KaryaRiset NUSANTARA
IJDE
Indonesian Journal of Development and Economics
https://journal.karyarisetnusantara.com
IJDE Internasional Journal of Development and Economics

Analysis of the Relationship between the Number of Work Accidents and Social Security Agency (BPJS) for Employment Membership in Indonesia in 2024

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Article Information

Keywords:
BPJS Employment, Work Accidents, Social Security, Linear Regression, Work Safety.

JEL Classification: H31, H32, H52, H55, I13, J81

DOI:

Article History
Received : June 2025
Accepted : December 2025
Published : January 2026

Abstract

This study aims to analyze the relationship between the number of This study aims to analyze the relationship between the number of workplace accidents and the level of membership in the Indonesian Social Security Agency for Employment (BPJS Ketenagakerjaan) in 2024. The background of this study is based on the phenomenon of an increase in the number of BPJS Ketenagakerjaan participants accompanied by an increase in the number of workplace accident reports. This condition raises critical questions about whether there is a quantitative relationship between the two variables. Using a quantitative approach and simple linear regression method, this study analyzes aggregate data per province obtained from BPJS Ketenagakerjaan and the Ministry of Manpower. The results of the analysis show a positive and significant relationship between BPJS Ketenagakerjaan membership rates and the number of recorded workplace accidents.

These findings show that as the number of workers participating in BPJS Ketenagakerjaan increases, the reporting of work accidents has also become more structured and well documented. In other words, the increase in the number of reported work accidents not only reflects an increase in incidents, but also reflects an increasingly effective reporting system. This shows that the existence and coverage of BPJS Ketenagakerjaan play an important role in supporting transparency, accountability, and the formation of a better work safety culture. This role also strengthens the social protection system for workers in Indonesia, while promoting collective awareness of the importance of a safe and healthy work environment.

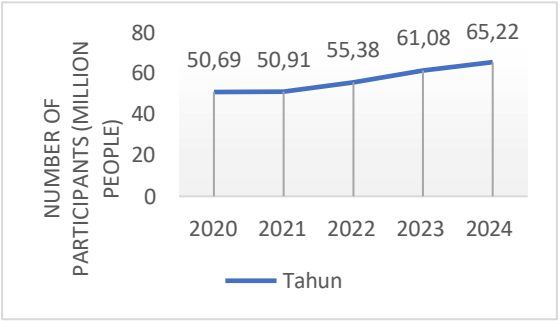
INTRODUCTION

Social insurance in general is a protection mechanism provided by the state or designated institutions to protect all or most of the community from various socio-economic risks, such as illness, old age, accidents, death, or loss of employment, which is funded by contributions from participants and/or employers, and sometimes state subsidies (Chetty, 2011) . In the context of employment, this social insurance is specifically designed to protect workers from risks arising from employment relationships or while doing work (Ghorpa *et al* ., 2023) . Social insurance for workers is a protection system designed to provide income security for workers who face the risk of losing income due to various conditions such as unemployment, work accidents, illness, disability, or retirement. This program is generally funded through mandatory contributions from workers and/or employers, and benefits are provided based on needs and contributions that have been paid (Torm, Oehme, 2024) .

Workplace accidents are a significant global issue, causing both human and economic losses (Tompa *et al* ., 2021) . According to the International Labor Organization (ILO), every year millions of workers experience work-related accidents that result in injuries, occupational diseases, and even death (International Labor Organization, 2022) . This phenomenon not only impacts individual workers and their families, but also on company productivity and the burden on a country's social security system (Leigh, 2011). . In developing countries like Indonesia, with a growing industrial sector, the risk of work accidents also tends to increase if not balanced with adequate prevention and protection efforts (Herqutanto *et al* ., 2021) .

The importance of social protection for workers is realized through various social security schemes (Behrendt et al., 2019) , one of which is work accident insurance. Social insurance, as stated by (Zhao, 2023) , functions as a financial safety net for workers who experience social risks, including work accidents. In Indonesia, this program is managed by the Social Security Administering Agency (BPJS) Employment, which aims to provide comprehensive protection for workers (Wibisana et al., 2024) . Research by Hsiao, (2013) shows that participation in the workforce social security program is correlated with increased awareness of occupational safety and health (K3) in the workplace. Furthermore, a study by (Qian, Wen, 2024) found that companies with high levels of social security participation tend to have lower incidences of work accidents, indicating the potential protective role of the program.

Employment insurance is an important instrument in the national social security system that aims to provide protection to workers from various socio-economic risks, such as work accidents, death, old age, and job loss (Solís, 2015) . In Indonesia, this program is managed by BPJS Ketenagakerjaan, which plays a crucial role in improving social welfare and national economic stability. BPJS Ketenagakerjaan has a very important role in improving the quality of life of workers and their families by providing protection guarantees (Kiranahayu, 2020) . In addition, this program also contributes to national economic stability because with this protection, workers can feel safer and more productive. This program is vital in maintaining social welfare, reducing economic uncertainty for workers, and ensuring that they can continue their lives without worrying about the various risks that can come at any time (Quinby *et al,* 2021) .



