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IMPLICATIONS OF ECONOMIC FORECASTING ON PROJECT TIME OVERRUN

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Abstract
This study assesses the implications of economic forecasting on project time overrun. Using a comprehensive review of literature, an exploratory research design was adopted to review the literature from 2015 to 2023 to ascertain how economic forecasting has contributed to project time overrun. The result from these studies revealed that forecasting has a positive relationship with various economies compared to it, project time overrun has a negative relationship with various projects that they are being compared with, project time overrun would lead to delay or incomplete projects and project time overrun is more pronounced in the public sector and it occurs in most projects irrespective of the size. It was concluded that an economic forecast geared towards project overrun should reduce project time overrun if the forecast is well carried out and well implemented and recommended among others that economic forecasting should serve as a tool for planning project execution as this would help reduce project time overrun if well implemented.

Keywords: Construction, Economic Forecasting, Project Management, Project Time Overrun, Public Sector

Introduction

Forecasting has been in existence as far back as millennia with the rival diviners in ancient Greece competed to predict the future more accurately. However, for general forecasting (i.e., predicting the future of regularly observed data over time), the history is much more limited and goes back only about 250 years. In fact, it wasn't until computers were widely available that it became feasible for forecasting to be used as a decision-making tool (Hyndman, 2020). Economic forecasting has been around for centuries. However, it was the great depression of the 1930s that gave birth to the levels of analysis we see today. After that disaster, a greater onus was placed on understanding how the economy works and where it is heading. This led to the development of a richer array of statistics and analytical techniques. (Dritsaki, 2023). Economic forecasting is mostly carried out in developed countries with the help of the World Economic Forecast Model (WEFM) which was initiated to replace the old, mainframe-computer-based link model. The WEFM maintains the bottom-up modelling approach and a version of the international linkage mechanism of the original link system. The world economy is modelled as a collection of individual country models linked together through international trade and other international economic relations. However, the WEFM strives to make significant improvements over the previous link system in several respects. (Altshuler, Holland, Hong, & Li, 2016). Economic forecasting is also essential in developing countries as this economy mostly depend on their oil sectors. Economic forecasting of oil production and prices are intended to be useful for governments, and other business industries. They need internal forecasts to execute policies that

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provide technical and market support for their oil sectors. Government publications routinely provide private decision makers with commodity price and output forecasts at regional and national levels and at various horizons. (Allen, 2015). Project time overrun is one of the most serious issues in construction projects globally, Time overrun can result in many negative impacts on the construction project like budget overrun, low productivity, contract expiration, work acceleration resulting in bad quality. (Soomro, Memon, Chandio, Sohu, & Soomro, 2019). Also, Mukuka, Aigbavboa and Thwala (2015) highlighted that project time overrun can have negative consequences for the project success, such as loss of profit, disputes, poor quality of work, stress, bad reputation, claims, and delays in getting profits. The interconnectivity between economic forecasting and project time overrun are explained using the concept of uncertainty. Uncertainty is the degree of doubt about the future outcomes of a project, which affect the accuracy and reliability of the estimates and plans made for the project (Zwikael & Smyrk, 2019). Economic forecasting helps to reduce uncertainty by providing information and scenarios about the future economic conditions that may affect the project, such as demand, supply, prices, costs, revenues, and risks. By using economic forecasting, project managers adjust their estimates and plans accordingly and mitigate potential problems that may cause project time overrun. Economic forecasting also help improve communication and coordination among the project stakeholders, such as owners, contractors, suppliers, and customers, by providing a common basis for decision making and expectation management. Therefore, economic forecasting help improve project time overrun by reducing uncertainty and enhancing project performance.

