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Comparison of the World's Best Pension Systems: The Lesson for Indonesia

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Abstract: Iceland and the Netherlands presently have the best pension systems in the world, according to the Mercer CFA Institute Global Pension Index 2021. In the meantime, Indonesia ranked 35th. This study compares and analyzes Iceland's and the Netherlands' current pension systems as the finest in the world, as well as the future threats to their pension systems, and applies the lessons learned from both nations to Indonesia, which intends to alter its public pension system. According to a comparative analysis of Iceland, the Netherlands, and Indonesia, the overall pension systems of Iceland and the Netherlands are advantageous for ensuring adequacy and sustainability of the pension system. However, Iceland and the Netherlands may suffer adequacy and sustainability issues in the long run. As a result, they should continue to evaluate their own countries' present structures, notably in demographics. Concerning the Indonesia pension system, Indonesia policymakers should consider enforcing the social security system, since these systems have enabled Iceland and the Netherlands to have lower poverty rates. Furthermore, the Indonesian government should strengthen the existing PAYG and DB pension systems, raise the minimum pension eligibility age, contribute to the system regularly, and apply the cost-of-living adjustments to improve the adequacy and sustainability of the civil service pension system. Simultaneously, civil servants should contribute more to ensure the long-term viability of this pension system. The Indonesian government should implement such adjustments, as they would enhance budgetary sustainability in the long run.

Keywords: pension system; pension reform; Indonesia; Iceland; The Netherlands

JEL Classification: H5; H6; H55

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Citation: Hadi, Abdul, Emese Bruder, and Widhayani Puri Setioningtyas. 2022. Comparison of the World's Best Pension Systems: The Lesson for Indonesia. *Social Sciences* 11: 435. https://doi.org/10.3390/socsci11100435

Academic Editors: Liza Lee, Kuei-Kuei Lai, Linda Pavitola, Kate Chen and Teen-Hang Meen

Received: 12 August 2022
Accepted: 18 September 2022
Published: 23 September 2022

1. Introduction

The Mercer CFA Institute, in collaboration with Monash University and the Victorian Government in Australia, created the Mercer CFA Institute Global Pension Index (the Index) to track the implementation of the pension system. Since 2019, they have assessed various countries, which in 2019 included 37 countries with 63 percent of the world's population. In 2021, the Index included pension plans from Iceland, the United Arab Emirates, Taiwan, and Uruguay. The study includes 43 countries in total. As a result, the Mercer CFA Institute claimed that the result outperforms nearly two-thirds of people worldwide.

The Index examines all pension systems based on adequacy, sustainability, and integrity. Figure 1 depicts the sub-elements of adequacy, sustainability, and integrity (Mercer CFA Institute 2021).

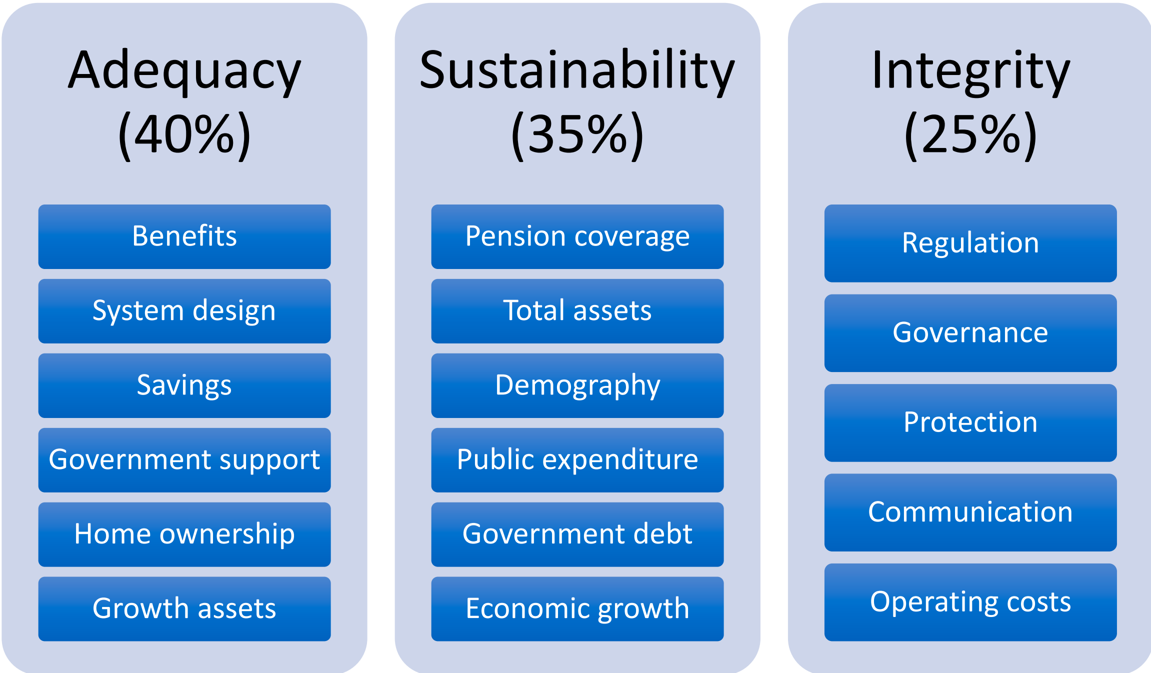


Figure 1. The sub-element of adequacy, sustainability, and integrity. Source: Mercer CFA Institute (2021).

Iceland, the Netherlands, and Denmark own the best pension plans, with an A-grade. Iceland outperformed the Netherlands, which rose to the top of the rankings in 2019 and 2020. Table 1 shows that Iceland was ranked first with a grade of 84.2, the Netherlands was ranked second with 83.5, and Indonesia was in the 35th position with 50.4 (Mercer CFA Institute 2021).

Table 1. Comparison of the Index 2021 between Indonesia, Iceland, and the Netherlands.

Indicators	Iceland	The Netherlands	Indonesia
Ranking	1	2	35
Adequacy Sub-Index	82.7 (1st)	82.3 (2nd)	44.7 (37th)
Sustainability Sub-Index	84.6 (1st)	81.6 (3rd)	43.6 (30th)
Integrity Sub-Index	86.0 (7th)	87.9 (3rd)	69.2 (29th)
Compare to 2020 index	The index for 2021 is 84.2.	The index increased from 82.6 in 2020 to 83.5 in 2021.	The index decreased from 51.4 in 2020 to 50.4 in 2021.

Source: Mercer CFA Institute (2021).

According to this study, the adequacy and sustainability of the Indonesian pension system is low. Regarding sustainability, Indonesia's civil service pension system is currently underfunded. Meanwhile, in terms of adequacy, Indonesia's civil service pension benefit is insufficient to cover the living cost of pensioners. Therefore, Indonesia needs to reform its civil service pension system. The reform is planning to change the pension scheme from a defined benefit (DB) to a defined contribution (DC) (Ananta et al. 2021). However, Indonesia should determine many aspects to transform the civil service pension system into a new scheme. A substantive strategy of pension reform is needed to reduce pension liabilities and to create a well-designed pension system that provides a fair and worthy pension to all pensioners.

