# REGULARITIES AND PATTERNS OF CONSTRUCTION COSTS UPON POLITICAL EVENTS

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## ABSTRACT

Though the market prices change before and after political events were often speculated, if such changes could be systematically accounted for in construction cost forecasting was unknown. This study aimed to bridge this knowledge gap by identifying the regularities and patterns of the construction costs upon political events. A decade of period was selected in which the scope of the study started in 2010. Time series analysis was used along with regression analysis, assuming a linear relationship between construction costs and time. After a comprehensive literature review, CIDA construction cost indices were chosen as the most appropriate cost representation for the local context, and these were taken as the dependent variables. All indices were plotted in diagrams and long-term trends were observed, then indices were carried for further analysis of cycles. Major political events were collected through a document survey and the findings were plotted on the time series analysis output. It was noticed that in 2013 indices were changed mostly, where three provincial elections were held, and some more pattern changes had occurred close to the local government elections which took place in 2011 and 2018. The study concluded that there is neither pattern nor regularity in construction costs upon political events where it cannot be systematically incorporated into construction cost forecasting. However, the findings did not deny the impact of political events on construction costs, and novel areas were found where further explorations are required.

**KEYWORDS:** *Construction Costs, Political Events, Sri Lanka, Time Series Analysis.*

## 1    INTRODUCTION

The impact of political changes towards construction industry costs has been in common interest among industry stakeholders. There has been varying expectation and speculations in advent of political events such as the presidential election. However, these speculations were not based on scientific evidence, but mostly based on personal knowledge and experience. This research is conducted to find if and how past political changes affected construction costs in Sri Lankan construction industry. The study was interesting because its findings will help to make better informed predictions at future political events.

Politics have been one of the main branches in an economy and its movements were to be considered as risky in general. It was because of the inability to guarantee the outcome beforehand. According to the findings by Bekr, (2017) unstable political and security conditions caused high cost incurrence in construction projects in Iraq. Similarly, Bussy and Kelly (2010) showed that the gulf between stakeholders' salience legitimacy and political decision makers as attempting to be in power was resulted in an unstable and interrupted economy in Western Australia. In 2013, Silva, Rajakaruna and Bandara stated that political instability forms breakneck changes in policy decisions which reduced the productivity of the industry in Sri Lanka. Having said that, the interference of politics towards the construction industry has been lasted for a considerable period.

Figure 1.1 shows the percentage change in Gross Value Added (GVA) & Gross Domestic Product (GDP) of the construction industry from 2010 to 2020 in Sri Lanka.
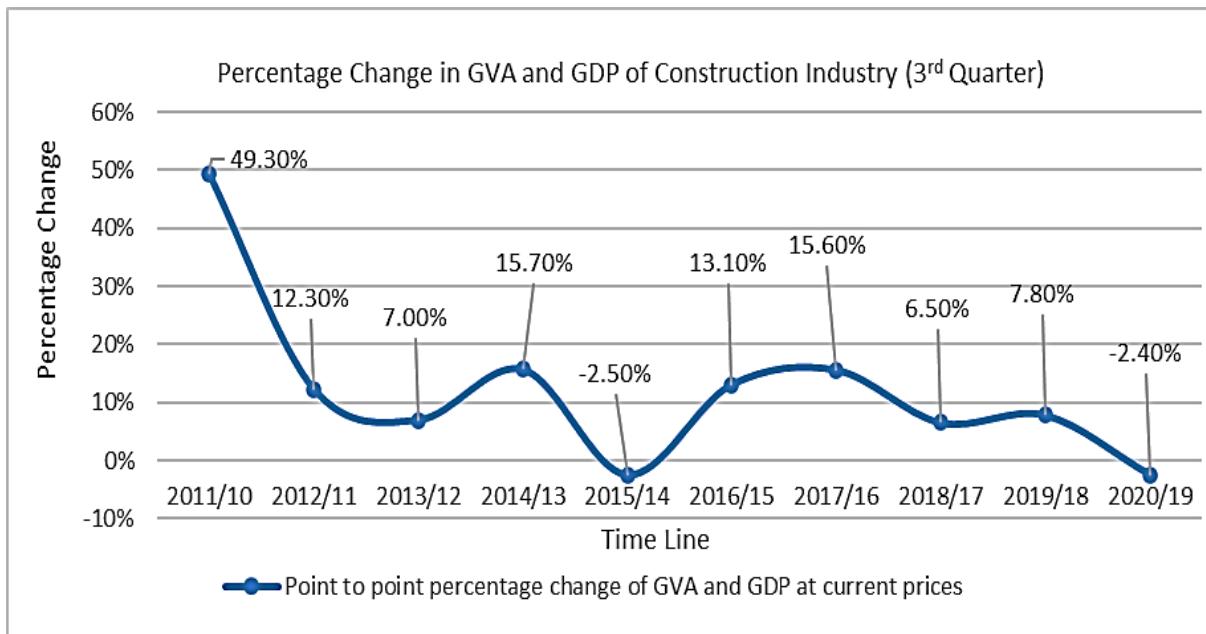
Figure 1.1 Percentage change in GVA & GDP of construction industry (3rd Quarter)
Source: Statistics and Census Department, 2021

