

Occupational Safety and Health Regulatory Compliance Costs: A Structured Literature Review with Insights from Malaysia

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Abstract: *Malaysia's Occupational Safety and Health Act (OSHA) 1994 and its 2022 Amendment (Act A1648) have introduced stricter compliance requirements that carry significant economic implications for industry. While improved safety outcomes are anticipated, the financial burden of compliance, particularly for small and medium-sized enterprises (SMEs) and high-risk sectors, remains underexplored. This paper presents a structured literature review synthesising evidence from international databases, Malaysian regulatory documents, and industry reports to identify key components of occupational safety and health (OSH) compliance costs. The review categorises these costs into direct (e.g., training, personal protective equipment, OSH personnel, machinery certification) and indirect (e.g., administrative burdens, productivity losses, litigation risks) expenditures. Findings show that larger firms benefit from economies of scale, whereas SMEs face disproportionate financial strain, which may hinder competitiveness and long-term sustainability. Despite high initial outlays, compliance yields long-term benefits, including fewer workplace accidents, reduced insurance premiums, improved workforce stability, and enhanced corporate reputation. This study highlights the need for targeted policy support and financial mechanisms to enable SMEs to comply effectively while maintaining operational efficiency. By mapping cost structures and their economic impacts, this review provides critical insights for regulators, industry stakeholders, and scholars concerned with the balance between workplace safety and economic performance in Malaysia.*

Keywords: Occupational Safety and Health (OSH), Regulatory Compliance, the OSHA 1994 (Act 514) and its 2022 Amendment (Act A1648), Economic Impact, Compliance Costs, Malaysia's Industrial Sector.

1. Introduction

Malaysia's Occupational Safety and Health (Amendment) Act 2022 [Act A1648], which came into force on 1st June 2024, substantially revises the Occupational Safety and Health Act 1994 [Act 514]. This act emphasizes the economic performance implications of complying with OSH legislation. Some individual amendments include minimum penalties for OSH breaches and the commitment to spending money on safety measures internally, which could lead to higher total compliance costs. The economic implications of complying with OSH legislation have now become a critical discussion item for scholars and regulators across many industries.

Subsequently, recent changes to regulatory frameworks like OSHA 1994 and its 2022 amendment have given due consideration to organisations' direct and indirect compliance costs. These compliance costs are relevant to employee safety while interrupting the organisation's operations, with the International Labour Organization (ILO) estimating that injury and illness at work are responsible for approximately 3.9% of Gross Domestic Product (GDP) to all economic losses economically (Afework et al., 2024). This estimated loss from workplace injuries is considerably more significant in high-hazard work sectors that have higher risks of work-related fatalities and injuries, such as construction, manufacturing, and agriculture (Afatsawu & Kheni, 2022).

Other costs associated with noncompliance with OSH regulations and legislation include rising insurance costs and the associated factors of possible fines and legal costs (Esterhuyzen, 2022). There are indirect costs where productivity is affected due to workers' absences due to work injuries, recall, and retraining (Quaigrain et al., 2024). Having identified costs incurred as associated with OSH regulations and legislation in various work sectors including construction, manufacturing and services, a positive conclusion can be reached as compliance with OSH regulations has positive effects on safety outcomes and labour practices that ultimately might shift the economic burden from the organisations (Ajmal et al., 2022). This can be viewed somewhat positively, as while compliance costs can be significant, associated gains for operations and finances might exceed upfront compliance costs over time, as a problem exists purely due to accessibility to prospective reference/ benchmark costs for newly implemented safety regulations.

This issue presents real concerns for organisations regarding how and what decisions must be made and allocating minimal resources. This presents the context in an industry like palm oil, where SMEs often do not have the right financial frameworks to assess overall compliance costs correctly. Without robust/known cost benchmarks, it becomes hard for organisations, which may mean less needed investment in core safety elements and increase the risk of workplace accidents (Esterhuyzen & Louw, 2019). This is not only an issue for Malaysia as many developing economies are also experiencing similar challenges adapting to safety regulations newly implemented (Laird et al., 2011).

