

Impact of Factory Inspections on Understanding of and Compliance with the Factories Ordinance in Sri Lanka

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Abstract

In Sri Lanka, occupational safety and health legislation is implemented by the factories ordinance (FO), which is enforced by factory inspecting engineers through factory inspection and partly by awareness programs. Awareness programs are not frequently conducted, and sometimes do not cover every type of industry. Therefore, the main way to enforce FO is through the inspection of factories. The objective of inspections is to make them more compliant with the provisions of the FO, which may result in making workplaces safer and reducing work-related accidents. However, although previous studies have shown that the size of the firm, safety culture, and financial capability affect safety performance in factories, there are no studies on safety and health inspections and how they affect the understanding of occupational safety, health legislation, and compliance with legislation. Therefore, this study aims to evaluate the impact of workplace inspections on the understanding of and compliance with FO.

This study uses primary data collected through a questionnaire during the inspection of 102 factories as the unit of analysis. Among the 102 factories in the study, 50 factories had been inspected (treatment) previously, and the remaining 52 had not been inspected (control) during the last five years. The outcome variables are understanding of and compliance with the FO. Details such as the registration of the factory under the Board of Investment, the size of the factory, the nature of the industry, and the gender, age, and work experience of the respondents were also collected for use as covariates. Because the factories for inspection were not chosen randomly, a selection bias was present. To address this issue, the study utilizes the propensity score matching technique to estimate data that closely match factories from both the treatment and control groups based on similar characteristics. The estimation results reveal that inspections have a positive effect on the understanding of FO and compliance with it in factories where officers in charge of inspected factories have 2.406 higher scores (out of eight) compared to officers in the non-inspected factories. Similarly, the inspected factories had approximately 1.872 (out of 9) higher compliance scores than non-inspected factories. This is based on the results provided by one of the matching methods, the nearest neighbour, and these results are consistent with the radius matching, kernel matching, and coarsened exact matching results that were conducted as a robustness check.

Keywords: Occupational Safety and Health, Factories Ordinance in Sri Lanka, Workplace Inspections, Compliance and Understanding

List of Abbreviations

- **CEM** – Coarsened Exact Matching
- **FO** – Factories Ordinance
- **ILO** – International Labour Organization
- **OSH** – Occupational Safety and Health
- **PSM** – Propensity Score Matching

Introduction

The International Labour Organization (ILO) (2022) estimates that 2.78 million workers lose their lives each year due to work-related accidents and diseases. In addition, 374 million workers suffer from non-fatal occupational accidents. This is just an estimation, as many workplace accidents are not reported to relevant authorities. Additionally, long-term work-related illnesses or deaths may go unreported as illnesses or deaths may occur many years after employment ends. This statistic highlights the significance of occupational health and safety (OSH) within organizations. According to the ILO, occupational accidents encompass unforeseen or unplanned incidents in the workplace, leading to one or more workers experiencing personal injuries, diseases, or fatalities. These negative incidents not only cause serious physical damage but also emotional consequences for the employees involved and severely affect co-workers, first responders, and families, resulting in costs estimated at 4% of the global gross domestic product (ILO, 2022). The emergence of occupational safety as a subject of concern for organizations can be attributed to the 19th century, a period marked by rapid industrialization that brought forth unprecedented economic, technological, and social shifts (Swuste, Van Gulijk, & Zwaard, 2010). Because most employees spend approximately one-third or more of their workdays on the job, OSH policies and laws play an important preventative role. However, OSH is often neglected, resulting in adverse consequences.

Background of occupational safety and health in Sri Lanka

Occupational safety is becoming extremely important worldwide, and Sri Lanka is no exception. As a developing and middle-income country in South Asia, Sri Lanka has long relied on industries such as apparel, tourism, tea export, and agriculture as its primary economic sector.

The estimated labour force participation rate for 2022 is reported to be 52.3%, according to the Sri Lanka Labour Force Survey - Annual Report. With ongoing industrialization and the increasing establishment of factories and construction projects, the incidence of occupational and industrial accidents and diseases is consistently high in the country. In this context, the implementation of an appropriate OSH is important.

The introduction and execution of effective protective measures against OSH play a crucial role in safeguarding the physical, mental, and social well-being of the workforce. Although industrial diseases are relatively uncommon, occupational accidents are common in Brazil. It is mandatory to report occupational accidents, diseases, and hazardous incidents transpiring in workplaces to the Industrial Safety Division of the Department of Labor, as stipulated by the regulations outlined in Factories Ordinance (FO) No. 45 of 1942.

The following charts show details of occupational/industrial accidents that have occurred in Sri Lanka in the recent past:

Figure 1.1

Fatal Occupational injuries per 100,000 workers (annual: 2014-2019)

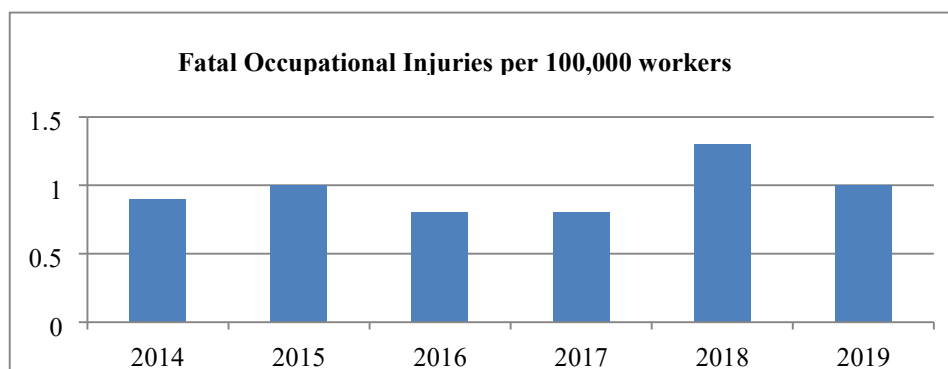
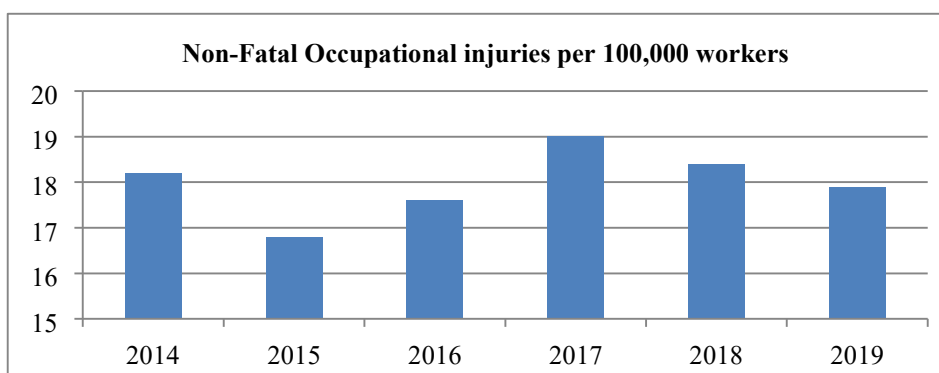


Figure 1.2

Non-Fatal Occupational injuries per 100,000 workers (annual: 2014-2019)



Source: https://www.ilo.org/shinyapps/bulkexplorer21/?lang=en&segment=&ld=SDG_F881_SEX_MIG_RT_A

Fig:1.1 and Fig:1.2 respectively illustrate the fatal and non-fatal occupational injuries per 100,000 workers (annual) from 2014 to 2019 in Sri Lanka. This is based on the statistics of occupational accidents reported to the Department of Labor, and the exact number of work-related accidents in the country may increase as not every accident is not reported to the Department of Labor. Furthermore, the rate after 2019 showed a sudden deviation as a result of the pandemic, and it is evident that Sri Lanka has not achieved significant progress in ensuring OSH throughout the period.

OSH implementation in Sri Lanka

Factories Ordinance No. 45 of 1942, with subsequent amendments and regulations, is the main legal act in Sri Lanka to ensure OSH in workplaces; it sets out the rights and obligations for both employees and employers to ensure OSH at workplaces to promote and maintain the highest degree of physical, mental, and social well-being. The Industrial Safety Division of the Department of Labour is the only government organization with the authority to enforce the Factories Ordinance. This authority has been decentralized through 10 district factory inspecting engineers' offices around the country, and the enforcement of the ordinance in each particular area is done by factory inspecting engineers working at these offices by conducting regular factory inspections.

