"Demographic Winter": Does it Have an Impact on Indonesia? Population Economic Records

Rosyadi Rosyadi[1], Tri Cicik Wijayanti[2], Jiuhardi Jiuhardi[3*]

[1]Faculty of Economics and Business, Tanjungpura University, Pontianak, Indonesia
[2]Faculty of Economics and Business, Gajayana University, Malang, Indonesia
[3]Faculty of Economics and Business, Mulawarman University, Samarinda, Indonesia
E-mail: [1]rosyadi@ekonomi.untan.ac.id, [2]tricicik@unigamalang.ac.id, [3]jiuhardi@feb.unmul.ac.id
*)Corresponding Author

Abstract

The originality of this paper focuses on existing material. It has implications for uncovering Indonesia's barriers to population growth, which are associated with economic components such as employment, wages, and happiness. On this basis, the orientation of this study is centered on cycles in the "demographic winter" of Indonesia. Short-term data for 2016–2021 is applied. This research is using multiple regression. In its actualization, population composition has a positive effect on the aging population, the aging population has a positive effect on the young workforce, and the young workforce affects wages. Another direct effect found a positive effect between fertility on marriage and birth productivity. From other moments, it is evident that being married positively affects birth productivity, and life expectancy and birth productivity positively affect happiness. In theoretical construction, the findings suggest further identification beyond the existing premise. The research in the next edition is growing by including other non-economic factors such as health, migration, mortality, and education.

Keywords:
prosperity; demographics; workforce; happiness

INTRODUCTION

In 2030, demographic patterns will experience new colors that cannot be separated from academic discussions and debates. Worldometers (2023) and CEOWORLD magazine (2023) report that China has the highest population in the world in 2020. In fact, 1,439,323,776 people live in China. This number accounts for 18.47% of the global population. With the average growth of China's population of 1.003%, it is believed that it will continue to decrease. At the same moment, even though the population structure in India is still below that of China, where 1,380,004,385 people depend on the nation for their lives, the average growth of India's population (1.010%) far exceeds expectations or above is China's growth. This anomaly far exceeded expectations.

Moreover, India contributes to 17.7% of the world's population. Surprisingly, the two websites also inform that for 2030 and 2050, the global population's habitat will experience a spectacular transition. For illustration, India's population explosion in 2030 is 1,503,642,322 and in 2050 is 1,639,176,033, while the population change from China for the periods 2030 and 2050, is calculated to be 1,503,642,322 and 1,639,176,033. Automatically, the population volume in China is projected to continue to decline. In terms of quantity, the population in India is superior to that of China. Although contradictory, India's overpopulation can be harnessed to enter the competitive job market. Another reality is reflected by the birth rate of 2.2 babies per household in India, which also stands out from China, which is speculated to have a birth rate of 1.7 babies in 2022.

For the case of developing markets with middle to lower affluence, take the example of the top 10 world populations: Indonesia (1.01%), Pakistan (1.019%), Brazil (1.006%), Bangladesh (1.009%), and Mexico (1.01%), population growth has slowed down a bit. Only in Nigeria did growth experience a drastic increase of up to 1.025%. Interestingly, this is also followed by the United States (1.005%) and Russia (0.999%). In fact, as a country with a more advanced market share, the population growth of both countries has been detected to be declining.

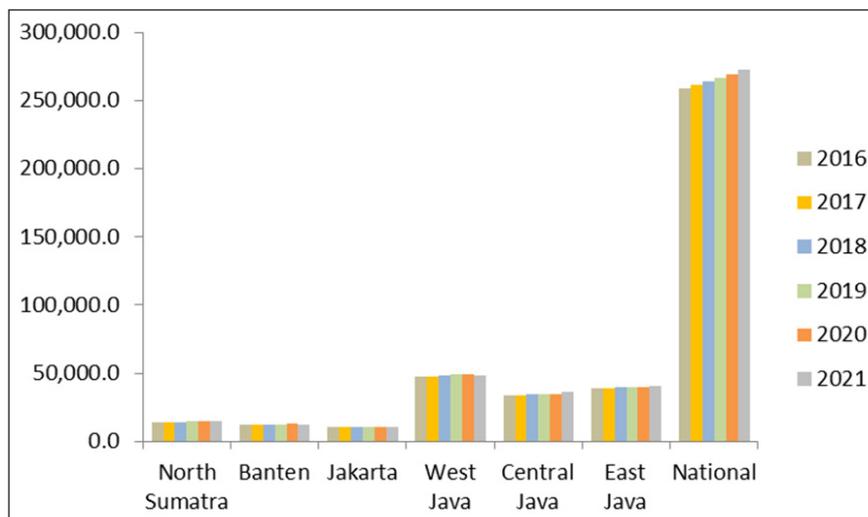**Figure 1. Big 6 Population in Indonesia: 2016–2021, thousand**

