Anticipating the demographic bonus from the perspective of human capital in Indonesia

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ARTICLE INFO

Article history:

Received 19 August 2021

Received in rev. form 22 Sep. 2021

Accepted 24 Sept 2021

Keywords:

Demographic Bonus, Human Capital, Competency-Based Training (CBT), Deming's (1986) plan-do-check-action (PDCA), Economic Growth, Indonesia

JEL Classification:

J11 & J24, O15 & O38

ABSTRACT

The purpose of this paper is to investigate and analyze the demographic bonus from the perspective of human capital in Indonesia. This research methodology uses qualitative methods and uses literature and documentation study techniques. This research data comes from secondary data sources, based on literature studies, and is analyzed descriptively qualitatively which emphasizes the use of scientific logic. The results of the study found that Indonesia is in a very good demographic bonus position, and is expected to be able to take advantage of the age structure, especially the portion of the productive age which has the potential to be the main driver of economic growth. Therefore, the government must have a supporting policy to encourage economic growth by having a strategy and implementing competency-based training (CBT) through the implementation of Deming's (1986) plan-do-check-action (PDCA) as a human resource development program that includes material for integrating technical skills and competencies in the form of skills, competencies, and the right point of view or character to make students become professionals. On the other hand, the government is expected to be able to create jobs and open up a wide work environment for young people, the workforce skilled as human capital.

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Introduction

According to experts, it is estimated that in 2030-2040, Indonesia will experience a demographic bonus, where the number of productive age population, aged 15-64 years is greater than the population of unproductive age, aged under 15 years and above 64 years (Hayes & Setyonaluri, 20215; Fajria, 2020; Rostiana & Rodesbi, 2020; World Bank @ Statista 2021 in O'Neill, 2021). In this case, the age structure shifts upwards which is dominated by those in productive age (Coale & Hoover, 1958). In that period, the productive age population is predicted to reach 67.8 percent (World Bank @ Statista 2021 in O'Neill, 2021) of the total projected population of Indonesia of 297 million people (Afandi, 2017). The demographic bonus is a rare phenomenon because it will only occur once when the proportion of the productive age population is more than two-thirds of the total population (Asrie, 2020).

Referring to the results of a survey released by the Central Statistics Agency (*Badan Pusat Statistik* or BPS) on January 21, 2021, Indonesia's population is dominated by the productive age (15-64 years) with a total of 191.08 million people or 70.72% (Novrizaldi, 2021). According to BPS in Novrizaldi (2021), it is estimated that this number far exceeds the number of young people (0-14 years old) as many as 63.03 million people (23.33%), and the elderly population (65 years and over) as many as 16.07 million people (5.95%). Then, Gribble and Bremner (2012) stated that the demographic bonus refers to the acceleration of economic growth (Feng, 2011) which begins with changes in the age structure of a country's population as a transition from high to low birth and death rates.

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The demographic bonus will provide benefits for economic growth, especially in the employment sector in Indonesia if it is managed properly to create a skilled workforce as human capital to increase labor productivity. Productivity is the value of output produced by one unit of labor or capital (Samosir and Rajagukguk, 2017). Furthermore, the Organization for Economic Cooperation and Development/OECD (2021) broadens the notion of labor productivity as the gross domestic product (GDP) per worker at constant prices and in Purchasing Power Parity (PPP), and labor productivity is widely recognized as the main driver of the economy. to move to higher income levels and raise living standards.

In general, productivity in an economic context is measured by the amount of output that a person can produce in every hour of work and they get a decent wage according to their performance. According to the OECD (2015), productivity reflects the ability to produce more output by combining better inputs, thanks to new ideas, technological innovations, and business models that impact radical changes in the production of goods and services and improve living standards and welfare. Furthermore, Kelley & Schmidt (2005) and Bloom & Williamson (1998) in Lutz et al. (2019) state that an increase in the proportion of individuals who are potentially productive is measured by gross domestic product (GDP) per person of working age.

However, the demographic bonus will be disastrous if the government is not able to anticipate it properly and has the potential to cause problems in increasing unemployment, poverty, and social inequality. At present, the problem in Indonesia is the problem of quality of human resources (HR) is low and this is the main reason why Indonesia is difficult to become a developed country (Khuzaini, 2019; the Indonesia Development Forum / IDF, 2021). According to Khuzaini (2019), indicators showing the low quality of human resources in Indonesia are as follows:

- i. The number of workers, most of whom are unskilled labor,
- ii. The workforce in Indonesia is dominated by unskilled workers. This is because workers who have formal education generally only graduate from elementary school (*Sekolah Dasar* or SD), junior high school (*Sekolah Menengah Pertama* or SMP), and do not graduate from high school (*Sekolah Menengah Atas* or SMA), and
- iii. Indonesia is one of the largest suppliers of overseas domestic workers, and workers sent abroad, mostly work as laborers or regular employees. As a result, apart from being underpaid, they are also vulnerable to human rights violations committed by their service users

The problem of low quality of human resources (HR) will have a bad influence on various sectors, including the education, economic, and health sectors (Aditya, 2020) so that it has an impact on good quality jobs (International Labor Organization/ILO, 2016). According to the ILO (2016) that 60% of workers in Indonesia work in fields that are not in accordance with their education because not all Indonesians have access to education, especially the lower middle class (Aninditya, 2019). Furthermore, less than 9 percent of people (11.1 million) in the workforce have a university degree and among those with university education, only 2.7 million (less than a quarter) are from rural areas (ILO, 2016). Then, more than 16 percent (20.6 million) have not completed primary school or have never attended school and most of them (67 percent) are from rural areas (ILO, 2016).

Based on various background descriptions related to the problems in the research, this study aims to investigate and analyze the demographic bonus from the perspective of human capital in Indonesia as a factor of national economic development in order to increase the level of competitiveness of the country. Therefore, efforts to anticipate the demographic bonus from the perspective of human capital are expected to encourage the labor market in Indonesia as a factor of production so that it can compete and not compete with other countries. The object of this research is the demographic bonus and the formulation of the research problem is as follows

- i. Can the demographic bonus be the main driving factor for economic growth?
- ii. What are the supporting policies that must be carried out by the government to encourage economic growth from the perspective of human capital in Indonesia?
- iii. What efforts should be made by the government to anticipate the demographic bonus from the perspective of human capital in Indonesia?

Then, in this study, researchers used qualitative methods to answer questions about the what, how or why of a phenomenon as stated by McCusker & Gunaydin (2014). Furthermore, the technique of collecting data and information in the writing of this scientific paper uses library research and documentation techniques. According to Arikunto (2010), documentation is the act of searching for data concerning things such as notes, books, newspapers, magazines, transcripts, and agendas. This research data comes from secondary data sources.

