

A Comparative Analysis of Performance of Domestic and Foreign Contractors: The Case of Ethiopian Federal Road Construction Projects

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Abstract

In Ethiopia, infrastructure, particularly road construction, has been the most essential driver of economic growth. Simultaneously, it is widely acknowledged and analysed that the domestic road construction industry is inefficient, threatening its role as a driver of the country's economic growth. Thus, the objective of the study was to make comparative analysis of domestic and foreign contractors' performance in Ethiopian road construction in terms of cost, time, and quality. To meet the objective of the study a document review, semi-structured interview, and focused group discussion (FGD) were used as a data collection tool. Based on analysis, the finding shows that the domestic contractors are far from being competitive in terms of cost overrun, time overrun and quality performance but it is promising progress over time. Finally, the study mainly recommends domestic contractors should be mindful of the severe competition they face from foreign firms. This necessitates the participation of both the construction industry and the government in improving the sector's competitiveness. Local road construction firms operate in a challenging business climate. Construction companies' ability to use internal resources such as human resources, finance, equipment and plant, marketing information, technology, and others is encouraged because it gives contractors a competitive advantage. Allocating and effectively utilising such resources enables them to accomplish many client objectives, such as completing projects on schedule, under budget, and to specified quality standards.

Keywords: Road Construction, Domestic Contractors, Foreign Contractors, Project Performance, Time Overrun, Cost Overrun

Introduction

One of the most significant contributors to a country's socioeconomic development is the construction industry. According to Bossink and Brouwers (1996), Infrastructure programs funded by the public sector are an economic and social driver for long-term urban growth that benefits residents. Governments intend to invest money on public works programs that will improve a country's social and economic activities. However, one of the most critical barriers to the country's economic and social progress is a lack of or underdeveloped infrastructure (Frank et al., 2013). The accomplishment of time, cost, and quality is used to determine whether a project's execution was successful (Majid et al., 2006; Sun et al., 2013). Delay and cost escalation are two of the most common challenges encountered during the development of infrastructure projects, particularly road and railway constructions (Mahamid et al., 2012). The triple project constraints are used to assess project performance and success (Cost, time, and quality). The success of a project is determined by its ability to be completed on schedule and within budget. Because there are so many project activities, tasks, and limits in the sector, it necessitates greater budget and cost.

Ethiopia has ambitious construction plans for the next five years. GDP II, the focus seems to be mainly focused on infrastructure and housing initiatives. To foster a competitive construction industry in Ethiopia,

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Project management itself offers scope for international contractors to enter the Ethiopian market (Kim et al., 2009). Like many developing nations, road construction is an essential part of infrastructure expansion in Ethiopia providing connectivity to both rural and urban areas. Road Sector Development Program (RSDP) has massively improved the performance of the sector in terms of strengthening Road Agencies and their management, improvement in terms of access and quality of road network, creating favorable condition to the domestic construction industry, introducing a series of other policy measures in the sector. However, the RSDP report shows that there is huge gap in terms of delivery of different projects in time and cost. The attainment of time, money, and quality is used to determine whether or not a project's execution was successful (Majid et al., 2006; Sun et al., 2013).

However, MoWUD (2006) the Ministry of Urban Development and Construction stated that the Ethiopian construction industry is unable to meet specified local and international quality requirements, as well as the sector's output expectations. From the beginning to the end of the operation, construction projects have their own procedures and challenges. Time and cost overruns, as well as waste generation, were among the problems (Hussin et al., 2013). Many issues and problems confront the industry, including time, cost, quality, client satisfaction, productivity, and safety (Biyadgligh, 2017). In response to the challenge posed by globalisation of the world economy, there has been an increase in questions about international competition over the last two decades (Abdul-Aziz, 1994; Sillars & Kangari, 1997). International differences in, for example, economic, legal, cultural, technical, managerial, and environmental factors, as well as the uniqueness of construction products and the uncertainties in the construction process, render international construction comparisons difficult, but not impossible, as long as they are taken into account when conducting such study. Contractors in Ethiopia will benefit from comparisons and they can provide ideas or methods that can help them enhance their performance. The vast number of problems must be reduced to manageable numbers so that steps to improve competition can be defined and analysed. In our growing construction industry, Thus, this research project tried to measure the comparative analysis of performance of domestic and foreign contractors.

