

Rwanda under AfCFTA: A Product-Level Diagnostic of Import Dependence, Regional Sourcing Opportunities, and Strategic Diversification

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Abstract

Purpose: This study identifies where Rwanda can most realistically deepen continental sourcing under the African Continental Free Trade Area (AfCFTA) without reducing regional integration to a simplistic import-substitution agenda. It asks which import chapters combine high national demand, meaningful African supply capacity, and low current African sourcing, and how such gaps should be interpreted for policy. **Design:** The article adopts an integrative secondary-data design combining an ITC Trade Map extract at HS2 chapter level, WTO Tariff and Trade Data, Rwanda's Industrial Policy 2024–2034, World Bank diagnostics, and the IMF's latest Rwanda surveillance. Because the Trade Map file reports complete Rwanda-from-Africa values for 2022 but incomplete bilateral fields for 2023–2024, the analysis uses 2022 as the last complete benchmark for African sourcing shares and overlays it on latest 2024 import exposure and Africa-wide export capacity. A Continental Sourcing Opportunity Index (CSOI) is constructed from normalized Rwanda import demand, continental export capacity, and the Africa-sourcing gap, and then interpreted through a materiality screen. **Findings:** The strongest near-term continental sourcing opportunities are electrical machinery (HS85), vehicles (HS87), mechanical machinery (HS84), plastics (HS39), iron and steel (HS72), pharmaceuticals (HS30), medical and precision instruments (HS90), and miscellaneous chemicals (HS38). Food-related chapters require greater differentiation: cereals and sugar already have notable African sourcing shares, whereas milling products present a sharper gap better addressed through domestic processing combined with regional linkages. Mineral fuels (HS27) rank high statistically but are better treated as a resilient-diversification case than a straightforward substitution case. **Originality/value:** The study contributes a transparent and replicable framework for distinguishing descriptive import dependence from policy-controllable vulnerability and shows how AfCFTA can function as a targeted platform for strategic sourcing, supplier diversification, and regional value-chain deepening in Rwanda.

Keywords: African Continental Free Trade Area (AfCFTA); Rwanda; intra-African trade; strategic sourcing; import dependence; regional value chains; trade diversification; supply chain resilience; industrial policy; Continental Sourcing Opportunity Index (CSOI); trade policy; African sourcing

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1. Introduction

1.1 Background Context: Rwanda's development model depends heavily on imported goods. As a small, landlocked economy, it imports fuel, machinery, pharmaceuticals, food products, and industrial inputs that domestic production does not yet supply at scale. According to the WTO Tariff & Trade Data profile, Rwanda imported US\$3.604 billion of merchandise in 2023. China supplied 20.9 percent of those imports, followed by the European Union (10.8 percent), India (9.7 percent), Tanzania (9.5 percent), the United Arab Emirates (7.3 percent), Kenya (6.2 percent), and Uganda (4.6 percent) (World Trade Organization [WTO], 2026).

At the product level, the same WTO profile shows a basket dominated by petroleum oils, rice, palm oil, sugar, medicaments, wheat, maize, smartphones, and iron and steel structures. This import profile is not in itself abnormal for a low-resource economy, but it creates exposure when essential goods are concentrated in distant suppliers or long corridors. The IMF's latest Rwanda Article IV consultation notes that the current account deficit remained elevated in 2024, reflecting strong food, consumer, and capital-goods imports and constrained policy buffers (International Monetary Fund [IMF], 2025).

AfCFTA changes the strategic context in which this dependence should be understood. The agreement's gains are expected to come not only from tariff preferences but also from lower non-tariff barriers, improved trade facilitation, and denser regional production networks (de Melo & Solleder, 2025; Nitsche et al., 2024; World Bank, 2022). This regionalization logic is not only about redirecting trade flows; it also concerns the reorientation of value chains toward greater African value addition, firm upgrading, and better use of enabling platforms such as special economic zones and emerging technologies (Murungu et al., 2025). For Rwanda, this is more than a diplomatic agenda. MINICOM's Industrial Policy 2024–2034 seeks to accelerate structural transformation through competitive, export-oriented industries and identifies agro-processing, pharmaceuticals, automotive, steel, infrastructure, standards, skills, and finance as central policy domains (Ministry of Trade and Industry [MINICOM], 2024).

Accordingly, the policy question is no longer whether Rwanda should remain open. It must. The relevant question is how openness can be governed so that critical import demand is met through the most resilient and development-enhancing mix of domestic production, African sourcing, and global diversification. That requires a product-level diagnostic rather than a generalized debate about protection versus liberalization.

