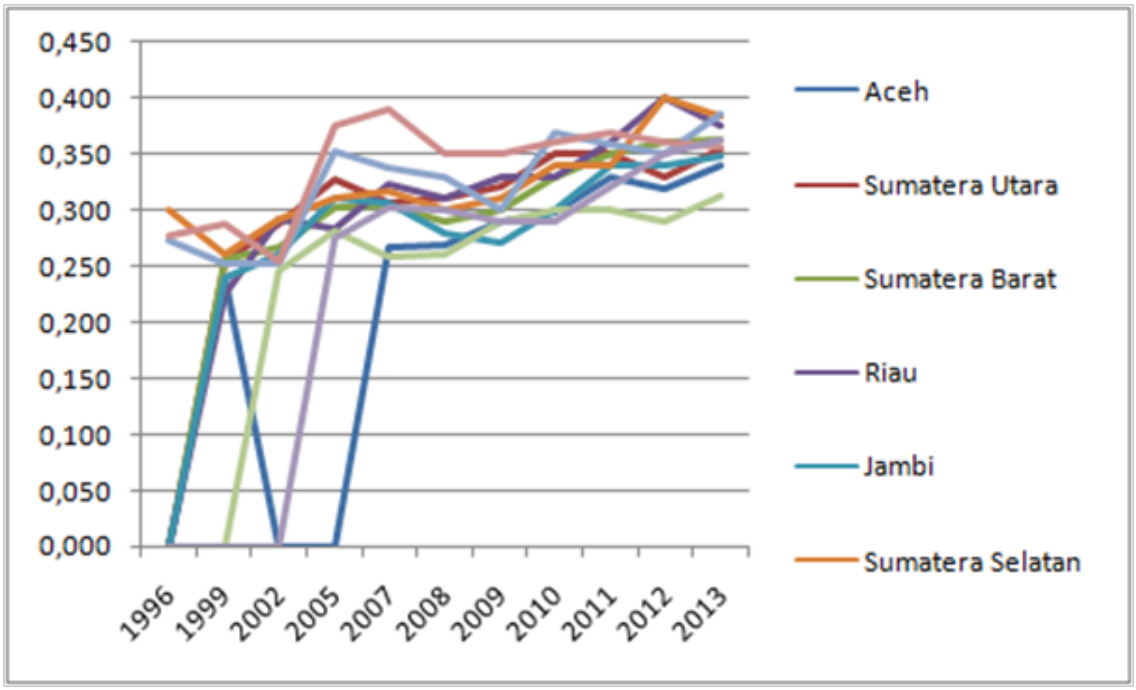


Source: Welfare Indicator 2015, Statistics Indonesia.

Calculated from the Indonesia Family Life Survey data in 1993, 1997, and 2000, the intergenerational poverty trap in Indonesia is 35 percent. It indicates that a child who was born in to a very poor family has a 35 percent probability to remain poor in adulthood, compared to a child who is not from a poor family. Ironically, a free education program up to nine years does not have positive impact in reducing the probability of poverty due to having poor parents. Indirectly, this condition also reflects the poor quality of education in Indonesia.

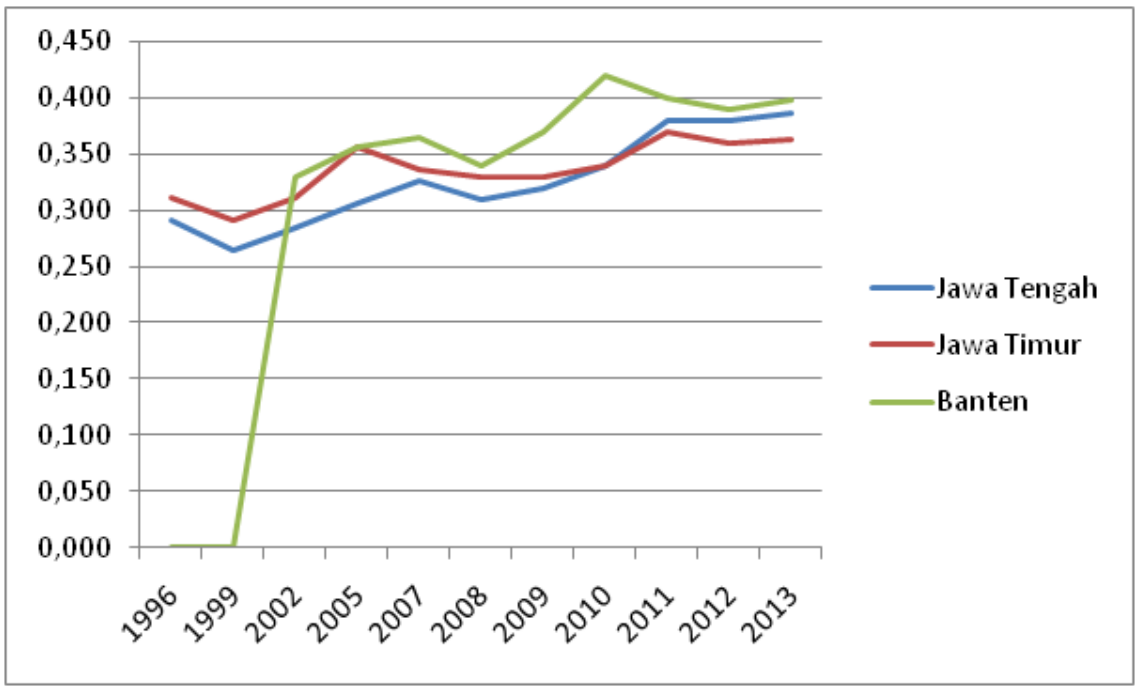
Provinces with a gini ratio of under 40 percent are relatively in the majority. However, the trend indicates declining performance, in which discrepancy keeps occurring. It seems that it is just a matter of time for provinces in Sumatera which currently have the gini ratio of below 40 percent to reach 40 percent in a near future (see Graph 11). A similar declining trend also occurs

