

Foreign direct investment and sugar production in Africa: a review

Joshua Mabeta¹, Luboš Smutka^{1,2}

1 – University of South Bohemia in České Budějovice, České Budějovice, Czech Republic

2 – Czech University of Life Science in Prague, Prague, Czech Republic

Abstract

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Corresponding author:

Luboš Smutka
E-mail:
smutka@pef.czu.cz

Introduction. This review provides a comprehensive evaluation of the role of Foreign Direct Investment (FDI) on sugar production, efficiency, and competitiveness in African countries, based on empirical evidence from multiple studies.

Materials and methods. Drawing from peer-reviewed journal studies, databases, and unconventional sources, the review focuses on the nexus between FDI and its impact on the sugar industries of African countries.

Results and discussion. The study highlights the historical significance of FDI in bolstering sugar production and competitiveness across Southern and Northern African regions. Empirical evidence suggests that FDI has the potential to drive sustainable investment, foster inclusive growth, and enhance competitiveness within Africa's sugar production value chain. The key mechanisms through which FDI boosts sugar production and export competitiveness in certain African nations, as revealed in surveyed literature, include expanding cultivated sugarcane areas and modernizing milling infrastructure through significant investments in property, plant, and equipment. This expansion is propelled by intra-regional investors for Southern African countries and investors from the Middle East in the case of North African countries. However, East and West African countries continue to face challenges, including inadequate investment flows and heavy state intervention, which have inhibited efficiency in both sugarcane production and processing. Despite these insights, there is limited conclusive evidence to determine whether FDI directly improves productivity, yields, and agricultural intensification in African countries. Current literature lacks methodological rigor to quantitatively measure and assess the extent to which FDI impacts sugar production, exports, efficiency, and competitiveness of African sugar industries.

Conclusion. African governments need to balance fostering investor-friendly environments with ensuring effective governance, by strengthening institutional frameworks and promoting synergies for sustainable industry growth and competitiveness.

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Introduction

African countries have grappled with prolonged challenges related to savings and foreign exchange gaps. These issues have been instrumental in impeding the region's progress and hampering the accumulation of capital. Several scholars have proposed augmenting financial inflows from external sources as a strategy to bolster the domestic capital reservoir (Koomson-Abekah and Nwaba, 2018; Wamboye and Sergi, 2019). In this context, Foreign Direct Investment (FDI) emerges as a conduit through which Africa could potentially redress its persistent issues of sluggish growth rates and elevated poverty levels. In Africa, the transfer of production technologies through FDI has the potential to transform the agricultural sector, increase domestic production capacity, and boost the overall economy.

The utilization of contemporary agricultural technologies, sophisticated irrigation systems, and mechanization associated with FDI has the potential to increase productivity while concurrently lowering production costs, thereby fostering improvements in comparative advantage (Daum, 2023). This is particularly important given that agriculture, the mainstay for most African countries, is marked by inefficiencies and low productivity. Despite the sector employing over half of the sub-Saharan population (International Labour Organization, 2017) and boasting the largest expanse of untapped arable land globally, productivity is low owing to 95 per cent of agriculture being rain-fed (International Monetary Fund, 2016), limited use of irrigation, low public investment and limited access to finance (Shimeles et al., 2018). The impacts of climate change, growing population and rapid urbanization are likely to compound the status quo (Dogan, 2022). Africa has historically experienced numerous severe and prolonged droughts posing a significant threat to the steady supply of agricultural produce (Masih et al., 2014). Consequently, there is an escalating urgency not only for essential but also critical investments in agriculture and food systems to effectively address these multifaceted demands. FDI could, therefore, play a pivotal role in African agriculture in two distinct ways: firstly, by enhancing productivity across presently cultivated land, and secondly, through its potential contribution to the cultivation of underutilized land in regions where efficiency remains suboptimal (Gunasekera et al., 2015).

The sectorial distribution of greenfield FDI inflows in Africa's agro-food sector shows the dominance of crop production, with sugar and confectionary products, alongside breweries and distilleries, following in importance (Morgan et al., 2022). The cultivation of sugarcane, in particular, has recently attracted considerable attention from investors who perceive this industry as a promising avenue to enhance productivity and yields in previously exploited agricultural regions, as well as to establish new arable land in pivotal African nations (Gunasekera et al., 2015). Investors are also seeking to exploit lucrative markets under existing preferential regional trade agreements such as the European Union (EU) for a crop whose global production exceeds that of any other crop (McKay et al., 2016). The importance of sugar cannot be overemphasized, as sugar remains as one of the preeminent globally consumed, traded, highly sensitive, and protected commodities on the international market (Bouët et al., 2022). Sugar production is a capital-intensive venture requiring investments to sustain a designated level of competitiveness (Galović and Bezić, 2019). Consequently, owing to the substantial capital demands inherent in this sector, investments become imperative for the modernization of equipment, enhancement of infrastructure, and implementation of advanced technologies aimed at augmenting productivity and efficiency within the industry.

Given the escalating influence of FDI in the African sugar industry, it is imperative to evaluate the extent to which it contributes not only to sugar production but also to efficiency and competitiveness. Therefore, this paper reviews existing literature to discern the nexus

between FDI and sugar production, efficiency, and competitiveness. The objective is to investigate whether FDI leads to sugar production, and if so, through what channels—whether through efficiency and productivity gains, encompassing cultivation techniques, introduction of new varieties of sugarcane, irrigation systems, mechanization, technology transfer, and processing methods, or through the expansion of cultivated areas. This review will provide valuable insights for policymakers and industry stakeholders to boost the sugar industries of African countries.

Materials and methods

Search strategy

The study utilized information sourced from peer-reviewed journal studies and other databases and registers conducted on Africa to understand how FDI impacts sugar production, efficiency and competitiveness. To this effect, a meticulous search was conducted on scientific databases Google Scholar, Scopus and Web of Science using key terms such as "Impact of FDI on production, productivity and efficiency of African countries," "effects of FDI on sugar competitiveness of African countries," and "FDI and technological transfer in African sugar industries." Additionally, the search also encompassed unconventional sources and grey literature, such as websites, dissertations, and annual reports of sugar-producing companies in Africa. The inclusion of unconventional sources helped uncover valuable insights, including current data, and emerging trends, and practical implications from a policy perspective that may have been overlooked in traditional research literature. The keywords were delimited within the Scopus and Web of Science databases using Boolean operators OR and AND. For instance, FDI AND sugar production OR FDI AND sugar productivity OR FDI AND sugar competitiveness OR FDI AND sugar production efficiency in Africa. Additional literature was sourced by employing the snowballing technique, wherein the bibliographies or reference lists of analogous studies published in the English language were scrutinized.

Data extraction

This search yielded 96 records published from 1995 up to 2023. Duplicate records were removed, followed by a screening process using the titles and abstracts. The ultimate selection of studies occurred after the retrieval of full texts for comprehensive evaluation, which was based on the explicit reporting of the nexus between FDI and the key terms in question.

Eligibility criteria

Both qualitative and quantitative and quantitative studies were included. Systematic and meta-analyses studies were excluded. Only studies that reported on FDI and the key outcome variables of interest; sugar production, efficiency, exports and competitiveness were included in the synthesis. The two authors independently screened studies for potential inclusion by accessing information in the title and abstract. Following this initial screening, relevant studies aligned with the research questions underwent further evaluation to determine eligibility for full-text review. The ultimate selection of studies occurred after the retrieval of full texts for comprehensive evaluation, which was based on the explicit reporting of the

nexus between FDI and the key terms in question. Studies that provided substantiated evidence or explicitly reported on the effects of FDI on sugar production, efficiency, exports and competitiveness were considered for inclusion. The papers adjudged pertinent by both reviewers were incorporated into the analysis. In instances where disparities arose concerning the selection of papers, these were mitigated through consensus facilitated by an independent arbitrator. Only eleven (11) studies were included in the final analysis, indicating the paucity of information on the impact of FDI on the African sugar industry.

