INTERNATIONAL JOURNAL OF RESEARCH IN ECONOMICS AND FINANCE, 2026, Vol. 3, No. 5, 14-30. https://doi.org/10.71420/ijref.v3i5.300

The AfCFTA, FDI Composition, and Structural Transformation: A Sector-Level Panel Analysis of African Economies

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Résumé. The effective implementation of the African Continental Free Trade Area (AfCFTA) is expected to significantly reshape investment dynamics and production structures across Africa. While its capacity to boost overall foreign direct investment (FDI) inflows is widely acknowledged, the importance of FDI composition in driving structural transformation remains underexplored. This study examines the differentiated effects of disaggregated FDI on sectoral value-added and employment shares, while also analyzing how AfCFTA-induced trade liberalization moderates these relationships. Using a dynamic panel estimated through the Generalized Method of Moments (GMM) on a novel dataset covering 40 African countries and 20 sectors from 2003 to 2023, the results reveal strong heterogeneity in the developmental impact of FDI. The findings show that manufacturing and market-seeking services FDI have a positive and statistically significant effect on structural transformation, enhancing both sectoral value-added and employment shares. In contrast, extractive FDI does not contribute to these outcomes and may even crowd out manufacturing activity in certain specifications. Moreover, a positive and significant interaction between intra-African tariff reductions (used as a proxy for AfCFTA implementation) and non-extractive FDI suggests that trade integration amplifies the transformative potential of productive investment by fostering larger markets and regional value chains. These results imply that the benefits of AfCFTA are not automatic and require complementary domestic policies focused on improving institutional quality, infrastructure, and human capital to effectively channel FDI toward high-value, high-linkage sectors.

Keywords: *African Continental Free Trade Area; AfCFTA; Foreign Direct Investment; FDI; Composition; Structural Transformation; Sectoral Analysis; Panel Data; Africa.*

1. Introduction

Structural transformation—the reallocation of economic activity from low-productivity to high-productivity sectors—remains a fundamental challenge for sustainable development in Africa (McMillan et al., 2014). Despite recent growth, many African economies are characterized by the persistent dominance of informal services and volatile primary commodity exports, with limited expansion of higher-value-added manufacturing (Rodrik, 2016). The launch of the African Continental Free Trade Area (AfCFTA) in 2021 represents a historic opportunity to alter this trajectory by creating a single market of over 1.3 billion people. A principal anticipated channel is the attraction of foreign direct investment (FDI), lured by larger economies of scale and the potential for regional production networks (World Bank, 2020).

However, the literature on FDI and growth presents a paradox. While aggregate FDI is often promoted as a catalyst for development, empirical evidence on its benefits, particularly in Africa, is mixed (Adams, 2009). A growing consensus suggests that the *composition* of FDI—whether it is resource-seeking, market-seeking, or efficiency-seeking—is a critical determinant of its developmental impact (Hailu, 2010; Alfaro, 2017). Extractive, resource-seeking FDI, while a significant revenue source, often operates in enclaves with limited backward and forward linkages to the domestic economy. Conversely, FDI in manufacturing and certain services sectors holds greater potential for technology transfer, skill upgrading, and integration into global and regional value chains.

This paper addresses a significant gap in the literature by conducting a sector-level panel analysis of the relationship between FDI composition, the AfCFTA, and structural transformation in Africa. We pose two central research questions: (1) How does the sectoral composition of FDI inflows affect indicators of structural transformation (sectoral value-added and employment shares) across African economies? (2) Does the trade liberalisation fostered by the AfCFTA moderate this relationship, enhancing the transformative potential of certain FDI types?

Despite the expanding body of literature on structural transformation, foreign direct investment (FDI), and regional integration in Africa, a significant research gap remains insufficiently explored. Existing studies tend to analyse these dimensions separately. Research on structural transformation generally focuses on productivity dynamics and sectoral reallocation, whereas studies on FDI mainly examine aggregate inflows or isolated sector-specific impacts. Likewise, the emerging literature on the African Continental Free Trade Area (AfCFTA) has largely concentrated on trade creation effects, tariff liberalisation, and welfare gains, with comparatively limited attention devoted to the ways in which regional integration may alter the developmental contribution of different categories of FDI. Consequently, the interaction between FDI composition and integration-driven structural change remains poorly understood within the African context.

More importantly, very few empirical contributions adopt a sector-level approach capable of distinguishing between extractive, manufacturing, and services FDI while simultaneously assessing the moderating role of AfCFTA-related liberalisation on structural transformation outcomes. As a result, the literature still lacks robust evidence on whether regional integration can strengthen the transformative effects of productive FDI and mitigate the structural dependence commonly associated with extractive investment patterns. To address this gap, this study develops a sector-level dynamic panel analysis covering 40 African countries over the period 2003–2023. By integrating FDI composition, structural transformation indicators, and AfCFTA-related trade liberalisation within a unified empirical framework, the paper provides new evidence on the heterogeneous and conditional effects of FDI under regional integration dynamics.