1.2 Problem Statement: Using the ITC Trade Map extract

produced for this study, Africa supplied US\$859.6 million of Rwanda's US\$3367.604 billion imports in 2022, or 25.5 percent. The same file shows that several chapters with large or strategically important import bills remained weakly sourced from Africa at the last complete bilateral benchmark. In 2022, Africa accounted for only 4.1 percent of Rwanda's imports of mechanical machinery (HS84), 10.8 percent of electrical machinery (HS85), 4.9 percent of vehicles (HS87), 11.7 percent of pharmaceuticals (HS30), 2.7 percent of medical and precision instruments (HS90), and 11.0 percent of miscellaneous chemicals (HS38) (International Trade Centre [ITC], 2026).

The analytical problem is that debates about trade adjustment in Africa are often framed too coarsely. One position treats import substitution as inherently distortionary; another treats greater domestic or regional sourcing as intrinsically emancipatory. Neither is sufficiently discriminating. The right policy test is sectoral and empirical: Where does Rwanda have strong demand, where does Africa already have meaningful supply capacity, and where do logistics, standards, finance, or procurement rules prevent the two from connecting? Existing AfCFTA discussions rarely answer that question at chapter level for a specific country.

This study therefore reframes the issue as one of governable interdependence. Some dependencies are ordinary and efficient. Others are strategically fragile yet still tractable through regional integration or domestic upgrading. The task of policy is to separate those two conditions with evidence.

1.3 Research Objectives: The general objective of the study is to identify and prioritize Rwanda's most policy-relevant import chapters for deeper continental sourcing under AfCFTA while distinguishing them from sectors that instead require domestic capability-building or broader supplier diversification. The Study had specifically the following objectives: [1]. To identify the product chapters that exhibit the greatest continental sourcing opportunity, defined as the combination of high Rwanda import exposure, meaningful Africa-wide export capacity, and a low current African sourcing share. [2]. To assess which chapters are most urgent in the latest 2024 snapshot, given Rwanda's continuing exposure and the last complete bilateral benchmark from 2022. [3]. To derive a policy framework that differentiates between continental substitution, domestic deepening, and resilient diversification.

1.4 Research Questions: To achieve these objectives, the article addresses the following research questions: **RQ1.** Which product chapters currently offer the largest immediate opportunity for deeper African sourcing when Rwanda's import demand, current Africa-sourcing share, and Africa's export capacity are considered together?

RQ2. Which product chapters are most urgent in the latest 2024 snapshot because Rwanda's import exposure remains high, or has increased, while the baseline African sourcing share remains low? **RQ3.** What near-term policy instruments can convert these sourcing opportunities into actual trade outcomes under AfCFTA?

1.5 Contribution of the Study: This article contributes in three ways. First, it advances a conceptual distinction between descriptive import dependence and policy-controllable vulnerability. Second, it introduces a transparent chapter-level diagnostic, the Continental Sourcing Opportunity Index (CSOI), that can be replicated with publicly available trade data. Third, it integrates the diagnostic with Rwanda's industrial policy agenda, thereby producing not only a ranking of vulnerable chapters but also a more useful interpretation of which sectors should be treated as cases of regional substitution, domestic deepening, or resilient diversification.

The contribution is therefore both analytical and practical. Rather than treating AfCFTA as a general slogan or as a blanket cure, the article shows where regional integration is most likely to matter for Rwanda's import structure and where other instruments remain more appropriate.

2. Theoretical and Conceptual Framework

2.1 Global Value Chains and Regional Integration

Theory: Global value chain (GVC) theory is useful because it clarifies why a small economy should not aim to internalize entire production chains. Development often proceeds by participating in viable stages of production and procurement rather than by replicating every stage domestically. In the African context, de Melo and Solleder (2025) show that regional value-chain participation remains weak but is responsive to policy variables such as openness and foreign direct investment. For Rwanda, this means that the practical question is not whether to import, but how to connect import demand to African production networks where such networks already exist or can credibly be expanded. In the AfCFTA context, this logic extends beyond participation alone to the deliberate reorientation of value chains through mechanisms such as SEZs and emerging technologies that can strengthen value-added trade and support firm upgrading (Murungu et al., 2025).

At the same time, GVC approaches are incomplete when they assume that capacity automatically becomes trade. Nitsche et al. (2024) demonstrate that logistics costs, governance fragmentation, digital weaknesses, and corridor unreliability remain major constraints on AfCFTA implementation. A country may therefore face a large gap between Africa's observed export capability and Rwanda's realized African sourcing. That gap is precisely the terrain on which policy operates.

2.2 Resource Dependence and Strategic Autonomy

Theory: Resource dependence theory emphasizes that organizations and states become vulnerable when critical inputs are controlled externally and alternatives are limited (Pfeffer & Salancik, 1978). Applied to trade, the issue is not import dependence in the abstract. It is dependence on inputs that are essential, weakly substitutable, or routed through fragile supplier and transport configurations. Small economies can live with dependence; they cannot comfortably live with concentrated fragility.

