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Globalization And Digital Transformation as Demographic and Green Economic Policies in Southeast Asia

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ABSTRACT

Developing countries in Southeast Asia are still relatively young compared to other regions around the world. However, recent statistics suggest that the situation is beginning to change in this regard, with many of these populations aging at a much faster rate than in many other countries. These developments require urgent policy action to create a sustainable path to economic growth before demographic changes become less benign in the medium term. discusses the economic consequences of population aging, rising economic support ratios, and declining potential growth rates. It is critical for developing countries in Southeast Asia to increase their total productivity (TFP) growth rates to achieve more sustainable economic outcomes. By conducting panel regressions using data from 82 countries over the study period 1996–2019, our study shows that increasing research and development (R&D) spending and facilitating structural changes that transform the digital economy landscape are key policy options that boost TFP growth. Globalization has significantly affected the economy, ecology, and society over the past decade. Meanwhile, the green economy has emerged as an important policy framework for growth and development in both developed and developing countries. The current study is an attempt to provide a detailed overview of globalization, green economy, and climate challenges to draw some implications. There is disagreement between competing green economy discourses and various definitions, all of which have problems. Recognizing the environmental impacts of natural resource depletion and the economic benefits of environmental management are common examples of operationalizations of the green economy. The new study also examines the impact of climate change on the green economy and infrastructure development.

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1. INTRODUCTION

Globalization has significantly affected the economy, ecology, and society over the past decades. Globalization has had a profound impact on the way we live. Globalization has improved communication, faster access to technology, and more innovation (Xia et al., 2022Bahasa Indonesia:Zhao et al., 2022b). Globalization has ushered in a new era of economic prosperity, created a major development channel, and played a significant role in bringing people from different cultures together. On the other hand, globalization has given rise to several problems, the most prominent of which is the impact on the environment (Lagu et al., 2020). Globalization has become a major topic in environmental discussions, with environmentalists highlighting its far-reaching consequences. However, with increasing prosperity, ecological awareness has also increased, making it a major reason to reduce environmental damage in the next phase of economic growth (Chen et al., 2020). Due to globalization and industrialization, various chemicals have been introduced into the soil, resulting in the emergence of many weeds and harmful plants. By disrupting the genetic composition of plants, these toxic wastes have caused significant damage (Shahzad et al., 2022English:Lagu et al., 2022a). This has put a strain on easily accessible land and water resources. In many places, mountains have been carved out to create space for tunnels or highways. Vast expanses of barren land have been disturbed to construct new buildings (Guo et al., 2021). These developments can attract the attention of individuals, even leading to adverse environmental consequences. Plastic, a non-biodegradable substance, has been identified as one of the most hazardous pollutants in several studies (Sharma et al., 2021English:Lagu et al., 2022b).

Globalization gives innovators the opportunity to exploit their new ideas on a bigger stage. Companies that develop new products, improve old ones, or find better production techniques can reap profits not only at home, but also abroad. on sales abroad. These "scale effects" tend to increase incentives for knowledge acquisition. However, in a more global economy, a successful innovator must share markets not only with other domestic firms but also with firms producing abroad. The "competition effects" of globalization provide a disincentive that offsets knowledge acquisition.

Grossman and Helpman (2014) consider a world economy in which individuals differ in ability and successful innovators use different technologies to produce their varieties.1 This model incorporates complementarities between the productivity of a technology and the ability of workers employed by a firm. There are no fixed costs to either production or export. In this situation, the balancing forces of scale and competition are quite clear: reductions in trade costs in some countries have no effect on the long-run growth rate in any country. The additional profit opportunities resulting from greater aggregate demand are offset by the loss of market share to foreign producers.

economic globalization", which is a much narrower concept than globalization itself, as globalization is a multifaceted concept that includes economic, political, and social aspects (e.g., Dreher et al. 2008; Sekolah 2008). Klarik (2000, p. 86) prominently defines globalization as "the process of creating a network of connections among actors across multicontinental distances, mediated through flows including people, information and ideas, capital, and goods". Various researchers of the globalization-expenditure relationship have developed a large number of indices to operationalize this multifaceted globalization process. Here, we limit the analysis to the economic

dimension that includes trade and financial openness. Brady et al. (2005, p. 922) conceptualize economic globalization as "the intensification of international economic exchange and a label for the contemporary era of international economic integration. Thus, [economic] globalization involves the current economic environment that shapes the welfare state and the increase in concrete economic exchanges between countries.