This study compares and analyses three issues with the current pension system in Iceland, the Netherlands, and Indonesia. The first issue is what factors make Iceland and the Netherlands the best pension in the World. Second, how is the future of the public pension systems in Iceland and the Netherlands? The third is how are the experiences from both countries valid for Indonesia, which currently wants to reform its civil service pension system.

The research and analyses that the researchers used is in a literature review. This research proposes a recommendation for formulating more sustainable pension liabilities in Indonesia's civil service pension system by referring to the international best practices of the pension system. The comparative analysis of pension systems in Iceland, the Netherlands, and Indonesia could be an excellent lesson and has the potential to conceive an initial contribution to the government of Indonesia (Indonesian policymakers) and other countries that want to reform their pension system. This comparative study can be critical for future policies to reduce pension liabilities and prevent bankruptcy on its pension fund. As a result, it will achieve a well-designed pension system. Furthermore, few studies compare the Indonesian pension system with other countries' pension systems. Therefore, this study also would be beneficial to enrich the literature about Iceland, the Netherlands, and the Indonesian pension system for researchers globally.

The next section of this study provides the literature review. The following is an outline of the paper. Section 3 describes and compares the pension systems in Iceland, the Netherlands, and Indonesia. Section 4 focuses on the future adequacy and sustainability of the public pension systems in Iceland and the Netherlands, and Section 5 discusses the Indonesian public pension system's future direction. Section 6 concludes this study.

2. Literature Review

2.1. Defined Benefit Pension System

An employee's pension under a defined benefit (DB) scheme is calculated by their income history, which may include years of service. The method through which rewards are paid is a significant design consideration. A final pay plan's pension is based on a person's salary in his or her final year or years of employment. It may be determined by a person's actual or relative salary over a lengthy period, including their whole career (Barr and Diamond 2006).

2.2. Defined Contribution Pension System

In a defined contribution scheme (DC), each member contributes a proportion of his or her salary to the account. These contributions are used to acquire assets, which are subsequently accumulated in a joint account with the assets' receipts. When retirement occurs, the account assets sustain post-retirement consumption via annuities or other ways (Barr and Diamond 2006).

2.3. Adequacy and Sustainability of Pension System

The primary objective of adequacy is to guarantee that retirees have a comfortable, sustainable old-age livelihood (Whitehouse 2014). Meanwhile, Whitehouse (2014) defined pension system sustainability as a commitment to ensure that current contributions are equivalent to or exceed the current benefits. Like Whitehouse (2014), European Commission (2017) argued that sustainability in pension plans refers to the financial equity between income and obligations. Meanwhile, Hallmark (2016) identified three variables to assure long-term sustainability: the reliability of program fund revenues, the contribution scope of the program, and the level of shortage of funds. Furthermore, the Mercer CFA Institute (2021) evaluated numerous indicators to assess the adequacy of the pension system, including benefits, system design, savings, government assistance, house ownership, and growing assets. The European Commission (2017) measured three factors: the number of benefits, replacement rates, and the length of time that pensioners spent the benefit. Whitehouse (2014) defines adequacy as relying on family patterns in a community, being determined according to other communities' real incomes, and being reasonable to prevent poverty from spreading to other groups. The Index 2021 evaluated many pension system metrics to assess sustainability: pension coverage, total assets, demographics, public expenditure, government debt, and economic development. The European Commission (2017) claimed that to determine sustainability, the fiscal equilibrium among incomes and expenses, the proportion of employees to retirees in pension plans, and population must all be considered.

2.4. Automatic Adjustment Mechanism

The automatic adjustment mechanism (AAM) is critical for mitigating the consequences of aging. AAM is a pension system technique that automatically modifies the characteristics of a pension or pension benefit depending on a specified development. This AAM may employ demographic, economic, or financial variables, or a combination. The benefit amount, contribution rate, and obligatory retirement age are determined using this procedure. The AAM was initially meant to analyze pension prices through salary indexation, but it is now utilized for financial assurance (OECD 2021a). However, while AAM may enhance pension funding, depending on its design, it may not be adequate to offer long-term financial sustainability, and some may be politically challenging to continue over time. The administrative capacity is essential for the successful implementation of AAM, since it may involve particular expertise and experience, as well as data collecting, which must be included in the design of AAM (Guardiancich et al. 2019).

2.5. Automatic Balance Management

By decreasing ambiguity about the pension system's capacity to satisfy future commitments, the Automatic Balance Mechanism (ABM) tries to preserve solvency or precipitate collapse (OECD 2021a). ABM is AAM with a specific purpose: it is intended not only to increase financial sustainability but also to guarantee that the pension scheme budget is balanced (Gannon et al. 2015). ABM can be created to attain long-term goals or to prevent short to medium-term imbalances. It may entail several changes to pension benefits and contributions due to the pension system's current or predicted balance (OECD 2021a).

3. Comparison of Iceland, The Netherlands, and Indonesia Pension Systems

3.1. Structure of Pension Systems

Iceland and the Netherlands have the most outstanding pension systems globally. They have a multi-pillar pension system, combining public and private pension systems based on the recommendation from The World Bank Pension Conceptual Framework (2008) that introduced the Five Pillars of the Pension System. The pension system in Iceland is being built on three pillars. The first pillar is a state pension under pay-as-you-go (PAYG) schemes with DB and income-tested benefits; the second is a compulsory private pension system that operates on a DC scheme; the third is a voluntary private pension fund with a DC scheme (Ólafsson 2017).

Similar to Iceland, the Dutch pension structure is implemented on three pillars. The first pillar, the General Old Age Act, also known as the Algemene Ouderdomswet (AOW), is the basic pension provided by the state under the PAYG scheme (Dekkers 1998). Everyone participating is eligible for a lifetime pension (Westerhout et al. 2021). The second pillar is a quasi-mandatory private pension system with a DB plan (OECD 2021c). The Netherlands is finalizing the conversion of a quasi-mandatory private pension from a DB to a collective DC scheme (OECD 2021a). The third pillar is voluntary pensions, in which a tiny proportion of citizens are involved (Westerhout et al. 2021).

Meanwhile, Indonesia has not implemented the zero and the first pillar as social protection for all citizens. Despite enacting Law Number 40 of 2004, Indonesia has yet to implement a mandatory public pension system. It was a watershed moment for Indonesian social security. Unfortunately, the Indonesian government's goals of securing citizens through implementing a social security system remain unproven. The second pillar for Indonesia currently has mandatory public pension programs for government employees, and mandatory private pension programs for private employees. Mandatory public pension programs for government employees consist of Civil Service Pension System, State Officials Pension System, Military and Police Personnel Pension System, Civil Service Old-Age Savings System, and Military and Police Personnel Old-Age Savings System. The coverage rate of these programs is about 3.38 percent (9 million of 269 million in Indonesia's total population) (Annual report of PT Taspen 2018) (Annual report of PT Asabri 2018).