Definition of thematic areas

The study adopted the World Bank definition of FDI. In this regard, FDI refers to all net inflows of capital aimed at establishing a lasting interest or acquiring managerial control over a business entity resident in another country outside the investor's home country. It encompasses the total amount of equity investments, retained profits, other forms of long-term capital, and short-term financial resources. Sugar production and exports are measured in terms of cane or beet sugar and chemically pure sucrose, in solid form, based on data from the United Nations Comtrade (UN COMTRADE), the United Nations Conference on Trade and Development (UNCTAD), and the Food and Agriculture Organization (FAO).

Scope and limitations

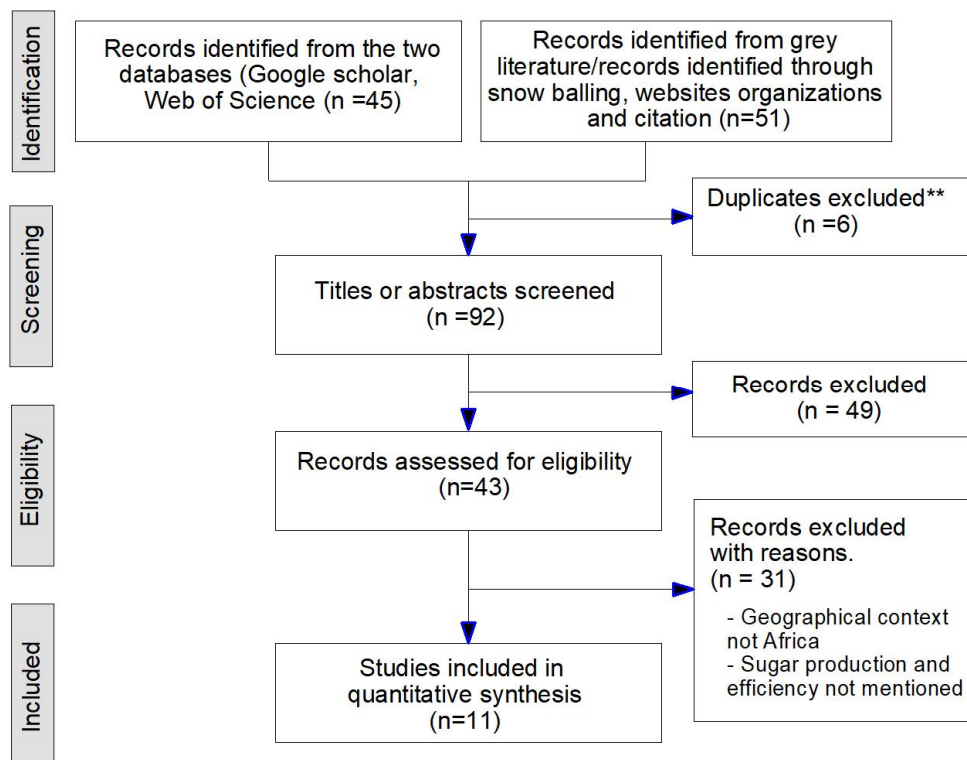


Figure 1. Records retrieval process using the PRISMA flow diagram

Two noteworthy limitations of this study merit discussion. Firstly, the employed methods, although aligned with certain aspects, deviate from the conventional systematic review analysis approaches by incorporating grey literature. The inclusion of grey literature in the analysis may introduce potential bias, as it is often not subject to the same rigorous peer-review process as traditional academic publications. Secondly, while the study relies on evidence from Africa, the reviewed studies do not encapsulate the entirety of the region; rather, there is a bias towards Northern, Eastern and Southern Africa. The limited focus on certain regions of Africa may limit the generalizability of the findings to other parts of the continent. The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) (Figure 1) flow diagram visually illustrates the study's record identification and selection process.

Results and discussion

General overview of FDI inflows

Africa has experienced an upsurge in FDI over the past few decades. The continent's vast natural resources, accounting for about a third of the world's resources (Gupta and Singh, 2016; Koomson-Abekah and Nwaba, 2018), including oil, gas, and minerals, have also attracted significant FDI from foreign investors seeking to tap into these resources. Figure 2 shows the trends in FDI inflows to Africa from 1970 to 2021. FDI inflows have increased by over 6000% between 1970 and 2021. During the 1970s, FDI inflows into Africa averaged \$1.1 billion and increased twofold in the 1980s to about \$2.2 billion. The 1990s recorded significant increases in FDI inflows. FDI inflows to Africa tripled from \$2.2 billion to an average of \$6.6 billion.

Prior to the 1990s, the majority of African governments implemented trade and capital controls to protect domestic businesses and the country's limited foreign reserves as a result of the events that occurred prior to independence (Ibrahim and Acquah, 2021). However, the shift from protectionism, import substitution and command driven economy to a more liberalized and market driven economy following the economic structural adjustment programs (SAPs) is one crucial aspect that galvanized FDI inflows in the region during this period (Chih et al., 2022). At the beginning of the 21st century, FDI inflows to Africa increased exponentially averaging \$31 billion and \$49 billion between 2000 and 2010, and 2011 and 2020, respectively. However, these increases have been interspersed with periods of fluctuation, particularly after the global 2008 financial crisis and the COVID-19 pandemic.

Since the 2000s, African governments instituted policies to foster FDI, including liberalized regulatory frameworks, introduction of fiscal and non-fiscal incentives (Malikane and Chitambara, 2017), and the establishment of special economic zones (SEZs) (UNCTAD, 2022). These measures are designed to ramp up industrial production and exports, attract FDI, and create employment opportunities. In addition, Africa offers many opportunities, including its vast natural resources (Mourao, 2018), large and growing population, and an expanding middle class (Odusola, 2018), which together provide a larger market than both Europe and Japan combined. Such deliberate policies account for the upward trajectory in FDI in African countries. The anticipated implementation of the African Continental Free Trade Area Agreement (AfCFTA) is poised to provide an additional impetus to the influx of FDI as it provides investors with an opportunity to tap into a larger consumer base across the African continent (Illovo, 2017; UNCTAD, 2019).

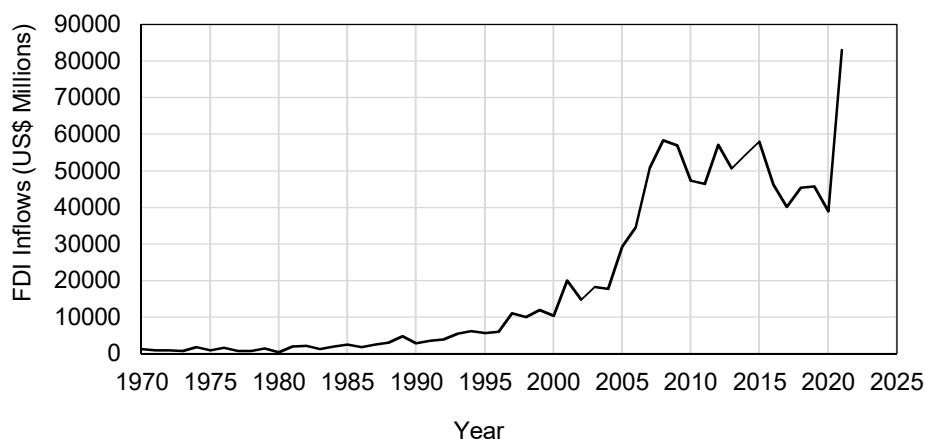


Figure 2. FDI Inflows to Africa: 1970–2021.