Generally, the economic impact of OSH compliance depends on factors associated with the size of the business operation. Larger organisations bring economies of scale as they can spread compliance costs more evenly across their business unit. Meanwhile, SMEs could incur substantially more costs, which could damage their ability to compete in a regulated environment (Mu et al., 2022). Any job that is considered will incur costs for smaller businesses, either leading them into short financial trouble or, worse still, to manage these compliance costs, leading to the business reducing any safety assurance in the operation (Kotnik et al., 2020). This situation exposes the extensive consideration for regulatory-focused support with regulated financial assistance arrangements that support smaller operators in higher-risk environments like the production of palm oil.

The data gathered on the costs of OSH compliance before and after implementation arguably provides helpful information regarding the return on investment (ROI) associated with compliance. Studies show that the costs of implementing compliance with OSH can be high. While this incurs a downward pressure on profits, it can provide much cheaper premiums in the long run (lower insurance costs), allow for even more competitive advantages on pricing (less workplace hazard accidents), etc. (Shahida Shahimi et al., 2018). Generally, complying with OSH regulations can increase market competitiveness, with safety standards increasingly

recognised as an important prerequisite for market access and brand reputation when competing in international markets (Othman et al., 2022).

In conclusion, the longer-term benefits of complying with OSH regulations, such as improved workplace safety, reduced disruptions of operations and lower levels of management on compliance issues, and increased competitiveness in the market, can produce a good return on investment (ROI) on compliance, despite the higher costs of compliance and redesigns that comply with OSH regulations, especially for SMEs. While it is vital for organisations, especially in Malaysia's industry, to identify these cost components to manage their regulatory obligations and societal profit expectations, it is equally important for scholars and practitioners to identify appropriate price points for OSH implementation. Thus, this structured review can fill in the gaps by identifying the key cost components of OSHA 1994 and its 2022 amendment and the impact on operational costs across the different scales of industry in Malaysia. This helps develop valuable insights for both regulatory organisations, and industry partners to contribute to continuing compliance with minimal competition distortions impacting economic and societal profit in the sector.

2. Materials and Methods

2.1 Study Design

This research employed a systematic review methodology to examine the costs associated with OSH regulatory compliance and its financial impact on Malaysia's industrial sector. This approach was selected to ensure that all relevant literature was comprehensively identified and evaluated. The review process was structured according to the established methodology outlined (Zhou et al., 2015), which ensured rigour and consistency throughout the study. The steps in the review process are outlined in a detailed framework in Figure 1, which ensures that the search strategy, data collection, and analysis phases are documented and reproducible.

2.2 Search Strategy

The search for relevant literature was conducted from 1990 to 2024 to capture recent trends and advancements in OSH regulation compliance. The search was restricted to publications available in English and Malay, sourced from four primary international bibliographic databases: Scopus, Web of Science, Science Direct, and Google Scholar. These databases were selected due to their extensive coverage of scientific and industry-specific journals. Advanced search techniques were employed using predefined keywords and phrases tailored to each database to improve search accuracy. The keywords included "OSH Regulatory Compliance", "OSHA 1994" "OSH Amendment Act 2022", Economic "Impact" "OSH Compliance Costs", "OSH expenses", "Costs of safety regulations", "legal compliance", and "regulatory burden," allowing for the identification of the most pertinent studies.

2.3 Inclusion Criteria

To examine the cost components of OSH legislation and its financial implications towards the industry, this research focused on peer-reviewed articles, conference papers, and official reports. A comprehensive identification of potential sources was done by extensively searching titles, abstracts, and keywords. Duplicate entries from the database were identified and removed to streamline the selection process. Additionally, studies exclude papers that did not include empirical data or specific information on the costs of compliance and its impacts.