Figure 1 reflects the top 6 areas/provinces with the highest population capacity in Indonesia, including North Sumatra, Banten, Jakarta, West Java, Central Java, and East Java (BPS-Statistics Indonesia, 2022). Throughout the past six years, the national population growth trend has been positive (1.07%). For domestic growth, the diagram above shows density, which is crucial. With an average population volume of 265,535.2 thousand, this has led to a slowdown in births and a shortage of labor resources. From year to year (y-o-y), especially from 2020 to 2021, the most striking performance is 1.11%. This condition was triggered by the transmission of the 2019 Coronavirus, which weakened human health, including the consequences of death (Fitriadi et al., 2022). Implicitly, the highest number and percentage of population referring to rankings are West Java: 48,522.5 thousand (18.28%), East Java: 39,738.4 (14.97%), Central Java: 34,749.1 thousand (13.09%), North Sumatra: 14,549.2 thousand (5.48%), Banten: 12,450.7 thousand (4.69%), and the Indonesian government center/Jakarta: 10,455.3 thousand (3.94%). Since the COVID-19 era ended and returned to normal, Banten's demographic has lost 833.8 thousand people or a reduction of 6.47% from 2020 to 2021. Related demographic turmoil in various parts of the world has caused uncertainty in the human ecosystem (Myers et al., 2013; Spernovasilis et al., 2021).

The emergence of a new issue called "demographic winter" is relevant to highlight. A decade ago, the world was distorted by "overpopulation" (Baus, 2017; Jiuhardi et al., 2022; Pimentel, 2012; Van Bavel, 2013). We are aware of the demographic explosion, which is feared to disrupt the food supply, and are faced with two options: death from hunger or death from satiety. Trimble (2013) defines gender sexuality in natural families as experiencing a depopulation crisis. Women's reproduction finds problems that can save generations in the urgency of individual marriage decisions and childbearing.

Furthermore, demographic winter is in contrast to the demographic trap, where, in general, the demographic trap is more towards developing nations with high birth rates, while demographic winter has entered developed countries such as in several European Unions, especially in Poland, Spain, Austria, Italy, and Germany (Dumont, 2019). This phenomenon was initiated by infrequently heard crying babies, shifts in culture and traditions, and the reduction of young workers. Instead, the demographic winter view of population conflict takes practical solutions that do not think about the future through arguments about giving birth and caring for babies, which will take time. In addition, productive workers must care for themselves, support their families, and adjust to the work environment. They assume that the high burden on the household and the increased cost of giving birth and education for caring for children can threaten their position or cause them to lose their jobs. Although the government currently distributes subsidies for childbirth, health, education, and other social security costs, most skilled workers there are more selective regarding marriage.

The literature that examines changes in human mobility in developing countries is discussed. Lawrence et al. (2013) argue that work professionalism enlivens economic cycles. As samples in Iran, Georgia, USA, Pakistan, and the National Longitudinal

Survey of the Labor Market Experience (NLSY) show, the dilemma is between choosing to postpone marriage to pursue a career, marry early, or commit to marrying someone who has the opportunity to have children (Gould, 2008; Ghazal et al., 2022; Lundberg et al., 2016; McClendon et al., 2014; Montazeri et al., 2016; Rukhadze, 2018). Normally, marital status is, in most cases, understood as the essence of forming a new generation. On the other hand, marriage motives are also dedicated to leading to happiness without the need to determine, program, and plan offspring. From a particular perspective, some set aside the marriage level for wasting time or just getting to know a partner without ties and deliberately not having children. In the pockets of the middle class, this concept is quite popular and is believed to exist amidst the tendency toward prosperity. However, demographic winter elsewhere can hinder household and household groups' respect, comfort, dignity, and continuity. As a comparison, if it is articulated in Indonesia, young talents whose marriages are late will be contrary to religion, considered selfish, and contrary to society's point of view. Although postponing marriage can improve education, business networks, relationship connections, and personal time flexibility in both the female and male genders, it is also detrimental to mental health at peak age and vulnerable to HIV transmission (Gündoğdu & Bulut, 2022).

Marriage or cohabitation is a holistic behavior that does not interfere with the rights of every human being. In other corridors, individuals are moving to demand autonomous freedom. Conversely, the more this is treated without synergistic participation, the more human adaptation can be eliminated. A universal reflection to stimulate population issues, especially avoiding a narrow mindset that threatens population extinction. Besides, nominal wages depend on the labor force, where worker productivity will determine the birth rate. With an optimal fertility rate, the life expectancy of the workers is also high. Logically, if population aging occurs, it will have implications for the fertility rate of workers of a certain age, so low birth productivity and life expectancy reduce happiness. Apart from per capita income, education, family harmony, assets and home environment, and security, the dimensions of human happiness that are also important are health, availability of free time, work, and social interaction. The four pillars are integrated with each other, relying on resource competence, peace of life, and conducive human relations.

