Causes of government construction projects' abandonment

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C H R O N I C L E	A B S T R A C T
	Government construction projects are vital to the economic development of developing countries. However, although most of these projects suffer from abandonment, little evidence exists concerning the causes that account for this setback. This paper investigates the causes of government construction project abandonment in Ghana. We used a sequential data collection approach, in-depth semi-structured interviews, and questionnaire surveys to solicit the views of project management practitioners, contractors, and clients associated with Ghana government construction project implementation. Using factor analysis and structural equation modelling, we find that Ghanaian government construction project abandonment is influenced by five sets of causes: political leadership, culture, external forces, resources (including funding) and administrative/institutional bottlenecks. Three of these sets of causes – political leadership, cultural and external forces, are the primary causes, while resources (including funding) and administrative/institutional causes are secondary causes.

1. Introduction

This research explores the causes of government construction project abandonment in Ghana – an emerging economy. Abandonment is defined as a project that has been totally or partially abandoned (Heeks, 2002). Government policies are often translated into programmes and projects (Goodman & Love, 1980) and one key area where these programmes and projects are implemented is within the construction industry (CI). The CI mostly serves as the foundation for other sectors of the economy (Shehu et al., 2014; Pero et al., 2015). The industry drives economic growth and development (Shehu et al., 2014), making construction project success important to a country's development agenda. Nevertheless, existing literature (Frimpong et al., 2003; Shehu et al., 2014) suggests that many of these projects fail due to delay, cost overrun, poor requirement standards, and total abandonment. Consequently, researchers have assessed the that lead to these setbacks. Specifically, studies have looked at causes of delays (Sambasivan & Soon, 2007), cost overrun (Sinesilassie et al., 2017), requirement deviation (Damoah & Kumi, 2018), stakeholder dissatisfaction (Damoah & Akwei, 2017) and total abandonment (Ayodele & Alabi, 2011; Williams, 2016). We are motivated to examine the causes of public sector construction project abandonment in Ghana for the following reasons. Public sector construction projects play an essential role in economic development. Relative to private sector construction projects, they have both direct and indirect effects on

peoples' lives. Thus, in addition to job creation, they also make provision for socio-economic growth and development through improvements in social amenities (Ofori, 2012; Amoatey et al., 2015). To the extent that these social amenities are vital to the survival of other sectors of the economy, the performance of public sector construction projects is integral to economic growth and people' well-being (Al-Kharashi & Skimore, 2009; Ayodele & Alabi, 2011). Consequently, their abandonment has dire consequences for the citizenry. Thus, an investigation into the causes of such abandonment is necessary to guide the project implementation process in order to reduce, or avoid, abandonment and its associated effects on the citizens. Furthermore, government construction projects have different stakeholders with varying degrees of interest and power to influence the project's performance. These stakeholders, by virtue of their contrasting interest vis-à-vis their power, may oppose each other or form coalitions to influence the project's performance (Pan, 2005; Pan & Pan, 2006). These stakeholders' interests are not apolitical (Damoah & Akwei, 2017) and in an emerging economy, they are embedded in a weak local public sector administration system that oversees the implementation of these projects. Impliedly, the abandonment here, might be different from those in the private sector that are often associated with technical and administrative within the 'performing' organisations, as evidenced in many studies such as Sambasivan and Soon (2007), Shehu et al. (2014) and Pero et al. (2015). In this study, we focus on Ghanaian government construction projects for two main reasons. First, the dynamics of the construction industry in Ghana typify occurrences in other emerging economies. For example, consistent with previous studies in developing countries like Malaysia (Shehu et al., 2014), and Saudi Arabia (Al-Kharashi & Skimore, 2009), the Ghana Construction Industry (GCI) is a major sector contributing to Ghana's socio-economic development and serves as the foundation for all other industries to flourish (Amoatey et al., 2015). In fact, the GCI is multi-faceted in terms of its spread across all the other sectors of the Ghanaian economy (Ofori, 2012) and makes a gross domestic product (GDP) contribution of about $3.8bn, representing 12.7% of the total GDP (Ghana Statistical Service, 2015). Second, Ghana started the exploitation of oil in commercial quantities in 2010 (Damoah, 2015). As a result, economic growth reached the highest rate in the country's history since independence from British colonial rule in 1957. Between 2010 and 2017, the average real GDP growth rate was 7.3% (Ghana Statistical Service, 2018), making Ghana one of the fastest growing economies in the world. In 2010 alone, the growth rate reached an astronomical level of 20%, thereby, making the country number one at the time, in world economic growth ranking (Economy Watch, 2011). The increase in economic development has necessitated the need to embark on infrastructural development to sustain this economic development and growth (Republic Ghana Budget, 2012, 2018). Nevertheless, Ghana has an unenviable history of project abandonment evidenced by several government projects that were never completed (Williams, 2016). Notable mega-construction projects that have been abandoned in recent years include, affordable housing (Klutse 2009), community day senior secondary schools (Republic of Ghana Budget, 2012), Ghana @50 community jubilee parks, toilets, and golden jubilee kindergartens, and roads (Zoure, 2011). This aggressive infrastructural drive, together with the rampant public-sector project abandonment in Ghana makes it salient to capture constructs that may be too weak to capture or notice in other institutional settings. The key research question is: what are the that account for the abandonment of these public-sector construction projects?