Source: Ministry of Manpower (processed), 2025

Figure 1
Number of BPJS Employment Members from 2020-2025

The increase in the number of BPJS Ketenagakerjaan participants is expected to be directly proportional to the increase in protection of workers' rights,

including in handling work accidents. The Work Accident Insurance (JKK) program is designed to provide comprehensive protection for workers who experience disasters or accidents at work, including medical costs and compensation (Budhiarto, 2019) . The graph of the Number of BPJS Ketenagakerjaan Workers in Indonesia (2020-2024) shows a significant increasing trend in the number of participants from 2020 to 2024. In 2020, the number of participants was recorded at 50.69 million people, then increased slightly to 50.91 million people in 2021. A more substantial increase was seen in 2022 with 55.39 million participants, followed by a sharp spike to 61.08 million people in 2023, and peaking at 65.22 million people in 2024. This increase in the number of participants indicates that more and more workers in Indonesia are protected by the employment social security program. This phenomenon is relevant to the purpose of the study on the relationship between the number of work accidents and BPJS Employment membership, because the wider the coverage of membership, it is hoped that more workers will receive protection guarantees when work accidents occur, in line with the function of BPJS Employment in providing protection and assistance to workers who experience work accidents (Siregar, 2023) . Data from BPJS Employment also shows that claims for Work Accident Insurance (JKK) continue to increase from year to year, with 360,635 cases in January-November 2023, reflecting the occurrence of work accidents that require treatment (BPJS Employment, 2024).

One of the main problems still faced in the implementation of the employment social security program in Indonesia is the low participation of the informal sector. Until now, despite the increase in membership, the majority of BPJS Ketenagakerjaan participants still come from the formal sector and construction services (Nurhalizah, 2024) . The informal sector, which includes freelancers, farmers, and MSMEs, still shows a low level of participation. Several factors contributing to the low participation of the informal sector include a lack of understanding of the benefits of the program, limited access to information, and the perception that contributions are an additional burden (Syarvina, 2022) . In addition, geographical and infrastructure barriers also make it difficult to reach workers in remote areas (Sumertajaya, 2023) .

Research on the relationship between participation in social security schemes and work accident rates has been widely conducted in various countries. For example, a study by Kwon, (2011) in South Korea showed a negative relationship between work accident insurance coverage and incident frequency in the manufacturing sector. Similarly, a study by Mendeloff, (2015) in Brazil indicated that workers registered in the formal social security system had a lower risk of work accidents than informal workers. Similar findings were also reported by Parsons, (2002) who analyzed data from several European countries, highlighting the important role of social security in improving overall work safety standards. The accessibility of work accident data and BPJS Ketenagakerjaan membership in Indonesia allows for similar analyses to be conducted for the local context (Kemnaker, 2023)

In Indonesia, several studies have also touched on aspects of BPJS Ketenagakerjaan and work accidents. For example, Yuardini's (2025) study highlighted the increase in work accident claims in 2020 and the role of BPJS Ketenagakerjaan in covering compensation. Then, Sianipar (2018) discussed the responsibility of BPJS Ketenagakerjaan in protecting workers who experience work accidents. These studies tend to focus on legal aspects, program implementation, or partial determinants of work accidents.

Previous studies tend to focus on legal aspects of protection, program implementation, or descriptive claims analysis. Although there are studies that discuss the determinants of work accidents, there are still few studies that specifically analyze the direct quantitative relationship between the increase in the number of BPJS Ketenagakerjaan participants and the

number of work accident cases in aggregate or per province in Indonesia, with a focus on the latest data in 2024. This study will fill this gap by looking at how the dynamics of the increase in BPJS Ketenagakerjaan participants correlate with the trend of reported work accident cases, so that it can provide a more comprehensive picture of the effectiveness of the program in the context of the latest data.

As a novelty contribution , this study examines regional differences in the number of work accidents and the level of BPJS Ketenagakerjaan participation with a quantitative approach based on regional aggregate data. This approach provides a more specific and contextual perspective on the characteristics of each region, so that the results can be used as a basis for designing employment social protection policies that are more targeted and responsive to local needs.

This study is very interesting because based on 2024 data, a very high number of work accidents were recorded in several provinces along with the increasing number of BPJS Ketenagakerjaan participants. For example, DKI Jakarta has 12,999,611 participants and recorded 416,101,559 cases of work accidents, while North Sumatra with 3,051,502 participants recorded 103,770,255 cases. This shows that the more workers who become BPJS participants, the more cases of work accidents are officially recorded. This means that participation in BPJS Ketenagakerjaan not only provides social protection, but also encourages a more orderly and transparent work accident reporting system. So, this study is important because it helps understand the role of BPJS Ketenagakerjaan in improving work safety awareness and the accuracy of work accident data in Indonesia.