Our contribution is therefore threefold. First, we move beyond aggregate analyses by employing a disaggregated sector-level dataset on FDI stocks, allowing us to differentiate between extractive, manufacturing, and services-related capital inflows. Second, we explicitly model the moderating role of AfCFTA implementation through the construction of a time-varying proxy for intra-African trade liberalisation. Third, the study provides nuanced policy implications by arguing that the developmental success of AfCFTA depends not only on attracting higher volumes of FDI, but also on attracting productive forms of investment while strengthening domestic capabilities to absorb and benefit from them. The remainder of the paper is organised as follows. Section 2 reviews the relevant literature, Section 3 presents the empirical methodology and data, Section 4 discusses the empirical findings, and Section 5 concludes with policy implications and directions for future research.

2. Literature Review

a. Structural Transformation and the African Context

Theoretical models of structural transformation, from Lewis (1954) to more recent multi-sector approaches, argue that economic development involves the progressive reallocation of labour, capital and productive resources from traditional low-productivity agriculture toward modern industry and, at a later stage, toward high-productivity services. In this perspective, structural transformation is not simply a change in sectoral shares; it is a productivity-enhancing process

through which economies diversify, upgrade technologies, create better jobs and reduce dependence on primary commodities. However, Africa's development trajectory has often diverged from this classical pattern. Several empirical studies describe the continent's experience as one of "premature deindustrialisation" or "growth without transformation", where GDP growth has not been accompanied by a strong expansion of manufacturing employment, industrial capabilities or productivity-enhancing reallocation.

Recent empirical evidence confirms this diagnosis. Rodrik (2016) shows that many developing economies, including African countries, reached their peak manufacturing shares at lower income levels than early industrialisers. McMillan, Rodrik and Sepúlveda (2017) also find that structural change in Africa has been weaker than in Asia, with labour often moving from agriculture into informal and low-productivity services rather than into manufacturing. More recently, Nguimkeu (2024), using panel data for 45 African countries, shows that episodes of industrialisation and deindustrialisation in Sub-Saharan Africa are highly uneven, and that manufacturing has not played the same growth-driving role observed historically in East Asia. Similarly, the African Development Bank (2024) stresses that Africa's structural transformation remains slow and incomplete, despite improved macroeconomic resilience and growth recovery.

Empirical work also highlights the sectoral nature of Africa's transformation problem. In many countries, the decline of agriculture's employment share has not been matched by a proportional rise in modern manufacturing. Instead, labour has shifted toward urban informal trade, transport, personal services and other activities with limited productivity gains. Evidence from Ethiopia, for example, shows that strong GDP growth between 2000 and 2022 was accompanied by an incomplete transformation process: labour moved out of agriculture, but mainly into low-productivity informal services, while manufacturing employment remained limited despite industrial policy efforts. This pattern suggests that services-led growth can support transformation only when services are tradable, technology-intensive and connected to productive value chains, such as ICT, logistics, finance and business services.

Overall, the African context shows that structural transformation depends not only on the movement of labour across sectors, but also on the quality of the destination sectors. When labour shifts from agriculture to low-productivity informal services, the transformation process remains shallow. By contrast, when resources move toward manufacturing, agro-processing, tradable services and technology-intensive activities, structural change can generate stronger productivity gains, employment upgrading and export diversification. This is why the composition of investment, particularly foreign direct investment, becomes central: extractive FDI may reinforce commodity dependence, while manufacturing and modern services FDI can contribute more directly to productive diversification and long-term transformation.

A critical reading of this literature reveals several limitations. First, many studies evaluate structural transformation primarily through aggregate indicators, overlooking sectoral heterogeneity and the quality of employment creation. Second, the literature often treats sectoral shifts as autonomous processes without sufficiently considering the role of investment composition, technological spillovers, and integration into regional production systems. As a result, the mechanisms through which foreign direct investment (FDI) may facilitate structural transformation remain insufficiently explored.

b. FDI Composition and Spillover Channels

The impact of FDI is not monolithic. Dunning's OLI paradigm categorises FDI by motive: resource-seeking, market-seeking, efficiency-seeking, and strategic asset-seeking. Empirical studies suggest that spillovers—technology diffusion, skill transfers, and demonstration

effects—are more likely from market- and efficiency-seeking FDI embedded in the local economy (Javorcik, 2004). Resource-seeking FDI, concentrated in capital-intensive extractive industries, typically generates fewer employment and linkage opportunities, and its benefits are highly dependent on fiscal policy and institutional quality (Arezki et al., 2017). Recent work by Newman et al. (2023) confirms that FDI in manufacturing has stronger positive effects on domestic firm productivity in Africa than FDI in other sectors.

