



ISTANBUL  
GELİŞİM  
ÜNİVERSİTESİ



TÜBİTAK

## 8. Uluslararası Ekonomi ve Finans Konferansı (6-7 Aralık 2024): Bildiriler ve Özler

&

8th International Economics and  
Finance Conference (December 6-7th, 2024):  
Proceedings and Abstracts

Editör

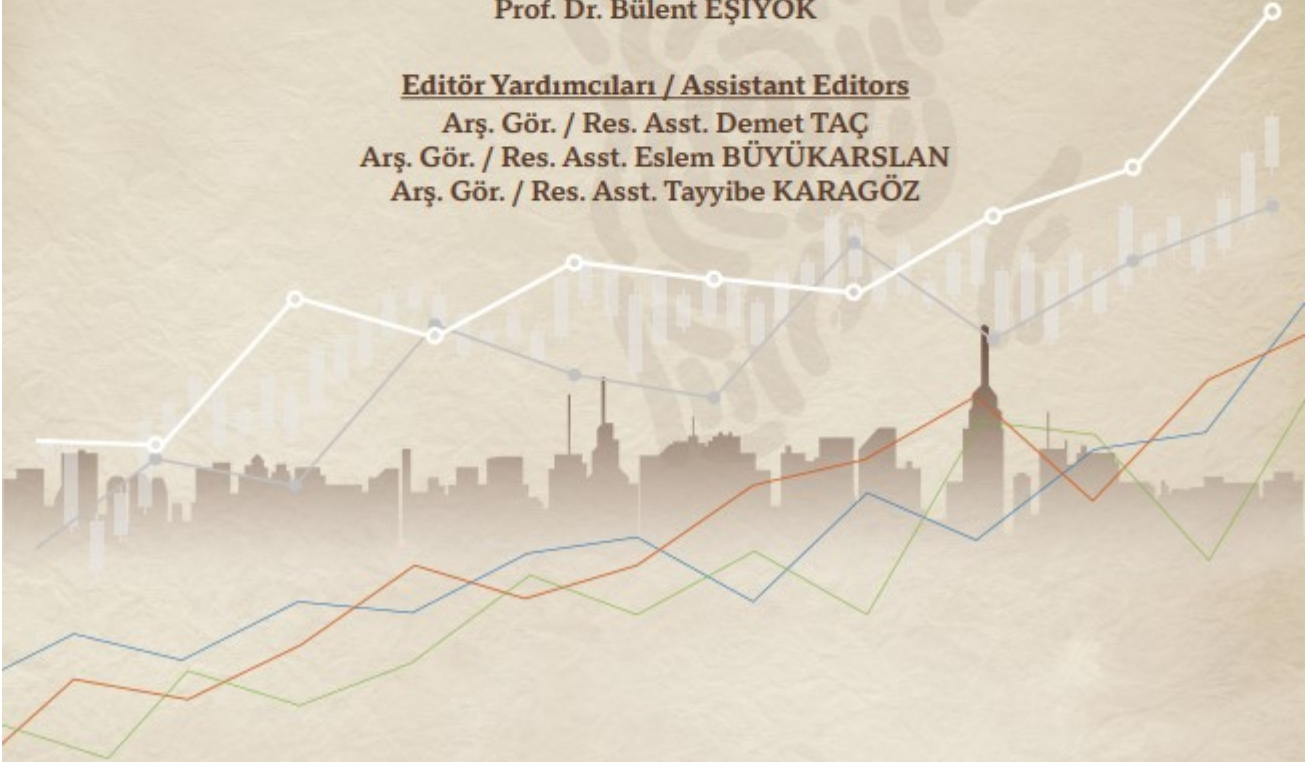
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**İstanbul Gelişim Üniversitesi Yayınları**

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# THE GLOBAL LINK TRADE ON FOSTERING SUSTAINABLE ECONOMIC GROWTH, AND THE ROLE OF BILATERAL TRADE AGREEMENTS BETWEEN TURKEY AND TANZANIA

Hamis Miraji ALLY SIMBA\*

## Abstract

The study investigates the effect of global links on fostering economic growth and the role of bilateral agreements between Türkiye and Tanzania. However, no recent literature reviews, highlighted the effect of the global link between Türkiye and Tanzania based on trade and investments, technological advancement, industrial and agricultural development, and capacity building for sustainable economic growth. The National Bureau of Statistics (NBS) Tanzania, and Turkish Statistical Institutes (TURKSTAT), World Database Indicators (WDI), and United Conference and Trade (UNCTAD) have been selected to investigate the effect. The findings from the results show that there is a significant effect of trade and investment, and technological advancement. Notably, the article supports the international law of globalization about the effectiveness of foreign direct investment policies between Türkiye and Tanzania.

