GAFTA Membership and Sudan's Trade Performance: A Customs Administration Perspective

AKRAM Abd Eldaim Mohammed*[1] ,Entsar Adam[2], Rayoof Alnadeef[3], Nashwa Mohammed[4]

[1]College of Customs, Medical Sciences & Technological, Khartoum, Sudan
[2]College of Customs, Medical Sciences & Technological, Khartoum, Sudan
[3]College of Customs, Medical Sciences & Technological, Khartoum, Sudan
[4]College of Customs, Medical Sciences & Technological, Khartoum, Sudan

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Abstract

This study provides a quantitative evaluation of Sudan's trade performance within the Greater Arab Free Trade Area (GAFTA) over the decade 2012–2021, analyzed through a customs administration and trade facilitation lens. Utilizing official trade data from the Central Bank of Sudan, the analysis reveals a significant and persistent cumulative trade deficit of approximately $3.88 billion, despite an overall growth in trade volume. Our findings indicate an extreme concentration of trade with a few partners; a substantial surplus with the United Arab Emirates (driven primarily by commodity exports) is entirely offset by deep structural deficits with Saudi Arabia and Egypt. This asymmetry suggests that GAFTA's tariff liberalization may have induced trade diversion effects, benefiting Sudanese consumers with cheaper imports but failing to catalyze a competitive export response from Sudanese producers. The persistent imbalance points towards significant non-tariff barriers and underlying weaknesses in customs efficiency and trade facilitation, which are critical dimensions of customs science. The study concludes that realizing the benefits of GAFTA requires a policy shift from mere market access to actively addressing these structural and administrative impediments.

Keywords: Greater Arab Free Trade Area (GAFTA), Customs Efficiency, Trade Diversification, Trade Diversion, Sudan, Non-Tariff Barriers.

JEL Codes: F13 (Trade Policy; International Trade Organizations), F14 (Empirical Studies of Trade), F15 (Economic Integration), H20 (Taxation and Subsidies: General).

* AKRAM Abd Eldaim Mohammed

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1. Introduction

The establishment of the Greater Arab Free Trade Area (GAFTA) in 1997, with full implementation by 2005, was a landmark initiative aimed at fostering economic integration among Arab nations through the elimination of most tariffs on intra-regional trade (Abedini & Péridy, 2008). For a Least Developed Country (LDC) like Sudan, accession to GAFTA held the promise of expanded market access for its goods, potentially stimulating export-led growth, economic diversification, and institutional strengthening (Younes, 2010). However, the benefits of preferential trade agreements for LDCs are not automatic and are often mediated by domestic productive capacity, institutional quality, and the effectiveness of customs administration (Hoekman & Olarreaga, 2007).

This paper assesses the empirical reality of GAFTA's promise for Sudan over the critical ten-year period from 2012 to 2021. This timeframe is particularly relevant as it follows the full implementation of the agreement and encompasses significant domestic economic and political transformations within Sudan. The primary research objective is to move beyond a simple accounting of trade flows to rigorously evaluate the net economic impact of GAFTA on Sudan's trade balance and structure. Crucially, we analyze these outcomes from a customs science perspective, interpreting the trade data as indicators of underlying customs efficiency, the prevalence of non-tariff barriers (NTBs), and alignment with global standards like the WTO Trade Facilitation Agreement (TFA).

The central research question is: To what extent has Sudan's membership in GAFTA translated into a sustainable improvement in its trade performance, and what do the observed patterns reveal about the state of its customs administration and trade facilitation environment? We test the null hypothesis (H_0): Sudan's participation in GAFTA did not lead to a sustained improvement in its overall trade balance with member states. The findings bear significant implications for Sudan's trade policy and for the operational priorities of its customs authority.

2. Literature Review

Three streams of literature inform this study: the impact of FTAs on developing countries, the specific performance of GAFTA, and the role of customs science in trade outcomes.