In Cape Coast–Ghana, Amegayibor (2021) states that manufacturing companies' performance is determined by their employees' demographic factors, including educational level, age group, years of service, and experience. Trimble (2013) demonstrates that depopulation is a practical solution for "natural families" in European civilization networks. With a permanent social security system, new polemics are found, especially in fear of sexual, economic, racial, and moral chaos. Mino & Sasaki (2023) dissect the long-term consequences of population decline in Japan. With dwindling human resources, consumption and per capita income will eventually stop—also high-income countries, such as the USA. Jones (2022) illustrates a constant population, which is reflected in the fertility rate of women, which grows stagnant, so the standard of

living is not allocated optimally; it can even disappear as the world population slows down. This reason underlies Mehrolhassani et al. (2019) criticism of Iran's decreasing rate of population growth. In the form of general fertility that has been disrupted since the last decade, Iran's population balance is classified as "small" as a result of modernization changes whose behavior does not match the gap between generations, including uneven urbanization, unemployment, and weak economic participation, the age of marriage, marital pressure, uncontrolled abortion, family formation, and perceptions of the value of life. Since the last century, the USA has experienced the sharpest decline in life expectancy (Tanne, 2023). Reversing the decline in life expectancy cannot be separated from strengthening health insights toward disease control (Lichtenberg, 2022). Heuveline (2022) considers the novel Coronavirus disease of 2019 as an unintended consequence of human civilization and adds a new death rate for middle- to upper-income earners.

In some cases, the discussion about anomalies in demography raises the concerns of many parties (Bradshaw & Brook, 2014; Sadigov, 2022). Initially, amid a period of war, the population was beset by the uncertainty of survival. The high death rate due to poverty, hunger, and inadequate access to health care has led to the exponential urbanization of an area. With the availability of transportation routes, water sources, soil fertility, a suitable climate, and topography with abundant nature, migrants can settle in new areas. Along with the shift to increasingly sophisticated times, a population explosion occurred—rapid growth with limited residential space causing an uneven population density. At the same time, many programs are designed to limit the birth rate. Besides that, lifestyle shifts have changed human character, including the age requirement for marriage. One factor determining economic welfare is the type of work. Not all jobs absorb labor or can provide sufficient wages. With high living needs, workers think twice about getting married. As a result, the productive age for building a household is missed. Some workers choose to develop their careers and spend time at work. Finally, the opportunity to have offspring was also ignored. The slowing global population cannot be separated from humanity, which depends on limited resources. Wasteful consumption (e.g., energy scale) by depleting nature triggers disparities in birth rates. Low-income countries have high birth rates at their peak, while low-income countries have low birth rates (Peek, 2022).

The novelty of this research lies in the theme raised around the systematic link between demographic aspects and economic prosperity. Also, this is different from similar publications, which have yet to talk much about developing markets, especially Indonesia. Speaking of "demographic winter," most academic debates only address developed countries experiencing a population crisis but not developing or underdeveloped countries. Uniquely, some skepticism about downsizing the population is seen as increasing productivity. However, this assumption is refuted in some cases because, over duration, it will lead to a decline in economic performance. Returning to the initial problem, Indonesia has broad market segmentation, economic potential, and workforce volume in preparation for facing broad industrial opportunities in the future. However, it is

experiencing a demographic trap that is not evenly distributed between regions. Often, Indonesia is under the radar or escapes the attention of scholars for in-depth observation. Observing this asynchronous cycle, where access to employment opportunities for the labor-intensive sector can inclusively create prosperity, the employment system, which is highly dependent on population movement, cannot be ignored. Based on the above compilation of paradigms and data, exploring the aspects that influence happiness makes sense. This scientific paper's idea related to population happiness contains demographic, social, employment, and economic elements. The paper's outline is organized into four phases: introduction, method, results and discussion, and conclusion. From a specific angle, some studies do not reveal non-economic aspects that can affect the demographic sphere. This research can be proposed based on different parameters than the others. By combining economic and non-economic aspects, we concentrate on Indonesia's potential demographic slowdown.

METHODS

The data focuses on secondary-type data facilitated by BPS-Statistics Indonesia. Economic and social data related to population are the main part. Data priority starts in 2016 an end in 2021. With a frequency of six periods and ten key variables, the observations are 60 samples. Objectivity at the domestic level (Indonesia). Data collected from annual documents is created using an econometric approach.

