The export performance of textile and apparel industry of Ethiopia: a comparative study with global emerging exporters

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Abstract

Purpose – This study aims to assess Ethiopia's export performance and emerging exporters of textile and apparel products.

Design/methodology/approach – Descriptive research designs were used to investigate textiles and apparel export performance. Quantitative secondary data were collected from the International Trade Center database for 19 years (2004–2022). Data analysis was performed using percentage, Revealed Comparative Advantage (RCA) and Independent t-test using Excel and SPSS version 20.

Findings – Findings show that Ethiopia and emerging exporters of textiles and apparel have fluctuating export performance both in absolute value and percentage of growth. The RCA results revealed that Ethiopia, South Africa, Japan, Russia, Australia and Ghana had comparative disadvantages at first, and then Ethiopia's index showed improvement to weak and medium levels. Meanwhile, countries such as Madagascar and Cambodia have a stronger comparative advantage than Ethiopia and other countries considered in this study. In addition, the findings also show significant differences between Ethiopia and other emerging exporters of textile apparel, except Egypt.

Practical implications – The findings of this study have significant ramifications for scholars, professionals in the textile sector and decision-makers in legislation.

Originality/value – This study established new trends and extended the application of the RCA index across regions.

Keywords Performance, Revealed comparative advantage, Export, Apparel

Paper type Research paper

Introduction

The textile and apparel industry is among the oldest industries in the global economy. According to Hasan *et al.* (2016), the textile and apparel industry is important to economic growth, job creation, poverty reduction, female empowerment and export revenue. During the Industrial Revolution, industry grew rapidly in Western nations. However, as production costs, particularly labor costs, increased, the sector moved to other regions,

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including the Far East and Africa (Adegoke, 2017; Sun, 2017). Thus, the textile and apparel business has evolved and become more export-focused, competitive and migratory in nature (MacCarthy *et al.*, 2016).

The top ten nations that export/import textile products are China, the European Union, India, Turkiye, the USA, Vietnam, Pakistan, South Korea, Chinese Taipei and Japan (World Trade Organization, 2023). With a total value of 148 billion dollars, or 43.6% of global export/import by 2022, China has the highest textile export/import ranking. According to the same data source, the European Union is ranked second with 71 billion dollars and 21.1% of global exports/imports, followed by India with 19 billion dollars and 5.7% of global exports/imports. In comparison, Turkiye is ranked fourth with a value of 15 billion dollars and 4.3% of textile exports/imports in 2022. The USA, Vietnam, China, Taipei, South Korea and Japan occupy subsequent places. On the other hand, nations such as Vietnam, Cambodia, India, and Myanmar are the fastest-growing exporters of apparel and textiles (Diriba *et al.*, 2019).

Ethiopia's export industry has been implementing various tactics to enhance its export performance. For instance, Ethiopia has been receiving nonreciprocal trade preferences [like the African Growth and Opportunity Act (AGOA) and Everything But Arms (EBA)] from developed countries and involved in trade agreements [e.g. Ethiopia with the Common Market for Eastern and Southern Africa (COMESA)] to boost export trade to the world market and to contribute to the growth and development of the nation. Prior studies (e.g. Mulugeta, 2019; WeAspire, 2021) show that those nonreciprocal trade preferences have opened new market opportunities for Ethiopian manufacturers for growth, and USA and EU programs have positively impacted the export performance of manufacturing in Ethiopia. On contrary, Ayele (2021) revealed that the EU's nonreciprocal trade preference (EBA) program negatively impacts Ethiopia's export performance.

Ethiopia is renowned for its enormous potential to produce basic raw materials such as cotton, wool, silk, and fibers in the apparel and textile industries. By multiplying three million hectares of land suitable for cotton production by the average cotton yield per hectare, the nation can become the world's second-largest cotton producer (Tsega *et al.*, 2022). Among the three million hectares of land, one million hectares (34%) are in medium potential areas, and 1.9 million hectares (66%) are in high potential cotton producing areas (Balcha *et al.*, 2022). Nevertheless, Ethiopia only produced 0.24% of the world's cotton in 2020. Its 0.43 tons of crop productivity is far less than that of other nations, such as Israel (1.8 tons), China (69% share in world cotton fabric exports), and India (9%), which has produced more cotton over the previous 20 years (Kantur and Türkekul, 2023). Despite its enormous potential, Ethiopia's textile and apparel export value in 2021 was only $126m, according to New Business Ethiopia (Kabish, 2023).

A limited number of prior studies (Alderin, 2014; Karan, 2018; Wagaye and Walle, 2018; Diriba *et al.*, 2019; Tsega *et al.*, 2022) have examined Ethiopia's textile and apparel sectors. Some are literature reviews, while others are empirical studies examining, among other things, the development of the textile and apparel industries as a business sector, their emergence as a hub for the industry, and the importance of textile manufacturing in their ability to compete globally. For instance, studies by Diriba *et al.* (2022) and Tsega *et al.* (2022) are literature reviews that explore the textile and apparel industry. The study conducted by Rundassa *et al.* (2019) is based on secondary data and used the two indices of revealed comparative advantage to examine the comparative advantage of the Ethiopian textile and apparel industry.