The data is obtained from various sources based on published literature studies and has become the public domain from various literary sources consisting of books, magazines, electronic media, and scientific journals. These secondary data are in the public domain available in various published sources and are investigated and analyzed by researchers. in a qualitative descriptive manner that emphasizes the use of scientific logic (Bachtiar, 2018).

Secondary data collection was carried out using data from related agencies which were used as support and library references to support various theories and concepts in this study. The data obtained from these various sources were investigated and analyzed in a clear and detailed manner (Creswell, 2007) to be assessed based on their suitability with the theories and concepts previously described in order to answer the problems discussed in this article. All data and information obtained from a source of documentation

and observation will be correlated to produce new ideas that are presented or described in detail with the aim that new ideas are the findings of this study.

Thus, this article is entitled: "Anticipating the demographic bonus from the perspective of human capital in Indonesia". Finally, this article ends with the results of the discussion and conclusions, and the findings of this study are to become a state of art in this research in the form of arguments, theories, or concepts to prepare and create skilled young workers as human capital. Thus, the findings of this study are expected to be used by the government as reference material to anticipate the demographic bonus from the perspective of human capital in Indonesia.

Demographic Bonus as the Main Driver of Economic Growth

Demographic bonuses or dividends are a rare phenomenon where the number of productive residents is more than the number of non-productive residents (Bando,2020) which only occurs once in a lifetime in any country (Bayuni, 2020). Demographic experts in Islam (2020) state that the demographic bonus is defined as a change in the age structure of the population (Singh,2012), a demographic transition which refers to the movement of the population from high birth and death rates to low and stable birth and death rates. In the opinion of several experts, due to the success of past policies that have decreased fertility and mortality rates (Ariteja,2017), Indonesia is expected to enter the demographic bonus era in the next few years.

The demographic bonus as a demographic transition is characterized by an increase in the young working-age population which is beneficial for the economic growth of any country ((Singh, 2012),and is still a relatively recent phenomenon in human history (Grover,2014). According to UNFPA (2016), countries with the greatest demographic opportunities for development are those entering a period where the working-age population has good health, quality education, decent work, and a lower proportion of young dependents.

At present, Indonesia is the country with the greatest demographic opportunity, with a population of 270.20 million people (BPS,2021), and this making Indonesia the fourth largest country in the world (The World Bank,2021). The demographic bonus opportunity in the age structure of the population is a significant challenge for the Indonesian government to be faced and managed appropriately as a productive human resource. The age structure of the population has an important impact on various aspects of society: economic growth rates, labor force participation, education and health services, the housing market, and others (Bloom et.al.,2010).

Based on data from the World Bank @ Statista 2021 in O'Neill (2021), statistics on the age structure in Indonesia from 2010 to 2020 show that Indonesia is indeed heading towards a demographic bonus. This is reflected in statistical data related to the share of the total population in the Indonesia Age Structure from 2010 to 2020 in figure1 below as follows:

Figure 1: Indonesia Age Structure from 2010 to 2020; *Source:* World Bank @ Statista 2021 in O'Neill (2021). (processed)

Based on these data, the phenomenon of share of total population related to the Age Structure from 2010 to 2020 in Indonesia can be seen that the productive age group (15-64 years) is the age group of the majority of the Indonesian population from 2010 to 2020 which is estimated to be 67.8 % of the total population of Indonesia. This means that Indonesia is still in the demographic bonus period. Meanwhile, the proportion of the population aged 60 years in the total population of Indonesia also increased from 4.96% in 2010 to 6.26% in 2020.

The Indonesian population is dominated by Generation Z and Millennial Generation with a proportion of 28.83% each in 2010 and will increase to 25.94% in 2020. The age composition referred to in table 1 further strengthens the meaning that the demographic bonus is a rare phenomenon that occurs only once in Indonesia. In this context, Indonesia is in an excellent position to take advantage of the changing age structure of Indonesia's population.

The phenomenon of changes in the age structure in Indonesia, in particular, can be seen in the portion of the productive age. The portion of the productive age is on the main agenda so that it can be optimized by the current Indonesian government in order to

increase economic growth and prosperity among all its citizens as stated by Hayes & Setyonaluri (2015). The demographic bonus phenomenon regarding the Indonesia Age Structure from 2010 to 2020, especially related to the productive age, will have a significant impact on the employment sector in Indonesia. Based on statistics, it is estimated that this will occur and reach its peak in 2020, which is 67.8% of the share of the total population in Indonesia as shown in Figure 2 below as follows:

Figure 2: The Graph of Indonesia Age Structure (Share of Total Population) from 2010 2020; *Source:* World Bank @ Statista 2021 in O'Neill (2021) (processed)

The demographic bonus if viewed from modern human history can be interpreted as a rare event as has been experienced by several countries before, including Japan, the Republic of Korea, Taipei, China, Malaysia, and other countries (Ogawa et.al.,2021). For example, Japan between 1951 and 1958 managed to cut its population growth rate in half and make it the first country to take advantage of the demographic bonus with spectacular economic growth in the 1960s,1970s, and 1980s (Brown,2021).

The achievement of Japan's very speculative economic growth is unprecedented in any country. By taking advantage of the demographic bonus, Japan was able to increase income per person to one of the highest in the world and managed to record Japan as the second modern industrialized country after the United States (Brown, 2021). Then, Brown (2021) emphasized that there are several countries that have been able to take advantage of the demographic bonus to increase their country's economic growth, including:

- i. South Korea, Taiwan, Hong Kong, and Singapore followed shortly thereafter. These four countries are known as the 4 (four) Asian Tigers where the economic growth was spectacular during the late twentieth century. Each of these countries benefits from the demographic bonus that follows where there is a rapid decline in the birth rate in each of these countries.
- ii. China is the second wave of countries most likely to benefit from the demographic bonus. China creates a huge demographic bonus and a population that saves more than 30 percent of its income on investment. This phenomenal level of investment, coupled with the record inflow of private foreign investment and the accompanying technology, has propelled China into the ranks of the modern industrial powers.
- iii. Other countries with an age structure that now favor high savings and fast economic growth include Sri Lanka, Mexico, Iran, Tunisia, and Vietnam. After a point, these five countries experienced labor force growth which began to slow as a result of falling birth rates and reflected in the shrinking number of entrants into the labor force. This in turn leads to higher wages.