Based on the background description, it can be seen that the number of BPJS Ketenagakerjaan participants in Indonesia has increased significantly from year to year, accompanied by an increase in the number of officially recorded work accident cases. Although this reflects an increasingly orderly reporting system and increased social protection for workers, it is still not known for certain what the quantitative relationship is between the increase in participation and the number of work accidents, especially in the context of the latest data in 2024. In addition, there is still minimal research that specifically examines the direct relationship between these two variables in aggregate per province in Indonesia. Based on this phenomenon, the formulation of the problem in this study is "What is the relationship between the number of BPJS Ketenagakerjaan participants and the number of work accidents in Indonesia in 2024?" This formulation is raised as a basis for identifying the extent to which the reach of the employment social security program contributes to the reporting and handling of work accidents.

LITERATURE REVIEW

Social Insurance Theory

Social insurance theory, as discussed in *Public Finance* by Rosen and Gayer, generally refers to government programs that provide protection to individuals against various economic risks, such as loss of income due to old age, disability, or unemployment. These programs are distinguished from private insurance in that they are often mandatory, are not necessarily based on purely actuarial principles, and may have redistributive objectives in addition to their risk-transfer function. Social insurance aims to address market failures that may occur in the provision of private insurance (e.g., problems of asymmetric information or adverse selection) and to achieve social goals such as reducing poverty and inequality (Rosen & Gayer, 2009).

Social insurance is an important element in the social protection network that aims to ensure the welfare of society as a whole. The state is responsible for managing this system, which is designed to provide protection against various risks in life, such as workplace injuries, illness, unemployment, disability, and retirement. Generally, social insurance is mandatory, and its funds are obtained

from contributions made by workers, employers, and support from the government. The function of social insurance is very important in reducing the possibility of prolonged poverty and increasing the financial resilience of families. In addition to economic benefits, the presence of this system also strengthens the sense of togetherness in society and creates justice in the distribution of benefits among citizens (O'Connell & Esping-Anderson, 1991) .

In the practice of Indonesian national life, service facilities and financial support for the fulfillment of public health guarantees are one of the state's responsibilities in realizing general welfare. As a supporting facility for fulfilling public health, the Government has formed the National Social Security System-Indonesian Healthy Card (SJSN-KIS) with the Social Security Administering Body (BPJS), as an institution that manages the implementation of health insurance and services for the community (Adiyanta, 2020) .

The Social Security Administering Agency explains that the Social Security Administering Agency (BPJS) is a legal entity formed to organize a social security program. In its implementation, the Social Security Administering Agency for Employment (BP Jamsostek) is responsible to the President of the Republic of Indonesia to organize a sustainable social security program for all workers in Indonesia, both domestically and abroad (Fahruddin et al., 2022) . The Indonesian government issued Law Number 24 of 2011 concerning the Social Security Administering Agency (BPJS), including BPJS Employment, to provide complete protection for workers (Prihananto, 2024) .

As a national social security agency that is a representative of the government, BPJS Ketenagakerjaan needs to be supported by laws and regulations under the Ministry of Manpower that regulate the role of the Government and BPJS Ketenagakerjaan to provide support for disabled workers and those who cannot be accepted by companies. This is to support law enforcement related to Article 153 paragraph (1) letter j of Law Number 13 of 2003 concerning Manpower (Kurnianto et al., 2023) .

Social insurance is implemented compulsorily as part of the state's responsibility to protect its people from unexpected social risks. Its management is under the supervision of government institutions or public organizations that are tasked with ensuring the distribution of benefits to all participants. Unlike commercial insurance which is voluntary, this system does not depend on individual choice to participate. Commercial insurance is generally profit-oriented, so it is often only accessible to segments of society with certain economic strengths. Therefore, social insurance plays an important role in ensuring justice and inclusion in social protection (Barr, 2008) .

In developing countries like Indonesia, one of the main challenges in implementing social insurance is the low participation of people from the informal sector. Workers in this sector are usually not officially registered and do not have consistent income, which makes their integration into the social security system difficult. Lack of information, inadequate socialization, and the view that insurance is not urgent also hinder their participation. In addition, the registration procedure which is considered complicated and unfriendly for informal workers further widens the gap between the program and the targets to be achieved. As a result, millions of workers remain trapped in vulnerable conditions without access to adequate social protection. (Xu, 2022) .