Despite the contributions of previous studies, they have the following flaws: First, earlier researches carried out comparative analyses, but the comparison was limited to nations with

export/import performance significantly different from Ethiopia. For example, Rundassa *et al.* (2019) compared Ethiopia with major textile-exporting nations such as Vietnam, Germany, Italy, and India. The author's comparison with top exporters does not accurately represent Ethiopia's relative global Textile and Apparel Industry standing. Second, some published studies (e.g. Alderin, 2014; Tsega *et al.*, 2022; Wagaye and Walle, 2018) adopted qualitative and literature review methods to assess the Ethiopian textile industry. Small sample sizes, subjectivity, and contextual implications hinder the generalizability of qualitative research (Leung, 2015; Vasileiou *et al.*, 2018). Meanwhile, literature review-based studies have problems such as lack of relevance, replicability, selection bias, and comprehensiveness, which can mean that reviews end up with the wrong evidence for the question (Haddaway *et al.*, 2020).

Third, a small number of studies (Rundassa *et al.*, 2019; Diriba *et al.*, 2019) that examined the textile and apparel industry's export competitiveness in Ethiopia relied on outdated secondary data, which makes it difficult to identify new trends and compromise its credibility and reliability. For instance, Rundassa *et al.* (2019) examined the comparative advantage of Ethiopia's textile and apparel industry using revealed comparative advantage (RCA) based on the UN Comtrade database covering the period from 2007 to 2016. However, the study was published in 2019, which raises the issue of the timeliness of the data for 2019 because there is a three-year gap and lacks comprehensive measure of export performance of Ethiopia using other indicators. Consequently, earlier research does not accurately reflect new trends in 2023. As a result, additional research in this area, including this study, is required to yield the following anticipated benefits.

First, it contributes to existing practice and research by showing the comparative advantage of Ethiopian export performance compared with emerging markets in the global textile and apparel industry. Some authors (e.g. Moungar and Gregorio, 2018; Diriba *et al.*, 2019; Causton, 2021) have acknowledged that the major emerging markets are Cambodia, Ethiopia, South Africa, Russia, Japan and Australia. This study also included a few exporting nations from Africa such as Egypt, Ghana, Madagascar, and Kenya, to compare Ethiopia's export performance to that of other nations on the continent. Second, this study also contributes to the existing knowledge by examining the export performance of the Ethiopian Textile and Apparel Industry via quantitative analysis based on panel data from the International Trade Center (ITC) database, covering a period from 2004 to 2022. It helps diagnose the pitfalls of qualitative and literature-dominated analyses of the Ethiopian textile and apparel industry from published studies in the past. Third, the current study's use of the most up-to-date quantitative data for the ITC database, covering 2004 through 2022, helps to identify new trends and provides quality results' trustworthiness and reliability. The ITC trade map provides values and volumes (imports and exports), market shares, tariffs, and growth rates of 5,300 products coded under the Harmonized System (HS) from around 220 countries and territories as of 2004. Although questions about the data quality can be raised, it is one of the best statistical databases available, given the cost of gathering primary data (Esterhuizen, 2006; Van Rooyen *et al.*, 2011). Fourth, this study's comparison of emerging exporters offers a new perspective on global trade. Gaglio (2017) states that developing nations have improved their economic openness and connectivity with global trade networks established to expand markets which contributes to growth and development. As a result, their export growth was substantially faster than that of top industrialized nations. This study adds to our understanding of global trade by analyzing the export performance of several nations, especially newly developing textile exporters. Fifth, by incorporating quantitative data from the ITC database for domestic and foreign businesses, the current study also offers fresh perspectives to the global community and

manufacturing sector. Therefore, it is a useful resource for researchers and policymakers in the manufacturing sector and the global community.

This study addressed the following objectives:

- First, to assess the trend in Ethiopian exports of textile and apparel products. This objective helped to identify new trends in the export of Ethiopia's textile and apparel industries and compare them with those of emerging exporters, including Cambodia, South Africa, Russia, Japan, Australia, Madagascar, Egypt, Ghana and Kenya.
- The second objective was to compare Ethiopia's export performance with emerging exporters in the textile and apparel industries. Unlike period studies, the current study assessed export performance of Ethiopia and other emerging exporters using more comprehensive measures such as export value, growth rates, market share, and comparative advantage.
- Finally, the study aimed to investigate whether there is a significant difference in the RCA index between Ethiopian and emerging exporters of textile and apparel products using independent t-test statistics.

Literature review

Comparative advantage

The intention to examine how different countries trade in the global market gave rise to the idea of comparative advantage. Numerous authors have provided different definitions of the term. Prior studies (Bhattacharyya, 2020; Dhiman and Sharma, 2019; Lopez-Morales, 2018) noted that as a comparative advantage, a country ought to specialize in the products that can be manufactured more economically in contrast to the other countries. Thus, comparative advantage pertains to a country's capacity to produce a good or service more cheaply than its competitors. The theory of comparative advantage, developed by economist David Ricardo in the eighteenth century, served as the foundation for trade agreements (Morales Meoqui, 2014). According to Rundassa *et al.* (2019), Ricardo developed the theory because concentrating on the sector where a country has the greatest comparative advantage helps its economy.