Significance of the Study

As mentioned above, OSH has been a challenge for factories and the Department of Labor in Sri Lanka. Factory inspections have been implemented as the primary countermeasure to address this challenge. Although the number of inspections has been relatively limited due to insufficient financial resources, their effectiveness must be confirmed. By doing so, the government can decide to maintain or even increase the allocation of resources for inspections. Alternatively, improvements in current practice will be required if inspections are found to be ineffective, as they have been effective in some countries. Since no studies have investigated its effectiveness in a scientific manner, the findings of the present study will provide useful information for policy makers and practitioners.

Literature Review

Workplace inspections may also play a significant role in improving OSH. However, this is not the only factor influencing OSH improvement in factories. Workplace OSH management practices are related to various factors (Arocena and Nunez, 2010; Hasle and Limborg, 2006). Work-related accidents may accrue direct and indirect costs, such as pain and suffering of injured persons and their families, production loss, time loss for possible overtime work, compensation, possible loss of goodwill of the company, and legal costs. Most studies have revealed that occupational health and safety management is the key to promoting health and safety at work to reduce the different types of costs related to accidents at work. (Frick, 2011; Robson et al., 2007).

Different factors may affect OSH management in various companies, and recently, significant research attention has been directed toward examining the relationship between organizational factors and employee safety behaviours (Flin et al., 2000; Neal et al., 2000; Oliver et al., 2002; Seo, 2005). The specific form of organizational climate is the safety climate, which affects the safety attitudes and behaviors of workers in different workplaces (Cooper and Phillips, 2004; Zohar, 1980). The number of employees in workplaces, safety culture, and financial capability of companies have been identified in many studies as factors associated with good or bad OSH management practices. Furthermore, positive performance results in a decrease or absence of negative safety outcomes (Christian, Bradley, Wallace, & Burke, 2009). A study in Canada revealed that attitudes towards safety performance and age were the most effective predictors of safety performance in the construction industry (Dedobbeleer et al., 1987). Several external factors may also affect workplace occupational safety. Some of these are national and international legislation, stakeholders, and external control bodies (for example, Ko, Mendeloff, & Gray, 2010).

Organizational leaders are responsible for improving the safety climate within their organizations (Wu et al., 2008), which will in turn have a positive effect on workplace safety performance. Supervisors can motivate and empower subordinates by providing an exciting vision of the future.

However, in developing countries, neglecting OSH policies and laws is vital for weak OSH management in workplaces and the reasons for this are largely unknown. (AkpinarElci et al., 2017). Neglecting OSH policies can have adverse and sometimes deadly consequences. This issue is particularly concerning in developing countries, and one of the reasons for this is the lack of awareness of OSH policies (Akpinar-Elci et al., 2017).

A safe workplace provides both indirect and direct benefits to employees. Workers and firms themselves are direct beneficiaries of safe workplaces, as workers are mostly affected by accidents and firms may not face losses. Generally, insurers, contractors, consumers, families, and society are indirect beneficiaries of a safe workplace (Mossink, 2002).

Inspection of workplaces by OSH inspectors is an important aspect of a country's labor administration system. The main objectives of this inspection are the enforcement of legislation relating to conditions of work and the safeguarding of workers at work, providing technical information and advice to employers and employees, complying with the provisions of the legislation, and the identification of defects or abuses not specifically covered by current legal provisions. Following safety provisions, creating a safe workplace is considered safety compliance (Neal et al., 2000).

An evaluation of an inspection campaign regarding noise in workplaces showed that inspections have a substantial impact on risk management activities in Swedish workplaces (Björkdahl et al., 2008). They found significant differences in exposure measurements, plans

of action against noise, and measures to reduce noise between inspected and uninspected factories. This revealed how the inspection of workplaces influences OSH measurements.

Furthermore, the efficiency of a risk management tool, such as occupational exposure limits (OELs), partly depend on the responsible parties' awareness and understanding of it (Linda Shenk, 2013). OSH legislation also plays an important role in reducing work-related accidents and diseases by making people aware of safety precautions in the workplace. Enforcement bodies are responsible for making this effective. In this context, inspection activities may prove to be more efficient than information, as shown to affect compliance

with occupational safety and health (OHS) regulations in Sweden (Björkdahl et al., 2008).

Similarly, the quality of OSH inspections should be improved, and professional qualifications of OSH inspectors are immensely important for the effectiveness of workplace inspections (Niskanen et al., 2014).

Data Collection

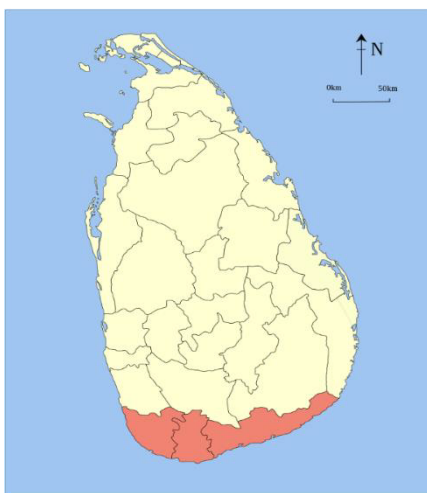
Data

Sample of the Study

This study utilized primary data gathered from a questionnaire administered during the inspection period. The questionnaire was distributed to 102 factories randomly selected from a pool of 2000 registered factories in the Southern Province that fall under the supervision of the Galle District Factory Inspection Engineers Office in Sri Lanka. The province consists of three districts, all of which are under the Galle district factory inspecting engineer office. Among these 102 factories, 50 factories had been inspected (treatment) previously, and the remaining 52 had not been inspected (control) during the last five years.

Figure 3.1

The three districts under the Galle district factory inspecting engineer office of Southern province in Sri Lanka



Source: https://en.wikipedia.org/wiki/Southern_Province,_Sri_Lanka

The survey questionnaire

The survey questionnaire (Appendix 1) consisted of four parts. The first section of the questionnaire included several general inquiries about the factories, covering aspects such as the factory's size, industry to which it belongs, location, and whether it is registered under the Board of Investment. These factors are explained in detail in the following sections. Additionally, this section collects information about the officer in charge of OSH at the factory, including gender, age, and work experience. The second part of the questionnaire focused on assessing OSH officers' understanding of FO. Specific questions were designed to gauge the knowledge and comprehension of FO. The third section of the questionnaire evaluates the extent to which factories comply with FO, as reported by the officer in charge. The final part of the questionnaire served as an observational record utilized by the inspection officer to report the actual conditions of the factory in terms of the implementation of safety measures outlined in the FO.

In accordance with the regulations outlined in Extraordinary Gazette no. 09/2019, the registration of factories under the FO was categorized into four size categories. These categories were employed to determine the size of each factory, defined as 1-25, 26-125, 126-500, and over 500 workers. Additionally, the nature of the industry was considered using a classification system consisting of 14 categories, as specified by the ILO. Furthermore, this study considers the location of the factories. Factories in the Southern Province were situated across three districts: Galle, Matara, and Hambantota. Galle and Matara are recognized as being more industrialized than Hambantota. This is attributed to Galle being the capital district of the province, hosting an international harbour, and Matara being a district with an industrial zone. Another concern was the registration of factories under the Board of Investment (BOI), the authorized government promotion agency of Sri Lanka. Factories registered in the BOI are export-oriented because all foreign investments must go through this agency.

Results and Discussion

Methodology

This study utilized the propensity score matching method with several algorithms, and the results were robust when checked using the coarsened exact matching method.

Propensity Score Matching Method (PSM)

Owing to the non-random selection of factories for inspection, selection bias exists. Thus, the study utilized PSM to compare the results of the treatment group, which received an inspection, with those of the control group, which did not receive treatment. PSM is widely employed in observational studies to minimize the influence of potential confounding biases. The propensity score serves as a balancing score, meaning that by matching records based on the propensity score, the distribution of confounding variables between the matched records is expected to be similar. Consequently, a new control group created using PSM should exhibit greater similarity to the treatment group in terms of confounding factors.

As mentioned above, the treatment group consisted of 50 factories, whereas the control group consisted of 52 factories. The registration of factories under the BOI, factory size, factory type, and location were used as matching variables in the PSM method.

Coarsened Exact Matching

The Coarsened Exact Matching (CEM) method provides a complementary approach to PSM by matching units based on exact matching criteria. The primary objective of CEM is to improve the quality of matching by identifying units with identical values for the selected covariates, thereby creating comparable treatment and control groups. By achieving this close alignment between the matched units, the CEM effectively reduces potential bias and enhances the accuracy of the treatment effect estimation.

Through exact matching, the CEM ensured that similar units were grouped, eliminating any discrepancies between the treatment and control groups that could lead to confounding factors.