Source: Authors' computation based on data from the World Bank

Such policies have coincided with the increase in FDI inflows. The continent's agro-food sector attracted FDI of 773 million US dollars in 2003, and by 2014, this figure had escalated to 1,106 million US dollars (Idsardi et al., 2016). In 2022, FDI inflows to the agro-food sector amounted to 1186 million US dollars (UNCTAD, 2023). Despite the upward trajectory in FDI inflows, UNCTAD (2014) assessment reveals that the necessary investment in agriculture and food security between 2015 and 2030 is \$480 billion USD, with a projected deficit of \$260 billion USD. The assessment underscores the critical role of FDI in addressing this funding gap to increase food production and enhance agricultural productivity (Dogan, 2022).

Despite the increase in FDI inflows, Africa has continued to attract the least FDI compared to other regions (Anyanwu and Yaméogo, 2015; Morgan, 2021). For instance, between 1980 and 2010, the total value of FDI stock in just the Netherlands alone exceeded that of FDI stock on the entire continent of Africa (Morgan, 2021). This is particularly ironic given that most African countries possess untapped natural resources that may be appealing to potential investors (Mourao, 2018). Africa is still at the bottom end of the list of FDI recipient regions with Europe accounting for nearly half of total global FDI inflows (Morgan, 2021). Africa's share of global FDI inflows was a paltry 5.2% in 2021 (UNCTAD, 2022). Political instability, policy uncertainty and weak institutions, corruption, poor infrastructure, human capital deficiencies, and underdeveloped financial markets have been cited as the major contributors to the low FDI inflows to the African region compared to other regions (Okafor et al., 2017).

Within the African region, there are considerable variations in FDI inflows. Table 1 shows the FDI inflows by region. The high standard deviation of 22553.37 and coefficient of variation of 1.15 confirms the great deal of variability and heterogeneity among the African countries. FDI inflows to Africa vary widely by region and intra-regionally, and are irregular at any given period. Historically, the Northern Africa region has attracted larger FDI inflows compared to other regions. The Western Africa region ranked second while Middle Africa received the least over the period 1970 to 2021. Over the past decade, the Southern Africa region has attracted the highest share of FDI inflows, albeit with high volatility compared to the West Africa, East Africa and Central African regions. For instance, in 2021 alone,

Southern Africa alone accounted for over 50% of total FDI inflows in Africa. This could be attributed to the region's stable economic and political environment, as well as its abundance of natural resources. There are also intra-regional variations. Large and resource rich countries tend to attract higher FDI inflows compared to smaller and resource deficient countries. It is envisaged that the African Continental Free Trade Area (AfCFTA) may make it possible for other sub-regions to gain from FDI inflows through regulatory harmonization across nations, decreased costs associated with cross-border transactions, and expanded intra-African market access.

Table 1
Descriptive statistics of FDI inflows to Africa by region: 1970-2021 (million US\$)

	Mean	Sigma	CV	Minimum	Maximum
Africa	19687.87	22553.37	1.15	400.35	82990.54
Northern Africa	5827.70	6795.84	1.17	-397.98	23096.86
Sub-Saharan Africa	13860.16	16903.78	1.22	247.98	73722.84
Eastern Africa	3931.65	5430.12	1.38	38.99	16348.02
Middle Africa	2145.14	3256.80	1.52	-1957.79	17934.71
Southern Africa	3048.27	6180.32	2.03	-361.58	41508.04
Western Africa	4735.10	5286.08	1.12	-434.39	19038.31

Source: Authors' computation based on data from the UNCTAD

Table 2 shows the trends in FDI inflows to Africa and at World level between 2017 and 2021. The trends corroborate the earlier observation that the Southern African region has been an attractive investment hub. During the period from 2017 to 2021, FDI inflows increased by over 4500 percent. These inflows have been primarily in the agricultural and extractive sectors.

Table 2
Foreign Direct Investment Inflows (millions of dollars and per cent)

	2017	2018	2019	2020	2021	2017-2021 Growth Rate
Africa	40176	45384	45678	38952	82991	107%
North Africa	13275	15407	13550	9800	9335	-30%
Central Africa	8946	9353	8858	9506	9409	5%
East Africa	8784	8054	7893	6062	8179	-7%
Southern Africa	-941	4469	4514	4244	42219	4586%
West Africa	10112	8102	10863	9340	13849	37%
World	1632639	1448276	1480626	963139	1582310	-3%

*Source: Authors' computation based on data from the UNCTAD

The major recipients of FDI in Africa in 2023 are presented in Figure 3. The top ten recipients are Egypt (North Africa), Democratic Republic of Congo (DRC) (Central Africa), Ethiopia and Uganda (East Africa), Namibia, Mozambique and South Africa (Southern Africa), Senegal, Nigeria and Ivory Coast (West Africa). This reinforces the notion that large, resource-rich African nations are attractive markets for investment. These countries on average account for about 38% of total FDI inflows in Africa. It is also worth noting that

Mauritius has experienced a surge in FDI inflows due to favorable investment-related taxation laws and incentives (Morgan, 2021). However, it is important to note that investing in smaller and less resource-rich countries can also provide unique opportunities for growth and diversification. It ultimately depends on the specific goals and strategies of the investor. Smaller economies with growing markets and favorable business environments can also offer promising investment prospects, potential for growth and profitability, albeit with different risks and challenges.

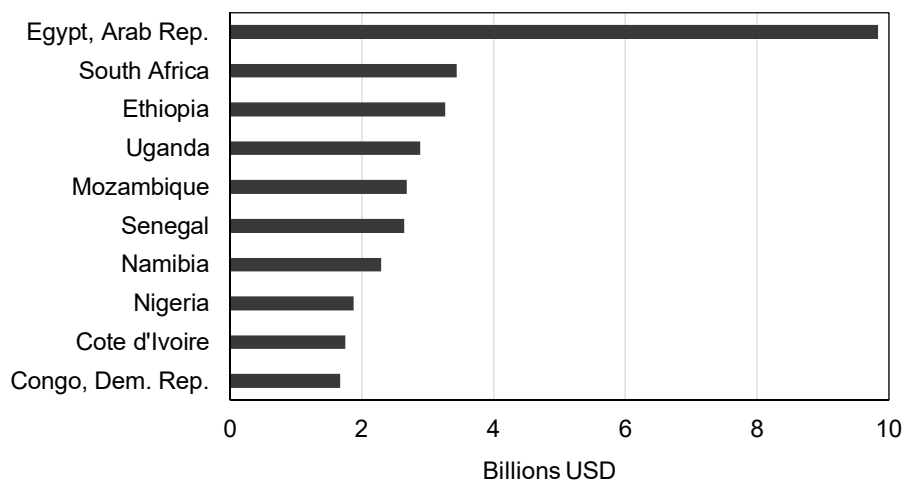


Figure 3. Top FDI recipients in 2023

Source: Authors' computation based on data from the World Bank

Territorial and sectorial distribution of FDI

Most of the FDI inflows have targeted extractive industries, particularly mining and fossil fuels expansion, renewable energy, manufacturing and services sectors (Meniago and Lartey, 2021). Traditional investors such as the European Union have continued to dominate stocks of FDI in Africa. In particular, the United Kingdom (\$65 billion) and France (\$60 billion) are the two European countries with by far the largest holdings of foreign assets in Africa (UNCTAD, 2022). While Europe remains a dominant source of FDI inflows in Africa, its share declined to below 50% in 2018 (Qiang et al., 2021). At the same time, Chinese investments in Africa increased significantly after the 2000s, following the adoption of the Go-Global Policy by the Chinese government, which strengthened diplomatic ties with African governments (Drogendijk and Blomkvist, 2013; Xu et al., 2019). Other non-traditional investors such as India and the United Arab Emirates have emerged to be the major contributors of FDI in Africa in recent years, especially in greenfield FDI projects (UNCTAD, 2022).

