

Beyond the Uniform: Determinants of Income and Welfare Among Indonesian Navy Retirees

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ABSTRAK

Masa pensiun pada personel TNI Angkatan Laut sering menimbulkan penurunan pendapatan yang tajam sementara kebutuhan ekonomi tetap tinggi, sehingga penting untuk mengidentifikasi faktor-faktor penentu kesejahteraan pasca-dinas. Penelitian ini bertujuan menelaah pengaruh pendidikan, pelatihan, pekerjaan, usia, dan pangkat terhadap pendapatan serta kesejahteraan purnawirawan TNI AL. Dengan landasan teori modal manusia dan pemberdayaan, penelitian menggunakan desain kuantitatif eksplanatori melalui purposive sampling terhadap 202 responden di Jawa Timur. Data dikumpulkan dengan kuesioner terstruktur dan dianalisis menggunakan Partial Least Squares–SEM pada SmartPLS 4.1.0.0, dilengkapi analisis regresi berganda. Hasil menunjukkan pendidikan berpengaruh kuat terhadap kesejahteraan, pelatihan meningkatkan pendapatan, pangkat menentukan perbedaan penghasilan, dan pekerjaan pasca-dinas berkontribusi positif terhadap kesejahteraan. Namun, daya jelas model masih moderat, mengindikasikan adanya faktor struktural dan sosial lain. Temuan ini menekankan perlunya strategi pemberdayaan komprehensif yang menggabungkan penguatan kapasitas individu dengan dukungan kelembagaan.

ABSTRACT

Retirement among Indonesian Navy personnel often creates a sharp decline in income while financial needs persist, underscoring the urgency to identify determinants of post-service welfare. This study aims to examine how education, training, occupation, age, and rank shape income and welfare among Navy retirees. Drawing on human capital and empowerment theory, it employs a quantitative explanatory design with purposive sampling of 202 respondents in East Java. Data were collected using structured questionnaires and analyzed with Partial Least Squares–SEM via SmartPLS 4.1.0.0, complemented by multiple regression analysis. Results indicate that education has the strongest effect on welfare, training enhances income, and rank significantly predicts income disparities, while post-service occupation contributes positively to welfare. However, the model explains welfare and income only moderately, implying the role of other structural and social factors. These findings highlight the importance of comprehensive empowerment strategies that combine individual capacity building with institutional support.

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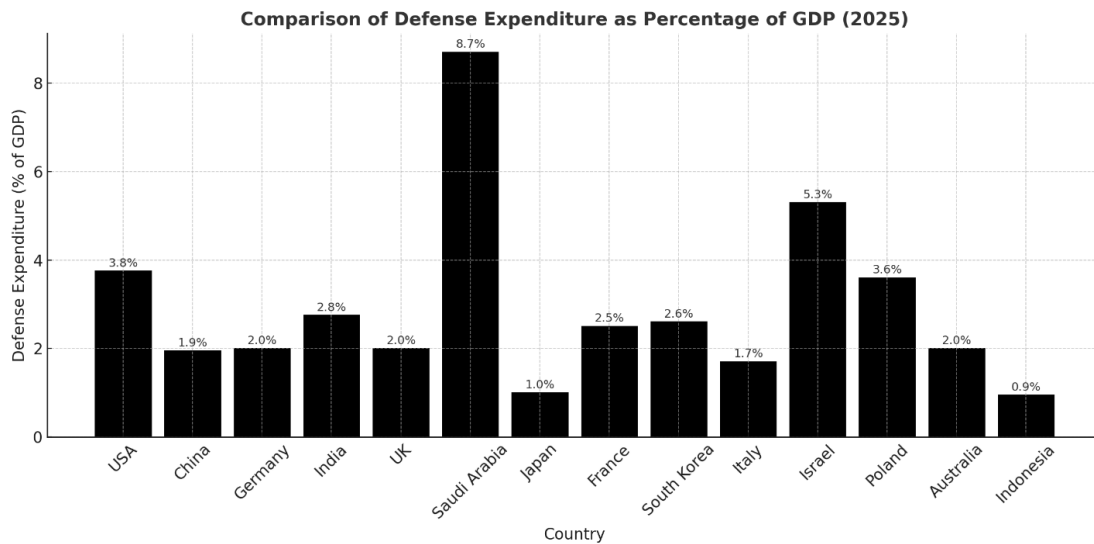
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INTRODUCTION

Retirement is often described as a pivotal stage in life, but it is one that rarely comes without economic strain. For many, income declines sharply at precisely the moment when household expenses remain steady or even climb (Tur-Sinai et al., 2022). This mismatch is particularly acute in developing countries, where pension systems are too weak to guarantee long-term security (Sudharsanan, 2018). Faced with such constraints, retirees frequently turn to supplemental work, commonly in informal or precarious sectors, simply to make ends meet (The World Bank, 2021). It is worth noting that a growing body of literature suggests education and training can ease these pressures by improving employability and opening new sources of income (Le Blanc et al., 2019). Yet the problem goes beyond individual households: financial insecurity in later life

may deepen social inequality and erode overall quality of life in society (Bloom et al., 2011).

Figure 1.
Comparison of Defense Expenditure as Percentage of GDP (2025)



Source: Processed by the author, 2025

Looking at the broader structural context, one finds striking disparities in defense spending that shape military welfare across nations. As illustrated in Figure 1, data from 2025 reveal, for example, that Saudi Arabia devotes close to 9% of its GDP to defense, far exceeding countries such as the United States (about 3.7%) and China (roughly 2%). By comparison, European states like Germany, the United Kingdom, and France hover around the NATO benchmark of 2%, while Israel and Poland have recently pushed spending beyond 3% in response to shifting security concerns. Indonesia, however, stands out at the opposite end of the spectrum: its defense spending remains below 1% of GDP. This figure is modest not only in relative terms but also in what it implies, namely, structural constraints that limit both military readiness and the capacity to safeguard the welfare of active personnel and retirees alike.

In Indonesia, these global and regional dynamics become more pronounced. Retirees from the Navy often experience a sudden and steep decline in income when allowances once a substantial portion of their pay are discontinued at retirement. At the same time, they remain responsible for heavy financial obligations, from tuition for children to health care and housing. Data from public sources indicate that pension benefits for lower-ranking personnel (Golongan II/Bintara) typically range between Rp1.64 million and Rp3.02 million per month (Databoks, 2024), while the national standard of decent living (BPS, 2024) stands at around Rp1.02 million per person per month. This suggests that households relying solely on military pensions face considerable economic pressure, especially when supporting multiple dependents. The condition underscores a tangible welfare gap between the cost of living and post-service income—one that carries implications for both family resilience and the sustainability of Indonesia's defense human capital.