Competitiveness refers to a construction firm's ability to bid effectively, provide superior quality services, and decrease prices all while meeting deadlines (Shrair's, 2011). Despite its value, however, the industry has and continues to face issues such as cost overruns, schedule delays, poor quality, material waste, inefficient operations, and insufficient productivity (Abdul-Rahman et al., 2013; Simpeh, 2012). As Hussin et al. (2013) finding the construction industry faces different problems like time overrun (70% of projects), cost overrun (average 14% of contract cost), and waste generation (approximately 10% of the material cost). A few Chinese and Ethiopian enterprises have long dominated the Ethiopian road construction business. As a result, Ethiopia is home to a high number of Chinese businesses and experts. Government agencies were forced to rely on foreign contractors nearly two decades ago due to strong demand and difficulty of the job, according to the Road Sector Development Program (RSDP) analysis, but as competition expanded and price discrepancies became minor, the expanding local construction industry was seriously affected. The current situation shows that local contractors and Chinese companies are in fierce competition, as the latter have built a better reputation and, ironically, have ironically adapted to local conditions, in addition to having demonstrably superior operational capabilities.

There are widespread reports that some road projects which are carried out by International contractors are relatively completed within reasonable time frame, allocated budget and expected quality of work as against Local contractors which have been completing their projects far beyond the stipulated time frame, with high cost overrun and with less quality of the work. It is discovered why the domestic construction industry's capacity is limited and technologically outdated. However, construction operations are getting more technologically advanced and complex over the world, necessitating larger and more sophisticated capacity. Existing contractors lack the necessary labor and equipment. Furthermore, relative to the quantity of such projects the country is doing, the number of contractors working in higher construction works such as highways and dams is quite low. Hence the objective of this study is to look at the efficiency and competitiveness of Ethiopian road contractors with foreign contractors

in terms of project delivery (time, cost, and quality). In other words, the researchers aimed objectively to make comparative analysis of performance of domestic and foreign contractors in Ethiopia federal road construction by assessing the performance regarding cost, time, and quality. This was done by comparing cost performance of projects of domestic and foreign contractors in terms of their contract value, cost at completion, cost overrun, and the reasons behind; comparing time performance of domestic and foreign contractors with completion time; and comparing quality of the projects of domestic and foreign contractors in Ethiopian road sector.

Ethiopia's government is spending vast sums of money in several mega projects to boost public service quality. However, failure to meet the construction planned timeline, estimated cost, and necessary quality is a very common problem that affects almost all infrastructure projects. A few Chinese and Ethiopian enterprises have long dominated the Ethiopian road construction business. As a result, Ethiopia is home to a high number of Chinese businesses and experts. Government agencies were forced to rely on foreign contractors nearly two decades ago due to strong demand and difficulty of the job, according to the Road Sector Development Program (RSDP) analysis, but as competition expanded and price discrepancies became minor, the expanding local construction industry was seriously affected. The current situation shows that local contractors and Chinese companies are in fierce competition, as the latter have built a better reputation.

Literature Review

A project is a short-term activity that produces a one-of-a-kind product, service, or outcome. according to the book *A guide to the project management body of knowledge* (2008). One of the most difficult tasks for project managers is to balance project cost, schedule, and quality. This is tough to achieve because cost, time, and quality are all interwoven to the point where improving one affects the other two. When meeting project goals, project managers usually aim to strike a balance between the three, but they may have to make trade-offs between the three during project execution to achieve objectives and satisfy customers. Over 50 years Iron triangle is used in project management for measuring project success. Cost, time and

quality is a closely related, and change of one effect on the other. Simply completing the project by the given due date and within budget is not sufficient, because the project must also be of acceptable quality. In today's world with a distinct competitive in the business world, the quality is perhaps the most important element of competitive fighting (BojanStojcetovic, 2019). As discussed in Jackson (2002) study *Keeping track of project timelines and costs* necessitates a proactive mindset. An effective construction manager's ability to predict and avoid future project delays is a key attribute. Even if the project team uses all the resources and strategies at their disposal, most projects would still get derailed at some stage. Over the process of construction, almost every job will encounter time delays, cost overruns, or quality problems.