**Keywords:** Economic Growth, Trade & Investment, Technological Advancement, Agriculture

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# AFRİKA SERMAYE PİYASALARININ GELİŞİMİ VE KÜRESEL PİYASALARLA ENTEGRASYONU

Bülent İLHAN\*, Erdem BAĞCI\*\*

## Öz

Bu çalışmada bölgesel olarak Afrika ülkelerinin sermaye piyasalarının gelişimi ve mevcut durumu üzerinde odaklanılmıştır. Afrika kıtasında yer alan menkul kıymet borsalarının toplam piyasa değeri Aralık 2023 itibarıyla yaklaşık 1,6 trilyon ABD doları olup, küresel borsaların toplam değerinin yaklaşık %2'sini oluşturmaktadır. İlk 10 sıradaki Afrika borsaları Güney Afrika, Fas, Mısır Nijerya, Bostvana, Namibya, Fildişi Sahilleri, Kenya, Moritus ve Gana borsalarıdır. Çalışmada 2013-2023 döneminde borsaların hem kendi aralarında hem de MSCI gelişmekte olan ülkeler endeksi ve GEPÜ endeksi ile ne düzeyde etkileşim içinde olduklarını göstermek üzere korelasyon analizi yapılmıştır. Elde edilen bulgulara göre; i) Piyasa değeri en yüksek ilk 5 borsa arasında pozitif, ancak düşük bir korelasyon vardır, diğer ülkeler arasında korelasyon ilişkisi yoktur. ii) MSCI gelişmekte olan ülkeler endeksi ile Namibya arasındaki korelasyon %62, diğerleri zayıftır. DJI endeksi ile en yüksek korelasyon olan borsalar Namibya %56, Mısır %40. iii) GEPÜ endeksi ile Afrika borsa endeksleri arasında korelasyon yoktur.

**Anahtar Kelimeler:** Afrika Borsaları, Finansal Entegrasyon, Korelasyon, Sermaye Piyasaları

## DEVELOPMENT OF AFRICAN CAPITAL MARKETS AND INTEGRATION WITH GLOBAL MARKETS

### Abstract

This study focuses on the development and current situation of capital markets of African countries regionally. The total market value of stock exchanges on the African continent is approximately 1.6 trillion US dollars as of December 2023, accounting for approximately 2% of the total value of global stock markets. The top 10 African stock markets are South Africa, Morocco, Egypt, Nigeria, Botswana, Namibia, Ivory Coast, Kenya, Mauritius and Ghana. In the study, correlation analysis is conducted to show the level of interaction between the stock markets, both among themselves and with the MSCI developing countries index and GEPÜ index, in the 2013-2023 period. According to the findings; i) There is a positive but low correlation between the top 5 stock markets with the highest market value, and there is no correlation between other countries. ii) The correlation between the MSCI developing countries index and Namibia is 62%, the others are weak. The stock exchanges with the highest correlation with the DJI index are Namibia 56% and Egypt 40%. iii) There is no correlation between the GEPÜ index and African stock market indices

**Keywords:** African Stock Exchanges, Financial Integration, Correlation, Capital Markets

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# MARKET DYNAMICS AND EFFICIENCY ANALYSIS IN THE GAMBIAN BANKING SECTOR

H. Semih YILDIRIM\*, Bubacar Malang FATTY\*\*

## Abstract

This study examines the Technical Efficiency (TE), Pure Technical Efficiency (PTE), and Scale Efficiency (SE) of Gambian commercial banks using a two-stage approach. In the first stage, Data Envelopment Analysis (DEA) evaluates the efficiency of 12 banks under the “production approach.” In the second stage, a Tobit regression model explores the impact of bank-specific and environmental factors on efficiency scores. The results show that in 2017, 42% of banks were technically efficient under Constant Returns to Scale (CRS), and 83% under Variable Returns to Scale (VRS). Only 42% operated at an optimal size, with the rest facing scale inefficiencies. The sector's average efficiency scores were 86.5% (TE), 93.1% (PTE), and 92.5% (SE). Banks charging lower deposit rates and higher loan rates, holding larger market shares, and managing liquidity risks efficiently achieved higher efficiency scores. A weak negative relationship between bank size and efficiency suggests smaller banks may gain operational advantages.

