


**COLLEGE OF BUSINESS AND ECONOMICS**

**MSC IN INTERNATIONAL BUSINESS MANAGEMENT**

**STRATEGIC INVESTMENT MANAGEMENT**

# EFFECT OF FOREIGN DIRECT INVESTMENT ON OPERATIONAL EFFICIENCY IN ETHIOPIA'S BEER INDUSTRY: A COMPARATIVE STUDY OF HEINEKEN ETHIOPIA, DASHEN BREWERY, AND HABESHA BREWERY

**BY:**

**GELILA GIRMA**

**ADVISOR:**

**DEJENE T.(Ph.D)**

**JANUARY, 2026**
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**A THESIS SUBMITTED TO ADDIS ABABA UNIVERSITY, COLLEGE OF BUSINESS AND ECONOMICS, FOR THE PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR DEGREE OF MSC IN INTERNATIONAL BUSINESS MANAGEMENT**

**BY: GELILA GIRMA**

**ADVISOR: DEJENE T.(Ph.D)**

**JANUARY, 2026**
**ADDIS ABABA, ETHIOPIA**

# DECLARATION

I, Gelila Girma, declare that this thesis with the title: 'Effect of foreign direct investment on operational efficiency in Ethiopia's beer industry: a comparative study of Heineken Ethiopia, Dashen brewery, and Habesha brewery' is my original work. I have submitted this work as per the standards set by Addis Ababa University, its College of Business and Economics, for partial fulfillment for the Degree of Master of Science in International Business Management.

All sources of information used in this thesis have been acknowledged properly in the references. This thesis has not been submitted for any other degree qualification in this or indeed any other institution.

Name: Gelila Girma

Signature: _____

Date: 16/01/2026

# CERTIFICATE

This is to confirm that the above mentioned thesis, titled "Effect of foreign direct investment on operational efficiency in Ethiopia's beer industry: a comparative study of Heineken Ethiopia, Dashen brewery, and Habesha brewery" is a work conducted by Gelila Girma under my supervision for partial fulfillment for the degree of Master of Science in International Business Management, Addis Ababa University, College of Business and Economics.

I assure that the work submitted belongs to the candidate and that it satisfies the required academic standards.

Advisor's Name: Dejene T. (Ph.D)

Signature: _____

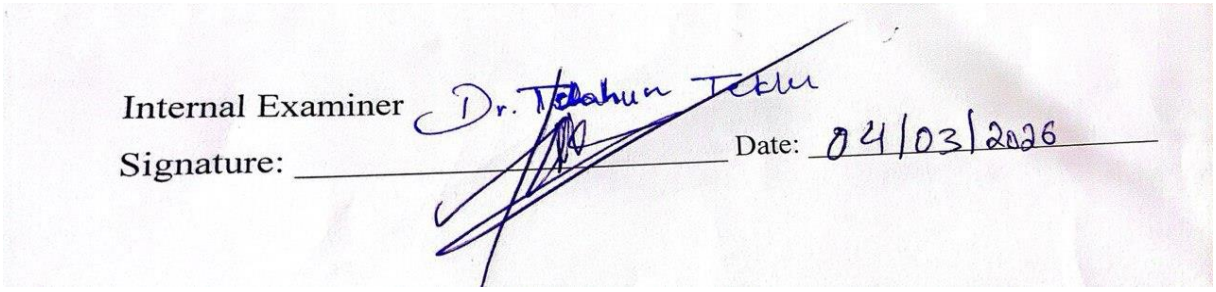
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# CERTIFICATE OF APPROVAL

We, the undersigned members of the Board of Examiners, declare that we have read and assessed the above-mentioned thesis: “Effect of foreign direct investment on operational efficiency in Ethiopia's beer industry: a comparative study of Heineken Ethiopia, Dashen brewery, and Habesha brewery” prepared by Gelila Girma under the supervision of Dejene T. (Ph.D).

We hereby recommend that it be accepted as fulfilling the thesis requirement for the degree of Master of Science in International Business Management.

**BOARD OF EXAMINERS:**






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# ABBREVIATIONS/ACRONYMS

**ANOVA** - Analysis of Variance

**ARDL** - Autoregressive Distributed Lag

**EIC** - Ethiopian Investment Commission

**EFA** - Exploratory Factor Analysis

**FDI**- Foreign Direct Investment

**GDP**- Gross Domestic Product

**HR**- Human Resources

**ISO**- International Organization for Standardization

**KM**- Knowledge Management

**MNE**- Multinational Enterprise

**OE -** Operational Efficiency

**OLI -** Ownership, Location, Internalization (Dunning's Eclectic Paradigm)

**R&D**- Research and Development

**SPSS**-Statistical Package for the Social Sciences

**UNCTAD -** United Nations Conference on Trade and Development

**UNIDO**- United Nations Industrial Development Organization

**VIF**- Variance Inflation Factor

## *ABSTRACT*

*This study investigates the impact of FDI on operational efficiency in Ethiopia's beer industry through three firms: a wholly-owned multinational subsidiary (Heineken Ethiopia), a foreign-dominant joint venture (Dashen Brewery), and a locally-influenced firm with technical partnerships (Habesha Brewery). Using a quantitative research design, data were collected from 298 operational employees and analyzed through multiple regression. The results indicate that although FDI-driven infrastructure and technology transfer positively influenced efficiency, knowledge management practices proved to be the strongest predictor across all ownership models ($\beta = 0.541–0.587$, $p < 0.001$).More importantly, the major route to efficiency varied depending on the ownership arrangement, such that in the joint venture, the major force was institutionalized knowledge systems ($\beta = 0.452$, $p < 0.001$), while in the technical partnership, the role was distinctive although small ($\beta = 0.136$, $p = 0.013$). These findings make clear that the effect on efficiency that follows the entry of FDI is indirect and depends on institutional absorptive capacity that is in turn shaped by the respective ownership arrangement. This research concludes that institutionalized knowledge systems are important to institutionalize, and that policymakers should structure FDI incentives around train-and-link programs to maximize efficiency spillover effects.*



***Keywords:*** *Foreign Direct Investment, Operational Efficiency, Technology Transfer, Knowledge Management, Absorptive Capacity, brewery industry, and Ethiopia.*

# CHAPTER ONE

# INTRODUCTION

## 1.1 Background of the study

Foreign Direct Investment (FDI) was one of the bedrocks of international economic integration, a major facilitator for, as well as a conduit of, cross-border capital, technology, and management know-how, especially for developing nations (Dunning &Lundan, 2008). In Sub-Saharan Africa, FDI played a critical catalytic role in stimulating growth in the industries, where it went beyond mere resource-based extraction, a state of affairs continuing until now (UNCTAD, 2022).

Ethiopia has positioned FDI as an engine for the transformation of its industry. It seeks to integrate production capabilities into value chains and advance up the knowledge chain (Hordofa, 2023). One industry that has undergone this transformation is the beverage industry and, in particular, the breweries. This industry used to be dominated by a small number that was state-owned and used lower-level technologies. There has been a dramatic transformation in this industry in the past fifteen years (Gebre and Gebremichael, 2018).

This shift has been driven by the large inflow of FDI from various trans-national corporations like Heineken, Diageo, and the Castel Group. These firms brought in large amounts of capital, thus creating modern brewing, packaging, and logistical capacity that has impacted the competitive landscape in the sector (Desulie&Ashalatha, 2022).

At the center of this industrial enhancement was the issue of technology transfer, which played a pivotal role in realizing the developmental spillover effects of FDI. Technology transfer was characterized by both the transfer of physical assets, like high-tech machinery and automation, and the transfer of immaterial knowledge like technical and managerial expertise (Blomström& Kokko, 1998; UNIDO, 2020). The expected result was increased efficiency of operations, which was described as the optimal utilization of resources for maximal output with minimal waste. Normally, this was measured using variables like capacity utilization and cost of production per unit (Farrell, 1957). The fundamental assertion was that FDI directly increased the efficiency of operations within the host country via technology transfer.

The three breweries selected for this comparative study represent distinct models of foreign ownership and engagement, providing an appropriate basis for examining how varying degrees of FDI influence operational efficiency outcomes. Heineken Ethiopia operates as a wholly-owned foreign subsidiary, with Heineken N.V. holding 100% equity ownership following its acquisition of the state-owned Bedele and Meta breweries in 2011. Dashen Brewery represents a joint venture model with significant foreign equity participation; following a 45% stake acquisition by SABMiller (now part of AB InBev) in 2015, the brewery operates under a structure where foreign partners hold substantial ownership while retaining local management involvement. Habesha Brewery operates under a different model, characterized by minority foreign equity participation combined with technical partnership agreements following Castel Group's acquisition of a 40% stake in 2017, the brewery benefits from technology transfer and management support while maintaining majority local ownership through its founding shareholders (Ethiopian Investment Commission, 2024; Gebre & Gebremichael, 2018). These varying ownership structures ranging from wholly-owned foreign subsidiary (100% FDI) to joint venture (45% FDI) to technical partnership with minority equity (40% FDI) enable a comparative assessment of how the degree and nature of foreign investment shape technology transfer processes and efficiency outcomes.

Empirical literature on FDI in Ethiopia was found to highlighted specific thematic patterns, but a gap was also found. Much literature was concerned with disaggregated macroeconomic effects, using time-series econometric techniques. Some, like Wondimu (2023), found a positive relationship between aggregate FDI flows and growth, but were more dependent on conditions, as in Hordofa (2023). This is very important in policymaking but tended to be very aggregate in nature. Another stream of literature tended to present a briefing on a sector. Gebre & Gebremichael (2018) tended to present a non-technical briefing on the involvement of FDI in the beer sector, and Desulie&Ashalatha (2022) tended to present descriptive historical flows on game development. This is very important but tended to be non-technical in nature.

Globally, the importance of technology transfer was emphasized through the important aspect that its gains were not necessarily ensured automatically. Spillovers were particularly influenced by the capacity of the adopting country to absorb new technology, which could be inhibited by any challenges such as transfer-of-skill and "enclave" characteristics of FDI, among others (Cohen & Levinthal, 1990; Meles & Asrat, 2019; Oyinlola & Adedeji, 2021).

A very important gap that arose from this review was that there was a lack of firm-level, empirical research on the Ethiopian setting that analyzed the causal chain from FDI to tech transfer to improved efficiencies. The implication is that there was no empirical basis to determine the nature through which the superior technologies used by MNEs were channeled into superior performance. There was also little comparative work on the moderating effects of the different foreign participation structures on this causal flow.

This was intended to fill the discovered gap in the literature as described above. The purpose of this study was to move on from general observations in macro-findings, instead choosing to focus on a firm-level study. The technology transfer framework was investigated through an objective observational study. It broke down the technology transfer mechanism into bite-sized, analytical fragments that were capable of being measured. It measured this effect on operational efficiencies using measurable parameters. This particular study consistently relied upon a comparative case study. It specifically investigated three breweries with varying firm structures. This comprised of Heineken Ethiopia, Dashen Brewery, as well as Habesha Brewery. This particular study was designed to capitalize on the changed conditions in the Ethiopia environment, including the changes in FDI circumstances following 2017. It was essentially intended to fill some gap between macro-observations and industry descriptions in attempts to provide some clear, factual explanations on FDI in Ethiopia.

### 1.2 Statement of the Problem

Despite the effort by Ethiopia to promote Foreign Direct Investment (FDI) and evidence that big multinationals have entered the country's manufacturing sector, however, there seems to exist a big gap between what FDI should achieve and what has been observed to emerge from such investment in terms of benefit realization at the firm level in this country too. Whereas FDI theoretically remains a big advocate in disseminating technologies and upgrading industries in developing countries (Dunning &Lundan, 2008), its ability to result in improved efficiency in the industries that benefit from such investment in developing countries such as Ethiopia also remains neither automatic nor guaranteed (Blomström& Kokko, 1998). Even in the context of Ethiopia's beer industry, which seems to have gained considerable FDI investment, such key questions have so far remained unanswered.

On the macro-side, the kind of research conducted by Wondimu (2023) and Hordofa (2023) alike illustrates that aggregate FDI inflows and aggregate economic growth in the country are intertwined. Nevertheless, the macro-side metrics do not set out any micro-foundations through which the mechanism might work. In other words, these metrics do not express exactly how capital inflows provide a mechanism for better firm-performance in certain sectors. In fact, sector analyses and summaries, exemplars of which include research conducted by Gebre and Gebremichael (2018), provide a descriptive visual depiction that sets out the important entry that global brewers have made in the country through the acquisition and subsequent investment in their Ethiopian subsidiaries. The metrics provided by Gebre and Gebremichael do not go beyond mere descriptive path-setting and do not set out any concrete firm-level metrics through which one might determine that FDI-induced technology transfer procedures have positively affected production efficiency in the sector.