Sugar production and exports

About thirty-seven African countries are involved in sugar production (FAO, 2023). Most of the sugar produced comes from sugarcane while a small proportion is derived sugar beet (Hinke et al., 2018). Sugar from sugarcane is mainly from sub-Saharan countries while the north-African countries mostly produce sugar from sugar beet. However, countries like

Egypt, Morocco, and Tunisia generally combine the cultivation of sugar beet and sugarcane to satisfy domestic sugar demand. Sugar beet cultivation is more prevalent in North Africa, given the Mediterranean climate, which offers more favorable growing conditions compared to the tropical climates in southern Africa that favor sugarcane cultivation. The major sugar-producing countries on the African continent are predominantly located in the northern and southern regions. These two regions account for over 50% of the total sugar production in Africa (Hinke et al., 2018). Several reasons have been cited for this dominance, including favorable climatic conditions, supportive government policies, abundant water for irrigation, readily available arable land and a surge in large-scale investments in the sugar industry (Chudasama, 2021; Mabeta and Smutka, 2023b).

The prominence of the northern and southern African regions in sugar production is further demonstrated by their competitive advantage in sugar exports. Nearly 70% of the countries with a competitive advantage in sugar exports are located in the southern and northern African regions (Mabeta and Smutka, 2023b). While some countries, such as Algeria, Sudan, and Ethiopia, have emerged as significant contributors to sugar production and exports on the African continent, overall sugar exports from African countries have stagnated over the past two decades. The volatility in sugar production and, consequently, exports arises from various factors, including droughts due to climate change, fluctuating market prices, and a lack of investment in modern sugar production and processing methods, particularly by large economies such as Nigeria and Kenya, as well as many West African states. Figure 4 illustrates the trends in sugar production and exports among African countries over the past two decades.

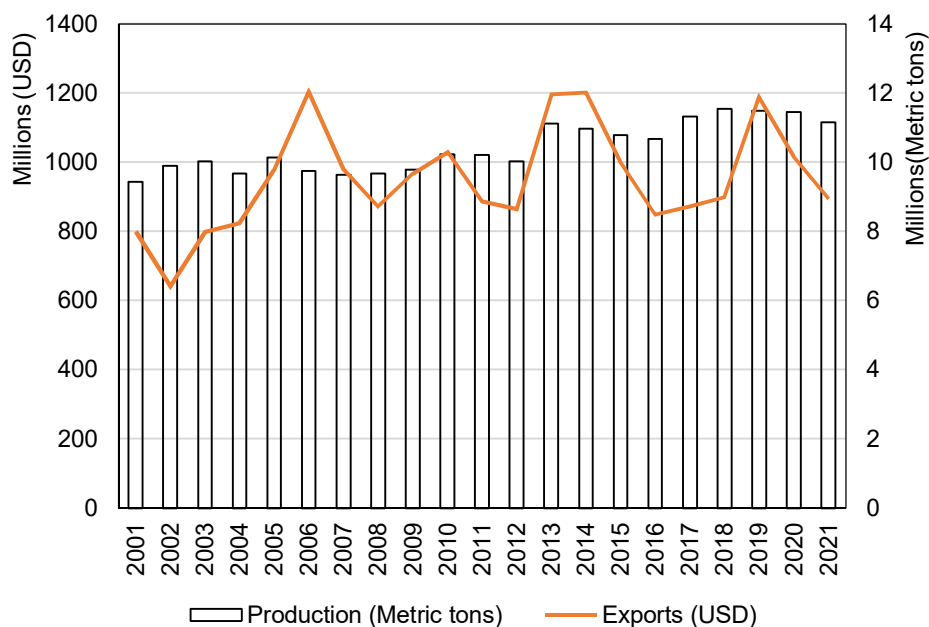


Figure 4. Sugar production and exports of African countries-2001 to 2021

Source: Authors' computation based on data from FAO

Major foreign investors in African sugar industries

In the past decade, approximately 3 billion USD has been earmarked for investment in the sugarcane industries, predominantly in Southern African countries (Richardson, 2010b). These countries' comparative advantage lies in their favorable climatic conditions, access to irrigated fresh water, and availability of arable land making them low-cost and globally competitive sugarcane producers (Dubb et al., 2017; Richardson, 2010b). The major source of recent investments in has emanated from a combination of South African and European capital. These investments have been initiated by foreign entities seeking to engage in the production of sugar and ethanol biofuel, primarily for exportation purposes. There is also growing sugar demand for human consumption (Hess et al., 2016). African sugar consumption has experienced an annual growth rate of almost 3% during the period from 2012 to 2018, surpassing the growth rate of the rest of the world by more than twofold. The present deficit in African sugar amounts to over 70% of the current sugar production on the continent, estimated at \$15 billion (Illovo, 2017). Africa stands as the global region with the greatest potential for the growth of sugar consumption, characterized by a below-average per capita consumption and above-average population growth. Therefore, the sugar industry in Africa offers a distinct prospect for sustainable investment and inclusive growth across an extensive value chain.

The increasing level of intra-regional investment is of particular interest, as three long-standing sugar-producing companies – Illovo, Tongaat Hulett, and Transvaal Suiker Beperk (TSB) – have accounted for over 90 percent of sugar production in the entire Southern Africa region (Dubb et al., 2017). During the late 1990s and well into the 2000s, these multinational corporations have significantly escalated their operational expansion into neighboring countries within the region, such as Malawi, Tanzania, Mozambique, Eswatini, and Zambia (Chisanga et al., 2014). Further expansion is anticipated through international aid financing, which is aimed at supporting investments that create opportunities for outgrowers (Dubb et al., 2017). Table 3 provides a summary of the major foreign investors across the African continent.

Characteristics of the reviewed studies

The following information was extracted from the 11 articles as shown in Table 4: author and year of publication, study objective(s), research design, study location, and key outcomes. The review reveals a paucity of information regarding the nexus between FDI and agricultural production or exports. The search indicates that the studies were published between 2007 and 2022, with none explicitly focused on the sugar industry. Furthermore, the review uncovers significant shortcomings concerning the methodological rigor of the studies and the limited robust quantitative evidence on the impact of FDI on various indicators. With the exception of Gunasekera et al. (2015), which utilized simulation through the dynamic Global Trade Analysis Project model (GDyn), all other studies were qualitative in nature and failed quantify the impact the impact of FDI on the selected indicators. Additionally, all studies, except for those by Chisanga et al. (2014), Das Nair et al. (2017), and Msuya (2007), were published in peer-reviewed journals. Most studies were conducted in Southern African countries, underscoring the region's competitive advantage and dominance in sugar production on the African continent.