Graph 11. Provinces in Sumatera with Gini Ratio Below 40 Percent



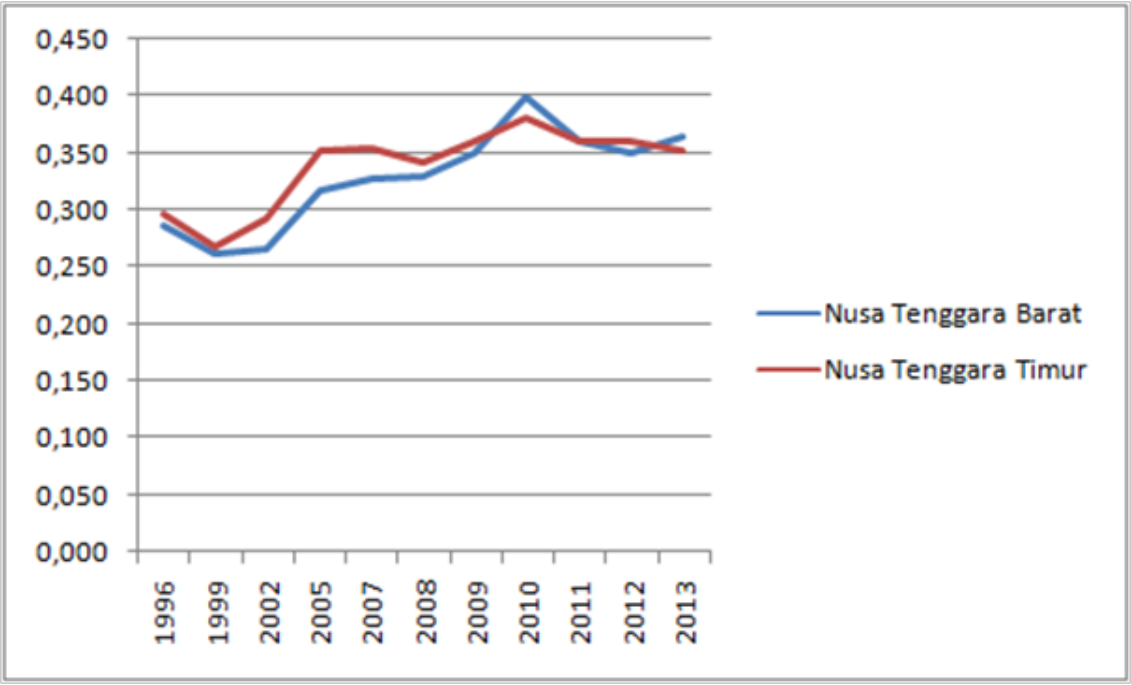
Source: Welfare Indicator, 2015, Statistics Indonesia.

Graph 12. Provinces in Java with a Gini Ratio Below 40 Percent



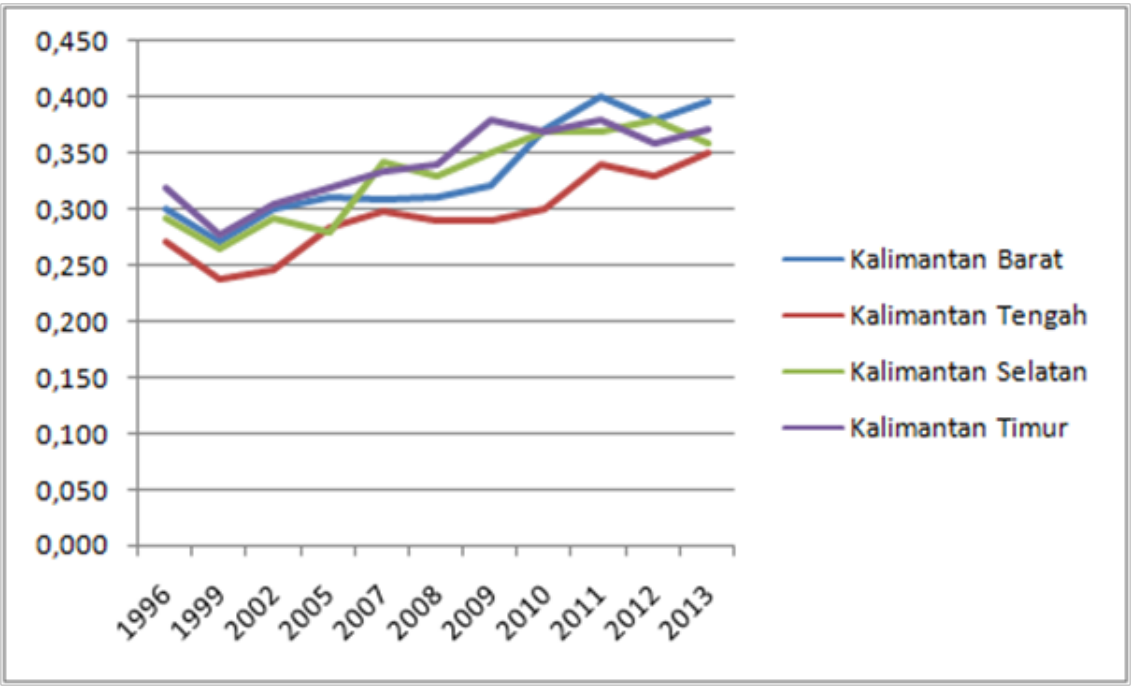
Source: Welfare Indicator, 2015, Statistics Indonesia.

Graph 13. Provinces in Nusa Tenggara with Gini Ratio Below 40 Percent



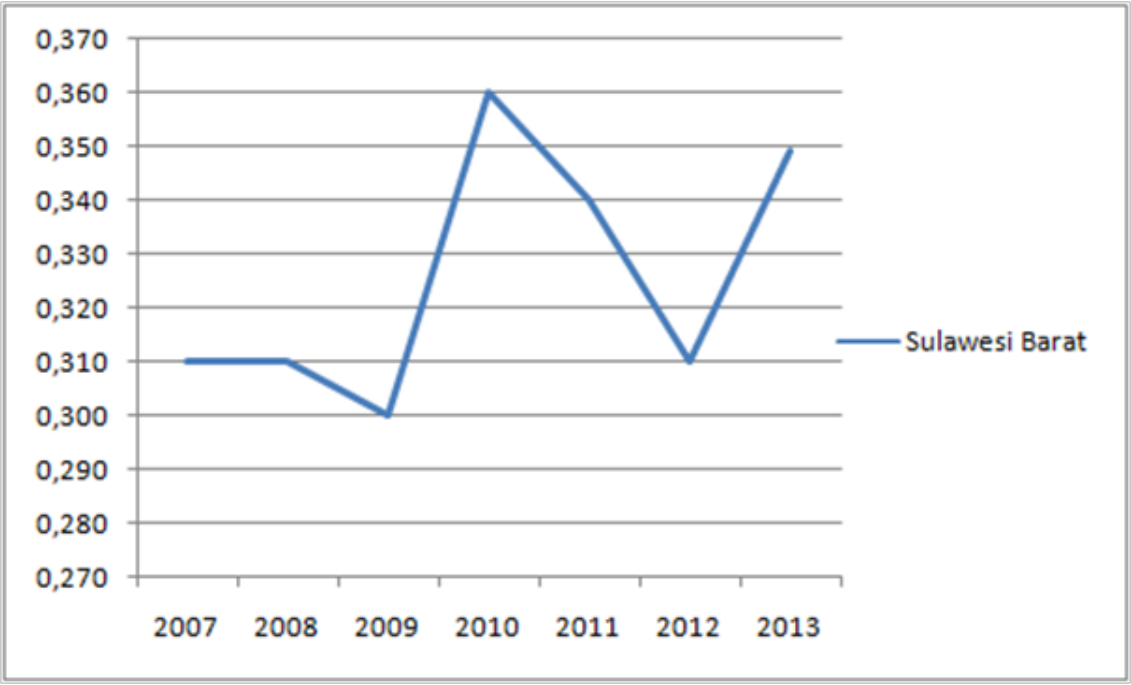
Source: Welfare Indicator, 2015, Statistics Indonesia.