The study makes two important contributions to the literature. First, we use multiple primary data collection approaches to provide detailed evidence on that contribute to government construction project abandonment in Ghana. The seminal work of Williams (2016) is the closest to our study. Williams (2016) used archival (secondary) data to provide important evidence on how corruption, clientelism and collective choice explain public sector project abandonment. In contrast, our approach directly solicits the views of multiple stakeholders regarding what they perceive to be the causes of government construction project abandonment. This data triangulation is necessary to deepen our understanding of stakeholders' perspectives about the causes of public sector construction project abandonment. Second, we provide evidence for the first time about the main forms of political, cultural and external forces which affect government construction project abandonment in Ghana. This result is in contrast to prior studies that report cost overruns, requirement deviation, stakeholder dissatisfaction and collective choice (Williams, 2016; Damoah & Akwei, 2017), as the causes of construction project failure and abandonment. The findings are closely related to the work of Rasul and Rogger (2016) who report that management practices related to the monitoring of bureaucrats reduce public sector project completion rates. However, whereas Rasul and Rogger examined several public sector projects including procurement, training, research, advocacy and building in Nigeria, we specifically focus on public sector construction projects in Ghana.

2. Literature Review

2.1 Causes of Construction Projects Abandonment

Although most construction projects have suffered several setbacks in developing countries, only a few studies have examined the causes of these setbacks through abandonment, with a specific focus on Nigeria, Malaysia, and Ghana, in particular. Focusing on Nigeria for instance, Ayodele and Alabi (2011), investigated the causes and effects of construction projects abandonment and identified eighteen which include: inadequate project planning, inadequate funding, inflation, bankruptcy of contractors, variation of project scope, political , death of clients, incompetent project managers, wrong estimates, inadequate cost control, faulty design, change of priority, improper documentation, unqualified/inexperienced consultants, administrative/legal action, delayed payment, disputes, and natural disasters.

Similarly, Mac-Barango (2017) identified inadequate planning, inadequate funding, inflation, the bankruptcy of contractors, a variation of project scope, faulty design, delayed payment, and quackery (incompetence), as the main causes of construction projects abandonment in Nigeria. Olalusi and Otunola (2012) also identified incorrect estimation, lack of available skilled personnel, inadequate planning, poor risk management, misunderstandings about work requirements, poor quality control by regulatory agencies, corruption, and communication gaps among personnel, as the causes of construction projects abandonment. In an assessment of the causes and effects of abandoned development projects in real property values in Nigeria, Woka and Miebaka (2014) identified 22 causes of abandonment. In order of importance, they found payment remittance delay, lack of adequate fund allocation, leadership instability, the death of the investor/client/owner, inconsistency in government policies, improper project planning and design, improper project costing, land disputes/legal issues, and changes in investment present to be the most influential. These Nigerian studies utilise several failure criteria and provide a broader view of the general causes of construction project abandonment. They also, however, have three main caveats. First, they focus on generic causes, which consist of both the private and public sector; thus, their study fails to account for the differences between public and private sector construction projects, making it difficult to interpret their results considering either the public sector or private sector projects. Second, they use data from only three cities in Nigeria – an approach that may impair generalisability of their findings even within Nigeria. Third, their sole reliance on structured questionnaires limited participants from providing further insightful comments. Within the Malaysian setting, Addul-Rahman et al. (2013) identified the following categories of risk that account for abandonment: economic, financial, legal, mansard, selling system-related, developed-rated , and unforeseen risk . In Malaysia, Hoe (2013) identified 41 causes of construction project abandonment and the top 10 are: financial difficulties faced by owners, financial difficulties faced by contractors, unexpected bad economic conditions, inappropriate modes of financing projects, delays in interim payments, inadequate project feasibility studies, incompetent contractors or subcontractors, project control problems, inappropriate project planning and scheduling, and bureaucracy and red tape within the project. The Malaysian studies improved on the Nigerian studies by focusing on varied participants, as well as by using an in-depth interview technique that allow participants to provide further comments. Nevertheless, they also focused on participants in both public and private sectors making it difficult to attribute the findings to occurrences in the public sector. Thus, the question of what causes public sector construction projects abandonment still requires empirical study and further debate.