In Nigeria, project time overrun has been a major factor that hinders project success which leads to adverse effects such as project abandonment, project delay and poor quality delivery. The authors observed that most studies on project time overrun focused on the construction industry, according to the literature at the researchers disposal. The construction industry has a significant influence on the economy of Nigeria, as it plays a vital role in its development. However, construction projects in Nigeria often face time overrun, which impacts the economic development and overall performance of the contractors negatively (Bamitale & Oluwakayode 2022). This study found few existing studies on the implications of economic forecasting on project time overrun, according to the literature available to the researcher. Some studies have used machine learning methods to predict time and cost overruns in construction projects and suggested that economic forecasting can help reduce the uncertainty and risk associated with these overruns (Al mnaseer et al., 2023). Other studies have analysed the factors affecting cost and time overruns in construction projects and recommended that economic forecasting can help improve the planning and budgeting of these projects (Khan et al., 2021). However, these studies have not focused on Lagos Nigeria, which is a major economic hub in Africa and faces significant challenges in its construction sector. Therefore, this study aims to explore how economic forecasting can help reduce project time overrun and improve project success in Lagos Nigeria. The study will also examine how economic forecasting can influence the factors that contribute to project time overrun and how it can benefit the contractors and the economy. The study will fill the gap in the literature by investigating the relationship between economic forecasting and project time overrun, which has not been utilised by academicians in Lagos.

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Theoretical Framework

Theory of Rational Expectations

The theory of rational expectations was first introduced by John F. Muth in his paper "Rational Expectations and the Theory of Price Movements" published in 1961. Robert Lucas and Thomas Sargent further developed the theory in the 1970s and 1980s which became seminal works on the topic and were widely used in microeconomics (Austin, 2017). The theory of rational expectations is an economic theory that explains how individuals make predictions about the future based on all available information. It states that individuals are rational and use all available information to make unbiased, informed predictions about the future. This means that individuals do not make systematic errors in their predictions and that their predictions are not biased by past errors. The theory also suggests that people's current expectations of the economy are, themselves, able to influence what the future state of the economy will become (Austin, 2017).

The theory of rational expectations has been praised for its consistency with the idea of efficient markets and for its ability to explain various economic phenomena, such as inflation, unemployment, business cycles, and monetary policy. The theory has also been criticized for its unrealistic assumptions, such as perfect information, rationality, and homogeneity of agents. Some critics argue that the theory ignores the role of emotions, social norms, and cognitive biases in human decision-making. Others contend that the theory fails to account for the complexity, uncertainty, and unpredictability of the real world. The theory of rational expectations is relevant to this study because it helps to understand how individuals form their expectations about future economic conditions and how these expectations affect their decisions and actions.

Empirical Review

Empirical studies on economic forecasting have largely concentrated on forecasting techniques and accuracy, with limited attention to how forecasting outcomes translate into operational and project-level decisions. Heidi, Adamantios, and Stephen (2022), in their study of forecasting practices in Wales, observed that most empirical research emphasizes forecasting accuracy as the primary performance metric. While this focus improves methodological rigor, it downplays the practical implications of forecasting errors, particularly overestimation and underestimation, which they identified as common in applied settings. This creates a gap between forecasting outputs and their real-world usefulness for planning and execution. Several studies have adopted econometric time-series models to forecast macroeconomic indicators, especially GDP. Dritsaki (2020) employed the Box–Jenkins ARIMA (1,1,1) model to forecast Greece's real GDP rate and concluded that the economy was improving steadily. Although the study demonstrates the predictive capacity of traditional econometric models, it is limited by its narrow reliance on historical GDP data and does not assess how forecast outcomes influence sectoral planning or project performance. Similarly, Bokhari and Feridun (2016) compared ARIMA, VAR, and factor-based models for inflation forecasting in Pakistan and found marginal performance differences among models. Their findings highlight methodological refinement but offer little insight into how such forecasts can mitigate economic uncertainty at the project implementation level.

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More recent studies have shifted toward model evaluation and validation techniques. Cerqueira, Torgo, and Mozetič (2020) assessed performance estimation methods for stationary and non-stationary time series and found that out-of-sample validation methods yield more reliable results for non-stationary data. While their contribution strengthens forecasting reliability, the study remains method-centric and does not extend its findings to decision-making contexts where forecast errors often trigger project delays and cost overruns. Advances in machine learning have also influenced forecasting research. Psimopoulos (2020) applied artificial intelligence models to forecast economic recessions and found support vector machines to be the most accurate. The study's emphasis on pre-recession periods is innovative and valuable for preventive planning. However, like earlier studies, it stops short of linking predictive signals to structured planning frameworks, leaving unanswered questions about how such forecasts can be operationalized to manage project risks such as time overrun.