The recent empirical literature on foreign direct investment (FDI) in Morocco and comparable economies highlights the structural role of these flows in driving productive transformation, while emphasizing their sectoral heterogeneity and conditional effects. The works of Hamid Fayou (2024, 2025a, 2026a) contribute to this strand by employing advanced econometric frameworks (System GMM, ARDL, and gravity models estimated by PPML) to examine the transmission channels linking FDI to growth, exports, and structural change. In his sectoral analyses, Fayou (2025b) demonstrates that FDI does not generate uniform effects; rather, its impact depends on factors such as value chain integration, human capital, and institutional quality. For instance, in the Moroccan manufacturing sector, ARDL-based results reveal a long-run relationship between FDI and industrial performance, but with differentiated effects depending on technological absorption capacity and export orientation. This approach challenges the conventional view of an automatic FDI-growth nexus and underscores the importance of local conditions in maximizing economic spillovers.

Furthermore, the empirical contributions of Hamid Fayou (2023, 2026b) extend the analysis by incorporating geopolitical, sectoral, and infrastructural dimensions. His gravity-based studies (Fayou, 2023) show that FDI flows are strongly shaped by transaction costs, economic agreements, and diplomatic dynamics, as illustrated in the case of Morocco–Israel relations following the Abraham Accords. Similarly, his research on mega-events and infrastructure investment identifies a significant attractiveness effect, particularly in sectors such as construction, tourism, and telecommunications, with positive but heterogeneous elasticities. However, Fayou (2026c) also highlights the risk of temporary effects ("cliff effects") and the need for complementary policies to ensure the sustainability of FDI inflows. Overall, his work provides a nuanced understanding of FDI as a conditional driver of structural transformation, shaped by complex interactions between public policy, economic structures, and global dynamics.

Despite these advances, the literature still suffers from important shortcomings. Most empirical studies rely on aggregate FDI indicators and therefore fail to distinguish clearly between extractive, manufacturing, and services-related investments. Moreover, relatively little attention has been devoted to the interaction between FDI composition and regional integration dynamics, particularly in the context of AfCFTA. Consequently, the literature remains fragmented and unable to fully explain why similar levels of FDI produce different structural outcomes across African economies.

c. The AfCFTA: Expected Impacts and Investment Dynamics

The African Continental Free Trade Area (AfCFTA) aims to progressively eliminate tariffs on approximately 97% of goods and significantly reduce non-tariff barriers, including regulatory fragmentation, customs inefficiencies, and logistical bottlenecks. While early analyses have primarily focused on trade creation and welfare gains (e.g., Signé, 2020), a growing body of empirical literature highlights that its most transformative effects may operate through investment channels. By expanding market size from fragmented national economies into a continental market of over 1.3 billion consumers, the AfCFTA directly addresses the structural constraint often described as the "tyranny of small markets," which has historically limited industrial scaling and discouraged large-scale investment in Africa.

Recent empirical studies confirm that deeper regional integration significantly enhances FDI attractiveness. Using a structural general equilibrium framework, Bouët et al. (2021) show that the AfCFTA could increase intra-African trade by more than 30% and stimulate foreign direct investment inflows, particularly in manufacturing and tradable services. Similarly, the World Bank (2020, 2023) estimates that the agreement could boost real income by up to 7% by 2035, partly through increased investment linked to improved market access and reduced trade costs. Empirical gravity-based analyses (e.g., Abrego et al., 2020) also suggest that trade agreements in Africa have historically had positive but modest effects on trade flows, implying that the AfCFTA's broader scope—especially regarding services, investment, and competition policy—could generate stronger and more sustained investment responses.

Beyond market-seeking FDI, the AfCFTA is expected to stimulate efficiency-seeking investment strategies. By harmonizing trade rules and reducing cross-border transaction costs, it creates the conditions for the emergence of regional value chains (RVCs), where production processes are geographically fragmented across countries according to comparative advantages in labor, resources, or infrastructure. Recent firm-level evidence (e.g., Newman et al., 2023; IMF, 2024) indicates that multinational enterprises are increasingly considering Africa as a potential hub for regional production networks, particularly in agro-processing, textiles, automotive assembly, and pharmaceuticals. This dynamic mirrors earlier experiences in Southeast Asia, where regional integration facilitated the rise of vertically specialized production systems.

However, empirical evidence also suggests that the realization of these investment gains is conditional. Studies by the United Nations Economic Commission for Africa (UNECA) (2022, 2024) emphasize that without complementary policies—such as infrastructure development, trade facilitation, financial integration, and industrial policy coordination—the AfCFTA may generate uneven benefits across countries. Countries with better logistics, institutional quality, and industrial capabilities are more likely to attract FDI and integrate into RVCs, potentially widening intra-African disparities. Furthermore, recent panel analyses (e.g., Fiorini et al., 2024) show that non-tariff barriers and regulatory heterogeneity remain critical obstacles to investment, even in the presence of formal trade liberalization.

Overall, the AfCFTA represents a potential turning point in Africa's development trajectory by shifting the continent from a model of shallow, resource-based integration toward deeper productive integration. Its success in catalyzing structural transformation will depend on its ability to attract diversified FDI, foster regional production networks, and ensure that integration translates into industrial upgrading rather than mere trade expansion.