Recent macroeconomic assessments of Rwanda point to exactly this concern. The IMF's 2025 surveillance highlights sustained pressure from imports of food, consumer goods, and capital goods, together with the need to rebuild buffers and manage external imbalances (IMF, 2025). The WTO's discussion of re-globalization similarly implies that resilience depends on the ability to diversify and adapt rather than on a simplistic return to autarky (WTO, 2023). This perspective supports a trade strategy based on diversified openness rather than either blanket liberalism or blanket substitution.

2.3 Diversification/Complexity Theory

Theory: Diversification and economic complexity theory provide a third lens. Hidalgo and Hausmann (2009) argue that growth depends on the accumulation of capabilities embodied in increasingly varied and sophisticated products. Import structures matter in that process because imports can either deepen learning and production capabilities or lock firms into thin commercial relationships with weak spillovers. Regional sourcing is valuable, in this view, when it helps build denser supplier networks, more reliable industrial ecosystems, and more opportunities for productive learning.

This lens also guards against a common mistake. Not every import should be localized or even regionalized. Some goods are so capital-intensive, specification-sensitive, or scale-dependent that premature substitution would raise costs and reduce competitiveness. Complexity theory therefore reinforces a selective rather than ideological approach: substitute where capability and coordination are plausible; diversify where the good remains strategically essential but localization is unrealistic.

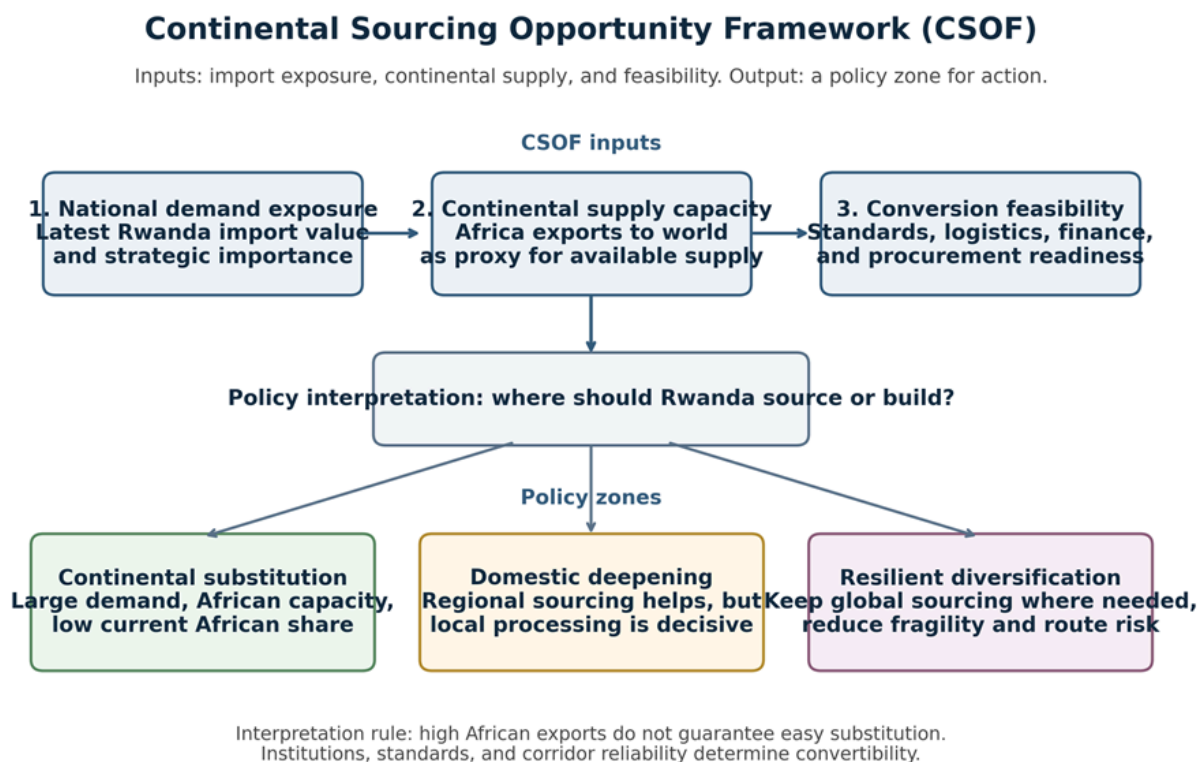
2.4 Integrated Conceptual Model

Theory: Drawing on these literatures, this article proposes the Continental Sourcing Opportunity Framework (CSOF). The framework links three constructs: national demand exposure, continental supply capacity, and conversion feasibility. National demand exposure captures the scale and strategic importance of Rwanda's import needs. Continental supply capacity captures whether Africa is already exporting the chapter at meaningful scale. Conversion feasibility captures the institutional work required to turn continental capacity into actual procurement, including standards

recognition, transport reliability, trade finance, supplier discovery, and quality assurance. Figure 1 summarizes the

framework.