The Indonesian civil service pension system applies the PAYG scheme, organized on DB scheme. The authority to administer the civil service pension system is regulated in Law Number 5 of 2014; nevertheless, its implementation is still applying Law Number 11 of 1969 since the implementing regulations in the form of Government Regulations have not yet been published. PT. Taspen, a public enterprise, administers and organizes this program. Indonesian civil service old-age savings system is applying DC schemes. PT. Taspen administers and manages this program as well. The pension and old-age savings systems for police and military personnel are similar to those of the pension and old-age savings systems for civil servants. The distinction is found in the pension fund. For the first time, PT. Taspen administered and organized the pension and old-age savings systems for police and military personnel; however, PT. ASABRI managed these systems until recently, under President Decree Number 8 of 1977.

Moreover, the mandatory private pension programs applied a DC scheme for private employees. The authority to administer the mandatory private pension system is regulated in Law Number 24 of 2011. BPJS Ketenagakerjaan (Labor) administers and organizes this program (Ananta et al. 2021). The third pillar is a voluntary private pension fund with a DC scheme (Law Number 11 of 1992). Dana Pensiun Pemberi Kerja (DPPK—Employer's Pension Fund) and Dana Pensiun Lembaga Keuangan (DPLK—Financial Institution Pension Fund) administer and organize this optional program (Ananta et al. 2021). The comparison of the pension system in Iceland, the Netherlands, and Indonesia is summarized in Table 2.

Table 2. Comparison of Pension System in Iceland, the Netherlands, and Indonesia.

Country	Zero Pillar	First Pillar	Second Pillar	Third Pillar
Iceland	X	PAYG and DB-income-tested benefits	DC	DC
The Netherlands	X	PAYG and DB	DC	DC
Indonesia	X	X	- PAYG and DB (Government employees' Pension System) - DC (Civil Service Old-Age Savings System, Military and Police Personnel Old-Age Savings System) - DC (Mandatory Private Pension System)	DC

Regarding eligibility, in Iceland, according to social security law, the pension age is 67, the OECD's most incredible pensionable age. People who have lived in Iceland for 40 years will be eligible for a minimum pension. People with lesser residencies, which must be at least three years between 16 and 67, will receive smaller pensions proportionately (OECD 2021b). Participants in the mandatory occupational pension system can retire at 67, except for Seamen. The latter may retire at 60 if they obtain a minimum of 25 years of service (Ólafsson 2017). The Icelandic government enacted pension reforms in 2017, raising the retirement age from 67 to 70 years starting in 2041 (Clemens and Parvani 2017).

In the Netherlands, the AOW pension age was 66 years and four months in 2020 (OECD 2021a). In 2013, the Dutch government raised the AOW pension age from 65 to 67, beginning in 2021 (Clemens and Parvani 2017). However, they postponed determining the increase from 2021 to 2024 (OECD 2021a). In addition, beginning in 2022, the Dutch government implemented an indexing system to determine the pension age based on life expectancy. The standard retirement age is automatically adjusted to change life expectations (Clemens and Parvani 2017). Nonetheless, the Dutch government will change the links from one-to-one to two-thirds starting in 2025. The statutory retirement age has a one-to-one relationship with life expectancy, which means that a one-year increase in life expectancy results in a one-year increase in the statutory retirement age (OECD 2021a).

In Indonesia, civil servants are eligible to receive employee pension benefits if they have reached the age of fifty years and have worked for the pensions for at least twenty years. The pension age is fifty-eight years for state administrative officers, young functional officers, first functional officers, and skilled functional officers; sixty years for high-chief officers and associate functional officers; and sixty-five years for civil servants who are principal functional officers. For the Indonesian civil service old-age savings systems, participants of this program are civil servants. Their membership ends when they die or resign.

Furthermore, in Iceland, the state pension system ensures that everyone receives at least a minimum pension (OECD 2021b). It combines means-tested primary and supplementary pensions (Ólafsson 2017). The annual primary pension benefit is ISK 3,081,468 (approximately EUR 21,702). While earnings of other sources are more than ISK 300,000 million (approximately EUR 2,112,846,071), the primary pension is conceivably reduced or removed, as determined by income testing (OECD 2021b). The maximum amount for targeted benefits (pension supplement) is ISK 778,668 (approximately EUR 5484) annually for an individual. This benefit is withdrawn if the income exceeds ISK 300,000 (approximately EUR 2112) (OECD 2021b).

On the other hand, beneficiary income or contributions have no bearing on AOW benefits. Benefits are calculated based on the beneficiary's time in the Netherlands (Westerhout et al. 2021), the net basic income (updated twice a year), and marital status (OECD 2021c) (Dekkers 1998). In 2020, an individual participant would earn EUR 1302.28 per month, and a pair would earn EUR 1770.76 per month (OECD 2021c). In Indonesia's civil service pension plan, the pension basis used to determine the pension benefit is the employee's basic salary (including additional basic salary) for the last month, as determined by the salary regulations that apply to them. The monthly employee pension benefit is 2.5 percent of the basic pension for each term of service, provided that monthly employee benefits are a maximum of seventy-five percent of the primary pension benefits. A monthly employee pension shall not be less than the lowest basic salary defined by government regulation concerning the applicable salaries and rank for the civil servant.

In addition, the monthly widow/widower pension equals 36 percent of the primary pension benefits. If a civil servant dies while on duty, the widow/widower pension is 72 percent of the primary pension benefits, whereas if a civil servant dies while on duty and his/her status is single, the parent pension is 20 percent of the basic pension. At the same time, the benefits include Dwiguna insurance and life insurance for the Indonesian civil service old-age savings system. Dwiguna insurance is beneficial insurance that protects civil servants during their service period. It provides life insurance if a civil servant dies while on the job and retirement benefits if the civil servant is still alive when he or she retires. Meanwhile, life insurance programs protect civil servants and their families (Widjaja and Simanjuntak 2010).

Concerning contribution, citizens of Iceland do not pay their fair proportion to the social security system. Nonetheless, employed citizens between the ages of 16 and 70 must participate in the mandatory private pension system and pay 4 percent for employees and 11.5 percent for employers (OECD 2021b). On the contrary, in the Netherlands, contributions subsidize the AOW with an 18 percent rate. At the same time, the contribution rate for the mandatory occupational pension system varies depending on the employee's age and income level (OECD 2021c). In Indonesia's civil service pension plan, contributions are made monthly, with civil servants contributing 4.75 percent of their monthly salary to the program. The Indonesian government, on the other hand, does not contribute monthly. They contribute to the Indonesian national budget (APBN) when the due date of pension payment emerges. For the Indonesian civil service old-age savings system, civil servants contribute 3.25 percent of their monthly salary to their private savings accounts. Table 3 briefly overviews Iceland's, the Netherlands', and Indonesia's pension parameters.

Table 3. Comparison of Pension Parameters in Iceland, the Netherlands, and Indonesia.