The theoretical foundation for Free Trade Areas (FTAs) originates with Viner (1950), who introduced the concepts of 'trade creation' (a welfare-enhancing shift to sourcing imports from a more efficient partner within the FTA) and 'trade diversion' (a welfare-reducing shift from a more efficient global producer to a less efficient partner). For LDCs, the risk of trade diversion can be high if domestic industries are not competitive enough to leverage reciprocal market access, leading to a surge in imports without a corresponding export increase (Panagariya, 2000). Studies by Schiff and Winters (2003) confirm that the net benefit of South-South FTAs depends heavily on whether they are a "stepping stone" to global integration or a protectionist bloc.

Empirical assessments of GAFTA have yielded mixed results. Abedini and Péridy (2008) found evidence of positive, albeit modest, trade creation effects for the bloc as a whole using a gravity model. However, other research highlights GAFTA's limited success in fostering deep integration. For instance, Hoekman and Zarrouk (2009) noted that despite tariff removal, high trade costs, particularly those related to NTBs and inefficient logistics, continued to suppress intra-Arab trade. This aligns with the argument that tariff liberalization is a necessary but insufficient condition for boosting trade, especially where administrative and procedural barriers remain high (Wilson, Mann, & Otsuki, 2005).

From a customs science perspective, the efficiency of customs and border management is a primary determinant of trade costs and, therefore, trade flows (Djankov, Freund, & Pham, 2010). The WTO Trade Facilitation Agreement (TFA) codifies international best practices aimed at reducing these costs, covering areas such as transparency, procedural simplification, and risk

management (WTO, 2017). A persistent trade deficit in an FTA context, as explored in this paper, can be interpreted as a symptom of high transaction costs for exporters, often stemming from customs-related NTBs like complex documentation requirements, arbitrary valuation, and slow clearance times (Portugal-Perez & Wilson, 2012). While no specific study has quantitatively linked Sudan's GAFTA trade deficit to customs metrics, this paper fills a gap by using the macroeconomic trade data to infer these micro-level administrative challenges.

3. Methodology and Data

This study employs a quantitative framework to analyze Sudan's trade performance within GAFTA from 2012 to 2021.

3.1 Data Source and Scope

The analysis utilizes official annual trade data (exports and imports in US dollars) from the Central Bank of Sudan's statistical reports. This dataset provides consistent aggregate and bilateral trade flows between Sudan and its GAFTA partners.

Data Availability Statement: The aggregated data used in this study is publicly available through the annual reports of the Central Bank of Sudan. The disaggregated bilateral data is available from the corresponding author upon reasonable request.

3.2 Analytical Approach

The methodology comprises three stages:

1. **Descriptive and Time-Series Analysis:** We first conduct a descriptive analysis of aggregate trade volumes (exports, imports, total trade) and the trade balance. The Compound Annual Growth Rate (CAGR) for exports and imports is calculated to measure the velocity and direction of trade flows over the decade, using the formula: $\mathbf{CAGR}=[(\frac{\text{Ending Value}}{\text{Starting Value}})^{\mathbf{1}/\text{Number of Years}}]- 1$
2. **Trade Balance Decomposition and Concentration Analysis:** The aggregate trade balance is disaggregated by key partner countries (United Arab Emirates, Saudi Arabia, Egypt) to identify the primary sources of surpluses and deficits. To measure market dependency, we compute the Concentration Ratio (CR_n), specifically the CR_3, which represents the share of total exports/imports accounted for by the top three partners.
3. **Proposed Econometric Extension (Gravity Model):** While not executed due to data constraints, a more rigorous analysis would employ a gravity model of trade to isolate the specific impact of GAFTA. Such a model would take the form: $\ln(\text{Trade}_{ijt}) = \beta_0 + \beta_1\ln(\text{GDP}_i) + \beta_2\ln(\text{GDP}_j) + \beta_3\ln(\text{Distance}_{ij}) + \beta_4\text{GAFTA}_{ij} + \beta_5\text{NTB}_{ijt} + \varepsilon_{ijt}$
   Where Trade_{ijt} is the trade flow between Sudan (i) and partner (j) at time (t), GDP represents economic size, Distance is a proxy for transport costs, GAFTA is a dummy variable (1 if both are members), and NTB would be a proxy for non-tariff barriers (e.g., from the World Bank's Doing Business data on time to trade). This model would provide a more robust estimate of the "GAFTA effect."