The challenge is further complicated by theoretical and contextual qualifications. The international literature has uniformly highlighted the importance that the absorptive capacity on the part of the local players namely the ability to absorb and apply the external knowledge varies as a contingency factor affecting the overall benefitting from the FDI (Cohen & Levinthal, 1990). Issues of human resource skills in the local workforce, dependent use of imported machinery and spare parts, and the tendency towards the 'enclavism' of knowledge within foreign-owned firms can less the overall benefits of efficiency gains (Meles & Asrat, 2019; Oyinlola & Adedeji, 2021). Additionally, the nature and manner of participating in the host economy vis-à-vis full ownership, joint ventures, or technology agreements can be a highly important factor in the degree and scope of the transfer process. The recent fluctuating nature of the level of the FDI flows into Ethiopia, partially due to internal instability according to Desulie&Ashalatha (2022), increases the difficulty level in the measurement process.

Accordingly, the problem that the current research attempts to resolve within the Ethiopian beer sector has been a lack of a robust comparative and quantitative study focused on whether and how the technology transfer initiated through FDI has impacted positively the overall operation efficiency within the sector. There has been no clear way of ascertaining if the best brewing technology, management, and logistics adopted by the MNEs such as Heineken and Diageo have been adopted by the companies' Ethiopian affiliates effectively, aiming at an increased productivity

level and resource optimization. The gains realized may also vary depending on the nature of corporate ownership.

The implications derived from the absence of such micro-data studies are visible particularly to policymakers, investors, and firms. Identifying efficiencies in operational performance through either FDI or related routes of technology transfer, when unsubstantiated, could mean the lack of conclusively demonstrated advantages in the pursuit of investment promotion, thereby casting firms into the dark concerning the appropriate means of capitalizing on any outside relationships that could benefit them. It is, therefore, the focus of this investigation to delve into the specific relationship that exists between FDI, its related technology transfer mechanism, and operational efficiencies.

### 1.3 Research Questions

1. Does FDI-driven infrastructure development significantly affect production efficiency in Heineken Ethiopia, Dashen Brewery, and Habesha Brewery?
2. Does foreign-led technology transfer significantly influence the operational performance of the selected breweries?
3. Do knowledge management practices adopted from foreign companies significantly impact the operational efficiency of breweries under different ownership models?

### 1.4 Objectives of the Study

#### 1.4.1 General Objective

To analyze and compare the effect of foreign direct investment on the operational efficiency of selected breweries in Ethiopia.

#### 1.4.2 Specific Objectives

1. To assess the impact of FDI-driven infrastructure and capital investment on production capacity, cost efficiency, and asset utilization in the selected breweries.
2. To evaluate the effects of technology transfer encompassing advanced machinery, process automation, and quality control systems on key operational performance indicators.

3. To investigate the influence of knowledge management practices (e.g., formal training programs, managerial expertise transfer, and organizational innovation) on workforce productivity and operational efficiency.

### 1.5 Significance of the Study

The implications and significance of these findings are profound covering the spectrum of levels spanning from theories, applications, to policymakers, socio-economic issues, among others. Theoretical significance includes the expansion of the existing literature around Foreign Direct Investment spillovers and upgrading in industry by developing approaches for the application of the Eclectic Paradigm and Technology Transfer Theory specifically applied by virtue of the budding yet remarkably understated industry involving the manufacture of products in an African economy in the transition period.

### 1.6 Scope of the Study

In this study, the research focus is carefully circumscribed to provide enough depth for analysis as well as being sufficiently feasible. The boundaries have been established through consideration of four different aspects: conceptual, industrial, time-related, and geographical.

On a conceptual front, the research particularly concentrates on the correlation between Foreign Direct Investment (FDI) and efficiency in the beer industry. The dominant independent variable, FDI, has been considered in its chief mediatory factor, which happens to be technology transfer. Industrially, it only focuses on beer manufacturers in Ethiopia. The study adopts a comparative case study approach to conduct an in-depth examination of three carefully chosen beer manufacturers that feature a range of FDI participation arrangements, such that it includes Heineken Ethiopia, which is a wholly foreign-owned subsidiary, Dashen Brewery, which operates under a joint venture arrangement featuring substantive foreign investment, and Habesha Brewery, which operates under a largely local company structure featuring foreign technical agreements. The results in this study should not be considered for general application to any brewery or other manufacturing business in Ethiopia purely on an automatic basis.

The temporal scope of the analysis extends from 2018 to 2024. These six years have seen major FDI flows and implementation of industrial policies in Ethiopia and, further, capture the most recent challenges in the context, such as domestic politics and global supply value chains identified

in the literature. Primary data collection was therefore conducted in the research cycle of the year 2024/2025.

From the geographical point of view, this study is rooted in Ethiopia. The data collection focused on the identified breweries' functional headquarters and main production units found in and around Addis Ababa and other major industrial centers. It does not involve studies of international comparison with the breweries of other countries. Rather, it confines itself to the identified functional environment.

### 1.7 Operational Definitions

The key constructs for this study were operationally defined as follows to ensure precise and measurable analysis.

- **Foreign Direct Investment (FDI)** was defined and measured using equity investment made by the multinational firm, leading to substantial ownership, considered as 10% or more of the voting shares, and control of a brewery based in Ethiopia. This allowed for the transfer of capital, technology, and management across borders, as required in the definitions applied within the context of this study (World Bank, 2023; Desulie&Ashalatha, 2022). The direct measure was the foreign ownership percentage of the chosen breweries.
- **Technology Transfer** was the transfer of modern brewery and management technologies brought into the brewery by the foreign investor. In this regard, it was measured through two dimensions. The Tangible Technology Transfer involved the transfer of modern technology, including computerized brewery production lines, modern boilers, and quality control laboratories (UNIDO, 2020). On the other hand, the Intangible Technology Transfer was the transfer of technology by means of training, usage of world technology and standards, such as the use of standards like ISO, and modern management practices (Blomström& Kokko, 1998).
- **Operational Efficiency** represented a brewery's attribute where it could produce a maximum amount with a minimum use of factors and waste generation. The measure of Operational Efficiency was taken quantitatively, using key indicators for a business entity's operational efficiency. These indicators include Production Yield, computed as the total processed volume of product (beer in hectoliters) per unit input (malt, for example), the Capacity Utilization Ratio computed as the ratio of actual to maximum installed productive

capacity, Energy Intensity indexed as total energy use (kWh) per hectoliters of product output, and Labor Productivity indicated in value or volume output per full-time equivalent in manufacturing (Farrell, 1957).

### 1.8 Organization of the Study

This research is organized into five chapters logically flowing from the establishment of the foundation of research to outlining the methodological plan. Chapter One initiates the study with the introduction of the background, problem statement, research questions, and objectives, significance, scope, and limitations. Chapter Two is dedicated to a critical review of the relevant theoretical and empirical literature summed up in a conceptual framework guiding the investigation. Chapter Three describes the research methodology as regards the type of design, source of data, target population, and sampling techniques, thereby explaining ways of collecting data and planned data analysis procedures. Chapter Four will present results related to the analysis of data, while Chapter Five will offer a discussion of findings, conclusions, and policy implications drawn from this study.

# CHAPTER TWO

# REVIEW OF RELATED LITERATURE

## 2.1 Introduction

Accordingly, this chapter is a critical review of the related theories and empirical knowledge on the topic under investigation, namely the study of FDI, technology transfer, and operational efficiency within the brewery industry of Ethiopia. The review is aimed at developing the basis of explanation for the relationship that holds between the investigated variables, and to conclude with a conceptual basis that defines the scope of investigation for the study. The review is systematic and encompasses what is and is not known about this particular topic and, accordingly, is the context that defines the relevance of the questions and methods used within this investigation.

## 2.2 Theoretical Framework

The theoretical architecture underlying this research is built on two interconnected paradigms, which together explain the strategic intent underlying Foreign Direct Investment (FDI), as well as the micro-level processes by which this investment delivers or fails to deliver efficiency gains. The two paradigms form the theoretical infrastructure for exploring the relationship between the inflow of foreign investment and the dissemination of technology and efficiency in the brewery industry in Ethiopia.

### 2.2.1 Dunning's Eclectic (OLI) Paradigm

The key theoretical perspective on which the research study hangs its empirics has been Dunning's Eclectic Paradigm, often cited as the OLI framework. This paradigm presents a complete and exhaustive framework for explaining an MNE's decision to participate in the activity of FDI. It does so by identifying that for an MNE, there are necessarily three conditions that must be fulfilled at the same time. The first condition is that the firm needs to have Ownership-specific advantages, often cited as O. This indicates that the firm's assets are intangible and distinct within the firm. By contrast, in the case of the brewery industry, Ownership-specific advantages would include proprietary fermentation and filtering processes, worldwide famous brand names, and state-of-the-art quality control mechanisms and sophisticated logistics systems.

Second, there must be location-specific advantages (L) that can ensure the profitability of local production as opposed to export-oriented operations. In this regard, location-specific factors that attract Ethiopia in this case include a massive, fast-growing consumer base, easy access to basic ingredients in the agriculture sector, such as malt barley, competitive wages, as well as an enabling environment that encourages investments in industry through fiscal policies in designated industrial parks (Gebre & Gebremichael, 2018).

Thirdly, there is the need to identify the Internalization advantages (I), which emanate from an understanding that there is an advantage in exploiting these ownership advantages in a more hierarchical control manner (FDI) as opposed to arm's-length contracts, including licenseness or joint ventures. It is here that the application of the OLI framework becomes specific, as pointed out, because there is an assertion that FDI is not a supply of finance but is actually a transfer of capital, technology, and managerial methods. It can be argued that in establishing a subsidiary in Ethiopia, there is a basis in leveraging the ownership advantage of the MNE in an effort to arrive at having a possible better-performing entity.

### 2.2.2 Technology Transfer and Absorptive Capacity Theory

Although the OLI model can account for the presence of FDI, a second theoretical tradition is needed to account for the process and outcomes underlying the associated knowledge flows. This problem is remedied by the corpus on technology transfer and, more critically, the concept of absorptive capacity (Cohen & Levinthal, 1990). In this tradition, technology transfer can be generally described as the complex of activities where the results of innovative activities in a particular organizational or national setting are used in a new organizational or national context. The conduits for this transfer may include learning by direct instruction in the MNE subsidiary, vertical relationships with local suppliers and distributors, horizontal demonstration effects among rival firms, or the mobility of trained personnel (Blomström& Kokko, 1998).

One of the key concepts embedded in this dynamic is that of absorptive capacity, which refers to the firm's capacity to recognize the value of new, non-core information, assimilate this information, and exploit this information. Absorptive capacity is critical in that it is a dynamic concept, as opposed to an inherent property of the firm, but is largely dependent on the firm's antecedent knowledge. This antecedent knowledge, which is typically created through cumulative

investment in R&D, human capital, or training, is what allows a firm a “learning to learn” function (Cohen & Levinthal, 1990).

The relevance and relevance of the application of this theory to this study cannot be underestimated. The reason is that it facilitates an explanation of how the potential that is embedded within the technology transfer that is facilitated through FDI may not actually realize its value within an equal distribution of gains towards overall efficiency. Any wholly owned subsidiary of a MNC that is a global brewing giant like Heineken is very likely to be set up with a high starting level of absorptive capacity that is seamlessly integrated into the knowledge networks of the parent firm and is most likely to be globally connected and integrated into its overall technical networks. Anyone that is a local joint venture like Dashen brewery or even a domestically focused firm like Habesha that chooses to form technological partnerships with outside nations is most likely to suffer from major constraints. These may encompass the technical level of its workforces, appropriateness of the technologies to local settings, and systemic adaptation and learning processes that may not be so effective on a constant and continuous basis (Meles & Asrat, 2019).

Together, Dunning's OLI Paradigm and the Theory of Absorptive Capacity provide a sound, sequential theoretical basis: the first sets up the strategic intent and structural pre-condition for technology transfer through FDI, while the second accounts for the micro-level learning process and conditional effectiveness of such transfer. Together, they put into perspective the core question of this research work: to what extent does the ownership structure of a brewery-influenced by the OLI logic-affect both the channels and intensity of technology transfer, and how does the absorptive capacity of a firm moderate its translation into operational efficiency?

## 2.3 Empirical Literature Review

### 2.3.1 The Macroeconomic Impact of FDI in Ethiopia

The empirical work that has been carried out to investigate the impact of Foreign Direct Investment (FDI) on the economy of Ethiopia has been macromodel-based, thus enabling them to investigate macro level growth relations without considering micro level details. This forms an impetus, again recalling that foreign investment carries significance from a macro level perspective and indicating that this lacuna in methodology is what this work endeavors to fill.