Several countries have used subsidies as a key policy to increase access to social insurance programs, especially for low-income groups (Flores-Contró et al., 2024) . By providing financial support, governments can remove cost barriers that have traditionally prevented the participation of the most vulnerable groups. This subsidy method has proven effective in increasing the number of participants and significantly expanding the scope of social protection (Cabezon, 2022) . This type of support ensures that the benefits of social insurance are enjoyed more evenly by different

segments of society. Therefore, the subsidy approach is considered a key step in creating an inclusive and sustainable social security system (Flores-Contró et al., 2024) (Cabezon, 2022) .

Various studies on the social security system show that strengthening institutional and financial elements is a crucial factor in ensuring the sustainability of the program. Strong institutions support more effective, transparent, and accountable management, thereby increasing public trust. Meanwhile, financial stability is an indispensable requirement to ensure that social security benefits can continue to be provided. Wise fund management and proper financial planning are essential in preparing for future demographic changes and economic situations. Therefore, strengthening these two aspects is the main basis for strengthening the social security system as a whole (Pokhrel, 2024) .

Several studies have shown that pension and social security programs play an important role in strengthening social resilience for the elderly. With consistent financial support, the elderly can meet their daily needs without having to rely entirely on others. This helps reduce poverty rates and protects them from the risk of social exclusion. In addition, this protection also contributes to improving the quality of life during retirement. Therefore, the existence of these programs is crucial to building a more just and inclusive society for all generations (Martínez et al., 2021) .

Workforce Welfare

Work is one of the main pillars in human life and society. For individuals, work is not only a source of income, but is also closely related to achieving life goals, forming identity, and self-esteem (Yuniarti et al., 2024) . Although workers make a significant contribution to poverty reduction, reducing unemployment rates, and increasing foreign exchange, they also face various challenges. One of the main challenges is the absence of a national employment policy that is in line with the standards set by the International Labor Organization (ILO) (Syed et al., 2024) . The ILO (International Labor Organization) defines, “welfare as a term understood to include the following: services and facilities that can be built in or around the company to carry out their work in a healthy manner, the conditions in which workers are employed. a high level of satisfaction among employees with medical facilities and safety equipment, while suggestions for a pleasant environment and providing facilities that support high health and morale” (William Carey, 2024) . There are several important principles of welfare, namely the principle of adequate wages, the principle of social responsibility, the principle of efficiency, the principle of re-personalization, the principle of total welfare, the principle of coordination, the principle of democratic values, the principle of responsibility, the principle of accountability, the principle of punctuality, and the principle of self-reliance (Vinita, 2022) . Given the importance of the role of workers for companies, the state, and society at large, it is crucial to provide them with proper legal protection. One form of such protection is the provision of a labor welfare program (Sidarta et al., 2023) .

Employee welfare is a form of comprehensive compensation, both material and non-material, provided by the company to employees based on certain policies. The development of industrialization, mechanization, and digitalization has also driven the need to improve employee welfare policies (Jyoti, 2024) . This welfare covers a wide area of corporate social responsibility such as employee welfare, happiness, and overall satisfaction among workers. It has also been observed that employee welfare stems from the broader concept of social welfare, which deals with the welfare and happiness of human resources in a company (Syed et al., 2024) . This concept of welfare is flexible and has slightly different interpretations from one country to another, according to different social customs, levels of industrialization, and levels of education

of workers (Jadhav & Mugadur, 2023) . However, in general, employee welfare must meet the necessary requirements of the workforce. Employee welfare measures enable workers to lead richer and more fulfilling lives and contribute to employee productivity and company efficiency (Bhavani et al., 2014) . Providing welfare is also a form of company commitment to employees, especially considering the high work risks faced. By providing fair compensation and creating a supportive work environment, the company hopes to increase the enthusiasm and work motivation of its employees (Alidha et al., 2024) . This helps smooth the implementation of work to achieve company goals (Sarman & Kartika, 2023) .

Historically, successful welfare projects emerged through the leading role played by organized labor and the establishment of national institutions that responded to and incorporated the interests of workers bound to social citizenship (Plomien & Schwartz, 2024) . The basic philosophy of worker welfare programs is based on the assumption that the success of industrial development is greatly influenced by harmonious working relations between workers and management. Workers are seen as having important knowledge and skills that are assets in production activities (Bhattacharjee, 2015) . Therefore, providing welfare to workers not only increases work comfort, but also has an impact on increasing discipline, loyalty, and reducing the rate of labor turnover (Pradana et al., 2022) is: "Provision of welfare will create calm, work enthusiasm, dedication, discipline and a loyal attitude towards the company so that labor turnover is relatively low." With sufficient welfare, they will be calmer in carrying out their duties. With this calm, it is hoped that employees will be more disciplined.

In addition to creating a harmonious working atmosphere, another objective of the employee welfare program is to increase work efficiency. This efficiency not only contributes to increased production output but also enables workers to earn higher incomes as a result of increased productivity (Kumuthavalli & Anbazhagan, 2022) Employee welfare plays a strategic role in strengthening the competitiveness of companies and increasing business profits. Welfare increases efficiency and efficiency in turn helps workers to earn higher wages (Jayanthi & Shree, 2024) . In general, a well-structured welfare policy can create healthy industrial relations practices and support mutually beneficial work engagement (Ajuoga et al., 2024) .

