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Article

Do existing competitiveness models comprehensively assess the competitiveness context of the contemporary agribusiness sector? A systematic review

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Do existing competitiveness models comprehensively assess the competitiveness context of the contemporary agribusiness sector? A systematic review

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ABSTRACT

This review study intended to investigate how existing agribusiness competitiveness studies understood the competitiveness concept and the measurement employed. To address the aims, the study used a systematic review strategy, particularly using the PRISMA 2020 protocol. In this respect, clear inclusion and exclusion criteria were used to select 60 relevant articles from the total of 2,563 agribusiness competitiveness-focused articles obtained from various databases. The study also used content analysis to analyze the data that were gathered and descriptive research design to present the results descriptively. The finding shows that competitiveness concept is understood from marketing perspective or forward integration, particularly from export. Methodologically, the finding revealed that there is a shortage of studies conducted using explanatory design and inferential statistical analysis. RCA, Porter Diamond, and RTA models are the most accepted and applied models to investigate competitiveness in the existing studies but the first two in particular are not complete. Therefore, it is suggested that future studies focus on investigating agribusiness competitiveness using explanatory design and inferential statistical analysis. It is also recommended that NRCA, RTA, and the proposed competitiveness framework has to be used together to investigate agribusiness competitiveness comprehensively.

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& Industrial Studies

1. Introduction

As globalization advances, conditions might suddenly alter in unanticipated ways, the environment can change continuously, and institutions may change over time (Ahlstrom et al., 2020; Ayalew & Amentie, 2023). The effects of globalization on economic growth and competitiveness at the national level have been significant, according to (Briones Penalver et al., 2018; Chege et al., 2019; Chege & Wang, 2020). In the contemporary business environment, firms and industries must exhibit a high level of competitiveness and aggression due to the rapid pace of competition (Heyder & Theuvsen, 2012; Kach et al., 2016). According to Abrudan et al. (2022), the competitive business environment of today is marked by a constant stream of new product developments, technical advancements, and market shifts that have reduced the life cycles of already-existing items. Competition makes the difference between a company succeeding and failing. The competition will demonstrate whether or not the business culture, innovation, and strategy implementation all contribute to efficiency (Chzhan et al., 2019).

As stated by Ahmad and Muhammad (2023), competitive advantages mostly stem from the value a business may produce for its customers that surpasses the costs incurred in doing so. In recent years, trade liberalization, globalization, and changes in the business environment have made it more and more necessary for agribusiness to become more competitive. The business paradigm was changed from one that focused on comparative advantage to one that focused on competitive advantage (Wahyudi & Kiminami, 2021). Agribusiness subjects' competitive advantages ensure their high competitiveness, which

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goes hand in hand with contemporary changes at all market space hierarchical links in both the internal and exterior environments (Karabassov et al., 2023). In this regard, economists and policymakers are concerned about the need for competitive advantage in the agribusiness sector since it contributes to the competitiveness of the global agribusiness (Matkovski et al., 2022; Pylypenko et al., 2020).

According to Reklitis et al. (2021), superior economic or market performance is regarded as an indication of competitive advantage since competitiveness may be understood as an outcome. Thus, the agribusiness sector's unique method of measuring competitive advantage adds value for identifying factors that enhance competitive advantage (Heyder & Theuvsen, 2012; Sachitra, 2016). The ability to function on the market on par with comparable goods, services, or rival subjects within market relations is Porter's definition of competitiveness for a product, service, or subject (Porter, 2005). According to Maslova et al. (2017), the primary factors determining competitiveness are the ability to compete on both price and quality while ensuring a consistent rise in production. The concept of a brand's or product's competitive advantage—the qualities and attributes that provide it an advantage over direct competitors—has been used in this context by a number of scholars (Maslova et al., 2019).

Over the past few years, many agribusiness researchers worldwide have developed an interest in competitive analysis. This is demonstrated by the growing number of studies in this area that have been done and are being done (Barnard et al., 2020). Since many agribusiness researchers began to recognize their significance in the sector ten to twenty years ago, competitive studies of agribusiness products have received commercial credence (Sinngu & Antwi, 2014). According to Sinngu and Antwi (2014), this can be attributed to the substantial transformations currently impacting the agribusiness sector, including shifts in consumer demand, global rivalry, technical advancements, and the industrialization of agribusiness. Likewise, the pressure and uncertainty surrounding the COVID-19 pandemic as well as hostilities that have been seen in different parts of the world, including Russia's war on Ukraine, which will continue this year and play a part in causing global instability, those factors are predominantly presumed to impact agribusiness sector competitiveness (Ben Hassen & El Bilali, 2022; Hamid & Mir, 2021). For instance, competitiveness can be assessed at the level of a company's production in relation to other companies in the same industry, or at the level of a region or nation in relation to the production of comparable goods in other regions and nations (Maslova et al., 2019). However, according to various sources (e.g., Constantin et al., 2023; Roszko-Wójtowicz & Grzelak, 2020), the concept of competitiveness is still a controversial issue due to its complexity. Therefore, this study will address how the competitiveness concept is understood in the existing literature, particularly in agribusiness-focused studies.

In a similar vein, there is no single comprehensive measure that can be considered as the appropriate indicator of competitive advantage (Sachitra, 2016). This is demonstrated by the fact that researchers have not been able to definitively define the concept, establish a basis for comparison, or limit the number of factors that go into determining competitiveness (Siudek & Zawojnska, 2014). According to Sinngu and Antwi (2014), the choice of measurement is influenced by a particular facet or question of competitiveness that one wishes to deal with. Particular to agribusiness competitiveness it is essential to have a supply chain focus (Nematollahi et al., 2021). Meaning, that competitiveness ought to be assessed at each level where value is added to the agribusiness product (Babu & Shishodia, 2017; Sachitra, 2016). There are several situations where an agribusiness product may be competitive at a particular stage in the supply chain but less competitive at another stage (Farahani et al., 2014). For example, establishing what the agribusiness sector consists of should be the first step in determining its competitiveness (Clay & Feeney, 2019). According to Babu and Shishodia (2017), this is crucial to make sure that the investigation takes into account all associated businesses that contribute value to the final agro-product. Therefore, this study will discuss the competitiveness measures applied in prior agribusiness studies. It delves into the competitiveness models that are widely used in existing agribusiness studies. In the end, the study will investigate if the model employed is sufficiently thorough to examine factors that influence the competitiveness of the agribusiness sector.

Consequently, this study aims to identify competitiveness measures used in the existing literature, particularly agribusiness-focused studies. It seeks to assess the competitiveness models majorly used in the extant agribusiness studies. This study addresses whether the conventional models in the existing agribusiness studies are comprehensive enough to measure the contemporary agribusiness competitiveness context. It seeks to assess how the competitiveness concept is understood in the extant

agribusiness-focused literature such as from comparative and competitive advantages. In this regard, the conventional competitiveness models mostly used in the studies will be identified with the practical rationale provided to use it. The study addresses the research methods the extant agribusiness studies used and what limitations were observed in the methods. It seeks to assess the proper competitiveness models that deserve to investigate the current status and drivers of agribusiness competitiveness. Finally, the study will propose an improved framework that helps investigate factors affecting the contemporary agribusiness competitiveness context.

This study is divided into four sections: the introduction, which provides an overview, discusses the competitiveness issues in detail, and identifies the gaps that justify the study's significance. Subsequently, the study outlines the research methodologies employed to carry out this systematic review investigation. These methodologies encompass the review approach and time frame for article selection, database and article selection, study kind and published journals, and data analysis technique. The third section of the study contains discussions on studies by sector and region, the research design and theme employed, the measurement and model used, the extent to which conventional measures of agribusiness competitiveness are comprehensive, and the data source and analysis techniques used. The study's conclusion and recommendation, the study's contribution and practical implications, its limitations, and potential future research areas are presented in the last section.