One significant related study in this regards has been carried out by Wondimu in 2023, testing via an ARDL bounds test approach whether FDI has affected economic growth in Ethiopia from 1992 to 2019 in a significant manner in the long run. Results indicated that there is a significantly positive long-run relationship between FDI and economic growth in Ethiopia. It is pertinent to note that the result from the Toda-Yamamoto causality test in the same study revealed that there is a unidirectional causal relationship from economic growth to FDI, which means that the Ethiopian market has been the basic attractive force, not the trigger, for FDI. This contradicts the argument that the process of development is triggered by FDI, implying that the efficiency of FDI use in the sectors in question also influences the continued process of the virtuous cycle of economic growth and FDI.

To complement this approach, Hordofa in 2023 chose a more comprehensive analytical approach, examining the effects of FDI in addition to other non-domestic sources such as remittances, real exchange rates, and imports, on the growth of the Ethiopian economy between 1982 and 2021. Using the ARDL approach, the study found a very complicated relationship between these factors, including FDI. Although confirming the significance of FDI, the study found that the effects of FDI on the economy are not consistently positive in the short term but can instead be interlinked with other macroeconomic factors, which may very well negate the effects of FDI. This study therefore points to the fact that the effects of FDI, in aggregate, are also dependent on the particular channel through which the effects of FDI are absorbed in the economy.

Previous research has also played a part in this macroeconomic storyline. For example, some of the previous works that examined the drivers of FDI inflows in Ethiopia found that market size, trade openness, as well as infrastructure, are major drivers, thereby reaffirming the rationale of Dunning's Location advantages (L). It is, however, clear that macroeconomic, as well as the other type of, previous research inherently treats the economy as a black box. This is because, instead of explaining how, these types of previous research are essentially concerned with correlation or aggregate contributions to the economy. They can answer the question of whether, but hardly the how or with what efficiencies, FDI impacts a growing economy. This gap in the macroeconomic literature is what creates a niche or justification for conducting this particular firm-level, sector-wise study of the operational dynamics of the brewing industry.

### 2.3.2 FDI and Industrial Transformation: The Case of Brewing

This gradual shift of focus from the macro to the sector level allows for a much finer transformation narrative to be developed, particularly within the context of the Ethiopian beer manufacturing sector. This body of literature moves well past econometrically defined aggregates and notes the structural transformation unleashed by foreign direct investment, which offers crucial background information for the efficiency analysis at the firm level that currently lacks development. Among the most essential contributions to such research work lies the sector-level evolution narrative offered by Gebre and Gebremichael (2018).

The literature has recorded the manner by which the strategic entry of the world MNEs, particularly Heineken and Diageo, has brought forth a radical reshaping of the competitive environment that was hitherto controlled by a handful of state and local breweries. The scholars also observe that this is far from an evolutionary type of transformation and is instead a radical form of industry transformation that is marked by massive capital outlays into Greenfield investments and acquisitions, setting up world-class high-capacity brewing and packaging lines, and a stringent focus on complying with world-class quality and safety requirements. This led to a fundamental shift from a production-driven and supply-loyal market to a consumer-driven and brand-complete industry that forced the corresponding firms to upgrade.

Further empirical grounding for this transformative trend is given by Desulie and Ashalatha (2022) in their longitudinal assessment of FDI patterns in Ethiopia between 1992 and 2021. Their analysis confirms the significance of the manufacturing sector, within which beverage production occupies pride of place in licensed foreign projects. The quantitative increase in projects and capital investment is measured, with a significant leap following 2002, congruent with Ethiopia's industrial policy focus, followed by a worrying downturn after 2017, blamed on political turmoil at home. The temporal analysis is important in placing the modernization of the brewing industry within specific policy phases and brings out the vulnerability of FDI-driven transformation to exogenous shocks. In addition, their findings on the extreme geographical concentration of FDI projects-with Addis Ababa and the surrounding Oromia region mopping up the lion's share-bring up possible inequalities in the spread of spillover effects as well as infrastructure benefit, with its repercussions on the broad-based industrialization drive.

These sector-level studies do establish a successful mapping of the inputs of the investment process with the outputs thereof. These studies do discuss the "before and after" situation in the industry effectively. However, these studies do stick largely to the positivistic reporting of changes and thus leave the critical "black box" of the method of producing goods unclosed. There exists considerable evidence within the existing literature that FDI has altered the structure of the brewing sector seriously but little empirical information on changes caused within the firms operating in the brewing sector itself. The details of assimilation of technology, the method of adopting management, and the manner of converting all these elements into measurements of efficiency, such as increased output, reduced wastes, or conserved energy, have been little explored. This lack of exploration has considerable implications, since the degrees of efficiency achieved inside the firms do have an important role to play in determining the extent of the industrial transformation achieved in the manner described in the study carried out by Gebre & Gebremichael (2018) and Desulie&Ashalatha (2022).

### 2.3.3 Technology Transfer and Firm-Level Efficiency: International Evidence

The discussion on firm-level results demands the use of the international empirical literature for technology transfer and efficiency as a crucial conceptual framework for establishing the Ethiopian brewing sector scenario. All such research reiterates the importance of the conditional nature of the benefits accruable to developing countries through FDI. Pioneering work by Blomström and Kokko (1998) highlighted that although MNCs are considered the key technology carriers around the globe for the diffusion and spread of technology across countries, such technology spillover effects are non-exclusivity for the local country. Their research reveal that to such an extent that technology distance between MNCs and existing local firms plays an equally crucial part, as the resultant technology spillover can materialize only when exposed to competitive pressure and upstream-downstream linkages. This shows that having an indirect positioning for technology capture through FDI is imperative for developing countries.

However, insights from empirical studies conducted in other African economies are more specific to the context. For example, the study conducted by Oyinlola and Adedeji (2021) in the beverage industry in Nigeria is an attractive example. Results from this study clearly convey the idea that the role of FDI in technology transfer had the potency to create efficiency gains in production costs, thereby improving operational factors, though largely in the context of firms that were

equipped internally in terms of strong technical knowledge. Pursuant to the same notion, the study that emphasizes the challenges may reveal the factors that may create an inhibition in efficiency improvement. Meles and Asrat (2019), examining the Ethiopian manufacturing sector more generally, identify a set of barriers that include a severe talent gap within the technical staff, a dependence on importation of machinery that is not easily maintained within the country, and a lack of forward and backward linkages that result in knowledge spillage limited to the immediate environment of the foreign firm subsidiary rather than being countrywide. These might sum up a situation that is that of "enclave" development where the MNE is working very efficiently but with negligible positive spillovers to the environment.

Further international findings point to the importance of the form and nature of the value chain in determining efficiency gains. Other international studies within developing countries similar to Ethiopia have found joint ventures to be an efficient form in terms of their ability to transfer more knowledge on a more immediate basis (Meyer et al., 2009). However, joint ventures can be hampered by difficulties in governing and strategy formulation (Hennart, 2009). Wholly owned subsidiaries can transfer technology more quickly and allow for more immediate technology absorption but at the cost of limiting knowledge spillovers to the local economy, sometimes resulting in "enclave" development (Javorcik, 2004; Meles & Asrat, 2019). Based on the nature of the beer production technique and its requirement to employ a large number of people, a combination of innovative technology and expert human labor is needed. Thus, this particular scenario contains a complex and nonlinear relationship to a linear understanding associated with the transference and transferability concept. In this particular respect, the proposed investigation aims to test the nature and findings in the Ethiopian beer industry.

### 2.4 Synthesis and Identification of the Research Gap

Synthesizing the reviewed theoretical and empirical literature through the content presents a coherent and convincing narrative, with an identifiable and consequential discontinuity. Theoretically, Dunning's Eclectic Paradigm offers a firm premise for why FDI takes place: it is, in essence, a vehicle for the cross-border transfer of the proprietary advantages that a multinational enterprise holds, whether in technology or managerial knowledge (Dunning &Lundan, 2008). Absorptive capacity theory refines this by stating that the transfer of such knowledge does not guarantee its effective assimilation and utilization; the recipient firm must have pre-existing

learning capabilities (Cohen & Levinthal, 1990). Empirically, these theoretical expectations find support at multiple levels of analysis. Macroeconomic studies on Ethiopia, including those by Wondimu (2023) and Hordofa (2023), show a significant statistical relationship between aggregate FDI inflows and national economic growth, which has been taken as evidence of foreign capital's relevance at the macroeconomic level.

On the industry level, the descriptive representational research by Gebre & Gebremichael (2018) as well as Desulie&Ashalatha (2022) records the transformative MNC entry process and resulting structural change unfolding within the beer industry of Ethiopia, confirming it as the top destination of FDI activities. On the global company level, research such as Oyinlola & Adedeji (2021) as well as Meles & Asrat (2019) represents the essential importance of absorptive capacity through global company-level data to address potential difficulties to secure efficiency gains from technology transfer.

The research gap that is both critical and pressing occurs exactly at this crossroads of established knowledge. Though on one hand, literature successfully identifies the relationship of FDI with macroeconomic growth, and on the other, there is unequivocal worldwide literature on the conditions of the relationship between technology transfer and efficiency at a firm level, there is a noticeable dearth of literature that engages with these two established bodies of knowledge with special attention to the Ethiopian brewery industry, an industry of key significance to the Ethiopian economy. No study presently available successfully closes both ends of this 'macro-firm' spectrum with an empirical study that, first, identifies and studies both physical and intellectual aspects of technology transfer facilitated by FDI respectively in Ethiopian breweries on a quantified measurement, second, uses appropriate indicators of efficiency on a quantified assessment of these aspects of technology transfer on crucial aspects of firms' internal efficiency, including but not limited to, efficiency of production, use of resources, and efficiency of workforce, and, lastly, uses an appropriate comparative design to explore these markedly differing conditions across differing firms' ownership and control structures, including wholly-owned subsidiary, joint venture, and Ethiopian brewery with foreign partnership, among others.

The existence of this divide in the literature also presents an important research gap that currently supplies no concrete insights to policymakers and managers in particular regarding the micro-foundations of FDI's role in implementing a particular format in Ethiopia's industrial upgrading

initiatives. This particular research paper has been made specifically to fill this gap in the literature and aims to offer a detailed study rather than a mere informative passage in relation to how FDI, facilitated by technology transfer and modified by firm-specific absorptive capabilities, affects the operating performance in relation to Ethiopia's brewing industry.

### 2.5 Conceptual Framework

It synthesizes the theoretical bases and empirical evidence reviewed in the previous sections to provide a conceptual framework to guide the investigation of the relationship between FDI and operational efficiency within the Ethiopian beer industry. The framework centers around the core logic that FDI acts as a stimulus for industrial upgrading but not through capital infusion per se; rather, its most important contribution comes from technology transfer-a process whose effectiveness is moderated by the recipient firm's absorptive capacity (Dunning &Lundan, 2008; Cohen & Levinthal, 1990). In this study, it has been postulated that the impact of FDI on a brewery's performance does not occur in a direct manner but rather takes place through specific, analyzable vectors.

As can be seen from Figure 1 above, the independent variables are the different channels through which the influence of FDI is exerted on the concerned firms. Firstly, FDI Drives Infrastructure Development and relates to huge investments that are made in physical infrastructure such as cutting-edge breweries, packaging technology, and logistics. This plays an imperative role in providing the physical infrastructure for increased production capability (Gebre and Gebremichael, 2018). Secondly, Foreign-Led Tech Transfer relates to much more than investment and involves cutting-edge process technology, quality control systems, and technical supplies that often include different forms of intangible and tangible flows from the MNE to its subsidiary or firm (Blomström and Kokko, 1998; UNIDO, 2020). Thirdly, Knowledge Management Practice involves different forms and means through which technical and managerial knowledge are transferred and implemented inside an institution or firm through structured training and procedure development that takes an intangible form (Keller, 2004).

The intersection of these three independent variables is hypothesized to directly impact the Dependent Variable: Operational (Production) Efficiency. Drawing from Farrell (1957) and subsequent productivity literature, operational efficiency is operationalized as a function of optimizing output in relation to inputs. In the context of this framework, it will be measured

through a series of key performance indicators entailing Production Yield (output per unit of raw material), Capacity Utilization (the ratio between actual and potential output), Resource Efficiency (such as energy and water use per unit), and Cost per Unit (cost efficiency of production). The core hypothesis is that higher levels of infrastructure development, technology transfer, and effective knowledge management practices will result in measurable improvements across these specific efficiency metrics.