Variables are modified into two formats: dependent variables and independent variables. Variables consist of population composition (PC), aging population (AP), young workforce (YW), wages (Wgs), fertility (Fty), postponed marriage (PM), married (Mrd), birth productivity (BP), life expectancy (LE), and happiness (Hps). In the context of data, study variables have varied units. Population composition is based on ratio, while the aging population, young workforce, fertility, and birth productivity have the same criteria, i.e., people. Operationally, wages are adjusted to nominal IDR, married and postponed marriages are described by percentage, life expectancy is measured by years, and happiness is measured via index. In relation, only PC and HP act constantly. Definitively, PC functions as a "pure independent" that starts the initial hypothesis. Then, Hps is categorized as a "pure dependent" which is designed into the final model. From the relationship arrow, the use of PC is concerned with influencing the dependent variable, while Hps is addressed as the ultimate goal of being influenced by the independent variable. The other eight variables (AP, YW, Wgs, Fty, PM, Mrd, BP, and LE) are bidirectional, indicating that they are clustered into dependent and independent variables. In principle, Figure 2 represents the variable package.
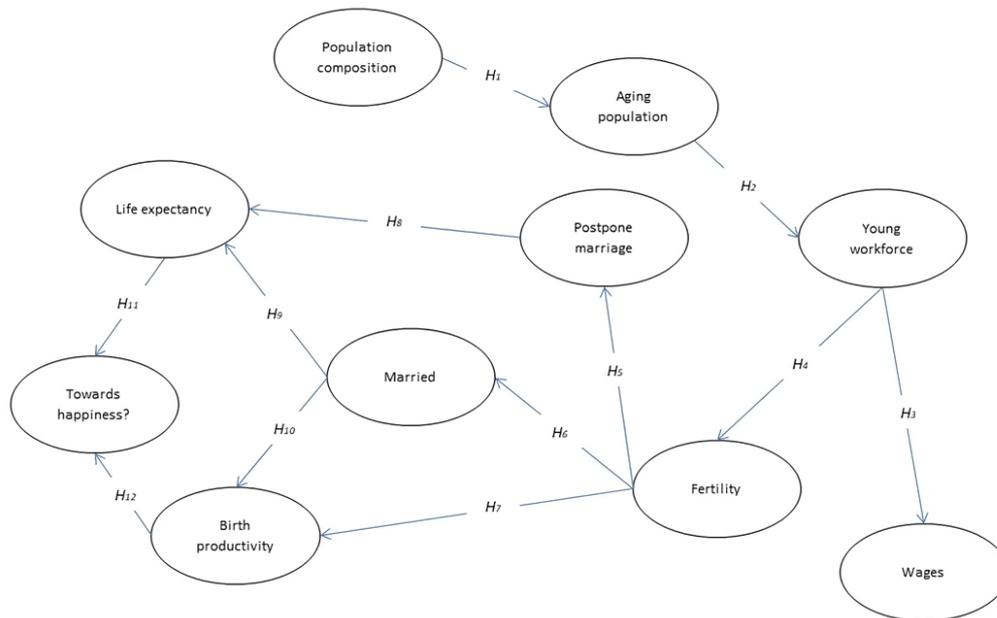
Figure 2. Conceptual Foundation

Table 1. Hypothesis Instruments and Assumptions

Codel/label of variables	Measurement	Scenario
PC	The sex ratio of the population between the male and female genders	
AP	The "generation X" pyramid/population hierarchy aged 45–75+	+/-
YW	Workers classified as "generation Y (millennial) and Gen. Z (i Generation)" aged 15–44	+/-
Wgs	Nominal average provincial minimum wage (UMP)	+/-
Fty	Fertility rate per woman	+/-
PM	Proportion of population with single status	+/-
Mrd	Proportion of population with married/living partner status	+/-
BP	Live birth per 1,000 population	+/-
LE	The life expectancy of the population	+/-
Hps	Population happiness index on a scale of 0–10	+/-

Each variable has different characteristics, so 12 hypotheses are formulated as above. Technically, only population composition is instructed as a pure independent variable and the other nine variables are converted into a unidirectional relationship. These dimensions include: aging population, young workforce, wages, fertility, postponed marriage, married, birth productivity, life expectancy, and happiness. The connotation of the cross-variables is summarized in Table 1.

After the data was processed, the material for analysis was set using multiple time-series regression. There are four systematics in regression: descriptive statistics, correlation (R), determination (R^2), and partial effects (t-statistics and probability). Descriptive statistics detect values at the mean–maximum–minimum–standard deviation (Std. Dev./

S.D), R^2 shows the direction or strength of the variable relationship, and a partial test confirm the partial association. The first, second, third, and fourth formulations are arranged below:

$$AP = \Delta\delta_1 + \beta_{PC} + \varepsilon_1 \qquad (1)$$

$$YW = \Delta\delta_2 + \beta_{AP} + \varepsilon_2 \qquad (2)$$

$$Wgs = \Delta\delta_3 + \beta_{YW} + \varepsilon_3 \qquad (3)$$

$$Fty = \Delta\delta_4 + \beta_{YW} + \varepsilon_4 \qquad (4)$$

In the fifth, sixth, and seventh formulations the following is written:

$$PM = \Delta\delta_5 + \beta_{Fty} + \varepsilon_5 \qquad (5)$$

$$Mrd = \Delta\delta_6 + \beta_{Fty} + \varepsilon_6 \qquad (6)$$

$$BP = \Delta\delta_7 + \beta_{Fty} + \varepsilon_7 \qquad (7)$$

Then, the eighth and nine equations are developed as follows:

$$LE = \Delta\delta_8 + \beta_{PM} + \beta_{Mrd} + \varepsilon_8 \qquad (8)$$

$$BP = \Delta\delta_9 + \beta_{Mrd} + \varepsilon_9 \qquad (9)$$

For the tenth formula, the math function is:

$$Hps = \Delta\delta_{10} + \beta_{LE} + \beta_{BP} + \varepsilon_{10} \qquad (10)$$

Symbol notation: $\Delta\delta$ is delta/scalar, β is the beta coefficient, and ε is residue.