This process is particularly valuable when dealing with a large number of covariates because it reduces the dimensionality of the data and simplifies the matching process.

Results

This chapter provides an overview of the empirical findings and discusses their interpretations.

Descriptive Statistics

The descriptive statistics of the covariates of the two groups are shown in Table 4.1, and those of the outcome variables are shown in Table 4.2.

Table 4.1

Descriptive statistics of the covariates of the control and treatment groups

Variable	Treated		Control		Mean difference	SE
	Mean	SD	Mean	SD		
Factory characteristics						
BOI registration (dummy)	0.400	0.495	0.019	0.139	-0.381***	0.071
Size (scale:1 to 4)	2.420	1.032	1.635	0.561	-0.785***	0.164
Factory type (dummy)	0.600	0.495	0.596	0.495	-0.004	0.098
Factory location (dummy)	0.840	0.370	0.580	0.502	-0.282**	0.088
OSH in charge characteristics						
Gender(dummy)	0.760	0.431	0.769	0.425	0.009	0.085
Age(years)	35.220	5.828	38.000	5.269	2.780**	1.099
Work experience(years)	5.620	2.320	5.865	2.597	0.245	0.488
Group size	50		52			

Table 4.2*Descriptive statistics of outcome variables*

Variable	Treated		Control		Mean difference	SE
	Mean	SD	Mean	SD		
Outcome variables						
Understanding FO (score: 0 to 8)	5.740	2.319	1.942	2.437	-3.798***	0.471
Compliance with FO (score:0 to 9)	6.480	2.823	2.865	2.808	-3.615***	0.328
Group size	50		52			

Main Results

As previously demonstrated, there were significant variations in the distribution of covariates between the two groups. To address this issue, a matching process was implemented using the PSM method. The PSM method allows the comparison of units across different groups by estimating the probability of assignment to a particular group, known as the propensity score. Four factory-related characteristics were selected as matching variables: factory registration under the BOI, factory size, factory type, and location. These variables were deemed crucial for capturing the key characteristics and contextual factors that may have influenced the outcomes under investigation.

The matching process involved calculating the propensity score for each unit, which represents the likelihood of being assigned to a specific group based on observed factory-related characteristics. By matching units with similar propensity scores, we aimed to create balanced groups that best aligned the units within the two groups, thus minimizing the influence of potential confounding factors.

Before matching, the propensity scores of the two groups may show noticeable differences, indicating imbalances in the distribution of covariates. This indicates the need for matching to ensure comparability between groups and to reduce the potential bias caused by these imbalances. After the matching process, the propensity scores of the two groups were expected to exhibit a similar distribution. This indicates that matching successfully aligned the units in the two groups based on their factory-related characteristics. The post-matching distribution of propensity scores allowed for a fairer and more

reliable comparison between the groups, as any remaining differences were minimized.

By presenting the distributions of propensity scores before and after matching in Figure 4.1, the effectiveness of the matching process can be visually assessed, providing insights into the balance achieved between the groups and the improved comparability of the units. During the matching process, a total of 88 units out of the 102 factories were successfully matched, resulting in a matching rate of 86%. The degree of overlap between the matched units is visually depicted in Figure 4.2.

Figure 4.1

Distribution of the propensity score for the two groups before and after matching

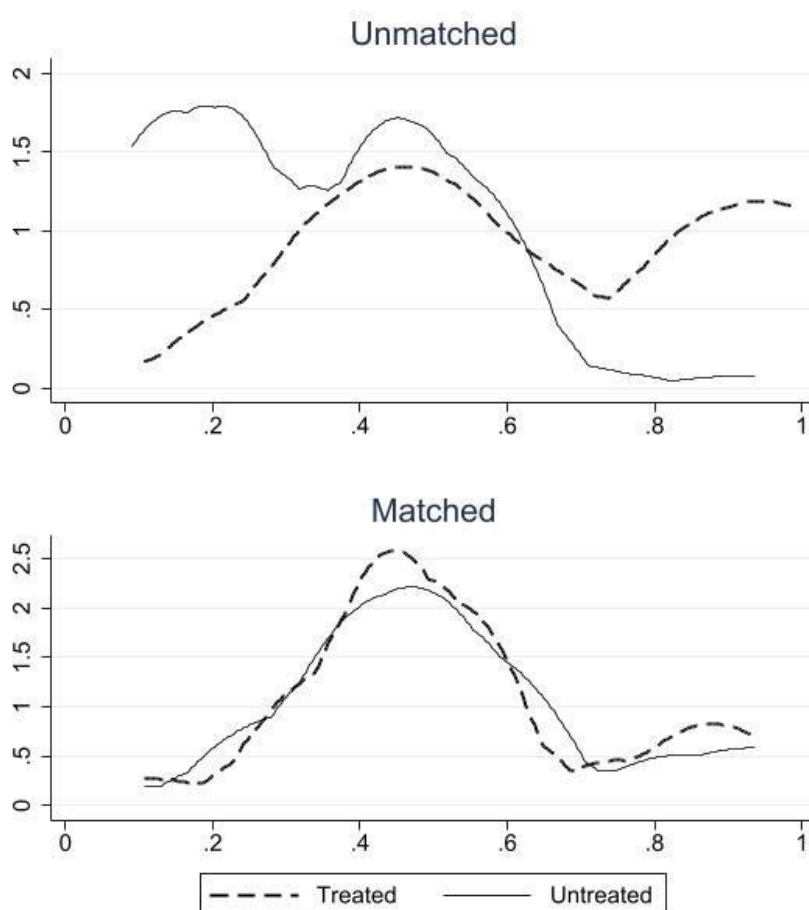


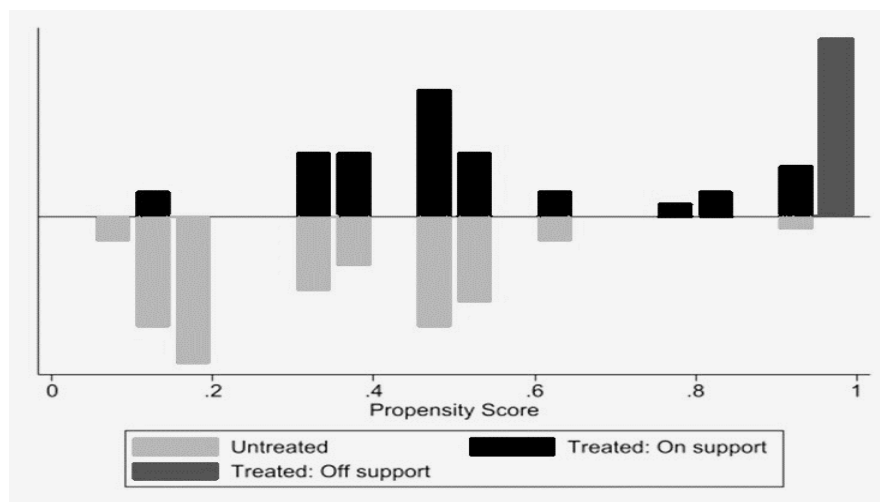
Figure 4.2*Overlap of matching units*

Fig 4.2 displays the standardized percentage of bias across the matching covariates before and after the matching process. The standardized percentage of bias was used to quantify the degree of imbalance or discrepancy in the distribution of covariates between the two groups.

Before matching, the standardized percentage bias may exhibit significant variations across matching covariates. This indicates the presence of systematic differences between groups, which can introduce bias and affect the validity of the study results. After the matching process, the standardized percentage of bias should ideally be reduced, indicating a more balanced distribution of covariates between the two groups. The decrease in bias indicates that the matching procedure successfully minimized systematic differences, leading to improved comparability and reduced potential for bias in the subsequent analysis.

By visualizing the standardized percentage of bias before and after matching in Fig 4.3, the matching process reduced the bias of the three covariates, except for factory type.

Therefore, our matching process would allow for a more reliable evaluation of the treatment or intervention effect, as any remaining bias would be minimized, resulting in a more accurate estimation of the true treatment effect.