2. Research methods

This section has employed well-defined research methodologies to investigate whether the competitiveness models currently in use provide a full assessment of the competitiveness context of the contemporary agribusiness sector. In this context, the techniques used are laid forth as follows: Review method and time horizon for the selection of articles, selection of databases and articles, and method of data analysis.

2.1. Review method and time horizon for article selection

To accomplish the stated research objectives, researchers the accessible literature on agribusiness competitiveness using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA 2020) (Page et al., 2021). The current study aims to determine potential future research directions by analyzing and classifying the literature that is already accessible on agribusiness competitiveness into various focal areas, such as those based on competitiveness concepts and measurements like indexes and models. This three-step review process covers article selection, database selection, and time horizon.

The journal articles under consideration for review and evaluation were published between the beginning of 2009 and the beginning of 2023. 2009 was selected as the launch year for gathering pertinent data since a longer time horizon provides the opportunity to obtain rich evidence to address the inquiries that are posed. Reviewers are expected to give adequate reasoning for their choice of historical period, as Meline (2006) proposes. Similarly, because of the growing number of articles that have tackled this immensely important subject, the beginning of 2023 was chosen as the endpoint to incorporate the most recent academic journal publications.

2.2. Selection of databases and articles

Several web databases were employed in this study to find relevant and up-to-date literature on agricultural competitiveness. The studies were conducted in English, and ScienceDirect, Emerald Insight, Elsevier, Wiley Online Library, Pubmed, Taylor & Francis, SpringerLink, and Google Scholar were the online database sources. Although every effort was made to incorporate as many articles as feasible, the current study makes no claims regarding the completeness or exhaustiveness of the databases.

The systematic review process that the current study adhered to is depicted in Figure 1 and explained as follows. First of all, keywords were described as a criterion for searches in online databases. In the titles of the aforementioned online databases, the terms "Comparative Advantage," "Competitive Advantage," "Competitive Analysis," "Competitiveness," "Agribusiness Competitive Advantage," "Agribusiness

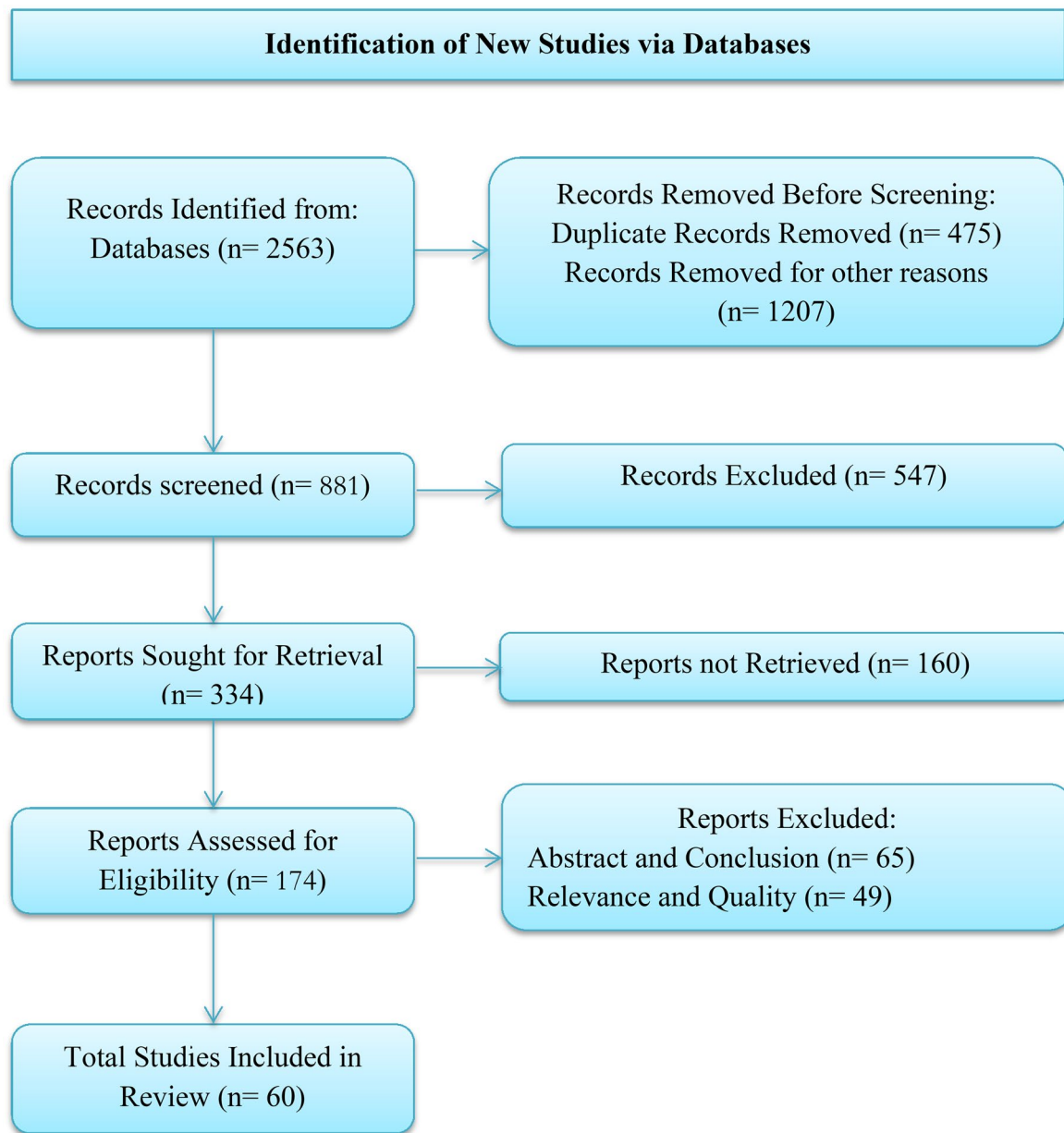


Figure 1. PRISMA 2020 flow diagram.

Source: Adopted from Page et al. (2021).

Competitive Analysis,” and “Agribusiness Competitiveness” were all included. Next, each article published in reputable scholarly publications between 2009 and 2023 was taken into account. 174 articles were included in the preliminary result out of 881 articles that were selected.

Then, to assess the journal articles’ applicability to agribusiness competitiveness, the abstracts were reviewed. To guarantee a consistent focus and minimize bias, articles that were unrelated to the study were excluded. In addition, duplicate publications were removed so that our analysis wouldn’t count the same article twice (Kitsiou, Pare, & Jaana, 2013). 60 articles were produced as a result of this procedure, and these were selected for review based on their originality, relevance, and clearly defined goals. Figure 1 provides an overview of the article selection procedure that was employed in this investigation.

Concerning type of study and published journals, as Figure 2 illustrates, the majority of the included studies-representing 82%(49) of the total selected studies-are quantitative. Studies that combine quantitative and qualitative methods come in second, at 15%(9), while the remaining studies-or 3%(2)-are qualitative; and these studies are published in various journals, as Figure 3 makes evident.

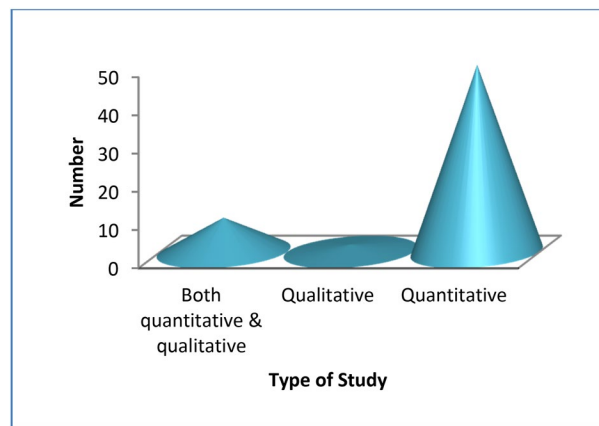


Figure 2. Type of study.
Source: Own Survey (2023).