Based on the various descriptions above, it indicates that demographic bonuses or dividends are proven to be able to increase economic growth in various countries if they are anticipated and utilized, and managed properly. Thus, the demographic bonus becomes a significant challenge for the Indonesian government to take advantage of as several countries have succeeded in optimizing it to encourage economic growth in their countries. In this regard, Indonesia has the same opportunity to succeed because it has a portion of the productive age structure as shown in table 1 and figure 1 related to the share of the total population in Indonesia: Age structure from 2010 to 2020 is 66.21% in 2010.

Therefore, the Indonesian government needs to ensure certain supporting conditions and policies that must be in place and can be operated effectively. This view is in line with what was stated by Hayes & Setyonaluri (2015) which states that the demographic bonus if managed properly will be a lever for the country's economic growth.

Thus, the Indonesian government is expected to be able to take advantage of the demographic bonus optimally, including through strategic and comprehensive supporting policies in the employment sector. This can be done through efforts to develop Indonesian human resources to create a skilled workforce as human capital.

Supporting Policies to Promote Economic Growth

Demographic bonus is defined as a condition where the productive population or labor force (aged 15-64 years) is greater than the unproductive population (under 5 years and above 64 years) which has a positive impact on the economy to encourage economic

growth and improve welfare. society through labor productivity. Meanwhile, labor productivity is defined as output per hour, calculated by dividing the real output index by the index of hours worked by everyone, including employees, owners, and unpaid family workers (U.S. Bureau of Labor Statistics,2021). Then, Smith (1776) stated that the increase in individual productivity is dependent on increasing the agility and skills of a worker, abilities that are obtained and useful from a person as part of the wealth of society.

Experts state that the demographic bonus is a key driver of economic growth and an important contributor to the region's economic success (Bloom and Williamson,1998; Mason,2001). Bloom and Williamson (1998) conclude that about a third of the increase in East and Southeast Asia's per capita income is due to the demographic bonus. Meanwhile, Mason (2001) stated that dividends or demographic bonuses account for about a quarter of the region's economic growth.

Islam (2020) states that rapid economic growth is likely if the state can convert its growing working-age population into human capital and put it to good use. The emergence of the demographic bonus does not automatically lead to economic development unless a country is able to change, utilize, and manage the working-age population, into skilled labor as human capital, but otherwise, the demographic bonus will cause social, economic, and political unrest. (Mason,2007; Urdal,2004).

The Indonesian government must be able to determine and ensure that certain supporting conditions and policies are in place and operate effectively in utilizing the demographic bonus in Indonesia. Supporting policies that can be carried out by the Indonesian government aimed at anticipating the demographic bonus include the following:

- i. Identifying Indonesia's potential, economic resources such as natural resources, human resources, artificial resources, and social resources. ;(
- ii. Continuing the development of infrastructure, manufacturing, and service industries that are labor-intensive;
- iii. Accelerating the Development Program for the goods and services industry that must be adapted to the potential and local wisdom of each region in Indonesia;
- iv. Establish and implement a human resource development strategy with the aim of creating a skilled young workforce as human capital because this is one of the production actors in the context of national economic development; and (5). Accelerating the national science and technology capability to support the development of various supporting policy programs.

To operationalize the 5 (five) supporting policies above, the government is expected to be able to properly manage the natural resources, human resources, artificial resources, and social resources owned by Indonesia. This will become a central issue for the government to anticipate the demographic bonus from the perspective of human capital in Indonesia, especially employment in various sectors. Employment by sector, the percentage of total employment as of August 2019 can be seen in Figure 3 below as follows:

Figure 3: Labor Force Situation in Indonesia August 2019: Employment by sector, percentage of total employment; **Source:** Labor Force Situation in Indonesia August 2019 (Badan Pusat Statistik,2020)

Figure 3 is the result of the National Labor Force Survey conducted by the Indonesian Central Statistics Agency in August 2019 which presents employment data which are grouped into 17 (seventeen) categories as follows: A. Agriculture, forestry, and fisheries; B. Mining and quarrying; C. Processing industry; D. Procurement of electricity and gas; E. Water supply, waste management, waste, and recycling; F. Construction; G. Wholesale and retail trade; Repair of cars and motorcycles; H. Transportation and warehousing; I. Provision of accommodation and food and drink; J. Information and communication; K. Financial and insurance services; L. Real

estate; M N. Company services; O. Government administration, defense, and compulsory social security; P. Education services; Q. Health services and social activities; R, S, T, U, and other services (Central Bureau of Statistics, 2020).

Based on table 2, it can be seen that the results of the National Labor Force Survey conducted by the Indonesian Central Statistics Agency in August 2019 showed that the employment sector in agriculture, plantations, forestry, hunting, and fisheries remained the single sector that absorbed the largest workforce (27.3%), and then followed by employment sectors in other fields, such as trade (18.8%), manufacturing (15.0%), construction (6.7%), and so on. By referring to these data, the government should focus on developing human resources, in accordance with the state of the workforce and realistic employment potential so that they can absorb workers in Indonesia. This can be done through education and training programs to produce and create a skilled workforce, namely a professional, creative, and innovative workforce to anticipate the demographic bonus from a human capital perspective.

In the field of employment, especially skilled labor as human capital is one of the production factors in the goods and services industrial sector in order to increase productivity in modern services. Factors of production are economic concepts that refer to the inputs needed to produce goods and services. The factors of production are land, skilled labor, capital, and entrepreneurship. The four factors consist of the resources needed to create goods or services, as measured by a country's gross domestic product (GDP). Skilled labor as human capital is a factor of production referring to the efforts that individuals make when they produce goods or services.

According to the Asian Development Bank/ADB (2018), the goods and service industry sector are where most of the highly educated people work, skilled labor as human capital. This is because the modern knowledge-based and information communication technology-based goods and services industry sector has the most heterogeneous characteristics in terms of activities, occupations, and skills (Asian Development Bank, 2018). Therefore, the state must be able to build a strong foundation for economic success and shared prosperity by investing in education (Berger and Fisher, 2013). In this case, Berger and Fisher (2013) state that for the state to provide wider access to high-quality education aimed at expanding economic opportunities for the population, but also likely to do more to strengthen the country's economy.

Skilled labor includes all types of work performed for economic rewards, such as mental and physical exertion. Mukri (2018) states that the value of skilled labor can be created through improving education, skills, and health so that they are able to earn income that can support themselves and their families, especially people who are their responsibility in non-productive age. Therefore, the state must be able to prepare employment opportunities for workers in accordance with their work abilities based on their education and skills (Mukri, 2018) in the form of a certain set of skills possessed by the workforce such as soft, hard, technical, and transferable (Pologeorgis, 2018) to increase labor productivity.