Graph 14. Provinces in Kalimantan with Gini Ratio Below 40 Percent



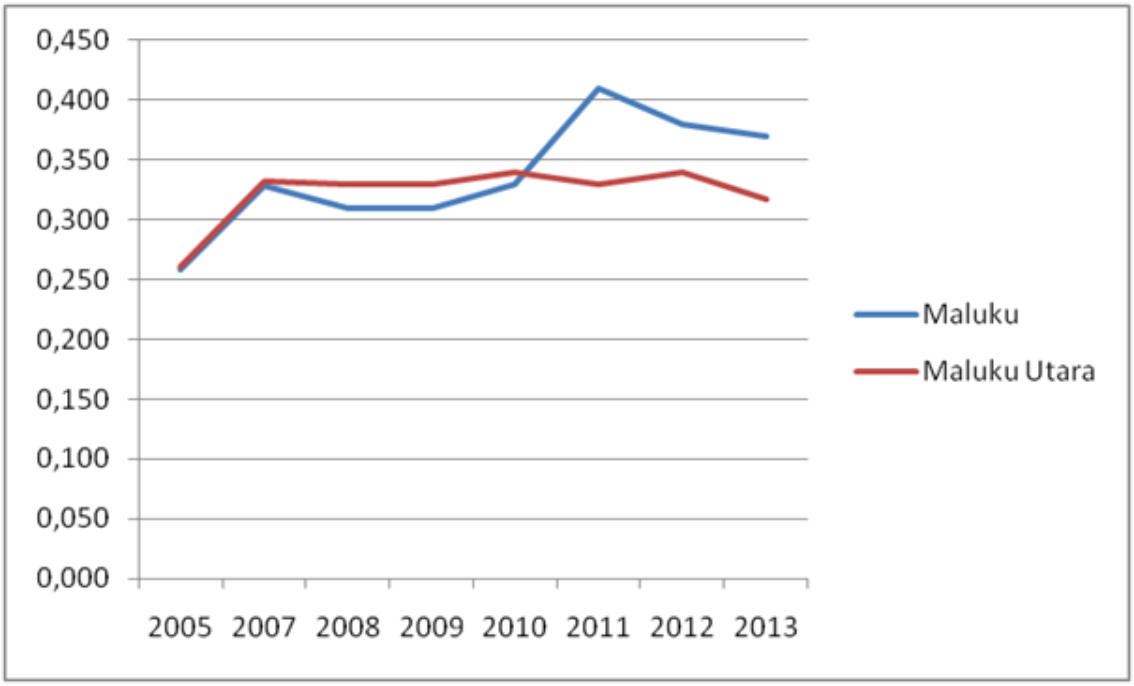
Source: Welfare Indicator, 2015, Statistics Indonesia.

Graph 15. Provinces in Sulawesi With Gini Ratio Below 40 Percent



Source: Welfare Indicator 2015, Statistics Indonesia.

Graph 16. Provinces In Maluku With Gini Ratio Below 40 Percent



Source: Welfare Indicator, 2015, Statistics Indonesia.

in Java provinces with a gini ratio of below 40 percent (see Graph 12), as well as in Kalimantan provinces (Graph 14).

Meanwhile the rest of the provinces which are Nusa Tenggara (Graph 13), Sulawesi (Graph 15), and Maluku (Graph 16) have relatively shallower slopes of gini Ratio. However, Nusa Tenggara and Maluku seem to have a declining trend that should be addressed.

Government's Homework vs Market Failure

The administration of Joko Widodo has been leading the country for just a year, inheriting an economic foundation that is relatively not as robust as South Korea's, which has a brilliant performance. However, there is some good will from the government, reflected in the issuance of the Nine Programs, termed as *Nawacita*. *Nawacita* is apt as a foundation to establish sustainable industrial policy in Indonesia. Its contents are:

1. To renew the state's obligation to protect all people and provide security to all citizens through the free and active foreign policy, national security and the development of reliable national defense based on integrated national interests and strengthening national identity as a maritime nation.
2. The presence of the government through a clean, effective, democratic, and reliable governance, by giving priority and efforts to restore public confidence in democratic institutions and continue the consolidation of democracy through reform of the political party system, electoral and representative institutions.
3. To build Indonesia from its periphery; to strengthening the rural areas within the framework of a unitary state of Indonesia.
4. To reject a weak state by reforming the system through corruption-free, dignified, and reliable law enforcement.
5. To improve the quality of Indonesians by improving the quality of education and training through a "Smart Indonesia" program and increasing Indonesia's social welfare and health through the "Healthy Indonesia" and "Prosperous Indonesia" programs. To encourage land reform and land ownership for the people in Indonesia by 2019.
6. To improve people's productivity and competitiveness in the international market so that Indonesian can move forward and stand up with other Asian nations.
7. To achieve economic independence by moving the strategic sectors to domestic economy.
8. To revolutionize the nation's character through a policy of restructuring the national education curriculum with advanced civic education; to teach the history of the nation, the values of patriotism and to love the country, as well as to build the passion and character to defend the state through national education.
9. To strengthen diversity and social restoration of Indonesia by highlighting the policy of education for diversity and creating spaces of dialogue among citizens.