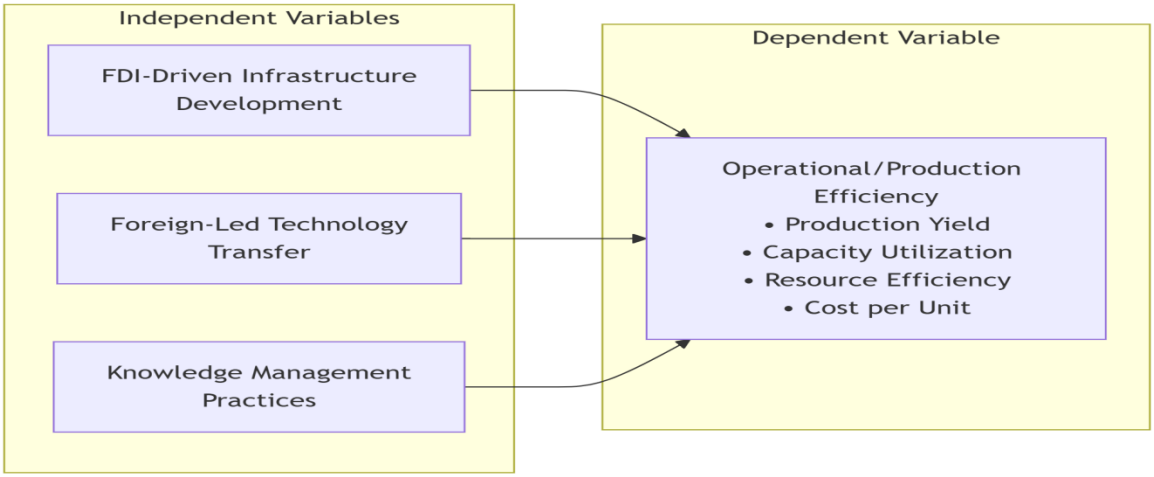



**Figure 1: Conceptual Framework of the Study**

***Source: Researcher's own conceptualization (2025)***

# CHAPTER THREE

# RESEARCH METHODOLOGY

## 3.1 Introduction

The chapter describes the methodological framework that has been applied in this research to investigate the impact of FDI on efficiency in the Ethiopian beers market, drawing on a comparative case study analysis of Heineken Ethiopia, Dashen Brewery, and Habesha Brewery. This approach has been utilized as an effective means of providing an empirical, verifiable, and systematic means of answering the questions and goals related to this research. It describes the research design and philosophy, types and sources of data, methods of data collection, population and sampling procedures, research instruments, and the data analysis procedures. It concludes with an examination of the validity, reliability, and ethics involved in this research. The adoption and selection of this methodology and approach in this research stem from existing knowledge and principles in strategic management and business studies and economics (Saunders et al., 2019).

## 3.2 Research Design

The study adopted a quantitative paradigm, which had both explanation and description components, and aimed to investigate the relationship between Foreign Direct Investment (FDI) and operational efficiency (Creswell and Creswell, 2018).

Cross-sectional research design was employed to obtain primary research data to facilitate descriptive statistical analysis to interpret and describe the level of technology transfer, knowledge management, and efficiency measurement ascribed to the identified breweries. Later, this study used an explanation model explained through the utilization of inferential statistics, referred to as correlation analysis and regression analysis to validate or invalidate study hypotheses to measure the level or degree of association to identify influencing factors affecting efficiency in operation due to FDI (Saunders et al., 2019; Zikmund et al., 2013).

## 3.3 Research Approach

This study was underpinned by a positivist paradigm research philosophy, conceived and held to believe that it is possible to objectively and quantitatively measure societal phenomena, thereby arriving at generalizable knowledge theoretically. Consequently, this study adapted a rigorous

deductive methodological approach by which concrete testable hypotheses that are based on proven theoretical frameworks like Dunning's Eclectic Paradigm Theory and Absorptive Capacity Theory are formulated first, followed by the collection of quantitative data to empirically test these hypotheses. This facilitates a systematic attempt at translating non-empirical constructs like FDI and operational efficiency into empirical indicators that could be subjected to objective empirical scrutiny regarding their cause-effect constellations.

### 3.4 Population, Sample Size, and Sampling Procedure

#### 3.4.1 Population

The population for the research covers all the working individuals of three carefully identified breweries in Ethiopia, which include Heineken Ethiopia, Dashen Brewery, and Habesha Brewery. The three breweries have been selected on the basis of the fact that the three aforementioned organizations consist of differently owned entities with the extent of engagement of the Foreign Direct Investment (FDI) differing from full ownership to jointly owned entities (Gebre & Gebremichael, 2018).

The operational departments are the units of analysis that include the staff that are currently working in the departments of production/operation, engineering/maintenance, quality control/assurance, as well as those in the supply chain/logistics, along with the operational managers. With the help of the industry ratios excluding the number for the year 2024, the estimated number of operation staff required for the research work is approximately 920 workers, as illustrated in Table 1 below:

**Table 3. 1: Estimated Target Population Distribution by Brewery and Operational Department**

| **Brewery** | **Total Company Employees** |
|---|---|
| **Heineken Ethiopia**<br>(Fully foreign-owned MNE subsidiary) | 690 |
| **Dashen Brewery**<br>(Joint venture with significant foreign equity) | 450 |

| | |
|---|---|
| **Habesha Brewery** (Locally influenced with FDI/technical partnerships) | 260 |
| **TOTAL** | **1,400** |

***Sources: Ethiopian Investment Commission Annual Report (2024); Preliminary HR data from brewery management (2024); Industry operational ratios from UNIDO (2020).***

### 3.4.2 Sample Size Determination

The sample size will be calculated by using the simplified formula for finite populations given by Yamane (1967) to ensure statistical validity. The formula can be applied as:

$$N = \frac{N}{(1 + N(e)^2)}$$

Where:

- *n* = required sample size
- N = population size (1,400)
- *e* = margin of error (5% or 0.05)

Substituting the values yields:

$$N = \frac{1400}{(1 + 1400(0.05)^2)}$$

$$N = \frac{1400}{(4.5)}$$

$$N \approx 311$$

Therefore, the target population of 311 respondents is required for determining the confidence level of 95% with the level of accuracy or margin of error being set as 5% to ensure that the proposed research is representative as well as significant enough for generalization on the population (Israel, 2018).

### 3.4.3 Sampling Technique

In collecting information useful in tackling the research objectives, this study utilized a stratification random sampling technique where a clear representation of the results was made for the totality of the population, which was comprised of 1,400 employees in the three breweries. Firstly, there was a process, referred to as a categorization process, directed at a Brewery Type platform, which included Heineken Ethiopia Brewery, Dashen Brewery, and Habesha Brewery, with the aim of creating a focused comparison between different models of Foreign Direct Investment being tackled in this study. Moreover, there was a process, referred to as a categorization process, directed at a similar platform and was termed Operational Departments being utilized within different settings, which included varied views for a comprehensive assessment towards overall efficiency (Creswell & Creswell, 2018).

**Table 3. 2: Proportional Sample Allocation and Distribution**

| **Stratum (Brewery)** | **Total Employees (N)** | **% of Total Population** | **Allocated Sample (n)** | **Provisional Departmental Allocation (Target n)*** |
|---|---|---|---|---|
| **Heineken Ethiopia** | 690 | 49.3% | 153 | • Production/Operations: 61<br>• Engineering/Maintenance: 31<br>• Quality Control: 25<br>• Supply Chain/Logistics: 25<br>• Management: 11 |
| **Dashen Brewery** | 450 | 32.1% | 100 | • Production/Operations: 40<br>• Engineering/Maintenance: 20<br>• Quality Control: 15<br>• Supply Chain/Logistics: 15<br>• Management: 10 |
| **Habesha Brewery** | 260 | 18.6% | 58 | • Production/Operations: 23<br>• Engineering/Maintenance: 12<br>• Quality Control: 10<br>• Supply Chain/Logistics: 8<br>• Management: 5 |
| **TOTAL** | **1,400** | **100.0%** | **311** | |

***Sources: Ethiopian Investment Commission Annual Report (2024); Preliminary HR data from brewery management (2024); Industry operational ratios from UNIDO (2020).***

### 3.5 Data type and Source

This study primarily relied on primary data collected through a structured questionnaire administered to employees of the three selected breweries. The questionnaire was designed to capture perceptions regarding FDI-driven infrastructure, technology transfer, knowledge management practices, and operational efficiency outcomes.

While secondary data sources including corporate annual reports, Ethiopian Investment Commission publications, and industry reports were consulted during the preliminary phase to contextualize the study and inform the sampling frame, the empirical analysis presented in this thesis is based exclusively on the primary survey data. The study's findings and conclusions are therefore drawn from the perceptions and experiences of operational employees directly involved in production activities.

### 3.6 Data Collection Procedures

The data collection process focused exclusively on administering the structured questionnaire to the target sample. Following institutional approval and collaboration with human resource departments at each brewery to establish the sampling frame, the pre-tested questionnaire was administered both online (via Google Forms) and in paper format where necessary to ensure accessibility. The questionnaire was translated into Amharic to facilitate comprehension, and a cover letter explaining the research purpose, ensuring anonymity, and obtaining informed consent accompanied each distribution. Systematic reminders were sent at appropriate intervals to maximize response rates.

Secondary sources, including corporate annual reports and Ethiopian Investment Commission documentation, were reviewed during the research design phase to inform the contextual background presented in Chapter One and the sampling strategy described in Section 3.5. However, these materials did not provide sufficiently consistent or comparable operational data across the three breweries to support quantitative analysis, and therefore the empirical findings presented in Chapter Four derive solely from the primary survey data.

### 3.7 Variable definitions and measurements

In the study, the operationalization of the variables is clearly defined to test them empirically. Below is a description in Table 3.3 of different types of variables, their definitions, and their levels, which are collected from different studies in the context to achieve construct validity.

**Table 3. 3: Variable Operationalization and Measurement**

| Variable Category | Variable Name & Notation | Operational Definition | Measurement | Source/Adaptation |
|---|---|---|---|---|
| **Independent Variables** | **FDI-Driven Infrastructure (INF)** | The capital investment in and deployment of advanced physical assets (e.g., automated brewing/packaging lines) attributable to foreign ownership. | 5-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree); 4-item composite index. | UNIDO (2020); Gebre & Gebremichael (2018) |
| | **Technology Transfer (TECT)** | The introduction and assimilation of advanced process technologies, quality-control systems, and technical know-how from the foreign investor. | 5-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree); 5-item composite index. | Blomström& Kokko (1998); Keller (2004) |
| | **Knowledge-Management Practices (KM)** | Institutionalized practices for transferring managerial expertise, formal training, and continuous-improvement culture. | 5-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree); 5-item composite index. | Cohen & Levinthal (1990); Liu & Wang (2020) |
| **Dependent Variable** | **Operational Efficiency (OE)** | The firm's ability to optimize output per unit of input, minimizing waste and cost. | 5-point Likert-scale perceptions of yield/waste reduction (5 items). | Farrell (1957); Diro et al. (2024) |

### 3.8 Validity and Reliability

#### 3.8.1 Validity

Construct validity was checked with EFA. Data suitability for factoring was seen to be very optimal, with the value of .863 for Kaiser-Meyer-Olkin, in addition to having a statistically significant value for Bartlett's test of sphericity, $\chi^2171= 2456.782$, $p<.001$ (Field, 2018). With a

conceptual insight into four factors, using the Varimax rotation technique, the obtained results provided a very good solution, explaining about 84.99% of the total variance variation. In the component matrix obtained after rotation, it is clear that factors are very interpretable, with high loadings above .70, indicating the principal constructs that this research will conceptualize around, which include: Operational Efficiency, Knowledge Management, and FDI-Driven Infrastructure, while items for the construct Technology Transfer were expected to load in an expected manner, except for the item TECT5, which included a cross-loading.

The Communality index with an overall value of more than .585 justified the high level of shared variance among the items and their constructs, thus corroborating the convergent validity and discriminant validity of the measurement tool (Hair et al., 2019; Tabachnick & Fidell, 2019). This, therefore, verified the grounding for the operationalization of the theoretical framework for empirical analysis.

### 3.8.2 Reliability

Cronbach's alpha coefficient was used to assess the internal consistency reliability of the multi-item scales in the final, full-scale study. As shown by the analysis in Table 3.2, all constructs had acceptable to good reliability, with alpha values well above the threshold of acceptability considered adequate by Nunnally & Bernstein, 1994. Scales for Technology Transfer indicated good reliability with an $\alpha = 0.850$ and Operational Efficiency $\alpha = 0.756$, while FDI-Driven Infrastructure with an $\alpha = 0.730$ and Knowledge Management with an $\alpha = 0.717$ had acceptable reliability. Importantly, the overall scale reliability was excellent at $\alpha = 0.915$, suggesting great internal consistency for the total measurement instrument, as confirmed by Tavakol& Dennick, 2011. These findings confirm the reliability of data gathered for the primary analysis.