**Keywords:** Technical Efficiency, DEA, the Gambian Banking

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# MICROFINANCE SECTOR IN TANZANIA: CHALLENGES AND OPPORTUNITIES

Ganka Daniel NYAMSOGORO\*

## Abstract

Worldwide, microfinancing has been key in promoting financial inclusion for underserved communities by providing access to finance and financial services, which, in turn, contributes to overall economic growth. In Tanzania, since the 1990s, when microfinance activities started gaining popularity, the microfinance sector has enhanced financial inclusion for low- income populations and small and medium-sized enterprises (SMEs). Several key players have been instrumental to support the sector. These include formal financial institutions, semi-formal institutions and informal service providers. The Tanzania Government, through its central bank, the Bank of Tanzania, has been playing a crucial regulatory role to ensure fair play and stability in the sector. Despite the efforts, some challenges, including limited access to funding, high interest rates, and low financial literacy, have been facing the industry. All withstanding, however, there is still room for turning these challenges into opportunities as the sector remains a key player in the country's financial ecosystem, contributing to overall economic growth.

**Keywords:** Microfinance, Tanzania, Challenges, Opportunities

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# GÜNEY AFRİKA’NIN DEMOKRASİ VE EKONOMİK BÜYÜME İLİŞKİSİ

Tayyibe KARAGÖZ\*

## Öz

Siyasi rejimlerin (demokrasi, otokrasi) ekonomik büyüme üzerindeki etkileri 20. yüzyılın önemli tartışmalarından biri olagelmıştır. Tartışma, literatürde üç farklı gruplaşmaya neden olmuştur. Bu gruplardan ilki (çatışmacı yaklaşım), gelişmekte olan ülkelerin otoriter rejimlerle yönetilince ekonomik büyümeyi sağlayacağını, iyimser daha doğrusu kalkınmadan yana olan otoriter rejimlerin bunu kolaylaştıracağını savunmaktadır. İkinci grup (bağdaşma yaklaşımı) ise demokrasinin, ekonomik özgürlükleri kamçilediğini, ekonomiyi özgürleştirdiğini ve bununla birlikte ekonomik büyüme üzerinde olumlu bir etkisi olduğunu kabul etmekle birlikte demokrasinin, çıkarını ve çevresini kollayan diktatör rejimlerle kıyaslanmasını dahi kabul etmemektedir. Üçüncü grubu (şüpheli yaklaşım) oluşturan görüş ise ne demokrasi ne de otokrasinin ekonomik büyüme üzerinde direkt bir ilişkisi olmadığını, her iki rejimin de ekonomi için iyi ve kötü yanlarının bulunduğunu bu nedenle de genel bir kanıya varmanın mümkün olmadığını savunur. Bunun yerine ekonomiyi besleyecek adımların önemini vurgulayarak, siyasi rejim-ekonomik büyüme tartışmalarını yersiz bulur. Bu çalışmada demokrasi ve ekonomik büyüme ilişkisi Güney Afrika örneği üzerinden 1976-2023 yılları aralığında, Johansen eşbütünleşme testi ve Granger nedensellik testi ile araştırılmıştır. Araştırılan zaman aralığında Güney Afrika için demokrasi ve ekonomik büyüme ilişkisine dair bir nedensellik ilişkisi bulunamamıştır. Elde edilen sonuç, şüpheli yaklaşımı destekler niteliktedir.

**Anahtar Kelimeler:** Demokrasi, Ekonomik Büyüme, Güney Afrika, Eşbütünleşme, Granger Nedensellik

## RELATIONSHIP BETWEEN DEMOCRACY AND ECONOMIC GROWTH IN SOUTH AFRICA

### Abstract

The impact of political regimes (democracy, autocracy) on economic growth has been one of the prominent debates of the 20th century, leading to three distinct perspectives in the literature. The first group argues that developing countries achieve economic growth under authoritarian regimes, asserting that growth-oriented authoritarian governments can facilitate this process. The second group contends that democracy fosters economic freedom, liberalizes economies, and positively impacts economic growth. They reject any comparison between democracy and self-serving or nepotistic authoritarian regimes. The third perspective posits that neither democracy nor autocracy has a direct relationship with economic growth. It highlights that both regimes have advantages and disadvantages for the economy, making it impossible to reach a general conclusion. Instead, it emphasizes the importance of policies that nurture the economy, deeming the debate over political regimes and economic growth irrelevant. This study investigates the relationship between democracy and economic growth in South Africa during the period 1976-2023 using the Johansen cointegration test and the Granger causality test. No causal relationship

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was found between democracy and economic growth in South Africa over the analyzed period. The findings align with the skeptical perspective.