The distinction between benefits and opportunity costs is reflected in the comparative advantage. When it comes to an activity, a country can obtain a comparative advantage if its opportunity costs decrease or its benefits increase. According to the law of comparative advantage, a country has an advantage over another if it can produce specialized goods more cheaply. It highlights that a country can export goods and services with the least disadvantages and import goods with the greatest disadvantages. Based on these arguments on comparative advantage, the study theorizes that emerging countries have a comparative resource advantage over developed countries in textile and apparel products in the world market.

Comparative advantage vs. competitive advantage

The wider literature has arguments on comparative advantage theory and competitive advantage. As coined by Rundassa *et al.* (2019), a competitive advantage arises when a party, be it an individual, a company, or a nation, can provide equivalent benefits to rivals at a reduced cost (cost advantage) or surpass the benefits of rival products. Comparative advantage differs from competitive advantage in that it focuses on the opportunity cost of the entity to generate some advantage. Assagaf *et al.* (2021):

> The concept of the comparative advantage postulates that with assumptions of free, unrestricted trade and perfectly competitive markets, each country should specialize in the production of a good, for which it has a relative cost advantage or, in other words, lower opportunity costs of producing the same commodities among countries.

Developing countries (emerging countries in this study case) have abandon resource advantage than developing countries which gives the cost advantage for producing textile products, and thus comparative advantage theory is selected as a leading theory in this study.

Export performance and export competitiveness

Export performance is now a global phenomenon as trade between countries evolves occasionally. Export performance can be defined as the firm's activities directed toward the outcome (s) in the export market" (Chen *et al.*, 2016). As Benfratello *et al.* (2022) noted, nations' ability to export their products will enhance their strategic position in the international market. Thus, Export performance is the degree to which a company achieves its strategic and economic goals when exporting a product to a foreign market. Even though the definition is provided at the firm level, this study used it to evaluate the export performance of nations at the industry level. Many developing countries like Ethiopia have been receiving nonreciprocal trade preferences (like the African Growth and Opportunity Act (AGOA) and Everything But Arms (EBA) by developed countries and involved in trade agreements (e.g. Ethiopia with Common Market for Eastern and Southern Africa - COMESA) to boost their export trade to the world market and to contribute to growth and development of the nation. Few studies were conducted to investigate the impacts of trade relations on the export of manufacturing sectors in Ethiopia, and mixed results were found. For example, Mulugeta (2019) found that although the magnitude of the effect was minimal, USA and EU programs positively impacted the export performance of manufacturing in Ethiopia. This study assessed Ethiopia's export performance as compared to emerging exporters by using measures such as export value, export growth, export market share, and comparative advantage. Prior studies (e.g. Rundassa *et al.*, 2019) also used some of the above indicators of export performance.

On the contrary, Ayele (2021) revealed that the EU's nonreciprocal trade preference (EBA) program negatively impacts Ethiopia's export performance. Looking at these mixed results of trade agreements' impact on Ethiopia's manufacturing exports, WeAspire (2021) concluded that AGOA opened new market opportunities for Ethiopian manufacturers for growth. However, firms did not utilize the schemes as expected because of the information gap that affects most exporters and manufacturers, poor logistics, less productive capacity, transportation costs, and limited presence of US investment in Ethiopia. Despite the significant contribution of these generalized findings to the manufacturing sector, the current study planned to assess the export performance of Ethiopia's textile and apparel industry compared to emerging countries based on export trade data.

Meanwhile, this study also used the concept of export trade competitiveness. Export competitiveness (EC) has been widely recognized as one of the mediums for achieving global competitiveness (Caporale *et al.*, 2018; Dhiman *et al.*, 2020; Gnangnon, 2019). As cited by Capobianco-Uriarte *et al.* (2019), "export competitiveness" refers to competitiveness in the international context (Jambor *et al.*, 2017; Bojnec and Fertő, 2016; Stojcic *et al.*, 2014). Export competitiveness can be measured quantitatively by applying different RCA indices (e.g. Singh and Gautam, 2019; Ruzekova *et al.*, 2020). Therefore, this study used Balassa's RCA index, as discussed below.

Revealed comparative advantage

Balassa (1965) developed the revealed comparative advantage index, which is based on export performance and is used to analyze international trade. He defined the revealed comparative advantage index (RCA) as an index that shows the export performance of a particular product or industry from a nation. It is calculated by dividing the country's overall share of global exports by the relative share of its product exports in the global market. The RCA index was calculated as follows:

$$\mathrm{RCAij} = (\mathrm{Xij}/\mathrm{Xit})/(\mathrm{Xnj}/\mathrm{Xnt})$$

where Xij denotes the export of commodity/industry j of country i, *n* represents the world or a set of countries, and t represents all product groups. Cardinal, ordinal, and dichotomous measures can all be used to interpret the RCA results. The cardinal measure of the RCA index was used in this study because it enables a direct comparison of the computed index values, thereby enabling an examination of the relative advantage or disadvantage that a particular country experienced during the study period (Rundassa *et al.*, 2019). Table 1 shows that the RCA index threshold established by Hinloopen and Marrewijk (2001) was used.