Country	Pension Age	Benefit	Contribution
Iceland	a. Social security: 67 b. Mandatory occupational pension system: 67, except for Seamen: 60.	a. Social security: The annual primary pension benefit: ISK 3,081,468 (EUR 21,702). The maximum amount for targeted benefits (pension supplement) annually: ISK 778,668 (EUR 5484) b. Mandatory private pension system: based on contribution and investment performance	a. Social security: Citizens: No contribution; Employer (State): 6.35% b. Mandatory private pension system: Employees: 4% and Employers: 11.5%
The Netherlands	a. The AOW: 66 years and four months b. Mandatory private pension system: Between 60 and 70	a. The AOW: Individual/month: EUR 1302.28; Pair/month: EUR 1770.76 b. Mandatory private pension system: based on contribution and investment performance	The AOW: 18%. The mandatory occupational pension system: varies depending on the employee's age and income level.
Indonesia (Civil Service Pension System)	58 years, 60 years, or 65 years based on the job position.	a. The monthly employee benefits: a maximum of 75% b. The monthly widow/widower pension: 36% c. The monthly widow/widower pension (civil servant dies while on duty): 72% d. The monthly Parent pension: 20%	Civil servants: 4.75%; The Indonesian government does not contribute monthly
Indonesia (Civil Service Old-Age Savings System)	Participants: civil servants. Their membership ends when pension ends, dies, or they resign	The benefits include Dwiguna insurance and Life insurance	Civil servants: 3.25% of their monthly salary to their private savings accounts

3.2. Adequacy and Sustainability of Pension System

According to the Index 2021, Iceland and the Netherlands scored an A for adequacy, sustainability, and integrity of pension systems. Meanwhile, Indonesia scored a C for adequacy, sustainability, and integrity of pension systems. This article will compare the adequacy and sustainability of pension systems in Iceland, the Netherlands, and Indonesia by evaluating numerous criteria related to pension system adequacy and sustainability using several metrics used by Mercer CFA Institute (2021), Whitehouse (2014), Hallmark (2016), and the European Commission (2017). For Indonesia, the authors apply data from the Civil Service Pension System.

3.2.1. Benefits

Pension benefits are critical in providing retirees with an income throughout their retirement. The higher the number is better for them. How much do the best pension systems in the world's public pension benefits (social security) pay compared to Indonesia's civil service pension benefit? This is described in Table 4.

Table 4. Comparison of pension benefits of public pension in Iceland, the Netherlands, and Indonesia.

	Iceland	The Netherlands	Indonesia
Basic benefit	ISK 3,081,468 (EUR 21,860) per year (EUR 1821/month)	EUR 1302.28/month for singles and EUR 1770.76/month for couples	- Minimum: IDR 1,560,800 * (EUR 103.6; USD 105) - Maximum: IDR 4,425,900 ** (EUR 293.7; USD 297.9)
Average income of active workers (per year)	ISK 9,250,000 (EUR 65,619 or USD 68,284)	EUR 54,843 (USD 62,641)	IDR 28,774,200 (USD 1973)
Benefit/Average income	33%	Single: 28.49% Couple: 38.74%	Minimum: 5.42% * Maximum: 15.37% **

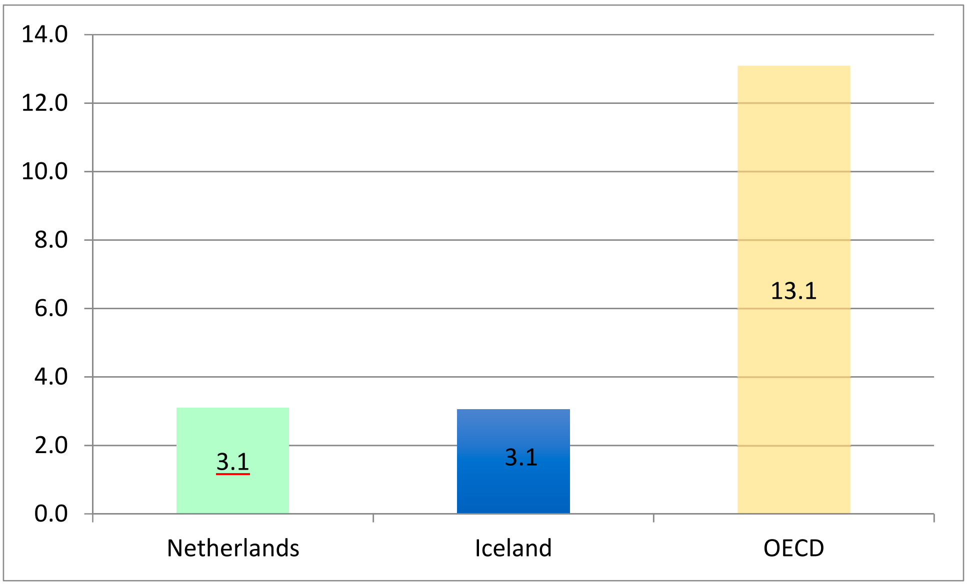
Source: OECD (2021a, 2021b, 2021c); Government Law Number 18 of 2019. * Level of I/a (the lowest rank in Civil Service). ** Level of IV/e (the highest rank in Civil Service).

According to Table 4, the pension benefits of social security in Iceland and the Netherlands provide a significant amount to pensioners. However, the pension benefits are more in Iceland than in the Netherlands for a single individual. Iceland seems to have a substantial retirement guarantee, and the present level of retirement income is unusually high, indicating the country's overall high level of affluence (Ólafsson 2017). Iceland's high statutory retirement age helps in this regard; as a result, hefty pension guarantees are acquired plans. Meanwhile, civil service pensioners in Indonesia have relatively modest pensions. Somehow, still, the maximum amount of pension benefits is less than the Upah Minimum Provinsi (Provincial Minimum Wage) in Jakarta, Indonesia's capital city, which is IDR 4,573,845 (USD 307.9) (Decree of the Governor of the Special Capital Region of Jakarta Number 1517 of 2021 concerning the Provincial Minimum Wage of 2022).

3.2.2. Poverty Rate of Pensioners

Pension benefits are pensioners' primary income; therefore, they must be able to finance them for an extended period. It is also critical to analyze whether their pension income can cover their general demands for healthcare, social services, and long-term care (European Commission 2017). Insufficient public pension benefits may significantly degrade pensioners' living conditions; it probably will be insufficient to bring them over the poverty line (Fouejieu et al. 2021). Hence, the first pillar pension benefits amount in Iceland and the Netherlands significantly impacts the poverty level of pensioners. According to Scheme 1, elderly persons become less likely to live poorly than others in Iceland and the Netherlands. The poverty rate in both countries is less than 5 percent, which can be categorized as a lower poverty level than the average of OECD nations, around 13.1 percent (OECD 2021a).