Table 3

Major foreign sugar investors in Africa

Investor/Company	Countries of investment	Sugar production per annum¹
Illovo (1.7 million)	South Africa	550,000
	Malawi	250,000
	Mozambique	80,000
	Eswatini	300,000
	Tanzania	130,000
	Zambia	450,000
Tongaat Hulett (1.1 million)	South Africa	535,000
	Zimbabwe	408,000
	Mozambique	195,000
	Botswana	60,000
	Eswatini, Namibia ²	
Al Khaleej Sugar	Egypt	900,000
Kenana Sugar Company	Sudan	400,000
Somdiaa Group	Côte d'Ivoire	135,000
	Cameroon	130,000
	Congo	70,000
	Chad	35,000
Terra	Côte d'Ivoire	90,000
Wilmar International	Morocco	340,000

¹ Adapted from Dubb et al. (2017). Some data represent estimates derived from the most recent peak production levels from company annual reports: Illovo Sugar Africa - About Us, 2021IAR.pdf (tongaat.com), Profile - Tongaat Hulett, Home 8 – Canal Sugar, Our operational regions: West and Central Africa - Somdia (groupe-somdia.com), PRESENTATION (cosumar.co.ma), Investors | Terra Mauricia Ltd, Cane, Power Brands, Property, Construction, Investment, Leisure, Mauritius.

²Operations in these two countries were sold in 2020.

The documented literature tacitly acknowledges the role of FDI in advancing numerous facets of these elements; production, exports, efficiency and competitiveness. FDI has the potential to enhance a country's production by facilitating the transfer of technological knowledge, managerial expertise, efficient production methods and instigating heightened market competition. Furthermore, FDI has the capacity to engender enhancements in infrastructure and fostering an environment conducive to increased export activities (Chih et al., 2022; Doku et al., 2017; Kusairi et al., 2023) and stimulate exports (Ayenew, 2022; Bieleń et al., 2024). The subsequent sections provide a comprehensive analysis of the findings of the reviewed studies in relation to various thematic areas.

Table 4

Summary of studies included in the review

Author /year	Study objectives	Research design	Study location	Key outcomes
Msuya, 2007	The study assessed the impact of FDI on agricultural productivity and poverty reduction.	Descriptive assessment based on a literature review	Tanzania	Considerable positive impact of FDI on productivity and efficiency but with limited benefits to smallholder farmers.
Chisanga et al., 2014	The study compared the dynamics of competition in the sugar industries of selected African countries.	Descriptive assessment based on a literature review	Kenya, South Africa, Tanzania and Zambia	Multinational firms have intensified and expanded operations into neighboring countries, resulting in stable sugar production and inhibiting competition in the host countries.
Sulle, 2017	The study examined the impacts of large-scale commercial agricultural initiatives on the livelihoods of small-scale sugarcane farmers.	Cross-sectional, descriptive assessment that employed qualitative methods, including key informant interviews (KIIs).	Tanzania	Although the outgrower model has led to an increase in overall sugarcane production, it has led to significant social differentiation among farmers.
Gunasekera et al., 2015	The study examined the potential impacts of FDI in African agriculture.	Quantitative cross-sectional study using the dynamic Global Trade Analysis Project model (GDyn) to conduct simulations.	Twenty-one (21) countries from all the five African regions.	FDI enhances agricultural productivity, boosts crop output, and significantly increases exports.
Richardson, 2010a	The study explored the impact of large-scale sugarcane production investments on rural development in southern Africa.	Cross-sectional study assessment that employed secondary data, structured interviews and qualitative methods, including key informant interviews (KIIs).	Zambia	FDI has substantially expanded production capacity and focused on large-scale, export-oriented production to target EU markets.

Author /year	Study objectives	Research design	Study location	Key outcomes
Smalley et al., 2014	The study explores broader questions about the role of foreign capital and outgrower arrangements in promoting economic growth and reducing poverty and inequality.	Cross-sectional study assessment that employed secondary data, structured interviews and qualitative methods, including key informant interviews (KIIs).	Tanzania	Foreign capital caused surplus sugarcane production, overwhelming the mills' capacity and creating harvesting delays and financial instability for outgrowers.
Buur et al., 2011	The study seeks to demonstrate the Mozambican state's role in the rehabilitation of the sugar industry.	Cross-sectional study assessment that employed secondary data, structured interviews and qualitative methods, including key informant interviews (KIIs).	Mozambique	The inflow of foreign capital, including management and technical expertise from foreign corporations, facilitated the industry's modernization of infrastructure and expansion of production capacity.
Ngcobo and Jewitt, 2017	The study examines the drivers and impacts of sugarcane expansion on water resources in Southern Africa.	Literature review and secondary data.	South Africa, Swaziland and Tanzania	Substantial investments in new processing plants, distribution infrastructure, and improved sugarcane varieties have resulted in the expansion of sugarcane cropland, intensification and higher yields.
Ibrahim and Workneh, 2022	The study examines the main technical factors that have contributed to the decline in sugar productivity in Sudan.	Qualitative study using KIIs and quantitative analysis using secondary data.	Sudan	Absence of sufficient investments, particularly in agricultural inputs, equipment, and infrastructure, has hampered sugarcane productivity

Author /year	Study objectives	Research design	Study location	Key outcomes
Dubb et al., 2017	The study analyzed the factors shaping the contemporary dynamics of corporate capital and agricultural production in Africa through the lens of the sugar industry.	Qualitative study using secondary data sources.	Malawi, Mozambique, South Africa, Swaziland, Tanzania, Zambia and Zimbabwe	The study concluded that while FDI can lead to increased sugar production and efficiency, its impact is contingent on local political, economic, and social dynamics hence the need for a context-specific analysis.
Das Nair et al., 2017	The study examined the factors restricting the growth of downstream industrial activities and competitiveness in the sugar-to-confectionery value chain.	Cross-sectional study assessment that employed secondary data, structured interviews and qualitative methods, including key informant interviews (KIIs).	South Africa and Zambia	Investments by large sugar millers in both South Africa and Zambia in expanding their refining and storage capacity have generally led to increased sugar production, However, profits and hence competitiveness have in some years declined due to drought conditions, increased sugar imports, and lower global sugar prices.

FDI and sugar production

FDI has the potential to impact sugar production through three main channels: the rehabilitation of existing facilities, acquisition of new land, and improvements in productivity or efficiency. These channels of impact are crucial as they address different aspects of sugar production. The rehabilitation of existing sugar mills can help improve their infrastructure and technology, leading to increased efficiency and productivity. Acquiring new land for sugar production can expand the industry's capacity and meet growing demand. Additionally, focusing on increasing productivity and efficiency can optimize resource utilization and reduce costs in the production process. These aspects are discussed in detail in the ensuing sections.

A preponderance of studies has been conducted in Southern, Eastern, and Northern Africa. There is paucity of literature on Western African countries. The Southern African countries in particular dominate sugar production in Africa. Mabeta and Smutka (2023) posit that FDI has played a critical role in fostering the development and competitiveness of the sugar industry across many Southern African countries. One strand of literature attributes this to substantial commercial investments, both domestic and international, leading to significant upswings in sugar production (Chudasama, 2021; Dunne and Masiyandima, 2017). According to Dubb et al. (2017) and Das Nair et al. (2017), FDI countries that attract significant FDI inflows in the sugar industry are characterized by low production costs and high yields.

Several studies posit that the conduit through which FDI has enhanced sugar production is mainly through expansion in area cultivated or sugarcane cropland. The expansion involves the acquisition of new land in close proximity to the nucleus estates, much of which falls under 'traditional' or 'communal' tenure under outgrower schemes as is the case in Zambia, Swaziland, Mozambique, Zimbabwe, Malawi, South Africa and Tanzania (Chinsinga, 2017; Scoones et al., 2017). This expansion is propelled by commercial investments facilitated by South Africa-based companies through acquisitions (Dubb et al., 2017) in the case of Southern Africa, and from the United Arab Emirates (UAE) for the majority of North African countries of Morocco, Algeria, and Egypt (Morgan et al., 2022) culminating into the establishment of some of the world's largest sugar factories (Arezki et al., 2019; Sandrey et al., 2018).