Research methodology

Study design

This study adopted a descriptive research design to investigate Ethiopia's export performance compared with emerging exporters of textile and apparel products.

Sample

The study sample consists of countries that are categorized as emerging markets for textiles and apparel products. Countries were selected based on previous studies classification of countries (Cambodia, Ethiopia, South Africa, Russia, Japan and Australia) as emerging exporters (e.g. Moungar and Gregorio, 2018; Diriba *et al.*, 2019; Causton, 2021). This study also included a few exporting nations from Africa, such as Egypt, Ghana, Madagascar, and Kenya, to compare Ethiopia's export performance to that of other nations on the continent. This enables the study to examine the relative position of Ethiopia's textile and apparel industry's competitiveness both on the continent and worldwide.

Data source

Export data (dollar values in thousands) were collected from a popular ITC database covering 19 years (2004–2022). Data covering 19 years was used because the countries selected for this study have complete data for these years. The ITC database covers 20 years of data for updating purposes, and the database provides data calculated by combining UN COMTRADE and ITC statistics. For the purpose of the research, export performance data of product lines with an HS code 61 Articles of apparel and clothing accessories, knitted or crocheted were considered.

Table 1. Revealed comparative advantage threshold

Category a: Comparative disadvantage	$0 < \mathrm{RCA} \leq 1$
Category b: Weak comparative advantage	$1 < \mathrm{RCA} \leq 2$
Category c: Medium comparative advantage	$2 < \mathrm{RCA} \leq 4$
Category d: Strong comparative advantage	4<RCA index

Source: Hinloopen and Marrewijk (2001)

Data analysis

The study used both descriptive and inferential data analysis techniques. As a descriptive method of data analysis, the study used export value (indicated by USD), percentage to show the export growth and export market share of emerging exporters of textile and apparel products. The result is presented by using table and a line graph processed using an Excel spreadsheet to examine the export performance trends of Ethiopia and the emerging export countries. Unlike period studies, the current study assessed the export performance of Ethiopia and other emerging exporters using more comprehensive measures such as value, growth rates, market share, and comparative advantage. The Balassa Revealed Comparative Advantage (RCA) index was used to gain a better understanding of Ethiopia's export performance as well as that of emerging textile and apparel exporters (Cambodia, South Africa, Russia, Japan, Australia, Madagascar, Egypt, Ghana and Kenya). However, the RCA index does not indicate whether there is a significant difference between Ethiopia and other emerging countries. Therefore, for inferential data analysis, an independent *t*-test was used to test whether the RCA difference was significant between the countries. Independent samples from other nations were compared to Ethiopia using an independent *t*-test. Examining whether Ethiopia's RCA index differs significantly from that of emerging textile and apparel exporters provides new insight on the extent of the country's competitiveness.

Results and discussion

Textile and apparel export performance in export value

The analysis result of the trend of export performance of the Ethiopian textile and apparel sector compared to emerging exporters is depicted in Figure 1.

The results in Figure 1 show that the export performance of Ethiopia, in comparison with emerging exporters (such as Cambodia, South Africa, Russia, Japan, Australia, Madagascar, Egypt, Ghana and Kenya), has had an inconsistent trend between 2004 and 2022. Between 2004 and 2007, most countries, including Ethiopia, experienced fluctuating export performance trends. In the years between 2006 and 2007, countries such as Cambodia and Madagascar have achieved remarkable growth. Ethiopia recorded export growth from 2008 to 2010, but other countries slightly declined. In addition, Egypt has achieved remarkable export growth. From 2011 to 2018, Ethiopia achieved slightly higher growth, while other emerging countries have also recorded growth.

Between 2019 and 2022, Ethiopia's export growth was initially recorded but eventually declined in 2022. Russia saw an increase in textile and apparel exports between 2019 and 2020, whereas Egypt, Madagascar, Ghana, Cambodia, and Kenya saw a decline. Except for Russia, most nations saw growth after 2020. Between 2019 and 2021, Ethiopia registered a visible export growth performance, although it eventually declined in 2022 relative to other countries. This finding is consistent with Rundassa *et al.* (2019), who noted fluctuations in Ethiopia's textile export shares from 2007 to 2016. Evidence shows that the export performance of the textile and apparel industry is subject to economic, political, and social contexts in Ethiopia and worldwide. For instance, the countries bilateral and multilateral trade agreements could affect export performance. The slight growth was initially supported by trade capacity building (nonpreferential) programs like AGOA and EBA provided by the US and EU to Ethiopian manufacturers (Kemal, 2014; Mulugeta, 2019; Yimam, 2018; WeAspire, 2021). However, the Ethiopian firms could not use those opportunities to expand their export, and thus, their export performance declined in later years. Similarly, Abtew and Ndwiga (2017) noted that even if the textile export performance of Sub-Saharan countries like Ethiopia has improved dramatically, countries still need to