From figure 1.1, change in GVA & GDP of the construction industry had fluctuated from 49.3% to -2.5%. There was a dramatic drop on the same in 2015/14 and 2020/19, where the 7th & 8th presidential elections were held. As appeared in Elinwa and Buba's (1993) paper, professionals had recorded 70% - 74% of severity on influence in government policies on construction costs' prices. Substantially, Enshassi, Al-Hallaq and Mohamed (2006) had mentioned that, construction industry highly relied on the economic cycles and political surroundings. McDonald and Kendall (1994) had found that sudden change of political events in the defense industry, had impacted its' stock prices with positive values in United States which admitted the general perception about uncertainty that may create from the date of announcement of an election. Thus, if sudden political changes could have an impact towards the construction industry, it can be assumed that, political events could affect the construction industry and its' related costs figures. Yet, any findings had not observed on such trends and regularities in history which left it alone as a supposition.

At the same time, cost estimation is crucial to the construction activities where, both over-budgeting and under-budgeting, have been rejected due to the creation of loss in strategic opportunities in the industry. Akintoye (2000) stated that, the accuracy of cost estimation had been very important for all parties to the Contract. Inappropriate Engineer estimates could make unsustainable and ineffective financial injections from the Employer to the project. On the other hand, the contractor would cling on the winner's curse. As per the study of indirect cost estimations published by Tah, Thorpe and McCaffer (1994), professionals were not using the risk analysis to accumulate the risks for estimates in United Kingdom, where a provisional margin was kept from the profit based on their experience, due to the uniqueness on each event. In Sri Lanka as current practice, everyone was used to allow inflation risks when preparing estimations. This was included even in the Standard Bidding Document – Major Works (SBD/CIDA/02) published by the Construction Industry Development Authority (CIDA). However, in absence of such provisions (or the deletion of it in contract), necessitates the inclusion of potential fluctuation in the price quoted. Even during budgeting, specific contingencies to accommodate cost fluctuations due to oncoming political events were not observed. The limitation could be primarily attributed to lack of proper knowledge on how political events affect the market price changes of construction inputs. This then limits the proper accounting of the related risks in cost estimating, and also leads to limit the professional advice to clients on the subject.

If an established regularity in pattern of changes exists, it could have been systematically incorporated into cost forecasts of construction projects. The absence of such knowledge results in speculative adjustments to price forecasts making them less accurate.

## 1.1 Aim of the Study

In order to address the above-mentioned problem, the study aimed to identify if there are regularities and patterns of the construction costs upon political events that can be systematically incorporated into construction cost forecasts.

## 1.2 Scope of the Research

In Sri Lanka, the presidential election is the foremost election with respect to the 1978 constitution. From 26th January 2010, a new presidential term was started whilst a fresh start of the post-war chapter of the country (30 years of Sri Lankan civil war was ended in May 2009).

Recent past, certain interesting and unique political events have happened in Sri Lanka. For example:

- Being the president for second consecutive time
- Being the presidential election candidate for the third time
- Unexpected political party changes
- Unity government
- Severe allegations on ruling parties
- Two prime ministers at the same time etc.

By looking at such events that occurred in the past, the period from 2010 to 2020 was selected as the scope of this study.