In relation to Ghana, existing literature indicates that there are several that account for government construction project abandonment in Ghana (Republic of Ghana Budget, 2012; 2018). However, the literature has mainly been reports and media commentary. Only a few studies have been empirical and, as such, the value of an empirical study to explore this cannot be over emphasised. Prior studies have either looked at causes of construction projects failure in general, using assessment criteria such as cost overrun (Frimpong et al., 2003), schedule delays (Fugar & Agyakwah-Baah, 2010), and used multiple failure criteria, or they have focused on industry-wide (Damoah & Kumi, 2018) and sub-construction industries such as groundwater construction (Frimpong et al., 2003), building construction (Fugar & Agyakwah-Baah, 2010), schools and boreholes (Williams, 2016), and housing construction (Amoatey et al., 2015). Even though Williams (2016) and Damoah and Kumi (2018) focused on public construction projects, the former is restricted to small development projects (schools and boreholes), whilst the latter is focused on failure in general – which is assessed using multiple project performance assessment criteria. Furthermore, Williams (2016) focused on corruption, clientelism and collective choice as the sources of abandonment. This current study explores the sources of abandonment by focusing on local attributes such as partisanship politics, public administration and institutional systems, national culture, external forces, and resources. We focus on these as they are local attributes that could be applied to other developing countries in Africa and beyond.

3. Methodology

The study adopts a mixed-method approach by employing an in-depth semi-structured interview and survey questionnaire in a sequential order. These are based on interpretive philosophy, the social construction paradigm, and positivism, respectively. However, we focus on the latter, as the former was only used for an exploratory study to identify the of government construction project abandonment within the local context (Bryman, 2012), which was then used as part of the variables in the questionnaire design. Therefore, the main philosophical position of this study is based on positivism. Accordingly, the questionnaire survey used was well structured; and with this research strategy, the researchers are independent and neither affects nor is affected by the subject of the research (Saunders et al., 2012). The data was collected from project management practitioners (PMP), contractors, and clients. The PMP and contractors were drawn from several professional bodies and associations such as the Ghana Institution of Engineering, Ghana Association of Managers, Association of Building and Civil Engineering Contractors of Ghana, and Chartered Institute of Project Management that is involved in construction projects management. In contrast, the clients were drawn from the various government Ministries, Departments and Agencies (MDAs) involved in government construction projects. These are mainly individuals working in the Ministry of Roads and Highways, the Ministry of Water Resource and Housing, the Department of Feeder Roads, the Department of Urban Roads, and other government representatives on various construction projects at the Metropolitans, Municipal and District Assemblies (MMDAs). The data collection commenced with a pilot interview consisting of one participant from each category of the participants to ensure that the interview 'question guide' was appropriate to collect appropriate data (Foddy, 2003). Furthermore, the questions were given to all authors and three external professors who have used interviews and focus-groups discussions for over 15 years to review. This was followed with piloting to ensure the facial validity. Based

on the reviewers' comments, the questions were revised. Purposive and snowball sampling approaches were employed. Consistent with Saunders et al. (2012), only people with a minimum of 10 years of project management experience were interviewed. This ensured that information was solicited only from professionals with rich knowledge about the subject matter; hence, only participants who have been involved in public sector construction project abandonment were targeted. To meet the purposive criteria, all those who were contacted through third parties and the snowball sampling approach were further scrutinised. This was done through LinkedIn profiles, company website profiles and published work. The full interview consisted of 16 participants (PMP =7; Contractors = 4; Client (GO) =5). The sample size was not pre-determined prior to the interviews. It was rather arrived at when the responses reached a saturation point; that is, at the point where no new emerged (Guest, 2006; Silverman, 2013). The interviews lasted between 30–45 minutes and were in participants' homes, offices, and sites, as well as in restaurants and via Skype. Both audio-recording and note-taking were used for some of the interviews, while others were used only by note-taking. The profiles of the interviewees are presented in Table A1 in the supplementary data section. Each interview was transcribed and uploaded into NVivo10, at the end of each day, and were analysed to identify the that participants cited. However, because the interviews were only used to explore the causes of government construction project abandonment, the full analysis is not presented. The (variables) identified by the various participants were compared several times to ensure that Repetitions were deleted. The variables were used to design the questionnaire on a Five-point Likert Scale, where the selection was 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree. The questionnaire was given to all the interview participants to review whether the variables reflect their views and what they mentioned. The questionnaire had 42 items (variables). The sample size for the PMP and Contractors were calculated using an adapted Yamane's formula (Israel, 1992). The use of Yamane's formula is to have an acceptable number of companies to choose our sample size from. This was done to improve the reliability of the sample size for the study. Furthermore, only individuals working for active and well-known companies were targeted. At the time of the research, 722 companies operating in the target professions were available. The following steps were followed:

1. Number of Active Registered Company = 722 (N = 722). At an acceptable 95% level of confidence, statistical z value of 2 (z = 2), and with an error limit of 10%.