At the policy level, the welfare of military retirees is regulated by the Law No. 34 of 2004 on the Indonesian National Armed Forces and Government Regulation No. 102 of 2015 on Military Social Insurance (ASABRI). While these frameworks establish a formal foundation for pension benefits and retraining programs, implementation challenges persist, particularly in ensuring equitable distribution and institutional coordination among the Ministry of Defense, PT ASABRI,

and local governments. Such gaps reveal the need for more integrated and adaptive policy mechanisms that align defense-sector welfare with broader national social protection goals.

From the perspective of public administration, these issues reflect the complexity of policy implementation and institutional governance within Indonesia's bureaucratic structure. The effectiveness of the military pension system depends not only on fiscal allocation but also on the bureaucratic capacity and inter-agency collaboration that underpin policy delivery (Ansell Alison, 2008; Kelman, 2018). This study thus situates the welfare of Indonesian Navy retirees within the broader discourse of public policy and management, examining how educational attainment, training, occupation, age, and rank interact with institutional and policy structures to shape post-retirement well-being.

Scholarly work on military retirees adds nuance to this picture. Human capital and demographic factors are repeatedly cited as central in shaping life after service. Higher education and specialized training, for instance, are often linked with better employment prospects (Asch et al., 2023). Even so, the adequacy of pensions remains a decisive factor, particularly in settings where defense budgets are chronically constrained (Reuters, 2025). It is also striking that age and gender routinely influence post-retirement earnings, underscoring that socioeconomic outcomes are far from uniform (Asch et al., 2023). International bodies have gone further, warning of the urgent need for reforms that take into account longer life spans and volatile labor markets (OECD, 2021). Without such changes, the risk of poverty and social exclusion for retirees remains uncomfortably high (International Labour Organization, 2021).

Policy initiatives designed to smooth military-to-civilian transitions have been launched in many contexts, yet their impact has been mixed. Programs in entrepreneurship and job placement are frequently well-intentioned but often deliver only partial or short-term improvements in welfare (Boldon et al., 2017). In Southeast Asia, ex-servicemen may end up in informal jobs with low wages and little protection, a clear sign of insufficient institutional backing (Sciortino, 2021). Lower-ranking personnel appear especially vulnerable, since many lack educational or vocational credentials that match civilian labour market demands (Blackburn et al., 2023). The implications are not confined to individuals: weak support structures may perpetuate poverty, widen inequality, and even limit educational opportunities for the next generation (International Labour Organization, 2021). Left unresolved, such weaknesses could erode morale among serving soldiers and make military careers less attractive to younger recruits (Asch et al., 2023).

In Indonesia, these global and regional dynamics become more pronounced. Retirees from the Navy often experience a sudden and steep decline in income when allowances-once a substantial portion of their pay-are discontinued at retirement. At the same time, they remain responsible for heavy financial obligations, from tuition for children to health care and housing. Although training schemes have been introduced to prepare personnel for civilian work, their long-term effectiveness remains uncertain. Age also works against many retirees, restricting their employability and closing doors to secure civilian positions. Taken together, these realities underscore the urgency of studying more closely the determinants of income and welfare among Indonesian Navy retirees, with the aim of both filling a gap in the literature and offering insight for policy that is responsive to their specific circumstances.

This study shares important similarities with earlier works in its emphasis on education, training, and demographic factors as central determinants of post-retirement outcomes. Like (Tinofirei et al., 2023) and (Asch et al., 2023), it treats education and training as key predictors of economic resilience. In line with (Zeka & Veri, 2022), it also recognizes structural limitations in pension adequacy as a fundamental challenge for retirees. However, despite this growing body of literature, few studies have systematically examined how structural policy factors such as

defense spending and institutional pension systems—interact with individual-level determinants in shaping post-retirement welfare, particularly within the Indonesian context. Existing research tends to isolate economic or social variables, offering only partial explanations of the multifaceted challenges faced by military retirees.

The contribution of this study lies in bridging this gap by integrating structural factors—such as defense spending and pension adequacy with micro-level determinants including education, training, and rank. Beyond enriching academic discourse, the study translates these findings into operational policy directions: a policy roadmap for welfare reform, an implementation matrix defining institutional roles, and a collaborative governance model linking defense, local government, and veteran organizations. These practical insights strengthen both the theoretical and applied dimensions of public administration, particularly in managing welfare policy for military retirees in Indonesia.

The urgency of this work is plain. The income gap between active-duty pay and pensions is widening, while living costs in Indonesia continue to climb. Without prompt action, many retirees face the prospect of deeper financial insecurity, with consequences that extend to their families and communities. Ensuring the sustainability of Indonesia's defense human capital also hinges on making military service attractive for new recruits—a goal undermined if post-retirement welfare is perceived as inadequate. This study therefore seeks to analyze the determinants of income and welfare among Indonesian Navy retirees, focusing on how education, training, occupation, age, and rank shape their post-service economic security and quality of life. In addition to identifying these micro-level determinants, the research also aims to situate its findings within the broader context of Indonesia's defense welfare policy. Specifically, the study examines how institutional arrangements. The results are expected to inform the design of more coherent and sustainable welfare policies, strengthening both the institutional capacity and inter-agency collaboration required for long-term defense human capital management.

Literature Review

Scholarly investigations into the welfare of military retirees have consistently highlighted the interplay between human capital, pension structures, and demographic variables. (Asch et al., 2023) demonstrate that specialized training and higher education are strongly associated with improved post-service employment outcomes, suggesting that investments in skill development can substantially bolster economic resilience. In a related vein, Zeka and Veri (2022) stress that the adequacy of pensions remains a fundamental challenge, particularly in settings where state budgets for defense and veterans' welfare are chronically constrained. More recently, (Tinofirei et al., 2023) found that demographic characteristics such as education and age further shape disparities in retirees' financial outcomes, underscoring the heterogeneous nature of post-retirement experiences. Complementing these perspectives, (Boldon et al., 2017) reveal that entrepreneurship training programs often fall short in providing long-term improvements in welfare, while (Sciortino, 2021) documents how Southeast Asian ex-servicemen are frequently pushed into informal, low-wage employment due to insufficient institutional support. Similarly, (Blackburn et al., 2023) argue that fragmented reintegration schemes exacerbate vulnerabilities, especially for lower-ranking personnel who lack transferable skills, thereby perpetuating risks of poverty and social exclusion.