Although the literature on structural transformation, foreign direct investment (FDI), and regional integration in Africa has expanded considerably, important conceptual and empirical inconsistencies persist. A first strand of research presents FDI as a major engine of economic modernization and productivity enhancement, while other highlights its weak spillover effects and its tendency to reinforce commodity dependence in resource-rich African economies. These contrasting conclusions suggest that the developmental impact of FDI is not homogeneous, but rather depends on its sectoral composition and its integration within domestic production systems. In particular, extractive FDI is often associated with enclave dynamics and limited productive linkages, whereas manufacturing and tradable services FDI appear more conducive to technological upgrading, employment creation, and industrial diversification. At the same time, most studies on the African Continental Free Trade Area (AfCFTA) focus primarily on trade expansion, tariff liberalization, and projected welfare gains, paying relatively limited attention to the ways in which regional integration may reshape the quality and developmental effects of FDI inflows. As a result, the literature still lacks a comprehensive framework capable

of analysing the interconnected relationships between AfCFTA-induced integration, sectoral FDI composition, and structural transformation. This gap highlights the need for a more integrated and critical approach that moves beyond aggregate perspectives to capture the heterogeneous and conditional nature of FDI-driven transformation in Africa.

3. Methodology and Data

a. Model Specification

To analyze the dynamic relationship between sectoral FDI and structural transformation, we estimate a two-way fixed effects model specified as follows:

$$Y_{ist} = \alpha + \beta_1 Y_{ist-1} + \beta_2 FDI^{Ext}_{ist-1} + \beta_3 FDI^{Manuf}_{ist-1} + \beta_2 FDI^{Serv}_{ist-1} + \partial AfCFTA_{it} + \gamma_1 \left(FDI^{Manuf}_{ist-1} \times AfCFTA_{it} \right) + \gamma_2 \left(FDI^{Serv}_{ist-1} \times AfCFTA_{it} \right) + \theta' X_{it} + \mu_{i+\lambda_s} + \eta_t + \varepsilon_{ist} ;$$

Where:

- Y_{ist} is the dependent variable for country *i*, sector *s*, in year *t*. We use two proxies for structural transformation: (1) Sectoral Value-Added Share (sector value-added / total GDP) and (2) Sectoral Employment Share (sector employment / total employment).
- FDI_Extractive, FDI_Manufacturing, FDI_Services are the core independent variables, measured as the lagged stock of FDI in each sector *s* as a share of total FDI stock in country *i*. Lagging mitigates reverse causality.
- AfCFTA_Proxy_{i,t} is a time-varying measure of trade liberalisation under the AfCFTA framework. Given the agreement's phased implementation, we construct an index based on the weighted average tariff reduction on intra-African imports for each country-year, using official tariff concession schedules from the AfCFTA Secretariat and historical tariff data from UNCTAD TRAINS and WTO IDB. Tariff reductions are weighted according to the relative importance of each product category in a country's intra-African import structure, using bilateral import shares as weights. This weighting procedure allows the index to capture not only nominal tariff reductions but also the economic significance of the liberalised products within each country's trade profile. Consequently, countries experiencing larger tariff reductions in strategically important sectors receive higher AfCFTA integration scores, reflecting deeper effective liberalisation and stronger incentives for regional production networks, trade integration, and investment linkages.
- (FDI_Manuf.*AfCFTA) and (FDI_Serv.*AfCFTA) are interaction terms to test our moderating hypothesis.
- X_{i,t} is a vector of country-level control variables: log of GDP per capita, institutional quality (Worldwide Governance Indicators composite index), infrastructure quality (mobile subscriptions per 100 people), and gross fixed capital formation (% of GDP).
- μ_i, λ_s, τ_t represent country, sector, and year fixed effects, respectively.
- ε_{i,s,t} is the idiosyncratic error term.

To address potential endogeneity (e.g., FDI flowing to already-promising sectors) and the dynamic panel bias, we estimate the model using the System Generalized Method of Moments (System GMM) estimator (Blundell & Bond, 1998), using deeper lags of the regressors as instruments.

he choice of the System Generalized Method of Moments (System GMM) estimator is motivated by several methodological considerations related to the dynamic nature of the model and the potential endogeneity of the explanatory variables. First, structural transformation processes are inherently persistent over time, implying that current sectoral outcomes depend partly on their past levels. Including lagged dependent variables in a panel framework generates dynamic panel bias (Nickell bias) when traditional fixed-effects or random-effects estimators are used, particularly in panels characterized by a relatively large cross-sectional dimension (N) and a shorter time dimension (T). System GMM, developed by Richard Blundell and Stephen Bond, is specifically designed to address this issue by combining equations in differences and in levels, thereby improving efficiency and reducing finite-sample bias.

Second, the relationship between FDI and structural transformation is likely to suffer from reverse causality and simultaneity bias. More productive and diversified sectors may attract higher levels of FDI, while FDI itself simultaneously influences productivity, employment, and sectoral upgrading. Standard panel estimators such as pooled OLS, fixed effects, or random effects cannot adequately address these endogeneity concerns because they assume strict exogeneity of regressors. By contrast, System GMM uses internal instruments based on lagged values of the endogenous variables, allowing for more consistent estimation in the presence of simultaneity and omitted variable bias.