Well-being measures may not directly increase productivity, but they can increase feelings of overall satisfaction with the company, reduce absenteeism, and reduce employee turnover (Randhawa & Gupta, 2022) . Companies that consistently invest in employee well-being tend to enjoy more stable organizational performance and higher levels of employee engagement. The positive relationship between employee well-being and productivity has been empirically proven, especially in sectors that rely heavily on human labor. Workers who feel valued and cared for show improved focus, attendance, and work output (Hariri et al., 2024) .

The level of welfare occurs at the “upper and lower limits”, and the actual level between the two limits is determined by the level of importance of the employer's obligation to workers and the interests of workers to accept work (Sulaiman, 2020) . Workforce welfare is said to be achieved if the basic needs of workers ranging from physiological needs, security, social needs, self-esteem, to self-actualization can be met (Nikmah Dalimunthe et al., 2023) . This is in line with the opinion of (Rajapakshe, 2021) who emphasizes the importance of fulfilling these aspects in creating happiness and security for workers. Facilities such as decent housing, paid holidays, sick leave, social insurance schemes, pension funds, severance pay, to legal and financial consulting services are believed to be able to foster a sense of belonging to the organization (Kumuthavalli & Anbazhagan, 2022) . Therefore, investing in workforce welfare

programs is not just a moral obligation, but also a wise and long-term business strategy.

BPJS Employment

BPJS Ketenagakerjaan is a very important institution in the Indonesian social security system, with the aim of providing protection for workers against social and economic risks they face during their employment. This program acts as an effective public policy intervention in reducing their vulnerability to various unexpected risks (YU & LI, 2021) . Along with the increasing globalization and digitalization, the role of BPJS Ketenagakerjaan is becoming increasingly crucial in maintaining the social and economic stability of workers amidst changes in the dynamics of the global labor market (Yokobori et al., 2023) .

However, a significant challenge faced is the high number of work accidents, which have a negative impact on workers' welfare and the national economy. (Lari, 2024) emphasized that work accidents are a serious issue that requires cross-country attention. In Indonesia, BPJS Ketenagakerjaan plays an important role in reducing the social and economic risks caused by work accidents, by providing financial protection to workers who experience work-related injuries or illnesses (Kim, 2007) . In addition, (Wati et al., 2024) showed that BPJS Ketenagakerjaan also encourages companies to improve work safety standards, which creates a safer and more productive work environment.

Social security coverage is an important indicator of the effectiveness of labor protection programs. (YU & LI, 2021) and (Kim, 2007) found that countries with broader social insurance coverage tend to experience a significant decrease in work accident rates. This proves that social security not only increases awareness of work safety but also strengthens the accountability of companies to their workers. (YU & LI, 2021) support this finding with data from Germany, where broad social security coverage has been shown to be positively associated with a decrease in work accident rates.

A study in Brazil by (dos Santos Júnior et al., 2025) confirmed that company compliance with social security policies contributes significantly to reducing work accident rates and increasing productivity. Similar findings were also obtained in Europe, where (Fedotenkov & Gupta, 2021) stated that workers protected by social security can recover faster from injury or illness and return to work with better productivity.

However, there are still major challenges related to the involvement of informal workers in social security programs. (Javed & Mumtaz, 2024) emphasize that informal workers often face various administrative and structural obstacles that hinder their access to social protection. (Andjar, 2023) also shows that the participation of informal workers in the BPJS Ketenagakerjaan program is still relatively low, even though they are a group that is very vulnerable to social and economic risks. (Banerjee et al., 2024) highlight the challenges in designing social protection programs in developing countries, especially related to the informal sector. They also discuss the importance of proper program design to increase the effectiveness of social interventions. These findings are relevant for BPJS Ketenagakerjaan in designing an inclusive program for informal workers in Indonesia.

Social Risk and Productivity

Social risk is the possibility of threats and uncertainties arising as a result of the modernization of society, which means irreversible damage to all forms of life (Lupu, 2019) . Social risk factors are associated with adverse health outcomes, but their total impact on long-term quality of life remains unclear. We hypothesize that a higher burden of social risk factors is associated with a greater decline in quality of life over 10 years (Reid et al., 2025) . (Schweizer et al., 2022) explain that risks in modern society are no longer only related to natural disasters, but also to the social impacts of technological transformation and globalization that bring new, unavoidable risks. Consequently, these social risks require more attention because they can affect individual well-being and overall social stability.