The demographic bonus is expected to provide benefits to improve the welfare of the people in Indonesia in the dimension of economic development. According to Tadaro (2011), economic development basically has four main dimensions as follows: (1). Growth, (2) Poverty alleviation, (3). Economic change or transformation, and (4) Sustainable development from an agrarian society to an industrial society. Structural transformation is a prerequisite for increased and sustainable growth and poverty alleviation, as well as support for sustainable development itself. Then, from a macroeconomic perspective, the lack of job opportunities contributes to frictional and structural unemployment and affects the productivity of the labor force which in turn has an impact on a country's standard of living as measured by GDP per capita and its economic growth potential as measured by aggregate demand and GDP (Pologeorgis, 2021).

Based on these various descriptions, the government must be able to anticipate appropriately related to the demographic bonus in an effort to maintain the balance of human resources, between quantity and quality of skilled young workers as human capital in Indonesia. A skilled young workforce as human capital is one of the most important factors of production in order to accelerate the growth and development of the national economy. Smith (1776) asserts that human capital has a capitalization value of the abilities that are obtained and useful from all citizens and members of society as skilled workers (Becker, 1964 in Marginson, 2019), namely workers who have the knowledge, production skills, and motivation (Becker, 1964 in Marginson, 2019).

Therefore, Indonesia must have a strategic and comprehensive policy to take advantage of the demographic bonus through human resource development strategies. It aims to create skilled young workers as human capital so as to increase the competitiveness of the labor market and increase the availability of employment opportunities. Then, policies that can be carried out by the government include encouraging increased investment in various industrial and service sectors as well as the education sector. This aims to maintain strong aggregate demand growth to support new job creation, as well as support for new business formation and innovation, for example increasing investment in infrastructure and energy transition (Manyika et al., 2017).

Thus, the implementation of the human resource development strategy policy is expected to be able to overcome various gaps in education, health, and welfare where this is a prerequisite for increasing the productivity and competitiveness of the workforce in Indonesia, especially in the informal sector which is very vulnerable (Indonesia Development Forum/ IDF, 2021). In an effort to overcome this gap, the government is expected to implement supporting policies to encourage economic growth by implementing a program to improve the quality of human resources in the form of competency-based training (CBT) through the application of a plan, do, check and action (PDCA) approach.

Furthermore, CBT through the application of the PDCA approach is expected to create a skilled workforce as human capital in the form of the ability to innovate and develop the creativity of Indonesian youth to increase labor productivity and workforce competitiveness so that they can compete in the labor market both in the business world/industrial world. (DUDI) nationally and globally.

Anticipating Demographic Bonuses from the Human Capital Perspective

Basically, the concept of human capital considers humans as capital that is even more important than other production factors (such as machines, technology, land, money, and materials), and human capital is reflected in the form of knowledge, ideas, creativity, skills, and labor productivity. (Echda, 2015) According to Hall, 2008, human capital is a process of empowering human resources to create human resources that have competitive, sustainable and sustainable advantages. carried out through three approaches as follows:

- i. Explaining the human resource process related to organizational goals,
- ii. Creating and explaining the size and discipline. in the process of achieving goals, and
- iii. Using organizational experience as a reference in making dynamic and progressive human capital decisions.

Meanwhile, Chulanova (2017) defines human capital as skilled labor which is one of the factors of production in the context of national economic development in order to increase the country's competitiveness in sustainable development to achieve equality, political sovereignty, and growth of the gross domestic product. Therefore, in an effort to anticipate the demographic bonus from the perspective of human capital in Indonesia, human capital becomes a very strategic agenda because human capital is a set of skills possessed by individuals as workers who can produce profitable jobs (Pologeorgis, 2021) so that they become profitable opportunities to increase job opportunities.

Anderson (2005) states that increasing youth employment opportunities requires a broad and concerted effort from all stakeholders, and the government is responsible for creating an enabling environment for youth employment. Therefore, employers – as the main job providers, and workers – as direct beneficiaries, have an important role in the process (Anderson, 2005). According to Anderson (2005), the actions that employers and their organizations should take to support youth employment can take several forms, as follows:

- i. Direct actions related to skills development and training - Employers and their organizations have a central role in the identification (and subsequent design and implementation) of the appropriate general education, training, and skills requirements needed based on economic, educational, and training considerations creating the skilled workforce they need for the future. Traditionally much of the efforts of employers worldwide have focused on equipping school leavers, first-time job seekers, and young unemployed with the technical skills and attitudes required of them to become more “employable” or fit for the labor market. Examples of interventions by employers in this area include:(1).Enterprise participation in national vocational training systems and training programs through interventions aimed at facilitating the transition of youth into the world of work (eg company-based training);(2).Measures to increasing the number and scope of training opportunities for youth in the private sector (e.g. increasing vocational training sites and apprenticeships in companies; and (3) Establishing school-industry partnership arrangements to increase educational relevance and facilitate the transition of youth from school to work
- ii. Direct action on job creation - Private sector growth is a key engine of job creation and more than ad hoc action is needed to enable employers to create jobs for youth in a sustainable manner. However, in many countries, employers, often through their organizations, are also implementing or piloting a number of initiatives to expand employment opportunities for young workers, and to facilitate their integration into the labor market. Examples of activities in this area include: (1). Job facilitation and placement schemes to match young job seekers with job offers from companies (eg job bank by an organization); (2) Use of government programs and incentives to create new jobs for young people (eg Dana);(3). Assisting young entrepreneurs and mentoring start-ups; and (4). Establishment of a network of support for young entrepreneurs to facilitate access to corporate networks
- iii. Policy-making and advocacy - The participation of employers and their organizations in the design, implementation, and evaluation of youth employment policies and programs has proven critical to increasing the relevance of interventions and making them more responsive to labor market requirements. Employers, through their organizations, can also play an important role in raising awareness, generating and disseminating information, and mobilizing support around youth employment issues. Some of the actions taken by employers in this regard include: (1). Participation in national tripartite policy-making bodies dealing with vocational education and training and job creation (eg boards of education and training institutions; funding bodies for grant allocation for young entrepreneurs);(2).Contribute to the development and implementation of policies and programs through social dialogue and collective bargaining;(3).Research and dissemination of information on youth employment issues, particularly with regard to private sector needs regarding skills and job requirements; and (4).Promotional campaigns and other initiatives targeting different groups depending on

the circumstances (e.g. youth, parents, schools, industry partners, etc.) using tools such as advertisements, radio spots, television chat shows, videos, articles newspapers, job fairs.

