



Demographic Transition and Economic Challenges: A Descriptive Study of Economic Resilience

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Abstract— This research aims to examine the relationship between the demographic transition and the economic challenges a country faces, focusing on economic resilience. This research uses a descriptive qualitative approach to analyze secondary data from various reliable sources, such as government reports, academic journals, and international publications. The research method involves a comprehensive descriptive analysis to understand the demographic changes and economic challenges of the demographic transition. First, the research will study the patterns of demographic change, including increasing life expectancy, decreasing birth rates, and increasing life expectancy. Next, it will analyze the impact of these demographic changes on aspects of the economy, such as employment, productivity, consumption, and the pension system. Our study concludes that the challenges of education, improving training and skills, economic integration, job creation, and health are interrelated and significantly impact the demographic transition and economic challenges in achieving economic resilience in Indonesia.

Keywords— *Demographic Transition, Economic Resilience, Economic Challenges, Demographic Change, Descriptive Analysis.*

I. INTRODUCTION

Economic resilience is one of the most important things for a country in facing complex economic challenges [1]. Demographic transition, which refers to changes in the structure and characteristics of a country's population, can significantly impact economic resilience [2]. In this narrative, we will explore the relationship between demographic transitions and the economic challenges faced by countries, and how economic resilience can be key in dealing with such changes. Demographic transitions occur because of changes in the patterns of births, deaths, and life expectancy in a population. One important aspect of the demographic transition is the change in the age pyramid [3]. Countries undergoing a demographic transition typically experience a decrease in birth rates and an increase in life expectancy, ultimately leading to an older population. This demographic change brings several economic challenges that must be addressed. First, older populations are likely to face an increased burden on pension and healthcare systems [4]. In some cases, the number of productive workers contributing to the economy is declining while the number of retirees is increasing, leading to fiscal imbalances. This can hamper long-term economic growth and place pressure on the sustainability of social systems [5]; [6]; [7].

In addition, the demographic transition can also affect the labor market. In an aging population, there is a decline in the

number of active workers relative to the number of retirees [8]. This can result in a lack of relevant skills and knowledge in the labor market, hindering economic growth and innovation. In addition, labor productivity may be affected as older workers may have lower productivity levels than younger generations. Economic resilience is key in facing these challenges; to achieve economic resilience in the context of the demographic transition, countries need to implement policies that focus on several key aspects [9]. First, the development of sustainable and inclusive pension systems is important. Countries need to review their pension systems to ensure long-term financial sustainability by setting a more flexible retirement age, encouraging retirees to remain active in the labor market, or introducing more diversified private pension schemes [10].

Furthermore, investment in health and aged care is crucial. In an aging population, the demand for health and long-term care services will increase [11]. They were improving health infrastructure, training qualified medical personnel, and developing affordable and quality long-term care programs. Proper investment in the health sector will help address the financial burden and provide social protection for the older population [12].

In addition, countries also need to encourage the participation of older workers in the labor market. This can be done through policies that promote training and lifelong learning, reduce stigma against older workers, and create inclusive employment opportunities [13]. By harnessing the potential of older workers, countries can strengthen their competitiveness and economic growth. In addition to addressing the immediate challenges faced in the demographic transition, countries also need to adopt diverse and innovative economic strategies to strengthen their economic resilience [14]. Diversifying economic sectors, promoting investment in knowledge-based industries, and encouraging entrepreneurship can be important steps in achieving sustainable economic growth [15]. Economic resilience is also closely linked to human development; countries need to invest in education and skills to prepare the younger generation for the upcoming demographic changes [16]. Quality education and relevant training programs will enable people to adapt quickly to economic and technological changes [17]. In addition, the country also needs to strengthen the financial system and protect people from economic risks [18]. Developing a strong financial sector, wisely regulating the banking system, and promoting financial inclusion will help create stability and confidence in the economic system. In the context of economic challenges associated with the demographic transition,

collaboration and cooperation between countries is also important. Exchange of knowledge, experience and best practices between countries facing similar challenges can accelerate the development of effective solutions [19].

In conclusion, the demographic transition poses significant economic challenges for countries. However, with a focus on economic resilience, countries can overcome these challenges and even benefit from demographic change [1]. Countries can build a strong foundation for long-term economic growth and societal well-being through smart and diversified policies in pensions, health, labor markets, and economic development [20]. It is important to prioritize investments in education, skills, and innovation to face a hopeful future in the demographic transition era. By doing so, the country will be prepared for the economic challenges that may arise and able to capitalize on the opportunities that arise [21]. The results of this study can be used as a basis for developing sustainable policies in the face of ongoing demographic changes. Thus, the country will be better prepared and able to overcome the emerging economic challenges and create a brighter future for future generations.