In comparison, until recently, there was no research on the poverty rate of civil service pensioners in Indonesia, as the authors are concerned. However, according to the Central Statistics Agency (2021), there will be 29.3 million elderly in Indonesia in 2021. This statistic equates to 10.82% of Indonesia's total population. Regarding economic position, the bulk of the senior population, or 43.29%, comes from households with the lowest 40% spending category. The distribution is similarly primarily in the middle 40% of households (37.4%). Only 19.31% of those are in the top 20%. The old are more evenly distributed in low economic status, with the proportion of the elderly in the 40% spending group being more prominent than 40% and the percentage of the elderly in the 20% spending group being less than 20%. This proves that the majority of the elderly are low-income.



Scheme 1. Income poverty rates by age in Iceland, the Netherlands, and OECD countries. Source: OECD (2021a).

Moreover, Iceland became one of Europe's lowest poverty levels for older retirees due to the increase in the primary pension benefits of social security in 2009. The influence of the more incredible minimum pension benefits proved significant in lowering pensioners' poverty, particularly among older women (Ólafsson 2017).

3.2.3. Pension Assets

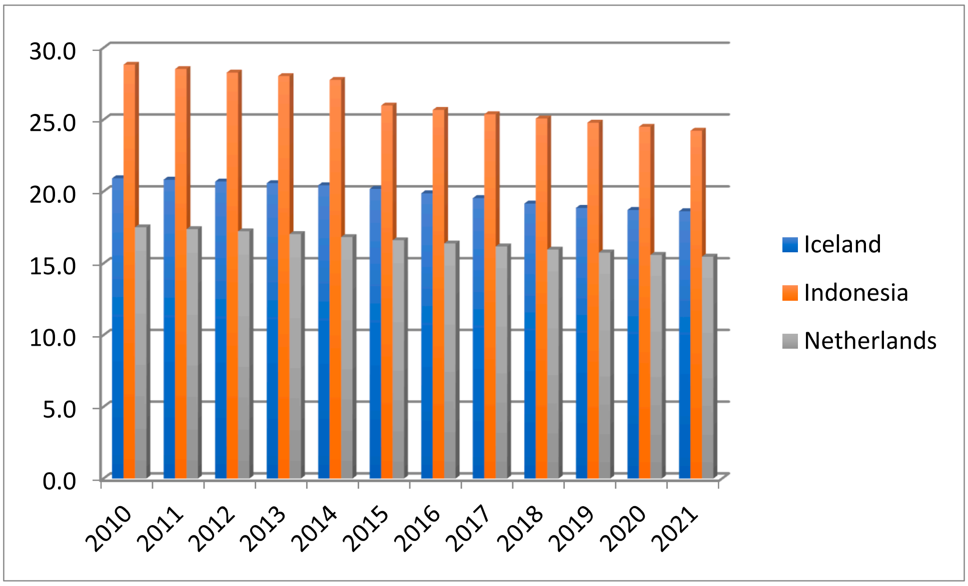
The Netherlands' pension assets had USD2.1 trillion, accounting for 3.9 percent of the OECD pension market in 2020. Pension assets in the Netherlands were 212.7 percent, pension assets in Iceland were 206.9 percent, surpassing their GDP doubly, and Indonesia's pension assets were 2% of GDP (OECD 2021a, 2021d).

3.2.4. Demography

According to OECD (2021a), one of the elements influencing pension spending as a proportion of GDP is the demographic structure. Over the next five decades, the acceleration of aging will heighten the pension system's adequacy and sustainability difficulty. Compared to the OECD countries, the Netherlands suffered the biggest aging challenges for more than 4% of its GDP (OECD 2021a). Meanwhile, the demographic structure in Iceland is young (European Commission 2021), and Indonesia has the youngest population compared to Iceland and the Netherlands. However, the young population in Iceland, the Netherlands, and Indonesia decreased yearly based on the OECD (2022), as described in Scheme 2 below.

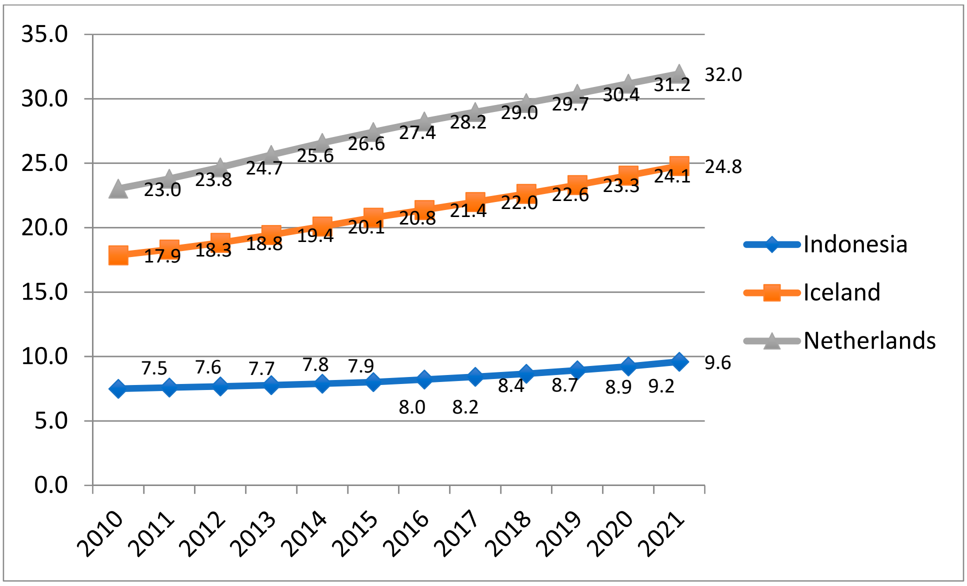
3.2.5. Old-Age Dependency Ratio

The old-age dependency ratio is the number of people aged 65 and upwards per 100 working-age people (ages 20 to 64 years). Mortality, fertility, and migration all influence the evolution of the old age-to-working-age ratio. Life expectancy in OECD nations has increased throughout time, and most estimates indicate that this trend will continue, suggesting an increase in the population of the old and, most likely, pensioners (OECD 2022).



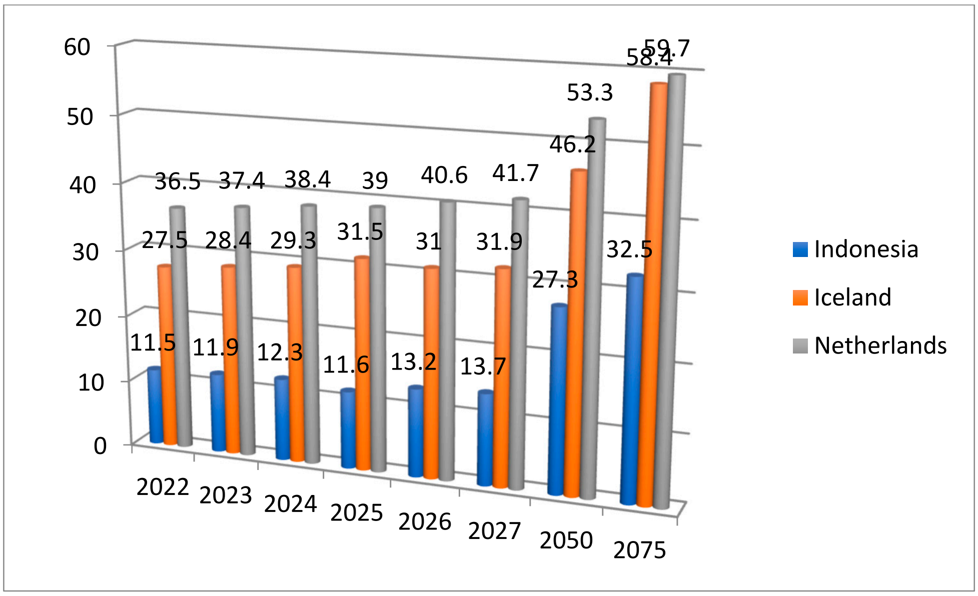
Scheme 2. Young population (people less than 15) in Iceland, the Netherlands, and Indonesia.