## 2 POLITICS AND CONSTRUCTION COSTS

Many professionals had identified risks associated with the construction industry and presented the risks analysing frameworks, and then various mitigation plans were illustrated. Kishan, Bhatt and Bhavsar (2014) formed risks into ten categories namely, Design, Physical, Logistics, Legal, Environmental, Construction, Management, Cultural, Financial and Politics. In political and financial risks, the mentioned causes were overlapped. Arguably, the majority of those financial risks were shadows of political risks on decision making. It was still unclear to group each risk into separate baskets due to the linkage on each other as above. Especially in political risks, the linkage to other risks were not addressed clearly so far. Thus, the criticality is kept silent along with the hidden background.

## 2.1 Political Events' Impacts

Apart from that, the effect of political events had not been cornered only to the construction industry but in every industry at large. However, the impacts on political events were seemed more popular in stock market price analysis in other countries. Though some had found that stock prices were affected by political events, the used definitions of political events were different. Niederhoffer (1971) had considered major political events based on the headlines of newspapers whilst Reilly and Drzycimski (1973) had selected seven political events concerning previously determined quantitative measures. Interestingly, the Niederhoffer (1971) considered illness and death of politicians, etc. also as political events whereas others did not. Meanwhile in Pakistan, Nazir et al (2014) showed the autocratic and democratic governments' impacts using events collected from several news channels for a period of decade. Because of the dependability and high interaction with minor changes in governing systems, the cut-off line on political events could not be well defined. According to the study of McDonald and Kendall (1994), the impact of political events had caused even before the event occurred, although the significance was low. It was addressable that, breakthrough or sense of future action would cause it. The majority of past literary works were conducted in narrow time bands when assessing the impact on a particular event. But the concern was, whether the actual impact would account within the specified period.

## 2.2 Political Risk in Construction Industry

The direct political intervention was already identified as a risk on economic growth and infrastructure expansions in many cases but not the political events. Among the construction industry vagueness, mostly the international construction had looked on the political risks independently. Gunhan

and Ardith (2005) were shown that the international construction business was impacted by political risks. Nevertheless, Ashley and Bonner in 1987 presented an approach for contractors to evaluate those risks. Xiaopeng and Pheng (2012) presented the top ten variables which were affected for the level of political risks. In that study, the degree on stability of government was recorded in peak by both academia and practitioner, followed by the host country's willingness and policy uncertainty. Under the host government influencers, upcoming elections, level of democracy, degree of consensus in policymaking were included out of forty factors from an extensive literature review in three means. Though, those were not recorded at top, such variables were already identified as impactors in international construction industry by 2012. At the end of the study, it was recommended to either deal or mitigate this risk, which indicated that, it is not a risk that could avoid. As Deng et al (2014) mentioned, the extent of applicability on those findings and recommendations was doubtful for other countries because of the tailoring nature of politics. For example, Viswanathan and Jha (2020) have found that political risk in Indian international construction as one of the risks but it was ranked the lowest. However, politics have been interpreted as a risk in both national and international contexts.

### 2.3     Construction Costs and Political Risk

Since the past, construction cost and time overruns were seemed to be very famous research interesting areas in construction industry, including in Sri Lanka. It was shown that, construction costs exceeded 100% of budget usually (Memon, Rahaman and Aziz, 2011). For many countries, fluctuation of material prices was a significant influencer on such cost overruns (Arditi, Akan and Gurdamar, 1985; Olawale & Sun, 2010; Memon et al, 2011). Other than that, Olawale & Sun (2010) found that fluctuation of currency, unstable government policies and weak regulations & controls were impacted negatively for construction costs. Arditi, Akan and Gurdamar, (1985) revealed the critical behaviour of a country's government and the significant role of responsible leadership. Similarly, Niazi and Painting in 2017 recommended a strong leadership in future projects to overcome this construction cost overflow. As well as, Wijekoon and Attanayake (2013) recommended to have necessary national policies and amendments to acts to reduce the road construction projects cost overruns when acquisitioning lands in Sri Lanka.