3.3 Limitations

This study is constrained by the absence of publicly available sectoral data (e.g., by Harmonized System code). This prevents a granular assessment of which specific industries benefited or suffered. The analysis is confined to trade in goods and does not cover the increasingly important trade in services.

4. Results: A Story of Imbalance and Concentration

4.1 Aggregate Trade Dynamics: Growing Volumes, Worsening Deficits

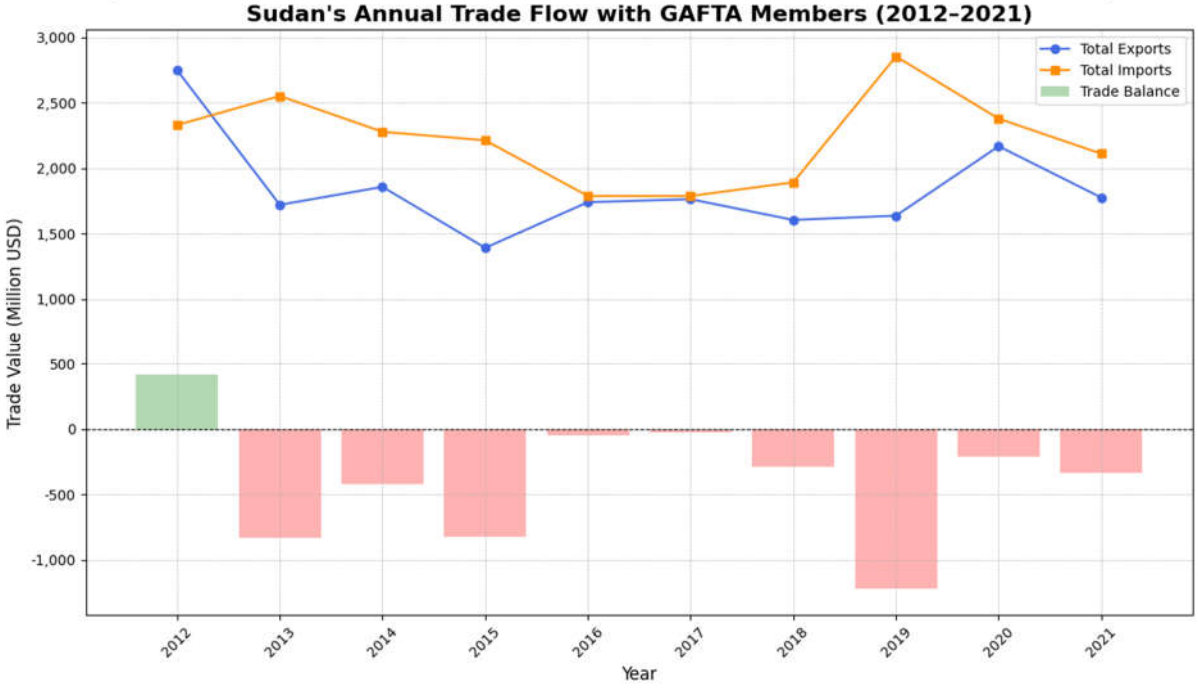
Over the decade, Sudan's total trade with GAFTA partners was substantial. However, the growth trajectories of exports and imports were starkly different, leading to a sustained negative trade balance.