The accepted typology of economic globalization indicators distinguishes between trade globalization, financial globalization and overall economic globalization, so that the latter measure combines both trade and financial dimensions (e.g., Squalli and Wilson 2011; Gräbner et al. 2018; Gygli et al. 2019). The most prominent indicator of trade globalization so far is the share of trade in GDP (measured as the sum of imports and exports as a percentage of GDP). In the financial globalization dimension, researchers have adopted measures such as foreign direct investment (FDI) flows and capital account liberalization indices. Furthermore, the Swiss Institute of Economics (KOF) globalization index has emerged as the most popular measure of overall economic globalization (Dreher 2006; Potrafke 2015). Our meta-data coding of relevant economic globalization indicators follows the typology developed in Gräbner et al. (2018) along the dimensions of trade globalization, financial globalization, and overall economic globalization (see appendix for more details). Although our focus is on "economic globalization," for simplicity, this paper will refer to it generically as "globalization." There is a general consensus that "we can no longer understand the politics of a country—what we conventionally call 'domestic' politics—without understanding the nature of the relationship between the national economy and the world economy, and the changes in that relationship" (Milner and Keohane 1996, p. 3). In this context, academic researchers have advanced three competing theories. First, globalization can lead to substantial reductions in public spending. Second, globalization can lead to sharp increases in government spending. Third, globalization may have a small (though not unidirectional) impact on government spending, but domestic factors may be a more important determinant of public spending.

The first theory—globalization causes spending savings—is called the 'efficiency' hypothesis. In its simplest version, this theory states that globalization reduces public spending because international competition effectively triggers a 'race for the best location' across countries, which encourages tax competition and leads to spending savings because fuller integration of international financial markets also penalizes deficit spending (e.g., Sinn 1997). The logic behind capital mobility is that the greater potential for cross-border capital flight has made financial market investors key determinants of fiscal policymaking, since they can effectively 'punish' governments by selling government bonds (e.g., Streeck 2014). The simple version of the 'efficiency hypothesis' therefore predicts that governments respond to globalization by introducing large cuts in public spending. The extended version of the 'efficiency' hypothesis is more complex in that it makes a clear prediction about the type of government spending that will be negatively affected by globalization: here, the prediction is that globalization exerts particular downward pressure on public spending on social protection and welfare, as the welfare state comes under attack due to concerns that redistributive fiscal policies may hamper international 'competitiveness' (e.g., Alesina and Perotti 2014). 1997). Although welfare spending is subject to fiscal consolidation pressures caused by globalization, the extended version of the 'efficiency' hypothesis recognizes that other components of government spending are still expected to respond positively to increased international market integration; for example, spending on public infrastructure or education may increase in response to globalization as

governments try to make their locations more attractive to foreign investors, thereby ensuring international competitiveness (e.g., Schulze and Ursprung1999). Since different components of government spending can be expected to respond differently to globalization (in particular: spending on social protection and welfare vs. spending on public infrastructure), it is not possible to test the extended 'efficiency' hypothesis by looking only at total government spending. Our meta-analysis will therefore consider different types of government spending.