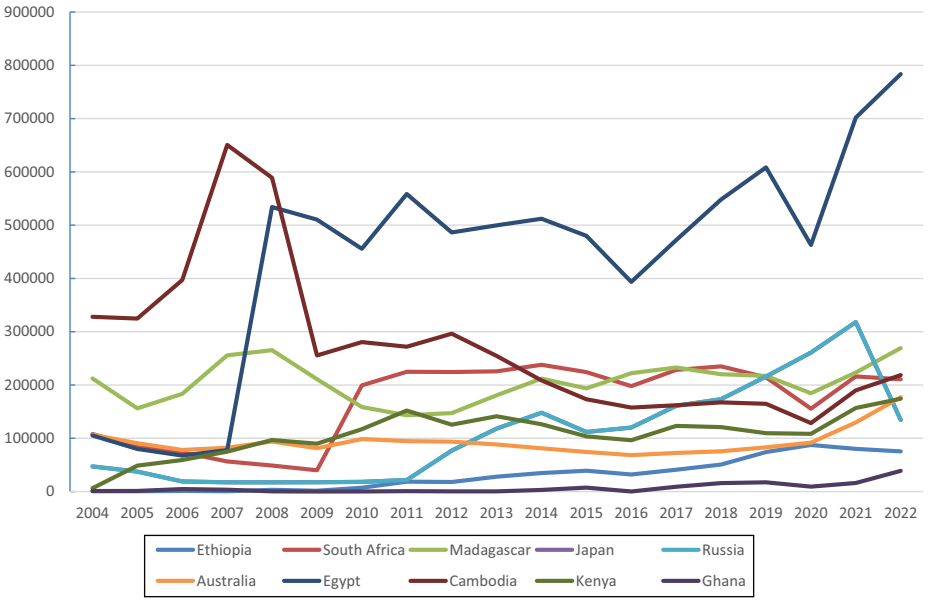


Figure 1.
Trend of export of textile and apparel of Ethiopia and emerging exporters (in value of USD)

Source: The study computation based on ITC data (2004-2022)

utilize the AGOA fully. Moreover, as Demiessie (2020) noted, the emergence of COVID-19 also contributed to export performance shocks in Ethiopia.

Textile and apparel export performance in export growth

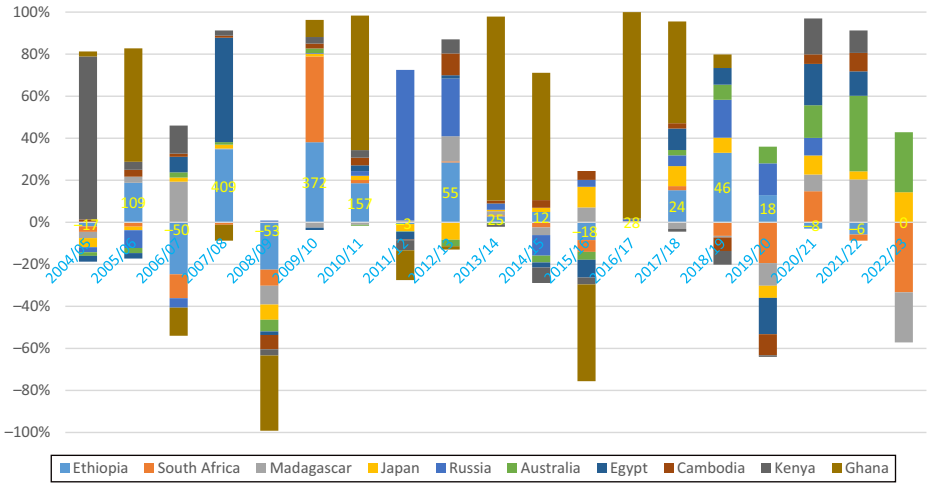
The result in the Figure 2 below shows the export performance (in terms of export growth in %) of emerging countries which export textile and apparel products.

The result indicate that Ethiopia's export performance in terms of export growth (in percentage) is inconsistent in the years 2004 to 2022. The result also shows that the highest export decline was in between 2008 and 2009 by 53% and also declined by 50% between 2006 and 2007. However, the highest export growth for Ethiopia was recorded in between 2009 and 2010 exporting years. Generally, all emerging textile and apparel exporting countries, selected for this study, have recorded inconsistent growth.

Textile and apparel export performance in export market share (%)

The result of export performance of Ethiopian Textile and Apparel Industry with regard to export share in the world market is presented in the Table 2 below.

The result in the Table 2 above indicates that Ethiopia's textile and apparel industry export share is approximately 0 while Cambodia has the highest share of export among the ten countries selected in this study. In addition, countries like South Africa, Japan and Madagascar are enable to maintain their consistent export share in the world textile and apparel market. The finding of the study is not consistent with (Rundassa *et al.*, 2019) who noted that the export market share of the textile sector showed an increase in absolute terms but it is dominated by the import market share.