Table 1: Sudan's Aggregate Trade with GAFTA (2012–2021, in Million USD)

Metric	Exports	Imports	Trade Balance
Total Volume (2012–2021)	18,302.0	22,178.9	-3,876.9
Compound Annual Growth (CAGR)	-4.01%	-1.02%	N/A
Starting Year (2012)	2,748.2	2,329.8	+418.4
Ending Year (2021)	1,774.9	2,110.1	-335.2
Worst Annual Trade Balance	–	–	-1,216.8 (in 2019)

The data reveals a clear deterioration in Sudan's trade position. A modest surplus of $418.4 million in 2012 quickly evaporated, giving way to a decade dominated by deficits, culminating in a cumulative deficit of nearly $3.9 billion. The negative CAGR for both exports and imports is concerning, but the fact that exports declined at nearly four times the rate of imports underscores a severe erosion of Sudan's export competitiveness within the bloc.

Figure 1: Sudan's Annual Trade Flow and Balance with GAFTA (2012-2021)



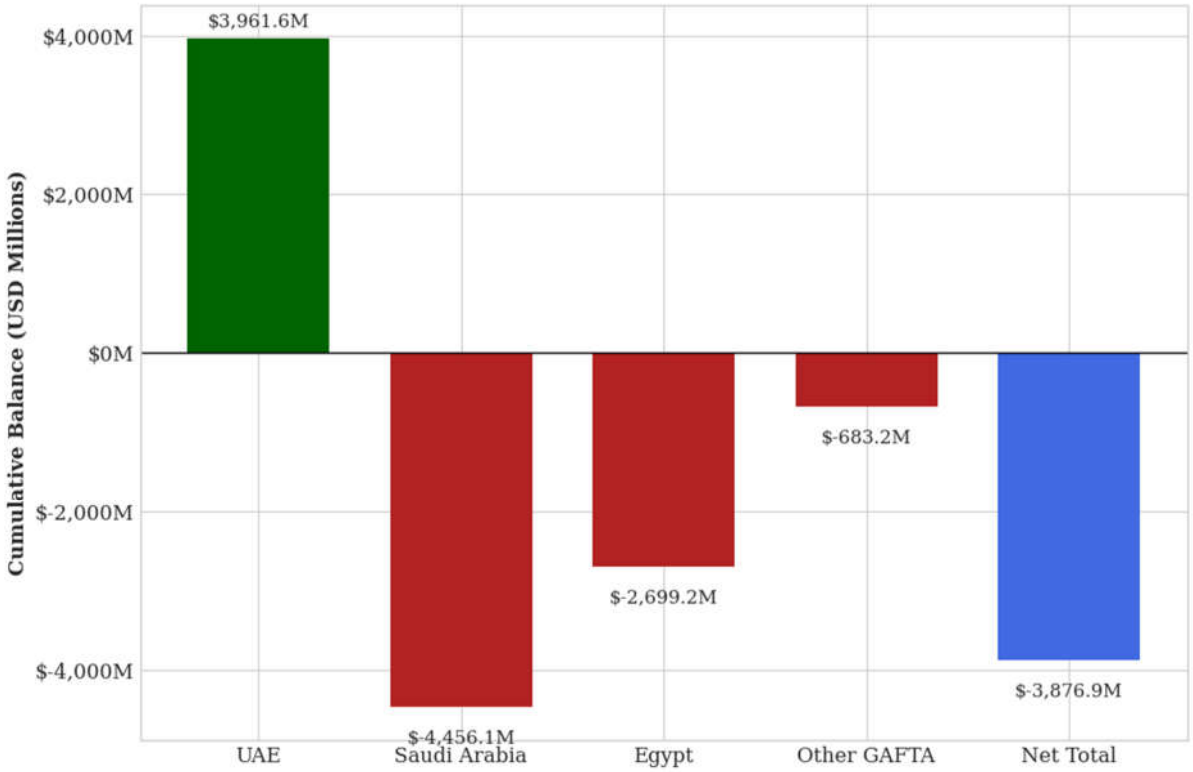
4.2 Asymmetric Trade Balances and Partner Concentration

The aggregate deficit masks a highly asymmetric reality. Sudan's trade relationship with GAFTA is overwhelmingly dictated by its interactions with just three countries: the UAE, Saudi Arabia, and Egypt.