The second theory—globalization causes expansion of public spending—can be called the 'compensation' hypothesis. This theory makes the theoretical prediction that more trade and greater financial openness lead to a larger public sector. The argument is essentially about the political incentives for expansionary spending policies, since citizens demand that policymakers compensate them directly for the increased external risks and social polarization associated with international integration. The integration of international trade and financial markets can increase inequality and economic insecurity. In that context, governments have strong incentives to compensate their citizens. In his seminal paper on the 'compensation' hypothesis, Rodrik (1998, p. 1019) argues that "[i]f government spending plays an important risk-mitigating role, we would expect this to be reflected primarily in income transfer programs and in social security and welfare spending." Thus, while the simple version of the 'compensation' hypothesis makes no specific predictions about which types of government spending will be affected by globalization, the extended version suggests that governments respond to globalization by building stronger safety nets and engaging in additional welfare spending. Both 'efficiency' and 'compensation' theories assign a special role to social spending, although the extended versions make clearly opposing predictions regarding the unidirectional impact of globalization on social spending.

A third view is skeptical of the theoretical claim that globalization produces a strong and unidirectional effect on government spending, as suggested by 'efficiency' and 'compensation' theories. This skepticism is based largely on theoretical arguments that other factors are more important determinants of government spending than globalization. A comprehensive survey would go beyond the scope of this paper, but the third view generally emphasizes the importance of each country's history in terms of institutions and culture (e.g., Navarro et al. 2004) and the structure of the welfare state and political system (e.g., Cusack 1997; Kim and Zurlo 2009). Empirical studies that focus on domestic determinants of government spending focus on explanatory variables such as partisan politics and democracy (e.g., Garrett 1998b; Kittel and Obinger 2003), fiscal decentralization (e.g., Rodden 2003; Ha 2008), changes in the age structure of the population (e.g., Razin et al. 2002; Shelton 2008) and domestic economic conditions (e.g., Stephens et al. 1999; Kittel and Pemenang 2005). However, it is important to note that acknowledging the existence of domestic influences on public spending does not necessarily imply that globalization has no influence at all: the impact of globalization on various components of government spending may still be nonzero, but smaller than the 'efficiency' or 'compensation' hypotheses would suggest and, moreover, may not be unidirectional across countries.

Most developing countries in Southeast Asia have aging populations. (According to the UN regional classification of countries, Southeast Asian countries include Brunei Darussalam, Singapore, Cambodia, Indonesia, Lao People's Democratic Republic, Myanmar, the Philippines, Thailand, Timor-Leste, and Vietnam. However, for this study, we follow the Asian Development Bank's

regional classification of developing countries in Southeast Asia, which excludes Brunei Darussalam and Singapore. An aging society refers to a society whose median age is increasing due to increasing life expectancy and/or decreasing birth rates. According to the UN, an aging society is defined as a country or region where the proportion of people aged 65 and over exceeds seven percent of the total population.) However, Southeast Asian countries are still considered relatively young when compared to other countries in Asia. Recent statistics show that since 2020, the percentage of the elderly population (aged 65 and above) in Southeast Asia has grown much faster than in other regions around the world, such as African countries located in the tropics. According to the UN [1], by 2040, except for Timor-Leste, all developing countries in Southeast Asia will be classified as having aging societies. At the same time, a sharp decline in birth rates and a significant increase in life expectancy will further exacerbate population aging, a shift that will ultimately slow economic growth in developing countries in Southeast Asia.

2. RESEARCH METHOD

To answer the research questions, this article adopts a qualitative research design (Yin, 2014). The authors chose this methodology over a quantitative research approach for three main reasons (Yin, 2014). First, this method allows the phenomenon under study to be explored in depth. Second, this method is characterized by a very high degree of flexibility, allowing the adaptation of the research design according to the issues that arise during the data collection process. Third, qualitative research leads to the interpretation and contextualization of empirical results based on existing theories. This process significantly enhances the creation of innovative conceptual frameworks and hypotheses, which enrich the understanding of complex phenomena. Therefore, we advocate a longitudinal and multiple case study using an exploratory and comparative research approach (Yin, 2014) to analyze the BM development of four multinational banks over the past two decades.

Specifically, an exploratory research approach investigates lesser-known or complex phenomena, with the aim of identifying emerging patterns, relationships, and trends (Yin, 2014). In the case of BMI in the banking sector, an exploratory approach can be useful for understanding the dynamics that drive innovation and evolution of bank BM over time.