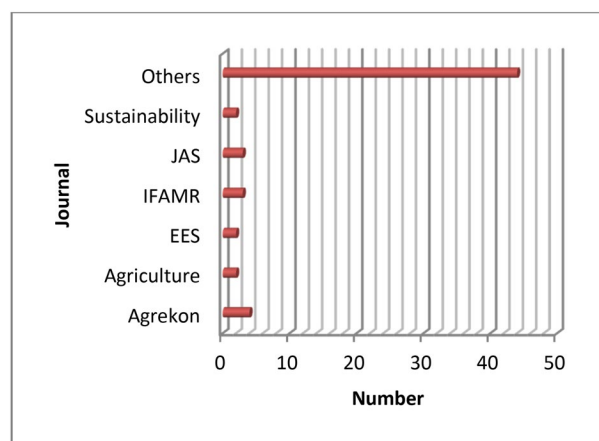


Figure 3. Study journal.
Source: Own Survey (2023).

2.3. Method of data analysis

Initially, every piece of data about agribusiness competitiveness was gathered from the studies that were included in this review study. The topics posed in the study's introduction were addressed by iteratively processing the gathered data on agribusiness competitiveness. To investigate the gathered data in this regard, this study used a content analysis method. Gheyle and Jacobs (2017) state that content analysis is a research technique that is used to find certain words, themes, or concepts in provided data, whether it be qualitative or quantitative. It is a methodical, quantitative way of characterizing an organization's phenomena and evaluating its significance or content (Riff, Lacy, & Fico, 2014). As a result, researchers and academics can measure and examine the existence, significance, and connections of particular terms, themes, or concepts-like agribusiness competitiveness-using this analysis method (Gheyle & Jacobs, 2017). Lastly, the results were analyzed through the use of descriptive statistics, specifically, percentages displayed in tables, line, pie, and bar graphs.

3. Discussions

This section of the study emphasized discussing results from pertinent studies that were limited to agribusiness competitiveness in terms of its concept and measurement. This study investigated two primary areas, such as providing overall findings about agribusiness competitiveness and then discussing and addressing the fundamental goals listed in the introduction. Through all of these, it appears that this study will cover the study location and sector, competitiveness concept and measures, research design and theme, data source, and the method of analysis utilized to identify gaps in the chosen studies. These gaps

may present an opportunity for additional research to be undertaken in the future. Sixty studies, comprising different types of empirical investigations, were taken into consideration to address the stated objectives.

3.1. Studies by location and sector

The findings showed that agribusiness competitiveness is a concept with a global reach from all angles, as Figure 4 provided an overview of studies on the topic by country or region of origin. It should be noted, however, that a significant portion of research—roughly 78% of all studies—were conducted at the national level from various perspectives, with a concentration of studies in particular nations like Indonesia (12) and South Africa (8). Conversely, very little research was done both regionally and globally. Nine agribusiness competitiveness-focused studies (e.g., Bogale et al., 2020; Mango et al., 2015; Maslova et al., 2019; Matkovski et al., 2019; Mizik et al., 2020) covered regions such as Asia, East Africa & South America, Eurasian Economic Union (EAEU) countries, South East Europe, Sub-Saharan Africa, and European Union (EU) countries. Only four studies were conducted at the global level (Huo et al., 2020; Kutkowska & Szuk, 2020; Lei, 2023; Valenciano et al., 2012). Consequently, the study's conclusions showed that since the notion of competitiveness is still quite new—especially in the agribusiness sector—more research needs to be done on a regional and worldwide scale.

According to Figure 5, the available research has primarily examined the agribusiness sector, which accounts for 22%(13). This is followed by the agri-food industry, which accounts for 12%(7), the flower industry, which accounts for 8%(5), the tomato industry, which accounts for 5%(3), the citrus industry, which accounts for 3%(2), the pear industry, which accounts for 3%(2), and the sugar industry, which accounts for 3%(2). Nonetheless, the findings indicate that the majority of research was done at the industry level (78% of 47), with the remaining 22% of studies focusing on the sector level (13). Additionally, none of the research was done at the firm level. Studies carried out at the industry level (e.g., Bahta, 2021; Bahta & Mbai, 2023; Guaita-Pradas et al., 2023; Matkovski et al., 2019; Mizik et al., 2020; Pawlak & Poczta, 2020; Worku et al., 2023) and at the level of the agribusiness sector (e.g., Buzgau & Cosma, 2021; Maslova et al., 2019; Sarker & Ratnasena, 2014; Uzhva, 2016) are a few examples of these types of studies. The results therefore showed a deficiency in research on competitiveness at the firm and sector levels.

3.2. Research design and theme used

Table 1 shows that the majority of the studies used a descriptive research design, accounting for 72%(43). The next most common research design used by the studies that are currently focused on agribusiness is a combination of descriptive and explanatory designs, accounting for 25%(15). Very few studies used

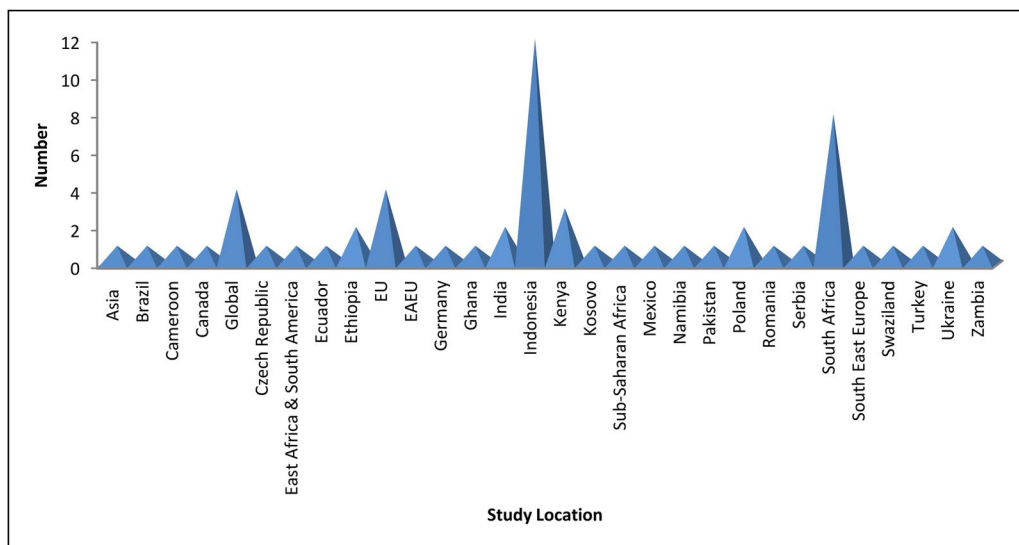


Figure 4. Study location.
Source: Own Survey (2023).