**Keywords:** Democracy, Economic Growth, South Africa, Cointegration, Granger Causality

# THE ROLE OF MIGRANTS IN ENHANCING ECONOMIC DEVELOPMENT

Ibrahim Hamdy Abdeltawab MOSTAFA\*

## Abstract

Migrants boost the global economy, they contribute to labor markets, entrepreneurship, and major projects. Migration was a defining force in human history, shaping societies, economies, and cultures. In recent decades, migration has emerged as a key factor in global economic development. Migrants, through their skills, labor, and entrepreneurial activities, contribute significantly to the economies of host countries. Türkiye, for instance, has integrated migrants into its economy, particularly in construction, agriculture, and manufacturing. They've played a vital role in ambitious infrastructure projects like the Istanbul New Airport and energy pipelines. However, migrants often face legal barriers, discrimination, and informal employment. To maximize their contribution, policies should focus on facilitating economic integration, creating formal employment opportunities, supporting entrepreneurship, and promoting social inclusion. and for migrants to boost economic development, policymakers need to adopt comprehensive strategies such as: Facilitating economic integration: Governments should provide vocational training, language courses, and recognition of foreign qualifications to improve migrants' employability. Formal jobs should be created by simplifying work permit procedures and incentivizing employers to hire migrants, which would reduce reliance on informal labor markets. Entrepreneurship should be supported by providing microcredit and business development services to migrants, which would foster entrepreneurship and innovation. Social integration should be promoted through initiatives that combat discrimination and encourage cultural exchange.

**Keywords:** Migration, Development, Policies reforms

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# RESOURCE ALLOCATION AND CONFLICT IN AFRICA: A STAG HUNT GAME ANALYSIS OF THE RESOURCE CURSE HYPOTHESIS

Demet TAÇ\*

## Abstract

This study employs the stag hunt game from game theory to rigorously analyze the strategic interactions between governments and rebel groups concerning resource allocation in resource-rich African nations. By applying this theoretical framework, it is investigated how mutual cooperation or defection influences the likelihood of conflict and the trajectory of economic development, aligning with the resource curse hypothesis. The stag hunt game elucidates the coordination challenges faced by both parties: mutual cooperation leads to shared prosperity and sustainable development, while defection results in conflict and underdevelopment. A comparative analysis is conducted with the findings of Adhvaryu et al. (2021), who explore the complex relationship between natural resources, conflict, and economic growth in Africa. The comparison reveals that the stag hunt game effectively captures the essence of the strategic decision-making processes highlighted in their study, emphasizing the critical role of trust and mutual expectations in achieving peaceful outcomes. This analysis contributes to a deeper understanding of how resource abundance can paradoxically hinder development and provides insights into policy interventions that promote cooperation, mitigate conflict, and foster sustainable economic growth in resource-endowed regions.

**Keywords:** Stag Hunt Game, Resource Curse Hypothesis, Game Theory, Resource Allocation in Africa

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# EXPLORING THE INTERPLAY BETWEEN MILITARIZATION, ECONOMIC GROWTH, AND ENVIRONMENTAL SUSTAINABILITY IN EAST AFRICA: A QUANTILE-ON-QUANTILE GRANGER CAUSALITY ANALYSIS