Table 2: Cumulative Trade Balance with Key GAFTA Partners (2012–2021, in Million USD)

Country	Total Exports	Total Imports	Cumulative Balance
United Arab Emirates	11,284.2	7,322.6	+3,961.6
Saudi Arabia	2,752.4	7,208.5	-4,456.1
Egypt	3,204.2	5,903.4	-2,699.2
All Other GAFTA Partners	1,061.2	1,744.4	-683.2

Figure 2: Cumulative Trade Balance by Key GAFTA Partner (2012-2021)



This decomposition reveals the central dynamic of Sudan's GAFTA experience: a massive surplus with one partner, primarily driven by gold exports, is insufficient to cover the deep structural deficits incurred with its two other main partners.

4.3 Extreme Export Market Concentration

The reliance on the UAE as an export destination is extreme, posing a considerable risk to Sudan's economic stability. The CR_3 for both exports and imports remained consistently high throughout the decade.

Table 3: Export & Import Concentration Ratio (CR_3) for Sudan's Trade with GAFTA (UAE, KSA, Egypt)

Year	Export CR_3 (%)	Import CR_3 (%)
2012	94.3%	80.9%
2015	92.0%	87.5%
2018	90.1%	90.0%
2021	91.5%	93.3%

The data in Table (3) confirms that Sudan's trade with GAFTA partners is heavily concentrated

among just three countries—UAE, Saudi Arabia, and Egypt—throughout the 2012–2021 period. Export CR_3 values consistently exceed 90%, indicating extreme dependency on a narrow set of markets, with the UAE dominating export destinations. Similarly, import CR_3 values rise steadily, reaching 93.3% by 2021, underscoring a growing reliance on the same three partners for essential goods. This high concentration limits Sudan's trade resilience, magnifies exposure to partner-specific economic or policy shocks, and reinforces the structural imbalances identified in the overall trade balance analysis.

Sudan's export destiny within GAFTA is almost entirely tied to these three partners. The UAE alone consistently absorbed over 70% of Sudan's total exports to the bloc. This lack of diversification makes Sudan's export revenues highly vulnerable to economic shocks or policy changes in a single market.

5. Discussion

The empirical results presented in this study strongly support the rejection of the null hypothesis. Sudan's participation in GAFTA did not lead to a sustained improvement in its trade balance; on the contrary, the period under review coincided with a significant and structural deterioration. Interpreting these findings through the combined lenses of international trade theory and customs science provides a multi-layered explanation for this outcome.

First, from a trade theory perspective, the data presents a compelling case of **trade diversion dominating any potential trade creation**. The core purpose of an FTA is to foster trade creation, where domestic producers leverage reciprocal duty-free access to expand exports. However, the steep decline in Sudan's export growth rate suggests this did not occur. Instead, GAFTA's tariff liberalization appears to have primarily induced trade diversion. Sudanese consumers and industries benefited from cheaper imports from GAFTA partners, likely shifting their sourcing from more efficient global producers to regional ones. The direct evidence of this is the massive cumulative trade deficits incurred with Saudi Arabia (-4.46billion) and Egypt (- 2.7 billion). While this shift may have offered lower prices to importers, it failed to catalyze a competitive export response from Sudanese producers, resulting in a net negative impact on the national trade balance. The substantial surplus with the UAE, driven overwhelmingly by a single primary commodity (gold), serves to mask this fundamental weakness in Sudan's value-added manufacturing and agricultural sectors, which were unable to penetrate other GAFTA markets.

Second, and central to this paper's customs administration perspective, **the persistent trade deficit should be interpreted as a key performance indicator of high trade transaction costs faced by Sudanese exporters**. While tariffs—the most visible trade barrier—were eliminated, they were effectively replaced by a wall of non-tariff barriers (NTBs) that function as a de facto tax on exports. These NTBs are almost always rooted in customs and administrative inefficiencies, such as complex and non-transparent sanitary and phytosanitary (SPS) standards in partner markets, cumbersome documentation requirements, unpredictable product valuation, and significant delays in customs clearance. These administrative hurdles systematically erode the price advantage granted by tariff removal, making Sudanese products uncompetitive and directly contributing to the trade imbalance. The experience of Sudan starkly contrasts with that of more successful GAFTA members like Jordan, which made significant, documented investments in customs modernization and alignment with international standards (e.g., the WTO TFA), thereby facilitating smoother trade flows and mitigating such deficits (World Bank, 2019).