Figure 1. Continental Sourcing Opportunity Framework (CSOF)



Note. The framework distinguishes between raw statistical opportunity and policy-convertible opportunity. A large continental export base is necessary but not sufficient for deeper African sourcing.

The framework yields three policy zones. In the continental substitution zone, Rwanda's demand is large, Africa's supply is meaningful, and the African sourcing share is low; the challenge is mainly coordination. In the domestic deepening zone, regional sourcing can help, but the larger developmental gain comes from local processing, storage, and productivity. In the resilient diversification zone, Rwanda should continue to source globally where necessary, but reduce fragility through multiple suppliers, routes, and strategic reserves. The framework therefore replaces a false binary with a more operational typology.

3. Methodology

3.1 Research Design: The study adopts an integrative secondary-data design. It is diagnostic rather than causal. The objective is not to estimate the effect of AfCFTA on Rwanda's trade flows, but to identify where continental sourcing opportunities and vulnerabilities are most policy-relevant under current conditions. The design combines quantitative trade ranking with qualitative policy interpretation, which is appropriate because chapter-level trade data reveal exposure and capacity but

do not by themselves explain whether the gap between them is logistical, regulatory, financial, or strategic.

3.2 Data Sources: The analysis integrates four source groups. First, the core trade file is an ITC Trade Map extract titled "Bilateral trade between Rwanda and Africa," reported at HS2 chapter level in US\$ thousand. Its metadata identify ITC calculations based on COMESA statistics since January 2022 and UN Comtrade for earlier periods. The file reports Rwanda's imports from Africa, Africa's exports to the world, and Rwanda's imports from world for 2022–2024. Second, WTO Tariff & Trade Data are used for Rwanda's aggregate imports, main suppliers, applied tariffs, and leading HS6 import lines. Third, Rwanda-specific policy and development diagnostics are drawn from MINICOM's Industrial Policy 2024–2034 and the World Bank's AfCFTA and Rwanda Country Economic Memorandum reports. Fourth, the IMF's latest Rwanda Article IV consultation and PCI review are used for macroeconomic context and external-balance assessment.

Two data features shape the methodology. The Rwanda-from-Africa columns are complete for 2022 but blank for 2023–2024, making 2022 the last complete

bilateral benchmark. In addition, the source file indicates a mixture of direct and mirror data, and the recent-year world totals in the extract do not match WTO aggregate national totals. For that reason, the ITC file is used here as a robust relative diagnostic for chapter-level opportunity and not as a substitute for Rwanda's official annual trade totals.

3.3 Analytical Strategy: The empirical strategy has four stages. First, the ITC extract is cleaned and standardized at HS2 chapter level. Second, the 2022 African sourcing share is calculated for each chapter as the ratio of Rwanda's imports from Africa to Rwanda's imports from the world. Third, a raw Continental Sourcing Opportunity Index (CSOI) is computed by combining normalized Rwanda import exposure, normalized Africa export capacity, and the Africa-sourcing gap. Fourth, the raw ranking is interpreted through a materiality screen so that small, non-strategic chapters do not crowd out sectors that actually matter for Rwanda's development strategy.

$$\text{Raw CSOI}_i = (\hat{D}_i \times \hat{C}_i \times G_i)^{1/3}$$

In this expression, $\hat{D}$ represents Rwanda's latest 2024 import value normalized by the chapter maximum, $\hat{C}$ represents Africa's latest 2024 export value normalized by the chapter maximum, and G is the Africa-sourcing gap defined as one minus the 2022 African sourcing share. The geometric mean is preferred because it prevents one very large component from overwhelming the other two.

The interpretation layer applies a simple materiality rule. A chapter enters the policy shortlist if it either records at least US\$40 million in Rwanda's latest 2024 import value in the extract, or is strategically salient for food security, health security, energy, or industrial inputs. This step is important because a purely mechanical index can elevate chapters that are very large at continental scale but only marginal in Rwanda's actual import profile.

Urgency in RQ2 is handled conservatively. Because the 2023–2024 Rwanda-from-Africa fields are missing and the recent-year world totals are partly mirror-based, the 2022–2024 difference is treated as indicative rather than definitive. A chapter is therefore interpreted as urgent when it combines a low 2022 African sourcing share with either a higher latest 2024 import value or a persistently large latest 2024 exposure.

3.4 Variable Construction and Operationalization: Three variables anchor the diagnostic. Rwanda import exposure is proxied by the latest 2024 value of Rwanda's imports from the world in each HS2 chapter. Continental supply capacity is proxied by Africa's latest 2024 exports to the world in the same chapter. The Africa-sourcing gap is computed from 2022 because that is the last complete bilateral year in the source file. All monetary values in the

text are converted from the original US\$ thousand units into US\$ million or US\$ billion for readability.