II. RESEARCH METHOD

This method aims to produce a detailed, thorough, and in-depth description of the phenomenon under study, thus providing deeper insight and comprehensive understanding [47]. In this research, the descriptive qualitative research method can involve the following steps:

Research design: The descriptive qualitative research design will involve selecting appropriate participants, research sites and data collection techniques.

Data collection: Qualitative data collection methods may involve in-depth interviews, participatory observation, and document analysis. In-depth interviews will be used to obtain relevant stakeholders' perspectives and experiences. Participatory observation can be used to understand the social and economic context first-hand. Document analysis will involve collecting and analyzing secondary data, such as economic reports, Indonesian government policies, and relevant past studies.

Data analysis: Descriptive qualitative data analysis will involve a process of coding and theming. The data collected will be systematically analyzed to identify emerging themes, patterns, and relationships. Coding is done by assigning labels or categories to relevant pieces of data. Then, emerging themes and patterns will be further explored to comprehensively describe the phenomenon under study.

Interpretation and conclusion making: The results of the data analysis will be interpreted by relating them to relevant theories and related literature. In the context of this research, interpretation will involve understanding how the demographic transition contributes to economic challenges and how these factors affect economic resilience. Conclusions will be formulated based on the findings generated from the data analysis, providing important information on the relationship between the demographic transition, economic challenges, and economic resilience.

Validity and reliability: In descriptive qualitative research, it is important to pay attention to data validity and reliability. Validity can be enhanced through data triangulation, which is collecting data from different sources

to strengthen the findings. Reliability can be improved through research continuity and ensuring that findings can be accounted for and reproduced.

In this descriptive qualitative research on economic resilience associated with Demographic Transition and Economic Challenges, this research method will assist researchers in deeply understanding related phenomena, such as the impact of demographics on economic sectors, existing policy responses, and factors affecting economic resilience. Through comprehensive qualitative data analysis, researchers can understand the complexity of the relationship between demographic transition and economic challenges and help formulate appropriate policy recommendations to achieve sustainable economic resilience in the context of changing demographics.

III. RESULT AND DISCUSSION

A. Data Description

As part of the research overview, the following presents Indonesia's statistical data for 2012-2021. The data includes population size, population growth, total fertility rate, infant mortality rate (per 1,000 live births), life expectancy, literacy rate above 15 years of age, labor force participation rate, unemployment rate, number of poor people, percentage of poor people, and human development index.

1. The total population increased from 245.4 million in 2012 to 272.7 million in 2022. Population growth steadily increases about 1.2-1.4% each year.
2. The total fertility rate decreased from 2.44 children per woman in 2012 to 2.10 children per woman in 2022. This indicates a downward trend in the birth rate of the population.
3. The infant mortality rate (IMR) decreased from 27.9 per 1,000 live births in 2012 to 17.2 per 1,000 live births in 2022. This indicates improved infant health and care in the population.
4. Life expectancy increased from 70.2 years in 2012 to 73.5 years in 2022. This indicates an increase in life expectancy in the population.
5. The literacy rate above the age of 15 increased from 93.1% in 2012 to 96.0% in 2022. This indicates an increase in the level of education and access to education in the population.
6. The labor force participation rate showed minor fluctuations over the time-period, with a rate of around 66.6-67.8%. This reflects the proportion of people engaged in economic activities.
7. The unemployment rate experienced minor fluctuations but saw a significant increase in 2022 to 7.1% compared to 5.2% in the previous year. This indicates an increase in the unemployment rate in the population.
8. The number of poor people showed fluctuations, but overall decreased from 29.1 million in 2012 to 27.5 million in 2022. The percentage of poor people has decreased significantly from 12.0% in 2012 to 10.1% in 2022.

- 9) The Human Development Index (HDI) increased from 67.7 in 2012 to 72.3 in 2022. This increase indicates improved welfare; Human Development Index (HDI) increased from 67.7 in 2012 to 72.3 in 2022. This increase indicates improved well-being and socio-economic development in the population. Factors such as an increase in life expectancy, literacy rates, and a decrease in poverty rates may contribute to the increase in HDI.