Building on this body of research, the present study aligns with prior findings in recognizing the importance of education, training, and demographic factors as

determinants of welfare outcomes (Asch et al., 2023; Tinofirei et al., 2023; Zeka & Veri, 2022). However, it also advances the literature in two significant ways. First, unlike most studies that emphasize general pension adequacy or regional comparisons, this research focuses specifically on Indonesian Navy retirees, a group that has received little scholarly attention despite its unique challenges. Second, it incorporates the dimensions of military rank and post-service occupational pathways—variables largely overlooked in prior analyses of military retirement in Indonesia. By integrating both human capital and structural factors into a comprehensive framework, this study not only fills an empirical gap but also generates context-specific insights that are essential for designing effective policies to improve the welfare of TNI AL retirees. This study makes a significant contribution by connecting macro-level factors such as defense spending and pension adequacy with micro-level determinants including education, training, occupation, age, and rank. By focusing specifically on Indonesian Navy retirees, it addresses a gap overlooked in earlier scholarship and provides a more context-sensitive view of post-retirement welfare. The inclusion of rank structure and post-service occupational pathways, dimensions rarely examined in prior work, strengthens the originality of this research and offers practical insights for policy design in Indonesia.

Although previous research has offered valuable insights into the welfare of military retirees, much of the literature remains broad in scope or framed through cross-national comparisons. Existing investigations have typically emphasized pension adequacy, the importance of education and training, or demographic disparities such as age and age-related skills (Moeis, 2022; Organization for Economic Co-operation and Development (OECD), 2025; Tedyansyah et al., 2025). Regional studies in Asia and the Pacific, moreover, have drawn attention to persistent shortcomings in pension systems and institutional support (Chomik et al., 2024). Yet, these perspectives seldom capture the specific realities of Indonesian Navy retirees, who not only experience the structural limitations of constrained defense budgets but also face the steep income loss that accompanies retirement. This dual pressure of systemic and individual vulnerability has, to date, been insufficiently examined in the scholarly literature.

This study makes a significant contribution by connecting macro-level factors such as defense spending and pension adequacy with micro-level determinants including education, training, occupation, age, and rank. By focusing specifically on Indonesian Navy retirees, it addresses a gap overlooked in earlier scholarship and provides a more context-sensitive view of post-retirement welfare. The inclusion of rank structure and post-service occupational pathways, dimensions rarely examined in prior work, strengthens the originality of this research and offers practical insights for policy design in Indonesia.

RESEARCH METHODS

This study employs a quantitative explanatory research design aimed at testing causal relationships between independent variables (education, training, occupation, age, and rank) and dependent variables (income and welfare of Indonesian Navy retirees). A quantitative approach was chosen because it allows for objective empirical measurement of causal relationships among socio-economic variables within a public policy context, thereby generating evidence-based insights relevant for welfare governance reform (Creswell & Creswell, 2018). The explanatory design is particularly appropriate because it not only identifies correlations but also measures the magnitude and direction of influence between variables, consistent with the study's objective to determine the key factors shaping post-retirement welfare.

Data Collection and Instruments. Primary data were collected through structured questionnaires distributed to Indonesian Navy retirees who are members of Paguyuban Purnawirawan Angkatan Laut (PPAL) in East Java. The instrument comprised sections on educational background, participation in training programs, occupational pathways after retirement, age, rank, and income levels, as well as welfare indicators such as material assets, ability to meet daily needs, and health and sanitation conditions. Secondary data sources including official pension records and defense budget documents were employed to triangulate and validate the primary findings (Babbie, 2020).

Instrument Validity and Reliability. To ensure data quality, the questionnaire underwent a pilot test with 30 respondents sharing similar demographic characteristics to the main sample. The results demonstrated acceptable levels of internal consistency reliability, with Cronbach's Alpha values above 0.7 across all constructs. Convergent validity was confirmed through Average Variance Extracted (AVE) values exceeding 0.5, while Composite Reliability (CR) scores ranged between 0.8 and 0.9, meeting established thresholds for latent construct measurement (Hair et al., 2019). These tests indicate that the instrument reliably captures the intended theoretical constructs and ensures data validity for causal modeling.

Sampling Design. The study applied purposive sampling to ensure representation across rank categories (officers, non-commissioned officers, and enlisted personnel). This technique was chosen because it allows researchers to focus on participants with characteristics aligned with the research objectives (Etikan et al., 2016). The sampling frame was limited to retirees residing in East Java, a province with one of the highest concentrations of Navy personnel in Indonesia. In total, 202 valid responses were obtained, providing a sufficient sample size for Partial Least Squares–Structural Equation Modeling (PLS-SEM) and multiple regression analyses.

Data Analysis. The study utilized the PLS-SEM technique via SmartPLS version 4.1.0.0 (Hair et al., 2019). This approach was selected because it accommodates complex models with multiple predictors and latent variables, while maintaining robustness with relatively modest sample sizes. It allows simultaneous assessment of measurement models (validity and reliability) and structural models (causal relationships). In addition, multiple regression analysis was employed to complement the PLS results, providing a confirmatory check of the direct relationships among observed variables and ensuring analytical robustness. The combination of these techniques enables both latent-variable modeling and direct empirical verification, thus avoiding redundancy and enhancing result credibility.

Ethical Considerations. All respondents participated voluntarily and were informed of the research objectives, confidentiality procedures, and data protection measures in accordance with ethical standards for social research. No identifying personal data were collected, and all responses were anonymized. The study protocol received approval from the institutional ethics committee of the researcher's affiliated institution.

Methodological Relevance to Public Policy. The methodological choices in this study are directly aligned with its public policy orientation. Quantitative explanatory modeling enables the identification of measurable determinants that inform the formulation of more targeted welfare interventions for military retirees. By empirically testing the effects of education, training, and institutional factors, the research contributes to evidence-based policy design, supporting the improvement of institutional capacity and inter-agency collaboration in Indonesia's defense welfare system.

RESULTS AND DISCUSSIONS

Descriptive Analysis

The descriptive analysis in this study examines respondents' perceptions of four central variables: education and training, job satisfaction, income level, and welfare. Each of these indicators was measured quantitatively by assigning scores to responses that reflected the retirees' post-service experiences and socio-economic conditions. This descriptive stage is essential because it provides not only statistical variation across the sample but also insights into how Indonesian Navy retirees evaluate their own economic security and quality of life. By summarizing the most common responses, the analysis highlights general patterns among the 202 participants and establishes a solid basis for interpreting the subsequent structural model results. The following tables present the distribution of responses for each variable, offering context for the inferential analyses that follow.

Table 1.
Education and Training Indicators of Indonesian Navy Retirees

No.	Indicator	Average Total
1	Training Implementation (X6.1)	3.589
2	Curriculum (X6.2)	3.549
3	Teaching Method (X6.3)	3.609
4	Case Study Method (X6.4)	3.485
5	Discussion Method (X6.5)	3.509
6	Simulation Method (X6.6)	3.519
7	Subject Mastery by Instructor (X6.7)	3.539
8	Instructor Experience (X6.8)	3.450
9	Training Helps to Obtain Employment (X6.9)	3.525
10	Training Facilities and Infrastructure (X6.10)	3.307
11	Adequate Classroom Facilities and Teaching Aids (X6.11)	3.515

Source: Processed by the author, 2025

The descriptive analysis of education and training indicators in Table 1 reveals several important patterns. The highest-rated item is the Teaching Method (X6.3) with a mean score of 3.609, followed closely by Training Implementation (X6.1) at 3.589. These results suggest that respondents view the delivery and methodological approach of the training as effective and generally satisfactory. Similarly, the Curriculum (X6.2) and Subject Mastery by Instructor (X6.7) also achieved relatively high scores (3.549 and 3.539, respectively), indicating that the structure and instructional quality of the programs were perceived as solid. Interestingly, indicators such as Case Study Method (3.485), Discussion Method (3.509), and Simulation Method (3.519) scored slightly lower but still fell within the "high" classification, implying that interactive pedagogical components are valued but may require further refinement.