Rukumnuaykit & Pholphirul (2015), Colombo and Stanca (2014), Konings and Vanormelingen (2015) stated that training has a positive effect on work productivity and this is an important strategy to achieve organizational/company goals (De Grip & Sauermann, 2011). According to experts in Diaz et.al. (2014), education and training are essential for all developmental processes and show that a close relationship is found between training and key economic variables such as profit levels, employment, and GDP growth. Based on the fact that the survival of the company is highly dependent on its capacity to capture intelligence, convert it into knowledge, incorporate the new knowledge into organizational training, and disseminate it rapidly throughout the company (Diaz et.al., 2014).

Therefore, the Indonesian government together with entrepreneurs and their organizations are expected to increase collaboration by implementing a strategic management system to support the creation of wide employment opportunities for skilled young people as human capital through training programs. The government and entrepreneurs, as well as employers' organizations, are expected to collaborate to carry out training based on industrial needs, link and match programs for education and the world of work. Link and match can be interpreted as extracting the competencies needed by the labor market so that the curriculum and education system in both vocational schools and universities in Indonesia must be relevant to the needs of the workforce.

In this context, the competency-based training approach (CBT) is considered very suitable to be applied to meet the needs of skilled workers in the business and industrial world (*Dunia Usaha/Dunia Industri* or DUDI). Meanwhile, competency-based training (CBT) can be interpreted as an approach that allows students to gain competency mastery qualifications (Jubaedah et.al., 2020) through demonstration of skills and knowledge in the required subject areas and using a series of assessments and their implementation is carefully designed (Wongnaa & Boachie, 2018). Dubois & Rothwell (2004) state that training can become competency-based in at least three ways:

- i. Reinventing the ISO model (or using the Strategic Systems Model),
- ii. Focusing on training to build individual competencies relative to exemplary performance competency models, or
- iii. Building individual competencies in a team-work context.

Boahin and Hofman (2013) in Wongnaa & Boachie (2018) state that, the CBT approach is able to integrate employable skills and technical competencies which are highly relevant to the future of work, where workers will continue to learn throughout their careers in a modular approach (International Labor Organization, 2020). CBT aims to equip students so that they are able to participate effectively in various social settings (Boahin and Hofman (2013) in Wongnaa & Boachie (2018). In this case, students are expected to be able to develop, adapt, and transform their industrial skills into a new context (The National Council on Technical and Vocational Education and Training/NCTVET, 2006 in Wongnaa & Boachie, 2018).

Based on several understandings related to CBT that have been put forward by experts, this training is very important to be carried out optimally by the Indonesian government in order to create skilled young workers as human capital. Through the CBT approach, students can gain knowledge, skills, and learning capacities to prepare themselves for changing operations in industry and labor market conditions. CBT by applying the principles of strategic management through Deming's (1986) plan do, check and action (PDCA) can be described as in Figure 4 as below:

Figure 4: Creating the Skilled Young Workforce as Human Capital

Figure 4 describes the importance of the CBT approach by applying the principles of strategic management through Deming's (1986) plan, do, check, and action (PDCA). CBT through the application of the PDCA approach is a very important agenda to anticipate the increasingly high demands for the competitiveness of skilled young workers as human capital in the era of demographic bonus. CBT through the implementation of PDCA aims to make the output of educational institutions in Indonesia at the vocational high school or university level can be absorbed by the labor market. Meiling et.al. (2014) stated that PDCA is a key characteristic of continuous improvement (CI) processes which means the ability to handle process improvements.

PDCA is a four-step cycle as follows: Plan - study the current situation and develop solutions for improvement; Do it - take action on an experimental basis; Check - investigate the effect of the change; and Act - start standardization permanently (Meiling et.al,2014). In this case, the implementation of CBT through the implementation of PDCA is as follows:

- i. The planning stage is to identify the potential for CBT related to the problems that will arise in order to deal with changes in operations in the business world and in the industry as well as anticipating labor market conditions by searching for solutions, exploring ideas to find solutions to problems related to the competencies and skills needed.
- ii. The Do stage is a follow-up related to the results of the identification of CBT problems found in stage 1 (plan stage), and the aim is to determine the completion steps and can be used as a tool to monitor the ongoing CBT process.
- iii. The Check stage functions to monitor and evaluate. The second stage (Do stage) is related to the success of CBT in solving problems and is also used for evaluation activities. 1 and stage 2. In this case, observation and survey methods can be used with the aim of making improvements so that they can be used as guidelines in carrying out CBT routines.
- iv. The Action stage is the stage to make adjustments or changes to standardization in the form of CBT standard operating procedures and if necessary to revise CBT and disseminate information to stakeholders if there are adjustments and changes to CBT that have been made to improve CBT.

In this context, the teaching system and curriculum must be adaptive to the labor market situation and conditions to anticipate the demographic bonus from the perspective of human capital in Indonesia. Then, the implementation of CBT through the application of PDCA contains material integrating technical skills and competencies in the form of skills, competencies, and the right point of view or character to make students become professionals who will affect their performance in the workplace (Wenger,1999). , the human resource development strategy to create skilled young workers as human capital is expected to be a solution to the problems of the quality of human resources that have occurred so far in Indonesia.

Human resource investment becomes even more important when the potential for digital revolution thru smart production applications emerges (Lasi et al. 2014; Lee and Lee,2015; Schmidt et al.,2014; Bahrin et al., 2016, and Hermann et al.,2016) which is marked by advance technology in the era (Javaid et.al.,2020). Technological progress has been the engine of the development of human society since the dawn of civilization (Sima et.al.,2020). Furthermore, Sima et.al.(2020) argues that this transformation laid the foundations of the modern world, and by changing the social structure of human capital, the primordial importance of agriculture in economic and social life was taken over by industry.

According to Javaid et.al.,(2020), industry 4.0 provides automated solutions to various manufacturing industries and other related fields in the form of information communication technology (ICT) manufacturing and digitization to collect, transfer, store, analyze, and monitor appropriate information systems. The trend of optimizing the use of ICT is increasingly significant in carrying out work activities at this time. With the outbreak of the COVID-19 pandemic, the acceleration of the characteristics of the modern human workforce is awakened earlier. At this time, human life activities are increasingly using ICT and its applications include people working from home so that they find new cultures in their work such as work time, virtual offices, virtual meetings, and extensive written communication (Javaid et.al.,2020),

Therefore, the Indonesian government must be consistent and sustainable and sustainable to be able to invest in education based on knowledge management, talent management, and ICT. An important investment in human resources made by the Indonesian government at this time was emphasizing formal and informal education as one of the processes to create a quality workforce to meet the needs of the labor market (Rukumnuaykit, & Pholpirul,2015). A qualified workforce is a workforce that has the following characteristics:(1).Competence, the ability of workers to carry out a strong and dominant execution in carrying out a job under any circumstances and situations (Spencer & Spencer, 1993),and (2). Innovative, applying fresh thinking, procedures, or products (Janssen,2000,Yuan & Woodman,2017,& Nijenhuis,2015).