In the study of Prabowo, Hooghiemstra and Van (2017) in Europe, found that labour cost stickiness was strong when elections occurred. Besides that, Rosenbaum (1997) had identified the risks of political instability, corruption, fluctuations in interest rates and currency and problems in material availability were the causes of cost overruns in privatised infrastructure projects in developing countries. Many research had reviewed corruption and allege under the umbrella of politics as a cause for financial problems, where this has become a common concern in the industry. In Sri Lanka, Hiroshan and Hadiwatte (2014) had recorded 16% of political influence on total construction costs in the industry. In their study, the cost of material was ranked for 1st on severity scoring of 84%. Though they have mentioned that 16% of political influence, they were silent on the rationality behind it. Hence, the truth behind political behaviour to construction cost was not revealed yet.

### 2.4     Construction Cost Representatives

Most of the above-mentioned research papers' variables were identified through comprehensive literature review, questionnaire surveys or pool discussions. Some had presented the statistics of past cost overruns and cost indices to support the interpretations of their study (Damnjanovic et al, 2009). However, it was noticed that, cost indices published by authority bodies, were heavily used to produce estimated cost predictions. Yet, the uses of these indices were not restricted to that. Son, Jang and Lee in 2014 had used construction indices in Korea to study the productivity of workers' operating rates. In the local context, Ruddock et al in 2011 directed the study of post-tsunami reconstruction through construction cost indices published by the Institute of Construction Training and Development (ICTAD) present as CIDA. Similarly, some others also had used the construction cost indices to advocate their explorations (Weddikkara and Devapriya, 2001). CIDA has a rich, past construction costs database for Sri Lanka which consisting all costs of materials, labour, plants and machinery. As well as they have indices for types of constructions.

However, some researchers had argued that those indices were not accurate and realistic. In international context, academic journalists have used similar measures combined with the more sensible

and less estimating error techniques of statistical models (Shahandashti, and Ashuri, 2013; Ilbeigi, Ashuri and Joukar, 2017; Zhang et al, 2017). Though it was debatable, indices were provided to use in both academic and industrial applications, which were published by an authorised national entity – CIDA, and interestingly, no one had in fact proved the inaccuracy of these indices. Even if they could have inaccuracies, that would not significantly affect this study as the expectation was not to estimate cost, but to identify the changes in cost trends. As construction costs were the base impactor in all causes, it was taken as the variable of this study. Construction cost indices published by CIDA were identified as the appropriate data to represent construction cost fluctuations in Sri Lanka.

## 3    METHODOLOGY

As mentioned above, CIDA cost indices, the most applicable and reliable cost representation were chosen in literature review. Using that cost representator, the study was carried forward for the data analysis.

Positivism was followed as the research problem was tested using statistics aiming to either reject or not reject the hypothesized patterns. Past statistical data were collected to observe the behaviour and regularities of the variable. Using the observations of trends and patterns, a critical discussion regarding the involvement of political background was built. The study accompanied the mixed method on both qualitative and quantitative approaches. The beginning of the study was carried on quantitative style but based on the findings, latter part of the analysis followed the qualitative approach which had to construct the theory purely on interpretations based on observations. Strategy of inquiry was a documentary survey because, the variable data and details on changes in political events were collected from a variety of published documents. Data collection strategy was built on the findings of literature review. The method of data collection was unobtrusive due on the borrowed statistical data. Accordingly, the following research method was adopted.

Both qualitative and quantitative studies were carried out simultaneously. For the qualitative analysis, details on political events were picked from newspapers, websites, government reports, and other available and reliable sources of published documents in public. These details were on past elections, amended acts, past economic statistics, infrastructure developments, policy changes, acts of politicians, etc. After a desktop study, elections were chosen as the best fitted benchmark to project the political events in Sri Lanka for the study. Qualitative analysis was continued further to identify the timeline pins which were required to observe the patterns and trends in quantitative analysis.