Third, the extreme export concentration reveals a **dual failure in strategic trade policy and proactive customs facilitation**. An effective customs administration, as envisioned by the WTO Trade Facilitation Agreement, does not merely process goods; it actively facilitates legitimate trade. The data suggests that Sudanese exporters have defaulted to the "path of least resistance"—exporting a single, low-complexity commodity to a single major hub (the UAE)—because the administrative and logistical hurdles of navigating the more complex markets of Egypt and Saudi Arabia are prohibitively high. This points to a failure of the customs authority to act as a proactive facilitator by providing clear, predictable, and timely information and procedures for exporters wishing to diversify. The concentration ratio is therefore symptomatic of a customs environment that contains, rather than enables, trade diversification.

In conclusion, the narrative of Sudan's trade within GAFTA is not one of simple market dynamics but of deep-seated structural and administrative failures. The trade deficit is not merely an accounting figure; it is a direct symptom of a trade facilitation environment that places Sudanese exporters at a significant disadvantage. The tariff-free market access promised by GAFTA proved to be an illusion, blocked by the real-world barriers of customs inefficiency and high transaction costs.

6. Policy Implications and Conclusion

The analysis points to the urgent need for a strategic recalibration of Sudan's trade policy, with a core focus on strengthening its customs administration and addressing NTBs.

6.1 Recommendations for Sudan's Customs Authority

1. **Establish a National Trade Facilitation Committee (NTFC) with a Problem-Solving Mandate:** In line with the WTO TFA, Sudan's customs should lead a revitalized NTFC. Its primary task should be to identify and resolve specific NTBs faced by exporters. This requires creating a formal mechanism for businesses to report barriers in GAFTA markets, with the committee empowered to engage in bilateral negotiations to resolve them.
2. **Develop a "Trusted Trader" Program for GAFTA Exporters:** Implement an Authorized Economic Operator (AEO) program, starting with exporters to GAFTA countries. This would grant pre-vetted, compliant businesses expedited clearance, reduced inspections, and other benefits, lowering their transaction costs and making their products more competitive.
3. **Invest in a Digital Single Window System:** A fully functional single window where traders can submit all required documentation electronically is critical. This would enhance transparency, reduce processing times, and provide valuable data for risk management and policy analysis, directly addressing many of the NTBs that currently hinder trade.

6.2 Recommendations for National Trade Policy

1. **Shift from General to Targeted Export Diversification:** Industrial policy must support specific value chains with potential in GAFTA markets beyond the UAE. For example, providing targeted support (finance, technology, customs guidance) to develop the processed leather goods sector for the Egyptian market or the packaged horticultural products sector for the Saudi market.

2. **Initiate Data-Driven Bilateral Deficit Reduction Talks:** The structural deficits with Saudi Arabia and Egypt must be addressed at a diplomatic level, but guided by customs data. Negotiations should focus on securing mutual recognition of standards, simplifying certification processes, and streamlining customs procedures for specific Sudanese products.

In conclusion, this study demonstrates that for Sudan, membership in GAFTA has been a double-edged sword. While it facilitated access to imports, it simultaneously exposed profound weaknesses in the country's productive capacity and, critically, its trade facilitation and customs environment. The persistent trade deficit should not be viewed as a mere accounting figure but as a key performance indicator of the challenges within Sudan's customs administration. Moving forward, a successful GAFTA strategy for Sudan depends less on the existence of the agreement and more on the domestic capacity to navigate its complexities. This requires transforming the role of customs from a gatekeeper to a proactive facilitator of legitimate trade.

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