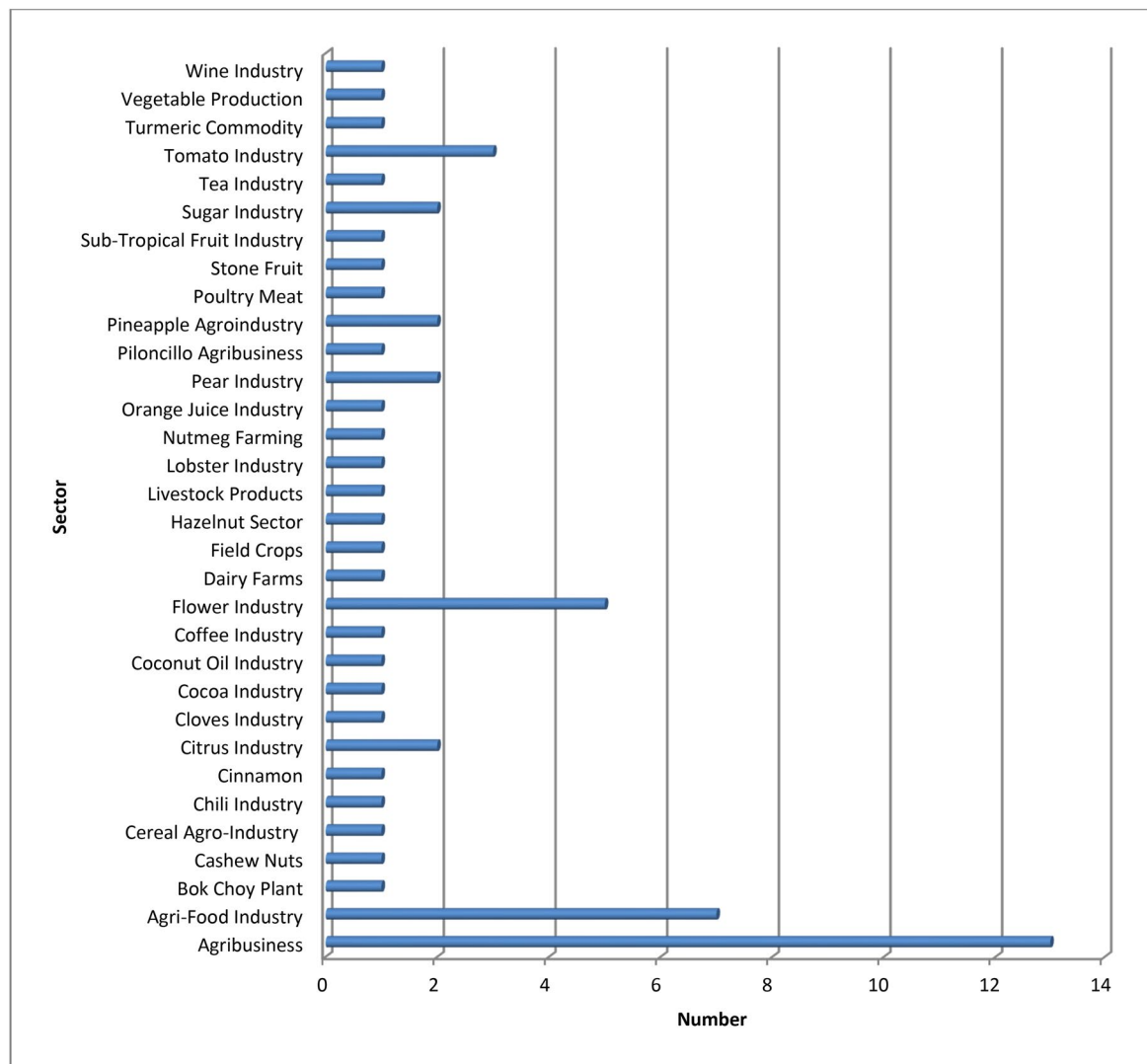


Figure 5. Study sector.

Source: Own Survey (2023).

Table 1. Research design used.

Research Design	Quantity (Study)	Percentage
Both Descriptive and Explanatory Designs	15	25
Descriptive Design	43	72
Explanatory Design	2	3
Total	60	100

Source: Own Survey (2023).

an explanatory design, accounting for 3%(2) of the total. Studies (Chalwa et al., 2016; Dlamini et al., 2014; Lei, 2023; Mango et al., 2015; Marina et al., 2023; Sinngu & Antwi, 2014; such as Buzgau & Cosma, 2021) are a few examples of those that used a descriptive design. Other studies that used both descriptive and explanatory designs include Aydoğan (2023), Bahta (2021), Huo et al. (2020), and Seyoum (2021); and studies like Wanyonyi et al. (2023) and Obi et al. (2013) that make use of an explanatory design. Consequently, the results showed that there is a serious lack of studies with explanatory design.

According to the theme of the studies that are currently focused on agribusiness competitiveness, as illustrated in Figure 6, export competitiveness, comparative and competitive advantages, competitiveness drivers, import and export competitiveness, production chain, value chain, economic returns on investment, labor productivity, macro management, production and profitability, and production and export were the subjects of 33%(20) (e.g., Bahta & Mbai, 2023; Keror et al., 2018; Mizik et al., 2020; Ndou & Obi, 2013; Samudera et al., 2017; Sarker & Ratnasena, 2014), 20%(12) (e.g., Lei, 2023; Mani & Yudha, 2021;

Saptana et al., 2022), 15%(9) (e.g., Buzgau & Cosma, 2021; Wanyonyi et al., 2023), 10%(6) (e.g., Worku et al., 2023), 5%(3) (e.g., Cherevko, 2019), 2%(1) (e.g., Mango et al., 2015), 2%(1) (e.g., Haankuku & Kirsten, 2012), 2%(1) (e.g., Parzonko & Bórawski, 2020), 2%(1) (e.g., Novkovic & Mutavdzic, 2010), 2%(1) (e.g., Ria et al., 2021), and 2%(1) (e.g., Maslova et al., 2019) of the studies, respectively. The bulk of the existing studies on agribusiness competitiveness, as a result, concentrated on export competitiveness, which was followed by comparative and competitive advantages and competitiveness drivers. This suggested that studies currently conducted on agribusiness competitiveness have placed a greater emphasis on the export part when examining the competitiveness of a sector or an industry.

3.3. Measurement/model used

Agribusiness competitiveness has been investigated using the model shown in Figure 7. Numerous models have been employed to assess competitiveness, as the figure illustrates. Agribusiness studies have primarily employed Porter Diamond, Constant Market Share (CMS), Relative Trade Advantage (RTA), and Revealed Comparative Advantage (RCA) models to investigate competitiveness. In agribusiness studies (e.g., Istudor et al., 2022; Keror et al., 2018; Matkovski et al., 2019), the RCA model is the most frequently used competitiveness measure. It is followed by Porter Diamond (e.g., Marina et al., 2023; Putri et al., 2017), RTA (e.g., Worku et al., 2023), and CMS (e.g., Obi et al., 2013). Several models, including the Trade Specialisation Index (TSI), Export Competitive Index (XCI), Lafay Index (LFI), Hirschman index (HI), Heckscher-Ohlin-Vanek (H-O-V) model, Policy Analysis Matrix (PAM), Domestic Resource Cost Ratio (DRCR), Nominal Protection Coefficient (NPC), Analytic Hierarchy Process (AHP), Dynamic Research Evaluation for Management (DREAM), Extraction rate (ETR), Gravity Model, etc. were used in some agribusiness studies (e.g., Ria et al., 2021; Saptana et al., 2022; Uzhva, 2016). The results showed that the agribusiness competitiveness in the existing studies were assessed using just a few of models. Thus, in the studies that are now available, conventional models such as RCA, Porter Diamond, and RTA are employed to assess agribusiness competitiveness.

Figure 7 shows that the large majority of studies on agribusiness competitiveness, or 67%(40) of the total, investigated competitiveness from the perspective of current status (e.g., Bogale et al., 2020; Keror et al., 2018; Matkovski et al., 2019; Pratama & Darwanto, 2019; Sinngu & Antwi, 2014; Valenciano et al., 2012; Worku et al., 2023). The next studies investigated competitiveness from the perspective of determinants (e.g., Anang et al., 2013; Chalwa et al., 2016; Dlamini et al., 2014; Putri et al., 2017; Wanyonyi et al., 2023), which record 20%(12), and a small number of studies investigated competitiveness focusing on both current status and determinants (e.g., Abei & Van Rooyen, 2018; Boonzaaier & Van Rooyen, 2017; Mani & Yudha, 2021; Van Rooyen et al., 2011), which account 13%(8). As a result, the findings suggest a shortage of thorough studies on agribusiness competitiveness that investigates the factors that determine competitiveness as well as its current status.