Thus, competence and innovation is an important agenda in learning materials in CBT. Therefore, CBT through the implementation of PDCA is oriented to create educated and trained workers who excel in the global competitive arena. On the other hand, the government is simultaneously expected to be able to create job opportunities and open up a wide work environment for young people because most of Indonesia's population is youth where the proportion in 2010 was 66.21% of the Indonesian population (O'Neill,2021). In this way, the large population will make a significant and positive contribution to the overall gross domestic product (Bayuni,2020).

Conclusions

The demographic bonus is proven to be able to increase the national economy, growth, alleviation, and economic transformation if the government can anticipate and manage it properly and appropriately. The statistical data related to the size, gender, location, and age structure of the current and future population can be used to determine policies that will be carried out to be used as a factor of production. At this time, Indonesia is one of the countries that has the largest demographic opportunity. The indication is that since 2010 Indonesia has had a productive age portion of 66.21% and is estimated to be 67.80% in 2020. In this case, the government must be able to anticipate and manage its resources in order to utilize them. of the bonus. demographics as the main driver of economic

growth. One of the policies that the Indonesian government can implement to anticipate the demographic bonus is to create an educated workforce as human capital, competent and innovative workforce. This can be done by the government through the implementation of the CBT program that is adapted to the conditions of the workforce and the potential for employment opportunities that can absorb workers in Indonesia. Thus, CBT is a very strategic and important supporting policy carried out by the government in an effort to create competitiveness to anticipate the demographic bonus from the perspective of human capital in Indonesia. The CBT program contains material that integrates technical skills and competencies in the form of appropriate skills, competencies, and points of view or character, and the output of the CBT program is to create a professional, creative and innovative workforce and is expected to have a major impact on their performance in terms of financial performance and non-financial.

References

- Aditya, R. (2020). Pengertian Bonus Demografi, Manfaat, hingga Dampaknya. <https://www.suara.com/tekno/2020/12/13/151144/pengertian-bonus-demografi-manfaat-hingga-dampaknya?page=all>
- Anderson, P. (2005). The Role of the Private Sector Employers. Spokesperson, General discussion on youth employment, International Labour Conference, <https://learning.ilo.org/ilo/youthemployment/PrivateSector/index.htm>
- Aninditya, F. P. (2019). Demographic Bonus: Threat or Opportunity? Faculty of Economics and Business Universitas Gadjah Mada. <https://feb.ugm.ac.id/en/news/2625-demographic-bonus-threat-or-opportunity>
- Arikunto, S. (2010). *Prosedur Penelitian Suatu Pendekatan Praktik*. Jakarta: PT Rineka Cipta
- Ariteja, S. (2017). Demographic Bonus for Indonesia: Challenges and Policy Implications of Promoting Universal Health Coverage. *The Indonesian Journal of Dev. Planning* 1(3), 265-274.
- Asian Development Bank. (2018). *Indonesia: Enhancing Productivity through Quality Job*. Edited by Edimon Ginting, Christopher Manning, and Kiyoshi Taniguchi. ADB publications. <http://dx.doi.org/10.22617/TCS189213-2>
- Asrie, M. (2020). Bonus Demografi, Peluang Atau Tantangan Menuju Indonesia Emas 2045. <https://www.bkkbn.go.id/detailpost/bonus-demografi-peluang-atau-tantangan-menuju-indonesia-emas-2045>
- Bachtiar. (2018) *Metode Penelitian Hukum*. Banten: Unpam Press
- Badan Pusat Statistik (BPS) Indonesia. (2020). *Keadaan Angkatan Kerja di Indonesia Agustus 2019*. ISSN :1979-7702. Publication Number: 04130.2002. <https://www.bps.go.id/publication/2019/11/29/96138ece33ccc220007acbdd/keadaan-angkatan-kerja-di-indonesia-agustus-2019.html>
- Bahrin, K. M. A., Othman, M. F., Azli, N. N. H., & Talib, M. F. (2016). Industry 4.0: A Review on Industrial Automation and Robotik. *Jurnal Teknologi*, 78(6-13). <https://doi.org/10.11113/jt.v78.9285>
- Bando, M. S. (2020). Literacy Plays Important Role in Community's Economy. Presented on the occasion of "Literacy in Building Community's Economy" Webinar, October. <https://www.perpusnas.go.id>
- Bayuni, E. (2020). Omnibus bill on job creation: Our last bus to demographic bonus. <https://www.thejakartapost.com/academia/2020/01/31/omnibus-bill-on-job-creation-our-last-bus-to-demographic-bonus.html>
- Berger, N., and Fisher, P. (2013). A Well-Educated Workforce Is Key to State Prosperity. Economic Policy Institute. <https://www.epi.org/publication/states-education-productivity-growth-foundations/>
- Bloom, D. E., and J. G. Williamson (1998). Demographic transitions and economic miracles in emerging Asia. *World Bank Economic Review*, vol. 12, No. 3, Pages 419-456.
- Bloom, D. E., Canning, D., and Fink, G. (2010). Implications of population ageing for economic growth, *Oxford Review of Economic Policy*, Volume 26, Issue 4, Winter, Pages 583-612
- BPS – Badan Pusat Statistik Republik Indonesia (2021). Hasil Sensus Penduduk 2020. <https://www.bps.go.id/pressrelease/2021/01/21/1854/hasil-sensus-penduduk-2020.html>
- Brown, L. R. (2021). Chapter 2. Stopping at Seven Billion: The Demographic Bonus. Earth Policy Institute. http://www.earth-policy.org/mobile/books/out/ote2_5?phpMyAdmin=1d6bec1fea35111307d869d19bcd2ce7
- Chulanova, Z. K. (2017). The Human Capital as a Factor of Competitiveness and Economic Development. *East Asian Journal of Business Management* (23-31), 7-3 <http://dx.doi.org/10.13106/eajbm.2017.vol7.no3.23>
- Coale, A. J. and Hoover, E. (1958). *Population and Economic Development in Low Income Countries*. Princeton, NJ: Princeton University Press
- Colombo, E. and Stanca, L. (2014). The impact of training on productivity: evidence from a panel of Italian firms. *International Journal of Manpower*, 35(8), 1140-1158. <https://doi.org/10.1108/IJM-08-2012-0121>
- Creswell, J. W. (2007). *Qualitative inquiry & research design choosing among five approaches*. Second Edition. Sage Publications – California.
- De Grip, A., & Sauermann, J. (2011). The Effects of Training on Own and Co-Worker Productivity: Evidence from a Field Experiment.. This paper was presented at Maastricht University, the IAB-Education in Adulthood and the Labour Market Workshop, the IWAE-Workshop, EEA 2010, RWI Essen, the Advances with Field Experiments workshop, RES 2011, SOLE 2011, IZA Summer School, and ZEW Mannheim. <https://d-nb.info/1015948421/34>
- Diaz, M. L. M., Audet, X. L., Cipolla, L. C., and Escardibul, J. O. (2014). The Effects of Training on the Competitive Economic Advantage of Companies in Spain. Article ID 749606 | <https://doi.org/10.1155/2014/749606>
- Dubois, D., and Rothwell, W. J. (2004). Competency-based or a traditional approach to training. (Abstract). *T and D*, 58(4). <https://pennstate.pure.elsevier.com/en/publications/competency-based-or-a-traditional-approach-to-training>