Overall, the data in provides an overview of the social and economic changes in the population from 2012 to 2022. There are some positive trends such as a decrease in the birth rate, an increase in life expectancy, an increase in the literacy rate, and a decrease in the poverty rate. However, there are also some changes to note, such as an increase in the unemployment rate in 2022. The dataset presents data on various country economic indicators from 2012 to 2022. The data includes gross domestic product (GDP) growth, economic growth, GDP per capita income, inflation, exports, imports, number of foreign tourists, money supply, reserve asset position, domestic and foreign investment realization, Bank Indonesia certificate interest rate, currency exchange rate, and composite stock price index.

1. GDP at current prices has increased from IDR 8,615.7 trillion in 2012 to IDR 16,970.8 trillion in 2022. This indicates significant economic growth over the period.
2. Economic growth shows fluctuations with a downward trend from 6.0% in 2012 to -2.1% in 2020, but then recovers to 3.7% in 2022.
3. GDP per capita income at current prices increases from IDR 35.1 million in 2012 to IDR 62.2 million in 2022. This indicates an increase in the welfare of individuals in the population.
4. Inflation (YoY) fluctuates with the highest level occurring in 2013 (8.4%) and then declining towards 2022 (1.9%). This indicates price stability over the period.
5. The value of exports fluctuates with a downward trend from US\$ 190.0 billion in 2012 to US\$ 163.2 billion in 2022.
6. The value of imports also fluctuated with a downward trend from US\$ 191.7 billion in 2012 to US\$ 196.2 billion in 2022.
7. The number of foreign tourists has increased from 8.0 million in 2012 to 1.6 million in 2022. However, there was a significant decline in 2020 due to the COVID-19 pandemic.
8. Money in circulation has increased from IDR 3,307.5 trillion in 2012 to IDR 7,867.1 trillion in 2022. This indicates monetary expansion in the economy.
9. The position of reserve assets fluctuates but tends to increase from 112.8 billion US dollars in 2012 to 144.9 billion US dollars in 2022.
10. Realized domestic investment (PMDN) and foreign investment (PMA) have increased over the period, indicating economic growth.
11. Bank Indonesia (BI) certificate interest rates have fluctuated, with some years with no data available. In 2022, the BI certificate rate reached 5.75%.
12. The currency exchange rate against the US dollar showed fluctuations over the period, with some years

experiencing increases and decreases. In 2022, the median exchange rate reached 14,269 Rupiah per US dollar.

13. The composite stock price index (CSPI) has fluctuated, with an upward trend from 4,316.7 in 2012 to 6,581.5 in 2022. This indicates the growth of the stock market over the period.

Overall, the data provides an overview of a country's economy changes from 2012 to 2022. There are some positive trends such as GDP growth, increasing per capita income, decreasing inflation, and increasing stock exchange rates. However, there are also fluctuations and challenges such as a decrease in exports and imports in some years and the negative impact of the COVID-19 pandemic on the tourism sector.

B. Strategies and Frameworks for Addressing Demographic Transition as Part of Economic Resilience

1. Education

Overcoming these problems requires collaborative efforts from the government, educational institutions, and communities. Some of the steps that can be taken include increasing access to education for all children, improving the quality of education facilities, updating the curriculum to make it more relevant to labor market needs, improving the quality of teaching through teacher training and professional development, and increasing investment in education.

a. Improving Access to Education

To improve access to education, the government needs to focus on providing adequate education infrastructure in remote and rural areas. School construction, provision of educational facilities and infrastructure, and adequate transportation can help reduce the gap in access to education between urban and rural areas. In addition, scholarship and tuition assistance programs need to be improved to ensure that children from underprivileged families can still access quality education.

b. Improving the Quality of Education

Efforts to improve the quality of education should include improving teachers' qualifications and competencies. Teacher training and professional development programs should be actively encouraged, both through regular training and collaboration between educational institutions and industry. In addition, it is also necessary to update the curriculum to be more responsive to technological developments and labor market needs. The integration of practical skills, such as digital skills, entrepreneurship and problem-solving, in the curriculum can help students prepare for the increasingly complex world of work.

c. Improving Teacher Qualifications and Training

To improve teachers' qualifications, training programs and continuous improvement of teaching quality are necessary. Teachers need to be given the opportunity to participate in training and professional development that is relevant to the demands of today's education. Collaboration between educational institutions and industry is also important to ensure that teachers have a

good understanding of the latest developments in the world of work.

d. Curriculum Refinement

The education curriculum needs to be adjusted to the evolving needs of the job market. Technical and soft skills, such as communication, leadership, and cooperation, should be integrated into the curriculum. Cooperation between educational institutions and industry in formulating the curriculum can ensure the relevance and sustainability of the curriculum in the face of changing trends and demands of the job market.

e. Redistribution of Resources

There is a need for redistribution of educational resources to address regional disparities. The government should prioritize a more equitable allocation of education funds, especially for regions that are still lagging in providing quality education. In addition, competent teachers should be recruited to remote areas to ensure equitable access to education for all children in Indonesia.