Empirical literature consistently underscores the influence exerted by South African capital, particularly the predominant presence of three major companies—Illovo, Tongaat Hulett, and TSB—in the sugar industry of Southern Africa. For instance, Illovo Sugar Africa, the largest sugar producer in Africa and a wholly-owned subsidiary of Associated British Foods plc (ABF), has made substantial investments in six African nations, all located in Southern Africa, primarily through the acquisition of sugar mills (Sandrey and Moobi, 2015). These countries include Malawi, South Africa, Tanzania, Mozambique, Eswatini, and Zambia. Tongaat Hulett, on the other hand, has expanded northwards to Zimbabwe and Mozambique, with a combined installed milling capacity of over one million tons per annum (Dubb et al., 2017). With the increased FDI inflows, studies highlight how this has affected the hectareage under sugar cultivation. Ngcobo and Jewitt (2017) and Viljoen (2014) have documented the increase in sugar production resulting from the expansion and intensification of large-scale investments in Southern Africa. Dubb et al. (2017), for instance, indicates that this expansion propelled Swaziland ahead of Zimbabwe as the region's largest producer outside South Africa, with sugar constituting 43 percent of Swaziland's exports. Unlike other African countries, investments in the Ugandan sugar industry form a hybrid blend of foreign and local investors, with local investors dominating and contributing to over 60% of domestic

sugar production (Martiniello et al., 2022). Ugandan investors play a significant role in intra-regional investments, particularly in other East African countries such as Rwanda, South Sudan and Tanzania. Despite its concentrated emphasis on the local market, the expansion has been so substantial that sugarcane currently holds the second position in terms of tonnage production, trailing only banana plantain, the traditional food staple with production recording an impressive annual growth rate of almost 20% over the span of a decade (Martiniello et al., 2022).

In Zambia, Chisanga et al. (2016) and German et al. (2020) highlight how injection of capital investment of USD 3 billion in 2009 resulted into massive expansion in area cultivated by 54% through the integration of outgrower farmers. The expansion project resulted in a more than twofold increase in sugar production capacity from 200,000 tons to about 450,000 tons per annum. Das Nair et al. (2017) also attribute the significant increase in sugar production in Zambia to substantial investments, doubling in the period 2010 to 2014 compared to the period 2005 to 2008. While Tanzania remains a net importer of sugar and is not yet self-sufficient, Sulle (2017) and Smalley et al. (2014) document the growing role of FDI in expanding the area under sugarcane cultivation and, consequently, sugar production, especially through outgrower farmers. Illovo's investment in factory rehabilitation, infrastructure enhancement, and farmer incentivization led to a significant expansion in both the number of outgrowers and the area dedicated to sugarcane cultivation (Smalley et al., 2014). Investments in the Kilombero Valley expanded the area under outgrower production by over 12,000 hectares between 1990 and 2014, resulting in a substantial increase in the quantity of sugarcane sourced from small-scale, medium-scale, and large-scale outgrowers. A recently announced expansion project by Illovo Sugar Africa in the Kilombero region in Tanzania is projected to increase sugar produced by the nucleus estate from 127,000 tons to 271,000 tons per annum and from 600,000 tons to 1,700,000 tons of sugarcane supplied by outgrowers (Illovo, 2020). Table 5 provides a comprehensive summary of key production indicators associated with sugar production in selected African countries, where literature has documented the trends and status of sugar production.

Table 5
Sugarcane harvested area and production for selected African countries, 1991-2021

	Area harvested (' 000 ha)				Sugarcane production (' 000 tons)			
	1991	2001	2011	2021	1991	2001	2011	2021
Egypt	112	131	137	128	11624	15572	15765	12361
Eswatini	40	41	54	59	3941	4000	5288	5715
Kenya	48	48	79	92	4600	3551	5307	7783
Madagascar	64	68	88	97	1950	2208	2805	3123
Malawi	18	21	25	29	1900	2200	2700	3157
Mauritius	76	73	57	42	5621	5792	4230	2670
Morocco	15	18	13	9	1026	1114	764	613
Mozambique	20	36	43	50	253	676	3396	2987
Nigeria	22	23	49	85	888	705	989	1498
South Africa	276	326	253	279	20078	21157	16800	17991
Tanzania	16	16	57	49	1420	1500	3021	3515
Uganda	22	20	53	85	845	1543	3650	5369
Zambia	12	19	40	49	1150	2000	4200	5102
Zimbabwe	32	41	43	47	3236	4630	3058	3450

Source: Authors' computation based on data from FAO

The data suggest varying trends in sugarcane cultivation and production across the selected African countries, with the majority experiencing consistent growth, while others show fluctuations or declines. Notable fluctuations are observed for Mauritius, Morocco, South Africa, and Zimbabwe. The fluctuations in both the cultivated area and production can be explained by high production costs coupled with low sugar prices on the international market, leading to the exit of smallholder farmers from the sugar industry (Chudasama, 2021). There is also a trade-off between the cultivated areas for sugar beet and sugarcane, particularly in North African countries, as well as the impact of land redistribution reforms in Zimbabwe and South Africa. (Dubb et al., 2017; James and Woodhouse, 2017).

FDI, sugar productivity, efficiency gains and competitiveness

Another strand of literature has highlighted the critical role of technological spillovers from FDI, resulting into enhanced efficiency (Ngcobo and Jewitt, 2017). According to these studies, the surge in FDI in the sugar industry has enhanced sugar production through technological spillovers, leading to the adoption of efficient production methods. Increase in sugar production, particularly among Southern African countries can be ascribed to significant FDI, particularly investments in sugar mills or new processing plants, advancements in sugarcane seed varieties, and the enhancement of supply chain and distribution infrastructure. Technological advancements associated with FDI not only boost productivity but also improve access to high-return markets (Osano and Koine, 2016), playing a crucial role in shaping the competitiveness of the sugar industry. Several studies in recent years have attributed the increase in sugar production to predominant strategies implemented by sugar companies to extend their operations. These strategies involve assuming control of and revitalizing existing sugarcane plantations and processing facilities, often formerly state-owned, as observed in Mozambique, Tanzania, and Zambia (Dubb et al., 2017; Gunasekera et al., 2015). By acquiring these plantations and facilities, companies can leverage their expertise and resources to modernize their operations, improve efficiency, and experience swift expansion in production, as evident in most Southern African countries, except South Africa and Swaziland. In recent years, Illovo and Tongaat Hulett have allocated substantial capital expenditure primarily for expansion in plant, property, and equipment and storage capacity in Malawi, South Africa and Zambia (Das Nair et al., 2017). This investment, for instance, increased Zambia's sugar production capacity by 90,000 tons (Das Nair et al., 2017).

Mozambique is another success story, with substantial FDI in the rehabilitation of the sugar industry lifting the country from its nadir and dependency on contraband imports from its Southern African neighbors to a surplus country, with exports exceeding domestic consumption (Buur et al., 2011). Another pivotal role of FDI involves the creation of infrastructure, including the construction of roads, port facilities, and irrigation dams (Gunasekera et al., 2015). This is evident in countries such as Malawi and Zambia. Dubb et al. (2017) further argues that expansion takes place through the acquisition of assets offered for sale, as evidenced in instances like Lonrho in Malawi and Anglo American in Zimbabwe. This approach helps manage costs and can avoid perceptions of forcefully taking land from local communities, thereby allowing sugar companies to navigate potential conflicts and maintain a more positive reputation in the countries where they operate.