Adapting the formula:

$$n = \frac{N}{1+Ne^2} = \frac{722}{1+722(0.1)^2} = \frac{722}{8.22} = 87$$

where,
n = required response/sample size
e^2 = limit of error
N = population

2. Even though 87 was the required sample size, this was increased to 500 to strengthen the external validity of the data. 253 (contractors=80; PMP=173) usable questionnaires were received – which is above Yamane's required response threshold (Israel, 1992).

On the other hand, the selection of the clients was more difficult as there was no specific number and as such we considered, all government officials leading government construction projects at the various Ministries, Departments, and Agencies (MDAs) and Metropolitans, Municipal, and Districts Assemblies (MMDAs) were targeted sample. Moreover, the researchers have in-depth knowledge of the difficulty in obtaining data from government officials who have been appointed based on partisan political lines. This is due to the researchers past experiences in obtaining data from such individuals. Therefore, we assumed that the response rate would be low and as such, there was a need to target as many potential participants as possible. A total of 200 questionnaires were distributed to the participants in this population, both in person and through third parties (gatekeepers) and 67 usable questionnaires were returned. Prior to this distribution, seven questionnaires were piloted and analysed to improve data reliability and validity (Saunders et al., 2012). Some of the variables were deleted while others were merged and/or changed, based on local meaning, and understanding of the statement of the causes. As with the interviews, participants were approached using purposive and snowball sampling concurrently. However, to ensure that the purposive criteria was met, there was a filter question at the beginning of the questionnaire to ensure that participants who had not been involved in public-sector construction project abandonment were not included in the analysis. Participants were asked to rank the variables on the (causes) of Ghanaian government construction projects abandonment. Prior to analysing the questionnaire results, it is important to establish the suitability of data for the analysis to be conducted. Therefore, a test for non-response bias was undertaken. A comparison of the mean values for the scale items revealed no significant difference between early (i.e., those who responded within the first three days) and late (those who responded after follow-ups) respondents (Lings & Greenly, 2010). Next, common method variance bias was tested since the data for the quantitative research was conducted using a single data instrument. This procedure ensures that the variations in responses obtained are caused by the actual predisposition of the respondents rather than the questionnaire. This study performed the Harman's (1967) a one-factor test based on the approach described by Andersson and Bateman (1997), Podsakoff et al. (2003), and Schriesheim (1979). This approach states that an exploratory factor analysis with the extraction of only one factor should have the variance explained to be less than 50%, in order to show absence of common method variance bias. Alternatively, researchers may perform exploratory factor analysis with the extraction of all causes with Eigenvalues greater than unity; if two or more causes are extracted, then common method variance bias is not a problem within the data. In this study, exploratory factor analysis performed with the extraction of only one factor showed that the factor accounted for about

25.9% of variance explained (which is less than 50% variance), therefore common method variance bias was not likely to be a problem with this data.   In the analysis of data, both exploratory factor analysis (EFA) and structural equation modelling (SEM) were used, drawing on the work of Chipulu et al. (2014) and Dzogbenuku and Kumi (2018). First, exploratory factor analysis with Varimax rotation was employed to identify the factor structure (group of causes) of Ghana government construction project abandonment. This is because there is no specific research to support or suggest a particular factorial configuration for the causes of construction project abandonment in Ghana. The findings (group of causes) from the EFA were then used to guide the development of the SEM model. Next, partial least squares structural equation modelling (PLS-SEM) (SmartPLS Release: 3.2.7) prescribed by Ringle et al. (2015) was used to find answers to the research question for several reasons. PLS is suited for predictive models using much smaller or much larger samples and is the preferred approach when assumptions of normality are not satisfied (Hair et al., 2016). The significance of each path was tested using bootstrap t-values (5,000 sub-samples) (Tortosa et al., 2009), a procedure available in PLS. This procedure helps to know if the group of causes are interrelated.

4. Results

To evaluate the key causes of Ghanaian government construction project abandonment, exploratory factor analysis was performed. All 42 variables on the questionnaire were subjected to principal component analysis followed by a Varimax rotation. Initial results showed that some variables such as "lack of materials", "wrong project scope", "lack of user involvement" and "opposition from parliament" had extraction communalities below 0.5. Therefore, in line with recommendations by Hair et al. (1998), who state that items with final extraction communalities below 0.5 should be eliminated, we decided to omit the three items and re-run the EFA with the 38 remaining variables to obtain the principal component analysis results presented in table 1. A Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy value of 0.907, as well as a Bartlett's Test of Sphericity (approx. Chi-square=6560.81, df=703, p=0.000), were obtained. These results show that the sample is adequate for factor analysis and that variables correlate well.