According to Scheme 3, the old-age dependency ratio in Iceland, the Netherlands, and Indonesia increases yearly. It increases by around 39 percent in Iceland and the Netherlands compared to 28 percent in Indonesia from 2010 to 2021. In addition, OECD predicts a significant increase in the old-age dependency ratio in these three countries in the future, as mentioned in Scheme 4.



Scheme 3. Old-age dependency ratio in Iceland, the Netherlands, and Indonesia. Source: The World Bank (2022).

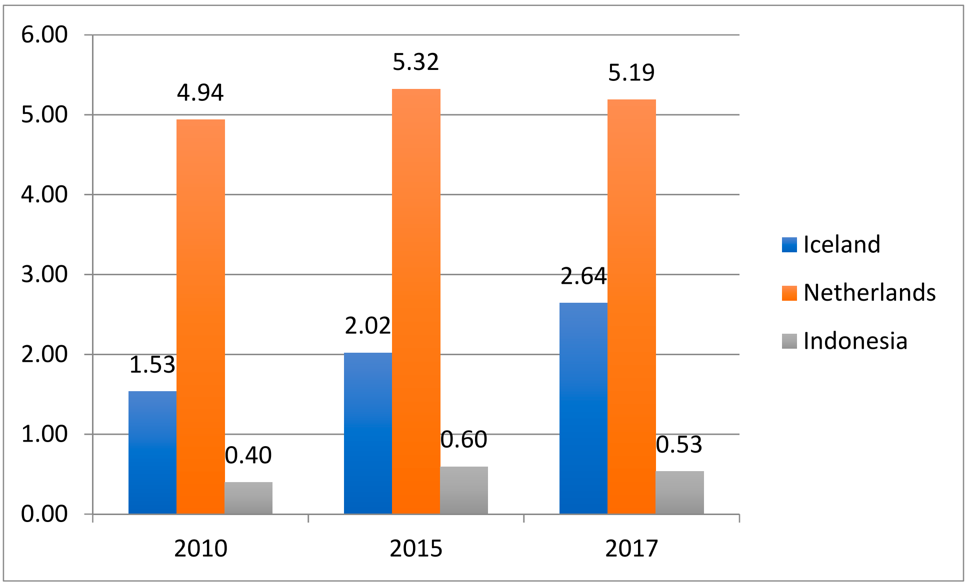
A higher old-age dependency ratio has various consequences. Because of the rising number of retirees, pension systems must extend further than in the past. As a result of escalating pension costs, governments are under pressure to raise the retirement age and generate additional funds through taxes. Employees will have to work longer hours since the mandatory pension age has been raised in Iceland and the Netherlands. They may face a higher tax burden to finance the government's pension spending in the future.



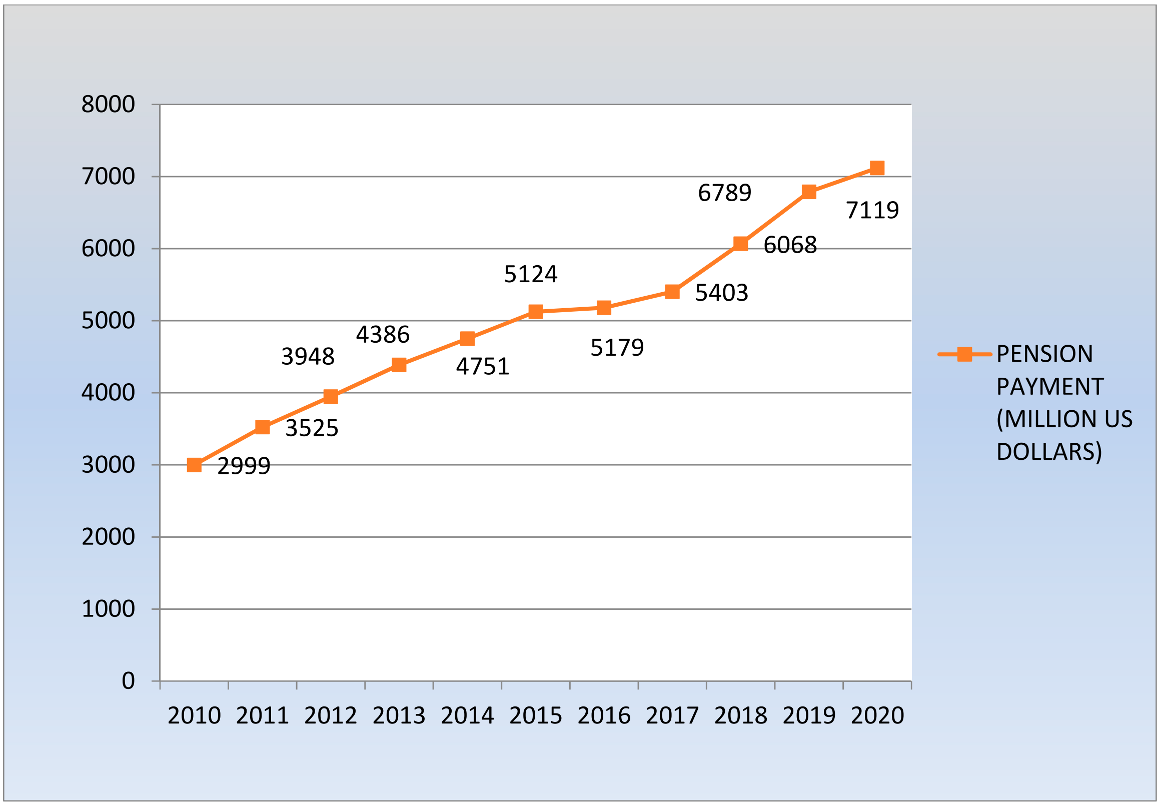
Scheme 4. The prediction of old-age dependency ratio in Iceland, the Netherlands, and Indonesia.