It is nearly impossible to predict and foresee every conceivable event that could trigger a hiccup in our scheme, no matter how hard we try to make a flawless plan. As a result, hiccups are unavoidable. As a result, it's a good idea to anticipate where these hiccups could occur. A variety of factors may have an effect on our job results. Others are out of our influence, while others are the product of bad management or a lack of foresight. A cost management process is a procedure for formally identifying, approving, and paying project costs or expenses. Labor costs (for staff, external suppliers, contractors, and consultants), Equipment costs (for example computers, furniture, construction facilities, machinery, and vehicles), material costs (e.g., stationery, consumables, construction materials, water, and electricity), Administration costs (such as legal, insurance, lending, and accounting fees).

Project time management refers to the procedures that must be followed to ensure that a project is completed on time, as specified by the Project Management Institute. Planning is the most important aspect of project time management, followed by monitoring and execution. Deadlines, consumer requests, hard and soft reasoning, and a little foresight can all influence project schedule planning. A quality management process is a system for assuring and controlling the quality of deliverables and management processes during a project. The procedure entails conducting several evaluations in order to evaluate and enhance the efficiency of project deliverables and

processes (Westland, 2006) as cited in (Hailemeskel, 2013). The Project Management Institute defines quality as the degree to which a collection of intrinsic qualities meets standards. A product, process, or system may have a set of inherent characteristics. The criteria may be those of consumers or stakeholders, a vital category that is often overlooked, putting the project's progress at risk.

The study conducted by Ahmed Bubeker titled a comparative analysis of the competitiveness of construction firms: on federal highway project implementation. The objective of this study is identifying key competitiveness Indicators (KCI) for construction firm in the context of Ethiopian Federal Highway construction projects and assessing its association between KCI and performance of the local construction firms. To do this the researcher uses questionnaire to collect data and from 110, 102 were returned and based on that the findings are quality works on asphalt road construction projects are ensured through firms' competitiveness (with RIV 93.53%) and completing project on Time shows firms' competitiveness (with RIV 92.16%) are above the average value RIV. But client satisfaction can be raised by firms' competitiveness (with RIV 87.45%) and construction firm's competitiveness helps firms' to complete a project within budget (with RIV 87.84%) indicate lower RIV values which are less than section's average RIV (90.25%).

A study with title Determinants of Infrastructure Project Delays and Cost Escalations in The Cases of Federal Road and Railway Construction Projects in Ethiopia. The study was carried out by Yenealem Fentahun (2020), the major goal was to figure out what factors influence time and cost overruns in Ethiopian federal road and railway development projects. To do so, the researcher used a purposive sampling methodology to collect data from a specified population of managers and engineers who had suffered delays and cost overruns from the client, contractor, and consultant. A total of 73 questionnaires were collected, and 18 senior engineers were interviewed using a range of research approaches, with the data analysed using SPSS and RII for applied and descriptive statistics. To establish the exact extent of time and cost overruns in road and railway building projects, Secondary data was gathered from 25 road and three railway projects that were completed between 2014 and May 2018 and

evaluated using Microsoft Office Excel 2007. According to the inquiry, 88 percent of road and 100 percent of railway construction projects were behind schedule, with 80 percent of road and 100 percent of railway construction projects experiencing cost overruns. Ten completed road improvements in Addis Ababa were the subject of a desk research (Abubeker, 2015). Ten of them, according to the studies, have encountered time and cost overruns. As a result, they take longer and cost more than expected. The rates vary between a minimum of 25% and a high of 264.38 percent time and a minimum of 4.11 percent and a maximum of 135.06% cost.