Anthony Ladis KOMBA\*, Ojonugwa USMAN\*\*

## Abstract

National security is important to every nation but difficult to maintain. Militarization can improve the stability of an economy by attracting more investors. On the other hand, it can divert resources from productive uses thereby reducing consumption, investment, and economic growth. Several African countries have been in instability for several years mostly due to civil war, terrorism, and political violence. This study investigates the predictive content of militarization on economic growth and environmental sustainability in five East African countries over the period 1990Q1 to 2022Q4, using a novel Quantile-on-Quantile Granger Causality test. The results show that militarization has a predictive content for economic growth and the environment. The predictive power of militarization on economic growth is stronger in the lower and higher quantiles of economic growth in Burundi, Kenya, and Uganda while in Rwanda and Tanzania, it is stronger in the middle and higher quantiles of economic growth. Furthermore, in Burundi, militarization Granger causes CO<sub>2</sub> emissions in the tail of the lower and middle quantiles of militarization and CO<sub>2</sub> emissions quantiles. In Kenya, Rwanda, Tanzania, and Uganda, the pattern is similar to Burundi but occurs only across the quantiles of CO<sub>2</sub> emissions. Overall, the predictive contents of militarization for growth and the environment have an inherent heterogeneity leading to nonlinear patterns across the distribution of economic growth and CO<sub>2</sub> emissions. It is recommended that governments minimize defense spending and prioritize policies that promote investment, consumption, and economic growth. Simultaneously, military technologies should prioritize renewable energy-based solutions to minimize environmental impact.

**Keywords:** Militarization, Economic Growth, Environmental Sustainability, East African Countries, Quantile-On-Quantile Regression

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# THE IMPACT OF THE CHANGING TRADE STRUCTURE BETWEEN TURKIYE AND AFRICAN COUNTRIES ON THE TURKISH ECONOMY

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## Abstract

Although the overall share of African countries in Türkiye's foreign trade has remained relatively stable over the past two decades, the composition of this trade has undergone significant shifts. Before the 2008 global financial crisis, Türkiye was a net importer of African countries. However, since then, the balance has tilted towards exports. This study investigates the implications of these evolving trade dynamics on the Turkish economy. Specifically, we examine the impact of Türkiye-Africa trade on labor markets, general price levels, and manufacturing industry capacity utilization. To this end, we employ robust least squares (OLS) and Newey-West methods to analyze monthly data from January 2014 to August 2024. Our findings, supported by both econometric analysis and data visualizations, reveal that a one-unit increase in Türkiye's net exports to Africa, relative to total trade with Africa, leads to a 0.39% decrease in manufacturing industry capacity utilization after two periods, a 0.28% decrease in the employment rate after five periods, and a substantial 110.21% increase in the inflation rate after two periods. Based on these results, we conclude that an export-oriented approach to trade with African countries may not be optimal for the Turkish economy. Instead, focusing on importing from Africa could yield more favorable outcomes. Consequently, Türkiye should re-evaluate its trade strategy with African countries and potentially redirect its export targets to different regions.

**Keywords:** International Trade, Inflation, Labor Markets, Fiscal Policies, Trade Balance

## Türkiye ile Afrika Ülkeleri Arasındaki Değişen Ticaret Yapısının Türkiye Ekonomisine Etkisi

## Özet

Afrika ülkelerinin Türkiye'nin dış ticaretindeki genel payı son yirmi yıldır nispeten sabit kalsa da, bu ticaretin bileşenleri önemli değişimlere uğradı. 2008 küresel mali krizinden önce, Türkiye Afrika ülkelerinin net ithalatçısıydı. Ancak o zamandan beri denge ihracata doğru kayd. Bu çalışma, bu gelişen ticaret dinamiklerinin Türkiye ekonomisi üzerindeki etkilerini araştırmaktadır. Özellikle, Türkiye ve Afrika ülkeleri arasındaki ticaretin işgücü piyasaları, fiyatlar genel düzeyi ve imalat sanayi kapasite kullanım oranı üzerindeki etkisi incelenmektedir. Bu amaçla, Ocak 2014'ten Ağustos 2024'e kadar aylık verileri analiz etmek için dirençli en küçük kareler (OLS) ve Newey-West yöntemlerini kullanılmaktadır. Hem ekonometrik analiz hem de veri görselleştirmeleriyle desteklenen bulgularımız, Türkiye'nin Afrika ülkelerine net ihracatının Afrika ülkeleri ile yapılan toplam ticarete oranındaki bir birimlik artışın, iki dönem sonra imalat sanayi kapasite kullanımında %0,39'luk bir düşüşe, beş dönem sonra istihdam oranında %0,28'lik bir düşüşe ve iki dönem sonra enflasyon oranında %110,21'lik önemli bir artışa yol açtığını ortaya koymaktadır. Bu sonuçlara dayanarak, Afrika ülkeleriyle ticarete ihracata yönelik

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bir yaklaşımın Türk ekonomisi için en uygun yaklaşım olmayabileceđi sonucuna varılmaktadır. Bunun yerine, Afrika'dan ithalata odaklanmak daha olumlu sonuçlar verebilir. Sonuç olarak Türkiye, Afrika ülkeleriyle ticaret stratejisini yeniden deęerlendirmeli ve potansiyel olarak ihracat hedeflerini farklı bölgelere yönlendirmelidir.