2. Skills Training

A comprehensive analysis of the skills required by the current and future job market is needed. Collaboration between the government, educational institutions and industry players can help identify the most relevant skills and design appropriate training programs. Second, relevant training programs should be developed based on the analysis of labor market needs. This involves developing a curriculum that covers both the technical skills and soft skills required in the world of work. Training programs should also include practical components that provide hands-on experience in real work situations. Third, efforts should be made to increase access to skills training, especially for groups of people who may face difficulties in accessing it. This can be done through scholarship programs, subsidizing training costs, and flexible approaches such as distance or online training. Governments and educational institutions can also work with non-governmental organizations and the private sector to bring training to remote areas. Fourth, training quality standards need to be improved through rigorous monitoring and assessment. Certification and accreditation of training programs can ensure that they meet set standards. Training instructors is also important to ensure that they have adequate qualifications and competence in delivering training materials. Fifth, collaboration between training institutions and industry players is essential. Industry can provide valuable input on actual skills needs and help design relevant training programs. Industry partnerships and internships can also help students or trainees gain valuable work experience and build connections with the world of work. In addition, it is important to improve access to education and training for the wider community, especially those from low economic backgrounds or remote areas. Affordable scholarship, financial aid and skills training programs should be encouraged so that individuals have equal opportunities to access quality education and training.

3. Job Creation

- a. Encourage the Growth of Potential Economic Sectors: The government needs to encourage the growth of potential economic sectors, such as manufacturing, tourism, information technology, and modern agriculture. Investments in infrastructure, improved industrial competitiveness, and policies supporting these sectors' development will boost economic growth and create jobs.
- b. Encouraging the Growth of Potential Economic Sectors: The government needs to encourage the growth of potential economic sectors, such as manufacturing, tourism, information technology, and modern agriculture. Investments in infrastructure, improved industrial competitiveness, and policies supporting these sectors' development will boost economic growth and create jobs.
- c. Quality education and training are essential to prepare a competent workforce that meets the needs of the labor market. Improving the quality of formal education and training programs and increasing the relevance of the curriculum to the world of work needs to be a focus in addressing this issue. The government can work with education and training institutions and industries to identify the skills required by the current and future job market. The curriculum should be updated regularly and adapted to technological developments and industry demands so that students and trainees have relevant skills that can be directly applied in work.
- d. Indonesia is an archipelago with a wide spread of territory. Economic inequality between regions can hinder balanced economic integration. Some regions may still face difficulties in accessing wider markets and lack adequate infrastructure. To overcome this, efforts need to be made to strengthen connectivity between regions, build supporting infrastructure, and encourage investment in underdeveloped areas.
- e. Tariff and non-tariff barriers are also a challenge to economic integration. High tariffs or complex regulations can impede the flow of goods and services between countries. In addition, differences in regulations, quality standards, and administrative procedures can also be barriers to cross-border trade and investment. The government needs to continue its efforts to update and simplify trade policies and improve regulatory harmonization with partner countries.
- f. Indonesia is still highly dependent on the export of certain commodities, such as oil, natural gas, and agricultural products. This dependence makes the Indonesian economy vulnerable to fluctuations in commodity prices on the international market. To reduce this risk, it is necessary to diversify the economy by encouraging the development of other sectors that have growth potential, such as the manufacturing industry, tourism, and services.

4. Economic Integration

In facing these challenges, the Indonesian government needs to take strategic steps, including updating trade

policies, improving the efficiency of regulations and administrative procedures, and encouraging investment in infrastructure that supports connectivity. Some of the efforts that can be made include:

- a. The government can reform trade policy by reducing tariff and non-tariff barriers that impede the flow of goods and services. This can be done through negotiating bilateral and multilateral trade agreements, simplifying trade procedures, and improving regulatory harmonization with trading partner countries.
- b. Investment in infrastructure that supports connectivity is key to improving economic integration. The government needs to encourage the development of efficient transportation networks, such as the construction of roads, ports, and airports that can connect remote areas with economic centers. In addition, the development of energy networks and information technology is also important to strengthen connectivity and support economic growth.
- c. The government must encourage economic diversification by developing non-commodity sectors with growth potential. This involves developing more advanced manufacturing industries, developing an innovative services sector, promoting tourism, and encouraging investment in technology and creative sectors. Economic diversification will help reduce dependence on certain export commodities and increase the resilience of the Indonesian economy to global market fluctuations.
- d. Regional and international cooperation can be an important tool in enhancing economic integration. Indonesia can expand market access, increase investment, and strengthen economic relations with trading partner countries through active participation in regional cooperation, such as ASEAN, and bilateral or multilateral trade agreements. In addition, cooperation in terms of exchanging knowledge, technology and experience can also strengthen Indonesia's economic competitiveness.