- Echda,S. (2015).Human capital development strategy on go-public manufacturing companies in Indonesia. *Journal of Economics, Business, and Accountancy Ventura* 18(1), 103 – 120. <http://dx.doi.org/10.14414/JEBAV.V18I1.387>
- Fajria,H.(2020). Disaster at the Peak of Demographic Dividend. Faculty of Economics and Business (FEB) Universitas Indonesia. <https://www.feb.ui.ac.id/en/blog/2020/11/08/disaster-at-the-peak-of-demographic-dividend/>
- Feng,W.(2011).The Silver and White Economy: The Chinese Demographic Challenge. Published on the authority of the Secretary-General of the OECD. <https://www.oecd.org/employment/leed/oecd-china-report-final.pdf>
- Gribble,J.N, and Bremner, J. (2012). Achieving a demographic dividend.” *Population Bulletin* 67, 2. Washington DC: Population Reference Bureau.
- Grover,D.(2014). Stage 2 of the Demographic Transition Model. *Population Education* <https://populationeducation.org/stage-2-demographic-transition-model/>
- Hall, B.W.(2008). The New Human Capital Strategic, Improving the Value of your most Important -Year after Year. Publisher(s): United States of Amerca:Amacom
- Hayes,A.,and Setyonaluri,D.(2015). Taking Advantage of The Demographic Dividend in Indonesia: A Brief Introduction to Theory and Practice. United Nations Population Fund (UNFPA). https://indonesia.unfpa.org/sites/default/files/pub-pdf/Buku_Policy_Brief_on_Taking_Advantage_on_Demographic_Dividend_02c_%282%29_0.pdf
- Hermann, M., Pentek, T.,and Otto, B.(2016).Design principles for Industrie 4.0 scenarios. Paper presented at the Annual Hawaii International Conference on System Sciences, Kohala Coast, HI, USA, January 5–8; 3928–37
- Indonesia Development Forum (IDF).(2019). Improving the Quality of Human Capital. <https://indonesiadevelopmentforum.com/2019/call-for-submissions/theme/8-improving-the-quality-of-human-capital>
- ILO (2016). Indonesia Labour Market Outlook. https://www.ilo.org/wcmsp5/groups/public/---asia/---ro-bangkok/---ilo-jakarta/documents/publication/wcms_513719.pdf
- ILO (2020). Competency-Based Training (CBT): An Introductory Manual for Practitioners, ISBN [9789220330319. Publishing (Rights and Licensing), International Labour Office, CH-1211 Geneva 22, Switzerland. https://www.ilo.org/wcmsp5/groups/public/---arabstates/---ro-beirut/documents/publication/wcms_757836.pdf
- Islam,M.M.(2020). Demographic transition in Sultanate of Oman: emerging demographic dividend and challenges. *Middle East Fertility Society Journal* 25:7 <https://doi.org/10.1186/s43043-020-00022-7>
- Janssen, O. (2000). Job demands, perceptions of effort-reward fairness and innovative work behaviour. *Journal of Occupational and Organizational Psychology*, 73(3), 287–302. <https://doi.org/10.1348/096317900167038>
- Javaid,M.,Haleem,A.,Vaishya,R.,Bahl,S.,Suman,R.,Vaish,A.(2020).Industry 4.0 technologies and their applications in fighting COVID-19 pandemic. *Diabetes & Metabolic Syndrome: Clinical Research & Reviews* 14 (2020) 419e422. <https://doi.org/10.1016/j.dsx.2020.04.0321>
- Jubaedah,Y., Rohaeni,N. dan Tati. (2020). Model Link and Match dengan Pendekatan Competency Based Training pada Pembelajaran Tata Graha. *ISSN 1412-565 X*,PP.19-26. <https://media.neliti.com/media/publications/139204-ID-model-link-and-match-dengan-pendekatan-c.pdf>
- Khuzaini,A.(2019). Tantangan Pembangunan Sumber Daya Manusia di Indonesia. *Radar Digital* -11 September.<https://radarjember.jawapos.com/opini/11/09/2019/tantangan-pembangunan-sumber-daya-manusia-di-indonesia/>
- Konings,J.,and Vanormelingen.(2015).The Impact of Training on Productivity and Wages: Firm-Level Evidence. *The Review of Economics and Statistics* Vol. 97, No. 2), pp. 485-497 Published By: The MIT Press. <https://www.jstor.org/stable/43556188>
- Lasi,H.,Fettke,P.,Kemper,H.G.,Feld,T.,and Hoffmann,M.(2014).Industry 4.0 .*Business & Information Systems Engineering* 6: 239–242. <https://link.springer.com/article/10.1007/s12599-014-0334-4>
- Lee, I., and Lee,K.(2015). The Internet of Things (IoT): Applications, investments, and challenges for enterprises. *Business Horizons* 58: 431–440. Elsevier Inc. <http://dx.doi.org/10.1016/j.bushor.2015.03.008>
- Lutz,W.,Cuaresma, J.C., Kebede, e., Prskawetz, A., Sanders,W.C. (2019). Education rather than age structure brings demographic dividend. *PNAS* vol.116|no.26,12798–12803. <https://doi.org/10.1073/pnas.1820362116>
- Manyika,J., Lund,S.,M.,Chui, Bughin, J., Woetzel, J., Batra, P., Ko, R.,and Sanghvi,S. (2017). Jobs lost, jobs gained: What the future of work will mean for jobs, skills, and wages. <https://www.mckinsey.com>
- Marginson, S; (2019) Limitations of human capital theory. *Studies in Higher Education*, 44 (2) pp. 287-301. <http://dx.doi.org/10.1080/03075079.2017.1359823>.
- Mason,A.(2001). Population and economic growth in Eastern and South-Eastern Asia. In *Population Change and Economic Development in Eastern and South-eastern Asia: Challenges Met, Opportunities Seized*, A. Mason, ed. Stanford: Stanford University Press, pp. 1-30.
- Mason,A. (2007). Demographic transition and demographic dividends in developed and developing countries. In: *Proceedings of the United Nations Expert Group Meeting on Social and Economic Implications of Changing Population Age Structure*. United Nations publication, ESA/P/WP.201, pp 81–102
- McCusker,K.,& Gunaydin,S.(2014). Research using qualitative, quantitative or mixed methods and choice based on the research. *Perfusion*, 30(7), 537–542. <http://dx.doi.org/10.1177/0267659114559116>