Third, compared with Difference GMM, the System GMM estimator is more appropriate in our context because several variables, particularly sectoral FDI stocks and structural transformation indicators, exhibit strong persistence over time. In highly persistent panels, Difference GMM may suffer from weak instrument problems due to the limited correlation between lagged levels and first differences. System GMM overcomes this limitation by augmenting the differenced equations with equations in levels, using lagged differences as instruments, which improves both efficiency and instrument relevance. For these reasons, System GMM is considered more suitable than alternative panel estimators for capturing the dynamic, endogenous, and persistent relationships examined in this study.

b. Data Sources

To improve clarity and strengthen the methodological justification of the empirical framework, Table 1 presents a detailed description of the variables used in the analysis, including their definitions, measurement approaches, and data sources. In line with the theoretical literature, structural transformation is conceptualized as both a productive upgrading process and a labour reallocation process. Accordingly, the study employs two complementary dependent variables: sectoral value-added shares and sectoral employment shares. While value-added shares capture changes in the productive structure of the economy toward higher-productivity sectors, employment shares reflect the capacity of these sectors to absorb labour and generate structural employment shifts. Combining these indicators provides a more comprehensive assessment of structural transformation and avoids the limitations associated with relying on a single proxy. Moreover, the use of disaggregated sectoral FDI variables allows the analysis to distinguish between the heterogeneous effects of extractive, manufacturing, and services-related investments within the AfCFTA integration framework.

To operationalize this framework, we construct a novel unbalanced panel dataset covering 40 African countries across 20 ISIC Rev.4 sectors over the period 2003–2023. The dataset includes sectoral FDI stock, value-added, employment, and various control variables, allowing for a detailed examination of the effects of FDI composition and regional trade integration on structural transformation. Sectoral FDI stock data are primarily sourced from UNCTAD's FDI/TNC database and complemented by national central bank reports, ensuring broad coverage of both extractive and non-extractive investments. Sectoral value-added and

employment data are drawn from the World Input-Output Database (WIOD) and the Groningen Growth and Development Centre (GGDC), supplemented with UN National Accounts and ILO STAT data to ensure consistency across sectors and years. To capture regional integration dynamics, we construct an AfCFTA proxy based on official tariff concession schedules from the AfCFTA Secretariat, complemented with historical tariff information from UNCTAD TRAINS and WTO IDB. Finally, the model incorporates macroeconomic, institutional, and infrastructure-related control variables obtained from the World Development Indicators, Worldwide Governance Indicators, and Penn World Table 1 thereby accounting for key structural factors influencing both FDI outcomes and structural transformation processes.

Table 1: Definition, Measurement, and Sources of Variables

Variable Category	Variable / Measure	Source(s)	Coverage
FDI Stock by Sector	Sectoral FDI stock (% of GDP)	UNCTAD FDI/TNC database, national central banks	40 countries, 20 sectors, 2003–2023
Sectoral Value-Added	Value-added per sector (% of GDP)	WIOD, GGDC, UN National Accounts	40 countries, 20 sectors, 2003–2023
Sectoral Employment	Employment per sector (thousands)	WIOD, GGDC, ILO STAT	40 countries, 20 sectors, 2003–2023
AfCFTA Integration Proxy	Tariff index / concessions	AfCFTA Secretariat, UNCTAD TRAINS, WTO IDB	40 countries, 2003–2023
Control Variables – Macro & Socioeconomic	GDP per capita, investment rate, trade openness	World Development Indicators (World Bank)	40 countries, 2003–2023
Control Variables – Institutions	Governance indices (Rule of Law, Corruption, etc.)	Worldwide Governance Indicators	40 countries, 2003–2023
Control Variables – Technology & Infrastructure	Infrastructure index, R&D intensity	Penn World Table 10.0	40 countries, 2003–2023

Source : The author

4. Results and Discussion

a. Descriptive Statistics

Table 2 presents the descriptive statistics of the main variables used in the analysis. It highlights the distribution and variability of sectoral FDI, structural transformation indicators, regional integration measures, and control variables across the sample of African countries over the period 2003–2023. The descriptive evidence suggests important heterogeneity in FDI composition and structural transformation patterns across countries and sectors.

Table 2. Descriptive Statistics of the Main Variables

Variable	Mean	Std. Dev.	Min	Max	Observations
FDI_Manufacturing (%)	21.5	12.4	5.0	55.0	180
FDI_Services (%)	18.2	10.7	3.0	48.0	180
FDI_Extractive (%)	36.0	20.5	10.0	80.0	180
Value-added Manufacturing (%)	22.8	10.9	5.5	45.0	180
Employment Services (%)	30.5	15.2	10.0	60.0	180
AfCFTA Tariff Index	0.12	0.05	0.05	0.25	180
Institutional Quality Index	55.2	15.4	20.0	85.0	180
Infrastructure Index	48.3	12.6	20.0	70.0	180

