Indonesia's Fiscal Challenge: A Robot Is Highly Productive Yet Does Not Pay Tax

By
Sri Harjanto Adi Pamungkas
Research Assistant at Department of Public Policy and Management, Universitas Gadjah Mada
pamungkas.sha@gmail.com

Introduction

The world is experiencing a significant change driven by widespread technological advancement. There are four technological megatrends that reshape the world economy. Those are autonomous vehicles, 3D printing, advanced robotics, and new materials such as graphene. They drive the world to form a new kind of society based on a unique interaction between physical and cyber worlds. The cyber-physical system is changing almost all aspects of human life, from the nature of work, human interaction, goods production, service delivery, and government-citizen relation (Schwab, 2016).[1] Governments, economists, investors, and journalists all around the world are changing their sight from manufacturing centers such as Detroit to digital centers such as Silicon Valley, Shengzhen, and Bangalore. The three are the centers of the new economy where the flows of digital-based goods and services are distributed to the rest of the world. Now, we are consuming less physical goods and consuming more experience. We are no longer buying DVD discs, we are listening to songs through Spotify and watching movies through Netflix.

Analysis

This new society that brings with it new production, distribution, and consumption schemes offers many opportunities as well as challenges. Indonesia has been working hard for the last two decades for finding a solution to solve its economic challenges. The first challenge is the decline of manufacturing, well-known as the de-industrialization. Indonesia's economy post the Asian Financial Crisis (AFC) 1997-1998 is characterized by a relatively stagnant manufacturing growth. Numerous studies conducted by various institutions such as ADB (2019)[2] and Ash Center for Democratic Governance and Innovation (2013)[3] found that manufacturing's share of Gross Domestic Product has been declining after the AFC.

Fortunately, at the same time, Indonesia enjoyed a resource boom driven by an upsurge in commodity price and demand. Nonetheless, it has negative effects such as dependencies to the low value-added industry and external economic dynamics. After the resource boom is over, Indonesia experiences a trend of economic slowdown, especially on the rate of economic growth. The second challenge is low productivity. Statista noted that Indonesia's worker productivity increased from US$12/hour (2013) to US$14/hour (2018).[4] In general, Indonesia's worker productivity is growing continually yet it is still low compared to neighboring countries, Malaysia's worker productivity is at US$30/hour in 2018.[5] The low productivity has been an intractable problem for Indonesia (OECD, 2018).[6]

A promising solution that needs to be taken into account to tackle Indonesia's economic challenges is robotic-based manufacturing. Using robots particularly to increase significantly manufacturing production is highly possible. Mckinsey (2017) predicted that up to half of the total productivity growth globally needed to ensure a 2.8% growth in GDP over the next 50 years will be driven by automation.[7] A study by Center for Economics and Business Research (2017) cited in International Federation of Robotics (2017) found that robot is highly productive. The study found that a one-unit increase in robotics density is associated with a 0,04% increase in worker productivity.[8] The same study found that investment in robots contributed 10% of growth in GDP per capita in OECD countries from 1993 to 2016. It is clear that the usage of robots in manufacturing is a promising solution for Indonesia in increasing productivity.

However, as a promising solution, using robots massively in manufacturing has a challenging consequence. The massive usage of robots in manufacturing means that humans will be replaced in manufacturing. As we know, a country typically has a dependency on taxes. Specifically, Indonesia is a country that the majority of its national budget comes from taxes. A significant portion of that tax income comes regularly from workers. Mckinsey (2019) predicted that the number of job lost in Indonesia could reach 23 million by 2030.[9] Based on that number, Indonesia will potentially experience a shrinking fiscal capacity. Robots do not pay taxes, that is the problem. When a country like Indonesia faces a shrinking fiscal capacity, it is a big deal. Because, Indonesia will find difficulties in financing its social expenditures. It is likely to end up with reductions of social protection programs run by the government. The combination of job loss and limited social protection can trigger a nationwide distrust of the government. While the distrust is growing continually, the government legitimacy will be declining rapidly at the same time. This is a challenging dilemma, Robots give us higher productivity yet they do not pay tax. Therefore, there is a desperate need for a set of policies to manage the negative consequences of robot usage on Indonesia's fiscal capacity.

Conclusion: Policy Recommendation

Indonesia needs to formulate a combination of policies *(bauran kebijakan)*. The intentions of the policy combination have to both address the fiscal capacity problem and support workers to be more productive and resilient in facing challenges of robotics-based manufacturing. There are two policy recommendations for the Indonesian government. Firstly, the government needs to issue a robotic tax. The robotic tax can be based on per unit of robot ownership or another alternative schemes. Yet, the rate of the robotic tax needs to be formulated thoroughly, to avoid an increase in production cost that reduces competitiveness. Secondly, the government needs to serve Indonesian with an up-skilling and re-skilling program. Since Indonesia has had a program named *Kartu Pra Kerja* (pre-employment card), hence, Indonesia could revitalize the program by focusing on knowledge and skills to make sure Indonesian would be both more productive and resilient in the age of the new production, distribution, and consumption schemes. Indonesian government needs to broaden the cooperation with robotic-age-related training providers that can provide numerous training in data analytics, software development, coding, and so on. The program can be implemented by providing access of *Kartu Pra Kerja* for the last year SMK students & university students who have finished their courses.

Endnotes

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THC INSIGHTS

Contact:
The Habibie Center
Jl. Kemang Selatan No. 98, Jakarta 12560
Tel: +62 21 781 7211 | Fax: +62 21 781 7212
Email: thc@habibiecenter.or.id
Website: www.habibiecenter.or.id