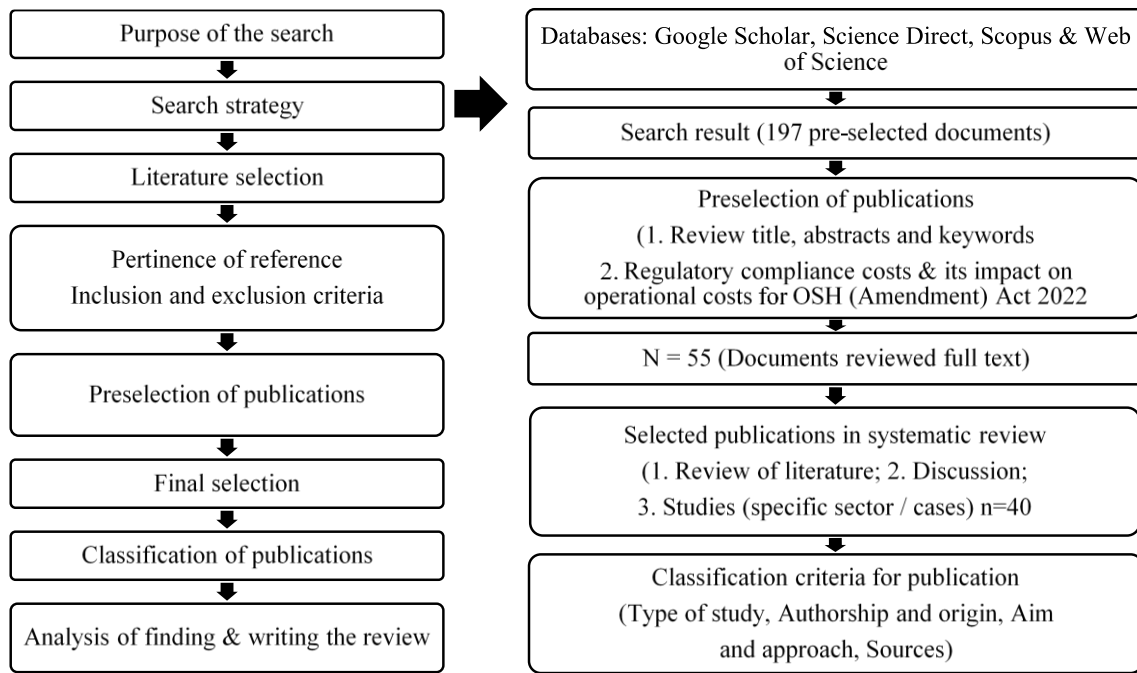


Figure 1: Systematic literature review strategy and content classification
 Source: Zhou et al. (2015)

2.4 Data Extraction and Synthesis

In the data extraction and synthesis process, research focused on identifying key cost components and assessing the financial impact of OSH regulatory compliance in Malaysian industries. 1,280 publications were yielded from the initial search method, of which 197 met the preliminary relevance criteria. A detailed screening was then further conducted, resulting in the selection of 40 studies for full-text review. The data extraction involved thoroughly examining each study's methodologies, findings, and discussions. Quantitative and qualitative data were extracted and analyzed to comprehensively understand the cost implications of OSH compliance and the economic burdens various industrial sectors face. This systematic approach to data extraction ensured that only the most relevant and high-quality studies were included in the final review.

3. Results and Discussion

3.1 Key Provisions of the OSH (Amendment) Act 2022

The OSH Act (OSHA) 1994 - ACT 514 is an act designed to ensure the safety and health of workers in Malaysia. To strengthen worker protection in terms of OSH, on the 1st of June 2024, Malaysian government has approved and enforced amendments to this act namely, OSH (Amendment) Act 2022 (Act A1648). The main objective of this amended Act is to secure the safety, health and welfare of people at work against risks to safety or health arising out of the activities of persons at work across all industries in Malaysia. Some amendments have been made to reach OSH standards comparable to those of developed countries, which will benefit society and the economy. Prior to the amendments, the scope and application of workplace regulations were limited to industries listed in Schedule One of the OSH Act (OSHA) 1994. These have been revised to include all workplaces across Malaysia, including those in the public service and statutory bodies. This initiative promotes a safety culture and encourages employers in the public service and statutory bodies to prioritize safety measures in the workplace. Figure 2 listed out the key amendments that have been made in OSH (Amendment) Act 2022.