On the other hand, the lowest-rated indicator was Training Facilities and Infrastructure (X6.10) with a mean score of 3.307, placing it in the "moderate" category. This finding suggests that while instructional aspects of the training are generally effective, physical resources and facilities remain an area of concern. Likewise, Instructor Experience (X6.8) (3.450) and Training Helps to Obtain Employment (X6.9) (3.525) were rated moderately high, but these results imply that some participants may still question the practical utility of training for securing post-retirement employment. Overall, the average ratings across indicators point to a generally positive

evaluation of education and training programs, though with notable room for improvement in infrastructure and applied relevance.

Table 2.
Job Satisfaction Indicators of Indonesian Navy Retirees

No.	Indicator	Average Total
1	Occupation pursued due to military service (X7.1)	3.015
2	Occupation pursued through own initiative (X7.2)	3.441
3	Occupation pursued as a result of training (X7.3)	3.104
4	Occupation able to meet primary needs (X7.4)	3.376
5	Current occupation is fairly satisfying (X7.5)	3.391
6	Occupation requires seriousness (X7.6)	3.634
7	Occupation provides welfare (X7.7)	3.594
8	Occupation chosen due to prestige (X7.8)	2.386
9	Occupation provides income (X7.9)	3.703

Source: Processed by the author, 2025

The descriptive analysis of job satisfaction indicators among Indonesian Navy retirees, as presented in Table 2, highlights a number of important tendencies. The highest-rated item is Occupation provides income (X7.9) with a mean score of 3.703, suggesting that financial return is the strongest positive dimension of post-retirement employment. This is followed by Occupation requires seriousness (X7.6) (3.634) and Occupation provides welfare (X7.7) (3.594), both of which indicate that respondents generally perceive their work as meaningful and able to contribute to their overall well-being. Moderate scores were recorded for Occupation pursued through own initiative (X7.2) (3.441), Occupation able to meet primary needs (X7.4) (3.376), and Current occupation is fairly satisfying (X7.5) (3.391), showing that while many retirees are able to secure some stability through employment, satisfaction levels vary considerably.

Conversely, the lowest-rated indicator was Occupation chosen due to prestige (X7.8) with a mean of 2.386, placing it in the “low” category and reflecting that prestige or social status is not a dominant motivation in post-retirement work. Similarly, Occupation pursued due to military service (X7.1) (3.015) and Occupation pursued as a result of training (X7.3) (3.104) scored only in the “moderate” range, implying that neither prior service assignments nor training alone guarantee satisfactory employment outcomes after retirement. Taken together, these results suggest that income generation remains the most decisive factor shaping retirees’ job satisfaction, while structural supports such as training and the legacy of military service exert a weaker influence.

Table 3.
Income Indicators of Indonesian Navy Retirees

No.	Indicator	Average Total
1	Income sufficient to meet daily needs (X8.1)	3.386
2	Income sufficient to meet secondary needs/assets (X8.2)	3.154
3	Income sufficient for children’s education (X8.3)	3.327
4	Income sufficient to maintain environmental sanitation (X8.4)	3.431
5	Income sufficient to improve welfare (X8.5)	3.391
6	Income leads to happiness (X8.6)	3.555

No.	Indicator	Average Total
7	Income allows for saving (X8.7)	3.119
8	Income improves social status (X8.8)	3.520
9	Income sufficient to repair house (X8.9)	3.208
10	Current job provides the highest income (X8.10)	3.371

Source: Processed by the author, 2025

The descriptive findings on income indicators, as shown in Table 3, reveal that retirees rated Income leads to happiness (X8.6) as the highest (3.555), followed closely by Income improves social status (X8.8) (3.520) and Income sufficient to maintain environmental sanitation (X8.4) (3.431). These results indicate that income is most strongly associated with psychological well-being, social recognition, and the ability to sustain basic community standards. Indicators such as Income sufficient to improve welfare (3.391), Income sufficient to meet daily needs (3.386), and Current job provides the highest income (3.371) also fell within the “high” range, suggesting that while many retirees manage to achieve stability, their financial resources remain somewhat limited.

In contrast, the lowest ratings were observed for Income allows for saving (X8.7) (3.119), Income sufficient for secondary needs/assets (X8.2) (3.154), and Income sufficient to repair house (X8.9) (3.208), all of which fall into the “moderate” category. These results highlight retirees’ difficulties in accumulating wealth, making long-term investments, or improving living conditions through income alone. Overall, while income is perceived as adequate to sustain basic needs and provide intangible benefits like happiness and social recognition, it falls short in enabling retirees to achieve financial security and upward mobility.

Table 4.
Welfare Indicators of Indonesian Navy Retirees

No.	Indicator	Average Total
1	Welfare measured by ownership of assets (movable and immovable) (X9.1)	3.019
2	Welfare reflected in the ability to help others (X9.2)	3.475
3	Welfare measured by income (X9.3)	3.460
4	Welfare felt in everyday life (X9.4)	3.733
5	Welfare measured by material possessions (X9.5)	2.965
6	Possession of wealth does not necessarily ensure welfare (X9.6)	3.302
7	Ability to purchase household needs reflects welfare (X9.7)	3.376
8	Consumption determined by income level (X9.8)	3.637

Source: Processed by the author, 2025

The analysis of welfare indicators, as presented in Table 4, reveals a nuanced picture of retirees’ perceptions of their post-service well-being. The highest mean score was recorded for Welfare felt in everyday life (X9.4) at 3.733, followed by Consumption determined by income level (X9.8) (3.637) and Welfare reflected in the ability to help others (X9.2) (3.475). These results suggest that welfare is most strongly experienced in daily practices, through the ability to consume, and in the social dimension of supporting others. Similarly, Welfare measured by income (X9.3) (3.460) and Ability to purchase household needs (X9.7) (3.376) also received moderately high ratings, indicating that economic capacity remains central to retirees’ sense of welfare.