These proxies are intentionally simple. Africa's exports to the world do not prove immediate availability to Rwanda, and Rwanda's import exposure does not measure welfare loss. But together they offer a disciplined basis for ranking where policy attention is most warranted. The framework is therefore best understood as an opportunity diagnostic, not a full general-equilibrium model of trade adjustment.

3.5 Validity, Reliability, and Limitations: The main validity strength of the design is triangulation. WTO data are used for clean aggregate context, ITC Trade Map for chapter-level structure, and IMF, World Bank, and MINICOM documents for macroeconomic and policy interpretation. The argument does not depend on a single statistic or a single database. It depends on the convergence of multiple credible sources around the same structural diagnosis: Rwanda's imports are large, strategically important, and only modestly regionalized in several high-impact chapters.

The design also has clear limits. First, the ITC extract combines direct and mirror data and leaves 2023–2024 bilateral Africa cells blank. Second, HS2 chapters are broad, so the feasibility of substitution can differ substantially within a single chapter. Third, the framework does not capture informal trade, which matters especially for regional food flows. Fourth, Africa's exports to the world may include re-exports or product segments that are not immediately relevant to Rwanda's procurement needs. These limitations do not invalidate the ranking, but they do require cautious interpretation.

3.6 Transparency and Reproducibility: The method is intentionally transparent. Every component of the CSOI can be reproduced directly from the source extract, and Appendix Table A1 reports the raw index values for the policy shortlist. The shortlist itself is based on an explicit materiality rule rather than discretionary weighting. This transparency is important because the purpose of the study is practical prioritization, not black-box forecasting.

4. Findings and Discussion

4.1 Findings for Research Question 1: The raw CSOI ranking confirms that Rwanda's most policy-relevant vulnerabilities are concentrated in capital goods, transport equipment, industrial inputs, and selected health-related chapters. Among materially significant chapters, electrical machinery (HS85), vehicles (HS87), mechanical machinery (HS84), plastics (HS39), iron and steel (HS72), pharmaceuticals (HS30), medical and precision instruments (HS90), and miscellaneous chemicals (HS38) stand out. Table 1 reports the interpreted policy shortlist,

while Appendix Table A1 presents the raw index values.

Electrical machinery is the clearest near-term continental substitution case. Rwanda's latest 2024 import value in the extract is US\$296.8 million, while Africa supplied only US\$27.8 million of Rwanda's 2022 imports in that chapter, or 10.8 percent. Vehicles show an even thinner African share: Rwanda's latest 2024 imports are US\$227.5 million, but Africa supplied only 4.9 percent of Rwanda's 2022 vehicle imports. Mechanical machinery follows the same pattern, with a latest 2024 import value of US\$179.6 million and a 2022 African sourcing share of just 4.1 percent. These are precisely the kinds of chapters in which Rwanda's import bill is large enough to matter, Africa's export base is already non-trivial, and the principal barriers are likely to be conversion frictions rather than the absolute absence of continental production (ITC, 2026).

Health-related and industrial-input chapters also reveal substantial gaps. Pharmaceuticals (HS30) show a latest 2024 import value of US\$84.2 million and a 2022 African sourcing share of 11.7 percent; medical and precision instruments (HS90) record US\$63.1 million with a 2.7 percent African share; miscellaneous chemicals (HS38) record US\$48.2 million with an 11.0 percent African share. Plastics (HS39) are particularly notable because Rwanda's latest 2024 import value remains sizable at US\$72.1 million, Africa exported US\$6.56 billion of the chapter in 2024, yet Rwanda sourced only 25.9 percent of its 2022 plastics imports from Africa.

Food-related chapters require a more discriminating reading. Cereals (HS10) and sugar and confectionery (HS17) remain large import items in the latest 2024

snapshot at US\$72.9 million and US\$78.2 million, respectively. Yet their baseline African shares in 2022 were already 47.3 percent and 66.9 percent. That means the core issue is not simply finding African suppliers; it is improving domestic storage, processing, and farm-to-market competitiveness while retaining regional flexibility. Milling products (HS11), by contrast, appear as a sharper gap: Rwanda's latest 2024 import value is US\$48.2 million, but Africa accounted for only 1.4 percent of Rwanda's 2022 imports in that chapter. That makes milling a stronger case for domestic deepening combined with regional raw-material and input linkages.