Figure 4.3

Standardized percentage of bias across matching covariates before and after matching

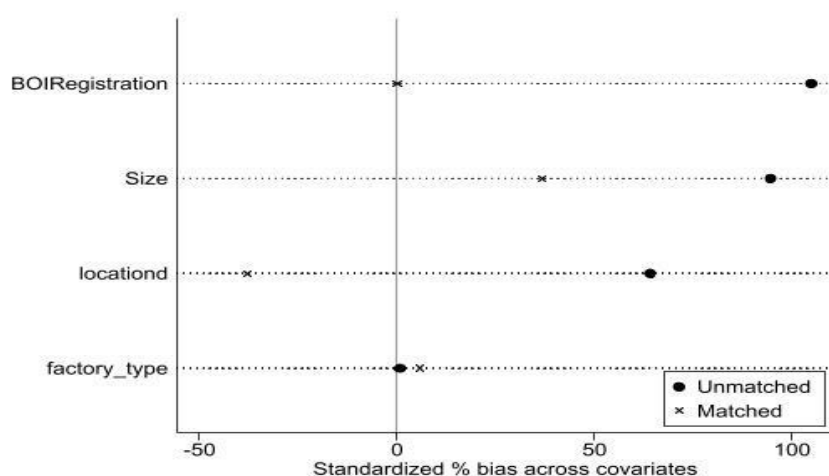


Table 4.3 presents the extent of the bias reduction achieved for each covariate during the matching process. This provides a comprehensive overview of the reduction in systematic differences between the treatment and control groups by matching units based on their covariate values. This table quantifies the improvement in balance across various covariates, indicating the effectiveness of the matching procedure in minimizing bias and creating comparable groups.

Table 4.3

Bias reduction in each covariate during the matching process

Variable	Unmatched/ matched	Mean Treated Control		% bias	% reduct [bias]	T test t P>t	
BOI Registration	U	.4	.01923	104.8		5.34	0.0000
	M	.16667	.16667	0.0	100.0	-0.00	1.000
Size	U	2.42	1.6346	94.6		4.80	0.0000
	M	2.0556	1.75	36.8	61.1	1.62	1.109
Factory Type	U	.6	.59615	0.8		0.04	0.969
	M	.52778	.5	5.6	-622.2	0.23	0.817
Location	U	.84	.55769	64.0		3.22	0.002
	M	.77778	.94444	-37.8	41.0	-2.08	0.041

By employing these algorithms, I aimed to identify the control units that closely resemble the treated units in terms of their propensity scores. This matching process allowed for a more accurate estimation of the effect of inspection by comparing similar units and minimizing potential confounding variables.

The nearest-neighbour algorithm identifies the control units that have the closest propensity scores to the treated units. This approach ensures that each treated unit is matched with the most similar control unit, based on its propensity score. The kernel algorithm estimates the weights of the control units based on their proximity to the treated units in terms of propensity scores. This weighted matching approach assigns higher weights to control units that are similar to the treated units, resulting in a more precise estimation of the treatment effect. The radius algorithm sets a specific radius around each treated unit, and matches the control units within that radius based on their propensity scores. This approach allows flexibility in the matching process by considering only the control units within a certain range of similarity to the treated units.

By employing these three matching algorithms, we aimed to enhance the robustness and reliability of the estimated inspection effect. Each algorithm offers advantages and considerations, allowing for a comprehensive analysis of the treatment effect while accounting for variations in the matching process. Table 4.4 presents these results.

Table 4.4

PSM estimation results

Outcome variable	Nearest neighbor	Radius	Kernel
Understanding of FO (Scale 0 to 8)	2.406*** (0.673)	3.141*** (0.433)	1.872*** (0.642)
Compliance with FO (Scale 0 to 9)	1.872** (0.774)	2.690*** (0.509)	1.183* (0.741)
N (Treated)	36	36	33
N (Control)	52	52	52

*** $p < 0.01$ ** $p < 0.05$

According to the nearest neighbor matching estimation presented in Column 2 of the first row, inspections led to a significant increase in the score related to the understanding of officers in charge of OHS on the safety guidelines in the FO context. Specifically, the score increased by 2.41 units compared to the control group. This increase is not only statistically significant at the 99% confidence level, but also substantial in magnitude, representing a growth of over 30%. Similarly, kernel matching and radius matching also indicated a significant positive impact on the score related to understanding by 3.14 and 1.87, respectively. Both estimates were statistically significant at the 99% confidence interval.

These findings suggest that the implementation of inspections had a positive impact on enhancing the comprehension of OHS guidelines among the officers in charge. This implies that inspections play a vital role in improving safety awareness and knowledge within the FO, potentially leading to better compliance with safety protocols and reducing workplace hazards.

In Table 4.4, the second row presents the outcomes of the scores associated with compliance regarding safety regulations within the FO. This score holds particular significance during the implementation of FO regulations, as it serves as a key indicator of adherence and conformity to prescribed safety guidelines. Based on the nearest neighbor matching results presented in Column 2, it is evident that inspections have had a positive impact on the compliance score of the treatment group compared to the control group. Specifically, the compliance score increased by 1.87 units, which corresponds to an increase of approximately 20%. This increase was statistically significant at 95% confidence level. Similarly, the results obtained from the kernel matching and radius matching techniques also demonstrated a statistically significant positive influence on the compliance score. Kernel matching indicated a significant increase of 2.69 units in the compliance score, whereas radius matching indicated a significant increase of 1.18 units. Both estimates were statistically significant at the 95% confidence level.

These findings indicate that the implementation of inspections effectively improved compliance levels within the treatment group. This suggests that the inspection process successfully encouraged adherence to regulations, protocols, or guidelines, leading to a higher level of compliance among the inspected entities.

To ensure the robustness and reliability of the PSM estimation results, we conduct additional analysis using the CEM method. CEM offers an approach complementary to PSM matching units based on exact matching criteria, thereby confirming its robustness.

Using CEM, the analysis sought to strengthen the validity and robustness of the findings obtained from the PSM estimation. By comparing the results of PSM and CEM, any discrepancies or inconsistencies can be identified, providing a more comprehensive understanding of the impact of factory inspections on FO implementation. The CEM estimation results are presented in Table 4.5 and the estimation procedure is presented in the Appendix 2.

Table 4.5

CEM estimation results

Outcome variable	ATT	SE	t-stat	P> t
Understanding of FO (Score 0 to 8)	2.157***	0.607	3.550	0.001
Compliance with FO (Score 0 to 9)	1.461**	0.670	2.180	0.033
N (Treated)		28		
N (Control)		38		

*** $p < 0.01$ ** $p < 0.05$

The outcomes presented in Column 2 of Table 4.5 are aligned with the PSM results and provide further evidence of a positive and significant effect of inspections. The score associated with the understanding of FO increased by 2.16 units, with a confidence interval of 99%. Similarly, the compliance score demonstrated a significant improvement, with an increase of 1.46 units and a confidence interval of 95%.

These findings indicate that inspections have a substantial impact on enhancing both the understanding of FO and compliance with its regulations. The statistically significant effects underscore the effectiveness of inspections in promoting a better comprehension of FO guidelines and increasing compliance levels within the studied context.

The credibility of the findings concerning the compliance score was reinforced by the objective measurement of factory compliance with FO regulations. This measurement was performed by the factory inspection engineer as part of the data collection process. This objective assessment provides additional validity

to the results, ensuring that compliance levels were evaluated in a reliable and unbiased manner. Overall, these findings reinforce the importance and effectiveness of inspections as a means of improving the understanding and compliance with FO regulations. They highlighted the value of such regulatory mechanisms in fostering a culture of safety and adherence to guidelines, ultimately leading to enhanced workplace practices and reduced occupational risks.

Discussion

The findings of the study indicate that the implementation of inspections has had a positive effect on enhancing the understanding of Occupational Health and Safety (OHS) guidelines among officers in charge, and has effectively improved compliance levels within the treatment group. This is achieved through the systematic process of factory inspections.

Based on these results, both outcome variables surpassed the 70% threshold, indicating a commendable level of achievement. In particular, the understanding of FO reached 71.75%, which corresponds to a score of 5.74 out of 8, while compliance with FO attained 72%, equaling a score of 6.48 out of 9. These results demonstrate that factory inspections have yielded significant improvements in both the comprehension of regulations and their effective implementation within the factory premises.

These findings highlight the effectiveness of factory inspections in enhancing the overall understanding of FO regulations among the workforce. This increased understanding is crucial as it empowers employees to better grasp the requirements and guidelines set by regulatory authorities, leading to a more informed and compliant workforce. Moreover, the study reveals that compliance with FO regulations has notably increased following the implementation of factory inspections. The considerable 72% compliance rate, with a score of 6.48 out of 9, signifies that the factory premises are now adhering more closely to the prescribed guidelines. This heightened compliance not only ensures a safer working environment, but also fosters a culture of adherence to regulations, ultimately contributing to the overall efficiency and sustainability of factory operations.