Empirical evidence on the impact of FDI on productivity is scanty. However, the limited research available suggests a positive correlation between FDI and productivity growth. Richardson (2010) suggests that the Southern African countries of Malawi, Tanzania, and Zambia have achieved superior cane yields compared to Australia and Brazil due to their

recognized comparative advantage in sugarcane production. These countries are characterized by abundant sunlight and access to irrigated freshwater, availability of arable land and have extended seasons in subtropical climates conducive to emerging as globally competitive producers (Hess et al., 2016; Macháček et al., 2017). The existence of extensive estates also lowers haulage costs combined with concentrated management practices (Dubb et al., 2017). Mabeta and Smutka (2023) opine that while most sub-Saharan African countries have low sugarcane yields, nine other African countries exhibit ideal yields ranging between 70 and 100 tons per hectare. These include Senegal, Burkina Faso, Eswatini, Chad, Zimbabwe, Kenya, Mauritius, Mali, and Burundi. The prospect of recording high yields further catalyzes investments in their sugar industries (Chudasama, 2021).

Owing to investments made in the past few decades, some African countries have witnessed a rapid surge in sugar production, with a significant portion of the output targeted for export markets. The increase in sugar production of these countries has enhanced their competitiveness on the international market. The gain in sugar export competitiveness is highlighted in several studies (Mabeta and Smutka, 2023b; Seleka and Dlamini, 2020). These studies reveal that the best performers in terms of export competitiveness are predominantly from Southern Africa, with some of them outcompeting the largest sugar exporters from the EU. These countries, including Eswatini, Malawi, Mauritius, Mozambique, South Africa, Zambia, and Zimbabwe, have effectively maintained their competitiveness in the sugar industry over the past two decades. On the other hand, North African countries such as Morocco, Algeria, and Egypt have transitioned from a state of comparative disadvantage to that of comparative advantage. One commonality across these countries is the influx of large-scale commercial investments in their sugar industries. Morgan et al. (2022) posit that the Southern and Northern African regions have historically accounted for the largest proportion of FDI inflows. Studies by Dunne and Masiyandima (2017) and Ngcobo and Jewitt (2017) attribute the increase in sugar production and the subsequent competitiveness of sugar exports in these countries to the impact of FDI. Five of the top 10 lowest cost producers of sugar in the world are countries in which Illovo and Tonga Hulett have a significant footprint (Tonga Hulett, 2021). Given that global sugar prices continue to be low and volatile, especially after the European sugar reforms, maintaining cost efficiency is essential for sustaining a viable business model.

The underperforming countries are mostly from the East and West African regions (Mabeta and Smutka, 2023b; Seleka and Dlamini, 2020). The sugar industries in these countries are marred by a lack of investments, high barriers to entry, heavy government involvement, and mismanagement, thereby contributing to inefficiencies, low sugar production, and uncompetitiveness (Bomett et al., 2020; Chisanga et al., 2014).

3.2.3 Correlation analysis of FDI and sugar production and exports

FDI data in agriculture, forestry, and fisheries is used as a proxy for investments in the sugar industry. This decision is justified given that a considerable portion of FDI in the agriculture, forestry, and fisheries sector is allocated to sugar production. (Morgan et al., 2022). Table 6 presents Pearson's correlation coefficient matrix of FDI and several indicators, namely sugar production, area harvested, yield, exports, and sugar competitiveness.

Table 6

Correlation analysis

Country	Sugar production	Area harvested	Yield	Exports	Competitiveness
Egypt	-0.2126	-0.3382	0.0153	-0.0670	-0.1559
Morocco	0.4859	-0.1261	-0.7097*	0.4188	0.4426
Kenya	-0.0605	-0.0740	0.0442	-0.1627	-0.3640
Madagascar	-0.0499	-0.1620	0.3954	0.4099	0.6288*
Mauritius	0.2571	0.1037	0.1002	0.1741	0.0350
Mozambique	-0.1700	-0.0617	-0.1073	-0.3157	-0.3787
Nigeria	-0.2660	0.3004	0.0880	-0.0157	-0.4447
Rwanda	-0.3854	0.0545	-0.1536	0.5927*	0.4933
Uganda	-0.2226	-0.1917	-0.0774	-0.1173	0.0364
Tanzania	0.5028	0.3224	-0.3277	-0.3203	-0.5047
Zambia	0.5440*	0.5883*	-0.2447	0.4299	-0.0916

Note * denotes statistical significance at 5% level.

Source: Authors' computation based on data from the FAO

The examined correlations shed light on the associations of FDI with pivotal sugar-related variables, including production, exports, and competitiveness within the sugar industries across the diverse landscape of African countries. Notably, Morocco stands out with robust positive correlations between FDI and sugar production, exports, and competitiveness, highlighting a promising synergy between foreign investments and the growth and competitive edge of its sugar sector. Madagascar, too, portrays a positive scenario, displaying strong correlations with FDI across various dimensions, particularly emphasizing the positive impact on yield and competitiveness. Mauritius and Zambia echo this pattern, with positive correlations in sugar production and area harvested, suggesting a constructive relationship with FDI. Tanzania displays strong positive correlations with production, area harvested, and competitiveness, indicating potential positive influences from FDI. These insights underscore the potential for FDI to catalyze positive developments in sugar production and competitiveness, signaling opportunities for strategic investments and growth in these nations. However, amidst these positive patterns, challenges emerge in countries like Egypt, Mozambique, Kenya, Nigeria, and Uganda, where negative correlations with FDI in key aspects raise questions about potential hurdles and the need for nuanced strategies to leverage foreign investments effectively. These countries face issues such as political instability, inadequate infrastructure, mismanagement and corruption, which can deter foreign investors (Bomett et al., 2020; Chisanga et al., 2016). Therefore, it is crucial for these countries to address these challenges and implement targeted policies to create a conducive environment for foreign investments.

Impact of institutional and production arrangements on sugar production

While empirical literature acknowledges the impact of FDI sugar industries of some African countries, the role of institutional arrangements cannot be overlooked. The two are complementary to each other. The presence of better institutional and production arrangements is more likely to be catalytic to FDI inflows and ultimately enhance the growth and competitiveness of the sugar industries. Outgrowers have become integral to investors, playing a crucial role not only in the expansion of capital within the sugar production sector but also making substantial contributions to the national fiscus of various countries (Dubb et

al., 2017). The nature of outgrower schemes exhibit considerable variability, ranging from individually owned small-scale plots or communal land under irrigation, as evidenced in Eswatini, Kenya, Malawi, Mozambique, and Zambia, to relatively larger-scale growers in South Africa and Zimbabwe (Dubb et al., 2017; von Maltitz et al., 2019). Given that sugarcane production in most sub-Saharan countries is heavily dependent on outgrower farmers during production start-up or in expansion efforts of investors, issues related to land acquisition becomes of paramount importance (Chisanga et al., 2014; Mabeta and Smutka, 2023a). Without secure land rights for outgrower farmers, investors may face challenges in expanding their operations. Additionally, clear, and transparent land acquisition policies can help build trust between investors and local communities, fostering a conducive environment for investment in the sugar industry.