A study titled Factors influencing Time and Cost Overruns in Road Construction Projects: Addis Ababa, Ethiopian Scenario by Shambel Gebrehiwot Tadewos, the study's goal was to evaluate the current system and determine the elements that influence time and expense overruns in Addis Ababa road projects. This is based on a thorough review of the literature. The study conducted a desk study on 10 completed road projects in Addis Ababa in its findings, 10 of them had experienced time overrun and cost overrun. Thus, they take more time and cost than what had been estimated. The rates are ranging from a minimum of 25% to the maximum of 264.38% time and a minimum of 4.11% to the maximum of 135.06% of cost.

The other study titled Factors affecting competitiveness small contractors in construction industry by Johari, Walujodjati, Mulyana and Permana (2019), the objective of the study was to identify what factors influence competitiveness and identify what are the dominant factors that affect the competitiveness of small contractors in the construction industry in West Java. To do this the author uses descriptive and explanatory research methods which are then processed by statistical methods using validation tests, reliability tests, and factor analysis. Using the data, the study identified 1 dominant factor that influences the competitiveness of small contractors in the construction industry in West Java, namely project management factors. These indicators are, Location management, Cost management, Quality management, Time management, Contract management, Problem solving expertise, Risk management, Logistics and supply chain management, Effectiveness in coordination with subcontractors, Effectiveness in site safety management, Knowledge of

local construction law, Number of major accidents in the last 3 years, and the contract ratio successfully committed. For project implementation, Coordination of all activities and labor involved.

In the study 'Elements of Cost and Schedule Overrun in Construction Projects,' Vaibhav and Ghaitidak (2016) found in the construction industry, time and expense overruns are a typical worry. They concluded that the principal reasons of delays and overruns were site acquisition, tender cancellation, poor contractor mobilization, equipment erection, fund constraints, law and order difficulties, delays in equipment delivery, scope revisions, forest clearance, slow construction progress, and cost escalation.

Ten completed road improvements in Addis Ababa were the subject of a desk research (Abubeker, 2015). Ten of them, according to the studies, have encountered time and cost overruns. As a result, they take longer and cost more than expected. The rates vary between a minimum of 25% and a high of 264.38 percent time and a minimum of 4.11 percent and a maximum of 135.06% cost.

Methods and Materials

The researchers used descriptive research design. The objective of a descriptive study is to know and explain the features of the variables under examination in a particular circumstance. The analysis is based on observations of real-world problems and determines whether or not there is real difference in performance between foreign and domestic in almost completed projects, which are then processed and evaluated so that conclusions can be reached based on the data that has been processed and examined. To achieve the objective of the study, a quantitative and qualitative (mixed) research approach was used. The advantage of using a mixed method approach is that it compensates for the shortcomings of each approach by using the strengths of the other. The population is collection of contractors chosen based on the scope of the study that are participated in the construction of road projects completed on the last five years (2016-2020).

In this study both primary and secondary data sources were used for the analysis. The primary data was collected from focus group discussion and semi-structured interview and the secondary data sources were collected primarily

from each project's progress reports in order to answer to the research's objectives through desktop analysis, the information covers, among other things, the project's start and expected/actual completion dates, as well as the original and revised contract amounts. The secondary data was collected and analysed using Microsoft Excel 2007 model. The actual magnitude of cost inflation and schedule slippage over the course of a year for the average of all road projects.

The projects included in the study are projects which is completed or progressed more than 80% from 2016-2020, and for foreign contractors only 3 years data 2018-2020 were found, and the amount of contract volume more than 150 million Ethiopian birr. Purposive sampling was used, the reason for selecting the higher the contract volume and the more involved the projects, the greater the risk of missing estimated costs and timelines. And the projects must be completed or must be at the acceptable stage to estimate the overall project delay and escalation of cost and quality performance. For the primary data source, the respondents were chosen using purposive sampling, as it is a valuable tool that permits a researcher to collect data from a subset of the population that the researcher believes is the most informed about the topic of road construction project in retention, quality audit teams that works in ERA. So the sample which is selected by purposive can be said it is representative to the targeted population.