On the other hand, construction cost indices were extracted from the Bulletin of Construction Statistics published by CIDA. Since the scope of this research lasted a decade, two hardcopy bounded bulletins were used. One was published in December 2014 and other was published in December 2019. Published data were on 55 materials, 3 types of each labour, plant and machinery. As well as those bulletins have given the indices based on 11 types of constructions. These data were calculated with respect to a base year or base month and these base months and years were not identical for all indices. Since the study focused on changes in patterns, dissimilarity of base years and months would not disrupt the results. Moreover, these statistics were directly obtained through either observations or experiments by CIDA. Hence, the collected variable data was primary data though it was from an institute. To observe the fluctuations over the period, this study followed a time series analysis method for construction cost data. A longitudinal time series analysis was conducted through spreadsheet-based data analysis software. The independent variable was the time and the dependent variable was the construction cost indices. Firstly, data were recorded to spreadsheets and average quarterly data were computed in each year to observe long-term patterns and regularities while excluding the distraction of short-term influencers in the trends which could appear on monthly or quarterly basis. Initially, all 72 indices were represented in graphs and long-term trends were observed. Out of them, unresponsive graphs were dropped, and significant waves were taken for further analysis. Thereinafter the regression analysis was conducted to get the best fit estimated line for each index, assuming the linear relationship between construction costs along with the time. Given that, the assumption was more likely to be real when compared to the long-term trend on actual data. Then, the cycles were formed considering the difference between actual cost index and cost index predicted by long term linear trend. Because of that, periodical trends and cycles were formed without the seasonality. An extensive analysis was conducted on formed cycles while detecting patterns, turning points and dispersions in every graph. Furthermore,

smoothing techniques of moving average on double (2), triple (3) and quintuple (5) in time series analysis, were drawn on cycles when necessary to highlight the trends and cyclical regularities. Out of drawn moving averages on cycles most accountable trendline was taken to the next analysis. As to reduce the complexity of presenting the findings, similar trends and patterns were grouped by considering significant familiarities as in whole, even when patterns were not exactly the same. The number of formed groups was twenty. Aside from that, materials were further evaluated along with the related products and raw materials, importing and regulated materials.

Finally, the identified political events' timeline was pinned on grouped graphs. In findings, the results of the quantitative analysis were discussed and interpreted with the identified timeline pins in qualitative analysis.

## 4    ANALYSIS AND DISCUSSION

The study was focused on 'major' political events in Sri Lanka. Since there has not any other clean bottom line of defining such political events that happened within the country, the events given in Table 4.1 were used as the major events for the analysis. The overall findings of the study were given later.

Table 4.1 Major Political Events

| Ref. No. | Major Political Events | Date |
|---|---|---|
| I. | 6th Presidential Election | 26.01.2010 |
| II. | Parliamentary Election | 08.04.2010 & 20.04.2010 |
| III. | Local Government Election | 17.03.2011, 23.07.2011 & 08.10.2011 |
| IV. | Eastern Provincial Election | 08.09.2012 |
| V. | North Central Provincial Election | 08.09.2012 |
| VI. | Sabaragamuwa Provincial Election | 08.09.2012 |
| VII. | Central Provincial Election | 21.09.2013 |
| VIII. | Northern Provincial Election | 21.09.2013 |
| IX. | North Western Provincial Election | 21.09.2013 |
| X. | Western Provincial Election | 29.03.2014 |
| XI. | Southern Provincial Election | 29.03.2014 |
| XII. | Uva Provincial Election | 20.09.2014 |
| XIII. | 7th Presidential Election | 08.01.2015 |
| XIV. | 8th Parliamentary Election | 17.08.2015 |
| XV. | Local Government Election | 10.02.2018 |
| XVI. | 8th Presidential Election | 16.11.2019 |

Analysis was executed on several stages to get the best outcome at last. Initially the long-term trend was considered. Almost many graphs had overall upward trends throughout the decade except the followings.

Table 4.2 Downward Trend Materials

| Type | Duration (Q = Quarter) |
|------|------------------------|
| Hume Pipe | 1st Q 2010 -1st Q 2012 |
| Zink Aluminium Sheets | 4th Q 2015 – 4th Q 2016 |
| Bitumen 80/100 (Using Drum Price) | 4th Q 2010 – 3rd Q 2011 3rd Q 2014 – 2nd Q 2016 |
| Fuel | 3rd Q 2014 – 1st Q 2018 |

As per the world bank inflation data, 2012 and 2017 were critical years where the inflation rate soared. And 2014 year had a lower inflation rate in Sri Lanka. Therefore, it was likely to be that, materials which had been occurred a downward trend like in Bitumen, Hume Pipe and Fuel may because of the inflation. Specially for Cement, it was mainly floated with policy changes as it has been a regulated price in Sri Lanka. That could have been the reason for drastical drop in 2015, where a new government was appointed. Similarly, the fluctuation of Fuel would be caused due to the same fact that acts of the government.