In the face of these challenges, collaboration between the government, private sector and civil society is essential. Strong cooperation between various parties will help address issues related to economic integration in Indonesia and promote inclusive and sustainable economic growth.

5. *Health*

In facing the health challenges associated with the demographic transition, Indonesia needs to adopt a comprehensive approach. Policies that promote disease prevention, increase access to health services, develop human resources in the health sector, and improve health infrastructure are needed. In addition, collaboration between the government, private sector, and civil society is also essential to achieve significant results in improving the health and well-being of the community. Some concrete steps that can be taken to address the health challenges associated with the demographic transition in Indonesia are:

- a. One important step is to increase investment in health education. In the context of the demographic transition, a qualified and trained health workforce is needed to face various health challenges. The government needs to strengthen the health education system, increase the number and quality of health education institutions, and provide incentives for individuals who choose a career in health.
- b. Improving access and quality of health services is a key factor in facing health challenges. The government must ensure the availability of adequate health facilities, especially in rural and remote areas. It is also necessary to improve the quality of services, including skilled health workers, adequate medical equipment, and effective health information systems.
- c. In the face of a high disease burden, the government needs to increase its focus on disease prevention efforts. Public awareness campaigns on healthy lifestyles, good diet, regular exercise, and avoidance of risk factors are important to reduce the prevalence of non-communicable diseases. In addition, vaccination programs, early screening, and preventive medicine should also be improved to reduce the overall impact of diseases.
- d. An effective and inclusive health insurance system is essential to ensure access to health services for the entire population. The government should improve health insurance coverage and quality and ensure sustainability and equity in health financing. This may include developing a universal health insurance program, reducing the cost burden on the poor, and increasing the use of information technology in health insurance management.

Complex health challenges require government, private sector, and civil society collaboration. The government can work with the private sector to expand access to health services, increase investment in health infrastructure, and encourage innovation in medical technology development. In addition, the participation of civil society and non-profit organizations is also important in supporting better health outcomes.

IV. CONCLUSION

In summary, the challenges in education, skill development, economic integration, job creation, and healthcare are intricately linked to Indonesia's demographic transition and its economic resilience endeavors. Managing the country's growing population while elevating the quality of human resources is central to addressing demographic changes. Substantial investments in education and training reduce the human capital quality gap and cultivate a capable and flexible workforce. Additionally, bolstering economic integration, particularly by overcoming trade barriers and enhancing infrastructure, opens doors to increased domestic and international market access, reducing vulnerability to global economic fluctuations.

The creation of sufficient, high-quality jobs takes precedence in facing economic challenges. Encouraging growth in promising economic sectors, such as manufacturing, tourism, and the digital industry, promotes investment, productivity, and reduced unemployment rates. In the context of demographic transition, the creation of productive jobs is crucial to harness the potential of a burgeoning workforce.

Healthcare is another vital aspect of economic resilience. Overcoming health challenges, such as unequal access to services and increasing disease burdens, directly impact labor productivity and economic stability. Hence, substantial investments in healthcare systems and disease prevention are imperative to ensure a healthy population.

To address the challenges in education, skill development, economic integration, job creation, and healthcare, a coordinated effort involving relevant institutions and stakeholders, including the government, private sector, educational institutions, and society, is essential. Robust collaboration and synergy among these sectors must address these complex and interrelated challenges. Furthermore, governments should implement policies supporting equitable access to education, improved educational quality, and relevant curricula. The government should also encourage infrastructure investment to facilitate economic integration and broader market access. Creating an attractive investment climate for the private sector, particularly small and medium-sized enterprises, is critical for job creation. Education and training institutions must play an active role in tailoring curricula and training programs to meet labor market needs, collaborating with industry to ensure the relevance of skills taught. Additionally, these institutions should prioritize the development of 21st-century skills, including digital literacy, creativity, problem-solving, and interpersonal skills, to equip the workforce to navigate rapid economic and technological changes.

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