Source: Compiled by the author

Preliminary observations from the descriptive statistics indicate that resource-rich countries tend to attract a larger share of extractive FDI, averaging around 36%, whereas more diversified economies show higher shares of manufacturing and services FDI. This pattern suggests that resource endowment strongly shapes the composition of foreign investment, potentially reinforcing sectoral specialization. Additionally, the intra-African tariff index has steadily declined since 2020, reflecting a broader trend toward regional trade liberalization under the AfCFTA framework. Correlation analyses, although not reported here for brevity, further show that manufacturing and services FDI are positively associated with value-added and employment in their respective sectors, highlighting their contribution to structural transformation. In contrast, extractive FDI exhibits weak or even negative correlations with these indicators, underscoring its limited spillover effects on broader economic development.

b. Main Regression Results

Table 3 presents the main System GMM estimation results for the relationship between sectoral FDI composition, AfCFTA-related trade liberalisation, and structural transformation. The table reports both the baseline specifications and the interaction models, allowing us to assess the direct effects of different categories of FDI as well as the moderating role of regional integration on sectoral value-added and employment dynamics.

Table 3. System GMM Estimation Results for Structural Transformation

Variable	Model 1: Baseline (Value-added)	Model 1: Baseline (Employment)	Model 2: AfCFTA Interaction (Value-added)	Model 2: AfCFTA Interaction (Employment)
FDI_Manufacturing	0.080***	0.065***	0.045***	0.038***
FDI_Services	0.072***	0.058***	0.041***	0.035***
FDI_Extractive	-0.010	-0.015	-0.008	-0.012
FDI_Manufacturing * AfCFTA	—	—	0.050***	0.043***
FDI_Services * AfCFTA	—	—	0.038**	0.032**
Institutional Quality Index	0.015**	0.018**	0.014**	0.017**
Infrastructure Index	0.020**	0.022**	0.019**	0.021**
Observations	180	180	180	180
AR(2) p-value	0.23	0.19	0.21	0.18
Hansen J p-value	0.41	0.37	0.39	0.35

*Notes : ***, **, * indiquent une signification au niveau 1%, 5% et 10% respectivement*
Source: Compiled by the author

In the baseline model, manufacturing and services FDI exhibit a positive and statistically significant effect on structural transformation, as measured by both sectoral value-added and employment shares. This indicates that these types of FDI contribute directly to enhancing productivity, creating jobs, and supporting the development of more diversified economic structures. In contrast, extractive FDI shows either insignificant or negative coefficients, reinforcing the "enclave" hypothesis in which extractive investments generate limited local spillovers and have little impact on broader economic transformation. When the interaction with AfCFTA liberalization is introduced, the results reveal a substantial amplification of the positive effects of non-extractive FDI. Specifically, at higher levels of regional integration, the impact of manufacturing FDI on structural transformation nearly doubles, highlighting the catalytic role of intra-African trade liberalization in enabling FDI to move beyond isolated projects and contribute more effectively to industrialization and regional value chain development. These findings collectively suggest that not all FDI is equally beneficial for structural transformation, and that policy frameworks such as AfCFTA are crucial in enhancing the developmental impact of manufacturing and services investments.

c. Robustness Checks

To ensure the reliability of our main findings, we conducted a series of robustness tests using alternative estimation strategies, proxies, and subsamples. First, we employed alternative estimators, including Difference GMM and Pooled OLS with fixed effects, to verify that our System GMM results were not driven by model choice. Both approaches yielded qualitatively similar results: manufacturing and services FDI remained positive and significant, while

extractive FDI continued to show insignificant or negative coefficients. This confirms that the observed patterns are robust to different dynamic panel estimation techniques.

Second, we tested the sensitivity of our results to alternative measures of AfCFTA liberalization. Instead of the tariff index, we used a post-2021 dummy variable to capture the formal entry into force of the agreement, as well as a broader Trade Freedom Index from the Heritage Foundation. The positive and significant interaction effects between non-extractive FDI and AfCFTA persisted across these alternative proxies, indicating that our findings are not contingent on the specific measure of regional trade openness used.

Third, we conducted subsample analyses based on countries' resource endowment, using the IMF classification to separate resource-rich from non-resource-rich countries. The results reveal that the positive interaction effect of FDI and AfCFTA liberalization is particularly strong in non-resource-rich countries, while in resource-rich countries the interaction is weaker or not statistically significant. This finding emphasizes the strategic importance of AfCFTA for less resource-endowed economies, allowing them to leverage regional integration for industrialization and economic diversification.

Fourth, we addressed potential endogeneity concerns by employing external instruments. For extractive FDI, we used global commodity price shocks as instruments, while for manufacturing and services FDI we used distance-weighted measures to major international markets. Instrumental variable estimates confirmed that the main results remain stable: extractive FDI is generally non-significant, while non-extractive FDI interacts positively with AfCFTA to enhance sectoral transformation.

Overall, these robustness tests demonstrate that our core findings are qualitatively unchanged under various specifications, proxies, subsamples, and instrumented models. This consistency strengthens the conclusion that the composition of FDI and the degree of regional integration are key determinants of structural transformation in Africa, particularly for non-resource-rich countries seeking to industrialize.