According to (Kaur & Randhawa, 2021) , in the realm of work, social risks are often related to stress that arises in the workplace and inequality that impacts

social well-being and individual productivity. Workers who do not get enough social support from superiors or coworkers tend to feel isolated and experience greater psychological stress. (Tecco et al., 2023) also emphasize that major changes in the way of working, such as the increase in remote work models, can trigger higher psychosocial risks for workers, especially related to technological stress and insecurity in the work environment. This phenomenon reflects how modern work dynamics contribute to complex social risks, which if left unaddressed, can impact workers' mental health and life balance.

According to (Cutter et al., 2003) , social vulnerability is an important part of social risk, where groups of people who have limited access to resources or who are in a weak economic position tend to be more vulnerable to various negative impacts of social change or disasters. This can be seen in the inequality that occurs in access to education, health services, and decent work opportunities, which ultimately worsens the consequences of the social risks they face. (Lupu, 2019) also shows the importance of the geographical dimension in assessing social risk, because areas that are prone to natural disasters or are in a disadvantaged economic condition will be more easily exposed and experience greater social losses. These factors are interrelated and amplify the impact of social risks, which if not anticipated properly, can widen existing inequalities in society.

In addition, in the study (Glass & Leon, 2006) , it was found that social productivity, such as volunteer work or caring for sick family members, has a positive effect on individual well-being, but only if there is a balance in social exchange, namely if the rewards received are commensurate with the effort given. This imbalance can cause social tension and risk reducing the quality of life of individuals involved in these social activities.

The social exchange theory proposed by (Siegrist, 2005) emphasizes that an imbalance between the effort expended and the rewards received can trigger stress and have a negative impact on mental health. When individuals continue to exert effort without receiving recognition or rewards, this can damage their psychosocial condition and make them more vulnerable to negative social risks. This imbalance in social exchange causes feelings of being unappreciated and can worsen the impact of stress, which ultimately affects their emotional and social well-being.

Slovic & Peters, (2006) put forward the concept of social amplification of risk, which states that perceptions of social risk can be magnified or minimized by various social, cultural, and media factors. This shows that the way information about risk is disseminated to the public has a major influence on how the public understands social threats or disasters. This process, through media and social interaction, can worsen or reduce the perceived impact of the social risk, depending on how the information is presented and received by the public.

Kasperson et al., (1988) also emphasized that in the current context of globalization, social risks are increasingly transnational. For example, the impacts of climate change, economic instability, and international policies can transcend national borders, exacerbating social inequalities, and creating risks that are not limited to one country or region, but can affect many countries around the world. These social risks are becoming more complex and require more attention in risk management, because of their widespread and unpredictable impacts, which have the potential to affect the welfare of society globally.

In this context, social risk management (SRM) is essential, as it encompasses a series of steps to identify, evaluate and mitigate social risks at both the organizational and societal levels. (Kasperson et al., 1988) suggest that for SRM to be effective, the approach used must involve active participation and inclusivity, with the aim of addressing social inequalities and mitigating the psychosocial impacts that arise from rapid social change. This approach ensures that the solutions implemented are able to cover all levels of society and respond to existing social dynamics.

According to (Schaufeli & Rhenen, 2008) continuous work stress without sufficient social support can trigger burnout, which in turn risks disrupting the performance

and mental health of workers. This condition shows that stress that is not handled properly, especially in an environment that does not support social welfare, can affect productivity and job satisfaction. Therefore, it is important to create a work environment that not only focuses on productivity, but also on the emotional and social well-being of workers. Managing social risks in the workplace by increasing social support, creating space for positive social interactions, and paying attention to workers' mental health is a very important step to prevent the negative impacts of stress and burnout, while improving overall well-being.

Productivity is the relationship between the output of goods and services and the input of human, non-human resources used in the production process, the relationship is usually expressed as a ratio (Chandulal, 2021) . Labor productivity is a key concept for understanding how modern economies use resources and is particularly prominent in ecological economics. Labor productivity plays a key role in understanding and driving the way in which our economies use and distribute resources (Isham et al., 2021) .

Poor HR management can lead to high employee turnover, low morale, and lack of motivation, which can negatively impact a company's workforce productivity. On the other hand, effective HR management can result in a motivated and engaged workforce, which can increase productivity and contribute to the long term (Damnjanovic et al., 2023) . Naoum (2016) in the journal (Singh et al., 2022) explains that the factors that influence employee productivity are management and organizational factors. Designing a workplace that supports good health can only be done by more productive workers, and encouraging an environment that allows for good posture, reduced tension, reduced movement, and better height and reach will help create a much more productive staff, however, as humans, we all have a need to feel comfortable, wherever we are (Journal et al., 2017) .

Productivity is important to improve employee performance, which contributes to organizational success. This study examines how the work environment, workload, and supervisor support affect workforce productivity (Malicay & Gano-an, nd) . Obeidat et al. (2023) in the journal (Fitri, 2023) explains that by paying attention to employee health and safety, the company has implemented a good human resource management function, so that employees will be motivated to remain productive in working and achieve company goals.