The secondary data was collected and analyzed using Microsoft Excel 2007 model. The actual magnitude of cost inflation and schedule slippage over the course of a year for the average of all road projects. For projects that were completed between 2016 and 2020, was determined using Microsoft Windows Excel 2007.

Average contract period in a year = Mean = $\sum x/n$

Where,

- x is duration of project in days.
- n is number of projects each year.

Time Overrun = Contract Period (Average Revised – Average Planned)
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Average contract amount = Mean = $\sum x/n$

Where

- x is contract amount in METB.

- n is number of projects each year.

$$\text{Cost Overrun} = \text{Contract Amount (Average Revised - Average Original)}$$

Finally, the data gathered from the interview was used to analyse quality through the retention money and perception of overall quality performance of contractors. And data from FGD is used to support the data gathered from document review of quality audit report.

Results and Discussion

Cost performance of domestic contractors, cost performance of foreign contractors with respect to average original and revised contract amount also compare cost overrun of domestic vs foreign. Surprisingly not all the projects contracted to domestic contractors have fallen over the estimated budget. The data shows that

there is a variation in original contract amount. Most of federal road projects executed by domestic contractors do not finish the project on budget but some finishes on the revised budget, of the selected federal road projects executed by domestic contractors during the last 5 years, it shows that it takes additional cost to finish the project. On the other hand, cost performance of foreign contractors, majority of federal road projects entrusted to foreign contractors have failed to meet their deadlines. It is clear from a review of selected federal road projects completed by foreign contractors during the last five years that there are additional costs associated with completing the project. There is a variation in original contract amount. Most of federal road projects executed by foreign contractors do not finish the project on budget but some finishes below budget, of the selected federal road projects executed by foreign contractors during the last 5 years.