The satisfactory levels of both understanding and compliance achieved through these factory inspections are evidence of the significance of regulatory oversight in promoting best practices within industrial settings. By identifying areas of improvement and addressing non-compliance issues, factory inspections would play a vital role in safeguarding the welfare of workers.

During factory inspections, the officer in charge, management, and employees are provided with detailed instructions on the importance of adhering to OHS guidelines. The inspecting officer carefully observes each guideline in factory operation and identifies the hazardous areas. They also offer guidance on the necessary precautions to ensure a safe working environment. Subsequently, the inspecting officer prepares a comprehensive report that outlines the observations made during the inspection, including any potential risks and non-compliance with OHS guidelines. This report is forwarded to the officer in charge of OHS, who receives recommendations from the Factory Engineer regarding further actions to be taken to address the identified issues.

This entire inspection process serves as a guiding mechanism that encourages and reinforces compliance among the relevant officers, management, and employees. This highlights the importance of adhering to regulations, protocols, and guidelines and fostering a higher level of compliance within inspected entities. Overall, inspections play a pivotal role in promoting a culture of safety in the workplace, ultimately leading to improved OHS acquiescence. Consequently, factories in the treatment group achieved higher scores than those in the control group in both understanding and compliance.

Finally, one challenge should be highlighted. Although the present study found that inspections effectively improved the understanding of and compliance with FO, there is still room for improvement in the outcomes. This is particularly because the items for the outcomes are mainly at the basic level for OHS management; therefore, full marks should ideally be obtained by factories. In this regard, the effectiveness of inspections should undoubtedly be appreciated, but the results also present a further challenge.

Conclusion

Conclusion

The FO is the main legal enactment in Sri Lanka to ensure that industry-related institutions adhere to OHS measures. This study examined the effect of factory inspections on the implementation of the FO in the industry. It uses two outcome variables: understanding and compliance with FO. Because the selection of factories for inspection in this study was not random, the PSM method was used to estimate the effect of inspection by comparing the best-matching units in the two groups. The estimation used data obtained through a survey questionnaire that was administered by visiting and interviewing officers in charge of the OHS in these 102 factories. To conduct this research, a random selection process was conducted among approximately 2,000 registered factories in the Southern Province of Sri Lanka. From this pool, 102 factories were selected as the study samples. Among the selected factories, 52 underwent inspections by a factory inspection engineer or representative as part of the FO implementation, whereas the remaining 50 factories were not inspected. Because the selection for inspection was not randomized, the PSM method was employed to estimate the effect of inspections. This approach involved comparing the best-matching units from the two groups to assess the impact of inspections on the desired outcomes. Data for the estimation were collected through a survey questionnaire administered by visiting and interviewing officers in charge of OHS within these 102 factories.

The results related to understanding FO highlight the significance of inspections as an effective intervention for promoting a safer working environment and emphasize the importance of OHS practices. The notable increase in the understanding of officers in charge underscores the potential benefits and efficacy of regular inspections for fostering a culture of safety in factory settings.

The observed 20% increase in compliance demonstrates the substantial impact of inspections on promoting and enforcing proper practices in the studied context. By ensuring that organizations meet the required standards and regulations, inspections play a crucial role in mitigating risks, maintaining safety, and fostering a culture of compliance. These results emphasize the

importance of regular inspections as a mechanism to enhance compliance and uphold standards. The statistically significant increase in compliance scores further supports the effectiveness of inspections in driving positive changes and improving adherence to guidelines and regulations.

The inclusion of CEM as an additional matching method contributes to the overall credibility and reliability of the findings. This allows for a thorough assessment of the treatment effect by employing multiple matching techniques, further enhancing confidence in the conclusions drawn from the analysis. The reliability and validity of the findings regarding compliance scores were enhanced using an objective measurement method. Factory compliance with FO regulations was assessed by a factory inspection engineer as an integral part of the data collection process. This objective evaluation approach adds further credibility to the results, ensuring that the compliance levels were measured in a reliable and unbiased manner. By employing an expert in the field to assess compliance, this study strengthens the validity of its findings and reinforces the trustworthiness of the conclusions drawn regarding the impact of inspections on compliance scores.

Limitations and future directions

This study encountered certain limitations related to data collection, as it was conducted solely within one province in Sri Lanka, and the sample size was relatively small. The restriction to a single province limits the generalizability of the findings as the results may not be representative of the entire country or other provinces. To enhance the external validity of future research, data collection from multiple provinces would be advantageous as it would provide a more comprehensive understanding of the broader population.

Moreover, the absence of a random assignment to the treatment and control groups poses a limitation in terms of internal validity. Random assignment helps minimize bias and ensures that any observed effects can be attributed to the treatment itself. In the absence of randomization, there is a potential for selection bias, and the possibility of confounding variables affecting the observed outcomes cannot be fully ruled out.

To improve the internal validity of future studies, it would be beneficial to employ a randomized design in which factories are randomly assigned to

treatment and control groups. This would enhance the ability to draw causal inferences and strengthen the validity of the research design. Overall, considering data limitations and addressing them through broader sampling across multiple provinces and implementing random assignments would contribute to both the internal and external validity of future studies, thereby providing more robust and reliable insights into the impact of inspections on FO implementation.

Although the sample factories were selected randomly, non-response bias check should have been implemented in order to confirm if the random selection was successful. In the resent study, unfortunately the check was impossible as the information of non-selected factories was not accessible.

The present study did not make a sub-sample analysis, although it may provide more nuanced results for further discussion. This is particularly because of the small sample size with the matching for realizing causal inference more convincingly.

Finally, since the study was designed and implemented based on the demand derived from practice, a guiding theoretical framework was not provided. Due to this, the choice of variables used in the study and the theoretical contributions of the study are weak. Future studies should be strongly grounded in a theory or theories, so that the authors can more easily explain the focus, the boundary conditions, literature reviewed, and how their studies contribute to theory and prior related research.

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Review on Sri Lanka Development Administration Journal (1970 – 2015)

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Sri Lanka Institute of Development Administration

Introduction

The Sri Lanka Journal of Development Administration is the official scholarly journal published by the Sri Lanka Development Administration Institute (SLIDA). Established in 1969 as the Sri Lanka Administrative Training Institute and formally instituted by the Sri Lanka Development Administration Act No. 09 in May 1982, SLIDA trains administrative service officers. Located at 28/10 Malalasekara Mawatha, Colombo 07, the institute's primary functions include conducting service initiation training and capacity development courses for six services across Sri Lanka.

Since 1969, the Sri Lanka Administrative Service Academy has been engaged in literary activities related to administrative functions, maintaining a library with a rich collection of books on administration. This research aims to study the growth of administrative literature over fifty years, focusing particularly on the Sri Lanka Journal of Development Administration.

Background

Fifty years have passed since training and education for administrative service officers began in Sri Lanka. Examining the administrative literature written over this period is thus a timely research theme. As a first step, a statistical analysis was conducted on the Sri Lanka Development Administration Journal, the official academic journal published by SLIDA. The journal began in 1970, with the first volume and issue published in November 1970. This study analyzed 35 journal issues and 307 articles published up to 2015.

The Sri Lanka Development Administration Journal can be divided into three distinct eras based on the periods during which it was published and the names it was given:

- 1) 1970 – 1977: Journal of Development Administration
- 2) 1984 – 1996: Sri Lanka Journal of Development Administration
- 3) 2003 – 2015: Sri Lanka Journal of Development Administration:
New Series

These periods reflect changes in the journal's format and content, with significant transformations in the structure of the articles and the physical presentation of the journal. The editors have consistently published academic articles that support the education and development of administrative services.

Objectives

The objectives of this research were to explore the scope and direction of administrative studies as reflected in the Sri Lanka Development Administration Journal. Specifically, the research aimed to:

- Analyze the subject areas of the journal's contributing writers.
- Investigate the reference sources and citation patterns in the articles.
- Examine publication trends and the number of articles per issue over time.
- Measure the length of each article.

Based on these objectives, the following research questions were formulated:

- What is the direction of the administrative subject matter covered in the journal?
- What are the specific subject areas addressed by the writers?
- How many articles were published in each issue?
- How many reference sources were used in the articles?
- What is the average length of an article in terms of page count?

The research also examined the journal's title, the publishing institute, the chronology of its publication, and its physical format. Data analysis was conducted separately for each era of the journal's publication to provide a comprehensive understanding of its evolution and impact on the field of administration.