Table 1
Principal Component Analysis

Variable	Communality	Factor	Eigenvalue	% of Variance	Cumulative
Poor planning	0.650	1	10.394	27.353	27.353
Lack of monitoring	0.657	2	6.16	16.209	43.562
Project management technic/framework/models	0.567	3	1.978	5.204	48.767
Wrong specification	0.569	4	1.664	4.380	53.146
Lack of feasibility studies	0.567	5	1.345	3.540	56.687
Lack of commitment by project leaders (performing organisation)	0.505	6	1.172	3.084	59.771
Wrong communication	0.682	7	1.069	2.814	62.585
Poor supervision	0.680				
Bureaucratic processes	0.668				
Lack of commitment by project leaders (political leaders)	0.639				
Change in project leadership	0.717				
Political gains (political party level)	0.636				
Political gains (individual level)	0.594				
Personal gains (political projects leadership)	0.605				
Project not needed anymore	0.605				
Partisan politics	0.547				
Political interference	0.623				
Corruption	0.632				
Change in government	0.604				
Refusal of consultants to certify work for next phase of project	0.528				
Oppositions from opposition political parties	0.623				
Appointment of incompetent projects leaders	0.682				
Deliberate sabotage from incumbent political appointees	0.602				
Release of funds government	0.654				
Lack of human capacity	0.690				
Starting more projects than government can fund	0.669				
Sanction by regulators	0.768				
Sanctions by donor countries, agencies and institutions	0.610				
Withdrawal of funding by donor countries, agencies and institu-	0.593				
Pressure groups (media, NGOs, political activities etc.)	0.703				
Unwillingness of donor countries to fund projects	0.705				
Unwillingness of financial institutions to fund projects (financial	0.559				
Natural disaster/weather conditions	0.522				
Traditional belief system	0.632				
Religious belief system	0.619				
Legal suit	0.594				
Land litigations	0.645				
Resistance from local community	0.638				

KMO=0.907; Barletts Test Chi-square=6560.81, df=703, p=0.000; Total variance explained=62.6%

The analysis produced seven causes shown in table 2 above. To this study, only items with factor loadings higher than 0.5 were considered (Hair et al., 1998). This is to ensure that only items that significantly matter are considered for further analysis. As a result, "Natural disaster/weather" was eliminated from factor 5. The seven extracted causes account for about 63% of the total variance explained.

Table 2
Varimax rotated component matrix

Variables	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7
Appointment of incompetent project leaders	0.806						
Bureaucratic processes	0.800						
Political gains (political party level)	0.783						
Oppositions from opposition political parties	0.774						
Political interference	0.77						
Project not needed anymore	0.764						
Lack of commitment by project leaders (political leaders)	0.764						
Deliberate sabotage from incumbent political appointees	0.762						
Political gains (individual level)	0.757						
Corruption	0.747						
Personal gains (political projects leadership)	0.739						
Change in government	0.731						
Partisan politics	0.697						
Refusal of consultants to certify work for next phase of project	0.662						
Change in project leadership		0.789					
Poor planning		0.782					
Poor supervision		0.765					
Lack of monitoring		0.763					
Lack of feasibility studies		0.662					
Project management technic/framework/models		0.616					
Lack of commitment by project leaders (performing organisation)		0.615					
Wrong specification		0.58					
Release of funds government			0.731				
Lack of human capacity			0.73				
Starting more projects than government can fund			0.675				
Withdrawal of funding by donor countries, agencies and institutions			0.608				
Resistance from local community				0.711			
Religious belief system				0.703			
Traditional belief system				0.697			
Unwillingness of donor countries to fund projects					0.770		
Legal suit					0.745		
Land litigations					0.609		
Unwillingness of financial institutions to fund projects (financial credit facilities)					0.512		
Natural disaster/weather conditions					_		
Sanction by regulators						0.829	
Sanctions by donor countries, agencies and institutions						0.575	
Pressure groups (media, NGOs, political activities etc)							0.714
Wrong communication							0.675

Internal reliabilities and related decisions of the factor structure were performed. For this study, the cut off value of Cronbach's coefficient α adopted was 0.6 (Hair et al., 1998) and the acceptable benchmark value of item-to-total correlation was set above 0.3 (Hair et al.,1998; Narteh et al. 2014). The seventh factor was eliminated as a result. Furthermore, we decided to merge causes six and seven due to conceptual fitness purposes (Hair et al., 1998). This is mainly because the items that loaded under causes five and six could all be classified as 'external forces' that affect project abandonment. The internal consistency of the five remaining causes was computed and shown in Table 3.

Factor 1 contains 14 items and relates to issues concerning "Political Leadership" except for bureaucratic processes, which is institutional in nature. A realignment of the variable "bureaucratic processes" to other causes violated the reliability model in those causes; hence, we decided to maintain it in factor 1. Factor 2 is made up of eight items and relates to issues concerning "Institutional/Administrative causes". Factor 3 contains four items and relates to issues concerning "Resources/Funding". Factor 4 contains three items and relates to issues concerning "Cultural causes". Factor 5 contains six items and relates to issues concerning "External Forces".