3.2.6. Public Pension Expenditure

Pension expenditures account for a sizable portion of government spending and have a significant role in the current and medium to long-term fiscal positions (European Commission 2017). Public pension costs in the EU are anticipated to raise approximately 11 percent of GDP by 2060 (European Commission 2017). On the other hand, public pension costs in Iceland and the Netherlands remained relatively steady as a proportion of GDP (OECD 2021a). In Iceland, public pension spending is constant since the mandated private pension system provides a large portion of pension benefits and the high statutory pension age of 67 (OECD 2021a). In Indonesia, civil service pension spending is small compared to Indonesia's GDP, according to Scheme 5. However, it rises and becomes a financial burden to Indonesia's national budget every year, as explained in Scheme 6. Therefore, reforming Indonesia's civil service pension system is necessary.



Scheme 5. Public pension expenditure compared to GDP in Iceland, the Netherlands, and Indonesia. Source: (OECD 2021a), (Indonesia National Budget, 2010–2017).



Scheme 6. Indonesia's civil service pension payment (2010–2020). Source: Indonesia National Budget (APBN), 2010–2020.

4. Future Challenge of Adequacy and Sustainability of Pension System in Iceland and The Netherlands

In summary, Iceland and the Netherlands' overall pension plans are favorable for establishing adequacy and sustainability of the pension system. The sustainability of public pensions in Iceland and the Netherlands has been significantly enhanced due to previous or proposed reforms. However, Iceland and the Netherlands may confront adequacy and sustainability challenges in the future.

Iceland now has a fairly good pension system for old-age retirees with lower incomes. The minimum guarantee of the social security system, as mentioned in Table 4, is relatively significant when contrasted to that of other European nations. It resulted from social security reform, which passed in 2016. The essential aspect of the reform was the rise and the simplicity of the pension benefits of the social security system for retirees (Ólafsson 2017).

However, the replacement rate of the mandatory private pension system in Iceland has provided 52 percent of lifetime income as a member entitlement (OECD 2021a). According to (Ólafsson 2017), participants of the mandatory private pension system will obtain good pension benefits in the 15 years afterward. Therefore, a massive proportion of the retired people until now demand to gain a considerable amount of social security benefits. Consequently, the supply of pension benefits from social security will continue.

In addition, due to overly stringent regulation of income testing, numerous pensioners fall into the so-called "temporary pensioners"—those currently retiring and those who will enter that status with less than full employment retirement (Ólafsson 2017). Therefore, the Iceland government should review the income testing rules in the next pension reform agenda. The ultimate straightforward strategy to enhance pension adequacy is to boost the public social security system's minimum pension and minimize the degree of income testing. It should be done for all primary forms of income, including salary, pension fund, and financial income. Decreasing the number of public pension deductions concerning these other sources of income can raise the adequacy of temporary pensioners (Ólafsson 2017).

Meanwhile, the social security pension benefits in the Netherlands are covered by more significant pension contribution rates. According to (OECD 2021a), more significant mandated contribution rates may harm the economy's competitiveness, reduce overall employment, and even increase informality. In addition, the Netherlands will also face an increase in older populations. To solve the maturing issues, pension changes are required that provide equity of contributions and benefits, minimize early pension, and increase the pension age (European Commission 2017). The Dutch government has realized this fact by constantly reforming its pension system. They tightened pension eligibility, introduced retirement age adjustment to life expectancy, and implemented an automatic balancing mechanism (ABM) for financed DB schemes to adapt pension systems to demographic or economic changes.

According to Fouejieu et al. (2021), tightening pension eligibility enhances sustainability by expanding contribution periods and decreasing benefit periods, and boosts potential output by raising labor force participation. Working longer to postpone retirement can considerably contribute to simultaneous increases in pension sustainability and adequacy (European Commission 2017). Indeed, tighter pension eligibility laws led to a decline in future retirees in the Netherlands (OECD 2021a). However, while rises in the required contribution to qualify for a full pension are in line with population aging, the governments should be aware of preventing the worsening of pensioners' poverty, since not all people can work longer (Fouejieu et al. 2021). Specific measures will be required to safeguard people who cannot satisfy the higher contribution requirements from poverty. Minimum pensions or other minimum income arrangements for the elderly are examples of such schemes (European Commission 2017). These included increasing basic or minimum pension allowances or offering benefits to retirees not covered by the pension system (Fouejieu et al. 2021).

Workers' health and professional skills must be maintained for extended working lifetimes. Even for senior employees, appropriate skills and mobility must be ensured. Workplace flexibility has been particularly beneficial in enabling and encouraging people to work longer. The ability to vary working hours, access to job rotation, and autonomy in work organizations are all critical variables in establishing a better work–life balance (European Commission 2017).

Furthermore, to improve financial sustainability, the Dutch government deployed an ABM. Nonetheless, the process reduced rights and benefits in numerous pension systems. The participants are dissatisfied due to the system's considerable and continual declines in indexation. As a result, the Dutch government, labor unions, and employers' groups decided to suspend the ABM for the time being and replace financed DB occupational pension systems with FDC pension programs. The government intends to pass the law by 2023, and the funds must be converted to CDC by 2027 (OECD 2021a).

Meanwhile, connecting statutory pension age to life expectancy is a practical approach to avoid the detrimental impact of rising life expectancy on the sustainability and adequacy of pension systems (OECD 2021a) (European Commission 2017). Living longer means working longer to fund the pension system and creates significant incentives to delay the pension age following advances in life expectancy (European Commission 2017). In the Netherlands, the connection is turned off when life expectancy declines. They have a system to ensure that the mandatory retirement age does not rise until life expectancy has returned to its pre-decline level (OECD 2021a).

Furthermore, state pensions in Iceland and the Netherlands still provide for most elderly's income. Public pension benefits have an essential role in shaping the living conditions of the elderly in members of both countries. Although both states have excellent adequacy and sustainability of pension systems, they still have the potential for more comprehensive reforms to support their pension systems. Reforms required to maintain sustainability must consider the adequacy of benefits and the incentive compatibility of the pension system. For example, when the Netherlands increased the pension age to one-to-one with life expectancy, the pension system's sustainability increased, but retirees' income (adequacy) decreased. Because of a labor organization's objection, the Dutch government changed the connection to two-thirds. Therefore, the Icelandic and the Dutch government should ensure that pension reform does not impact pensioners' income in the future. Adequacy and sustainability should be mutually reinforcing.

According to Fouejieu et al. (2021), the generosity of pension systems is negatively related to the probability of retirement poverty. Because previous reforms have concentrated on resolving pension sustainability problems, the predicted progressive lowering of replacement rates over the next decades is likely to impact adequacy in the future. It necessitates carefully balancing the pension system's efficiency and equitable goals (Fouejieu et al. 2021).

5. Future Direction of Indonesia Pension System (The Lesson Learned from Iceland and The Netherlands to Indonesia)

According to the pension reform experiences in Iceland and the Netherlands pension system, the Indonesian government should improve its pension policies to establish a fair and appropriate pension system. The researchers propose a possible recommendation to the government of Indonesia as follows.