Committed implementation of the nine programs will enable the change of direction for Indonesia's development by improving welfare level and education, and by ensuring the manufacturing sector becomes robust. A tangible program that has been implemented in the education sector is 12-year compulsory education. However, even though the school enrollment ratio for secondary education will increase, there is no guarantee that quality of education will improve as well. This if further evidenced by the fact that education policy packages for quality improvement are yet to be established; whereas, education quality urgently needs to be improved as soon as possible.

In the industrial sector, issued policy packages are shortening investment permit applications in industrial areas to be only three hours. Furthermore, 14 permit shave been abolished in the Ministry of Environment and Forestry, and also labor wages have increased every year when considering inflation and economic growth. Issued policy packages in trading are the development of special economic zones in eight regions and the simplification of online imports of staple food. Issued policy packages in the energy sector are the reduced price of diesel fuel and the electricity rate.

Unfortunately, the new wage-related policy is contradictory with the three-party philosophy in wages negotiation, which is enshrined in an ILO convention, already signed by the government. Sitglitz also reminded the importance of "social glue" in society, in which social contract is a crucial part of a market economic system which is not easily brought into regulation by the government. Thus Labor Union cannot be replaced by the government. Stiglitz explained: "Arrow, Hirschman [1992], Putnam [1993], Fukuyama [1995], and others have argued that the success of a market economy cannot be understood in terms of narrow economic incentives: norms, social institutions, social capital, and trust play critical roles. It is this implicit social contract, necessary to a market society that cannot be simply legislated, decreed, or installed by a reform government. Some such "social glue" is necessary in any society."

The key challenge here is not only to what extent the policies can be implemented in the field, but also to what extent the programs can resolve the market failure, so that investment programs can be coordinated and the manufacture sector can be a development motor. As tested by Maddison (2001), higher income per capita can only be achieved through industrialization. A coordinating role is not easy to be implemented in order to resolve market failure, particularly since in Indonesia, political power can reside in the hands of the president, vice president, or coordinating ministers. Currently there are four coordinating ministers in Indonesia. The key of success in South Korea is the fact that its president is the coordinator of industrial policies, and the president is also in charge of the ruling party. A subsidy program for the manufacturing sector can only be fully implemented if coordination issues are resolved. Murphy, Schleifer, and Vishy (1989: 1025); "Countries such as South Korea that have implemented a coordinated investment program can achieve industrialization of each sector at a lower explicit cost in terms

of temporary tariffs and subsidies, than a country that industrializes piecemeal. The reason is that potentially large implicit subsidies flow across sectors under a program of simultaneous industrialization."

Without putting the coordinating role for industrial policies at presidential level then such policies will be piecemeal in nature. The coordinator for industrial policies must also guarantee the quality of human capital and minor income and welfare discrepancies during industrial policies' implementations. Rodrik (1995) noted; "I will argue that in the early 1960s and thereafter the Korean and Taiwanese governments managed to engineer a significant increase in the private return to capital. They did so not only by removing a number of impediments to investment and establishing a sound investment climate, but more importantly by alleviating a coordination failure which had blocked economic take-off. The latter required a range of strategic interventions - including investment subsidies, administrative guidance and the use of public enterprise - which went considerably beyond those discussed in the standard account. That government intervention could play such a productive role was conditioned in turn by a set of advantageous initial conditions: namely, a favorable human capital endowment and relatively equal distribution of income and wealth".

Therefore, the President as the person in charge of *Nawacita* must be the program coordinator and cannot be represented by Coordinating Ministers. Industrial policy programs are not merely economic, financial, and industrial issues, but also education and maritime, for which there are different coordinating ministers. One other hampering factor to the coordinating role is the oligarchic power over Indonesia's political economy. According to Hoff and Stiglitz (2004), an oligarchy needs a coordinator as well, in order to resolve its coordination issues. Collectively, oligarchs gain profit from property rights, however each oligarch will gain optimal profit by violating the law. Thus the oligarchs also need a coordinator, in the form of a dictator or a president.

It is hard to imagine if the coordinating role for those oligarchs is a coordinating minister. A coordinating minister does not receive a mandate from the people. An industrial policies coordinator should also be coordinating the oligarchs. If the president is not able to implement his coordinating role, then Indonesia might potentially experience "state capture", in which the government policies are steered by private interest (Hellmann and Schankermann,2000).As a consequence, the risk is not only stalled economic growth, but also widening income inequality (Grun and Klasen, 2000). Moreover, oligarchic power can be managed if the economic system provides a more equal and fairer income distribution, such as in South Korea and Taiwan. It is important to consider that oligarchic power is also able to influence bureaucracy. Powerful temporary rent seekers will take advantage of a weak bureaucracy thus harming private industries. Rodrik(1995) noted; "This is important because interventionist regimes are prone to two fatal problems having their origin in the bureaucracy. The first is that interventions naturally

generate opportunities for rent seeking. A weak or poorly supervised bureaucracy is incapable of reining in rent seeking (or becomes part of it). A strong bureaucracy, on the other hand, can choke off entrepreneurial incentives by sticking too closely to the letter of the law and imposing too many cumbersome restrictions aimed at rooting out rent seeking. In both Taiwan and Korea, the top political leaders closely monitored the bureaucracy to make sure that the bureaucrats assisted rather than hindered private entrepreneurship. President Park, in particular, was famous for his daily involvement in the implementation of his economic policies, and his willingness to override the bureaucracy at a moment's notice when businessmen had legitimate complaints"

In the case of South Korea, the president's role is very prominent in coordinating, imposing incentives, targets, and penalties for industrial actors.