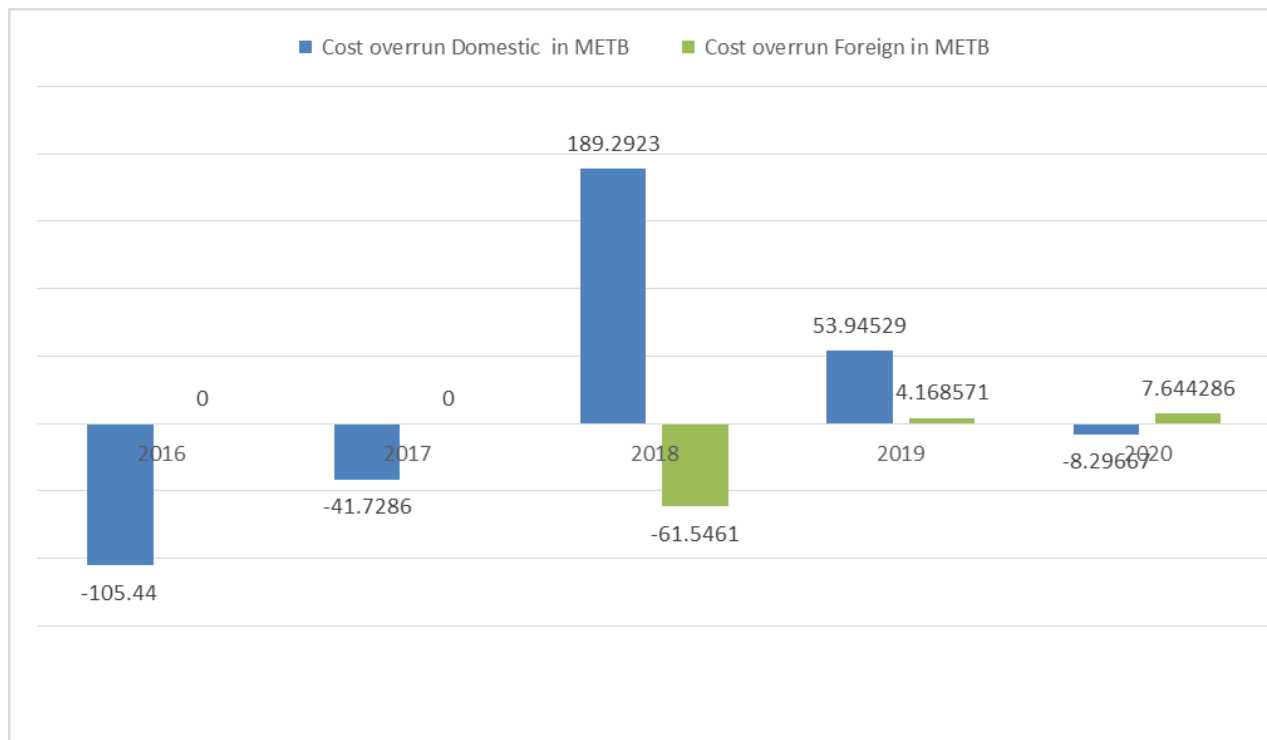


Fig. 1: Cost Overrun Comparisons between Domestic and Foreign Contractors

As it is stated in ERA report (2020), in the last five years RSDP V physical plan was 114,846 km and only 40,665.4 km was accomplished 35% of total plan was used. With 334,514.4 METB financial plan and only 196,050.98

METB disbursement 59% of financial plan was used. So, this means that, despite the program’s negative impact on construction, the domestic construction industry’s capacity is encouraging. The local construction industry’s

participation in the RSDP has expanded in terms of both value and quantity of projects over the last twenty-three years. However, because domestic contractors' cost overruns are higher than foreign contractors', it is preferable to focus on capacity construction and strong governance to achieve better performance and, at the very least, be competitive with foreign contractors.

During the last 5 years Cost overrun of federal road projects executed in Ethiopia, of some projects executed by local contractors have not been completed on the original contract amount. some projects take additional budget to complete the project and some just finished below the expected budget. The amount of overall contract expense, which is a measure of project size, has been higher for foreign contractors than for domestic contractors. The study indicates that the planned completion date and the actual/expected completion period differ. Most government road projects carried out by domestic contractors did not finish the project on time. It is clear from the selected federal road projects completed by domestic contractors during the last 5 years that the project takes longer to complete. On the other hand, majority of federal road projects contracted to foreign contractors have fallen behind schedule. Most of the federal road projects executed in Ethiopia have not been completed on time. of the selected federal road

projects executed by domestic and foreign contractors during the past years, it shows that it takes additional days to finish the project.

Time performance of domestic contractors, time performance of foreign and domestic contractors with respect to Average planned and actual/expected completion period. And compare time overrun of domestic vs foreign. The analysis indicates that the planned completion date and the actual/expected completion period differ. Most federal road projects that are completed by domestic contractors are late. It is clear from the selected federal road projects completed by domestic contractors during the last 5 years that the project takes longer to complete. It is measured whether there is a delay during the construction of federal road projects, just as it is for domestic contractors, and many projects completed by foreign contractors have not been completed on time. Most federal road projects contracted to foreign contractors have fallen behind schedule. It is clear from the selected federal road projects completed by foreign contractors in recent years that the project takes longer to complete. The planned completion date and the actual/expected completion period differ. Any federal road projects that are completed by foreign contractors are not completed on schedule. It is clear from the selected federal road projects completed by foreign contractors in recent years that the project takes longer to complete.