Conversely, the lowest mean was found for Welfare measured by material possessions (X9.5) at 2.965, which falls in the “moderate” category, highlighting that asset ownership is not perceived as the most decisive indicator of welfare. Likewise, Welfare measured by ownership of movable and immovable assets (X9.1) (3.019) and Possession of wealth does not necessarily ensure welfare (X9.6) (3.302) scored only moderately, reflecting a more complex and perhaps skeptical view of the role of material wealth in guaranteeing well-being. Taken together, the results underscore that Indonesian Navy retirees primarily associate welfare with practical, everyday economic security and social contribution, rather than with the accumulation of material assets.

The descriptive analyses across the four sets of indicators (education and training, job satisfaction, income, and welfare) highlight several consistent patterns that provide context for the structural model. Training-related indicators generally scored in the “high” category, with teaching methods and training implementation standing out, although facilities and infrastructure were rated only moderate. Job satisfaction results show that income generation is the strongest source of satisfaction, while prestige and training-related employment pathways exert weaker effects, suggesting that retirees are primarily motivated by economic necessity rather than symbolic factors.

Income indicators reveal a similar tendency: while income is associated with happiness, social status, and the ability to maintain daily living standards, it remains insufficient for long-term security such as saving, asset acquisition, or housing improvement. Welfare indicators further reinforce this perspective, showing that well-being is most strongly felt in everyday life and social contribution, rather than in material possessions. Taken together, these findings suggest that for Indonesian Navy retirees, welfare is less about asset accumulation and more about the stability of income flows, the fulfillment of daily needs, and the capacity to participate in social life. This descriptive evidence underscores the importance of examining the structural relationships between education, training, occupation, rank, and income as key determinants of welfare in the inner model analysis.

Measurement (Outer) Model

The evaluation of the measurement model was conducted to ensure the validity and reliability of the constructs before testing the structural relationships. Convergent validity was assessed through factor loadings and average variance extracted (AVE), with results indicating that all items met the recommended threshold of 0.50 (Hair et al., 2019). Discriminant validity was further confirmed using the Fornell-Larcker criterion and the Heterotrait-Monotrait (HTMT) ratio, demonstrating that each construct was empirically distinct from the others. Reliability was established through Cronbach’s Alpha and Composite Reliability, both exceeding the 0.70 benchmark, thereby confirming the internal consistency of the measurement instruments. Taken together, these results indicate that the measurement model is robust and suitable for further analysis of the structural model.

Table 5.
Convergent Validity Test Results

Construct	Indicator	Loading	T-Statistic	Status
Education (X1)	X1.1	0.296	2.833	Valid
	X1.2	0.457	6.101	Valid
	X1.3	0.541	6.959	Valid
Training (X2)	X2.1	0.381	4.526	Valid
	X2.3	0.429	5.140	Valid

Construct	Indicator	Loading	T-Statistic	Status
Occupation (X3)	X2.4	0.431	4.286	Valid
	X3	1.000	–	Valid
	X5	1.000	–	Valid
Income (Y1)	Y1.1	0.513	5.811	Valid
Welfare (Y2)	Y1.2	0.518	8.743	Valid
	Y1.3	0.301	3.565	Valid
	Y2.1	0.366	4.813	Valid
	Y2.2	0.559	7.855	Valid
	Y2.3	0.364	3.248	Valid

Source: Processed by the author, 2025

Based on the results of convergent validity testing, as displayed in Table 5, it can be observed that all indicators meet the minimum requirements. Indicators X1.1, X1.2, and X1.3 for the Education construct (X1) show loadings above 0.50 with T-statistics greater than 1.972, confirming their validity. Similarly, indicators X2.1, X2.3, and X2.4 for Training (X2) also exceed these thresholds, indicating that they reliably measure the construct. For Occupation (X3) and Rank (X5), the respective indicators recorded loadings of 1.000 and were thus retained as valid measures. Furthermore, the three indicators of Income (Y1.1, Y1.2, Y1.3) and the three indicators of Welfare (Y2.1, Y2.2, Y2.3) all demonstrated satisfactory loading and T-statistics values, ensuring their inclusion in the measurement model. Overall, these results confirm that all items are valid indicators of their respective constructs and can be retained for further analysis.

Table 6.
Discriminant Validity (Fornell–Larcker Criterion)

Construct	AVE	√AVE	Status
Welfare (Y2)	0.585	0.765	Valid
Occupation (X3)	1.000	1.000	Valid
Training (X2)	0.649	0.806	Valid
Income (Y1)	0.545	0.738	Valid
Education (X1)	0.567	0.753	Valid
Rank (X5)	1.000	1.000	Valid

Source: Processed by the author, 2025

The results of discriminant validity testing, as presented in Table 6, show that the square root of AVE for each construct is greater than its highest correlation with other constructs. For instance, Education (√AVE = 0.753), Training (√AVE = 0.806), and Welfare (√AVE = 0.765) all surpass the corresponding inter-construct correlations, demonstrating strong discriminant validity. This indicates that each latent construct is empirically distinct and captures a unique dimension of the model. Therefore, the constructs of Education (X1), Training (X2), Occupation (X3), Rank (X5), Income (Y1), and Welfare (Y2) can be considered sufficiently differentiated, supporting the robustness of the measurement model.

Table 7.
Composite Reliability Test Results

Construct	Composite Reliability	Status
Welfare (Y2)	0.805	Very High
Occupation (X3)	1.000	Very High

Construct	Composite Reliability	Status
Training (X2)	0.847	Very High
Income (Y1)	0.779	Very High
Education (X1)	0.789	Very High
Rank (X5)	1.000	Very High

Source: Processed by the author, 2025

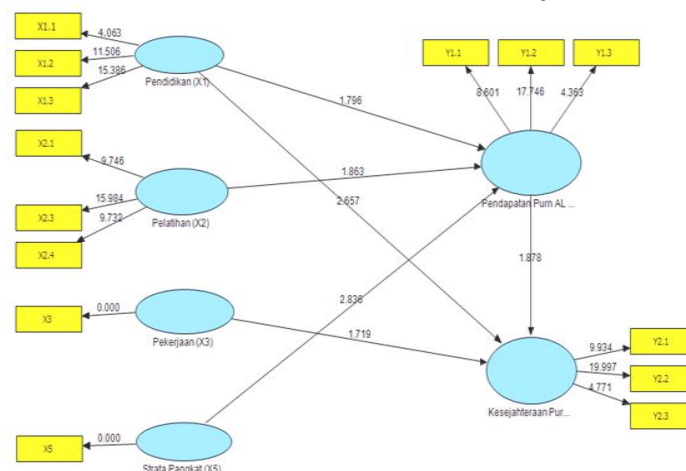
The results of the composite reliability test, as shown in Table 7, demonstrate that all constructs exceed the minimum threshold of 0.70, with values ranging from 0.779 (Income/Y1) to 1.000 (Occupation/X3 and Rank/X5). These results indicate that the measurement items for each construct are highly consistent in capturing the latent variables. In particular, constructs such as Training (0.847) and Welfare (0.805) exhibit strong reliability, while Education (0.789) and Income (0.779) also show satisfactory levels of internal consistency. Overall, the findings confirm that the indicators used in this study reliably measure their respective constructs, ensuring the robustness of the outer model.