The comparative research approach compares different situations to identify similarities, differences, and common factors that influence the phenomenon under investigation (Yin, 2014). In the context of BMI in the banking sector, the comparative approach can be used to compare heterogeneous banks, analyzing similarities and differences across different markets or geographical contexts. variables and data sources that we use to conduct the regression analysis. We use the Penn World Table (PWT) version 10.0 to obtain the TFP levels of different countries. The annual growth rate of TFP is the main dependent variable. The level of real GDP, which is used as the main control variable, is also taken from the PWT. To understand the main determinants of TFP growth in the context of the digital economy, we use the GERD database to obtain the annual level of gross domestic expenditure on R&D activities (GERD) for 82 countries over a 24-year period from 1996 to 2019. As a proxy for digital transformation, we require a measure of the intensity of the information and communication technology (ICT) industry in the composition of each country's economy. We propose to use the share of ICT goods in international trade for this measure. If a country has a high ICT industry intensity, we can expect that the share of ICT in its exports will also be high. On the other hand, if a country works as an ICT manufacturing plant in the global supply chain or invests heavily in the ICT industry, then we can expect that the share of ICT in its imports will be high. We use

the share of ICT in total exports or the share of ICT in total imports, with data obtained from the World Bank.

3. RESULTS AND DISCUSSION

Economic sustainability aims to improve manufacturing processes and useful ways to reduce resource consumption, pollution, and greenhouse gas emissions throughout the life cycle of products and processes, so that although economic growth is related to how resources have been used to generate benefits for society and seek to reduce global economic decline. Based on previous research, Table 1 shows the relationship between green economic development, environmental challenges, and energy use. Multidisciplinary mechanisms explain five main figures, and each plays an important role in the evolution of a peaceful society. Functional analysis of sources of economic growth, disaster approaches, disaster relevance, mitigation, and transformation processes are all depicted in these five figures (Crocker et al., 2005Bahasa Indonesia:Roma, 2010Bahasa Indonesia:Rahi, 2011Bahasa Indonesia:Orakzai, 2011). The three main areas of contemporary green economic efforts are:

1) At the regional, sub-regional and national levels, support a macroeconomic perspective for long-term economic progress.
2) Promote the power of the green economy, especially in the areas of green finance, advanced technology and investment.
3) Support countries in mainstreaming production and economic growth to facilitate a clean energy future.

The green economy is a new strategy for development and progress that seeks to drive economic growth and improvements in people's daily lives as well as their long-term environmental and social well-being. Sustainable resource plans should encourage the development and adoption of sustainable technologies. Societies are affected by the transition to a green economy, including technological transformation. Consequently, it is essential to maximize the performance of new technologies, establish effective strategies, and understand and address the most fundamental distributional impacts of technological change. All cultural changes have positive and negative sides, and unless these are recognized and addressed, the desired green revolution may lack credibility among many critical groups. Incremental breakthroughs, such as improvements in energy and resource efficiency in current industrial processes, are essential for the transition to a green economy. Finally, research that includes a range of impact assessments and methodological advances in evaluation research should help accelerate the green revolution. This refers to the analysis of the impact of key entry-point trends, such as digitalization and automation, globalization versus state ownership, and so on, on environmental and distributional outcomes, as well as the prospects for collaboration on green innovation and circular economy-inspired business practices. The extent and character of the social difficulties posed by climate and environmental threats are vast and diverse. Widespread emissions are particularly difficult to track and regulate. For example, environmental authorities may aim to penalize improper waste disposal because it limits chemical hazards. However, such activities often go undetected. To address these sporadic environmental impacts, society must develop new, more indirect methods of monitoring and regulating. This could lead to efforts to end material cycles and promote a circular economy. The value of goods, materials and resources is maintained as much as possible. European Commission Report (2015) This means a greater emphasis on raw material

reduction, recycling and reuse (Heshmati, 2017). While promoting energy and material efficiency methods can help address the widespread environmental implications,