The extract also shows why a disciplined framework matters. Some chapters are large but are not immediate sourcing gaps because Africa already dominates Rwanda's procurement. In 2022 Africa supplied 95.5 percent of Rwanda's imports of salt, sulphur, earths, stone, lime, and cement (HS25), 64.6 percent of beverages and vinegar (HS22), and 74.5 percent of fish and crustaceans (HS03). These chapters may still warrant industrial or food-security policy, but they are not the first place to look for additional continental-sourcing gains. Mineral fuels (HS27) deserve separate treatment. On the raw index they rank first by a wide margin because Rwanda's 2022 African sourcing share was only 5.9 percent while Africa's latest 2024 exports in the chapter were extremely large. Yet this is not a straightforward substitution case. Fuel trade is mediated by refinery configuration, product specifications, storage capacity, corridor reliability, and strategic stock management. The chapter therefore points less to simple African replacement of non-African suppliers than to a resilient-diversification strategy with stronger regional contracting, storage, and corridor governance.

Table 1. Policy interpretation of the continental sourcing diagnostic

HS2	Chapter	Rwanda imports (latest 2024, US\$m)	Africa share of Rwanda imports (2022, %)	Africa exports (latest 2024, US\$b)	Interpreted priority
Regional substitution zone					
85	Electrical machinery	296.8	10.8	19.73	Continental substitution
87	Vehicles	227.5	4.9	22.94	Continental substitution
84	Mechanical machinery	179.6	4.1	9.22	Continental substitution
39	Plastics	72.1	25.9	6.56	Continental substitution
72	Iron and steel	44.4	36.1	11.35	Continental substitution
30	Pharmaceuticals	84.2	11.7	1.64	Continental substitution with partnership
90	Medical and precision instruments	63.1	2.7	1.92	Continental substitution with regulatory coordination

38	Miscellaneous chemicals	48.2	11.0	1.94	Continental substitution
Domestic deepening zone					
11	Milling products	48.2	1.4	1.28	Domestic deepening
10	Cereals	72.9	47.3	1.84	Domestic deepening
17	Sugar and confectionery	78.2	66.9	3.03	Domestic deepening
15	Animal and vegetable oils and fats	28.4	27.1	4.42	Domestic deepening
Resilient diversification zone					
27	Mineral fuels	115.5	5.9	218.10	Resilient diversification

Note. Values are converted from the ITC Trade Map extract, which reports US\$ thousand. “Latest 2024” indicates the latest 2024 value available in the extract rather than an official national annual total. The 2022 Africa share is used because it is the last complete bilateral benchmark in the source file. “Africa exports” proxies continental supply capacity, not guaranteed direct availability to Rwanda.

4.2 Findings for Research Question 2: The latest-snapshot question must be answered cautiously. The Trade Map file does not provide complete Rwanda-from-Africa values for 2023 or 2024, and the recent-year world values rely partly on mirror data. The most defensible interpretation, therefore, is not a literal annual growth ranking but a strategic urgency ranking based on persistence or increase in latest 2024 exposure alongside very low baseline African sourcing.

Under that conservative reading, two chapters have clearly become more urgent. Electrical machinery (HS85) rose from US\$257.8 million in 2022 to US\$296.8 million in the latest 2024 value, while vehicles (HS87) rose from US\$179.4 million to US\$227.5 million. Both chapters started from very low African shares, 10.8 percent and 4.9 percent respectively. If Rwanda does not deepen regional options in these sectors, the country’s exposure to extra-continental suppliers will widen further.

Other chapters remain urgent even where the latest 2024 value is below 2022. Mechanical machinery (HS84), pharmaceuticals (HS30), medical and precision instruments (HS90), and milling products (HS11) all retain substantial import exposure while showing baseline African shares below 12 percent, and in three cases below 5 percent. Their policy urgency is structural rather than cyclical: Rwanda still needs these goods, Africa has at least some export presence, and the baseline sourcing pattern was weakly continental.

Fuel imports again illustrate why urgency cannot be read mechanically from the latest snapshot. Even though the extract’s 2024 value for HS27 is lower than the 2022 value, fuels remain macro-critical because they condition transport, manufacturing, and food prices across the

economy. A chapter can therefore be strategically urgent even when the latest observed import value is temporarily lower.

4.3 Findings for Research Question 3: Applying the CSOF yields three distinct policy zones:

Continental substitution zone. Electrical machinery (HS85), vehicles (HS87), mechanical machinery (HS84), plastics (HS39), iron and steel (HS72), pharmaceuticals (HS30), medical and precision instruments (HS90), and miscellaneous chemicals (HS38) are the clearest cases in which Rwanda’s import demand is substantial, Africa’s export base is non-trivial, and the main bottlenecks are institutional. The immediate instruments here are supplier discovery, standards recognition, faster border procedures, predictable corridor performance, regional trade finance, and procurement rules that make African bidders genuinely contestable in public and quasi-public purchasing.