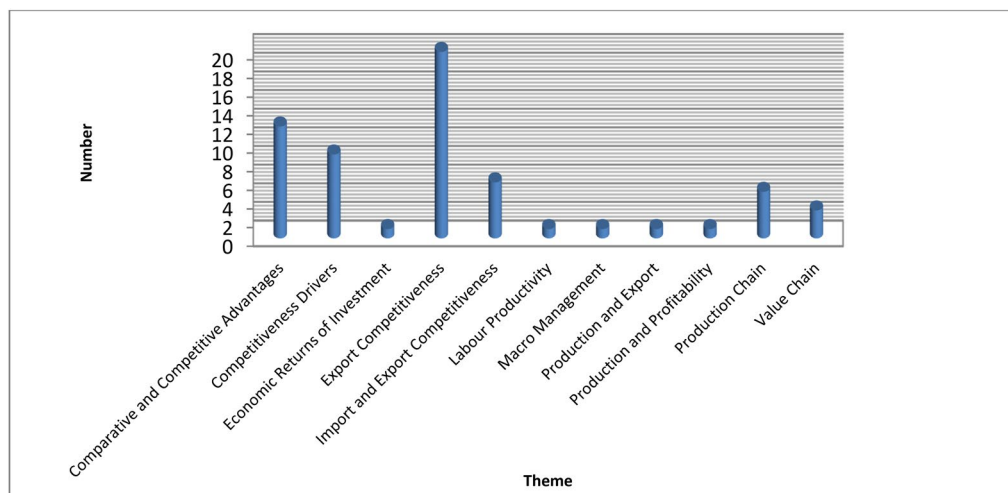


Figure 6. Study Theme.
Source: Own Survey (2023).

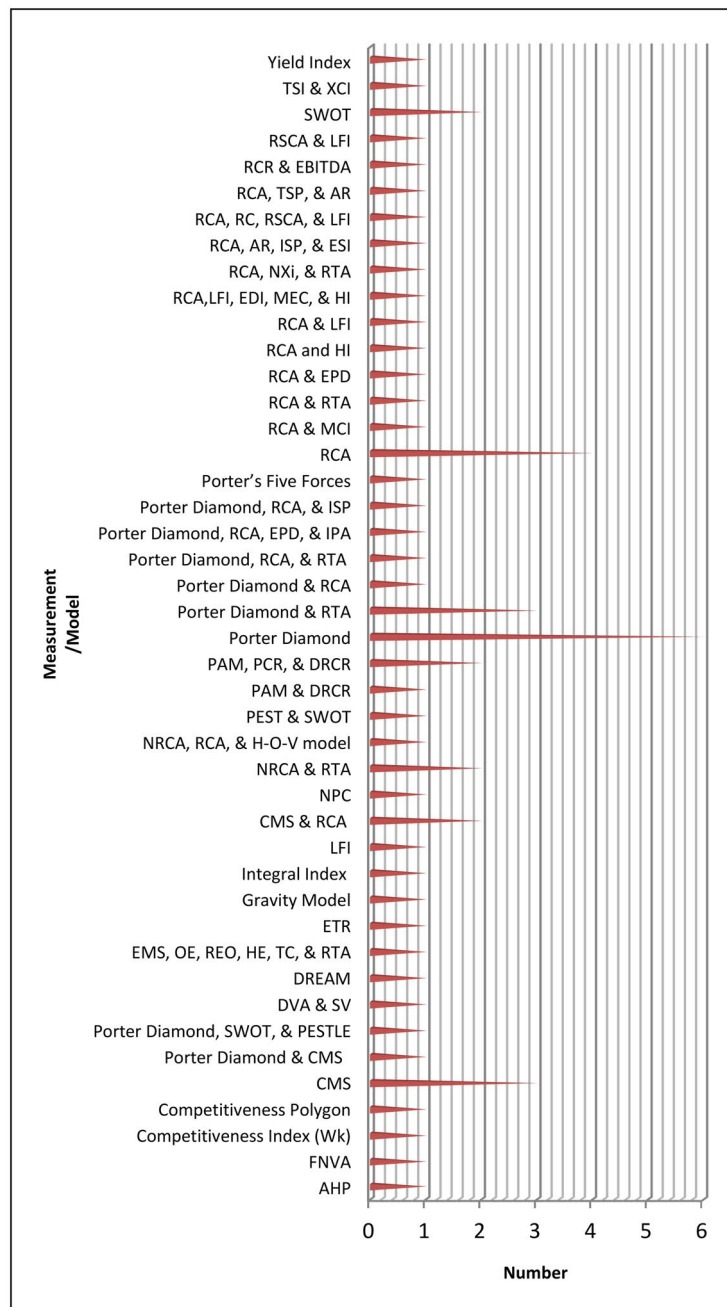


Figure 7. Measurement/model used.

Source: Own Survey (2023).

3.4. Data source and analysis methods used

The data sources employed for inquiry into agribusiness competitiveness in the studies that have been published are presented in [Figure 8](#). UN Comtrade, National Trade Data, and International Trade Centre (ITC) are the main data sources for agribusiness competitiveness studies, as the figure makes evident. For instance, UN Comtrade database sources of data were used in many of the studies (e.g., De Pablo Valenciano et al., 2017; Maslova et al., 2019; Muzayyin et al., 2019; Sheetal et al., 2020); National Trade Data (e.g., Buzgau & Cosma, 2021; Cherevko, 2019; Halimi, 2020; Kumar, 2010; Novkovic & Mutavdzic, 2010); ITC (e.g., Bogale et al., 2020; Sinngu & Antwi, 2014; Worku et al., 2023). Studies have also combined different data-bases, such as UN Comtrade & FAOSTATS (Sa'diyah & Darwanto, 2020) and UN Comtrade & ITC (Aulia et al., 2020), in addition to primary data sources like observation, interview, and questionnaire (Khushk et al.,