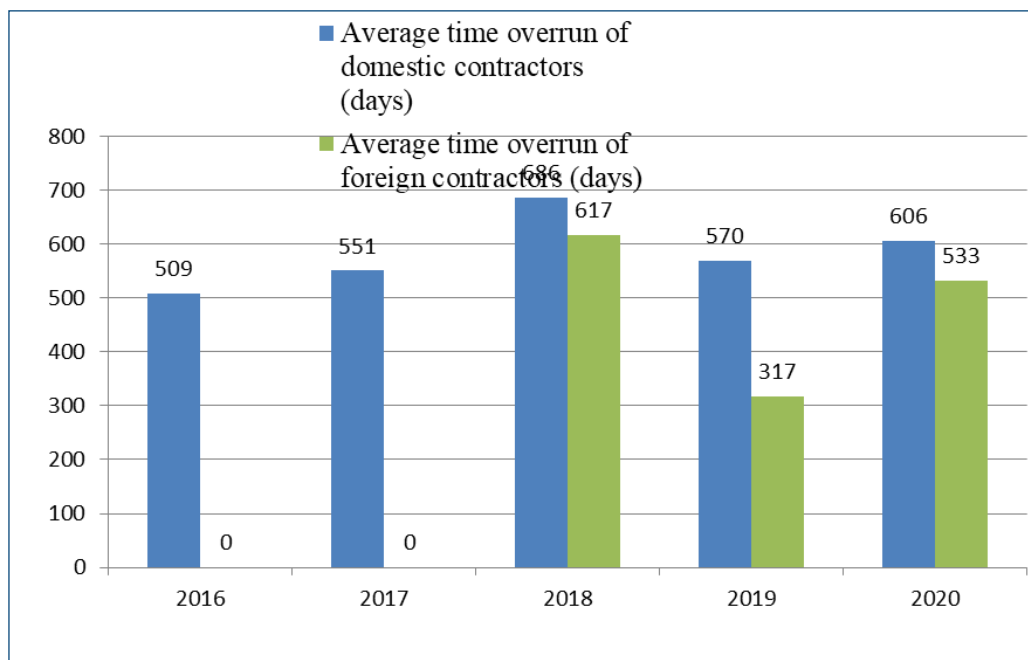


Fig. 2: Project Time Overrun of Domestic and Foreign Contractors

From the reviewed documents, the following points are taken as an indicator of quality performance for the projects. Structural evaluation, material evaluation, hydrological, safety, environmental and health evaluation, and documentation. Most of projects executed by domestic contractors perform under the specification on the contract. Most of quality issues in case of most of projects executed by foreign contractors perform as per the specification on the contract.

As stated in literature time overrun caused by Poor managerial skills, indecisiveness, inexperienced labor force, and a lack of good planning are just a few of the factors that contribute to the delay. Right of way issues, such as late site handover after contract award and premature settlement of right of way issues, as well as shortages of construction inputs, which mostly entail importation, all contribute to time overrun. Contractors, on the other hand, cite design and change orders due to poor designs, design change and modification, delay in approval of updated designs, and constant new extra work orders as major reasons. But as discussed in RSDP reports the amount of projects given to domestic contractors is grater in number than foreign contractors but the size of the project is smaller, it is clear to see the amount of contracted costs of the project as discussed above, the larger the cost the complex it gets but still the domestic contractors face more time overrun than foreign contractors.

There were an insufficient way of tracking and documenting quality performance. But the study tries to see quality based on Hydrological Evaluation, Structural Engineering Evaluation, Material Evaluation, Environmental Evaluation through document review, focus group discussion and semi structured interview. Most of federal road projects executed in Ethiopia have not been completed as the agreed in contract quality specifications. Based on the indicators listed above most of projects executed by foreign contractors are more compatible than domestic contractors. In most of projects executed by foreign contractors, most of projects have checked certificate of calibration as it is a requirement by ERA to calibrate laboratory equipment and machines on annual/yearly bases. Most of the drainage structures on the site are properly installed but some of the drainages lack scouring of backfill material and proper channelization and clearing on all pipe and Box Culverts even it is

designed as per the specification. workers' safety has been maintained as per the specification. And most of the staff accommodations have been fulfilled as per the binding contract agreement. The quality of materials used for construction complies with the standard specification. The data recording and handling process was fair in most of projects. Documentation is vital in auditing the project, to check whether the required scope has been met.