Domestic deepening zone. Milling products (HS11), cereals (HS10), sugar and confectionery (HS17), and animal and vegetable oils and fats (HS15) require a dual strategy. Rwanda already sources a significant share of some of these chapters from Africa, so the missing margin is not simply continental substitution. It is the strengthening of storage, local processing, packaging, quality control, and seasonal smoothing. In these sectors, smart policy means market recapture through productivity, not blanket protection. Regional sourcing of raw materials may still be needed, but the developmental gains depend on domestic processing depth.

Resilient diversification zone. Mineral fuels (HS27) and the most specialized segments of health procurement belong in a third category. Here Rwanda should expand

African options where feasible, but policy should prioritize diversified contracts, multiple corridors, strategic stocks, and risk management rather than assume that continental capacity alone can replace global supply. In other words, the strategic objective is not localization for its own sake but reduced fragility.

This interpretation aligns well with Rwanda's Industrial Policy 2024–2034. The policy's priority subsectors include pharmaceuticals, automotive, steel, and agro-processing, while its diagnostic stresses infrastructure, standards, finance, skills, and technology constraints. The trade diagnostic therefore complements rather than competes with national industrial policy: it identifies where AfCFTA can help unlock the demand side of those priorities (MINICOM, 2024).

4.4 Theoretical Implications: The findings support a synthesis rather than a choice between GVC theory and resilience theory. GVC logic explains why Rwanda will continue to import large volumes of capital and intermediate goods. Resilience logic explains why the geography and concentration of those imports matter. Product-level evidence shows that regionalization can be a form of strategically governed openness rather than a retreat from markets.

The results also expose a missing variable in much AfCFTA commentary: conversion feasibility. Africa may export a chapter at meaningful scale, yet Rwanda may still source little from the continent because supplier information, testing protocols, transit reliability, payment terms, or procurement rules prevent matching. A chapter-level gap is therefore not always a production problem; it is often a coordination problem.

Finally, the paper refines the idea of import dependence. Dependence becomes policy-relevant vulnerability when three conditions coincide: the import is economically important, the current sourcing pattern is thinly diversified or weakly regional, and credible regional or domestic alternatives exist but are not being activated. That distinction is what the CSOF is designed to make operational.

4.5 Policy Implications: First, Rwanda should treat machinery, vehicles, plastics, steel, health goods, and selected chemicals as an AfCFTA procurement agenda rather than only a tariff agenda. Regional sourcing in these chapters will require supplier mapping, certification cooperation, border reliability, and trade finance, not simply a lower nominal tariff.

Second, food-related chapters should be governed through a market-recapture lens. Milling, sugar, oils, and cereals are better improved through processing capability,

storage, and logistics than through indiscriminate import compression. The relevant benchmark is not whether imports fall, but whether Rwanda captures more local value added while preserving food security and price stability.

Third, fuels and other system-critical chapters require resilience instruments such as stockholding, diversified contracting, and corridor management. For these goods, the policy aim is robust access under shock conditions rather than symbolic localization.

Fourth, the diagnostic suggests that monitoring should become chapter-specific. A credible AfCFTA strategy should track whether high-priority chapters are becoming more regionally connected, more diversified, and less operationally fragile. Aggregate trade ratios alone are too blunt to guide implementation.

5. Conclusion and Recommendations

5.1 Conclusion: This article has argued that Rwanda's import challenge should not be framed as a choice between free trade and import substitution. A more useful framing is governable interdependence: maintaining openness while deliberately reducing unnecessary vulnerability in strategically important chapters. Using a transparent product-level diagnostic built on ITC Trade Map data and interpreted alongside WTO, IMF, World Bank, and MINICOM sources, the study shows that Rwanda's most important near-term continental sourcing opportunities lie in electrical machinery, vehicles, mechanical machinery, plastics, selected chemicals, pharmaceuticals, and medical equipment.

The evidence also shows that not every large import chapter should be treated the same way. Food-related chapters such as cereals and sugar are better read through a domestic deepening lens, while fuels are better read through a resilient diversification lens. That differentiation matters because policy errors often arise when governments apply the same instrument to sectors that face fundamentally different constraints.

AfCFTA can therefore be most useful to Rwanda not as a generic liberalization project, but as a targeted platform for re-routing strategic procurement toward African suppliers where the evidence supports it. The practical contribution of the article is precisely to identify those sectors and to indicate the policy logic that fits each one.

5.2 Recommendations: For the Government of Rwanda, the first priority is to build a chapter-specific AfCFTA sourcing program around electrical machinery, vehicles, mechanical machinery, plastics, steel, pharmaceuticals, medical equipment, and selected chemicals. This program should combine supplier mapping, standards recognition,

targeted business missions, and procurement rules that allow qualified African firms to compete for state and large-project demand.

A second priority is to deepen domestic processing in food-related chapters where the continent already has a foothold but Rwanda captures too little local value, especially milling products, oils, cereals, and sugar. The appropriate instruments are storage, aggregation, working-capital finance, quality assurance, and calibrated industrial incentives rather than blanket border closure.