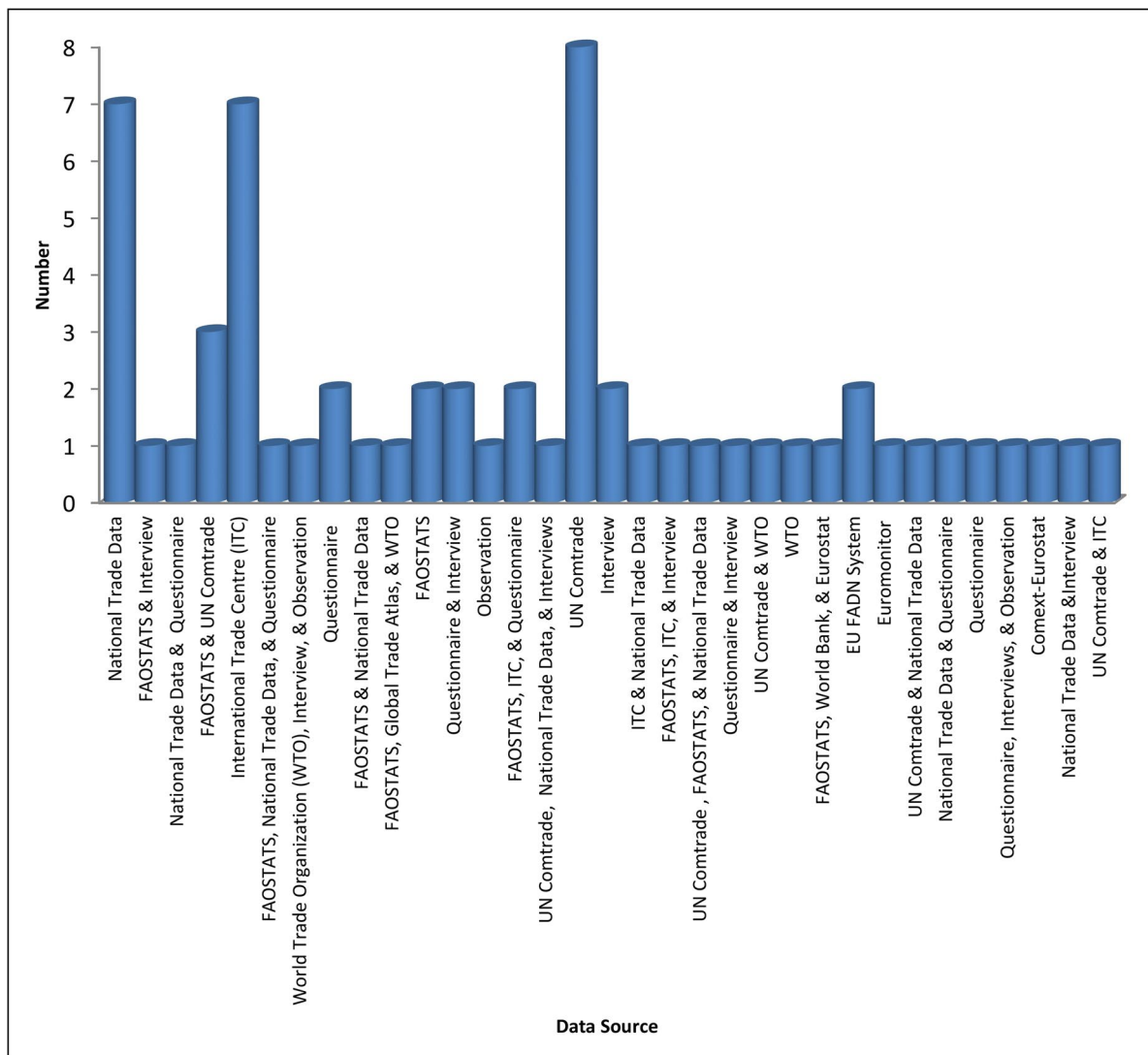


Figure 8. Data source used.

Source: Own Survey (2023).

Table 2. Analysis methods used.

Analysis Methods	Quantity (Study)	Percentage
Descriptive Statistics	38	63
Both Descriptive and Inferential Statistics	12	20
Both Descriptive Statistics and Content Analysis	3	5
Inferential Statistics	3	5
Both Descriptive Statistics and Narrative Analysis	2	3
Narrative Analysis	1	2
Content Analysis	1	2
Total	60	100

Source: Own Survey (2023).

2011; Neves et al., 2013; Uzhva, 2016). Accordingly, the results showed that secondary data were the main data sources used in the existing studies on agribusiness competitiveness.

Table 2 provides an overview of the analysis methods used by the extant studies on agribusiness competitiveness. It reveals that a large majority of the studies used descriptive statistics, such as mean, minimum, maximum, coefficient of variation (CV), and standard deviation, accounting for 63%(38) of the total studies (e.g., Khushk et al., 2011; Lei, 2023; Mango et al., 2015; Novkovic & Mutavdzic, 2010; Sinngu & Antwi, 2014). Another 20%(12) of the studies used both descriptive and inferential statistics (e.g., Bahta & Mbai, 2023; Kumar, 2010; Matkovski et al., 2019; Seyoum, 2021; Worku et al., 2023), and descriptive statistics and

content analysis, inferential statistics, both descriptive statistics and narrative analysis, narrative analysis, and content analysis methods were used in 5%(3), 5%(3), 3%(2), 2%(1), and 2%(1) of the studies (e.g., Cabrera Martínez & Aguilar Rivera, 2019; Gabriel & Bitsch, 2023; Mani & Yudha, 2021; Neves et al., 2013; Uzhva, 2016; Van Rooyen et al., 2011). However, there is a paucity of studies on agribusiness competitiveness that use inferential statistics and qualitative analysis methods. The majority of studies investigated agribusiness competitiveness using descriptive statistics, according to the findings.

3.5. Comprehensiveness of the conventional agribusiness competitiveness measures

The conventional models of RCA, Porter Diamond, and RTA are utilized to study agribusiness competitiveness, as Figure 7 makes apparent. The industry/sector's competitive advantage is examined using the Porter model, while the first and third models are utilized to investigate the industry/sector's current status of competitiveness. Specifically, the first two models—the RCA and Porter Diamond models—have been questioned by multiple academics over their comprehensiveness in assessing agribusiness competitiveness (e.g., Barr, 2019; Worku et al., 2023).

3.5.1. RCA model

In 1965, Balassa made the measurement of comparative advantage operational, and his method—which focuses on identifying the most important products in terms of export—is still regarded as one of the most appropriate ways to evaluate a country's competitiveness (Erkan & Saricoban, 2014; Worku, 2018). However, according to Leromain and Orefice (2014), the RCA model has flaws in both its theoretical underpinning and its empirical distribution. Similarly, the RCA model by itself is unable to properly capture all aspects of a nation's competitiveness, according to Istudor et al. (2022). The inability of the RCA model to capture the specifics of trade flows between nations at various times, which is crucial to agribusiness economics, is one of its primary drawbacks. Finding the locations where the most added value is generated during the agri-food chain linkages is critical and constitutes a significant aspect of competitiveness that is not addressed by the RCA model (Istudor et al., 2022). Furthermore, Ballance et al. (1987) noted that RCA frequently yielded conflicting results and that such models are not cardinal nor ordinal measures of comparative advantage (Yeats, 1985).

Therefore, the Normalized Revealed Comparative Advantage (NRCA) model (Seleka & Obi, 2018; Yu et al., 2009) can be used to address the aforementioned shortcomings of the RCA model. This model has recently been used to assess export competitiveness in nations that are developing (Seleka & Kebakile, 2017; Seleka & Obi, 2018; Worku et al., 2023). In contrast to its predecessors, the model enables the comparison of comparative advantage between nations and periods since it can be applied as both a cardinal and an ordinal measure of comparative advantage (Yu et al., 2009). According to a recent study (Deb & Sengupta, 2016), the NRCA model could be used as an ordinal measure for ranking sectors concerning a country or ranking countries concerning a sector and it is superior to other leading RCA models. As stated by Deb and Sengupta (2016), the model may also be used as a cardinal measure for comparing countries concerning a sector or for comparing sectors for a country. Because of this, the previously mentioned information on the RCA model—which is now the most often used model in research to assess the current status of agriculture competitiveness—is insufficient to assess the comparative advantage of a sector or industry. The NRCA model is more thorough than the RCA model, which is mostly disregarded in the current research on agribusiness competitiveness, in measuring the comparative advantage of the sector. This is how the NRCA model is shown:

$$NRCA_{ij} = E_{ij}/E - E_j E_i / EE$$

Where:

NRCA_{ij}=Normalized Revealed Comparative Advantage of product j of country i

E_{ij}=export of product j of country i,

E_j=total world export of same j product,

E_i=total export of country i, and

E=total world export

3.5.2. Porter Diamond model

After the RCA model, the Porter Diamond is the second most used model for agribusiness competitiveness (Figure 7). The Porter Diamond model proposes factors like factor condition, demand condition, related and supporting industries, firm strategy, structure and rivalry, government functions, and chance that shape the competitive performance of industries and nations. With the exception of Porter's model, most models have placed an emphasis on the comparative advantage perspective and are not consistent with agribusiness sectors, as stated by (Abei & Van Rooyen, 2017; Angala, 2015; Boonzaaier, 2015; Dennis, 2011; Dlamini, 2012; Dlikilili, 2018; Du Toit, 2009; Esterhuizen, 2006; Hallat, 2005; ISMEA., 1999; Jafta, 2014; Karacsony, 2008; Lighe, 2012; Madima, 2009; Mashabela & Vink, 2008; Sinngu & Antwi, 2014; Van Rooyen et al., 2011; Van Rooyen & Boonzaaier, 2018).