RESULT AND DISCUSSIONS

Table 2 verifies the 4 points on various descriptive statistics (SD, mean, maximum, and minimum). In practice, the score obtained from 10 variables is broken down from the highest to the smallest. The first discusses SD, the largest score for the AP variable (*S.D = 4,013,364.58*) and the lowest for the Hps variable (*S.D = 0.09*). Both tell the mean, with the largest score for the YW variable (*mean = 80,011,461.33*) and the lowest on the Fty variable (*mean = 2.24*). The third studied the maximum, with the highest score for the YW variable (*max. = 81,589,206*) and the lowest for the Fty variable (*max. = 2.31*). The four display the minimum, the greatest score for the YW variable (*min. = 77,048,727*) and the lowest for the Fty variable (*min. = 2.19*). Descriptive statistics aim to describe the features of a particular data set by providing a brief summary of the data and sample size.

Furthermore, the correlation coefficient tests the closeness of the relationship between two or more variables, which is interpreted with the R value. In the SPSS output, a correlation matrix is applied (see Table 3). In practice, the performance of variables that rely on a significance degree of 99% (*p <0.01*) proves that if there is a reciprocal probability of AP with WGs and LE (*p = 0.000*), YW with Fty (*p = 0.003*) and BP (*p = 0.005*), Wgs with LE (*p = 0.000*), Fty with BP (*p = 0.001*), and PM with Mrd (*p = 0.000*). Among these linkages, the most impressive is the variable PM to Mrd

and vice versa. Correlation performance between variables through a significance scheme of 95% ($p < 0.05$) indicates that there is a collective association of AP with PM ($p = 0.019$) and Mrd ($p = 0.018$), Wgs with PM ($p = 0.018$) and Mrd ($p = 0.017$), as well as PM and Mrd to LE ($p = 0.025$; $p = 0.023$). The most progressive 5% correlation finding is Wgs the Mrd and vice versa.

Table 2. Result of Descriptive Statistics

Items	Std. Dev.	Mean	Maximum	Minimum
PC	.65	101.5	102.3	100.9
AP	4,013,364.58	70,656,983.33	76,198,300	65,659,400
YW	1,814,342.37	80,011,461.33	81,589,206	77,048,727
Wgs	2,828,860.41	2,370,884.17	2,687,724	1,997,819
Fty	.41	2.24	2.31	2.19
PM	2.72	34.94	37.85	32.2
Mrd	2.72	65.06	67.8	62.15
BP	.46	17.27	18	16.7
LE	.25	71.26	71.57	70.9
Hps	.09	5.24	5.35	5.09
Sample	60	60	60	60

Multiple regression displays the unidirectional strength of determination and the significance of all relationships through a probability degree of 5% ($p < 0.05$). R squared (R^2) or the coefficient of determination, represents a statistical parameter that measures the difference in one variable and is adjusted in the second variable when calculating an investigation. The most prime or nearly perfect determination model is fertility and married to birth productivity ($R^2 = 99.8\%$). Only 0.2% was a confounding factor outside the regression. On the one hand, the weakest determinant model is the link between life expectancy and productivity on happiness ($R^2 = 13.6\%$), where 86.4% is an off-track confounding factor. The regression results stated that sub-1: PC to AP (t = 3.788; β = 0.700), sub-2: AP to YW (t = 4.699; β = 0.543), sub-3: YW to Wgs (t = 1.640; β = 0.634), sub–4: YW to Fty (t = -6.734; β = -0.959), sub–5: Fty to PM (t = 3.034; β = -0.488), sub-6: Fty to Mrd (t = 1.116; β = 0.487), sub–7: Fty and Mrd to BP (t = 21.056; β = 0.875 and t = 5.180; β = 0.215), sub–8: PM and Mrd to LE (t = -2.139; β = -1.461 and t = -2.382; β = -2.796), and sub-9: LE and BP to Hps (t = 0.170; β = 0.151 and t = 0.237; β = 0.211).

Figure 3 displays that PC has a positive impact on AP, and AP also has a positive impact on YW. Then, YW has a positive impact on Wgs, but YW has a negative impact on Fty. The Fty variable has a negative impact on PM but a positive impact on Mrd and BP. PM and Mrd have a negative impact on LE, and Mrd has a positive impact on BP. The empirical output also shows a positive relationship between LE and BP on Hps. In other words, hypotheses 1, 2, 3, 6, 7, 10, 11, and 12 are accepted. Meanwhile, 4, 5, 8, and 9 were rejected. From the existing findings, the population composition is driving the aging population by 70%. The improving aging population increases 54.3% of

the young workforce. Followed by an increase in the young workforce, it also stimulated wages to reach 63.4%, but not fertility, which decreased to 95.9%. Fertility, which is not ideal, actually reduces the postponed marriage by 48.8%. However, good fertility can increase marriage (48.7%) and birth productivity (87.5%). The impact of postponing marriage and being married, which were unstable for several periods, actually reduced life expectancy by 146.1% and 279.6%, respectively. The good news is that when married, it grows positively and can increase birth productivity by 21.5%. With life expectancy and birth productivity that exceed expectations, consistently towards integrated happiness of 15.1% and 21.1%.