Methodology

Research Design

This study utilizes a bibliometric approach within a desk research framework to investigate the breadth and evolution of articles published in the Sri Lanka Journal of Development Administration (SLJDA). The research relies exclusively on secondary data sourced from the published issues of the journal. Bibliometric analysis quantitatively examines recorded knowledge across various formats, such as books, journals, CD-ROMs, and microfiche. This method is particularly suitable for historical and evolutionary investigations due to its robust theoretical foundation and diverse analytical techniques.

Data Collection

The study followed a systematic process for data collection, including comprehensive archival research to identify and collect every issue of the journal published from its inception in 1970 through 2015, and compiling detailed quantitative statistics from the collected issues. Publication details (issue numbers, publication dates, and page sizes), article metrics (total number of articles, article lengths, and number of references cited), and authorship patterns (number of authors per article, including single vs. multiple authorship trends) were collected. Each issue was meticulously reviewed to extract the necessary data points, involving manual examination and recording of relevant information.

Data Analysis

Descriptive statistics were used to summarize the data, while trend analysis was conducted through year-wise distribution of articles, citation analysis, and authorship patterns to identify temporal trends. Graphs and charts were created to visualize the trends and patterns identified in the data.

Findings

In relation to the objectives of the research, the research questions were formulated to investigate: What is the direction of the administrative subject? What are the subject areas of the writers? How many articles were published in each issue? How many reference sources were used? How long are the articles?

The title of the journal has been modified several times, identifying three distinct eras in its evolution:

- 1) 1970 – 1977: Journal of Development Administration
- 2) 1984 – 1996: Sri Lanka Journal of Development Administration
- 3) 2003 – 2015: Sri Lanka Journal of Development Administration:
New Series

1970 – 1977: Journal of Development Administration

The inaugural volume of the journal was published in November 1970, with the subsequent volume released in May 1971. By 1977, a total of seven volumes had been published continuously, each comprising two issues per year. During this period, the journal was titled the Journal of Development Administration and was published by the Academy of Administrative Studies, Ceylon.

The back cover of the journal featured a white background, with the title and publisher's name printed in red and other information in black. In future publications, this design was maintained, with a white background on the back cover and color screens applied annually to the front cover section displaying the title and publisher's information. The journal was produced to a clear standard using the printing technology available at the time. The physical dimensions of the journal were 24.5 cm in height and 18.5 cm in width. It was published separately in English and Sinhala, catering to a diverse readership.

The chief editor of the journal was the director of the institute at the time of publication. For the first issue, Mr. H.S. Wanasinghe served as the chief editor. Subsequently, the editor-in-chief for each issue was the director serving at the

time the journal was published, ensuring that the journal's leadership remained aligned with the institute's current administrative direction.

Table 1 illustrates the number of issues, the year of publication for each edition, and the number of articles published in each journal from 1970 to 1977.

Table 1

Journal of Development Administration (1970 – 1977): Number of Pages and Articles

Published Year and Month	Volume & Issue No.	No of Pages	No of Articles
1970 Nov.	Vol.1, No.1	62	8
1971 May	Vol.1, No.2	57	6
1971 Nov.	Vol.2, No.1	59	6
1972 May	Vol.2, No.2	43	7
1973 Nov.	Vol.3, No.1-2	40	6
1973 Nov.	Special Issue	59	12
1974 May	Vol.4, No.1	73	7
1974 Nov.	Vol.4, No.2	60	5
1975 May	Vol.5, No.1	80	6
1975 Nov.	Vol.5, No.2	58	5
1976 May	Vol.6, No.1	65	5
1976 Nov.	Vol.6, No.2	63	5
1977 May	Vol.7, No.1	97	5
1977 Nov.	Vol.7, No.2	45	4

This table highlights the fluctuation in the number of pages and articles per issue from 1970 to 1977. The highest number of pages published was in May 1977, Volume 7, Issue 1, with 97 pages. Conversely, the issue with the fewest pages was November 1973, Volume 3, with 40 pages. It is also notable that the page numbers of the two issues in the first and second volumes are sequentially linked. This thorough documentation provides valuable insights into the publication trends and editorial practices during this foundational period of the journal.

Figure 1

Journal of Development Administration - 1970 -1977 - No of Articles

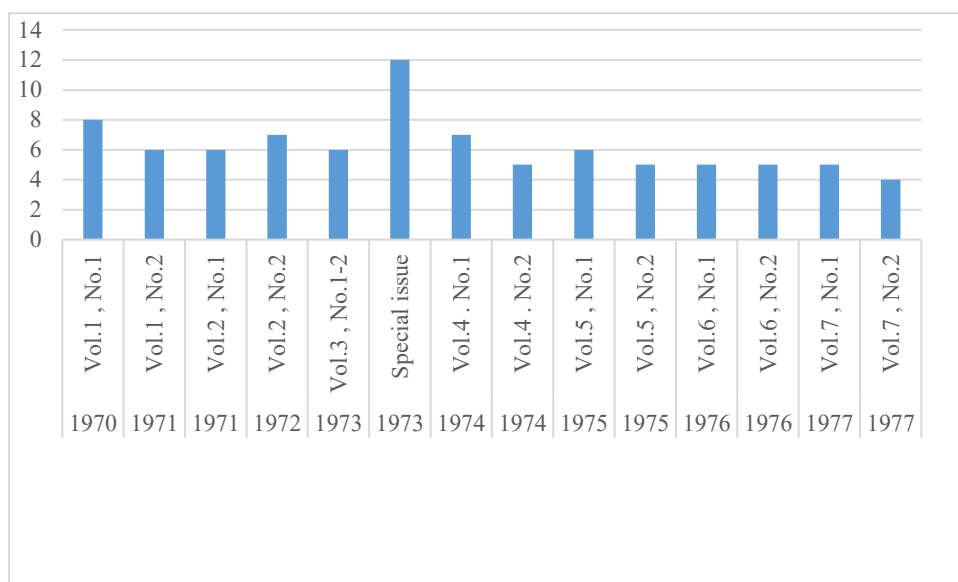


Table 2

Journal of Development Administration - 1970 – 1977

Year	Volume & Number	Articles
1970	Vol.1, No.1	8
1971	Vol.1, No.2	6
1971	Vol.2, No.1	6
1972	Vol.2, No.2	7
1973	Vol.3, No.1-2	6
1973	Special Issue	12
1974	Vol.4, No.1	7
1974	Vol.4, No.2	5
1975	Vol.5, No.1	6
1975	Vol.5, No.2	5
1976	Vol.6, No.1	5
1976	Vol.6, No.2	5
1977	Vol.7, No.1	5
1977	Vol.7, No.2	4

As shown in Table No. 2, during the first era, the journal was published for seven consecutive years from 1970 to 1977, resulting in the release of seven volumes and fourteen issues. Since its inception in 1970, the highest number of articles appeared in Volume 1, Issue 1, which featured eight articles. Conversely, the fewest articles were published in Volume 7, Issue 1.

In 1973, Volume 3, Issues 1 and 2 were combined into a single publication. Additionally, a special issue was released in November 1973 under the theme "Management for Development," which comprised twelve short articles.

Throughout this period, the journal's articles were primarily authored by consultants of the institute and by both local and international experts in administrative and political fields. The journal also featured reviews of contemporary books on administration and other publications by SLIDA.

1984-1996 - Sri Lanka Journal of Development Administration

The second era of the journal's development was from 1984 to 1996. During this period, the journal's name was revised to the Sri Lanka Journal of Development Administration. The cover page of the journal was printed in different colors during this time. The first and second volumes were green and ash-colored, respectively, with dimensions of 27 cm in height and 20.5 cm in width. The journal was published exclusively in English.

As before, two issues were published each year. It was published continuously for eight years from 1984 to 1991. Volume 9 was published in 1996, after which publication ceased again. In 1985, the physical dimensions of the journal were changed to 24 cm in height and 17 cm in width. In 1986, the dimensions were changed again to 24 cm in height and 15 cm in width, and the journal featured a colored background cover page.

The number of pages in the journal increased starting with Volume 6 in 1989, and the publication period was mentioned on the title page. In 1989, Vol. 6 No. 1 of the journal was published as a special issue under the theme of "Action Learning," with Dr. Merrick L. Jones serving as the guest editor. In 1990, Vol. 7 No. 2 focused on "Issues in Public Sector Management," with Dr. Kofi Ankomah as the guest editor.