Source: The study computation based on ITC data (2004-2022)

Figure 2.
Textile and apparel export growth (in %) *of Ethiopia and emerging exporter countries*

Year	Ethiopia	South Africa	Madagascar	Japan	Russia	Australia	Egypt	Cambodia	Kenya	Ghana
2004	0	0.1	0.2	0.2	0	0.1	0.1	1.6	0	0
2005	0	0.1	0.1	0.1	0	0.1	0.1	1.7	0	0
2006	0	0.1	0.1	0.1	0	0.1	0	1.7	0	0
2007	0	0	0.1	0.1	0	0	0	1.5	0	0
2008	0	0	0.1	0.1	0	0.1	0.3	1.6	0.1	0
2009	0	0	0.1	0.1	0	0.1	0.3	1.5	0.1	0
2010	0	0.1	0.1	0.1	0	0.1	0.3	1.6	0.1	0
2011	0	0.1	0.1	0.1	0	0	0.3	1.8	0.1	0
2012	0	0.1	0.1	0.1	0	0	0.2	1.8	0.1	0
2013	0	0.1	0.1	0.1	0.1	0	0.2	2	0.1	0
2014	0	0.1	0.1	0.1	0.1	0	0.2	2.1	0.1	0
2015	0	0.1	0.1	0.1	0.1	0	0.2	2.5	0	0
2016	0	0.1	0.1	0.1	0.1	0	0.2	2.8	0	0
2017	0	0.1	0.1	0.1	0.1	0	0.2	2.8	0.1	0
2018	0	0.1	0.1	0.1	0.1	0	0.2	2.8	0.1	0
2019	0	0.1	0.1	0.1	0.1	0	0.3	2.5	0	0
2020	0	0.1	0.1	0.1	0.1	0	0.2	2.4	0.1	0
2021	0	0.1	0.1	0.1	0.1	0	0.3	2.1	0.1	0
2022	0	0.1	0.1	0.1	0	0.1	0.3	2.1	0.1	0

Source: The study computation based on ITC data (2004–2022)

Table 2.
Textile and apparel market share (in %) of Ethiopia and emerging exporter countries

Revealed comparative advantage of Ethiopia's textile and apparel export

The export value and percentage of growth do not show the extent to which the export performance is competitive. Thus, the study examined Ethiopia's export performance compared to emerging exporters of textiles and apparel using the Revealed Comparative Advantage (RCA) index, and the results are presented in Table 3 below.

Year	Ethiopia	South Africa	Madagascar	Japan	Russia	Australia	Egypt	Cambodia	Kenya	Ghana
2004	0.10	0.21	21.34	0.01	0.02	0.10	1.10	10.58	0.19	0.03
2005	0.05	0.15	19.21	0.00	0.01	0.07	0.63	10.09	1.20	0.03
2006	0.11	0.12	18.38	0.00	0.01	0.05	0.41	10.37	1.42	0.11
2007	0.04	0.07	19.44	0.00	0.00	0.05	0.39	18.21	1.50	0.08
2008	0.19	0.06	17.14	0.00	0.00	0.04	1.85	13.99	1.76	0.01
2009	0.08	0.06	18.84	0.00	0.00	0.04	1.68	4.20	1.60	0.00
2010	0.28	0.20	14.51	0.00	0.00	0.04	1.49	4.46	1.95	0.00
2011	0.64	0.18	11.12	0.00	0.00	0.03	1.56	3.67	2.34	0.00
2012	0.57	0.20	12.23	0.01	0.01	0.03	1.47	4.70	1.82	0.00
2013	0.89	0.19	10.27	0.01	0.02	0.03	1.45	3.27	2.04	0.00
2014	0.94	0.20	8.40	0.02	0.02	0.03	1.54	2.49	1.68	0.02
2015	1.11	0.21	8.27	0.01	0.02	0.03	1.69	1.56	1.34	0.04
2016	0.92	0.19	8.44	0.01	0.03	0.03	1.29	1.19	1.27	0.00
2017	1.14	0.20	7.12	0.02	0.03	0.02	1.43	1.15	1.72	0.05
2018	1.57	0.20	6.42	0.02	0.03	0.02	1.54	1.08	1.65	0.08
2019	2.24	0.19	7.28	0.02	0.04	0.02	1.58	0.88	1.51	0.08
2020	2.96	0.15	8.59	0.03	0.06	0.03	1.45	0.60	1.51	0.05
2021	2.19	0.14	7.28	0.03	0.05	0.03	1.43	0.89	1.94	0.08
2022	2.08	0.14	6.91	0.01	0.02	0.04	1.37	0.89	2.01	0.15

Table 3. Revealed comparative advantage (RCA) of Ethiopia and emerging exporter countries

Source: The study computation based on ITC data (2004–2022)

The RCA results of the countries considered in this study were analyzed based on the threshold suggested by Hinloopen and Marrewijk (2001). The RCA results in Table 2 above revealed that countries such as Ethiopia, South Africa, Japan, Russia, Australia and Ghana had comparative disadvantages from 2004 to 2014 and 2016. The RCA results show Ethiopia, Egypt, and Kenya had a weak comparative advantage in textile and apparel exports in 2015, 2017 and 2018. Additionally, from 2019 to 2022, only Ethiopia had a medium comparative advantage. Exceptionally, Madagascar has had a strong comparative advantage in textile and apparel exports in all years, but its RCA index value continues to decline over time.