Table 3. Result of Correlation Estimation

| Items	PC	AP	YW	Wgs	Fty	PM	Mrd	BP	LE	Hps
PC	1	.700 (.121)	.110 (.836)	.717 (.109)	-.310 (.549)	.586 (.222)	-.590 (.218)	-.360 (.484)	.698 (.123)	.525 (.285)
AP	.700 (.121)	1	.543 (.265)	.983** (.000)	-.588 (.220)	.885* (.019)	-.890* (.018)	-.706 (.117)	.995** (.000)	.009 (.986)
YW	.110 (.836)	.543 (.265)	1	.634 (.176)	-.959** (.003)	.403 (.429)	-.404 (.427)	-.942** (.005)	.613 (.196)	-.389 (.446)
Wgs	.717 (.109)	.983** (.000)	.634 (.176)	1	-.705 (.117)	.887* (.018)	-.891* (.017)	-.805 (.054)	.993** (.000)	.072 (.892)
Fty	-.310 (.549)	-.588 (.220)	-.959** (.003)	-.705 (.117)	1	-.488 (.326)	.487 (.327)	.980** (.001)	-.659 (.155)	.121 (.820)
PM	.586 (.222)	.885* (.019)	.403 (.429)	.887* (.018)	-.488 (.326)	1	1.000** (.000)	-.642 (.169)	.868* (.025)	.280 (.591)
Mrd	-.590 (.218)	-.890* (.018)	-.404 (.427)	-.891* (.017)	.487 (.327)	1.000** (.000)	1	.642 (.169)	-.873* (.023)	-.273 (.600)
BP	-.360 (.484)	-.706 (.117)	-.942** (.005)	-.805 (.054)	.980** (.001)	-.642 (.169)	.642 (.169)	1	-.764 (.077)	.095 (.857)
LE	.698 (.123)	.995** (.000)	.613 (.196)	.993** (.000)	.659 (.155)	.868* (.025)	-.873* (.023)	-.764 (.077)	1	-.010 (.985)
Hps	.525 (.285)	.009 (.986)	-.389 (.446)	.072 (.892)	.121 (.155)	.280 (.591)	-.273 (.600)	.095 (.857)	-.010 (.985)	1
Sample	60	60	60	60	60	60	60	60	60	60

Note: **) 1% probability, *) 5% probability.

Nowadays, some literature links sustainable development to determining human quality (Dewanty & Isbanah, 2018; Harris & McDade, 2018; Huggins et al., 2018; Osher et al., 2020; Ristea, 2013; Short & Mollborn, 2015). In macroeconomic literacy, a lifestyle transition enables and drives personal behavior to choose whether the individual is active as a subject that encourages better welfare improvements or becomes an object. Economic pressures, family demands, workloads, and widening social inequality will trigger discriminatory actions in everyday life. Substantively, the root of the challenge so far is that labor productivity is only measured by career brilliance without considering other factors. In this era of disruption, handling in the formation of productive humans is considered adaptive. This condition starts with cross-professions in several commodities

(e.g., administration, bureaucracy, and other service areas in offices), providing employees opportunities to develop creativity, work from home with technological devices, and learn about a more comprehensive network. In a more proportional mechanism, as long as this does not conflict with privacy and household matters, the organization will not be harmed.

Mao & Zhou (1988), Olshansky (1997), and Wang et al. (2022) commented that the age structure of the population is not only influenced by marriage, immigration, death, and birth but also changes from a micro perspective, such as family factors. The older the age structure, the smaller the family size, and vice versa. There is a significant imbalance between urban and rural populations. It is characterized as the nuclear family caused by the convergence of industrialization in increasing economic development, thus causing an aging population. Internal age also influences family structure and size. For example, in Beijing, China, the adult population is more dominantly influenced by economic-social measures, marriage, and birth. So, the younger residents still live with their parents. Families formed at that age positively affect fertility, and those getting older face loneliness. In China, those turning independent are not a burden on the family, but an aging society is putting economic pressure on the contemporary term. In particular, the evolution of population aging affects spatial design. The Chinese population in the western and central regions is relatively small compared to those on the east coast. There is a severe polarization in the aging population and the resulting inequality in competitiveness. Trends in population aging are also influenced by and affect the social and physical environment in which they live.