1. Greater scope and applicability throughout Malaysia
2. Duty to conduct and implement Risk Assessment
3. Expanded Duties of Principal
4. Rights of employees
5. Occupational Health Services
6. OSH Coordinator
7. OSH Training Course
8. Machinery Integrity
9. Licensed Person(OBL)
10. Competent Person And Registered Training Provider
11. National Council for OSH
12. Increased Penalties and punishments

Figure 2: Key amendments in OSH (Amendment) Act 2022

Source: Laws of Malaysia Act A1648 Occupational Safety and Health (Amendment) Act 2022, 2022)

Fundamentally, these amendments will impact various stakeholders, including employers and employees. The OSH (Amendment) Act 2022 introduces several key duties that significantly impact employers, self-employed persons, and principals. One significant change is the requirement to conduct and implement risk assessments (Christopher Lee & Lim Siaw Wan, 2024), which adds layers of cost to businesses. This includes the initial and ongoing evaluations of workplace hazards and the implementation of control measures. Employers must also invest in training programs (Christopher Lee & Lim Siaw Wan, 2024) to improve worker competency. The requirement for employees to attend OSH training courses (Muhammad Syafiq Khairul Anwar, 2023) incurs direct expenses, including training fees and travel costs. Another key requirement is the mandatory appointment of an OSH Coordinator for workplaces with five or more employees, which will involve additional costs related to salaries, training, and administrative management to ensure ongoing compliance.

The Act requires employers to develop and implement an emergency response plan (ERP) in the workplace to deal with emergencies that may arise at the workplace. According to Muhammad Syafiq Khairul Anwar (2023), ERP involves comprehensive planning, regular training, and investments in infrastructure such as alarms, fire extinguishers and emergency exits. Therefore, the costs associated with the ERP include hiring consultants, purchasing equipment, acquiring personal protective equipment (PPE), and conducting fire drills.

Compliance with the Act increases administrative efforts and introduces indirect costs, such as productivity losses and potential legal fees. Failure to comply can also result in legal penalties, further damaging a company's financial resources. Moreover, the amended Act grants employees the right to remove themselves from work if they encounter imminent danger (Muhammad Syafiq Khairul Anwar, 2023). This right may disrupt operations and lead to financial losses due to halted or delayed production. While these changes improve workplace safety, they also present significant economic challenges for businesses across various sectors.

3.2 Direct and Indirect Compliance Costs of OSHA 1994 and its 2022 Amendment: A Comparative Analysis of Regulatory Frameworks

The enactment and enforcement of the acts and regulations related to OSH can raise employer investments (Levine et al., 2012). Numerous theories within the field of OSH, such as theories of task dynamics, Domino theory, Hazard–Ballar Model, Accident Casual Factors, Health theory, and Health Significance Theory, exist to describe health and safety practices. Specifically, no exact theory explains the costs of OSH regulatory compliance and non-compliance (Arewa et al., 2023).

The cost components of implementing OSH regulations in a workplace can be categorised into direct and indirect expenses (Ruser & Butler, 2009). Bartel & Thomas (1985) were among the first to study regulatory costs, classifying them as direct or indirect. They looked at the impact of the US OSH Act (OSHA) and how it is enforced. The direct effects of OSHA include specific changes that affect individual firms or workers, such as better safety for workers and higher manufacturing costs that can lead to lower profits and wages. On the other hand, indirect effects come from unequal impacts of regulation on different groups of firms and workers, creating competitive advantages for some.

Current literature on definitional issues surrounding direct and indirect compliance costs is explored through international guidelines and frameworks from the UK, US, European Commission, and OECD. The guidelines also divided the cost into direct and indirect costs. Direct costs are immediate expenses directly incurred by the regulated entity, such as compliance costs, administrative burdens, and costs related to implementing regulatory measures. These costs are often tangible and relatively easier to measure than indirect costs. However, the guidelines differ significantly in defining indirect costs. The UK, US, and European Commission highlight the impacts on related markets, consumer behavior, and spillover effects, whereas the OECD specifically categorizes these as "second round" impacts. Indirect costs are generally described as less immediate, more diffuse, and often involving broader market adjustments or behavioral responses. In addition, all guidelines emphasize the importance of measuring costs, particularly compliance costs, over benefits, which are often less defined and harder to quantify. The summarization of guidelines is described in Table 1 below:

Table 1: Summarization of definitions of costs

Source	Objectives	Direct Costs	Indirect Costs	Key Insights
UK Guidance (2013)	It focuses on the regulatory impacts on businesses and emphasises compliance costs.	Direct impacts result from implementing or removing a measure, such as compliance costs, administrative burdens, and substantive costs.	Indirect impacts occur due to behavioural changes or subsequent market reactions following the direct impacts, such as substitution effects or market adjustments.	The UK approach emphasises compliance costs as the primary direct costs but recognises indirect costs related to behavioural changes. It offers case histories but lacks clear definitions, leading to inconsistencies.
U.S.EPA (2020)	It focuses primarily on environmental regulations but applies to broader contexts. Distinguishes direct and indirect costs by their impact location.	Direct costs fall directly on regulated entities, including firms, households, and government agencies. They include compliance costs and capital expenses.	Indirect costs occur in related markets or affect entities outside the immediate scope of the regulation, often transmitted through price changes in the regulated sector.	US guidance provides a clear distinction based on where the costs are incurred. Direct costs are within the regulated market, while indirect costs impact related markets or consumers, showing a ripple effect across the economy.

European Commission (2013)	Categorises costs into direct compliance, administrative burdens, and indirect costs. It aims to provide a comprehensive framework for impact assessment.	Direct costs include compliance costs (fees, taxes, investments), administrative burdens, and regulatory charges directly affecting businesses.	Indirect costs include market disruptions, substitution effects, and broader economic impacts such as reduced competition or investment, often affecting stakeholders not directly regulated.	The EC's approach is more comprehensive, highlighting direct and indirect impacts with clear examples. However, it tends to focus more on compliance costs and offers less on benefits.
OECD (2014)	It provides an international perspective, focusing on compliance costs and their broader economic impacts.	Direct costs are limited to the expenditures required for compliance, including administrative and enforcement costs borne by businesses and the government.	Indirect costs, termed as "second round costs," arise due to behavioural changes and spillover effects in related markets following the initial compliance impacts.	OECD introduces the concept of "second round" costs to distinguish indirect impacts, emphasizing behavioural responses as key differentiators. This approach aligns with other guidelines in focusing heavily on compliance costs.
Cordes et al., (2022)	Examines the economic impacts of regulatory compliance and administrative burdens on businesses.	Compliance costs include capital investments, operational changes, and maintenance costs.	Delays, uncertainty, and administrative burdens, including time spent on reporting and understanding regulations.	Streamlining administrative burdens and improving flexibility in compliance can significantly boost economic performance and reduce unnecessary regulatory costs.

In this research, the OSHA 1994 and its 2022 Amendment fit well within the international framework discussed for assessing direct and indirect regulatory costs. Direct costs under OSHA regulations are typically compliance costs that businesses incur to meet safety and health standards. These include expenditures directly associated with implementing safety measures, such as:

- **Compliance Costs:** Businesses must invest in safety equipment, modify workplace layouts, provide safety training, and conduct regular safety audits to comply with OSHA standards. These costs are immediate and can be directly attributed to the requirements of OSHA, aligning with how the US and other international guidelines define direct costs.
- **Administrative Burdens:** Administrative costs from OSHA requirements include keeping records of workplace injuries and illnesses, submitting reports to OSHA, and ensuring safety procedures are documented and easy to find. According to the UK (2013) and OECD (2014), these administrative tasks are considered direct costs.
- **Capital Expenditures:** Investments in safety infrastructure, such as ventilation systems, protective barriers, and emergency equipment, reflect substantial compliance costs as highlighted in the European Commission's guidance. These expenditures have a direct financial impact on regulated entities.

Indirect Costs under OSHA: Indirect costs of OSHA regulations are less visible but can significantly impact organizations, often resulting from behavioral changes or market adjustments due to compliance.

- **Productivity Losses:** Indirect costs under OSHA include reduced productivity from installing new safety measures or during training that disrupts normal operations. These costs align with U.S. and OECD guidelines, where changes due to regulatory compliance are viewed as secondary effects.

- **Market Reactions:** OSHA regulations can impact labor market dynamics by increasing costs for employers. They may need to provide specialized safety training or raise wages to attract workers who comply with strict safety standards. This effect resembles the ripple impacts noted in US and European Commission guidelines, where changes in one market can indirectly affect related sectors.
- **Litigation and Enforcement Costs:** While OSHA regulations aim to prevent workplace accidents, compliance failures can lead to legal battles, fines, and enforcement actions, which are not direct compliance costs but are related to the broader regulatory environment. These indirect costs stem from secondary responses to OSHA regulations, much like the transaction costs mentioned in the US guidance.