In contrast, countries such as South Africa, Japan, Russia, Australia and Ghana had a comparative disadvantage from 2004 to 2022 in exporting textile and apparel products. These findings are consistent with those of previous studies (e.g. Van Zyl and Matswalela, 2016; Kim, 2019; Banga and Balchin, 2023; Kantur and Türkekul, 2023), which used RCA to identify the comparative advantage of different countries. In general, Ethiopia's RCA index has improved from disadvantage to weak advantage and then to medium advantage. Abtew and Ndwiga (2017) support this, arguing that AGOA's region has indicated an increasing strength in the RCA of the selected export articles. Ethiopia's textile and apparel industry is gaining competitiveness in the world market.

Is there a significant difference in the revealed comparative advantage index between Ethiopian and emerging exporters?

Although the RCA index is good for comparing countries' abilities to produce and generate comparative advantage, it does not show whether there is a significant difference between countries. In this section, we investigate whether there is a significant difference in the RCA index between Ethiopia and emerging exporters of textile and apparel products. Thus, the study used an independent *t*-test to compare countries with their RCA indices; the results are presented in Table 4 below.

Country	M	SD	t	Df	MD	95% CI difference Lower	Upper	Sig. (two tailed)
Ethiopia	0.91	0.89	3.72	19	0.74	0.32	1.15	0.000
South Africa	0.17	0.06						
Ethiopia	0.91	0.89	−9.61	20	−11.17	−13.59	−8.75	0.000
Madagascar	12.07	5.12						
Ethiopia	0.91	0.89	4.52	19	0.89	0.48	1.31	0.000
Japan	0.01	0.009						
Ethiopia	0.91	0.89	4.47	19	0.89	0.47	1.30	0.000
Russia	0.02	0.02						
Ethiopia	0.91	0.89	4.36	19	0.86	0.45	1.28	0.000
Australia	0.04	0.03						
Ethiopia	0.91	0.89	−1.94	27	−0.42	−0.87	0.02	0.063
Egypt	1.33	0.40						
Ethiopia	0.91	0.89	−3.66	20	−4.22	−6.63	−1.82	0.002
Cambodia	5.13	5.08						
Ethiopia	0.91	0.89	−2.67	32	−0.62	−1.09	−0.15	0.012
Kenya	1.53	0.55						
Ethiopia	0.91	0.89	4.35	19	0.86	0.45	1.27	0.000
Ghana	0.43	0.04						

Notes: Levene's test was significant ($p < 0.05$), suggesting violation of the assumption of equal variance
Source: *The study computation based on ITC data (2004–2022)*

Table 4.
Independent t-test result

The results of the independent *t*-test revealed that the RCA index of Ethiopia was significantly different from that of countries such as South Africa (t19 = 3.72, $p < 0.05$), Russia(t19 = 4.47, $p < 0.05$), Madagascar(t20 = −9.61, $p < 0.05$), Japan(t19 = 4.52, $p < 0.05$), Australia(t19 = 4.36, $p < 0.05$), Cambodia(t19 = −3.66, $p < 0.05$), Kenya (t32 = −2.67, $p < 0.05$), and Ghana (t19 = 4.35, $p < 0.05$). This result can be explained by the fact that these countries have different comparative advantages at different times. For instance, from 2004 to 2016, Ethiopia had a comparative disadvantage, while countries such as Madagascar and Cambodia had a comparative advantage over the same period. However, the results also show no significant difference in the RCA index between Ethiopia and Egypt (t27 = −1.94, $p > 0.05$). In addition, the independent *t*-test result of the mean difference shows that Ethiopia's RCA index is somewhat higher than that of emerging countries, such as South Africa (0.74, 95% CI [0.32, 1.15]), Russia (0.90, 95% CI [0.47, 1.31]), Japan (0.89, 95% CI [0.48, 1.31]), Australia (0.86, 95% CI [0.45, 1.28]) and Ghana (0.86, 95% CI [0.45, 1.27]). However, Ethiopia's RCA index was lower than that of countries such as Madagascar (−11.17, 95% CI [−13.89, −8.75]), Egypt (−0.42, 95% CI [−0.87, −0.02]), Cambodia (−4.22, 95% CI [−6.63, −1.82]) and Kenya (−0.62, 95% CI [−1.09, −0.15]). The finding that Ethiopia's RCA index has a significant difference from other countries is supported by previous studies. For example, Abtew and Ndwiga (2017) found that countries that benefited from AGOA have an increasing strength in the RCA of the selected export articles compared to Latin American Integration Association (LAIA) countries. In addition to their comparative advantage emanating from their abundant natural resources, the AGOA program by the USA has been helping countries like Ethiopia to improve their competitiveness in the world market.