The evaluation of the measurement model, conducted through convergent validity, discriminant validity, and composite reliability, confirms that all constructs in the study are both valid and reliable. The results of convergent validity (Table 5) demonstrate that all indicators have factor loadings greater than 0.30 with T-statistics exceeding 1.972, indicating their significance in measuring the respective constructs. Discriminant validity (Table 6) was established through the Fornell–Larcker criterion, as the square root of AVE for each construct was higher than its correlations with other constructs. This confirms that the constructs are empirically distinct and capture unique dimensions. Finally, composite reliability (Table 7) values for all constructs exceeded the recommended threshold of 0.70, ensuring high internal consistency.

Taken together, these results confirm that the outer model is robust and meets the criteria for validity and reliability. This provides a solid foundation for proceeding with the analysis of the inner (structural) model to test the hypothesized relationships among education, training, occupation, rank, income, and welfare of Indonesian Navy retirees.

Inner Model (Structural Model)

Figure 2.
Structural Model of the Relationship between Education, Training, Occupation, Rank, Income, and Welfare of Indonesian Navy Retirees



Source: Processed by the author, 2025

The structural model, as illustrated in Figure 2, depicts the hypothesized causal relationships among the latent variables examined in this study. Education (X1), Training (X2), Occupation (X3), and Rank (X5) are specified as exogenous constructs that directly influence Income (Y1) and Welfare (Y2). Furthermore, Income (Y1) is modeled as a mediating variable that transmits the effects of the exogenous constructs on Welfare (Y2). This model provides the analytical foundation for testing the research hypotheses through the assessment of R^2 , Q^2 , and path coefficients.

The goodness of fit of the structural model was evaluated using the coefficient of determination (R^2) for each endogenous latent variable and the Q^2 predictive relevance statistic. The R^2 value for Income (Y1) was 0.236, indicating that education, training, occupation, and rank collectively explain 23.6% of the variance in retirees' income. Meanwhile, the R^2 value for Welfare (Y2) was 0.228, suggesting that education, training, occupation, rank, and income account for 22.8% of the variance in welfare outcomes. The predictive relevance of the model was further confirmed by the Q^2 statistic, which yielded a value of 0.4099. Since this value is greater than zero, the model is considered to have predictive relevance, meaning that the observed data are well represented by the estimated parameters. The closer the Q^2 value is to 1, the stronger the predictive power of the model, and in this case the result supports the adequacy of the structural model for hypothesis testing.

R² Evaluation

Table 9.
R² Results of Endogenous Constructs

Variable	R ²	Interpretation
Income of Indonesian Navy Retirees (Y1)	0.236 (23.55%)	Moderate explanatory power
Welfare of Indonesian Navy Retirees (Y2)	0.228 (22.81%)	Moderate explanatory power

Source: SmartPLS Output (processed data), 2025

Evaluation of the model using the coefficient of determination (R^2), as presented in Table 9, provides an indication of the predictive strength of the structural model (Falk & Miller, 1992; Pirouz, 2006). The results show that the independent variables education (X1), training (X2), occupation (X3), age (X4), and rank (X5) explain 23.55% of the variance in income (Y1), while the remaining 76.45% is accounted for by factors not included in the model. Similarly, education, training, occupation, rank, and income together explain 22.81% of the variance in welfare (Y2), with 77.19% influenced by other factors beyond the scope of this study.

These results indicate that the model achieves acceptable predictive power, as the R^2 values exceed the minimum threshold of 0.10 recommended by Falk and Miller (1992). While the explanatory strength is moderate, the findings confirm that the selected exogenous variables, particularly income, contribute meaningfully to the welfare outcomes of Indonesian Navy retirees.

Predictive Relevance (Q²)

The predictive relevance of the structural model was assessed using the Stone–Geisser Q^2 test. Based on the R^2 values of the endogenous constructs, the Q^2 statistic was calculated as follows:

$$Q^2 = 1 - (1 - R^2Y1)(1 - R^2Y2)$$

$$Q^2 = 1 - (1 - 0.228124)(1 - 0.235516)$$

$$Q^2 = 0.40991$$

The obtained Q^2 value of 0.4099 is greater than zero, which indicates that the model has

predictive relevance (Ghozali, 2006). This result confirms that the exogenous variables (education, training, occupation, age, and rank) explain a significant portion of the variance in income (Y1) at 22.81 percent, and that income, together with the exogenous variables, explains welfare (Y2) at 23.55 percent. Since both values are above the zero threshold, the model demonstrates predictive capability for both constructs.

Overall, the Q^2 value of 0.4099 suggests that the structural model possesses moderate predictive relevance, meaning it is sufficiently robust to be used for predicting the determinants of income and welfare among Indonesian Navy retirees.

Path Coefficients

Table 10.
Path Coefficients (Mean, STDEV, T-Values)

Path	Original Sample (O)	Sample Mean (M)	STDEV	T-Statistic	Significance
Occupation (X3) → Welfare (Y2)	0.192	0.203	0.112	1.719	Significant (10%)
Training (X2) → Income (Y1)	0.198	0.199	0.106	1.863	Significant (10%)
Income (Y1) → Welfare (Y2)	0.135	0.148	0.072	1.878	Significant (10%)
Education (X1) → Welfare (Y2)	0.286	0.302	0.108	2.657	Significant (1%)
Education (X1) → Income (Y1)	0.201	0.211	0.112	1.796	Significant (10%)
Rank (X5) → Income (Y1)	0.281	0.293	0.099	2.836	Significant (1%)

Source: SmartPLS Output (processed data), 2025

The path analysis results, as presented in Table 10, reveal that all hypothesized relationships between education, training, occupation, rank, income, and welfare are statistically significant, though with varying magnitudes and levels of confidence. The findings highlight education and rank as the most influential predictors, exerting strong effects on both welfare and income, while occupation and training demonstrate more modest yet meaningful contributions. Income, in turn, functions as a mediating variable, reinforcing the link between the exogenous constructs and welfare. These results collectively suggest that the welfare of Indonesian Navy retirees is shaped by a combination of educational attainment, professional rank, post-retirement occupation, and access to relevant training, with income playing a pivotal intermediary role.

- **Occupation (X3) → Welfare (Y2):**

The path coefficient is 0.192 with a T-statistic of 1.719, which exceeds the critical value at $\alpha = 10\%$ (1.652). This indicates a statistically significant positive relationship at the 10% level. The result implies that greater satisfaction with post-retirement occupation is associated with improved welfare among Indonesian Navy retirees. However, the effect is relatively modest, suggesting that while employment contributes to welfare, other factors also play a substantial role.