Apart from the aforementioned, Cement and related products were recorded sudden decline of price by 1st Q 2015. Similarly, below types of construction prices were shown dramatic shifts in long run upward trends.

Table 4.3 Shifts Along Long Term Trends

| Type of Construction | Period |
|----------------------|--------|
| Water Supply and Drainage | 4th Q 2011 – 4th Q 2012 |
| Road Works | 4th Q 2011 – 1st Q 2016 |
| All Civil Works | 4th Q 2011 – 1st Q 2016 |

Especially for Road Works and All Civil Works, the middle part of the trend could be considered as a shift to the usual, comparing the besides two end paths' trends. However, all these shifts were occurred due to the emergent rise and dip. Those were happened in long term because of the political background as mentioned earlier. As a result of the developments of infrastructure projects in the areas which were affected by terrorism, the demand for construction was arisen by 2011. And this was continued to the commercial city of Colombo latter, but with a different perception of developments (tourism) while commencing landmark projects and road development projects in urban and suburban areas. This boom was represented even in cycles of some building materials with a shock.

Following indices were dropped from further analysis as they have been levelled off for more than three years even without being regulated by the government nor logically justifiable trends.
- Electrical Wiring
- Cadjan
- Geo-Textile
- Small Equipment
- Heavy Equipment

By perceiving the results of overall cyclical trends, the indices were grouped together in which mix of degree of smoothing in one group. This would not cause doubts in reliability, because smoothing was done only to achieve the best fit trendline of scattered indices' prices.

Table 4.4 Grouped Elements

| Type of Index | Group No. | Included Indices |
|---|---|---|
| Materials | Group 01 | Sand, Bricks (Hand cut), Bricks (Machine cut), Calicut Tiles, Formwork Timber, Electrical Fittings, Earth |
| | Group 02 | Cement Blocks, Rubble, Metal, Sanitaryware (Imported), Timber Products, Terrazzo, Floor Tile, Granite Tiles, Coloured Pigment, Ready Mixed Concrete, Metal Dust |
| | Group 03 | Reinforcement Steel, Wall Tiles, High Tensile Steel Wire, Pre-stressed Bridge Beams, Chain Link Fence |
| | Group 04 | Glass, Wall Paint |
| | Group 05 | GI Sheets, General Timber, Aluminum Ceiling, Concrete Lamp Post, ABC Road Metal |
| | Group 06 | Cement (Local – Exfactory Prices), Cement (Imported), Cement (Local – Market Price), Cement (Weighted Average), Cement Concrete Roof Tile |
| | Group 07 | Asbestos Roofing Sheets, Asbestos Ceiling, Door & Window Fittings |
| | Group 08 | Lime, Sanitaryware (Local), Wood Paint |
| | Group 09 | Structural Steel, PVC Pipes, Aluminium Doors, Windows and Partitions, Stainless Steel |
| | Group 10 | Precast items for Bridges, Roads and Building Components, Hume Pipe |
| | Group 11 | Bitumen 80/100 (Using drum price), Bitumen 80/100 (Using bulk price), Bitumen 60/70 (Using drum price, Bitumen 60/70 (using bulk price) |
| | Group 12 | Zink Alum Sheets |
| | Group 13 | Ductile Iron Pipe |
| | Group 14 | Gabion Box, Road Marking Paint |
| Labour | Group 15 | Skilled labour, Semi-Skilled Labour, Unskilled Labour |
| Plant and Machinery | Group 16 | Fuel |
| Types of Constructions | Group 17 | Modern Housing, All Housing, Non-Residential Building, Irrigation Minor |
| | Group 18 | Irrigation Major, Other Civil Works, All Civil Works |
| | Group 19 | Road Works, Water Supply and Drainage |
| | Group 20 | Semi-Permanent Housing |

The observations of line graphs of above Grouped Elements in Table 4.4 were listed below.