A third priority is to treat fuels and critical health procurement as resilience portfolios. Rwanda should diversify suppliers and routes, strengthen strategic reserves, and negotiate contracts that reduce exposure to corridor disruption and sudden price shocks.

For regional institutions, the most useful intervention is not generic AfCFTA advocacy but targeted implementation. EAC, COMESA, and AfCFTA bodies should focus on corridor performance, digital customs, mutual recognition of standards, supplier verification, and regional trade finance in the specific chapters identified here.

For firms and business associations, the practical task is to translate continental opportunity into bankable commercial relationships. Importers need structured supplier search, due diligence, and, where feasible, joint procurement models. Industry associations can surface the non-tariff bottlenecks that are invisible in customs data

but decisive in actual sourcing decisions.

Finally, Rwanda should institutionalize a light but disciplined monitoring dashboard based on the CSOF. The point is not to chase self-sufficiency targets, but to track whether high-priority chapters are becoming more diversified, more regionally connected, and less vulnerable to external shocks.

5.3 Study Limitations and Future Research: The study has several limitations. The core trade extract mixes direct and mirror data, the bilateral Africa fields are incomplete after 2022, and HS2 chapters are broader than many actual sourcing decisions. Informal trade is also not captured, which is especially relevant in regional food markets. These constraints mean that the diagnostic should be read as a prioritization tool, not as a complete model of welfare effects or supply-chain feasibility.

Future research should move to HS4 and HS6 product lines, incorporate unit values and supplier concentration, and complement customs data with firm-level interviews or procurement records. A second next step would be to estimate the cost implications of deeper African sourcing in the shortlisted chapters. A third would be to compare Rwanda with other small African economies so that AfCFTA implementation can be tailored using comparable diagnostics rather than continent-wide generalities.

Appendix

Table A1. Raw CSOI values for the policy shortlist

HS2	Chapter	Raw CSOI	Rwanda imports 2022 (US\$m)	Rwanda imports latest 2024 (US\$m)	Africa share 2022 (%)	Africa exports latest 2024 (US\$bn)
27	Mineral fuels	0.715	576.7	115.5	5.9	218.10
85	Electrical machinery	0.432	257.8	296.8	10.8	19.73
87	Vehicles	0.425	179.4	227.5	4.9	22.94
84	Mechanical machinery	0.291	230.9	179.6	4.1	9.22
39	Plastics	0.176	115.3	72.1	25.9	6.56
72	Iron and steel	0.171	142.2	44.4	36.1	11.35
30	Pharmaceuticals	0.124	104.2	84.2	11.7	1.64
90	Medical and precision instruments	0.122	79.1	63.1	2.7	1.92
15	Animal and vegetable oils and fats	0.112	122.8	28.4	27.1	4.42
38	Miscellaneous chemicals	0.109	70.3	48.2	11.0	1.94
17	Sugar and confectionery	0.107	83.9	78.2	66.9	3.03
10	Cereals	0.103	176.3	72.9	47.3	1.84
11	Milling products	0.098	64.2	48.2	1.4	1.28

Note. The raw CSOI is the geometric mean of normalized Rwanda import exposure (latest 2024), normalized Africa export capacity (latest 2024), and the Africa-sourcing gap based on 2022. The appendix reports the shortlisted chapters only. Chapters that are already heavily sourced from Africa, or that are not materially important in Rwanda's import structure, were interpreted separately in the main text rather than treated as high-priority gaps.

Conflicts of interest

The author declares no financial, institutional, professional, or personal competing interests that could have influenced the design, analysis, interpretation, or reporting of this study.

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Ethical approval

This study relied exclusively on secondary, non-identifiable trade, policy, and macroeconomic data drawn from official and publicly documented sources, including WTO Tariff and Trade Data, ITC Trade Map tabulations, and reports and policy documents from Rwandan and international institutions. Because the study did not involve human participants, primary fieldwork, or identifiable personal data, formal ethics review and informed consent were not required.

Data availability

The study is based entirely on secondary data and documentary sources cited in the text and reference list, including WTO Tariff and Trade Data, ITC Trade Map tabulations, official Rwandan policy and statistical documents, and reports from institutions such as the World Bank and IMF. Supplementary and verification materials for this manuscript are archived on the Open Science Framework: <https://doi.org/10.17605/OSF.IO/Q2RBE> (Sangwa & Mutabazi, 2026). All archived files are released under the Creative Commons Attribution 4.0 licence.

Use of AI tools

During literature scoping, analytical organisation, and drafting, the author used OpenAI generative-language tools to assist with source discovery, synthesis structuring, and language refinement. All outputs were critically reviewed, substantially revised, and checked against the underlying sources by the author, who accepts full responsibility for the accuracy, interpretation, and integrity of the manuscript.

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