- **Training (X2) → Income (Y1):**

The path coefficient of 0.198 with a T-statistic of 1.863 confirms significance at the 10% level. This finding demonstrates that participation in relevant training programs positively affects

retirees' income. It indicates that training equips retirees with skills that are transferrable to the civilian labor market, thus enhancing their earning capacity after leaving active service.

- **Income (Y1) → Welfare (Y2):**

The relationship is positive, with a path coefficient of 0.135 and a T-statistic of 1.878, which is significant at the 10% level. This suggests that higher levels of income translate into better welfare outcomes for retirees. The relatively low coefficient, however, shows that income, while important, is not the sole determinant of welfare, and non-financial dimensions such as social support and healthcare access may also be relevant.

- **Education (X1) → Welfare (Y2):**

The strongest effect in this model, with a path coefficient of 0.286 and a T-statistic of 2.657, significant at the 1% level. This indicates that education has a robust and highly significant positive impact on welfare. It suggests that better-educated retirees are more capable of adapting to civilian life, securing sustainable employment, and maintaining a higher standard of living, thereby enhancing their overall welfare.

- **Education (X1) → Income (Y1):**

With a path coefficient of 0.201 and a T-statistic of 1.796, the effect is significant at the 10% level. This confirms that higher education levels positively influence income, reflecting the advantage that education provides in terms of employability and access to better-paying opportunities.

- **Rank (X5) → Income (Y1):**

This relationship is both strong and highly significant, with a path coefficient of 0.281 and a T-statistic of 2.836, exceeding the threshold at the 1% level. The result highlights that higher military rank during active service is associated with significantly greater income in retirement. This can be explained by the fact that higher-ranking officers often receive more substantial pensions, allowances, and post-service opportunities.

DISCUSSIONS

1. Education

The descriptive analysis indicates that education was rated relatively high by respondents, with consistent perceptions regarding the importance of both formal education and additional skills. This aligns with the inner model results, which show that education has a significant effect on welfare ($\beta = 0.286$; $p < 0.01$) as well as on income ($\beta = 0.201$; $p < 0.10$). This relevance underscores that the higher the educational level of retirees, the greater their opportunities to obtain adequate income and achieve improved welfare. In other words, education is not merely an individual investment but a strategic instrument for enhancing post-service quality of life.

2. Training

Descriptive results highlight that training, particularly teaching methods and implementation, received positive assessments, although weaknesses remain in infrastructure and facilities. The inner model reinforces these findings, demonstrating a positive influence of training on income ($\beta = 0.198$; $p < 0.10$). This suggests that effective training functions as a bridge to enhance retirees' competitiveness in the civilian labor market, directly affecting their ability to secure additional sources of income.

3. Occupation

In terms of job satisfaction, the descriptive analysis reveals variation: respondents expressed satisfaction when their work met primary needs and provided income, whereas prestige factors were viewed as less important. The inner model confirms this pattern, with occupation exerting a positive effect on welfare ($\beta = 0.192$; $p < 0.10$). This indicates that post-service employment is valued not for symbolic status but for its role in providing economic stability and improving day-to-day living standards.

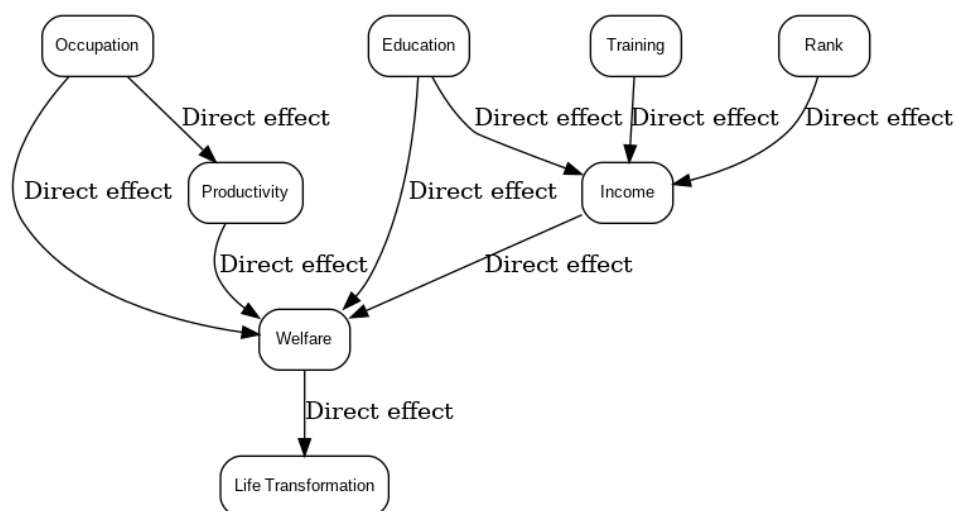
4. Rank

The descriptive findings show clear income disparities based on rank, with significant differences between officers and lower ranks. This is supported by the inner model, which reveals that rank has a positive effect on income ($\beta = 0.281$; $p < 0.01$). This suggests that hierarchical structures within the military continue to exert economic influence after retirement, with higher-ranking retirees enjoying stronger financial opportunities compared to their lower-ranking counterparts.

5. Income and Welfare

Descriptive results show that income is generally sufficient to cover daily needs but less adequate for long-term purposes such as savings, asset acquisition, or home renovation. Welfare, on the other hand, is most strongly experienced through daily life and social contributions rather than through material accumulation. These findings are consistent with the inner model, which confirms a positive relationship between income and welfare ($\beta = 0.135$; $p < 0.10$). This demonstrates that retirees' welfare is more closely associated with stable income flows and the capacity to meet basic needs than with the possession of assets alone.

Figure 3.
Empowerment Framework for Indonesian Navy Retirees



Source: Processed by the author based on research findings, 2025

The empowerment framework, as illustrated in Figure 3, synthesizes the descriptive and structural model analyses, indicating that education, training, occupation, and rank make a tangible contribution to the income and welfare of Indonesian Navy retirees. However, the explanatory power remains moderate, with determination coefficients of 23.6% for welfare and 22.8% for income. This finding aligns with previous studies emphasizing that education and training are important drivers of performance and productivity, yet they cannot fully explain welfare outcomes in isolation (Priatna, 2020; Rahmadani et al., 2025). Other dimensions beyond

the model, such as health, social support, community environment, and government policies, are also likely to exert a significant influence (Jurnalita et al., 2024).

These findings gain further relevance when situated within the broader concept of empowerment. Education and training are shown to exert significant effects, but they alone are not sufficient to substantially improve welfare. In line with the path analysis, education has the strongest effect on welfare, while training contributes positively to income. The relatively modest R^2 values reinforce the need for a more comprehensive empowerment approach, consistent with (Kartasmita, 1997) framework of enabling, empowering, and protecting. This resonates with evidence that structural and institutional interventions, such as empowerment programs and collaborative governance, are critical in complementing individual-level factors (Yakin et al., 2025).