Table 3

Sri Lanka Journal of Development Administration - 1984 – 1996

Published year and month	Volume & Issue No.	No of pages	No of Articles
1984	Vol.1, No 1	56	6
1984	Vol.1, No 2	43	5
1985	Vol.2, No 1	50	4
1985	Vol.2, No 2	61	5
1986	Vol.3, No 1	53	5
1986	Vol.3, No 2	54	6
1987	Vol.4, No 1	27	5
1987	Vol.4, No 2	*	
1988	Vol.5, No 1- 2	31	5
1989 Jan. - June	Vol.6, No 1	88	7
1989 July - Dec.	Vol.6, No 2	90	7
1990 Jan. - June	Vol.7, No 1	173	9
1990 July - Dec	Vol.7, No 2	168	9
1991 Jan. - June	Vol.8, No 1	176	8
1991 July - Dec	Vol.8, No 2	*	
1996 Jan. - June	Vol.9, No 1	104	7
1996 July - Dec	Vol.9, No 2	*	

**This issue was not found in the study*

Table 3 provides details on the number of pages and articles per issue of the Sri Lanka Journal of Development Administration from 1984 to 1996. During the period from 1984 to 1988, the highest number of pages published in a single issue was in 1985, Volume 2, Issue 2, which contained 61 pages. Conversely, the issue with the fewest pages during this period was Volume 4 in 1987, with 27 pages.

From 1989 to 1996, the issue with the highest page count was Volume 8, Issue 1, published in 1991, which included 176 pages. The issue with the fewest pages during this period was Volume 6, Issue 1, published in 1989, which contained 88 pages.

Table 4 presents the number of issues, the year of publication for each edition of the journal, and the number of articles published in each journal from 1984 to 1999.

Table 4

Sri Lanka Journal of Development Administration in 1984 – 1999: No of Articles

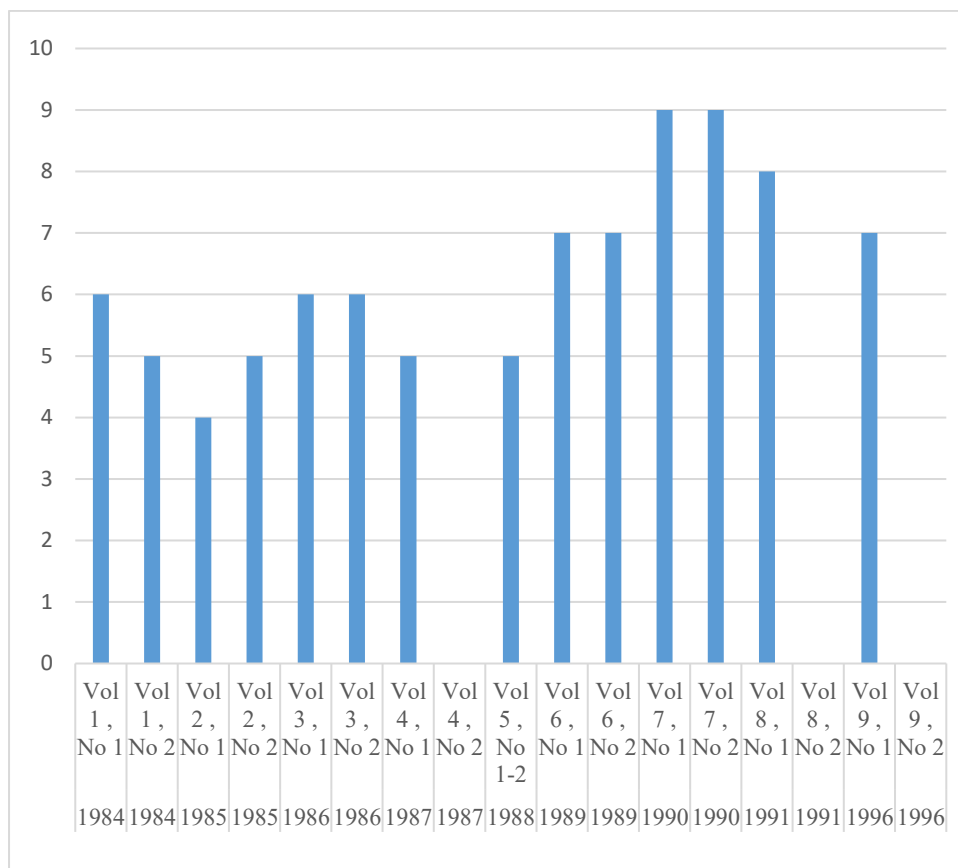
Year	Vol. & No.	Articles
1984	Vol.1, No 1	6
1984	Vol.1, No 2	5
1985	Vol.2, No 1	4
1985	Vol.2, No 2	5
1986	Vol.3, No 1	6
1986	Vol.3, No 2	6
1987	Vol.4, No 1	5
1987	Vol.4, No 2	*
1988	Vol.5, No 1-2	5
1989	Vol.6, No 1	7
1989	Vol.6, No 2	7
1990	Vol.7, No 1	9
1990	Vol.7, No 2	9
1991	Vol.8, No 1	8
1991	Vol.8, No 2	*
1996	Vol.9, No 1	7
1996	Vol.9, No 2	*

**This issue was not found in the study*

As shown in Table 4, nine volumes and eighteen issues of the Sri Lanka Journal of Development Administration were published over thirteen years, from 1984 to 1996. In 1988, both issues of Volume 5 were combined and published together. The highest number of articles was published in Volume 9 in 1990, with each issue containing nine articles. The lowest number of articles was published in Volume 2, Issue 1, in 1985 (Figure 2).

Figure 2

Sri Lanka Journal of Development Administration: 1984 -1996: No of Articles



2003 - 2015: Sri Lanka Journal of Development Administration: New Series

From 1996 to 2003, the publication of the journal was halted. It resumed in 2003 as the Sri Lanka Journal of Development Administration: New Series. In 2003, the journal received an International Standard Serial Number (ISSN 1391-8214). From this time, the journal was managed by an external editorial board. It was published biennially in 2003, 2005, and 2007, after which publication ceased until it resumed in 2014.

Between 2003 and 2015, the journal published only five volumes, each containing a single issue. During this period, the physical dimensions of the journal changed to 25 cm in height and 17 cm in width. The outer cover was

yellow with maroon-colored text. The journal continued to be published under the name Sri Lanka Journal of Development Administration in 2014 and 2015, with V.K. Nanayakkara as the chief editor. The physical size was adjusted to 23 cm in height and 15 cm in width. The cover page was printed in red for Volume 4 in 2014 and in blue for Volume 5 in 2015.

These observations indicate that while the institution showed an interest in publishing the journal, the authority and responsibility for its publication were interrupted periodically for unknown reasons.

(Note: Although the journal was published again in 2016 and 2020, this study focuses only on the period from 1970 to 2015, and thus, information beyond 2015 is not included)

Table 5

Sri Lanka Journal of Development Administration: New Series (2003 – 2015) - Number of Pages and Articles

Year	Volume & Number	Number of Pages	Articles
2003	Vol.1, No. 1	155	9
2005	Vol.2, No. 1	163	7
2007	Vol.3, No. 1	86	11
2014	Vol.4, No. 2	159	9
2015	Vol.5, No. 1	128	8

Table 5 above indicates the statistics on the number of pages and articles per issue of the Sri Lanka Journal of Development Administration during, 2003-2015. According to Table 5, the highest number of pages was published in 2005, in Volume 2, Issue 1, with 163 pages. The issue with the fewest number of pages was Volume 3 in 2007, which had 86 pages.

Table 6 below shows the number of issues, the year of publication of each edition of the journal, and the number of articles published in each journal from 2003 to 2015.

Table 6

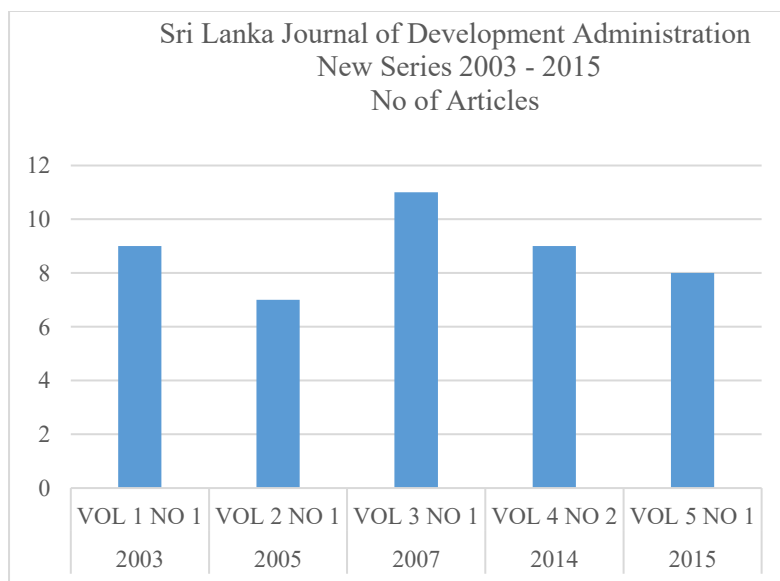
Sri Lanka Journal of Development Administration - New Series (2003 – 2015)
Number of Articles

Year	Volume	Articles
2003	Vol.1, No. 1	9
2005	Vol.2, No. 1	7
2007	Vol.3, No. 1	11
2014	Vol.4, No. 2	9
2015	Vol.5, No. 1	8

As shown in Figure 3, only five volumes were published over the 18 years from 2003 to 2015. The highest number of articles was published in Volume 3 in 2007, which contained 11 articles. This volume was a special issue with the theme “Combating Corruption,” and it was published in three languages: Sinhala, Tamil, and English.