**Table 3. 4: Internal Consistency Reliability of Measurement Scales**

| Construct | Number of Items | Cronbach's Alpha | Interpretation |
|---|---|---|---|
| FDI-Infrastructure | 4 | 0.730 | Accepted |
| Technology Transfer | 5 | 0.850 | Good |
| Knowledge Management | 5 | 0.717 | Accepted |
| Operational Efficiency | 5 | 0.756 | Good |
| **Overall Cronbach's Alpha** | **19** | **0.915** | **Excellent** |

***Source:*** **Field survey data (2025).**

*Interpretation guidelines:* $\alpha \geq 0.90$ (Excellent), $\alpha \geq 0.80$ (Good), $\alpha \geq 0.70$ (Acceptable) (George & Mallery, 2019).

### 3.9 Model Specification

To test the hypothetical relationships between the independent variables (infrastructure developed by FDI, technology transfer, and knowledge management practices) and the dependent variable (operational efficiency), the analysis employed the multiple linear regression model. The overall equation of the multiple linear regression model is presented below:

$$OE_{\mathbf{i}} = \beta_0 + \beta_1 INF_{\mathbf{i}} + \beta_2 TECT_{\mathbf{i}} + \beta_3 KM_{\mathbf{i}} + \beta_4 (HEINEKEN)_{\mathbf{i}} + \beta_5 (DASHEN)_{\mathbf{i}} + \beta_6 (HABESHA)_{\mathbf{i}} + \boldsymbol{\epsilon_{\mathbf{i}}}$$

Where;

- $OE_{\mathbf{i}}$ = Composite Operational Efficiency score for respondent "I"
- $INF_{\mathbf{i}}$ = FDI-Driven Infrastructure score
- $TECT_{\mathbf{i}}$ = Technology Transfer score
- $KM_{\mathbf{i}}$= Knowledge Management Practices score
- $(HEINEKEN)_{\mathbf{i}}$ = Dummy variable (1 if employed at Heineken Ethiopia, 0 otherwise)
- $(DASHEN)_{\mathbf{i}}$ = Dummy variable (1 if employed at Dashen Brewery, 0 otherwise)
- $(HABESHA)_{\mathbf{i}}$ = Dummy variable (1 if employed at Habesha Brewery, 0 otherwise)
- $\beta_0$ = Model intercept
- $\beta_1$, $\beta_2$, $\beta_3$ = Coefficients to measure the marginal impacts of infrastructure, technology transfer, and knowledge management, respectively.
- $\beta_4$, $\beta_5$, $\beta_6$= Coefficients capturing the differential effects on operational efficiency associated with employment at Heineken, Dashen, or Habesha breweries, respectively, compared to the baseline category.
- $\epsilon_{\mathbf{i}}$ = Stochastic error term for respondent i.

### 3.10 Method of Data Analysis

The data collected in the study were analyzed through the use of a two-phase systematic process that involved the use of both descriptive and inferential statistics, facilitated through the use of the IBM SPSS Statistics (Version 28) software package. The first stage involved the use of data screening in an attempt to establish the integrity and absence of missing data in the results, complemented by the use of assumptions regarding the data's normality, linearity, and homoscedasticity necessary in the use of parametric statistics, followed by the necessary corrective measures (Pallant, 2020). The study then involved the use of descriptive statistics such as means, standard deviations, and frequencies to establish the characteristics and nature of the variables measurement, namely the extent of the use of the studied breweries' known infrastructural developmental investments initiated through the use of FDI, complemented by the use of technology transfer practices, knowledge management initiatives, and the respondents' perception regarding the use of the studied breweries' known level of operational efficiency, all within the three studied breweries (Hair et al., 2019).

Inferential statistics, at the core of the analysis, tested the hypotheses set up for the study and, simultaneously, the specified regression model. The individual and cumulative effects of independent variables FDI-driven infrastructures, technology transfer, and knowledge management practices on the dependent variable of operational efficiency were estimated through a multiple linear regression analysis (Cohen et al., 2018). In the comparative objective of the research, Analysis of Variance One-way ANOVA was used to test for significant differences in mean scores across key variables for each brewery group: Heineken Ethiopia, Dashen Brewery, and Habesha Brewery. In instances when ANOVA results indicated significant differences, post-hoc tests Tukey HSD were conducted to establish the distinct pairs of breweries at which these differences existed (Field, 2018).

The level of significance at which all the statistical tests were evaluated remained at $p < .05$. The data obtained from the analyses, namely the regression coefficients, the F-statistic in the ANOVA test, and the post-test comparisons, were then integrated and explained within the theoretical framework provided in the paradigm called Dunning's Eclectic Paradigm and Absorptive Capacity Theory. This organized manner of analysis allowed the data obtained to offer a scientific means

for the empirical study's questions on the impact of FDI on the firm level operational efficiency in the beer sector in the case country, Ethiopia.

### 3.11 Ethical Consideration

This study has been conducted in strict compliance with the identified ethics in conducting academic research, to safeguard the protection, dignity, and rights of all individuals as well as the organizations involved in the study (Bryman and Bell, 2015). Before the commencement of the collection of information through the survey, approval from the institutional review board had been sought. Consent from all the respondents in the survey had been obtained in the form of an elaborate cover letter, setting out the purpose of the study, the voluntary nature of the response, the confidentiality of the response, as well as the right to withdraw from the study at any time without any implications. All information, both primary as well as the secondary information, had been kept strictly confidential. Anonymity in the responses received from the surveys had been maintained, and the information from the corporation had also been kept confidential, being used only for the purpose of academic inquiry. All the information has been presented in the study in an honest, transparent manner, crediting all the sources to prevent plagiarism.

# CHAPTER FOUR

# RESULTS AND DISCUSSION

## 4.1 Introduction

This chapter aims to presented the empirical outcomes for the comparison analysis performed to determine the effect of Foreign Direct Investment (FDI) on the efficiency of operations for the brewery industry in the Ethiopian setting. The empirical analysis was conducted on three specifically identified brewery companies, segmented based on the different patterns of ownership, namely Heineken Ethiopia (subsidiary of the foreign MNE); Dashen Brewery (Joint venture involving majority foreign capital); and Habesha Brewery (Locally Influenced firm with foreign Technical collaborations). This chapter is arranged in a structured fashion to discuss the Rate of Response, Data Screening, Descriptive Statistics for various variables, Analysis of Variance for comparing the average results via One Way ANOVA, Correlation Analysis, Checks for assumptions in Regression Analysis, and finally the Results of Multiple Regression Analysis. Each of these, further, are clarified within the theoretical framework based on the Dunning's Investment Paradigms and Absorptive Capacity Theory, finally progressing to a detailed discussion on the empirical research work and objectives.

## 4.2 Response Rate and Data Screening

The survey managed to get a very high response rate of 95.8%, with a total of 298 questionnaires retrieved out of the 311 that were issued, as illustrated in Table 4.1. This is therefore a good measure that eliminates non-response bias to a large extent (Saunders et al., 2019). The dataset is properly pre-cleaned to get rid of 13 observations that have over 20%of data missing and 5 data that have been identified as outliers through the use of the distance of Mahalanobis test ($p < .001$). All assumptions under parametric test have been satisfied through the use of test assumptions such as Normality Test (Shapiro-Wilk), Linearity Test; test assumptions have been satisfied. Clean data retrieved for purposes of executing analyses is 290 data with little or no data that would affect it largely.

**Table 4. 1: Survey Response Rate**

| Category | Frequency | Percentage (%) |
|---|---|---|

| | | |
|---|---|---|
| Filled and Returned | 298 | 95.8 |
| Not Returned | 13 | 4.2 |
| **Total Distributed** | **311** | **100.0** |

***Source: Field Survey (2025)***

### 4.3 Demographic and Professional Profile of Respondents

Based on the description of the population presented below, the demographic variables represented through the respondents, as pointed out in Table 4.2, illustrate that the stratified approach in the sampling method has been appropriately implemented, thus allowing the sample to be representative of the population accurately. The use of a proportionate approach in the sampling method is employed and maintained, which is based on the operational workforce of the three breweries, Heineken Ethiopia (49.3%), Dashen Brewery (31.5%), and Habesha Brewery (19.1%).

**Table 4. 2: Demographic and Professional Profile of Respondents (N=298)**

| **Characteristic** | **Category** | **Frequency** | **Percentage (%)** |
|---|---|---|---|
| Brewery of Employment | Heineken Ethiopia | 147 | 49.3 |
| | Dashen Brewery | 94 | 31.5 |
| | Habesha Brewery | 57 | 19.1 |
| Primary Department | Production/Operations | 152 | 51.0 |
| | Engineering/Maintenance | 74 | 24.8 |
| | Quality Control/Assurance | 23 | 7.7 |
| | Supply Chain/Logistics | 23 | 7.7 |
| | Operational Management/Supervision | 26 | 8.7 |
| Job Title/Position | Non-supervisory Staff/Technician | 150 | 50.3 |
| | Team Leader/Supervisor | 88 | 29.5 |
| | Department Head/Manager | 30 | 10.1 |
| | Senior Management | 30 | 10.1 |
| Work Experience (Tenure) | Less than 2 years | 67 | 22.5 |
| | 2 – 5 years | 66 | 22.1 |

| | | | |
|---|---|---|---|
| | 6 – 10 years | 132 | 44.3 |
| | More than 10 years | 33 | 11.1 |
| Highest Educational Level | TVET/Diploma | 34 | 11.4 |
| | Bachelor's Degree | 165 | 55.4 |
| | Master's Degree or Higher | 99 | 33.2 |

***Source: Own Survey, 2025***

The study had a good representation in operational areas, as a massive majority of the respondents fell under Production/Operations (51.0%) and Engineering/Maintenance (24.8%), thus ensuring that all respondents had hands-on experience in the overall operational activities of interest. The hierarchical level had a good representation to ensure that all respondents comprised a balanced split of 50.3% from the non-supervisory group and 29.5% from team leaders/supervisors, including both direct and managing levels. Interestingly, 44.3% of the overall group had experience of 6-10 years in the industry as a whole, thus stating that experience among the respondents had been adequate for assessing the changes.

The educational base had a good overall representation as well, as 88.6% of the respondents had a bachelor's degree or higher educational attainment, thus stating that the respondents comprised a good level of calibre to comprehend and interpret technically as well as managerially complex constructs of FDI, technology transfer, or operational efficiencies.

### 4.4 Descriptive Analysis of Key Constructs

#### 4.4.1 Composite Descriptive Statistics

The composite descriptive statistics of the four key constructs on the three breweries are shown in Table 4.3. The means of all were between 3.42 and 3.70, on a 5-point Likert-type scale, which indicated a generally positive but not outstanding perception of all the constructs in all breweries. The standard deviations were between .52 and .93. This indicated a moderate to large variability in their responses.

**Table 4. 3: Composite Descriptive Statistics for Key Constructs by Brewery**

| **Brewery** | **N** | **Construct** | **Mean** | **Std. Deviation** |
|---|---|---|---|---|
| **Heineken Ethiopia** | 147 | FDI-Infrastructure | 3.5714 | .71613 |
| | | Technology Transfer | 3.6014 | .78076 |

| | | | | |
|---|---|---|---|---|
| | | Knowledge Management | 3.6844 | .57905 |
| | | Operational Efficiency | 3.4748 | .67528 |
| **Dashen Brewery** | 94 | FDI-Infrastructure | 3.4202 | .84424 |
| | | Technology Transfer | 3.6340 | .83763 |
| | | Knowledge Management | 3.7021 | .68552 |
| | | Operational Efficiency | 3.5149 | .74458 |
| **Habesha Brewery** | 57 | FDI-Infrastructure | 3.4386 | .92736 |
| | | Technology Transfer | 3.6246 | .73492 |
| | | Knowledge Management | 3.6912 | .52382 |
| | | Operational Efficiency | 3.4807 | .62548 |

***Source: Own Survey, 2025***

### 4.4.2 Perceptions of FDI-Driven Infrastructure

Analysis of FDI-driven infrastructure revealed the complexity of variations for different breweries. Although the mean variations were not significantly different (Heineken: 3.57; Dashen: 3.42; Habesha: 3.44), variations for individual factors were quite large. The three showed medium to high agreement on the provision of upgrades as a result of foreign investments (all mean scores ranging from 3.68 to 3.94) and construction of new capacities (all mean scores ranging from 3.49 to 3.77). More importantly, there was a significant difference related to an important difference: the maintenance and development of infrastructure. Although it was tolerated with a moderate level of neutrality for Heineken breweries (mean = 3.31), there was a leaning towards disagreement for Dashen as well as Habesha breweries (mean = 2.66 & 2.74 respectively).