The first *Nawacita* that targets Indonesia as a maritime country, should emphasize the context of the maritime industry and oceanic strategic location. The depth of Indonesia's water is the reason why ships with heavy tonnage can sail across the Indian and Pacific Ocean. Therefore, the development of seaports with Singapore's capacity is a must. Meanwhile, it is time for Indonesia to push its shipping industries. It may do Indonesia well to learn from South Korea, whose ship building industry, which initially depended on its main machinery and steel from Japan and West Europe, managed to develop into one of the leaders in the sector. Rodrik, 1995 (page 82) explained: "Hyundai's experience with shipbuilding provides a concrete instance of the imperfect tradability of technology (and its interaction with scale economies). The company started out by importing its basic design from a Scottish firm, but soon found that this was not working out. The Scottish design relied on building the ship in two halves because the original manufacturer had enough capacity to build only half a ship at a time. When Hyundai followed the same course, it found out that the two halves did not quite fit. Subsequent designs imported from European consulting firms also had problems, in that the firms would not guarantee the rated capacity, leading to costly delays. Engines were available from Japanese suppliers, but apparently only at a price higher than that obtained by Japanese shipyards. Moreover, ship buyers would often require design modifications, which Hyundai would be unable to undertake in the absence of an in-house design capability. Only with large enough capacity would it pay for Hyundai to integrate backwards (into design and engine building). In a highly volatile business, scale in turn depended on having access to a steady and reliable customer (a merchant marine). The Korean government provided Hyundai with substantial assistance, as well as an implicit guarantee of markets. Hyundai eventually integrated both backwards and forwards. The government's guarantee came in handy in 1975 when a shipping slump led to the cancellation of foreign orders. President Park responded by forcing Korean refineries to ship oil in Korean-owned tankers, creating a captive demand for Hyundai (Jones and Sakong, 1980)".

Therefore other industries should also be developed so that those industries will have demands for ships. Furthermore Rodrik 1999 elaborated (page 82): "The chairman of the Lucky-Goldstar group explains the success of his company in this way: My father and I started a cosmetic cream factory in the late 1940s. At the time, no company could supply us with plastic caps of adequate quality for cream jars, so we had to start a plastic business. Plastic caps alone were not sufficient to run the plastic-molding plant, so we added combs, toothbrushes, and soap boxes. The plastics business also led us to manufacture electrical and electronic products and telecommunication equipment. The plastics business also took us into oil refining which needed a tanker-shipping company. The oil-refining company alone was paying an insurance premium amounting to more than half the total revenue of the then largest insurance company in Korea. Thus, insurance company was started. This natural step-by-step evolution through related businesses resulted in the Lucky-Goldstar group as we see it today, (cited in Amsden, 1989). The quotation clearly illustrates the importance of local inputs and customers aswell as of scale economies in fuelling the growth of chaebol (prosperity). While the chaebol could thus internalize some of the coordination issues, they were greatly assisted in doingso by government policies....."

Public policy at all times plays a role in the success of an industrialization program, since the success is determined by political will as well as by responsible and smart national leaders. South Korea has been subsidizing investment with negative real value of interest since the early 1960s (Jones and Sakong, 1980), while Taiwan imposes tax incentives; both policies use rational economic criteria. Ireland chooses to attract Foreign Direct Investment so that technology can be gained through fixed investment (Arias and Wen 2015). Not only that, those governments also set export targets. Rodrik (1999) noted: "Under Park, however, credit was allocated on the basis of 'economic' criteria: namely, the priority given to different economic activities. Deserving users were judged on the basis of their investment plans, technology, domestic linkages and scale economies."

Furthermore, the government must be thorough as well in anticipating possible occurring risk. Rodrik(1999) explained: "The government -most notably President Park himself- provided an implicit guarantee that the state would bail out those entrepreneurs investing in 'desirable' activities if circumstances later threatened the profitability of these investments.....The shipbuilding industry is a good example. Without the personal involvement and encouragement of President Park, Hyundai would not have embarked on or completed what eventually became one of the world's best shipyards. The government guaranteed the firm's external borrowing, provided extensive subsidies for the infrastructure, and supplied financial guarantees to get Hyundai its first order (Amsden, 1989)".

A successful development requires leaders with political will who are able to open wider space of public policies with measureable risks. Park is not only a general, but also a successful leader of the nation. Without Park, South Korea would not be as successful as it currently is. Political will is necessary since fundamentally, space for public policies are created by national leaders. Compared to Park, Soekarno, Soeharto, to Yudhoyono, had relatively been long term presidents, but with an incorrect selection of Indonesia's development path. The selection caused Indonesia to be trapped under low income, during 70 years of independence. They failed in bringing Indonesia up to be a developed industrial country!

One of the goals under *Nawacita* is to develop Indonesia through strengthening rural areas under the unitary state's framework, which can only be achieved if education in rural areas has a similar or even better quality compared to urban areas. It is important to consider that informal workers in the agriculture sectors amounts to almost 90 percent, and in the non-agricultural sector amounts to 50 percent (OECD/Asian Development Bank (2015). Therefore, the quality of workers should be improved. Human capital development, in this case education, must be the first priority. Teachers' quality in rural areas is poorer compared to urban areas. According to OECD/Asian Development Bank (2015): "However, regional and district disparities remain in student access, educational quality, and teacher certification in remote and poor areas. The difficulty of providing access to education in remote areas compounds the problem of young people's participation in schooling, particularly among communities with traditionally low educational aspirations. While there is no overall shortage of teachers, those in remote and rural areas are less qualified and too often absent from their schools and classrooms. Rates of teacher absenteeism are highest in districts with the highest proportion of children not at school".

Another educational issue in rural areas is the low opportunity to obtain pre-primary education due to inadequate access and purchasing capacity. OECD/Asian Development Bank (2015): "Children in urban areas are more likely to attend pre-primary education than in rural areas (38.6% against 28.4% in 2011). This may be as a result of better availability, accessibility and affordability of pre-primary education in urban areas (UNICEF, 2013).

Rural areas also lack mathematics, science, and languages teachers. OECD/Asian Development Bank (2015): "More principals in private schools reported teacher shortages than those in public schools, and principals of disadvantaged schools and/ or schools in rural areas reported more teacher shortages than those of advantaged and/or urban schools (PISA, 2012)".

Moreover, rural areas, which lack resources, experience discrimination as well. OECD/Asian Development Bank (2015): "Higher-performing countries tend to distribute schools' educational resources more equally between socio-economically advantaged and disadvantaged schools. In Indonesia, the principals of schools located in rural and disadvantaged areas reported more shortages or inadequate resources than the principals of schools in town and advantaged

areas. In addition, principals of lower secondary schools reported more shortages or inadequate resources than principals of upper secondary schools (PISA, 2012)".

Joko Widodo and future presidents face great challenges since the probability (which is 80 percent) for Indonesia to be trapped in low income is extremely high, (Arias and Wen 2015), meanwhile Indonesia's opportunity to become a high income country is only 3 percent (see Table 7). Another threat is, the middle income trap is not the end, since a country can still fall to low income level. It is time for industrial policies to become a serious option for Indonesia!