5.1. The Mandatory Public Pension System

As explained above, Indonesia has not implemented mandatory public pension systems for Indonesian citizens, although the law exists. These public pension systems are commonly regarded as beneficial since, when adequately conceived and managed, they provide a mechanism for transferring income across groups and generations, serving as a social security system observed in Iceland and the Netherlands. Implementing these programs in Indonesia is very challenging, since Indonesia is still struggling with the fiscal deficit in its state budget. The Indonesian government is implementing a phased fiscal consolidation policy, with the budget deficit in the 2022 State Budget set to fall from the 2021 State Budget to 4.85 percent of GDP in 2022 and returning to a maximum of three percent of GDP in 2023 (The Draft State Budget of Indonesia for 2023, 2022).

In addition, Indonesia still has many low-income people; therefore, it will require a massive budget if Indonesia wants to enforce the programs. However, the Indonesian government should conduct a comprehensive examination to support the Indonesian people's welfare. Regardless of which political party governs this country, the future government should be prepared to implement the mandatory public pension system as soon as possible since it helps to reduce the poverty rate in the countries, as occurred in Iceland and the Netherlands.

5.2. The Civil Service Pension System

Indonesia's civil service pension system has severe problems due to unfunded liabilities. Scheme 6 shows that pension benefit payments have steadily increased over the last ten years (2010 to 2020), from 2999 million USD in 2010 to 7119 million USD in 2020, a 137.36 percent increase (Indonesia State Budget, 2010–2020). For the fiscal year 2023, the Indonesian government would set aside USD 9570 million for pension payments (The Draft State Budget of Indonesia for 2023, 2022). In addition, with the majority of civil servants between the ages of 40 and 60, the pension program will become a burden in the coming years, requiring appropriate policies.

As a consequence, the government of Indonesia must reform its civil service pension system. The pension reform will reduce the pension budget and increase pension earnings while maintaining fiscal sustainability. According to OECD (2007), due to the enormous budgetary demands of public pensions, many countries have initiated broad reforms that have transformed their pension systems or implemented minor reforms, which, when combined, often have a significant impact on future pension benefits. These are the civil service pension reform suggestions from the researchers to Indonesian policymakers.

5.2.1. Strengthening the Current PAYG and DB System

As mentioned earlier in this study, the Indonesian government plans to change the civil service pension scheme from a PAYG-DB to a DC scheme. Indonesia should consider many aspects carefully in choosing a pension scheme since it will affect the sustainability and adequacy of the pension system. Both DB and DC schemes acknowledge the various types of risk. If the Indonesian government wants to change the current system to a DC scheme, they have to consider the high cost of transition and the performance of the pension funds. The costs of altering the PAYG system, according to Barr (2000), are higher than the expenses of improving the present system to a sustainable plan. The solution to an unsustainable state system is to make it sustainable (Barr 2000). Thus, the Indonesian government should enhance the sustainability of the civil service pension system rather than transform it into the new scheme.

5.2.2. Increasing Pension Eligibility Age

Increasing the pension eligibility age may achieve decisive effects on the financial system in two ways: raising the contribution of active people to the system and decreasing the pension budgets. According to Karam et al. (2010), increasing the pension eligibility age will postpone the government's obligation to pay pension benefits immediately. Moreover, based on experiences in Iceland and the Netherlands, where increasing the minimum retirement age increased the sustainability of their pension system, Indonesia should raise the minimum pension age from fifty-eight years to sixty years or sixty-two years. This minimum pension age should be determined based on Indonesian people's current life expectancy. This option, however, depends on the elderly's ability to extend employment. Thus, regardless of how the pensionable age is determined, working more is not a preference for all employees, whether due to job pressure or declining health. Another factor to consider in future research is whether increasing the Indonesian government's pensionable age will positively impact government institutions' performance. They frequently need to learn new skills to improve their competence. Programs related to continuing education to upgrade skills will be critical to keeping older employees in the workplace.

5.2.3. Increasing Contribution Rates

Both employees and employers generally pay contributions to support the mandatory pension systems (Ádám and Simonovits 2019). Thus, the Indonesian government should contribute to the system regularly to secure the long-term viability of the civil servants' pension system. A rate equal to the civil servants' contribution, or around 10 percent of salary, should be carefully studied. The Indonesian government should fund the scheme as soon as possible to reduce the unfunded liabilities. On the civil servants' side, they should increase their contributions to the system. However, the Indonesian government must raise their salaries since it will reduce their take-home pay, and the salaries were last raised in 2019.

5.2.4. Implementing Cost of Living Adjustments

Pension systems should offer appropriate income for pensioners, notwithstanding adverse economic conditions. Increased volatility in inflation rates, rapid and unpredictable depreciation of the home currency, and volatile interest rates, among other significant macroeconomic variables, can threaten pension benefits (Ofori-Abebrese et al. 2017). The actual value of pension payments tends to diminish in the presence of inflation and interest rates in the absence of post-retirement adjustments. It has an impact on the long-term viability of pensioners' welfare. Therefore, the cost-of-living adjustment should be made regularly to safeguard pensioners' spending power. The adjustment should be based on a change in a specified pricing index rather than a pay index.

6. Conclusions

Iceland and the Netherlands have the world's best pension systems, since both nations' overall pension systems are favorable for establishing adequacy and sustainability of the pension system. The sustainability of public pensions in Iceland and the Netherlands has improved due to prior or proposed reforms. However, Iceland and the Netherlands may face adequacy and sustainability issues in the long run. Currently, in Iceland, many retired persons seek a substantial amount of social security payment, and many retirees are classified as "temporary pensioners" due to income testing requirements. Meanwhile, social security pension payouts in the Netherlands are funded by higher pension contribution rates, and the country's elderly population is expected to grow. Therefore, they should continue assessing their nations' present system, particularly demographics. Iceland has a more significant population of young people than the Netherlands; as a result, Iceland has been safer in recent years than the Netherlands.

Regarding the Indonesian pension system, policymakers should consider enforcing the social security system, since these systems have contributed to a low poverty rate in Iceland and the Netherlands. In addition, to improve the adequacy and sustainability of the civil service pension system, the Indonesian government should enhance the current PAYG and DB system, raise the minimum pension eligibility age to shift the government's burden of paying pension benefits to the future, contribute to the system regularly, and implement a cost of living adjustment. At the same time, civil servants should increase their contributions to secure the long-term viability of the civil servants' pension system. The Indonesian government should implement such reforms to strengthen the nation's economy in the long run.

Author Contributions: Conceptualization, A.H.; methodology, A.H. and E.B.; software, A.H.; validation, A.H.; formal analysis, A.H.; investigation, A.H.; resources, A.H.; data curation, A.H.; writing—original draft preparation, A.H.; writing—review and editing, A.H.; visualization, A.H.; supervision, E.B.; project administration, W.P.S.; funding acquisition, A.H. All authors have read and agreed to the published version of the manuscript.

Funding: This research received no external funding.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: Not applicable.

Conflicts of Interest: The authors declare no conflict of interest.

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