Three basic questions regarding agribusiness competitiveness are put forth by Vladoš (2019). For example, why are some businesses situated in particular countries able to consistently innovate? Why do they hunt for ever more elaborate sources of competitive advantage and pursue them with such ruthlessness? And why, given their success, are they able to get over the significant obstacles that so frequently impede innovation and change? The answers to the questions posed by Vladoš (2019), according to Porter (1990, 1998), can be found in four general nation-specific determinants/attributes, which together and separately form the diamond of national advantage, or the level playing field that each nation creates and maintains for its respective industries: factor conditions, demand conditions, related and supporting industries, and firm strategy, structure, and rivalry. Porter supplements this first diamond with two additional exogenous components: the role of chance and the role of government. Porter identified four key determinants of industry competitiveness, which are as follows: The production factor conditions refer to the state of a country's natural resource endowments, climate, quality land, skilled labor, and infrastructure, all of which are essential to stimulate competition in a particular industry. (2) Demand Conditions: This refers to the type of domestic and international market demand for the industry's product or service. (3) Related and Supporting Industries: Whether supplier industries and other related, globally competitive industries exist in the country or not. And (4) Firm Strategy, Structure, and Rivalry: The conditions in the nation governing how companies are created, organized, and managed, as well as the nature of domestic rivalry (Porter, 1990, 1998).

The Porter diamond model, on the other hand, falls short of thoroughly investigating competitiveness at the industry and/or national levels, according to recent agribusiness-focused studies (e.g., Barr, 2019). The most important critique of the concept is that it did not recognize the direct effect of socio-economic factors on a nation's, sector's, or industry's competitive performance. More particular, socio-economic conditions will affect the competitive performance of industries, according to several research findings (e.g., Barkat et al., 2018; Gridwichai et al., 2020; Hasanah, 2022; Liu et al., 2021; Xu et al., 2022). For example, workers' lives are impacted and industry aims are met when they receive a fair and sufficient salary, social protection, job stability, chances for personal growth and voice, and involvement in decision-making (Barkat et al., 2018; Xu et al., 2022). Similarly, an increasing body of research indicates that promoting employee productivity and a company's competitiveness can be achieved by creating a positive work environment, a healthy work environment, and workspaces that support good health (Abdi et al., 2021). Based on the evidence discussed above, in general, socioeconomic conditions have a direct effect on the competitiveness of agribusinesses and vice versa concerning issues like social dialogue, employment rights, employment protection and social security, infrastructure development, and employment opportunities.

In a general format, the existing agribusiness competitiveness studies have mainly used three conventional models such as RCA, Porter Diamond, and RTA, which have shortcomings to measure agribusiness competitiveness comprehensively. Thus, in light of the aforementioned findings, the study fills the literature gaps and the existing Porter Diamond Model is extended in the following way to fully investigate agribusiness competitive advantage: by incorporating socio-economic conditions into the model. We will leave future studies to test this empirically (Figure 9). In addition, the NRCA model is more thorough than the RCA model, which is mostly disregarded in the current research on agribusiness competitiveness, in measuring the comparative advantage of the sector. Therefore, NRCA, RTA, and the proposed competitiveness framework (encompassed factors affecting competitiveness such as factor conditions, demand conditions, related & supporting industries, firm strategy, structure, & rivalry, socio-economic

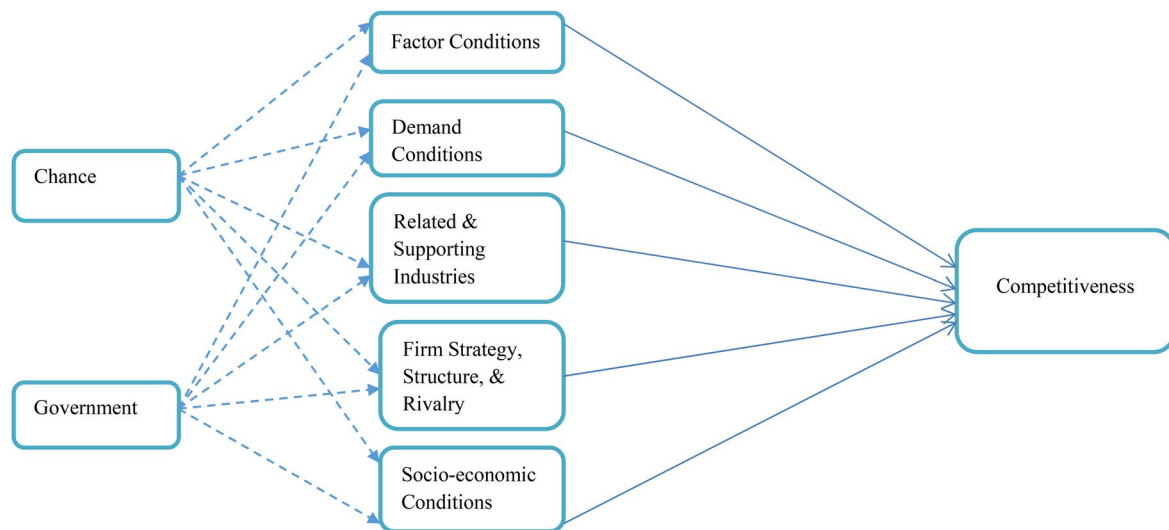


Figure 9. Conceptual framework.
Source: Developed by the researchers (2023).

conditions, role of chance, and role of government) are advised to be used in combination to investigate the competitiveness of the agribusiness sector comprehensively via its entire value chain. The utilization of such appropriate competitiveness models is very essential to fully comprehend the competitiveness of an industry or sector at both national and international levels. These models also contribute to investigate the industry's or sector's competitiveness situation by leveraging both comparative advantage and competitive advantage.

4. Conclusion and recommendation

4.1. Conclusion

Based on the results of the study, the following conclusions were made. The conclusions were presented by the topics covered, including the type of study, studies by sector and location, measurement and model, research design, theme, data source, and methods of analysis, as well as the extent to which conventional agribusiness competitiveness models are comprehensive.

There is a shortage of qualitative and mixed-type studies on agribusiness competitiveness, as evidenced by the conclusion that most agribusiness studies are quantitative. Concerning the studies' location and focus, the results showed that agribusiness competitiveness is a widely applicable concept with primarily industry-level analysis. However, few studies were conducted at the regional or global levels, and there needs to be more studies at the sector or firm levels. In terms of research design and theme, the analysis showed that the vast majority of the studies employed a descriptive research design; on the other hand, the result showed that there is a significant deficiency of studies that utilize an explanatory design. There aren't many agribusiness competitiveness studies that take into account an industry's or sector's entire value chain, as seen by the lack of research that previously concentrated on export to investigate an industry's or sector's competitiveness.

According to the findings, various models have been employed by previous research to examine the competitiveness of agriculture. However, in the majority of the studies that have already been done, agribusiness competitiveness has been assessed using limited models like RCA, Porter Diamond, and RTA. The vast majority of studies on agribusiness competitiveness investigated competitiveness from the perspective of its current status; in contrast, there is a shortage of studies that thoroughly investigate the causes of competitiveness in addition to its current status.