Most of projects executed by domestic contractors perform under the specification on the contract. As a result, most of all major testing machines/equipment have been calibrated, when checked certificate of calibration as it is a requirement by ERA to calibrate laboratory equipment and machines on annual/yearly bases. In most of the projects the drainage structures on the site have been installed without sufficient crossing structures or a runoff which is not properly managed that may cause disaster to the road embankment, the crossing structure and to the adjacent area, as well as an over design structure incur unnecessary cost. but in most of projects the overall quality of structures for project is very good, except minor defect that should be corrected during construction. The workers' safety in most of projects executed by domestic contractors has not been maintained. Due attention is not being given for the subject of construction environment health and safety for the project. The staff accommodation in most of the projects contracted to domestic contractors have not been fulfilled as per the binding contract agreement, Performance of contractors on the site mostly Poor workmanship. The data recording and handling process is very poor/unhealthy.

Conclusion and Recommendation

Ethiopia's domestic construction sector, without a doubt, has various challenges that limit its competitiveness in contrast to foreign contractors. According to the findings of the research and discussion, the domestic construction industry's competitiveness in its performance remains much lower than that of its foreign equivalents, even though it is gradually improving. As a result, the construction industry in Ethiopia will undergo a lengthy and challenging adjustment. Due to their level of competitiveness in the road construction industry, domestic contractors are completing very few mega construction projects in Ethiopia. It is clear to see Foreign contractors have a far greater average contract capital

per project than domestic contractors. This was since foreign contractors were mostly involved in larger, more sophisticated projects that required a lot of money and knowledge. The average contract value for domestic contractors has increased slightly as well, although it is still not as huge or as high as the value of contracts for international contractors. Domestic contractors often outnumber foreign contractors in terms of contract numbers. This may indicate that domestic contractors would ultimately be willing to take on larger projects, implying that domestic contractors' competitiveness will improve in the coming years.

Domestic contractors make the mistake of believing that they can expand by signing more and more contracts with lower contract rates without considering the costs of fulfilling their contractual obligations. Low bid submissions are bad for business because they don't create any profit, and it also affects the firm's ability to produce the product on time and according to the budget. The rise in the average contract value per project for domestic contractors could mean that the domestic contractors' capacity to take on larger contracts has grown. Domestic contractors, on the other hand, have a very low average contract value per project as compared to foreign contractors. This may be a sign that domestic contractors have begun to take on larger projects. This is plausible because domestic contractors gain experience, expertise, and knowledge over time. It may also be that their money grows as they complete more projects. Quality performance of domestic and foreign contractors was reviewed based on hydrological evaluation, structural engineering evaluation, material evaluation, safety and health and environmental evaluation if they perform upon agreed specifications. The majority of projects completed by foreign contractors, despite time and cost overruns, are of higher quality than those completed by local contractors for various reasons. Rather, projects completed by domestic contractors have a lower quality performance than projects completed by foreign contractors, although this does not apply to all domestic companies. In today's world, there are certain great contractors who outperform even overseas foreign contractors.

Local road construction firms operate in a challenging business climate. Establishing positive relationships with a variety of partners, including clients, government

regulatory authorities, consultants, financial institutions, subcontractors, and suppliers, is critical. Contractors having solid relationships with these parties have greater opportunity to secure construction contracts and increase their construction efficiency. To improve their competitiveness, in addition to cost, time and quality perspective, Local construction firms (LCFs) must be aware of and understand the external elements that affect their ability to compete. This aids them in improving their competitiveness and developing competitive strategic dimensions to fulfill the demands of a changing business environment and their clients.

Future Research

Conducting a competitiveness analysis at the firm level, which comprises three main parties: the client, the consultant, and the contractors? Furthermore, this research only showed competitiveness with respect to project performance indicators cost, time and quality but competitiveness can be seen from different perspectives. In addition, it is interesting to see perspective of quality performance from consultants' side in detail to come up with better and accurate results. Future research should also focus on the industry level, considering other construction sectors such as construction, water works, hydropower, irrigation, and others, to provide a holistic picture of industrial competitiveness and make strategic recommendations.

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