It can well be inferred from the data that though the capital expenditure on the new infrastructure was acceptable across all the classes of ownership, the relative importance placed on it, which was a significant efficiency criterion for the overall performance of the infrastructure, was lower in the joint venture companies compared to foreign fully-owned companies.

### 4.4.3 Perceptions of Foreign-Led Technology Transfer

The view on Technology Transfer was remarkably uniform in its composite scores (Heineken=3.60, Dashen=3.63, Habesha=3.62). However, there exist many points of divergence in the perceptions. The efforts put in by Heineken in implementing technological transfer and

provision of technical aid (average=3.85 and 3.64) made clear its inroads into the global knowledge system.

Dashen showed the highest perception on the upgrade in the quality control system to international standards with a mean of 3.48. Interestingly, Habesha showed the highest perception on the transfer of "technical know-how" with a mean of 4.04, as well as the "highest frequency of upgrade in technology" with a mean of 3.88. This could be due to the fact that technical knowledge is explicitly part of the contractual arrangement in "technical partnerships. Habesha showed the lowest perception on "inroads into the world knowledge network for advanced process technologies" with a mean of 3.58 and "upgrade in quality systems with a mean of 3.07.

### 4.4.4 Perceptions of Knowledge Management Practices

In the Knowledge Management category, the results are close tied (Heineken: 3.68, Dashen: 3.70, Habesha: 3.69), with all three firms emphasizing an embracing attitude toward cultures of continuous improvement and the transfer of managerial practices regarding the perception of knowledge management practices. In this regard, Habesha Brewery again scored high with a mean of 4.04 for the codification of seeking and implementing employees' ideas, possibly reflecting a bottom-up approach toward continuous improvement practices. In contrast, the scores for the institutionalization of knowledge transferred between the various departments of both Heineken and Dashen were moderate (3.53 to 3.60), possibly reflecting the presence of information barriers even under the widespread presence of FDI.

### 4.4.5 Perceptions of Operational Efficiency Outcomes

Operational Efficiency was similar in all the breweries: in Heineken, Me=3.47; Dashen Brewery, Me=3.51; Habesha Brewery, Me=3.48.

All the groups found improvements in operational efficiency positive. The surprising gaps were noticed in the use of capacities in the three breweries, Heineken, Dashen, and Habesha, with mean scores of 2.75, 2.87, and 2.72, respectively, where all disagreed to a high percentage of maximum capacities being used.

This might be a sector-wide constraint, possibly relating to market demand dynamics, or possibly related to the fact that regulation does not fully enable modern infrastructure investments to be leveraged for the benefits of economies of scale despite differences in the ownership models.

### 4.5 One-Way ANOVA Results

The one-way ANOVA test determines whether there exist statistically significant differences in mean perceptions among the breweries for each set of constructs. The findings presented in Table 4.4 suggest the absence of significant differences in each of the constructs.

**Table 4. 4: One-Way ANOVA Comparing Mean Scores by Brewery**

| Construct | Source of Variation | Sum of Squares | Df | Mean Square | F-Value | Sig. (p-value) |
|---|---|---|---|---|---|---|
| **FDI-Infrastructure** | Between Groups | 1.562 | 2 | 0.781 | 1.217 | .298 |
| | Within Groups | 189.319 | 295 | 0.642 | | |
| | **Total** | **190.882** | **297** | | | |
| **Technology Transfer** | Between Groups | 0.066 | 2 | 0.033 | 0.053 | .948 |
| | Within Groups | 184.496 | 295 | 0.625 | | |
| | **Total** | **184.563** | **297** | | | |
| **Knowledge Management** | Between Groups | 0.018 | 2 | 0.009 | 0.025 | .976 |
| | Within Groups | 108.024 | 295 | 0.366 | | |
| | **Total** | **108.042** | **297** | | | |
| **Operational Efficiency** | Between Groups | 0.096 | 2 | 0.048 | 0.102 | .903 |
| | Within Groups | 140.045 | 295 | 0.475 | | |
| | **Total** | **140.141** | **297** | | | |

***Source: Own Survey, 2025***

All of the p-values were well above the typical alpha level of 0.05: FDI-Infrastructure F = 1.217, p = 0.298, Technology Transfer F = 0.053, p = 0.948, Knowledge Management F = 0.025, p = 0.976, and Operational Efficiency F = 0.102, p = 0.903. This analysis shows that from a perceptual level, there are no differences between the manner that each organization perceives each of these variables on a collective level between either Heineken Ethiopia, Dashen Brewery, and Habesha Brewery from a statistically significant level according to whether it is a state or privately owned company based on their perceptions of each of these variables.

### 4.5 Correlation Analysis

Bivariate relationships of each of the three independent variables, FDI-Driven Infrastructure, Technology Transfer, and Knowledge Management Practices, with the dependent variable, Operational Efficiency, were determined for each of the three breweries separately by Pearson

correlation analysis. Table 4.5 below shows that in each of the three breweries, the correlation is statistically significant and positive.

**Table 4. 5**: **Pearson Correlation Coefficients (r) Between Independent Variables and Operational Efficiency by Brewery**

| **Brewery** | **Variable Pair** | **r (Correlation Coefficient)** | **p-value** | **N** |
|---|---|---|---|---|
| Heineken Ethiopia | FDI Infrastructure - Operational Efficiency | 0.395** | 0.000 | 147 |
| | Technology Transfer - Operational Efficiency | 0.877** | 0.000 | 147 |
| | Knowledge Management - Operational Efficiency | 0.913** | 0.000 | 147 |
| Dashen Brewery | FDI Infrastructure - Operational Efficiency | 0.527** | 0.000 | 94 |
| | Technology Transfer - Operational Efficiency | 0.866** | 0.000 | 94 |
| | Knowledge Management - Operational Efficiency | 0.886** | 0.000 | 94 |
| Habesha Brewery | FDI Infrastructure - Operational Efficiency | 0.634** | 0.000 | 57 |
| | Technology Transfer - Operational Efficiency | 0.877** | 0.000 | 57 |
| | Knowledge Management - Operational Efficiency | 0.906** | 0.000 | 57 |

***Source: Own Survey, 2025***

*Note: ** Correlation is significant at the 0.01 level (2-tailed)**

*Abbreviations: r = Pearson correlation coefficient; N = sample size.*

The results indicate that the intensity of positive correlation between Knowledge Management Practices and Operational Efficiency was high at r = 0.886 to 0.913 for overall breweries, while the second highest correlation was that of Technology Transfer at r = 0.866 to 0.877. Moderate positive correlation existed between the efficiency of operations and FDI-Driven Infrastructure with values ranging from r = 0.395 for Heineken Ethiopia, which was the lowest among the breweries, while Habesha Brewery was at r = 0.634 as the highest.

### 4.6 Multiple Linear Regression Assumptions

#### 4.6.1 Linearity

Scatter plot matrices (Figure 2) supported the presence of linear relationships for the independent variables and OE in all the breweries, satisfying the assumption needed for multiple regression.

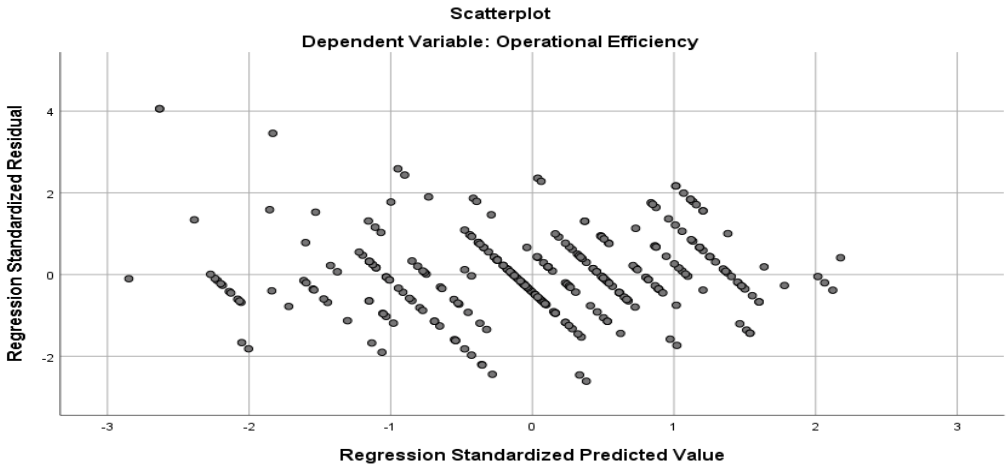



**Figure 2: Scatter plots**

***Source: Field Survey Data (2025)***

#### 4.6.2 Multicollinearity

Values in Table 4.6 indicated that VIF factors were less than 10, and tolerance values were greater than 0.10, thereby not presenting concerns for multicollinearity among independent variables. Collinearity statistics were examined.

**Table 4. 6: Collinearity Statistics**

| Coefficients[a] | | | |
|---|---|---|---|
| **Model** | | **Collinearity Statistics** | |
| | | **Tolerance** | **VIF** |
| 1 | (Constant) | | |
| | FDI-Infrastructure | .765 | 1.307 |
| | Technology Transfer | .402 | 2.489 |
| | Knowledge Management | .456 | 2.195 |
| a. Dependent Variable: Operational Efficiency | | | |

***Source: Field Survey Data (2025)***

### 4.6.3 Normality of Residuals

Histograms (Figure 3) and Normal P-P plots (Figure 4) suggested near-normal distributions of residuals, fulfilling the assumption of normality in regression analysis.

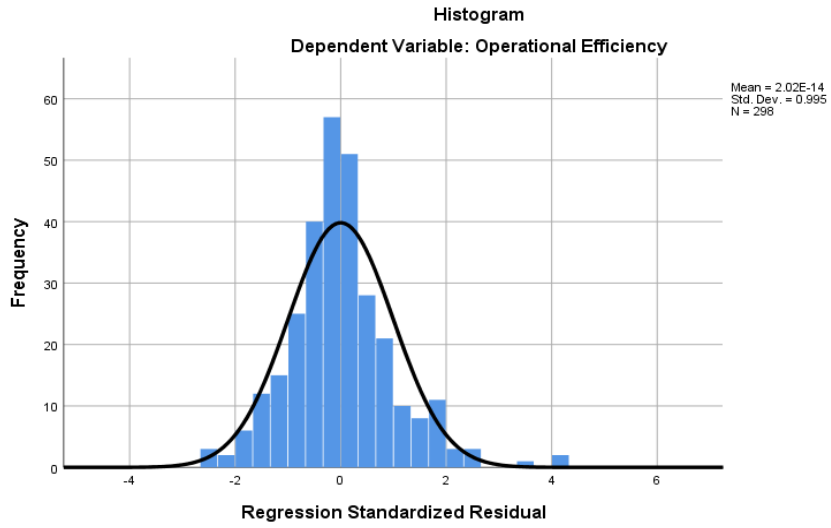



***Figure 3: Histogram***

***Source: Field Survey Data (2025)***

### 4.7 Multiple Regression Analysis

To establish the individual contribution of each channel of the FDI in predicting the Operational Efficiency metric, as well as to confirm the main hypotheses of the study, separate multiple regressions for each of the breweries are employed. The general formula for the multiple regression for each of the breweries could be expressed as follows:

$$OE = \beta_0 + \beta_1(INF) + \beta_2(TECT) + \beta_3(KM) + \varepsilon$$

### 4.7.1 Regression Model

The regression models explained a very high degree of variation in all three breweries, as evidenced in Table 4.7.

**Table 4. 7: Regression Model Summary by Brewery**

| Model Summary[b] | | | | | |
|---|---|---|---|---|---|
| Brewery | Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |

| | | | | | |
|---|---|---|---|---|---|
| Heineken Ethiopia | 1 | .955[a] | .912 | .910 | .20243 |
| Dashen Brewery | 1 | .953[a] | .909 | .906 | .22881 |
| Habesha Brewery | 1 | .960[a] | .921 | .916 | .18104 |
| a. Predictors: (Constant), Knowledge Management, FDI-Infrastructure, Technology Transfer | | | | | |

***Source: Field Survey Data (2025)***

The three models were found to be significantly different from zero ($p < .001$) and accounted well for 91% of the variability in Operational Efficiency (Adj $R^2$ = .910, .906, .916), suggesting that taken together, these three FDI channels explain a complete story of efficiency perceptions, depending on ownership.

### 4.7.2 Regression Coefficients and Unique Contributions

Beta Weights, as shown in Table 4.8, explain the individual contribution made by each variable while holding the influence of other variables constant.