Résumé

Based on Penn World Table, Indonesia's economy will only be trapped in middle income level in thirteen more years, if it is lucky and has 4,5 percent annual growth of Gross Domestic Product per capita consistently. Thus the middle income trap will occur subsequent to President Joko Widodo's term (even if he is elected as the president for the second term). Before reaching thirteen years, a threat for Indonesia is to be trapped in low income level. Indonesia's economy will be trapped in middle income because it is not only weak in human capital, but in manufacturing sector growth as well.

Meanwhile, the performance of export goods with high technology content is not only poor but also tends to decrease. Another cause for pessimism against Indonesia's economic capacity to escape the middle income trap is the weak performance of total factor productivity and capital stock. The development of Indonesia's human capital, capital stock, and total factor productivity cannot compete with the rapid economic growth of frontier technology countries, such as South Korea.

Income inequality is widening in Indonesia, thus the probability of economic growth decline is also higher. This is a serious warning for Indonesia, which is trying to escape the low and middle income trap. Learning from the success of South Korea's and Taiwan's industrial policies, minimizing wealth inequality and land reform played important role in their achievement. Thus the land reform under the *Nawacita* program is appropriate. .

High quality human capital is a crucial requirement for industrialization. *Nawacita* should use international barometers in measuring education success in Indonesia, which is from the output, such as used by PISA. The education sector in Indonesia must be entirely reformed, since the current system harms skills in reading, mathematics, and science. Indonesia's quality shortage in human capital is extremely dangerous. Human resources accumulation in Indonesia, under cognitive and school duration, is not reliable in supporting a sustainable economy for Indonesia, in comparison to frontier technology countries. Weak human capital in Indonesia also causes low bargaining power in its economy, as reflected in the wages market share within

Gross Domestic Product, which was relatively lower than South Korea during the long period of 1960 to 2011.

Without good health, quality education will be more difficult to achieve, thus health coverage for all Indonesian citizens is crucial. Public coverage should play a more dominant role in Indonesia, as implemented in developed countries.

Social contract can never be replaced with government regulation. The concern is that oligarchs will place their interest through the government. Indonesia's labor market should still rely on a three-party bargaining approach, in line with the ILO convention, which has been signed by Indonesia as well. Learning from South Korea, quality education will improve laborers' bargaining power and welfare without the government need to regulate the increase or decrease of labor wages. Conversely, South Korea, during its non-democratic regime, already had pro-labor economics, as wages has been higher than capital since 1960. Meanwhile in Indonesia, laborers' added value has always been lower than capital, as human capital in Indonesia is weaker compared to South Korea.

Urbanization can be resolved if the manufacturing sector can develop well, so that labor excess in agricultural sectors will not be absorbed in service sectors; which has relatively lower wages (including the informal sector in urban areas).

Political cartel or oligarchic power can be well managed, considering they also need a coordinator; and in the context of Indonesia, the coordinator is the president, which also should be the coordinator of industrial policies. Thus market failure due to issues in coordinating industrial policies can be resolved with the prerequisite that social justice is well guarded and the president can manage his bureaucracy optimally.

Long term structural transformation in Indonesia in order to escape from the low and middle income trap can only be effectively implemented if all present and future presidents can coordinate well, in managing market failure under industrialization and oligarchic power. Consistent industrial policies are crucial prerequisites, so that all presidents in the future will keep implementing the same policies.

The declining value added of the manufacturing sector to GDP indicates that Indonesia's economy has failed to compete with manufacturing sectors from other countries, may it be from those relying on low wages or other developed countries that rely on high skills and innovation. Indonesia is yet to be able to transform consistently from natural resource-based economic growth, with low wages, to higher technology-based economic growth!

Indonesia should take advantage from its maritime resources in supporting high technology-based industrialization. Maritime countries can be strengthened by revitalizing shipping industries and improving seaports' capacities to international standards. Indonesia can learn from South Korea, which has smaller seas compared to Indonesia.

Indonesia's manufacturing sector is very sensitive towards external shock such as economic crisis, in which the contribution of manufacture export declined from 50 percent to 40 percent during the 1998 Asian economic crisis. Meanwhile even though South Korea's export contribution also declined, it was still approximately 80 percent. Thus, Indonesia's capital in escaping the middle income trap still seems inadequate.

Indonesia has a low ratio of high technology export to total export, and it systematically keeps declining. Distinct to Indonesia, South Korea consistently has positive growth, with high technology export's contribution exceeding 30 percent. This is the most crucial indicator to measure if Indonesia will be able to escape the middle income trap. Unfortunately, based on the indicator, Indonesia's capacity to escape the middle income trap is far from adequate.

Indonesia's probability to be trapped in low income is 80 percent. If trapped in middle income, the probability to fall again to low income level is 17 percent, and meanwhile its opportunity to be a high income country is only 3 percent.

Nawacita has good potential as long as it is comprehensively directed to strengthen the manufacturing sector, so that high technology based-export is systematically improved, by empowering high quality human capital. This is the only way to escape from the low and middle income trap.

Table 1.

Rate of acceleration or deceleration in performance (Quadratic term) on Mean mathematics performance in PISA 2003 through 2012

	Coef.	S.E.
Hong Kong-China	0,3	(0,21)
Indonesia	-0,7	(0,26)
Jordan	-0,2	(0,51)
Kazakhstan	m	M
Latvia	0,1	(0,20)
Liechtenstein	0,3	(0,25)
Lithuania	0,7	(0,37)
Macao-China	0,4	(0,14)
Malaysia	m	M
Montenegro	0,2	(0,31)
Peru	m	M
Qatar	-2,3	(0,21)
Romania	0,3	(0,54)
Russian Federation	0,1	(0,23)
Serbia	0,0	(0,45)
Shanghai-China	m	M
Singapore	m	M
Chinese Taipei	1,3	(0,52)
Thailand	0,2	(0,17)
Tunisia	0,3	(0,20)
United Arab Emirates - Ex. Dubai	m	M
Uruguay	-0,6	(0,18)

OECD (2013)PISA 2012 Results: What Students Know and Can Do. Student Performance in Reading, Mathematics and Science (Volume I), Paris.

Table 2.