**Anahtar Kelimeler:** Uluslararası Ticaret, Enflasyon, İşgücü Piyasaları, Maliye Politikaları, Ticaret Dengesi

# **NIGERIA AND TURKIYE TRADE RELATIONS (2000–2020): STRENGTHENING TIES AND EXPANDING HORIZONS**

Toyin Olalekan BABALOLA\*

## **Abstract**

This paper examines the evolution of trade relations between Nigeria and Türkiye from 2000 to 2020, they are both members of D-8 countries. Exploring the factors that have contributed to the strengthening of their bilateral economic ties and expansion of trade horizons. Over the two-decade period, both nations experienced significant political, economic, and institutional changes that paved the way for closer economic cooperation. The study highlights the increasing diversification of trade exchanges, with a focus on key sectors such as energy, construction, textiles, agriculture, and infrastructure. It also discusses the role of diplomatic initiatives, trade agreements, and multilateral platforms in enhancing cooperation. Despite challenges, such as fluctuations in global oil prices, geopolitical tensions, and infrastructural barriers, the trade relationship has grown significantly, underscoring the potential for future collaboration. The paper assesses the prospects for deeper economic integration, looking at opportunities for investment, technology transfer, and trade diversification beyond traditional commodities. Even though both countries have a great deal of potential to engage in very large trade activities that will benefit their populations and youthful demography. The analysis also identified a number of untapped opportunities between them and offered advice to private investors and policymakers on how to further capitalize on these alleged trade benefits

**Keywords:** D-8 Nations, Trade Exchange, Institutional, Youthful-Demography, Cooperation.

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# SEÇİLİ DOĞU AFRİKA TOPLULUĞU (DAT) ÜLKELERİNİN 2013-2023 YILLARI ARASINDAKİ DIŞ TİCARET DİNAMİKLERİ VE TÜRKİYE İLİŞKİSİ ÜZERİNE BİR DEĞERLENDİRME

Eslem BÜYÜKARSLAN\*

## Öz

İkinci Dünya Savaşı sonrası bağımsızlaşmaya başlayan Afrika ülkeleri gelişmeye olan açlığı, yüksek potansiyeli ve makroekonomik gelişmeleriyle uluslararası ekonomik sistemde dikkat çekmektedir. Özellikle Türkiye gibi gelişmekte olan ülkeler, enerji krizi, resesyon gibi çeşitli tehditler barındıran gelişmiş ülkeler yerine, Afrika kıtası gibi daha dinamik ve potansiyeli bulunan bölgelere öncelik vermektedir. Afrika ise sömürge geçmişi nedeniyle daha sağlıklı ilişkiler kurmak için eşitlikçi ve güvenilir ülkelerle dış ticaret ilişkilerini geliştirmeyi tercih etmektedir. Bu bağlamda açılım politikalarını derinleştiren Türkiye'nin kapsayıcı nitelikte bir Afrika yaklaşımı uygulaması, dış ticaret ilişkisini derinleştirmektedir. Afrika açılımını içeren kalkınma stratejisi nedeniyle Türkiye, küresel bir oyuncu ve yeni bir rakip olarak gösterilmekte olduğundan; çalışmada öncelikle, Türkiye'nin Afrika açılımı ve tarihsel ilişkisi üzerinde durulmuştur. Çalışma, Dünya Bankası kalkınma göstergeleri (2024) ve TÜİK (2024) verileri kullanılarak hazırlanmıştır. Bu bağlamda Afrika ülkelerinin kurduğu Doğu Afrika Topluluğu'nda (DAT) yer alan ülkelere Kenya, Uganda, Tanzanya, Burundi ve Ruanda seçilmiştir; ülkelerin 2013-2023 yılları arasında dünya ekonomisindeki konumu, GSYİH ve nüfus açısından değerlendirilmiş ve seçili DAT ülkelerinin 2013-2023 yılları arasındaki dış ticareti incelenmiştir. Bu kapsamda ülkelerin dış ticarete olan bağımlılıkları ortaya konmuştur. Son olarak ilgili yıllarda seçili DAT ülkeleri ve Türkiye arasındaki dış ticaret ölçülerek, seçili ülkelerin Türkiye'nin dış ticareti açısından önemi incelenmiştir. Çalışma bulgularına göre; ilgili yıllarda Türkiye'nin seçili ülkelerle olan ekonomik ilişkisi gelişmiş ve dış ticaret fazlası vermiştir. Türkiye'nin en önemli dış ticaret ortağı olan Tanzanya ve Kenya'nın yanı sıra ekonomik performansı ve dış ticaret bağımlılığı yüksek olan Ruanda ile ticaret ilişkilerinin geliştirilmesi tavsiye edilmektedir.