Figure 3

Sri Lanka Journal of Development Administration: New series



Article Length Analysis

The length of the articles was analyzed according to the three eras of the journal's evolution.

Table 7

Journal of Development Administration: 1970 – 1977; Length of Articles

Year	Vol.& No	No of Articles	01-05	06-10	11-15	16-20	21-25	26-30	31-35	36-40	41-45
1970	Vol.1, No.1	8	3	3	2						
1971	Vol.1, No.2	6	1	4		1					
1971	Vol.2, No.1	6	2	4							
1972	Vol.2, No.2	7	4	3							
1973	Vol.3, No.1-2	6	2	2	1						
1973	Special Issue	12	11		1 (12)						
1974	Vol.4, No.1	7	1	4	2						
1974	Vol.4, No.2	5		3	2						
1975	Vol.5, No.1	6		2	2	1	1 (24)				
1975	Vol.5, No.2	5	1 (03)	1	2		1 (22)				
1976	Vol.6, No.1	5		1	3	1					
1976	Vol.6, No.2	5		2	3						
1977	Vol.7, No.1	5		2	2		1 (27)			1 (44)	
1977	Vol.7, No.2	4		2	1	1					
Total		82	25	33	21	4	2	1		1	

The length of the articles was categorized into nine levels, ranging from 1 to 45 pages. During this period, a total of 82 articles were published. Most of the articles fell into the first three categories: 25 articles were 1-5 pages long, 33 articles were 6-10 pages long, and 21 articles were 11-15 pages long. There was one article that spanned pages 41-45 (Table 7).

The length of the articles was categorized into seven levels, ranging from 1 to 45 pages. During this period, a total of 89 articles were published. Most of the articles fell into the second category, covering 6-10 pages, with 29 articles published in this range. There were three articles that covered 36-40 pages (Table 8).

Table 9

Sri Lanka Journal of Development Administration: 2003 – 2015; Length of Articles

Year	Vol.& No.	Articles	01-05	06-10	11-15	16-20	21-25	26-30	31-35
2003	Vol.1, No. 1	9	2	1	3	3	-	-	-
2005	Vol.2, No. 1	7	-	1	3	-	2	1	-
2007	Vol.3, No. 1**	11	4	7	-	-	-	-	-
2014	Vol.4, No. 2	9	1	4	2	1	1	-	-
2015	Vol.5, No. 1	8	1	3	2	2	-	-	-
Total		46	8	16	10	6	3	1	-

Note: *This volume includes one page with two columns.*

The length of the articles was categorized into seven levels, ranging from 1 to 35 pages. During this period, a total of 46 articles were published. Most of the articles fell into the second category, covering 6-10 pages, with 16 articles published in this range. There was one article that covered 31-35 pages (Table 9).

Citation Study

The citation pattern of articles in the Sri Lanka Journal of Development Administration was also studied. Citations in a document reflect the merit of that document since authors usually cite the best available works. When an author cites a document, it indicates that the author has used it in their work. This implies that the author refers to all or at least the most crucial documents

used in preparing their work and extracts information from them to support and develop their papers.

Table 10

Journal of Development Administration: 1970 – 1977; No of Citations

Year	Vol.& No	No of Articles	No of Citations							
			1-5	6-10	11-15	16-20	21-25	26-30	30-35	36-40
1970	Vol.1, No.1	8	3	1						
1971	Vol.1, No.2	6								
1971	Vol.2, No.1	6	1			1				
1972	Vol.2, No.2	7						1 (29)		
1973	Vol.3, No.1-2	6		1		2				
1973	Special issue	12	There is no citation in articles							
1974	Vol.4, No.1	7	1		3					
1974	Vol.4, No.2	5	1	3		1				
1975	Vol.5, No.1	6	2	1					1 (31)	
1975	Vol.5, No.2	5	5		1			1 (27)		
1976	Vol.6, No.1	5	1				1			
1976	Vol.6, No.2	5	1				2			
1977	Vol.7, No.1	5	1							
1977	Vol.7, No.2	4	1		1			1 (26)		1 (40)
Total		82	16	6	3	4	3	3	1	1

The number of citations listed at the end of articles was categorized into 8 levels and tabulated in Table 10. It is important to note that not every letter was counted as a citation. Table 10 above provides information regarding citations in articles.

Table 11

Journal of Development Administration :1984 – 1990, No of Citation

Year	Vol. No	Article No	Citation					
			01-05	06-10	11-15	16 -20	21 -25	25 - 30
1984	Vol.1, No 1	6	2	1				
1984		5		2				
1985		4		1		1		
1985	Vol.2, No 2	5		2	1			
1986	Vol.3, No 1	6	2					
1986	Vol.3, No 2	6	2	1				
1987	Vol.4, No 1	5		2				
1987	Vol.4, No 2	No information						
1988	Vol.5, No 1-2	5			1		1 (24)	
1989	Vol.6, No 1	7	2	2			1 (22)	
1989	Vol.6 No 2	7					1 (27)	61
1990	Vol.7, No 1	7					1	1 (29)
1990	Vol.7, No 2				1	1	1	1 (28)
1991	Vol.8, No 1	8			3	1		
1991	Vol.8, No 2	No information						
1996	Vol.9, No 1	7	3	1	1			1 (25)
1996	Vol.9, No 2	No information						
Total		89	07	12	07	03	05	04

The number of citations appearing at the end of articles was categorized into 6 levels and tabulated in Table 11. Not every letter was counted as a citation, and the table above (Table 11) describes the information regarding citations in articles.

Table 11

Sri Lanka Journal of Development Administration: 2003 – 2015, No of Citation

Year	Vol.& No.	Articles	01- 05	06- 10	11- 15	16- 20	21- 25	26- 30	31- 35	Over 36
2003	Vol. 1, No 1	9	1	3	2					1
2005	Vol.2, No 1	7	1	1		1	1			
2007	Vol.3, No 1**	11	1	1	1		1			
2014	Vol.4, No 1	9		3		1		4		1 (63)
2015	Vol.5, No 1	8	1	2		1	2		1	1
Total		46	4	10	3	3	4	4	1	3

The number of citations appearing at the end of articles was categorized into 8 levels and tabulated in Table 12. Not every letter was counted as a citation, and the table above (Table 12) describes the information regarding citations in articles.

Summary of Research Findings

The research delved into the Sri Lanka Journal of Development Administration, focusing on its content scope, authorship, physical changes over time, and citation patterns. The journal predominantly concentrated on public service-related subjects such as public administration, management, training, reforms, and financial management. Authors, primarily professionals in administrative roles, brought practical insights to their contributions. University academics also contributed, enriching the journal with theoretical perspectives.

Moreover, the journal included book notes and reviews, enhancing its scholarly value. Physical changes, including format and font size adjustments,

occurred over time, potentially due to intermittent publication interruptions. A length-wise analysis of articles revealed a majority falling within the 6-10 page category, yet significant numbers exceeded these lengths, reflecting in-depth explorations on various topics.

In conclusion, the editorial sections provided commentary on the content of each issue, emphasizing academic rigor. Despite inconsistencies in physical format maintenance, the journal's contributors from the Administrative Service provided valuable insights. However, there is room for improvement, particularly in ensuring consistent physical formats and including more information on institute publications.

Recommendation

Based on the study findings, following recommendations are presented:

- 1) **Continued Publication:** Emphasize the scholarly value of the journal and prioritize publishing articles addressing critical themes.
- 2) **Format Consistency:** Focus on maintaining consistent physical formats to enhance readability and professionalism.
- 3) **Inclusive Content:** Incorporate more information on institute publications within each journal for comprehensive coverage.

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