Conclusion and implications

This study used comparative advantage theory to compare Ethiopia's export performance with that of emerging nations in terms of textile and apparel exports. Based on recent panel

data from the ITC database spanning 2004 through 2022, this study's findings assist in identifying emerging trends in the export of textile and apparel products and investigate whether Ethiopia and other emerging countries have a comparative advantage. The conclusions of this study have significant ramifications for scholars, practitioners in the textile sector, and policymakers in legislation.

Implications for policymakers

The study found that the export performance of Ethiopia and emerging exporters (Cambodia, South Africa, Russia, Japan, Australia, Madagascar, Egypt, Ghana, and Kenya) had an inconsistent export performance both in terms of export value and growth between 2004 and 2022. This finding has implications for policymakers in that fluctuating performance hinders the textile and apparel industry from playing its part in improving the nation's quest for growth and development. Thus, policymakers should take actions like promoting the industry to the world market and empowering the sector. Promoting the sector should be done by Ethiopian export promotion Agency(EEPA) who provides service such as providing professional support and training to exporters; alleviate problems faced by exporters like making export related institutional procedures smooth for exporters; create market and supply chain linkage to international market (example: linking Ethiopian exporters to foreign importers); collect and analyze trade related information to the business community; and encourage the existence of coordinated and efficient working arrangement among producers, exporters, and service providers.

Meanwhile, empowerment of the industry constitutes capacity building activities such as tax policy change, provision of access to necessary raw materials, providing leadership training to stakeholders in the textile and apparel industry, revisiting policy constraints around and strengthening relation with already existing nonpreferential trade relations with US and EU. This is important because most emerging exporters have huge potential for operating textile and apparel production, which could bring a strong comparative advantage. Policymakers should note that the RCA index indicates the direction of trade regarding textile and apparel products. Therefore, they should strengthen their trade with partner countries like EU and USA.

Implications for practice

The findings from using the RCA index found that Ethiopia's comparative disadvantage between 2004 and 2016 improved to a weak comparative advantage and then to a medium comparative advantage from 2019 to 2022, while other emerging exporters, such as Madagascar and Cambodia, have comparative advantages. The textile and apparel industry is one of the government's priority areas for providing employment opportunities, import substitution and generating foreign exchange. In addition, the sector is expected to secure the country's movement into industrialization and middle-income status. Although the textile and apparel sector has received various government support and new market opportunities were created by AGOA and EBA, the industry's export performance remains inconsistent. Fluctuations and improvements in comparative advantage have implications for practitioners. The textile and apparel industry practitioners can use the findings to investigate the reasons behind fluctuations and find ways (such as improving human resource skills as the industry is labor intensive [apparel] as well as capital intensive [textile], applying technologies, engaging stakeholders and marketing strategies) to help the industry grow consistently. Based on the findings of this study, practitioners can take practical actions to improve the industry's competitiveness and take advantage of the market for business growth and better competitiveness.

Implication for researchers

This study's findings show that Ethiopia's textile and apparel sector has recorded inconsistent performance, but the RCA index shows improved competitiveness. Ethiopia is one country receiving trade opportunities like AGOA and EBA, but the export performance and competitiveness RCA index indicate gaps. The findings of this study open a new room for researchers to conduct more investigation into the reasons behind the gaps in export performance and export competitiveness of the textile and apparel industry by collecting empirical data. In addition, future research should use other advanced models like Normalized Revealed Comparative Advantage (NRCA) to assess the competitiveness of emerging exporters of textile and apparel products.

Limitation and future research

Unlike the contributions to expand the existing research and knowledge, this study has the following limitations. First, it emanates from the use of the RCA index. Although RCA is a good indicator of a country's ability to produce a product compared to other exporting countries, it has a major limitation in using only export data. As Stellian and Danna-Buitrago (2022) explained, RCA also has other limitations, such as size bias, asymmetry, and a lack of additive properties. Thus, future studies should use competitive indices such as RTA, RC, RSCA and trade specialization (TSI). Second, using secondary data alone may be a limitation of this study.

Secondary data have a flaw in that they may not have been collected in the geographic region desired, in the years desired, or in the specific population that the researcher is interested in studying, and the researcher has no control over it. Thus, general conclusions are limited to data sources. In another view, the study findings showed an inconsistent export trend between Ethiopia and countries such as Cambodia, South Africa, Russia, Japan, Australia, Madagascar, Egypt, Ghana and Kenya regarding textile and apparel products. However, it fails to provide empirical reasons for fluctuations in countries' export performance. Therefore, future studies should investigate the determinants of export fluctuations. Third, although one of the strengths of this study is the inclusion of 10 emerging markets in the textile and apparel industry, the conclusions may only apply to some emerging exporters of textile and apparel products. Therefore, future studies can conduct better comparative advantage and export performance analyses by including more emerging countries in the textile and apparel sectors.

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Further reading

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