4.1 Confirmatory Factor Analysis

A test of the psychometric properties of the obtained was carried out. This process involves a test of convergence and discriminant validity. An examination of the results showed that three items including "legal suit", "land litigations" and "sanction by regulators" under factor 5 had significant cross-loadings. The items were omitted sequentially and the model re-run after each deletion until the measurement model met the acceptable criteria for convergence and discriminant validity shown in Tables 4 and 5. Cronbach's alpha for the five causes extracted was higher than 0.6, the minimum acceptable limit

for exploratory research (Hair et al., 1998). Composite reliability for each of the five causes extracted was higher than 0.7 and average variance extracted estimates were also higher than 0.5, meeting the minimum suggested by Hair et al. (2016). Therefore, convergent validity has been adequately met.

Table 3
Internal consistency of final revised structure

Codes	causes and items	Number of items	Item-total correlation	α value
	Factor 1 (Political Leadership)			
pol1	Appointment of incompetent projects leaders	14	0.781	0.945
pol2	Bureaucratic processes		0.734	
pol3	Political gains (political party level)		0.744	
pol4	Oppositions from opposition political parties		0.710	
pol5	Political interference		0.740	
pol6	Project not needed anymore		0.723	
pol7	Lack of commitment by project leaders (political leaders)		0.711	
pol8	Deliberate sabotage from incumbent political appointees		0.723	
pol9	Political gains (individual level)		0.721	
pol10	Corruption		0.741	
pol11	Personal gains (political projects leadership)		0.727	
pol12	Change in government		0.716	
pol13	Partisan politics		0.675	
pol14	Refusal of consultants to certify work for next phase of project		0.658	
	Factor 2 (Institution/Administration)			
ad1	Change in project leadership	8	0.694	0.886
ad2	Poor planning		0.686	
ad3	Poor supervision		0.696	
ad4	Lack of monitoring		0.685	
ad5	Lack of feasibility studies		0.636	
ad6	Project management technic/framework/models		0.620	
ad7	Lack of commitment by project leaders (performing organisation)		0.611	
ad8	Wrong specification		0.615	
	Factor 3 (Resource/Funding)			
res1	Release of funds government	4	0.598	0.797
res2	Lack of human capacity		0.711	
res3	Starting more projects than government can fund		0.631	
res4	Withdrawal of funding by donor countries, agencies and institutions		0.498	
	Factor 4 (Culture)			
cul1	Resistance from local community	3	0.580	0.737
cul2	Religious belief system		0.550	
cul3	Traditional belief system		0.553	
	Factor 5 (External Forces)			
ext1	Unwillingness of donor countries to fund projects	6	0.451	0.685
ext2	Legal suit		0.412	
ext3	Land litigations		0.488	
ext4	Unwillingness of financial institutions to fund projects (financial credit facilities)		0.462	
ext5	Sanction by regulators		0.323	
ext6	Sanctions by donor countries, agencies and institutions		0.345	

Table 4
Convergence Validity

| Factor	α	CR	AVE
1. Political	0.945	0.952	0.585
2. Administrative	0.886	0.909	0.556
3. Resource	0.797	0.868	0.624
4. Cultural	0.737	0.851	0.655
5. External Forces	0.636	0.773	0.534

Table 5
Discriminant Validity (Square root of AVEs in bold-diagonal)

Factor	Fornell-Larcker criterion					Heterotrait-Monotrait Ratio (HTMT)				
	1	2	3	4	5	1	2	3	4	5
1. Political	**0.765**									
2. Administrative	0.223	**0.745**				0.236				
3. Resource	0.248	0.552	**0.790**			0.269	0.651			
4. Cultural	0.163	0.522	0.508	**0.809**		0.198	0.640	0.662		
5. External Forces	0.168	0.558	0.478	0.442	**0.731**	0.271	0.755	0.713	0.662	

Discriminant validity is met by the fact that there were no significant cross-loadings following purification of the model (See Table 5). Furthermore, the square root of the average variance extracted estimated for each of the five causes is greater than the inter-factor correlations between them (Fornell & Lacker, 1981; Hair et al., 2016) as presented in Table 5. Recent research on variance-based structural equation modelling has suggested that the Fornel- Larcker criterion alone is not conclusive on discriminant validity (Henseler et al., 2015; Osei-Frimpong, 2017). We, therefore, decided to perform the heterotrait-monotrait ratio (HTMT) of the correlations to be assessed using a specificity criterion rate of 0.85 (HTMT0.85). The results presented in Table 5 shows that none of the correlations exceeded 0.85. As a result, the five-factor model demonstrates discriminant validity. Having met the conditions of EFA and CFA, it can be concluded that the main causes of Ghanaian government construction project abandonments include political leadership, administrative/institutional, resources problems, cultural causes, and external forces.