Rate of acceleration or deceleration in performance (Quadratic term) on Mean reading performance in PISA 2000 through 2012

	Coef.	S.E.
Hong Kong-China	0,1	(0,19)
Indonesia	-0,4	(0,25)
Jordan	-0,6	(0,65)
Kazakhstan	m	M
Latvia	-0,4	(0,18)
Liechtenstein	-0,4	(0,18)
Lithuania	0,6	(0,55)
Macao-China	0,8	(0,23)
Malaysia	m	M
Montenegro	-0,1	(0,51)
Peru	0,0	(0,31)
Qatar	-2,4	(0,47)
Romania	1,2	(0,28)
Russian Federation	0,8	(0,19)
Serbia	-2,0	(0,59)
Shanghai-China	m	M
Singapore	m	M
Chinese Taipei	1,6	(0,60)
Thailand	0,7	(0,20)
Tunisia	-0,1	(0,30)
United Arab Emirates - Ex. Dubai	m	M
Uruguay	0,2	(0,28)

OECD (2013)PISA 2012
Results: What Students Know and Can Do.
Student Performance in Reading,
Mathematics and Science (Volume I), Paris.

Table 3.

Mean science performance in PISA 2006 through 2012

	Change between 2006 and 2012 (PISA 2012 - PISA 2006)		Change between 2009 and 2012 (PISA 2012 - PISA 2009)		Annualised change in science across PISA assessments	
	Score dif.	S.E.	Score dif.	S.E.	Annual change	S.E.
Hong Kong-China	13	(5,0)	6	(4,3)	2,1	(0,85)
Indonesia	-12	(7,7)	-1	(5,7)	-1,9	(1,33)
Jordan	-13	(5,5)	-6	(5,1)	-2,1	(0,91)
Kazakhstan	M	m	24	(4,8)	8,1	(1,56)
Latvia	13	(5,4)	8	(4,6)	2,0	(0,90)
Liechtenstein	3	(6,5)	5	(5,3)	0,4	(1,03)
Lithuania	8	(5,1)	4	(4,4)	1,3	(0,94)
Macao-China	10	(3,8)	10	(2,4)	1,6	(0,64)
Malaysia	M	m	-3	(4,5)	-1,4	(1,96)
Montenegro	-2	(3,8)	9	(3,0)	-0,3	(0,64)
Peru	M	m	4	(5,4)	1,3	(1,94)
Qatar	34	(3,7)	4	(2,3)	5,4	(0,61)
Romania	20	(6,4)	11	(5,1)	3,4	(1,08)
Russian Federation	7	(5,8)	8	(4,8)	1,0	(1,00)
Serbia	9	(5,8)	2	(4,6)	1,5	(1,03)
Shanghai-China	M	m	6	(4,3)	1,8	(1,50)
Singapore	M	m	10	(2,9)	3,3	(0,93)
Chinese Taipei	-9	(5,5)	3	(4,0)	-1,5	(0,92)
Thailand	23	(5,1)	19	(4,6)	3,9	(0,82)
Tunisia	13	(5,7)	-3	(4,8)	2,2	(1,03)
United Arab Emirates - Ex. Dubai	M	m	10	(5,4)	5,1	(2,75)
Uruguay	-12	(5,2)	-11	(4,3)	-2,1	(0,91)

OECD (2013)PISA 2012
Results: What Students Know and Can Do.
Student Performance in Reading,
Mathematics and Science (Volume I), Paris.

Table 4.

Mean science performance in PISA 2006 through 2012

	PISA 2006		PISA 2009		PISA 2012	
	Mean score	S.E.	Mean score	S.E.	Mean score	S.E.
OECD average 2006	498	(0,5)	501	(0,5)	501	(0,5)
OECD average 2009	M	m	501	(0,5)	501	(0,5)
Hong Kong-China	542	(2,5)	549	(2,8)	555	(2,6)
Indonesia	393	(5,7)	383	(3,8)	382	(3,8)
Jordan	422	(2,8)	415	(3,5)	409	(3,1)
Kazakhstan	M	m	400	(3,1)	425	(3,0)
Latvia	490	(3,0)	494	(3,1)	502	(2,8)
Liechtenstein	522	(4,1)	520	(3,4)	525	(3,5)
Lithuania	488	(2,8)	491	(2,9)	496	(2,6)
Macao-China	511	(1,1)	511	(1,0)	521	(0,8)
Malaysia	M	m	422	(2,7)	420	(3,0)
Montenegro	412	(1,1)	401	(2,0)	410	(1,1)
Peru	M	m	369	(3,5)	373	(3,6)
Qatar	349	(0,9)	379	(0,9)	384	(0,7)
Romania	418	(4,2)	428	(3,4)	439	(3,3)
Russian Federation	479	(3,7)	478	(3,3)	486	(2,9)
Serbia	436	(3,0)	443	(2,4)	445	(3,4)
Shanghai-China	M	m	575	(2,3)	580	(3,0)
Singapore	M	m	542	(1,4)	551	(1,5)
Chinese Taipei	532	(3,6)	520	(2,6)	523	(2,3)
Thailand	421	(2,1)	425	(3,0)	444	(2,9)
Tunisia	386	(3,0)	401	(2,7)	398	(3,5)
United Arab Emirates - Ex. Dubai	M	m	429	(3,3)	439	(3,8)
Uruguay	428	(2,7)	427	(2,6)	416	(2,8)

OECD (2013)PISA 2012
Results: What Students Know and Can Do.
Student Performance in Reading,
Mathematics and Science (Volume I), Paris.

Table 5.

Mean mathematics performance in PISA 2003 through 2012

	PISA 2003		PISA 2006		PISA 2009		PISA 2012	
	Mean score	S.E.	Mean score	S.E.	Mean score	S.E.	Mean score	S.E.
OECD average 2003	500	(0,6)	498	(0,5)	499	(0,6)	496	(0,5)
OECD average 2006	M	m	494	(0,5)	496	(0,5)	494	(0,5)
OECD average 2009	M	m	m	M	496	(0,5)	494	(0,5)
Hong Kong-China	550	(4,5)	547	(2,7)	555	(2,7)	561	(3,2)
Indonesia	360	(3,9)	391	(5,6)	371	(3,7)	375	(4,0)
Jordan	M	m	384	(3,3)	387	(3,7)	386	(3,1)
Kazakhstan	M	m	m	M	405	(3,0)	432	(3,0)
Latvia	483	(3,7)	486	(3,0)	482	(3,1)	491	(2,8)
Liechtenstein	536	(4,1)	525	(4,2)	536	(4,1)	535	(4,0)
Lithuania	M	m	486	(2,9)	477	(2,6)	479	(2,6)
Macao-China	527	(2,9)	525	(1,3)	525	(0,9)	538	(1,0)
Malaysia	M	m	m	M	404	(2,7)	421	(3,2)
Montenegro	M	m	399	(1,4)	403	(2,0)	410	(1,1)
Peru	M	m	m	M	365	(4,0)	368	(3,7)
Qatar	M	m	318	(1,0)	368	(0,7)	376	(0,8)
Romania	M	m	415	(4,2)	427	(3,4)	445	(3,8)
Russian Federation	468	(4,2)	476	(3,9)	468	(3,3)	482	(3,0)
Serbia	M	m	435	(3,5)	442	(2,9)	449	(3,4)
Shanghai-China	M	m	m	M	600	(2,8)	613	(3,3)
Singapore	M	m	m	M	562	(1,4)	573	(1,3)
Chinese Taipei	M	m	549	(4,1)	543	(3,4)	560	(3,3)
Thailand	417	(3,0)	417	(2,3)	419	(3,2)	427	(3,4)
Tunisia	359	(2,5)	365	(4,0)	371	(3,0)	388	(3,9)
United Arab Emirates - Ex. Dubai	M	m	m	M	411	(3,2)	423	(3,2)
Uruguay	422	(3,3)	427	(2,6)	427	(2,6)	409	(2,8)