- Group 01 had recorded changes around in 2011 and 2012 last quarters, and mid of 2015 and 2018 years. Only Electrical Fittings' prices had changed in the year 2017 out of all group members.
- Group 02 indices' prices were got changed mainly in 2011, 2013, 2017 and 2018.
- High Tensile Steel Wire and Pre-stressed Bridge Beams' indices stayed stable in $3^{rd}$ quarter of 2015 to $1^{st}$ quarter of 2016. All materials in Group 03 had a significant turning at $3^{rd}$ quarter of 2018. However, in 2014 and 2015 had no directional changes in graphs.
- Prices of Wall Paints were more fluctuated than prices of Glass while all Group 04 materials had turning points in every year from 2011 to 2018 except 2014.
- Rubble in $3^{rd}$ quarter of 2015 to $2^{nd}$ quarter of 2016 and Terrazzo in $3^{rd}$ quarter of 2016 to $2^{nd}$ quarter of 2017 recorded a slight deviation from the regular long-run pattern of prices.

- In Metal, it was noted that graphs were switched mostly in 2013 and 2018. Another significance was that all graphs maintained the long-term trend in 2014 and 2015 without altering. As well as, all asbestos related materials had alike pattern changes.
- Precast items for Bridges, Roads and Building Components, Hume pipe presented very much similar patterns.
- All bitumen related materials took the same graph but Bitumen 80/100 (using bulk price) had slightly dropped in 2nd quarter of 2013.
- Ductile Iron pipe and ABC Road Metal had totally different graph compared to all other materials. Hence, those two were left alone.
- Gabion box and Road marking paint materials were started to use recently. Therefore, both graphs started late in 2011 and early 2014 respectively.
- All labour indices were taken in the same pattern.

Aside from the above-grouped graphs following diagrams were plotted to study further on noticed, and critical observations.
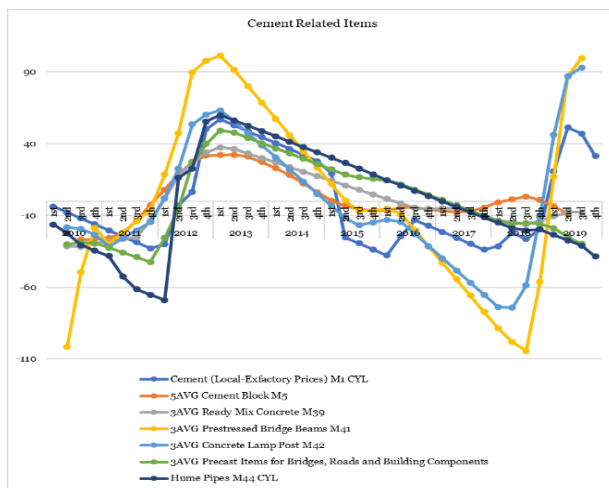


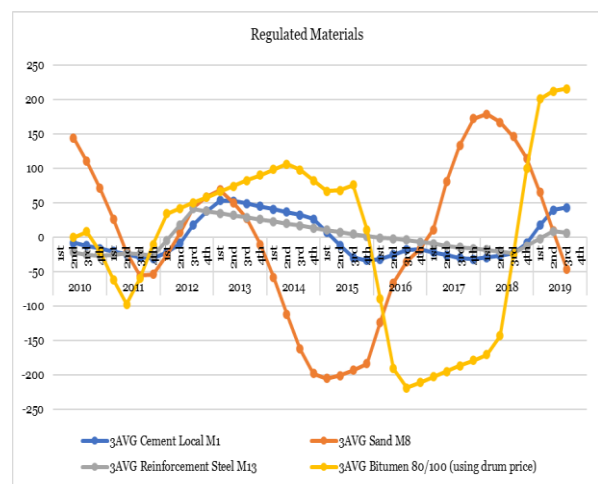Figure 4.1 Cycles on Cement Related Products