METHODOLOGY

The research method used is a quantitative approach with simple linear regression analysis. This study aims to see the relationship between the independent variable (X), namely the number of BPJS Ketenagakerjaan participants with the dependent variable (Y), namely the number of work accidents in workers in Indonesia in 2024, based on numerical data and statistical tests. By applying the classical assumption test, this study ensures that the regression model used is valid and reliable in drawing conclusions about the relationship between variables. The data source for this study comes from the official report of BPJS Ketenagakerjaan and the Ministry of Manpower of the Republic of Indonesia in 2024. The data used is aggregate data per province in Indonesia.

The population in this study is all provinces in Indonesia that have complete data on the number of work accidents and the number of BPJS Ketenagakerjaan participants in 2024. This study uses a census approach, where all elements in the population are used as research samples. In other words, the sample used is aggregate data from 38 provinces in Indonesia. This approach was chosen because data from all provinces is available and allows for aggregate analysis to see the pattern of relationships between the variables studied nationally.

The research variables used in this study consist of:

a. Dependent Variable (Y): Number of Work Accidents

b. Independent Variable (X): Number of BPJS Employment Members in 2024

In this study, the analysis technique used is simple linear regression, which aims to determine the influence of the independent variable (X) on the dependent variable (Y).

Simple Linear Regression Model

Simple linear regression is used to determine whether there is an influence between one independent variable and the dependent variable. The model used can be written as follows:

$$ln(JKB_t) = \alpha + \beta_1 \, ln(JKK_t) + \varepsilon_t$$

Information :

- $ln(JKB_t)$ = natural log of the number of BPJS Employment participants
- $ln(JKK_t)$ = natural log of the number of work accidents
- α= constant
- β_1 = regression coefficient of independent variable
- ε_t = error term

RESULT AND DISCUSSION

Results

1. Linear Regression Test

Table 1. Simple Linear Regression Test

Number of Obs	34
F (1.32)	124.41
Prob > F	0.0000
R-squared	0.7954
Adj R-squared	0.7890
Root MSE	0.50625

y	Coefficient	Std. err.	t	P>t
x	0.6693039	0.0600068	11.15	0.000
_cons	-2.269645	1.444235	-1.57	0.126

Source: Stata 16 Processing Results

The results of the regression study confirmed that there was a positive and significant relationship between the level of BPJS Ketenagakerjaan membership and the number of work accidents that occurred in Indonesia in 2024. The regression model used had an R-squared value of 0.7954, which means that around 79.54% of the variation in work accidents was successfully explained by the BPJS Ketenagakerjaan membership variable. The regression coefficient for this variable was recorded at 0.6690 with a p-value of 0.000, indicating that every increase in BPJS Ketenagakerjaan membership was followed by an increase in the number of work accidents. However, the intercept (_cons value) in the model was not significant, indicating that if there was no BPJS Ketenagakerjaan membership (zero), this model was unable to accurately predict the number of work accidents. Overall, these results indicate that BPJS Ketenagakerjaan membership has a significant influence on the number of work accidents, although further studies are needed to identify other factors that may also contribute to the increased risk of work accidents.

2. Normality Test (Shapiro-Wilk)

Table 2. Normality Test

Variables	Obs.	W	V	z	Prob>z
resid	34	0.97092	1,023	0.046	0.48147

Source: Stata 16 Processing Results

The results of the normality test using the Shapiro-Wilk test on the residual data ("resid") showed a W value of 0.97072 with a p-value of 0.48147. Because the p-value is greater than the generally accepted significance limit (0.05), the null hypothesis stating that the residual data follows a normal distribution cannot be rejected. Thus, it can be concluded that the residual data in this study is normally distributed, which supports the validity of the model used, especially in terms of fulfilling the assumption of residual normality for regression analysis.

3. Multicollinearity Test (VIF)

Table 3. Multicollinearity Test

Variables		
x	1.00	1,000,000
Mean VIF	1.00	

Source: Stata 16 Processing Results

The results of the Variance Inflation Factor (VIF) analysis in the figure show that the VIF value for variable "x" is 1.00. This value indicates that there is no significant multicollinearity between variable "x" and other variables in the model. Usually, if the VIF value is greater than 10, this indicates high multicollinearity. However, in this case, with a VIF value of 1.00, it can be concluded that there is no multicollinearity problem in this model. The average VIF value is also 1.00, which further supports that multicollinearity between variables in this model does not occur, and this model can be considered stable in terms of the relationship between its independent variables.