OECD (2013)PISA 2012
Results: What Students Know and Can Do.
Student Performance in Reading,
Mathematics and Science (Volume I), Paris.

Table 6.

Mean reading performance in PISA 2000 through 2012

	PISA 2000		PISA 2003		PISA 2006		PISA 2009		PISA 2012	
	Mean score	S.E.	Mean score	S.E.	Mean score	S.E.	Mean score	S.E.	Mean score	S.E.
OECD average 2000	496	(0,7)	497	(0,6)	490	(0,7)	496	(0,5)	498	(0,6)
OECD average 2003	m	m	494	(0,6)	492	(0,6)	497	(0,5)	498	(0,5)
OECD average 2006	m	m	m	m	489	(0,6)	494	(0,5)	496	(0,5)
OECD average 2009	m	m	m	m	m	m	494	(0,5)	497	(0,5)
Hong Kong-China	525	(2,9)	510	(3,7)	536	(2,4)	533	(2,1)	545	(2,8)
Indonesia	371	(4,0)	382	(3,4)	393	(5,9)	402	(3,7)	396	(4,2)
Jordan	m	m	m	m	401	(3,3)	405	(3,3)	399	(3,6)
Kazakhstan	m	m	m	m	m	m	390	(3,1)	393	(2,7)
Latvia	458	(5,3)	491	(3,7)	479	(3,7)	484	(3,0)	489	(2,4)
Liechtenstein	483	(4,1)	525	(3,6)	510	(3,9)	499	(2,8)	516	(4,1)
Lithuania	m	m	m	m	470	(3,0)	468	(2,4)	477	(2,5)
Macao-China	m	m	498	(2,2)	492	(1,1)	487	(0,9)	509	(0,9)
Malaysia	m	m	m	m	m	m	414	(2,9)	398	(3,3)
Montenegro	m	m	m	m	392	(1,2)	408	(1,7)	422	(1,2)
Peru	327	(4,4)	m	m	m	m	370	(4,0)	384	(4,3)
Qatar	m	m	m	m	312	(1,2)	372	(0,8)	388	(0,8)
Romania	428	(3,5)	m	m	396	(4,7)	424	(4,1)	438	(4,0)
Russian Federation	462	(4,2)	442	(3,9)	440	(4,3)	459	(3,3)	475	(3,0)
Serbia	m	m	m	m	401	(3,5)	442	(2,4)	446	(3,4)
Shanghai-China	m	m	m	m	m	m	556	(2,4)	570	(2,9)
Singapore	m	m	m	m	m	m	526	(1,1)	542	(1,4)
Chinese Taipei	m	m	m	m	496	(3,4)	495	(2,6)	523	(3,0)
Thailand	431	(3,2)	420	(2,8)	417	(2,6)	421	(2,6)	441	(3,1)
Tunisia	m	m	375	(2,8)	380	(4,0)	404	(2,9)	404	(4,5)
United Arab Emirates - Ex. Dubai	m	m	m	m	m	m	423	(3,7)	432	(3,3)
Uruguay	m	m	434	(3,4)	413	(3,4)	426	(2,6)	411	(3,2)

OECD (2013)PISA 2012
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Tabel 7.

Income Probability Transition from 1950 to 2011

A: 10-Year Transitions

		Ending Point		
		≤15%	>15 to 50%	>50%
Starting Point	≤15%	0.94	0.06	0.00
	>15 to 50%	0.08	0.83	0.09
	>50%	0.00	0.10	0.90

B: 20-Year Transitions

		Ending Point		
		≤15%	>15 to 50%	>50%
Starting Point	≤15%	0.92	0.08	0.00
	>15 to 50%	0.13	0.75	0.12
	>50%	0.00	0.12	0.88

C: Start-to-End Transitions (30 to 140 Years)

		Ending Point		
		≤15%	>15 to 50%	>50%
Starting Point	≤15%	0.93	0.05	0.02
	>15 to 50%	0.31	0.51	0.18
	>50%	0.00	0.17	0.83

Sumber: Arias and Wen 2015 (Their calculation based on World Penn Table 8.0).

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About the Authors

Faisal Basri, is an outspoken Indonesia economist and politician. He was the Director of Institute for Development of Economics and Finance (INDEF). Currently he is the Editorial Board of Quarterly Journal of the Indonesian Economy. He is the Member of Advisory Board of Institute for Economic and Social Research, Faculty of Economics University of Indonesia, specializing in political economics. He is also a member of Komisi Pengawas Persaingan Usaha or KPPU, (The Commission for the Supervision of Business Competition). He has written and published more than 50 research reports, 95 books (as Author, Co-Author, and Editor) and Working Paper, 150 articles in Newspaper and Magazines. In 2012, Faisal Basri ran for Jakarta Governor in the election 2012 as an independent candidate. In November 2014, he was appointed by the Government of Republic of Indonesia through Ministry of Energy and Mineral Resources to lead the reform team for oil and gas governance.

Gatot Arya Putra, Master degree in Magister and Management, Graduate School of Management University of Indonesia in International Management Program. He is a co-founder and Advisor of Indonesian Research & Strategic Analysis, and also co –founder Research Association of Akademika (Public Policy Studies). He was the team leader of Economic Analyst Indonesian Bank Restructuring Agency (IBRA).