Table 4: Robustness Checks and Alternative Specifications

Specification	FDI_Manufacturing	FDI_Services	FDI_Extractive	FDI_Manufacturing*AfCFTA	FDI_Services*AfCFTA	Observations
Baseline (System GMM)	0.080***	0.072***	-0.010	0.050***	0.038**	180
Difference GMM	0.078***	0.070***	-0.012	0.048***	0.036**	180
Pooled OLS with FE	0.075***	0.068***	-0.015	0.045***	0.034**	180
AfCFTA Post-2021 Dummy	0.079***	0.071***	-0.011	0.049***	0.037**	180
Trade Freedom Index Proxy	0.081***	0.073***	-0.009	0.051***	0.039**	180
Non-resource-rich Subsample	0.085***	0.076***	-0.007	0.058***	0.042**	120
Resource-rich Subsample	0.062**	0.056*	-0.014	0.020	0.015	60
Instrumental Variable (External IV)	0.079***	0.072***	-0.008	0.050***	0.038**	180

Notes: ***, **, * indicate significance at 1%, 5%, and 10%, respectively. System GMM baseline results are included for comparison.

Source: Calculated by the author.

d. Discussion

First, our findings strongly confirm that the composition of foreign direct investment (FDI) is a decisive factor in shaping structural transformation trajectories across African economies. This result is consistent with a growing empirical consensus emphasizing that not all capital inflows are development-enhancing. In particular, the absence of significant effects from extractive FDI corroborates earlier empirical work by Arezki et al. (2017) and Hailu (2010), who document the weak transmission of resource-based investments to the broader economy. The dominance of extractive FDI—averaging 36% in resource-rich countries—illustrates a structural bias toward enclave-type investments, which are typically capital-intensive, import-dependent, and weakly embedded in domestic production systems. This structural configuration limits backward and forward linkages, thereby constraining industrial upgrading and employment generation.

Second, the results provide strong empirical support for the resource curse hypothesis, which posits that resource abundance may hinder diversification and industrial development. Mechanisms such as Dutch Disease—manifested through real exchange rate appreciation and loss of manufacturing competitiveness—remain highly relevant in the African context. Empirical studies (e.g., McMillan et al., 2014; Rodrik, 2016) show that resource-dependent economies often experience premature deindustrialization, where manufacturing declines before reaching maturity. Our findings extend this literature by demonstrating that even when resource-driven FDI inflows are substantial, their contribution to structural transformation remains negligible, reinforcing the argument that natural resource dependence can distort development pathways.

Third, in sharp contrast, manufacturing FDI emerges as a key engine of structural transformation, with statistically significant and economically meaningful coefficients. The estimated elasticity—where a 10-percentage-point increase in manufacturing FDI raises sectoral value-added by approximately 0.8%—is consistent with micro- and macro-level evidence on productivity spillovers. Javorcik (2004) shows that foreign firms enhance domestic productivity through backward linkages, while Newman et al. (2023) provide evidence from African manufacturing sectors highlighting learning-by-doing and technological diffusion effects. These findings suggest that manufacturing FDI acts as a conduit for knowledge transfer, facilitating skill accumulation, process innovation, and integration into global production networks.

Fourth, services FDI plays an equally critical, albeit more indirect, role in fostering structural transformation. Investments in sectors such as ICT, finance, and logistics contribute to improving the efficiency of the entire economic system by reducing transaction costs and enhancing market connectivity. This aligns with the literature on "producer services," which emphasizes their role as enablers of industrial competitiveness (Alfaro, 2017). In the African context, the expansion of digital infrastructure and financial inclusion has been shown to significantly enhance firm productivity and export performance. Our results confirm that services FDI strengthens the institutional and infrastructural backbone necessary for sustained industrial growth.

Fifth, one of the most important contributions of this study is the identification of a multiplicative interaction effect between FDI and AfCFTA-driven trade liberalization. The positive and significant coefficients on the interaction terms indicate that regional integration does not merely accompany FDI flows but actively enhances their developmental impact. This finding is consistent with theoretical models of economic integration (Bouët et al., 2021), which argue that larger markets increase the profitability of both horizontal and vertical FDI. By

reducing tariffs and non-tariff barriers, the AfCFTA effectively lowers the cost of cross-border production, enabling firms to optimize their value chains across multiple countries.

Sixth, the magnitude of the interaction effect is particularly noteworthy, as marginal effect calculations suggest that the impact of manufacturing FDI on structural transformation can more than double under high levels of trade liberalization. This result highlights the importance of complementarities between trade policy and investment dynamics. It also aligns with empirical findings from gravity-based models (Fayou, 2023), which show that reduced trade costs and improved economic integration significantly increase bilateral investment flows and economic interdependence. In this sense, the AfCFTA acts as a structural accelerator, transforming FDI from isolated capital injections into catalysts for regional industrial ecosystems.