**Anahtar Kelimeler:** Afrika Ekonomisi, Doğu Afrika Topluluğu (DAT), Dış Ticaret, Türkiye- Afrika Ekonomik İlişkisi

## AN EVALUATION ON THE FOREIGN TRADE DYNAMICS OF SELECTED EAST AFRICAN COMMUNITY (EAC) COUNTRIES BETWEEN 2013-2023 AND THEIR RELATIONSHIP WITH TÜRKİYE

### Abstract

After World War II, African countries that became independent attracted attention in the international economic system with their hunger for development, high potential, and macroeconomic developments. Especially developing countries like Türkiye, instead of developed countries that pose various threats such as energy crisis and recession, give priority to more dynamic and potential regions like the African continent. Africa, on the other hand,

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prefers to develop foreign trade relations with egalitarian and reliable countries in order to establish healthier relations due to its colonial past. In this context, Türkiye's implementation of an inclusive Africa approach, which has deepened its opening policies, deepens foreign trade relations. Since Türkiye is shown as a global player and a new competitor due to its development strategy that includes the African opening, the study primarily focuses on Türkiye's African opening and historical relations. The study was prepared using World Bank development indicators (2024) and TÜİK (2024) data. In this context, Kenya, Uganda, Tanzania, Burundi, and Rwanda were selected from the countries in the East African Community (EAC) established by African countries; the position of the countries in the world economy between 2013-2023 was evaluated in terms of GDP and population, and the foreign trade of selected EAC countries between 2013-2023 was examined. In this context, the dependence of the countries on foreign trade was revealed. Finally, the foreign trade between selected EAC countries and Türkiye was measured in the relevant years, and the importance of selected countries in terms of Türkiye's foreign trade was examined. According to the findings of the study, Türkiye's economic relations with the selected countries developed in the relevant years and had a foreign trade surplus. In addition to Tanzania and Kenya, which are Türkiye's most important foreign trade partners, it is recommended to develop trade relations with Rwanda, which has a high economic performance and foreign trade dependency.

**Keywords:** African Economy, East African Community (EAC), Foreign Trade, Türkiye-Africa Economic Relations

# GLOBALIZATION AND ECONOMIC GROWTH IN SOUTH AFRICA: A FOCUS ON INTERPERSONAL, INFORMATIONAL, AND CULTURAL ASPECTS IN THE LONG RUN

Kemal ERKİŞİ\*

## Abstract

This research analyzes the impacts of interpersonal, informational, and cultural globalization on economic growth in South Africa. The empirical model, spanning the years 1990 to 2023, incorporates three dimensions of globalization, alongside conventional growth factors such as physical capital, labor force, and human capital. In the empirical analysis, we utilize FMOLS, VECM, and ARDL for the estimation of long-term parameters. The FMOLS results indicate that cultural, interpersonal, and informational globalization have positive and statistically significant influences on economic growth. We note that informational globalization has a comparatively greater positive impact on growth. The model identifies physical capital, labor force, and human capital as significant and positive determinants of economic growth. The long-term estimates from VECM suggest that the three dimensions of globalization produce significant long-term effects on economic growth. Informational globalization seems to play the most prominent role in shaping long-term equilibrium relationships. We recognize physical capital, labor force, and human capital as essential determinants of economic growth. The results align with the FMOLS findings. The ARDL model's long-term findings show a positive correlation between interpersonal, informational, and cultural globalization and economic growth. Informational and cultural globalization significantly affect economic growth, while interpersonal globalization also has a positive and notable effect. The ARDL findings clearly demonstrate the positive impact of human capital on economic growth. Physical capital and the labor force are significant determinants of economic growth. The results from the three methods demonstrate that the interpersonal, informational, and cultural dimensions of globalization have positive and significant long-term impacts on economic growth in South Africa. Furthermore, physical capital, labor force, and human capital serve as essential drivers of economic growth. This study illustrates that, alongside production factors, enhancing informational, cultural, and interpersonal interactions can yield beneficial outcomes for economic growth.