Post-service occupation, for example, contributes positively to welfare, reflecting survey responses that retirees find work satisfying when it secures primary needs rather than prestige. This finding aligns with prior studies showing that vocational education and skill development must be linked with actual labor market opportunities to generate sustainable income (Ariansyah et al., 2024). Institutions such as Balurjaltim thus become critical facilitators and mediators in connecting individual capacities with civilian labor market opportunities.

Rank is also shown to significantly influence income, underscoring the enduring impact of military hierarchy on economic outcomes after retirement. While this highlights inequality, it also presents an opportunity, as higher-ranking retirees often carry social legitimacy that can be mobilized to strengthen solidarity within veteran organizations such as PPAL.

Finally, income is found to mediate the influence of other variables on welfare. Yet, since its contribution is limited, welfare cannot be measured solely in material terms. Discipline, esprit de corps, respect for hierarchy, and personal honor distinctive cultural traits of Indonesian Navy retirees should also be viewed as social assets that complement quantitative findings. Integrating these values into empowerment strategies can generate more effective and sustainable welfare outcomes.

Taken together, these findings suggest that improving the welfare of Indonesian Navy retirees cannot rely solely on education and training but must be combined with broader empowerment strategies that foster enabling environments, strengthen individual capacities, and protect vulnerable groups. The proposed framework therefore serves as a conceptual entry point for designing context-sensitive programs that enhance both individual and collective independence among retirees.

The results of the PLS-SEM analysis provide a robust empirical foundation for this framework. The significant pathways identified—education \rightarrow welfare ($\beta = 0.286$, $p < 0.01$), training \rightarrow income ($\beta = 0.198$, $p < 0.10$), occupation \rightarrow welfare ($\beta = 0.192$, $p < 0.10$), rank \rightarrow income ($\beta = 0.281$, $p < 0.01$), and income \rightarrow welfare ($\beta = 0.135$, $p < 0.10$)—illustrate that welfare outcomes are shaped by a combination of human capital and structural factors. These relationships directly inform the formulation of the three interrelated policy components described below, translating statistical evidence into operational mechanisms for defense welfare reform.

Policy Map

The policy map is grounded in the causal linkages found in the SEM model, particularly the strong effects of education and training on both income and welfare. It functions as a strategic blueprint aligning empowerment initiatives with the stages of the retiree transition process. The model's coefficients indicate that capacity development (β education–welfare = 0.286) has the

largest direct contribution, justifying its placement as the first policy domain. Consequently, three domains are prioritized: (a) capacity development through formal education, retraining, and certification programs; (b) economic reintegration through job facilitation and entrepreneurship support, reflecting the role of training in improving income; and (c) social protection through institutional welfare programs, aligned with the mediating effect of income on welfare. Each domain requires clear instruments, measurable outcomes, and vertical coordination across administrative levels. This policy map ensures that welfare enhancement is pursued systematically rather than through fragmented interventions.

Actor Matrix

The actor matrix reflects the distribution of institutional responsibilities inferred from the structural relationships identified in the SEM model. For instance, the significant effect of occupation on welfare ($\beta = 0.192$) and rank on income ($\beta = 0.281$) underscores the continued influence of hierarchical structures and employment opportunities, suggesting that multiple institutions must interact to balance these disparities. The Ministry of Defense acts as the policy formulator, designing and overseeing empowerment regulations and coordination mechanisms. PT ASABRI serves as the policy implementer, managing pension distribution, financial literacy programs, and retraining support linked to post-service income generation. Veteran organizations (e.g., PPAL, LVRI) operate as community-based intermediaries that translate policy into grassroots empowerment, mediating between formal institutions and retirees. Local governments function as coordinating entities, integrating veterans into regional employment and welfare schemes. This actor matrix mirrors the multi-path nature of the SEM model, translating causal interdependencies into functional institutional roles that reinforce accountability and synergy.

Collaborative Governance Model

The collaborative governance model operationalizes the multi-directional relationships identified in the SEM structure, where welfare emerges from interactions among education, training, occupation, and income. The modest determination coefficients (R^2 welfare = 0.236; R^2 income = 0.228) indicate that no single variable dominates, implying that cross-sector collaboration is essential. This model therefore establishes a shared decision-making platform involving the Ministry of Defense, PT ASABRI, veteran organizations, and local governments. It promotes periodic dialogue, joint program monitoring, and data integration to enhance transparency and policy coherence. The model embodies the principles of enabling, empowering, and protecting (Kartasmita, 1996) while also aligning with collaborative governance theory (Ansell Alison, 2008). In this context, welfare is not treated as a static policy output but as a dynamic process of institutional learning and adaptation supported by empirical evidence from the SEM model.

Collectively, these three components translate the empirical findings of this study into actionable policy instruments. The integration of education, training, and occupational empowerment within a structured institutional network ensures that the welfare of military retirees is addressed through evidence-based, participatory, and sustainable policy mechanisms. In doing so, the study bridges quantitative analysis with the operational realities of public administration, contributing to the formulation of coherent, collaborative, and contextually grounded welfare governance for Indonesia's defense sector.

CONCLUSIONS

This study reaffirms that the welfare of Indonesian Navy retirees cannot be understood solely through the lens of income adequacy, but as the result of an interaction between structural and individual factors. Quantitative findings show that education, training, occupation, and rank significantly influence income and welfare outcomes, confirming the role of human capital as a key determinant of post-service well-being. However, the moderate explanatory power of these variables (23.6% for welfare and 22.8% for income) indicates that material aspects alone are insufficient. Non-economic values rooted in the Navy's institutional culture such as discipline, esprit de corps, respect for hierarchy, and honor also shape the retirees' quality of life. These findings highlight the need for welfare policies that integrate both economic and sociocultural dimensions, aligning individual empowerment with systemic reform within Indonesia's defense ecosystem.

From a policy and institutional perspective, the study proposes the development of a comprehensive welfare framework supported by a clear policy roadmap, defined institutional roles among the Ministry of Defense, PT ASABRI, and veteran organizations, and a collaborative governance model that strengthens coordination between central and local institutions. Theoretically, this research extends human capital theory within the field of public administration by contextualizing it in military welfare policy, bridging micro-level socio-economic determinants with macro-level institutional design. Future research should incorporate non-economic aspects of welfare such as psychological resilience, social participation, and post-retirement identity adaptation through mixed-method approaches to capture a fuller picture of well-being. The overall implication emphasizes a paradigm shift in defense welfare policy toward a more holistic and dignified system that safeguards the welfare of those who have served while sustaining Indonesia's defense human capital for future generations.

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