- Meiling, J.H., Sandberg, M., & Johnsson, H. (2013). A study of a plan-do-check-act method used in less industrialized activities: two cases from industrialized housebuilding. *Construction Management and Economics*, 32(1-2), 109–125. <https://doi.org/10.1080/01446193.2013.812227>
- Mukri,S.G.(2018). Adalah: Buletin Hukum dan Keadilan, Volume 2 Nomor 6a. Pusat Studi Konstitusi dan Legislasi Nasional, Fakultas Syariah dan Hukum UIN Syarif Hidayatullah Jakarta. <https://doi.org/10.15408/adalah.v2i6.8223>
- Nijenhuis, K. (2015). Impact factors for innovative work behavior in the public sector: the case of the Dutch Fire Department. (Master Thesis). University of Twente Faculty School of Management & Governance. https://essay.utwente.nl/67809/1/Nijenhuis_MA_MB.pdf
- Novrizaldi.(2021). Hasil Survei Penduduk 2020 Peluang Indonesia Maksimalkan Bonus Demografi. <https://www.kemenkopmk.go.id/hasil-survei-penduduk-2020-peluang-indonesia-maksimalkan-bonus-demografi>
- OECD.(2015). The Future of Productivity. <https://www.oecd.org/economy/growth/OECD-2015-The-future-of-productivity-book.pdf>
- Ogawa, N., Mansor,N., Lee,S.H.,Abrigo,m.r.m., and Aris,t. (2021). *Asian Development Review*, 38(1), 32–67. https://doi.org/10.1162/adev_a_00157
- Organisation for Economic Cooperation and Development/OECD. (2021). Promoting stronger local employment outcomes in Indonesia.<https://www.oecd-ilibrary.org/sites/1f8c39b2-en/index.html?itemId=/content/component/1f8c39b2-en>
- Pologeorgis,N.(2021). Employability, the Labor Force, and the Economy. <https://www.investopedia.com/articles/economics/12/employability-labor-force-economy.asp>
- Rostiana,A., & Rodesbi,R.P.(2020). Demographic Transition and Economic Growth in Indonesia. *Jurnal Economia*, Vol. 16, No. 1, April. pp.1-17. <https://doi.org/10.21831/economia.v16i1.29846>
- Pholphirul, P. (2015). Human capital linkages to labour productivity: implications from Thai manufacturers. *Journal of Education and Work*, 29(8), 922–955. <http://dx.doi.org/10.1080/13639080.2015.1104658>
- Samosir, O.B.,and Rajagukguk,W.(2017). *Demographic and Competitiveness Acceleration and Government Sustainable Advantage in Indonesia*. *International Journal of Economics and Financial Issues* | 7(4) 113-118. ISSN: 2146-4138. <https://www.researchgate.net>.
- Schmidt,G.A.,Kelley,M.,Nazarenko,L.,Ruedy,R.,Russell,G.L.,Aleinov,I.,Bauer,M.,Bauer,S.E.,Bhat,M.K.,Bleck, R. and et al. (2014). Configuration and assessment of the GISS ModelE2 contributions to the CMIP5 archive: GISS MODEL-E2 CMIP5 SIMULATIONS. *Journal of Advances in Modeling Earth Systems*. American Geophysical Union (AGU) Publication 6: 141–814. <http://dx.doi.org/10.1002/2013MS000265>.
- Sima,V.,Gheorghe ,I.G., Subi´c,J.,and Nancu,D.(2020). Influences of the Industry 4.0 Revolution on the Human Capital Development and Consumer Behavior: A Systematic Review. *Sustainability*, MDPI 12, 4035; pp.1-28. <http://dx.doi.org/10.3390/su12104035>
- Singh, T.(2012). Demographic Dividend in China: The Challenge Ahead. Institute of Peace and Conflict Studies. Special Report 121, April. <https://www.files.ethz.ch/isn/143525/SR121-CRP-DemographicDividendinChina.pdf>
- Smith, A. (1776). *An Inquiry into the Nature and Causes of the Wealth of Nations*. London: W. Strahan, & T.Cadell.
- The World Bank (2021). Having maintained political stability, Indonesia is one of East Asia Pacific’s most vibrant democracies, emerging as a confident middle-income country. <https://www.worldbank.org/en/country/indonesia/overview>
- Todaro, P.M. (2011). *Development Economic*. Jakarta: Erlangga.
- Urdal, H. (2004). The devil in the demographics: the effect of youth bulges on domestic armed conflict, 1950-2000. The World Bank, Social Development Papers, Conflict Prevention & Reconstruction, Paper No. 14, Washington DC
- UNFPA-United Nations Fund for Population Activities. (2016). Demographic dividend. <https://www.unfpa.org/demographic-dividend#readmore-expand>
- U.S.Bureau of Labor Statistics.(2021). Productivity and Costs. Second Quarter 2021, Revised. U.S. Department of Labor. <https://www.bls.gov/news.release/pdf/prod2.pdf>
- Wenger,E.(1999).*Communities of practice: Learning, meaning and identity*. Cambridge: Cambridge University Press
- Wongnaa,C.A., and Boachie,W.K. (2018). Perception and adoption of competency-based training by academics in Ghana. *International Journal of STEM Education*, 5(52), 2-13 <https://doi.org/10.1186/s40594-018-0148-x>
- Yuan, F. & Woodman, R. W. (2017). Innovative Behavior in the Workplace: The Role of Performance and Image Outcome Expectations *Academy of Management Journal*, 53(2), <https://doi.org/10.5465/amj.2010.49388995>

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