4. Heteroscedasticity Test (Breusch-Pagan/Cook-Weisberg)

Table 4. Heteroscedasticity Test

Chi2(10)	1.50
Prob < chi2	0.0224

Source: Stata 16 Processing Results

The results of the Breusch-Pagan/Cook-Weisberg test for heteroscedasticity in this figure show a chi-squared (chi^2) test statistic of 1.50 with a p-value of 0.2204. The null hypothesis (H_0) in this test is that the residual variance is constant, meaning there is no heteroscedasticity in the model. Since the p-value (0.2204) is greater than the commonly used significance level (e.g., 0.05), we cannot reject the null hypothesis. This indicates that there is insufficient evidence to state the presence of heteroscedasticity in the data, or in other words, the residual variance is considered constant.

5. Omitted Variables Test (Ramsey RESET Test)

Table 5. Linearity Test

F(3.29)	2.58
Prob\ > F	0.0724

Source: Stata 16 Processing Results

The Ramsey RESET test results for the omitted variables show an F value of 2.58 with a p-value of 0.0724. This test is conducted to test whether the regression model used contains omitted variables that can affect the analysis results. The null hypothesis (H_o) in this test is that the model does not have omitted variables. Based on the test results, a p-value greater than 0.05 (i.e. 0.0724) indicates that there is insufficient evidence to reject the null hypothesis. In other words, there is no indication that the regression model used ignores important variables, which means that this model does not experience omitted variable problems. removed.

Discussions

The results of this study indicate a positive relationship between the level of BPJS Ketenagakerjaan membership and the number of recorded work accident reports. Although at first glance this can be interpreted as an increase in the number of work accidents, this phenomenon actually reflects improvements in the accident reporting system which was previously less than optimal. This finding is in line with previous studies which confirm that the presence of a social security system, such as BPJS Ketenagakerjaan, contributes significantly to increasing transparency and accuracy of accident reporting in the workplace in Indonesia. International studies also support this finding. For example, *Noble et al* ., (2008) in the International Journal of Nonprofit and Voluntary Sector Marketing stated that the

implementation of a structured social approach in safety reporting can increase worker participation and company compliance in maintaining work safety standards. This also encourages improvements in documentation and recording of incidents in the workplace. A safety promotion strategy based on a social approach, such as that adopted by BPJS Ketenagakerjaan, has proven effective in fostering a more active and participatory accident reporting culture. Furthermore, findings from Cooper (2019) in Safety Science also support this result by confirming that the presence of social protection programs such as BPJS encourages companies to be more compliant with safety standards by improving the quality of reporting. This improved reporting system produces more comprehensive and useful work accident data for the evaluation process and risk mitigation in the work environment. From a social and economic perspective, Bocean & Vărzaru,
(2024) in the Journal of Public Health Policy emphasized that a social protection system such as BPJS Ketenagakerjaan not only improves the mechanism for reporting work accidents, but also strengthens social protection for workers. This has an impact on the formation of a better reporting culture, which can ultimately improve the quality of information and work safety governance in the company. Overall, although this study did not find evidence that increasing BPJS Ketenagakerjaan membership directly caused an increase in work accident incidents, these findings clarify the strategic role of the program in improving the incident reporting system and raising collective awareness of the importance of work safety. Thus, BPJS Ketenagakerjaan makes a real contribution to strengthening the work safety culture in the industrial environment and improving risk management in the national employment sector.

CONCLUSION

Based on the results of the study, it can be concluded that there is a relationship between BPJS Ketenagakerjaan membership and the number of recorded work accidents. Increasing membership does not directly cause an increase in accidents, but rather encourages a better and more accurate reporting system. BPJS Ketenagakerjaan plays an important role in strengthening awareness of work safety and improving the quality of accident reporting, although challenges still exist, especially in reaching the informal sector where participation is still low. The limitations of this study lie in the variables used, so further studies with a wider range of variables are needed to provide a more comprehensive understanding.

SUGGESTION

1. Increasing Informal Sector Worker Participation: The government and BPJS Ketenagakerjaan need to increase socialization and education efforts regarding the importance of employment social security, especially for informal sector workers who still have low participation rates. Outreach strategies and contribution subsidies can be inclusive solutions.
2. Improving the Accident Reporting System: BPJS Ketenagakerjaan together with companies need to continue to strengthen the work accident reporting system so that the available data is more accurate and can be used as a basis for making more effective work safety policies.
3. Increasing Occupational Safety and Health (OHS) Awareness in the Workplace: Companies are advised to strengthen the Occupational Safety and Health (OHS) culture as part of their social and operational responsibilities. This can reduce the incidence of work accidents even though the number of participants increases.
4. Further Study Development: Further research is expected to develop broader variables such as worker education level, industry type, and company compliance level with K3 regulations, in order to obtain a more comprehensive picture of the factors causing work accidents.
5. Cross-Sector Data Integration: Data integration is needed between BPJS Ketenagakerjaan, the Ministry of Manpower, and other related agencies to support integrated and efficient planning and evaluation of employment policies.

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