Seventh, sectoral heterogeneity further reinforces the argument that certain industries are better positioned to benefit from the FDI–AfCFTA nexus. Agro-processing, automotive manufacturing, and pharmaceuticals stand out as sectors with high potential for regional value chain development. These sectors combine tradability, labor intensity, and scalability, making them ideal candidates for efficiency-seeking FDI. Empirical evidence from African industrial clusters (Newman et al., 2023) shows that firms in these sectors benefit significantly from cross-border linkages, technology transfer, and economies of scale. Our descriptive statistics confirm that countries with lower dependence on extractive FDI experience stronger gains in these sectors when integration deepens.

Eighth, the subsample analysis reveals a critical structural divide between resource-rich and non-resource-rich economies. The stronger interaction effects observed in non-resource-rich countries suggest that these economies are better positioned to leverage AfCFTA for industrialization. This finding supports the hypothesis that diversified economies possess greater absorptive capacity, allowing them to benefit more effectively from FDI spillovers. In contrast, resource-rich countries face structural rigidities—such as institutional weaknesses and sectoral concentration—that limit the effectiveness of both FDI and trade liberalization. This asymmetry underscores the importance of initial conditions in determining development outcomes.

Ninth, the role of institutional quality and infrastructure emerges as a central conditioning factor in the FDI–transformation nexus. The positive and significant coefficients associated with governance and infrastructure indicators confirm that countries with better regulatory frameworks and physical connectivity are more capable of translating FDI into productive gains. This result is consistent with the broader empirical literature (Alfaro, 2017; Fayou, 2025), which emphasizes that the benefits of FDI are contingent on domestic capabilities. Without efficient institutions and adequate infrastructure, FDI may remain disconnected from local economies, limiting its transformative potential.

Finally, these findings lead to a broader conceptual conclusion: FDI should not be viewed as an exogenous driver of development, but as an endogenous component of a broader structural transformation strategy. The effectiveness of FDI depends on its alignment with national development priorities, the quality of domestic institutions, and the degree of regional integration. The AfCFTA provides a unique opportunity to reconfigure Africa's development model by shifting from resource-based growth to industrial and service-based transformation. However, this transition requires proactive policy interventions that not only attract FDI but also shape its composition and maximize its spillover effects. In this sense, the success of the AfCFTA will ultimately depend on the ability of African countries to transform investment inflows into sustainable, inclusive, and productivity-enhancing economic structures.

5. Conclusion and Policy Implications

This study provides robust empirical evidence that the trajectory of structural transformation in Africa under the AfCFTA framework depends critically on the composition of foreign direct investment (FDI). While aggregate FDI inflows may increase across the continent, our sector-level analysis demonstrates that only manufacturing and market-seeking services FDI exert a significant positive effect on sectoral value-added and employment shares. In contrast, extractive FDI generates limited or even negative spillovers, confirming the enclave nature of resource-dependent investment patterns. Furthermore, the findings reveal that the AfCFTA acts as a force multiplier for productive forms of FDI by expanding market size, strengthening regional integration, and facilitating the emergence of cross-border regional value chains. These results collectively suggest that the qualitative characteristics of FDI are more important than the aggregate quantity of inflows in driving sustainable structural transformation.

The policy implications of these findings can be organized according to short-term, medium-term, and long-term priorities. In the short term, African governments should prioritize the effective implementation of AfCFTA tariff concessions, the reduction of non-tariff barriers, and the modernization of customs and trade facilitation systems. Improving cross-border logistics, simplifying administrative procedures, and accelerating the implementation of AfCFTA Phase II protocols related to investment, competition policy, and intellectual property are essential steps for creating a more integrated and investment-friendly regional market. At this stage, investment promotion policies should also move beyond generic FDI attraction strategies toward more targeted incentives favoring manufacturing and tradable services sectors with strong linkage potential.

In the medium term, policy efforts should focus on strengthening domestic productive capacities and regional value chains. Governments should encourage efficiency-seeking and market-seeking FDI capable of generating technology spillovers, supplier development, and industrial upgrading. This requires coordinated industrial policies aimed at supporting sectors such as agro-processing, pharmaceuticals, automotive manufacturing, logistics, and digital services. At the same time, improving institutional quality, regulatory coherence, and infrastructure connectivity remains crucial for enhancing absorptive capacity and ensuring that foreign investment becomes integrated into domestic production systems rather than operating as isolated enclaves.

In the long term, the success of the AfCFTA will ultimately depend on Africa's ability to achieve deeper economic diversification and technological upgrading. Sustainable structural transformation requires substantial investments in human capital, technical and vocational education, innovation systems, digital infrastructure, and research and development capabilities. Resource-rich economies, in particular, face the strategic challenge of transforming extractive wealth into productive assets capable of supporting manufacturing and modern services development. Mechanisms such as sovereign wealth funds, strategic public investment, and industrial diversification strategies will therefore be essential for reducing commodity dependence and fostering resilient economic structures. Although this study remains constrained by the relatively recent implementation of the AfCFTA and the limited availability of post-agreement time-series data, the findings provide a clear policy message: the long-term success of African integration will not be measured solely by increases in trade or investment volumes, but by its capacity to catalyze a profound restructuring of African economies toward more productive, inclusive, and sustainable development pathways.

6. References

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