4.2 Structural Equation Modelling

Having identified the five key cause Ghanaian government construction project abandonment, we proceeded to investigate how these are interrelated. Drawing on the insight from interviews and literature, three of the five sets of (political, cultural and external forces), were categorised as root causes, whereas administrative/institutional and resource as secondary causes. A model was built with the former as exogenous variables and the later as endogenous variables. The two endogenous variables including administrative/institutional and resource obtained R^2 values of 0.356 and 0.461 respectively both of which are higher than the moderate level of 33% suggested by Chin (1998) showing good explanatory power. The structural model is presented in figure 1. All structural paths were statistically significant except for the effects of political leadership on institutional/administrative. Specifically, resource, cultural and external forces significantly affect administrative/institutional causes of construction projects abandonment. Political leadership, however, has a significant indirect effect on institutional causes of project abandonment through the creation of resource problems. This implies that resource problems mediate the effects of political leadership on institutional causes. Comparatively, the most significant cause of administrative/institutional problems for construction project abandonments is external forces, closely followed by resources, cultural causes and political leadership, respectively. Additionally, political leadership, cultural and external forces all had significant direct effects on resource problems for construction projects abandonments. Comparatively, the most significant cause of resource problems is cultural causes, closely followed by external forces and political leadership, respectively.
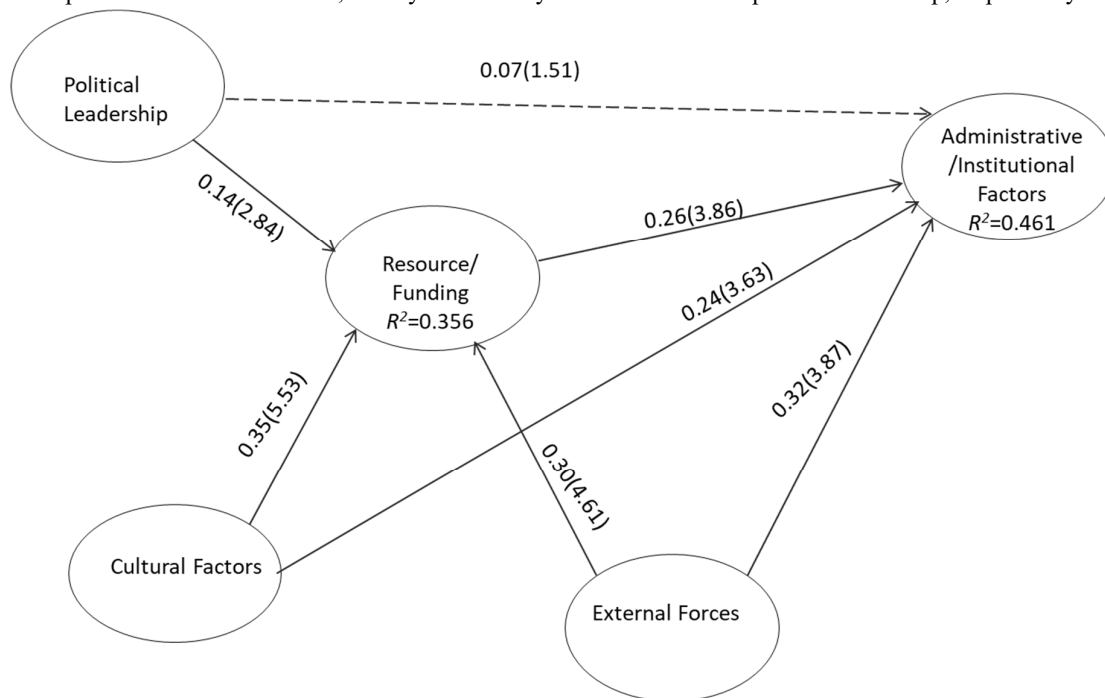
Fig. 1. Structural path coefficients showing regression weights, bootstrap t values (in parenthesis) and predictive accuracy in the endogenous variables.
Note: Dotted line means the path is not statistically significant.

5. Discussions and Conclusions

The results reveal that political leadership causes are major causes of public sector construction project abandonment in Ghana. Government construction projects in Ghana are often initiated by government agencies (Ghana Budget, 2012; Williams, 2016). Accordingly, project management and administrative leadership appointments, as well as the award of project