**Table 4. 8: Standardized Regression Coefficients (Beta) by Brewery**

| Coefficients[a] | | | | | | | |
|---|---|---|---|---|---|---|---|
| Brewery | Model | | Unstandardized Coefficients | | Standardized Coefficients | T | Sig. |
| | | | B | Std. Error | Beta | | |
| Heineken Ethiopia | 1 | (Constant) | -.511 | .123 | | -4.147 | .000 |
| | | FDI-Infrastructure | .062 | .025 | .066 | 2.446 | .016 |
| | | Technology Transfer | .347 | .035 | .401 | 9.952 | .000 |
| | | Knowledge Management | .682 | .045 | .585 | 15.077 | .000 |
| Dashen Brewery | 1 | (Constant) | -.336 | .138 | | -2.427 | .017 |
| | | FDI-Infrastructure | .063 | .033 | .072 | 1.935 | .056 |
| | | Technology Transfer | .402 | .042 | .452 | 9.587 | .000 |
| | | Knowledge Management | .587 | .049 | .541 | 12.074 | .000 |
| Habesha Brewery | 1 | (Constant) | -.487 | .175 | | -2.787 | .007 |
| | | FDI-Infrastructure | .092 | .036 | .136 | 2.567 | .013 |
| | | Technology Transfer | .294 | .061 | .346 | 4.832 | .000 |
| | | Knowledge Management | .700 | .070 | .587 | 9.997 | .000 |

a. Dependent Variable: Operational Efficiency

***Source: Field Survey Data (2025)***

### 4.7.3 Heineken Ethiopia Regression Results

In the case of the fully foreign-owned MNE subsidiary, Knowledge Management was identified as the most influential factor ($\beta = .585$, $p < .001$), with Technology Transfer following closely ($\beta = .401$, $p < .001$), while the influence of Infrastructure was small but significant ($\beta = .066$, $p = .016$). These results imply that while, in an established, globalized subsidiary, efficiency gains primarily derive from superior Organizational Learning Capacities and technologies, physical Infrastructure, although essential, plays less of a role once it is in place.

### 4.7.4 Dashen Brewery Regression Results

In the joint venture model, Technology Transfer emerged as the strongest predicting factor ($\beta = .452$, $p < .001$) and was followed closely by Knowledge Management ($\beta = .541$, $p < .001$). The Infrastructure also emerged as a borderline significator ($\beta = .072$, $p = .056$). The model that emerged implies that Dashen Beer relies enormously on the direct transfer and adoption of new technology straight from the foreign partner, yet knowledge management systems remain a basic necessity for internalizing the new technologies.

### 4.7.5 Habesha Brewery Regression Results

In the locally-influenced brewery with technical collaborations, Knowledge Management was once more the predominant predictor ($\beta = .587$, $p < .001$), but the role of Infrastructure was more pronounced ($\beta = .136$, $p = .013$) than in other breweries. Technology Transfer continued to be relevant ($\beta = .346$, $p < .001$). The trend suggests that in Habesha Breweries, isolated doses of foreign investment to upgrade infrastructure have implications directly related to efficiency enhancement, but effective knowledge management is critical to maximize infrastructure as well as technology transferred.

## 4.7 Discussion of Findings

The results of this research provide a qualitative and empirical analysis of the theoretical assertions formulated based on Dunning's Eclectic Paradigm and Absorptive Capital Theory within the particular context of the brewing industry in Ethiopia. This section interprets and summarizes the quantitative results within the framework of specific research objectives and theoretical literature

related to this particular topic, identifying both confirmatory and novel knowledge that has been ascertained with regard to a relationship that exists between FDI and operational efficiency.

### 4.7.1 The Modest and Differentially Sustained Impact of FDI-Driven Infrastructure

The first objective was designed to examine the effect of infrastructure contributed by FDI on capacity and use of assets. The findings indicated a consensus among the three breweries that foreign investment had contributed to improvements in physical infrastructure as well as an increase in capacity. This finding clearly supports Dunning's (2008) assertion concerning the Location-specific advantage offered by the Ethiopian market, which entices MNEs to transfer Ownership advantages, which are highly capitalized, through Internalization, where they make direct investments in immobile tangible infrastructure. It empirically verifies the sectorial explanations offered by Gebre & Gebremichael (2018), where they described the physical development in the sector brought about by entrants from across the world.

However, a more crucial distinction arose regarding the sustainability of such an infrastructure superiority. Though the moderate confidence level exuded by Heineken Ethiopia was quite encouraging regarding sustained infrastructure support, the Dashen and Habesha breweries showed much lower levels of such perception. Thus, the full realization of the incentive to internalize to secure and maximize gains from unique properties seems most effective within the context of wholly-owned subsidiaries. In joint ventures or technology alliances, seemingly rivaling strategic visions or capacity limitations may cause inconsistent follow-throughs, possibly leading to degradation of the initial capital superiority over time. Extending the study by Desulie & amp; Ashalatha (2022) from merely monitoring capital inflow to identifying qualitative differences in sustained infrastructure commitment is essential.

Additionally, the common and low perception regarding high capacity utilization by all breweries stands out as an interesting result. This suggests that although FDI brings the capability for utilization through scale economies, their attainment through FDI faces limitations from external sources such as market trends. This view resonates with the warning offered by Meles and Asrat (2019), whose study among manufacturing firms in Ethiopia uncovered some systemic limitations to the conversion of technological change gains to maximum utilization. By extension, the influence of infrastructure does not lie uniquely within the realm of channeling funds but within the interplay between governance and the operating environment.

### 4.7.2 Technology Transfer: A Potent Mechanism with Contingent Primacy

The second objective examined the impact of technology transfer on operational performance. The high and positive correlations between Technology Transferand Operational Efficiency in all cases (r = 0.866 and r = 0.877) offer empirical confirmation for the key theoretical implication of FDI-driven upgrading in the host firm, proposed in the theoretical approach developed by Blomström and Kokko (1998). Conversely, regression results showed that the relative weight of this factor depends on ownership structure, indicating a refinement in theory.

In the case of Dashen Brewery, the unique joint venture, Technology Transfer was identified to be the strongest unique predictor (β = .452). What it implies is that it is the transfer of processes, standards, and technical knowledge from the foreign entity within an equity-sharing arrangement that plays the most important role in achieving efficiency.

By contrast, in the case of Heineken Ethiopia, Technology Transfer, although very important (β=.401), was subsidiary to Knowledge Management. This could suggest that, in a fully-owned subsidiary, technology is so fully embedded in a globally networked system that it is normalized as a routine. It is therefore seen that the marginal benefit of efficiency is generated from the manner in which the organizational knowledge of such technology is structured. This challenges the technology-centric discourse, indicating that, in the case of fully embedded subsidiaries, perhaps the "softer" licensings of knowledge systems can provide a more substantial benefit of efficiency.

The Habesha Brewery example offers a rich example of how the theory of Absorptive Capacity applies in the context created by Cohen and Levinthal in 1990. Indeed, Technology Transfer had a big coefficient (β = .346) but what's striking is that this coefficient markers a stark inconsistency when item-level analysis is considered, where high levels in receiving documentation coexist with lower levels in applying complex system upgrades in technology. This empirical finding summarizes what it entails to have absorptive capacity in reality, which in turn indicates that it requires an accessible technology investment qualified in terms of implemented collaborative know-how on part of recipient organizations to assimilate it in practical terms in this context (Oyinlola & Adedeji, 2021) that in Habesha's experience seems to lie in technology access rather than application itself.

### 4.7.3 The Paramount and Consistent Role of Knowledge Management Systems

Knowledge management practices were the focal area of inquiry that revealed the strongest finding in the study. Knowledge Management is the strongest predictor for the operational efficiency of both Heineken Ethiopia (β = .585) and Habesha Brewery (β = .587), being an extremely strong predictor for Dashen Brewery (β = .541). It is an important finding that adds rigor to the empirical findings on FDI in the context of Ethiopia. It is appropriate to state that the existing literature has emphasized the role of capital and technology in the context of the Ethiopian economy aptly (Gebre & Gebremichael, 2018; Wondimu, 2023). However, the significance of the organizational/human systems of learning that form the strongest channeling factor for transforming the outputs of FDI into efficiency has been appropriately emphasized in the findings.

This serves to strongly confirm the core hypotheses of the Absorptive Capacity Theory (Cohen & Levinthal, 1990). The ability of the firm itself to absorb external knowledge and apply it is, in essence, underpinned and created through the very same practices required and measured through the KM scale, namely training, transferring the practice of management, culture of improvement, and facilitating the flow of knowledge. The remarkable ability of Knowledge Management, across all ownership patterns, underlines the premise of the importance of this fundamental foundation.

One interesting finding is that Habesha Brewery had the highest average score for casting and landing suggestions from their employees. It is clear that locally-influenced organizations can learn from more indigenous, participatory methods of knowledge production in combination with knowledge transfer. Indeed, this finding adds depth to knowledge spillovers research, where there is a suggestion that synergistic, two-way knowledge flows may be feasible for some partnerships, a point that has often been missed when a one-way knowledge flow from foreign organizations to locals is assumed.

### 4.7.4 Synthesis: Reconciling Pathways and Outcomes - the Moderating Role of Ownership

One of the most important findings from this research is that there is no statistically significant difference between the mean values of perceived operational efficiencies of the three breweries (ANOVA test results, all p>.05). At first, it seems like it defies the expectations of Dunning's Eclectic Paradigm on the basis of varying levels of resource investment according to internalization theories. But the comparative regression test resolves this paradox by showing that

varying patterns of ownership structures reach a comparable level of efficiency through utterly different routes.

This contingent approach may be summarized as follows:

- **Wholly-Owned Subsidiary (Heineken):** While efficiency relies largely on advanced Knowledge Management systems and the global network, it also relies on the inclusion of Technology and Infrastructure. This approach delivers strong systemic efficiency, although gains can be somewhat 'enclaved' within the MNE structure (Meles and Asrat, 2019).
- **Joint Venture (Dashen):** Efficiency is driven mostly by formalized Technology Transfer from the foreign partner, and Knowledge Management Systems must include primacy of this technology. In this approach, there is a clearer, well-structured communication pathway for spillovers of technology to the local partner organization.
- **Local Firm with Technical Partnership (Habesha):** The efficiency here is dependent on good internal Knowledge Management practices that maximize the various discrete injections of Infrastructure and Technology that come through partnerships. The success of this approach is highly dependent on previous absorptive capacity.

Consequently, the ownership structure fails to define the extent of efficiency that can be attained but systematically conditions the basic channel by which the efficiency proceeds because of the FDI. This finding corresponds with the contingency approach, as the results cited by the study of Hordofa (2023), at the macro-level, demonstrating the power of the findings of the present study in reinforcing the contingent approach.

The most vital implication of the study's findings relates to the fact that for the success of the entire FDI model, the existence of strong 'internal' capabilities, especially the management of knowledge, must play the leading role in the form of the engine pushing for the attainment of the operational benefits because of the acquired external resources.

# CHAPTER FIVE

# CONCLUSION AND RECOMMENDATION

## 5.1 Summary of Findings

In this study, the impact of Foreign Direct Investment (FDI) on the operational efficiency of the chosen breweries in Ethiopia was examined utilizing the comparative study of the efficiency of

the following breweries: Heineken Ethiopia, Dashen Brewery, and Habesha Brewery. The results, as provided in response to the identified research questions, are outlined below.

### 5.1.1 Impact of FDI-Driven Infrastructure on Production Capacity and Asset Utilization

The results confirmed that FDI has played an important role in the development of physical infrastructures in all three breweries. Respondents were in consensus that FDI has ensured the setting up of modern brewery and packing lines, as well as enhanced capacity, as depicted by the sectoral changes described in the literature (Gebre & Gebremichael, 2018). However, there has been an important departure in perceptions on the sustainability of such an infrastructural strength. Though Heineken Ethiopia, the fully-owned subsidiary, showed to have moderately strong confidence in adequate funding and attention to maintenance upgrade efforts, both Dashen, the joint-venture enterprise, and Habesha, the technical partnership enterprise, have scored significantly lower on the same point. This implies that internalization motivation to internalize all benefits entirely from such assets has stronger appeal in fully-owned firms, ensuring enhanced infrastructural superiority. Moreover, an important sector-level variable has been recognized, given that all three firms work below their maximum capacity, suggesting that the productivity gain from modern infrastructures gets offset by sectoral factors such as market demand fluctuations.