In contrast, empirical studies on project time overrun have focused extensively on identifying causal factors, with minimal integration of economic forecasting variables. Famiyeh et al. (2017) examined educational projects in Ghana and identified payment delays, poorly defined scope, unrealistic schedules, and rising material costs as major contributors to overruns. While the study provides useful context-specific insights, its small sample size limits generalizability, and it does not explore how macroeconomic indicators or forecasts could inform more realistic project scheduling. Similarly, Mukuka et al. (2015) documented the negative consequences of schedule overruns in South Africa, including cost escalation, disputes, reputational damage, and reduced quality. Although the study effectively highlights the severity of time overruns, it is largely descriptive and reactive, focusing on outcomes rather than preventive mechanisms such as economic forecasting and early-warning systems. Studies conducted in Pakistan further reinforce the dominance of contractor- and environment-related explanations. Faheem, Muhammed, and Abdul Fattah (2019) identified financial constraints, contractor inexperience, labor shortages, and inaccurate time estimation as key drivers of delays. Irfan et al. (2019) extended this by incorporating contextual risks such as insecurity and stakeholder interference in terrorism-affected regions. While these studies deepen understanding of contextual risks, they implicitly treat time overruns as project-internal problems, overlooking broader economic volatility that influences material prices, labor availability, and financing conditions.

In the Nigerian context, Augustine and Mangvwat (2018) reported a high prevalence of time overrun, particularly in public sector projects, attributing delays largely to client-related factors. Despite the relevance of their findings, the study does not engage with macroeconomic planning tools that could help clients develop more realistic project timelines and budget provisions.
Overall, the empirical literature reveals a clear disconnect. Forecasting studies prioritize methodological accuracy without examining implementation outcomes, while project overrun studies emphasize operational causes without incorporating economic forecasting as a preventive planning tool. This fragmentation limits the ability of existing research to explain how economic forecasts can be translated into actionable strategies to reduce project time overrun. The present study addresses this gap by integrating economic forecasting into the analysis of project time

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overrun, thereby extending empirical discourse from prediction accuracy to practical project performance implications.

Methodology

This study adopted a systematic literature review design, guided by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) framework. A systematic literature review was considered appropriate because the study synthesizes and critically examines existing empirical evidence on economic forecasting and project time overrun, without statistically aggregating effect sizes, which is a core requirement of meta-analytical studies. The review covered scholarly works published between 2015 and 2023, ensuring the study relied on current, relevant literature. Articles were sourced from reputable academic databases, including Google Scholar, ScienceDirect, ResearchGate, Academia, and other peer-reviewed journal repositories. The search process employed keywords such as economic forecasting, project performance, project time overrun, and implications of economic forecasting on project time overrun.

Following the PRISMA guidelines, the literature selection process was conducted in four stages: identification, screening, eligibility, and inclusion. During the identification stage, a broad search yielded a large number of studies related to economic forecasting and project performance. In the screening stage, duplicate records were removed, and titles and abstracts were reviewed to exclude studies not relevant to the study's focus. The eligibility stage involved a full-text assessment of the remaining articles to ensure direct relevance to economic forecasting and project time overrun. Only studies published in English were considered to avoid translation bias, and emphasis was placed on peer-reviewed journal articles, conference papers, and authoritative literature reviews.

Studies were included if they explicitly discussed economic forecasting, macroeconomic uncertainty, project planning, or time overrun in project environments. Literature reviews and conceptual papers were also included to strengthen the theoretical grounding and deepen the analysis. Outdated studies, lacked methodological clarity, or were not directly related to the study objectives were excluded. The screening and eligibility process yielded 65 articles that met the inclusion criteria and were included in the synthesis and analysis. Rather than statistically combining results, the selected studies were qualitatively analyzed to identify recurring themes, methodological patterns, empirical findings, and research gaps related to the role of economic forecasting in managing project time overrun.