Figure 3. Evaluation on Regression
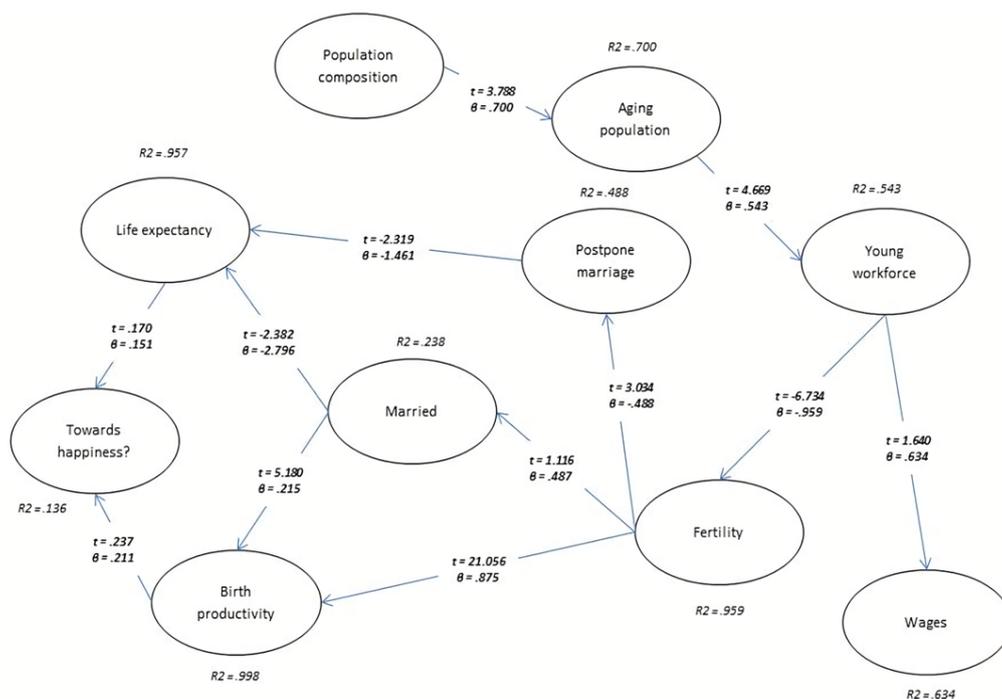
This scientific work highlights the effect of the aging population on the young workforce. Comparatively, in the United States, Korea, Taiwan, and the European Union, it is detected that the older generation spends more time at work than their younger counterparts (Barakovic Husic et al., 2020; Huang et al., 2019; Lee et al., 2021; White et al., 2018). This fact also occurs worldwide, and its consequences are related to the workforce's widespread prevalence and aging demographics. Older workers tend to delay retirement and extend work contracts to secure financial stability. This disparity raises concerns that an increase in the employment of older people in the labor market will lead to unemployment for young people. Based on the gender of various occupations, educational certificates, and industries, older female workers complement the younger female workers, but older workers exclude the younger workers. This condition has become an international concern, as the elderly are expected to become an increasingly aging population, affecting work productivity. The accumulation of active worker resources and aging trends urge the workplace to balance personal life and job retention.

Reviews of the young workforce on wage rates are discussed by members of the European Union, the United States, and Japan (Eichhorst et al., 2014; Kondo, 2016; Ouimet & Zarutskie, 2014). In large-scale companies, on average, they choose young employees to be paid less, but young employees who work in small companies are actually paid higher wages. The consideration is that they show a much greater passion for work, innovation, and skill for the company's survival. Work professionalism does not emphasize the employment situation of older workers with those who are young, but it can encourage the mobility of ideas, provide added value, and exchange experiences. Since the "baby boomers" reached the most remarkable working age, some places have reduced the number of part-time workers and cut the wages of older workers.

The cause of fertility also depends on the activities of young workers in the workplace. In the long term, the repercussions can affect the decision to marry or delay marriage. A high fertility rate is one of the alternatives to increasing birth productivity. In Sweden, England, Ukraine, Switzerland, Spain, Slovenia, Slovakia, Portugal, Poland, Norway, Netherlands, Ireland, Hungary, Greece, Germany, France, Finland, Estonia, Denmark, Czech Republic, Belgium, and Austria, life plans are confronted by birth delays. Interactivity between partners with increasing age has an essential effect on the success of conception. Working for a long time can ensure reproductive success. However, job uncertainty also channels fertility intentions. When welfare is low, the level of life satisfaction is under pressure. The certainty of individual work provides a situation of measurable welfare, prestige, life balance, and fertility. Subjectively, younger individuals with insecure occupations have consequences for household affluence but help fertility preferences. This fact aligns with the paper highlighted by Delbaere et al. (2020) and Vignoli et al. (2020).

What is experienced in many countries is also seen in Indonesia. Whether it is married or unmarried, status can reduce life expectancy. Various cases in Denmark, Switzerland, and the United States were exposed. Compton & Pollak (2021), Drefahl (2012), Felder (2006), Jia & Lubetkin (2020), and Kaplan & Kronick (2006) evaluated that when people live with a partner with a legal or not-married status, it does not necessarily represent social reality. Early death was found to be highest for people living together without marriage

and followed by those who are married. Life span in young and older couples provides a complex analogy for survival that combines behavior during marriage with education, trust, age, and ethnicity. Dramatically, the gap between couples and singles is leading to longevity in gender. The smallness or longevity of the spouses is elaborated by altruism, wealth, and utilitarianism. The mortality rate of people living with their partners and who are married is positively higher than that of those who have never been married. The relationship between life expectancy and marital status and vice versa involves assumptions that limit the basic activities of older people compared to younger people.

The fundamental difference lies only in binding regulations. If a couple wants to have children, they are required to marry formally. Whether the regeneration will be a biological child or an adopted child is another matter in the future. There must be a legal bond that does not recognize "married by accident" and does not understand living together without being married. That way, the obligation to marry for couples is free from religious orders that have been believed from generation to generation.