Moving towards a digital economy can act as an important means to address the chronic problems that have long been faced by most developing countries, such as poor infrastructure, slow financial sector development, imbalanced trade and investment practices centered on low-skilled labor-intensive industries, poor institutional capacity, and inadequate levels of educational attainment. For example, developing the ICT industry and pursuing technological development through increased R&D investment can facilitate the adoption and support of new technological innovations, access to vocational training, E-commerce and online transactions, and telecommuting practices, especially among the younger generation. As history has repeatedly revealed, for example, the industrial revolution in Great Britain in the 18th century, the rapid rise of West Germany and Japan after World War II in the 20th century, the remarkable economic growth of the four Asian tigers between the early 1960s and the 1990s, and the emergence of China, PRC in the global economy since 2000, the challenges facing the world are much-needed opportunities for revolution and innovation. Such moments act as important gateways for many countries to reach new heights of economic prosperity. Just like historical events in the past, the COVID-19 pandemic will bring new economic opportunities for Southeast Asian countries if the right tools and policy measures can be implemented.

Our empirical assessment also confirms that when countries spend more on R&D, especially in per capita terms, the TFP growth rate is positively and significantly affected. We find that the growth rate of total per capita R&D expenditure is more important than who actually initiates R&D investment. As long as there is an increase in R&D investment, both from the public and private sectors, TFP can be boosted. The intensity of the ICT industry is also found to be important in facilitating TFP growth, and the impact of the import channel appears to be more significant than the export channel. It is possible that importing ICT goods for domestic investment or importing intermediate goods with more advanced technology for domestic production is directly related to a country's productivity-enhancing activities. Facing the demographic transition toward an aging population, developing Southeast Asian countries still have many policy options available to them through which they can prepare for a possible economic slowdown. They should take advantage of their relatively young populations today and place more emphasis on implementing structural reforms that break capacity constraints and stimulate the development of the digital economy. Increased public R&D investment in digital infrastructure, including investment in ICT infrastructure, energy infrastructure, technology transfer, and human capital, as well as appropriate tax incentives, is strongly recommended. ICT trade will also play a key role in attracting more foreign direct investment, which is needed to finance the expenditure required for increased public R&D.

Finally, how developing countries in Southeast Asia, with persistently weak government revenues, can finance public investment needs to be further discussed. Among the many policy solutions, receiving Official Development Assistance (ODA) or Aid for Trade (AfT) focused on increasing R&D in basic science is highly recommended. At the same time, they should actively promote foreign direct investment (FDI), which can provide vocational education for the workforce and improve countries' technological infrastructure. Although all research questions have been answered, the lack of available developing country data, especially data on R&D, means that we cannot conduct separate empirical TFP analyses for each country. As the full-scale transition to a digital economy takes place in the future, analyzing the demographic and economic impacts of integrated policies, such as the impact of digitalization on TFP growth in Southeast Asia, will be an important area of further research.

4. CONCLUSION

This study draws new findings and useful implications for combating environmental challenges based on a broad review of materials. It is important to mention that this survey is based on elements for countries' environmental protection (income, renewable and non-renewable energy, economic growth, urbanization, and trade). Other elements, such as forests, technical breakthroughs, energy efficiency, industrial growth, economic openness, etc., can affect climate change. International trade, technical development, and industrialization are all considered as factors of energy-related greenhouse gas emissions in general. Future studies may focus on these aspects to see how they affect environmental quality. Digital technology has become a critical enabler of connectivity, enhancing people's daily lives. As countries enforce lockdowns and stay-at-home orders, the majority of people are seeking the convenience of their digital communication devices. Digital technology supports a wide range of face-to-face activities, including telework, telemedicine, food and essentials delivery, logistics, online payments, online meetings, distance learning, and entertainment options. While the current expansion of digital activities with online settings will likely taper off once the pandemic is under control, the natural experiment of large-scale digitalization will undoubtedly fundamentally change conventional ways of living and working for a long time to come. Therefore, the need for reliable and sustainable digital telecommunications and Internet infrastructure is greater than ever. From this perspective, the current prevalence of the digital economy can act as a critical mechanism to drive economic growth opportunities across emerging economies in Southeast Asia.

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