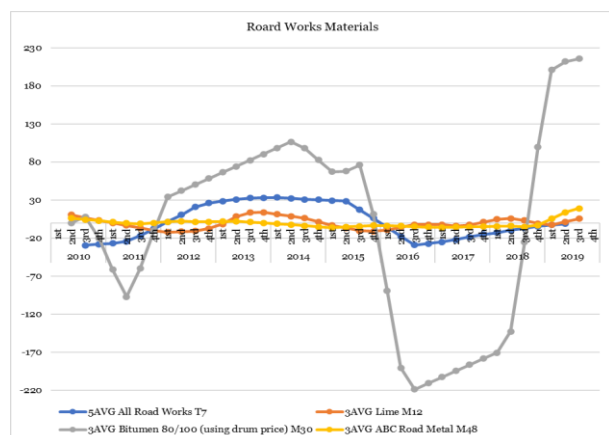Figure 4.2 Cycles on Regulated Materials
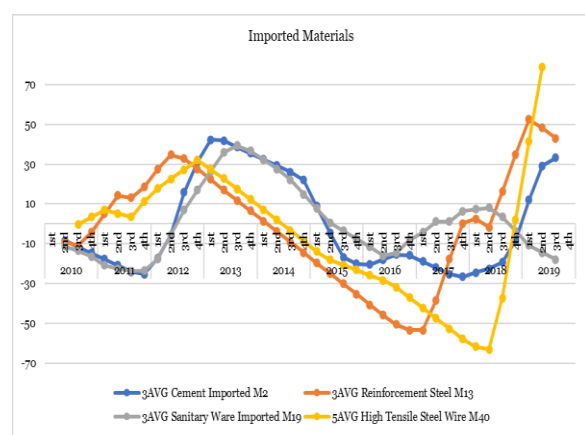


Figure 4.3 Cycles of Road Works Materials



Figure 4.4 Cycles of Imported Materials

Figures from 4.1 to 4.4 shows various relationships among indices. In figure 4.1, though the M44 had followed M1 pattern changes in 2012 to 2013 and it was not continued from 2015. Both graphs in figure 4.2 and 4.4 did not provide a clear indication of the relationship, even those were labelled under two general categories. This would be again because of the policy and regulatory changes, with the changes in ruling party, the policies and acts that get updated from time to time. Even though the changes in indices occurred due to policy changes, it can be argued that, these policy changes have happened as a result of the political events (changing in government).

Apart from that, many materials had a likelihood boost from last quarter in 2018 to early 2019. At this period the political situation in the country was not stabled because of that upheaval political event on the bond scam. The local currency value was steadily fallen during the period and citizens were got impacted. It seemed that a country like Sri Lanka would react to the occurrence of such political events either directly or indirectly which can be stated out that, it is not necessarily only to be happened because of policy changes.

The results from time series data analysis were observed along the pinned timeline of major political events. As a holistic view of outcomes of the above data analysis, it was observed that most of the indices' patterns were swapped in 2011, 2013 and 2018. Both in 2011 and 2018 the local authorities' elections were held island-wide. Overall results in both elections terms were not changed with the comparison of right before previous election results but in 2018 winning party was neither from president nor prime minister's party. In 2013 provincial election was happened for the provinces of Central province, Northern province and Northern Western province. The majority party was unchanged in all provinces, in both the terms but some elected minorities were changed in both years. Whereas Northern province was not called out for an election in 2008 to 2009 as there was a civil war.

## 5    CONCLUSIONS AND REFLECTIONS

With the findings of the study, it can be concluded that, there are no specific patterns and regularities of the construction costs upon political events in Sri Lanka that can be systematically incorporated into construction cost forecasts in the local industry. Therefore, to the practice of Quantity Surveying, it is not recommended to make any specific construction cost or price adjustments on account of political events, but include them within undefined contingencies. However, it could be highlighted that cyclical patterns lasted for 4 to 6 (i.e. on average 5) years' time spans, and some fluctuations within these cycles have significantly deviated from the average trend. Hence, the significant cyclical fluctuations that seems to be occurred over the average trend shall be carefully attended in making forecasts for the improvement of accuracy in pricing and budgeting.

Therefore, the findings however do not deny the impact of political events on construction costs. The observed average cycle of construction costs was found to be 5 years. Interestingly, the political cycles in Sri Lanka are also 5 years on average. Since current literature also points to a potential link, though indirect. The academic interest should continue to better understand this complex causal mechanism. A qualitative study would help deeper understanding of this complexity. Due to lack of generalizability, it may not offer a direct solution to the research problem in this study, yet it may present a pathway to find an appropriate solution.

As a spill over knowledge, the study showed interesting relationships in price fluctuation patterns among some construction inputs. This knowledge can be expanded further to improve the accuracy of construction cost forecasting.

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