3.3 Economic Impact of Compliance with OSHA 1994 and Its 2022 Amendment: Challenges for Small Businesses and High-Risk Industries

The cost implications of OSHA regulations have sparked serious discussions, as compliance costs tend to increase over time due to stricter OSH standards and more complex workplace environments (Arewa et al., 2023; James, 1998). Compliance costs include direct costs (e.g., purchase of PPE, safety equipment and training, changes to facilities, hiring OSH people) and indirect costs (e.g., administrative costs or overhead, potential downtime, etc.) (Cordes et al., 2022; European Commission, 2013; OECD, 2014; U.S. EPA, 2020). The type of industry greatly affects the compliance costs depending on the sector's size and the types of OSH hazards present. High-risk industries such as construction and manufacturing generally have much higher compliance costs due to the more stringent regulations and ongoing changes to safety standards affecting compliance (Rikhotso et al., 2022).

Additionally, the costs discussed in this paper may adversely affect smaller businesses and sectors, potentially leading them to struggle with solvency, competitiveness, or the ability to fully comply with regulations. This fact brings to attention the need for support and incentives that are tailored to help smaller businesses better manage the economic impact of compliance with OSHA regulations. The research conducted by Hong, Surlenty, and Hung (2011) analyses the implementation of OSH practices in SMEs in Malaysia. Hong, Surlenty, and Hung (2011) acknowledge that despite the importance of OSH regulations, many SMEs struggle to comply with them, given their limited financial and managerial resources. The existing regulations are also equally insufficient because they do not consider the hurdles SMEs face. The article demonstrated that management commitment and external support positively correlate to the implementation of effective OSH practices. Company size and the legislative role, however, were not significant factors of compliance. This suggests that management's proactive engagement with occupational safety and health (OSH) practices, along with access to external resources such as government grants and advisory services, will be a key factor in enhancing safety practices.

The study conducted by Crain and Crain (2023) provides a thorough analysis of the financial impact of federal regulations on the U.S. economy. It highlights the significant burden these regulations place on SMEs in the manufacturing sector. The research indicates that compliance costs are significantly higher for smaller firms, which often do not have the financial means to pay upfront to comply with requirements. Additionally, Crain & Crain (2023) report that SMEs in manufacturing have incurred more than twice the costs compared to larger firms. These costs are a combination of requirements for compliance, such as economic regulations, environmental regulations, tax compliance, OSH, and other specific regulations, that collectively affect different industries or sectors. In particular, the findings are consistent with research (Crain & Hopkins, 2005; Crain & Johnson, 2001; Harju et al., 2019; Kitching et al.,

2015; Kitching & Smallbone, 2010) which ultimately pointed to the idea that smaller firms experience uneven regulatory burdens, with the costs of compliance, generally having a significant financial burden upon SMEs. SMEs may not have the capacity or resources to pay upfront for the regulatory compliance required of them. As a result, the issues facing SMEs concerning regulatory costs and burdens underscore the need for specific financial assistance and policy to enable them to comply with their regulatory obligations and to achieve whatever potential long-term economic benefits.

The effects of the OSHA 1994 and its 2022 Amendment on operations in Malaysia will be costly for industries. These operational changes will impact on costs for short-term and long-term commitments in several ways. In the short term, employers will incur immediate costs related to upgrading safety equipment, carrying out safety audits in critical areas, and retraining their employees on revised safety standards. There is also an administrative cost to consider when a site must revise its safety documentation and requirements, implement a new safety management system, and ensure compliance by conducting inspections and monitoring regularly. Employers may also incur initial operational downtime costs, as a site may incur productivity and sales losses when restructuring training with their employees. Moreover, future costs associated with relating to continuing compliance on an open-ended basis could potentially impact industries in the future, e.g., require safety training meetings (internal and external), equipment maintenance processes and standards, and safety compliance technology. In addition, the penalties associated with disobeying the Act are also more significant, resulting in more resources devoted to compliance. Hence, there are no costly penalties and legal liabilities.