contracts, are made based on political partisanship and patronage (Bob-Milliar, 2012). Arguably, this may be due to how multi-party democracy is practised in the country. Consequently, partisan politics affects the entire fabric of life including the award of government contracts. Awarding construction projects to politicians may affect project abandonment in two ways. First, it reduces the apoliticality of project executions and makes project completions susceptible to political events such as changes in government. Second, to the extent that contracts are awarded based on political affiliations (instead of merit), awardees may have limited project management knowledge and may not be able to adequately deal with complexities when they arise, thus, leading to abandonment. This view is consistent with Goldfinch's (2007) suggestion that management incompetence is a major cause of public sector project abandonment. We, therefore, recommend that in a bid to reduce public construction project abandonment, policymakers should strive to disentangle these projects from partisan politics. This is particularly critical for project leadership and administration as well as the selection of contractors. However, for non-politically affiliated contractors in charge of government construction projects, we recommend the need to skillfully manage political influences with a view to reducing construction project abandonment. Theoretically, the finding has implications for standardised political agency theory (PAT). PAT suggests a hypothetical case where citizens (principals) retain self-seeking politicians (agents) to make responsible policy decisions (see Ferejohn, 1986). Thus, within PAT, a self-seeking politician's incentive to make responsible decisions devoid of malpractices and unethical behaviour is driven by the citizens' ability to hold them accountable through elections (Lemon, 2005). On the contrary, when citizens are closely attached to political parties, they tend not to hold political leaders accountable for their actions and this provides a leeway for self-seeking politicians to manipulate the system for their personal gain (Tabellini, 2000; Youde, 2005; Besley, 2007).

The results also indicate that institutional and administrative causes increase public sector construction project abandonment as indicated in Table 1. Like most developing countries, Ghana has weak public administration and institutional systems, mainly due to greater control from the executive arms of government and higher levels of bureaucracies and administrative bottlenecks (Killick, 2008; Amoako & Lyon, 2014; Asunka, 2015). Litvack et al. (1998) suggest institutional laxity and a lack of public sector accountability in weaker public sector environments. Arguably, this may reduce accountability on the part of project leaders and contractors and affect public sector construction project performance. Moreover, the results indicate that cultural issues such as resistance from the local community, as well as religious and traditional belief systems, lead to Ghanaian government construction projects abandonment. This finding can be linked to the global religious index, which places Ghana as the number one most religious country in the world – with 96% of Ghanaians being classified as religious (WIN-Gallup International, 2012). This implies that Ghanaians place more importance on belief systems in their schemes of activities. This finding seems consistent with prior empirical studies that suggest a link between national culture and project management performance (Heeks, 2002). However, this current finding adds a different dimension to the study of this relationships by introducing traditional and religious cultural belief systems. Prior studies have focused this relationship in terms of the 'cultural-fits' of projects management methodologies, frameworks and techniques. Moreover, and perhaps, unsurprisingly, the study reveals that a lack of resources could lead to Ghanaian government construction project abandonment. This includes both financial and human resources. Regarding financial resources, existing literature suggests that Ghana relies heavily on external sources of funding in the form of borrowing and grants for the execution of public sector programmes and projects (Republic of Ghana Budget, 2018; Ministry of Ghana, 2018). Impliedly, any failure by these agencies and donor partners to provide these funds or withdrawal of programmes and projects funding part-way through the construction projects, could lead to abandonment. In relation to human resources, extant literature in project management indicates that a lack of skilled human resources impedes project management success (Sambasian & Soon, 2007; Ruuska & Teigland, 2009). This finding is consistent with resource dependency theory (RDT); which argues that external resources to organisations affect the behaviour of organisations; and the activities of organisations are influenced by external forces (Pfeffer & Salackcik 1978; Hillman et al. 2009). Impliedly, any project manager's ability to procure the right resources is a necessity for the project's successful performance. Therefore, to ensure that the dependencies on foreign donors do not lead to abandonment, the government may have to ensure the availability of back-up funds for donor-funded construction projects before they commence.

Closely related to resources are external forces. These include within and outside the country but are external to the construction projects. Indeed, existing evidence indicates that external forces account for construction projects failure, however, these relate to a failure in the form of delays (Frimpong et al., 2003; Fugar & Agyakwah-Baah, 2010). On the contrary, this current study has identified additional types of external causes that affect projects performance. The implication is that the success of Ghanaian government construction projects may be influenced by external forces which are beyond the control of both the government and the implementing contractor(s).

In conclusion, the findings indicate that government constructions projects abandonment is influenced by five sets of causes – political leadership, culture, external forces, resources, and administrative and institutional. However, political leadership, cultural and external forces are the primary causes while resources, plus administrative and institutional causes are secondary causes. Our study has two main caveats. First, we did not compare the various causes and/or categories of causes to know the relative importance of these in causing government construction project abandonment in Ghana. Therefore, future studies could rank the level of importance of these causes using the Relative Importance Index analysis. Second, to the extent that we identified these causes through interviews with key stakeholders, our results may only be valid if these views are correct and well-informed. However, given that these stakeholders are directly involved in government construction

projects, we have no reason to doubt their judgements on the causes of the abandonment of these projects. Despite these limitations, the findings of this study provide lots of insights for policymakers, practitioners and other stakeholders interested in public sector construction projects in developing countries.

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