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Table 1: List of Journals

S/N	Journals	Numbers of Publications
1	Journals of Business Research	12
2	Journals of Machine Learning	3
3	Journals of International Business & Economics	15
4	Journals of Construction Engineering & Management	17
6	South European Journal of Economics	5
7	International Journal of Construction Management	13
	Total	65

Source: Researcher (2024).

Results

Forecasting and project management are complex and dynamic fields that involve various factors, methods, and challenges. Several studies have examined different aspects of these fields, such as economic forecasting, time and cost overruns, uncertainty management, and forecast combination. Some of the main findings from these studies are: Economic forecasting can help reduce the uncertainty and risk associated with time and cost overruns in construction projects (Olabode et al., 2022). However, economic forecasting is not an exact science, and it depends on the choice and quality of the data sources, models, and methods used (Liberto, 2020). Different economic forecasting methods have different advantages and disadvantages, and they may not always agree with each other (Christoffersen et al., 2017). Therefore, combining forecasts from different sources and methods can improve forecast accuracy and reduce uncertainty (Graefe et al., 2015; Makridakis et al., 2020).

Time and cost overruns are common problems in construction projects, especially in developing and terrorism-affected countries (Mukuka et al., 2015; Irfan et al., 2019). They have negative effects on project performance, stakeholder satisfaction, and economic growth (Alzahrani & Emsley, 2016; Bamitale & Oluwakayode, 2022). The main causes of time and cost overruns are design changes, financial difficulties, poor planning and scheduling, material shortages, stakeholder interference, weather impacts, and insecurity threats (Assaf & Al-Hejji, 2016; Sharma & Gupta, 2021). The main mitigation measures are clear definition of scope, effective communication, realistic budgeting, contingency provision, regular monitoring, and prompt payment (Olawale & Sun, 2010; Famiyeh et al., 2017). Uncertainty is the degree of doubt about the future outcomes of a project, which can affect the accuracy and reliability of the estimates and plans made for the project (Zwikael & Smyrk, 2019). Uncertainty can be classified into four types: variation, foreseen uncertainty, unforeseen uncertainty, and chaos (Zwikael & Smyrk, 2019). Uncertainty can be managed by using different strategies, such as reducing, transferring, absorbing, or exploiting uncertainty (Zwikael & Smyrk, 2019). Out of the sixty-five articles reviewed for this sudy, twenty-five articles that are most relevant to this study were summarized in a table and the study discovered that seven of these study were conducted in Africa while

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eighteen others are conducted outside Africa. The study further revealed that inflation, exchange rate flunctuation, inadequate planning, inadequate funding, poor contract management, material shortages, ineffective management, slow decision making and project abandomnet are the major causes of project time overrun in Africa. Design changes, poor planning material shortages, poor supervision, contract termination, and equipment breakdown are the major causes of time overrun in Asia while change in design, inaccurate estimates, poor risk management techniques and natural disaster are the major causes of project time overrun. Majority of the authors agreed that economic forecasting is a very useful tool in planning and making decisions. This study also discovered that a economic forecasting can help reduce the uncertainty and risk associated with time and cost overruns.

Conclusion

Economic forecasts are geared toward predicting quarterly or annual GDP growth rates, the top-level macro number upon which many businesses and governments base their decisions for investments, hiring, spending, and other important policies that impact aggregate economic activity. It can be deduced in this study that economic forecasting is used in making future predictions and to enhance planning processes while project time overrun can be deduced to be a major cause of unsuccessful projects as drawn from various studies. Therefore, economic forecasts geared towards project overrun should reduce project time overrun if the forecast is well carried out and well implemented.

Recommendations

i. Economic forecasting should be systematically integrated into project planning and execution processes, as accurate forecasts provide early signals that support informed decision-making and reduce the likelihood of project time overrun.
ii. Project stakeholders and experts should rely on economic forecasts when estimating project schedules and resource requirements, as this enables more realistic planning and allows adequate provision for potential delays that may arise from macroeconomic fluctuations.
iii. Economic forecasting outcomes should be actively used to develop and implement contingency plans during project execution, ensuring that identified economic risks are anticipated and managed effectively to minimize project time overrun.

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