3.4 Direct and Indirect Benefits of Compliance with OSHA 1994 and Its 2022 Amendment

The study provides evidence of the direct and indirect financial benefits of compliance with the OSHA 1994 and its 2022 Amendment within the Malaysian industrial context. Research findings have shown that compliance with the Act significantly reduces workplace accidents. This reduction leads to an indirect benefit, such as decreasing insurance costs for employees and employers, while improving productivity. This is consistent with existing literature from industries such as mining and manufacturing, demonstrating reductions in workplace incidents by up to 40% through effective OSH compliance associated both directly with cost savings and improved operational performance (Esterhuyzen, 2022; Muthelo et al., 2022). Moreover, in the construction industry, strong implementation of OSH measures has been linked to up to a 25% reduction in accident rates and a 30% decrease in insurance premiums (Dahl et al., 2022). In addition to these direct benefits, the study also provides indirect benefits, particularly in increased productivity and lower insurance premiums. Companies that comply well with OSH regulations, including providing PPE, safety equipment, and training, directly correlate with improved worker performance, leading to increased productivity and efficiency, ultimately benefiting the organization (Dewi et al., 2021)

3.5 Intangible Benefits and Long-Term Performance Impacts of Compliance with OSHA 1994 and its 2022 Amendment

The study also highlights improved employee morale and corporate reputation as one of the intangible benefits of OSH compliance. Excellent compliance with OSH regulations contributes to a positive workplace environment, promoting a sense of security among employees (Suárez-Albanchez et al., 2021). Employees who feel that their workplace is safe are more likely to exhibit higher job satisfaction, which will lead to increased retention rates and reduced turnover costs (Alim et al., 2021). Research conducted by Beck & Lenhardt (2019) and Thiede & Thiede (2015) revealed that companies with strong OSH practices will improve

employee satisfaction and foster a positive work culture. This positive workplace culture reduces absenteeism and produces more motivated and skilled workers, resulting in higher productivity. In the Malaysian industry, these intangible benefits were particularly relevant, as they helped companies maintain workforce stability and improve operational efficiency. The study's findings highlighted that OSH compliance should be viewed as an investment in financial and human capital, offering long-term benefits beyond immediate cost savings. The long-term effects of OSH compliance are significant. Companies with strong OSH practices will enhance workplace safety and improve their reputation over time, increasing business opportunities. Research has shown that companies with strong OSH programs enjoy higher customer loyalty and brand trust, which will indirectly increase sales and market share (AkboĢa Kale, 2020). These findings suggest that OSH compliance should be viewed as a strategic investment offering immediate and long-term benefits. In conclusion, even though the compliance costs have risen, the benefits of compliance, such as reduced injury rates, lower workers' compensation premiums, and enhanced employee morale, often offset the initial expenditures, making OSHA compliance a valuable investment in the long run (European Commission, 2013; Kitching et al., 2015)

4. Conclusion

Compliance costs related to OSHA 1994 and its 2022 Amendment are categorised into direct and indirect costs. Direct key cost components associated with the Act are the cost of training, PPE and equipment upgrades, hiring OSH personnel, OSH documentation, OSH promotion and documentation, emergency response, mill and machinery certification, risk assessment and control measure costs, insurance premiums, occupational health services and administrative expenses. Meanwhile, indirect key cost components include productivity losses, market reactions, litigation and enforcement costs.

Additionally, the research provides critical insights into the economic impact of this Act on the Malaysian industry. Through a detailed analysis based on the literature review, the act has significantly impacted the Malaysian industry, with SMEs and high-risk industries facing proportionally higher economic burdens due to budget constraints, more extensive regulatory requirements, and frequent updates to safety standards.

While regulatory compliance incurs substantial initial investments in safety equipment, training, and infrastructure, the study also highlights the long-term financial benefits, such as reduced workplace accidents and lower insurance premiums, which ultimately offset these costs. Moreover, the enhanced safety culture driven by the amendment will likely improve employee retention and productivity, further reinforcing the financial advantages of regulatory compliance. These results suggest that, although the immediate costs are considerable, the Act represents a strategic investment for long-term operational efficiency and economic sustainability in the Malaysian industry.

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Conflict of Interest Statement

The authors declare that there is no conflict of interest regarding the publication of this study.

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