Concerning data sources and analysis methods, the study found that most agribusiness studies that have been done so far have used secondary data sources, primarily data from UN Comtrade, the International Trade Centre (ITC), and National Trade Data. A significant portion of these studies have examined the competitiveness of various industries or sectors at the moment and have used descriptive

statistics like mean, minimum, maximum, coefficient of variation (CV), and standard deviation to analyze their data. On the other hand, there is a shortage of studies that have used primary data sources and have employed inferential statistics and qualitative analysis methods. Moreover, the results showed that the RCA and Porter Diamond models are insufficient to thoroughly investigate the current status and competitiveness drivers of the agribusiness sector. This is in reference to the comprehensiveness of the commonly used and accepted measures of agribusiness competitiveness in the existing studies, such as RTA, Porter Diamond, and RCA.

4.2. Recommendation

Based on the conclusions that were conveyed above, the following recommendations were made. It is advised that future research places more emphasis on conducting studies qualitatively and using mixed types since the findings showed that there aren't enough studies on agribusiness competitiveness using qualitative and both qualitative and quantitative study types. Qualitative data is essentially the "behind-the-scenes" knowledge that lets us better understand complex phenomena, according to Blandford et al. (2016). It is significant because, by offering extra insights not possible from merely looking at figures, it allows us to gain a deeper understanding of the topic under study. Combining qualitative and quantitative data can enhance an evaluation by ensuring that the shortcomings of one form of data are counterbalanced by the advantages of another, as noted by Amaratunga et al. (2002). This will guarantee that integrating various modes of knowledge will enhance understanding.

It is suggested that more research be done in the future using explanatory design, as it allows one to understand the cause-and-effect relationship of situations, as indicated by the findings of the existing studies on agribusiness competitiveness that used descriptive research design. Descriptive design, on the other hand, only helps to describe the conditions that already exist. As a result, they use a descriptive study approach, which restricts the studies to providing a foundation for determining the factors that contribute to an industry's competitive performance. Stojcic (2011) reported that his study could not obtain the industrial data needed to construct explanatory variables for other countries within the time frame. Also, more emphasis should be given in the future to investigate agribusiness competitiveness by including entire value chain steps to obtain a comprehensive result, while the existing studies were focused on the export part to assess the competitiveness of the agribusiness sector.

According to the study's findings, several models were utilized to examine agribusiness competitiveness; however, three models—RCA, Porter Diamond, and RTA—were the most widely recognized and applied. The first two models in particular have drawn criticism for being insufficiently broad to measure competitiveness. Thus, in addition to the RTA model, it is recommended that NRCA and the newly established framework in this study be employed rather than the RCA and Porter models in the future to thoroughly examine the competitiveness status and drivers of an agribusiness sector. While existing studies place more emphasis on investigating agribusiness competitiveness from the current status perspective, it is also advised to use the three models (such as the NRCA, RTA, and the proposed competitiveness framework) together in the future to investigate agribusiness competitiveness from both current status and causes of competitiveness comprehensively.

As per the results, existing studies on agribusiness competitiveness have mostly relied on secondary data sources, including UN Comtrade, ITC, and National Trade Data, with descriptive statistics analysis methods being utilized to gather the data. Relying too much on secondary data can result in findings that are lacking, primarily due to inadequate quality and a dearth of pertinent data. The study conducted by Stojcic (2011) revealed that the analyses conducted in various chapters are affected by a shortage of pertinent data and the substandard quality of datasets that are accessible. It is recommended that inferential statistics and qualitative analysis methods be employed in conjunction with primary data sources to investigate agribusiness competitiveness in the future. A primary source, according to Vest (2019), offers direct or personal information about a particular thing, person, event, or piece of art. Primary sources allow researchers and students to get as near as possible to what occurred during a specific event or period by providing the original materials that serve as the foundation for subsequent inquiry. Likewise, for example, inferential statistics aids in proposing explanations for a circumstance or event. It is fundamentally distinct from descriptive statistics, which only summarize the data that has

been measured, in that it enables you to draw conclusions based on extrapolations (Lipton, 2017; Pearl, 2009).

5. Contribution and practical implication of the study

Based on the study's findings, researchers and scholars, industry practitioners, and policymakers can benefit from the study's valuable contributions and practical consequences.

5.1. Researchers and Scholars

Researchers and scholars interested in studying agribusiness competitiveness will find the study to be particularly useful in examining the use of qualitative and mixed types of research methods, explanatory design, primary data sources, inferential statistics, and qualitative analysis methods. They can also assess agribusiness competitiveness at the sector, firm, and global levels while taking into account the entire value chain. This includes assessing the current status and the factors that drive competitiveness using NRCA, RTA, and the new framework proposed in this study, which identifies potential influences on competitiveness that could be either direct or indirect. These include factor conditions, demand conditions, related and supporting industries, firm strategy, structure, and rivalry, socio-economic conditions, the role of government, and chance factor.

5.2. Industry Practitioners

The findings of the study offer valuable insights for agribusiness practitioners, as they pinpoint the fundamental areas that require further investigation to guarantee that a particular industry, firm, or sector operating in the agribusiness space is competitive on a national and international scale, particularly in terms of comparative advantage and competitive advantage. More importantly, competitive advantages of the sector should get more emphasis to be competent globally. Porter claimed that competitiveness is largely based on its industry's capability for innovation and upgrading, as well as its capacity for such strategic planning. Therefore, to thoroughly research agribusiness competitiveness this study introduced an improved framework, which includes socio-economic conditions factor in the existing Porter diamond – which helps practitioners to take into account in their decision the role of socio-economic conditions for industry or sector success, in addition to the obvious important factors (factor conditions, demand conditions, related & supporting industries, firm strategy, structure, & rivalry, role of government, and chance factor).

5.3. Policymakers

The results of the research dealt with issues that provide valuable insights for policymakers, national governments, and international stakeholders at large. For instance, the study demonstrates the current status of agribusiness competitiveness and the factors that could affect it, including factor conditions, demand conditions, related and supporting industries, firm strategy, structure, and rivalry, socio-economic conditions, the role of the government, and chance factor. Therefore, to improve and enhance the sustainable competitiveness of the agribusiness sector in national as well as global markets, policymakers and other stakeholders should be prepared in advance to establish appropriate policies and strategies in this regard.

6. Limitation and future research directions

The competitiveness models investigated in the present agribusiness studies are a significant value addition for this review study. However, there are some drawbacks to the study as well. For example, only a small number of databases and journals were used, and the number of articles included in the analysis was somewhat smaller than the total number of published articles on agribusiness competitiveness.

These factors may limit how broadly the results can be applied. In order to produce more thorough and valuable findings on the agribusiness competitiveness measuring models and related issues, future researchers and scholars have proposed using expanded databases and journals as well as including more articles in their studies. Furthermore, by testing the revised framework this study introduced to examine the competitiveness drivers of the agribusiness sector and by reviewing previous competitiveness studies to determine the most commonly used measures generally, future researchers and scholars can further expand on this work.

Author contributions statement

Muluken Ayalew Worku: has contributed to developing the manuscript by being involved in the conception and design, analysis and interpretation of the data; drafting of the paper, revising it critically for intellectual content; and the final approval of the version to be published; and that the author agree to be accountable for all aspects of the work.

Kenenisa Lemi Debela: has contributed to developing the manuscript by being involved in the conception and design, analysis and interpretation of the data; drafting of the paper, revising it critically for intellectual content; and the final approval of the version to be published; and that the author agree to be accountable for all aspects of the work.

Huub L.M. Mudde: has contributed to developing the manuscript by being involved in the conception and design, analysis and interpretation of the data; drafting of the paper, revising it critically for intellectual content; and the final approval of the version to be published; and that the author agree to be accountable for all aspects of the work.

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Data availability statement

Data sharing is not applicable to this article as no new data were created or analyzed in this study.

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