### 5.1.2 Effects of Technology Transfer on Operational Performance

The empirical results show that, in all cases, technology transfer and operational efficiency are in a strong, positive, and significant relationship, thus confirming the core theoretical proposition that FDI is a conduit of advanced know-how (Blomström& Kokko, 1998). However, regression analysis uncovered that the relative primacy of technology transfer as an efficiency driver is contingent on ownership structure. In the case of Dashen Brewery, the joint venture, technology transfer became the strongest unique predictor ($\beta = .452$). This means that in an equity-sharing model, the formalized transfer of processes, standards, and technical knowledge from the foreign partner is the most critical direct lever for achieving operational gains. In contrast, in Heineken Ethiopia, technology transfer, while highly significant ($\beta = .401$), was secondary to knowledge management.

This means that for a completely integrated MNE subsidiary, the degree to which advanced technology is embedded within the global system means that the marginal efficiency advantage of such technology is outweighed by its organizational management. For Habesha Brewery, while the

important coefficient of technological transfer (β = 346) obscured a desirable item level of inconsistency, such that high levels of technical documentation receipt interacted with low levels of applying complex system upgrades indicated the problems of absorptive capacity (Cohen & Levinthal, 1990).

### 5.1.3 Influence of Knowledge Management Practices on Workforce Productivity and Efficiency

The strongest and most persistent outcome across all ownership structures regards a paramount role for knowledge management practices. Knowledge management turned out to be the strongest unique predictor for operational efficiency in Heineken Ethiopia, as well as Habesha Brewery, $\beta = .585$, $p < 0.0001$, $\beta = .587$, $p < 0.0001$ respectively, and an also very strong predictor for Dashen Brewery, $\beta = .541$, $p < 0.0001$. This strongly highlights that "learning" related to formal training, managerial practice transfer, continuous improvement, and knowledge sharing as institutionalized processes is "the engine that powers a firm's productivity performance, converting FDI's inputs into efficiency outputs." In addition, it strongly validates "Absorptive Capacity Theory" placing knowledge management as "its key concrete manifestation as a firm's ability to recognize, assimilate, and apply knowledge from other sources within their environment." Notably, employee suggestion schemes for soliciting and implementing changes based on employee ideas were highest for Habesha Brewery, implying that "locally influenced" companies can develop effective knowledge acquisition principles related to endogenous knowledge production related to "formal direct foreign investment related knowledge importation."

## 5.2 Conclusions

This study concludes that foreign direct investment (FDI) positively influences operational efficiency in Ethiopia's beer industry, but this effect is neither direct nor uniform. Efficiency gains are realized through a mediated process in which knowledge management practices serve as the central mechanism. The findings demonstrate that a firm's internal capacity to absorb and apply knowledge its absorptive capacity is a stronger predictor of operational efficiency than either advanced infrastructure or transferred technology.

Furthermore, while the level of efficiency achieved does not differ significantly across ownership types, the pathway to efficiency is distinctly shaped by ownership structure. In the wholly-owned multinational subsidiary, efficiency is primarily driven by globally-integrated knowledge systems.

In the foreign-dominant joint venture, efficiency is most directly linked to formal technology transfer processes. In the locally-influenced firm with technical partnerships, efficiency depends fundamentally on internal knowledge practices to leverage specific external inputs.

Ultimately, the impact of FDI on firm-level performance is contingent and indirect: FDI provides resources, but their translation into efficiency gains depends critically on the robustness of the recipient's knowledge management systems. Ownership structure determines which resource channel is emphasized, but it does not alter the foundational requirement for strong absorptive capacity.

## 5.3 Implications

### 5.3.1 Theoretical Implications

The work of this research is to add the following theoretical contributions to the literature. Firstly, it constitutes a rigorous empirical test and nuance of Dunning's Eclectic Paradigm within the African manufacturer context, illustrating how the "I" (Internalization) factor advantage plays out variably across ownership types with specific consequences for technological engagement. Secondly, it firmly establishes and operationalises the Absorptive Capacity Theory by converting it from a theoretical requirement for FDI to a specific set of knowledge management techniques established as the central mediating factor through empirical analysis. Lastly, it fills a major gap in the research literature by integrating macro-economic/sectoral storylines for FDI in Ethiopia with micro-economic perspectives on the efficiency factor to deliver a more encompassing framework of analysis.

### 5.3.2 Managerial Implications

For managers in the brewing industry and similar sectors, the findings offer clear strategic guidance:

- **For Local & Joint Venture Companies (Dashen, Habesha models):** Enhance knowledge management system knowledge. Equally important is the need to negotiate the clauses on the transfer of technology in joint ventures, but alongside, the structure for training programs towards the adoption and implementation of the transferred technology should be given similar attention.

- **For Multinational Subsidiaries (Heineken model):** Although a global knowledge management system is a strength in this case, to properly align and develop practices tailored to this local entity may provide additional gains in efficiency gains and even further spillovers to this local economy.
- **All Firms:** Active maintenance of the invested infrastructures funded by FDI is required in order to retain the initial cost advantage. Firm managers can also promote a policy framework regarding the sector-wise challenges faced by capacity utilization, including the challenge of market fragmentation.

### 5.3.3 Policy Implications

For Ethiopian policymakers, particularly the Ethiopian Investment Commission (EIC):

- The process of investment promotion should transform from a focus solely on the number of investments to a qualitatively positive promotion of investments with significant knowledge transfer components within FDI. The schemes of incentives could be tiered, thereby catering to investments with programs involving training, technology collaboration, and supply development.
- Industrial policy can encourage the development of absorptive capacity beyond the firm in terms of improving tertiary education in line with the needs of the industrial sector, with industry associations for sharing the best practices, and extension services for improving the processes of local companies in the supply chain.
- There should be a promotion of linkages between MNEs and the economy of the nation. This can be done either through the development of suppliers or the transfer of qualified personnel from MNEs to the nation.

## 5.4 Limitations of the Study

Although this study gives important lights, the findings have to be interpreted against certain limitations:

- The central dependent variable-operational efficiency-and various of the independent variables were all measured based on perceptual data from surveys taken by employees. While triangulated with secondary data wherever possible, perceptions may not always fit perfectly with objective audited performance metrics.

- The snap that the study tries to take is for one point in time, 2024/2025. An improved longitudinal design, in which the same firms are tracked over a more extended period, would provide stronger evidence of causal relationships and the evolution of efficiency gains.
- The results are based on the beer industry in Ethiopia, and generalization to other manufacturing industries that record different levels of technological intensities is not advisable. Similarly, generalization to countries which have markedly different institutional environments would not be appropriate.
- A total of three breweries have been investigated in this study. They represent important models of ownership; adding other breweries-like BGI/Ethiopia, belonging to the Castel Group-could therefore be useful for more comparative points.

### 5.5 Recommendations for Future Research

Having established the findings and limitations of this research study, the following research pathways can be considered for further research:

- Studies tracing the performance data of breweries (as well as other manufacturing concerns) before and subsequent to major FDI activity may offer more concrete indications of the causal nature of efficiency gains.
- A replication of this research in other significant sectors in Ethiopia where FDI is considerable (e.g., textile industry and pharmacology) may validate the results. Comparative research in other East African countries in the brewery industry may also specify the importance of country-specific policies.
- Complementary qualitative research, in the form of in-depth interviews and ethnographic studies in these breweries, may shed light on the complex social, cultural, and management processes underlying successful or unsuccessful knowledge management or technology assimilation.
- Future studies should explore knowledge diffusion from FDI breweries to their suppliers, such as barley suppliers and packaging material suppliers, as a way to measure the overall industry upgrade role of FDI.
- More advanced research could use hierarchical linear modeling (HLM) techniques to explore the joint impact of firm-level (such as KM practice-related) factors and country-

level factors (such as quality-of-regulatory-environment or trade policies) on operational efficiency outcomes from FDI.

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# Appendix A: Research Questionnaire

**Title of Research:** Effect of Foreign Direct Investment on Operational Efficiency in Ethiopia's Beer Industry: A Comparative Study of Heineken Ethiopia, Dashen Brewery, and Habesha Brewery

**Part I: Cover Letter and Informed Consent**

**Dear Participant,**

You are hereby invited to participate in an academic research study that is part of the Master of Science in International Business Management at the College of Business and Economics. The research is focused on assessing the impact of Foreign Direct Investment on operational efficiency within the context of Ethiopia's beer industry.

Your participation will be accomplished by your completing this structured questionnaire, which takes about 15-20 minutes. Your responses will be treated with strict confidentiality and anonymity, with no identifying information collected or reported. Participation in this research study is strictly voluntary, and you are free to withdraw from participating without penalty at any time.

The findings will add to academic knowledge and provide practical insights for industry and policy development in Ethiopia.

Proceeding to complete this questionnaire below constitutes your voluntary informed consent to participate in this study.

Thank you for your valuable time and contribution.

Sincerely,
Gelila Girma

## Part II: Demographic and Professional Information

*Please tick (✓) the appropriate box or write your answer in the space provided.*

**1. Which brewery do you currently work for?**

- □ Heineken Ethiopia
- □ Dashen Brewery
- □ Habesha Brewery

**2. In which operational department do you primarily work?**

- □ Production/Operations
- □ Engineering/Maintenance
- □ Quality Control/Assurance
- □ Supply Chain/Logistics
- □ Operational Management/Supervision
- □ Other (please specify): _____

**3. What is your current job title/position?**

- □ Non-supervisory Staff/Technician
- □ Team Leader/Supervisor
- □ Department Head/Manager

□ Senior Management

**4. How many years have you been employed in your current brewery?**

□ Less than 2 years

□ 2 – 5 years

□ 6 – 10 years

□ More than 10 years

**5. What is your highest level of educational qualification?**

□ TVET/Diploma

□ Bachelor's Degree

□ Master's Degree or Higher

□ Other (please specify): _____

**Part III: Perceptions of FDI-Driven Infrastructure and Capital Investment**

*Please indicate your level of agreement with the following statements regarding infrastructure and capital investment in your brewery. Use the scale:*

*1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree*

| No. | Statement | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|
| **INF1** | The brewing and packaging machinery in our plant is state-of-the-art and comparable to global industry standards. | | | | | |
| **INF2** | Significant capital investment from foreign partners has directly upgraded our production and logistical facilities. | | | | | |
| **INF3** | Our production capacity has increased substantially due to investments in new, high-capacity infrastructure. | | | | | |
| **INF4** | The maintenance and upgrading of critical production assets are consistently funded and prioritized. | | | | | |

**Part IV: Perceptions of Foreign-Led Technology Transfer**

*Please indicate your level of agreement with the following statements regarding the transfer of technology and technical knowledge. Use the scale:*

"1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree"

| No. | Statement | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|
| **TECT1** | Advanced process technologies (e.g., automation, control systems) have been introduced by our foreign investor/partner. | | | | | |
| **TECT2** | There is a systematic transfer of technical know-how and operational manuals from the foreign parent company/partner. | | | | | |
| **TECT3** | Our quality control and assurance systems have been significantly upgraded to international standards (e.g., ISO) through foreign collaboration. | | | | | |
| **TECT4** | Technical problems are often resolved with direct support from the foreign partner's engineering or technical teams. | | | | | |
| **TECT5** | The technology we use is regularly updated to keep pace with global advancements in the brewing industry. | | | | | |

**Part V: Perceptions of Knowledge Management Practices**

*Please indicate your level of agreement with the following statements regarding training, expertise transfer, and organizational learning. Use the scale:*

"1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree"

| No. | Statement | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|
| **KM1** | Formal training programs are regularly conducted to build technical and managerial skills. | | | | | |
| **KM2** | Managerial and operational best practices are systematically transferred from our foreign investor/partner. | | | | | |
| **KM3** | There is a strong culture of continuous improvement and innovation encouraged by management. | | | | | |
| **KM4** | Knowledge sharing between departments and shifts is effective and institutionalized. | | | | | |
| **KM5** | Employee suggestions for process improvement are actively solicited and implemented. | | | | | |

**Part VI: Perceptions of Operational Efficiency Outcomes**

*Please indicate your level of agreement with the following statements regarding the efficiency of your brewery's operations. Use the scale:*

"1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree"

| No. | Statement | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|
| **OE1** | Our production yield (output per unit of raw material) has improved over the past five years. | | | | | |
| **OE2** | The rate of production waste and rework has decreased significantly. | | | | | |
| **OE3** | Energy and water consumption per unit of production has become more efficient. | | | | | |
| **OE4** | Our plant operates at a high percentage of its maximum production capacity. | | | | | |
| **OE5** | Overall production costs per unit have been reduced due to process improvements. | | | | | |

**Part VII: Open-Ended Section for Additional Insights**

*Please provide any additional comments or observations you believe are relevant to the study's focus on FDI, technology transfer, and operational efficiency in your brewery.*_____

_____

_____

End of Questionnaire

**Thank you very much for your time and valuable input.**