In contrast to Indonesia, in the United States, delaying marriage for women and men does not significantly impact births, except for cases of early marriage (Loughran & Zissimopoulos, 2009). Differences in specialization of marital status comprehensively determine birth rates (Killewald & Gough, 2013). Foreman-Peck (2011) explains that the household economy contributes to the fertility quality of Western Europeans. According to Parsons et al. (2015), marriage at a certain age with a low level of thinking maturity and education also contributes to the risk of early death, poverty, malnutrition, loss of income, and weak control over child growth. Changing decisions in domestic marriages can endanger births, make it more difficult for children's health, and complicate parenting and child education.

Lastly, the connection between life expectancy and birth productivity on happiness exists. Research from Chirinda & Phaswana-Mafuya (2019), Gimenez et al. (2021), Heydari (2017), Lawrence et al. (2015), and Lozano & Solé-Auró (2021) reveals that life expectancy positively drives happiness in South Africa, Mazandaran–Iran, Chilean senior citizens, United States adults, and working-age Europeans. Inferentially, the happiness of the population in several developed countries, such as the Organisation for Economic Co-operation and Development (OECD), is also determined by the consistency of the birth rate (Bellet et al., 2019; García-Buades et al., 2019; Glass et al., 2016; Isham et al., 2021; Lyubomirsky et al., 2005; Oswald et al., 2015; Robertson & Cooper, 2011; Sonfield et al., 2013). Recognizing Indonesia's "demographic bonus" with its multicultural traditions sparked concerns about social disparities at the regional level. Exploring this dynamic, layers of the population are also related to employment affairs, female fertility rates, and life expectancy. From a more reasonable viewpoint, Cheung & Leung (2011) and Leyk (2019) claim that heterogeneous urban communities tend to differ from rural communities, where the majority are homogeneous. Following up on the negative response between the young workforce towards fertility, then fertility on postpone marriage, and married and postpone marriage towards life expectancy, implying a signal regarding weak population policy governance. This study is by previous predictions that analyze the two-way relationship between young workers, fertility, the decision to marry, and life

expectancy (Ahn et al., 2021; Chari et al., 2017; Ng & Wang, 2020; Shreffler & Johnson, 2013; Yang et al., 2022). From existing papers, the underlying cause of the four discussions is inequality in work-life balance (WLB). For the sake of prospects for prosperity, career women in the USA who help the family economy often postpone births so that fertility intentions are moderated by the high intensity of working hours. Among Korean women, long working hours have an impact on infertility. The risk of infertility is adjusted for a subgroup of young workers with irrational work schedules. In parallel, the universal marriage norm for Chinese women is being transformed from a high fertility contribution to a low fertility one. Since the 1980s, delays in marriage have been significantly correlated with reduced fertility rates. Today, like men, women in Taiwan and South Korea prefer careers and are committed to work, so they delay marrying and raising children. Child welfare in India has been shown to be affected by health and education allocations, including the mechanism for determining the age of marriage.

CONCLUSION

The condition that is currently viral is "demographic winter." At the same time, the population's happiness is confronted with polemics that are not only related to demographics but also related to many economic and social elements. This scientific work aims to assess the effect of "demographic winter." Indonesia was chosen as a study. In the last six periods, positive causality has occurred from population composition to aging population, aging population to young workforce, young workforce to wages, fertility to married and birth productivity, married to birth productivity, and life expectancy and birth productivity to happiness. Additionally, negative causality is also seen between the young workforce on fertility, fertility on postponed marriage, then marriage, and postponed marriage on life expectancy.

This paper notes the abnormal situation in demographic development in Indonesia, with the leading cause being population aging. There is an inverted population age hierarchy where the older population outnumbers the young population, affecting the workforce. Young workers tend to be more selective about their work type. As a result, many of them are not absorbed into several jobs. In addition, the high pressure of life encourages the existing workforce to prioritize busy work. Another justification explains that productive workers with low fertility rates tend to choose to delay marriage. Apart from that, both the decision to marry and postpone marriage also reduce life expectancy. The findings recommend regulations related to health and education allocation. Under a more detailed lens, proposals for an integrated labor policy revitalization can be temporarily simulated.

All human existence is inseparable from demographic phenomena. Substantially, obedience to work has taken root, become civilized, and is a culture that cannot be separated. For this reason, the policy authorities need to inspect, protect, and execute technocratic steps to manage public population services. This policy includes institutional strengthening, such as partnering with associations and communities to popularize sustainable family planning programs. Practical policies must lead to precise strategies to solve population stratification, especially aging generations. Naturally, the fertility and birth productivity level is still controversial in Indonesia, requiring government intervention.

Thus, stakeholders also educate and bridge the role of regulators in solving this problem. It is not the end of the world to design ever-increasing human development projects. This paper also inspires changes in people's lifestyles that are increasingly modern in adjusting demographic mindsets, behavior in choosing a life partner, work commitments, insight into birth, and knowledge about happiness. Academic implications for future research directions may consider other indicators of the "demographic winter."

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