The state, therefore, plays a critical role in this regard by establishing and enforcing land laws that protect the rights of both outgrower farmers and investors. This includes ensuring fair compensation for land acquisition and providing a streamlined process for resolving any disputes that may arise. Moreover, the state can also facilitate partnerships between investors and local communities, promoting sustainable development and mutually beneficial relationships in the sugar industry. For instance, Msuya (2007) findings indicate that smallholder sugar outgrowers located in close proximity to foreign-owned sugar milling companies in Tanzania achieve higher levels of efficiency compared to those that are far away through adoption of advanced skills and techniques. However, African countries such as Kenya, Nigeria and Sudan, where government intervention has extended beyond providing a conducive environment, have experienced poor performance and production inefficiencies in their sugar industries (T. S. Ibrahim and Workneh, 2022; Onyango et al., 2018; Sandrey and Moobi, 2015; USDA, 2023). Privately run sugar companies perform better and are more efficient compared to state-owned mills in these countries (Chisanga et al., 2014; Onyango et al., 2018). These countries have experienced challenges such as corruption, mismanagement, and lack of accountability in their sugar industries (Bomett et al., 2020). This has hindered the growth and profitability of the sector, leading to negative impacts on both outgrower farmers and investors, and likely to impede potential FDI inflows in the sugar industry. Therefore, it is crucial for African governments to strike a balance between creating a favorable business environment and ensuring effective governance to foster a thriving sugar industry.

FDI and potential conflicts

In recent years, there has been a surge in interest regarding the nexus between corporate investment and agricultural production in Africa, sparking contentious debates, particularly evident in the discourse surrounding 'land grabs.' These discussions hinge on the impact of capital investment in large-scale agriculture, the involvement of the state, and the balance between associated costs, such as displacement of existing land users. In contrast to more recent corporate-driven agricultural ventures, sugarcane cultivation in the region boasts a deep-rooted history, intricately tied to sustained governmental support in the form of financing, infrastructure development, and political endorsement over the long term. The expansion of agricultural production, often facilitated by public-private partnerships, raises questions about access to land and water resources and the distributional impacts of such investments. Furthermore, the reliance on customary land ownership in many African countries complicates negotiations for large-scale projects like sugar estates, often leading to unequal bargaining power and disputes over land rights. Despite resistance from local communities and safeguards enshrined in land laws, the pursuit of corporate interests in the

sugar industry continues to shape land use and tenure across the continent, highlighting the complex interplay between state policies, corporate investments, and community resistance in the agricultural sector.

Sugar production in southern Africa serves as a focal point for examining these debates. The region has seen significant expansion in sugarcane production, driven by large-scale corporate investments, which have both positive and negative consequences. Scholars such as Dubb et al. (2017) argue that while such investments have led to employment opportunities and economic growth, they have also resulted in deforestation, loss of biodiversity, and displacement of indigenous communities. Several other scholars have highlighted how this phenomenon is particularly pronounced in Southern African countries. For instance Chinsinga (2017) and Smalley et al. (2014) in Tanzania highlight how the ‘Green Belt Initiative’ and the Southern Agriculture Growth Corridor (SAGCOT) Initiative, respectively, have intensified political tensions over land acquisition and reallocation for irrigated outgrower plots. There have been reported cases of eviction and displacement of local people as companies have exhausted their designated estate land (Smalley et al., 2014). Hess et al. (2016) and Richardson (2010) have documented how 1100 households were displaced in Mozambique due to land and water appropriation by sugarcane companies. Similar patterns are observed in Zambia by German et al. (2020) in which the displacement of smallholder agriculture, accounting for 9.3% of the expansion, primarily entailed the substitution of rainfed farmland with sugarcane cultivation on smallholdings during intensification thereby threatening food security. In addition, German et al. (2020) raise some concerns over water availability and stress in Zambia’s lower Kafue River basin as expansion of irrigated cane cultivation has led to increased consumptive use of irrigation water. These concerns regarding the impact of sugarcane expansion on water resources have been echoed by Hess et al. (2016) not only in terms of water availability but also water quality, particularly in relation to the pollution of surface and groundwater bodies in several sub-Saharan countries.

The political economy of sugar production in Africa also prompts critical inquiries into the distribution of benefits—whether they accrue more significantly to the host economy or are disproportionately skewed in favor of investors. There are reported cases of rent-seeking behavior by investors arm twisting government in Zambia and Mozambique. This raises concerns about the predatory nature of international capital and its long-term viability and sustainability, particularly regarding its potential impact on the national fiscus of African countries. For instance, Illovo Sugar has obtained substantial tax concessions from the Zambian government, significantly reducing its tax obligations. Notably, the company succeeded in being reclassified as an agricultural entity, securing a nearly 50% reduction in its corporate tax rate, while also capitalizing on additional benefits such as duty exemptions on imported machinery and preferential financing rates through an agreement under the Investor Promotion and Protection Act (Richardson, 2010a). There are also concerns that major milling companies have managed to assert a level of market dominance in the markets in which they operate, such as Zambia and South Africa, thereby creating significant barriers to entry. The competitive dynamics among milling companies, both within individual countries and across the region, are therefore compromised by both implicit and explicit barriers to entry and growth, primarily driven by regulatory frameworks and protectionist policies (Chisanga et al., 2014). The strong connections between these multinationals and government entities have led to stable, non-competitive markets, enabling these firms to capitalize on the favorable regulatory landscape for the benefit of their international shareholders (Dubb et al., 2017). The dearth of competition stifles the prospects for growth and innovation within the sugar industry.

Conclusions

Africa's sugar production is low, with consumption outstripping current supply, despite the continent's comparative advantage in terms of favorable climatic conditions, access to irrigate freshwater, and the availability of arable land. FDI has the potential to transform the sugar industries of African countries through technological transfers and adoption of efficient production and processing methods. The continent has experienced a surge in FDI inflows in the sugar industry. This review was aimed at assessing the impact of such FDI inflows on the performance of African sugar industries, particularly on sugar production, productivity, and competitiveness. There is strong evidence that FDI has contributed to increased sugar production and enhanced competitiveness in the global market, especially for countries in the Southern and Northern African regions. The reviewed literature contends that FDI, particularly in Southern African countries, has increased sugar production mainly through the expansion of cultivated cropland. This expansion is propelled by intra-regional investors for Southern African countries and investors from the UAE in the case of North African countries. The expansion of cultivated cropland has yielded both favorable and adverse effects on the environment and local communities. While it has generated employment opportunities and bolstered economic growth, it has concurrently triggered deforestation, biodiversity depletion, and the displacement of indigenous communities.

The reviewed literature also attributes the increase in sugar production to efficiency gains resulting from sugar companies' strategies to modernize and expand their operations. These strategies involve acquiring state-owned sugarcane plantations and facilities, leveraging expertise, and making investments in plant, property, and equipment, which have increased sugar production capacity and enhanced export competitiveness in Southern African countries such as Mozambique, Tanzania, Zambia, Eswatini, Malawi and Zimbabwe. Empirical evidence also suggests that North African countries such as Morocco, Algeria, and Egypt have gained a comparative advantage in sugar production due to a surge in FDI inflows.

There is weak evidence to establish whether FDI has enhanced the productivity and yields of African countries. However, studies do document how FDI has improved the efficiency of sugar milling companies. The studies highlight that sugar milling companies run by multinational corporations perform better and are more efficient compared to state-owned mills in these countries, underscoring the importance of institutional arrangements in sugarcane and sugar production. The role of governments in the sugar industry should be limited to creating a favorable business environment and ensuring effective governance under the existing production arrangements to foster a thriving sugar industry.

While this review provides valuable insights into the relationship between FDI and sugar production, efficiency, and competitiveness, it is important to acknowledge the limitations of the study, including the focus on specific regions of Africa due to lack of empirical evidence and the inclusion of grey literature, which may introduce potential bias. This review, however, underscores the potential of FDI to drive sustainable investment, inclusive growth, and enhanced competitiveness across the sugar production value chain in Africa, offering valuable insights for policymakers and industry stakeholders. These insights highlight the potential for FDI to positively impact key facets of the sugar industry in selected African countries, emphasizing the need for further in-depth analyses to unravel the causation and complexities of these associations for each nation's sugar sector.

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