**Keywords:** Economic Growth, Interpersonal Globalization, Informational Globalization, Cultural Globalization

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# HOW GLOBALIZATION'S ECONOMIC, SOCIAL, AND POLITICAL DIMENSIONS SHAPE SOUTH AFRICA'S ECONOMIC GROWTH IN THE LONG-RUN

Melike ÇETİN\*

## Abstract

This research analyzes the impact of the economic, social, and political dimensions of globalization on South Africa's economic growth for the period 1990-2023. The variables used in the research include economic growth, capital, labor, human capital, and the economic, social and political dimensions of globalization. The Fully Modified Ordinary Least Squares (FMOLS) method was employed to analyze the long-run relationship. The findings indicate that human capital makes the largest contribution to South Africa's economic growth. A 1% increase in human capital leads to a 0.615% increase in economic growth. Fix capital accumulation and labor force growth also have positive effects on growth, with increases of 0.27% and 0.14%, respectively. The social dimension of globalization contributes 0.071% to economic growth, showing that this aspect significantly impacts South Africa's economic performance. Political globalization plays a notable role in economic growth with an effect of 0.115%. Economic globalization, while positive, has a limited effect (0.028%), suggesting that South Africa's integration into the global economy has a more modest impact on growth compared to other dimensions of globalization. In conclusion, the results of the study show that South Africa's economic growth is strongly influenced by factors such as human capital and political globalization. Additionally, social globalization has a significant impact on economic growth. While economic globalization has a positive influence, its effect is more limited compared to the other dimensions of globalization.

**Keywords:** Economic Growth, Economic Globalization, Social Globalization, Political Globalization

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# ESTIMATION OF INSTITUTIONAL QUALITY AND ECONOMIC GROWTH NEXUS: EVIDENCE FROM SUB-SAHARAN AFRICA

Onur ÇELİK\*

## Abstract

In the current period, the quality concept is seen as one of key components for development of economies and represented with various indicators by major institutions. As a result of this importance, this study is an attempts to investigate the effect of institutional quality indicators on economic growth in 46 Sub-Saharan countries from Africa. Datasets for institutional quality and economic growth are derived from worldwide governance indicators and income level as per capita (\$) of the World Bank and chosen as 2013-2022 period. Results from static panel data and Driscoll-Kraay regression analysis denote that control of corruption, government effectiveness and regulatory quality are found as significant factors on economic growth. Those indicate that the role of political institutions are very crucial for economic growth in reference countries. Therefore, political issues should be traced and taken into consideration for sustainable growth and development in economic policies.

**Keywords:** Institutional Quality, Sub-Saharan Countries, Economic Growth, Africa

## KURUMSAL KALİTE VE EKONOMİK BÜYÜME İLİŞKİSİNİN TAHMİNİ: SAHRA ALTI AFRİKA'DAN KANITLAR

## Öz

Mevcut dönemde, kalite kavramı ekonomiler için kalkınmanın temel unsurlarından biri olarak görülmekte ve önemli kurumlar tarafından çeşitli göstergelerle sunulmaktadır. Bu önemin bir sonucu olarak bu çalışma, Afrika'dan 46 Sahra Altı ülkeleri için kurumsal kalite göstergelerinin ekonomik büyüme üzerindeki etkisini araştırmayı amaçlamaktadır. Kurumsal kalite ve ekonomik büyüme için veri setleri, Dünya Bankası'nın dünya çapındaki yönetim göstergelerinden ve kişi başına düşen gelir düzeyinden (\$) türetilmiş ve 2013-2022 dönemi olarak seçilmiştir. Statik panel veri ve Driscoll-Kraay regresyon analizinden elde edilen sonuçlar, yolsuzluğun kontrolü, hükümet etkinliği ve düzenleyici kalitenin ekonomik büyüme üzerinde anlamlı faktörler olduğunu göstermektedir. Bunlar, referans ülkelerdeki ekonomik büyüme için siyasi kurumların rolünün oldukça önemli olduğunu göstermektedir. Bu nedenle, sürdürülebilir büyüme ve kalkınma için siyasi gelişmeler izlenmeli ve iktisat politikalarında dikkate alınmalıdır.

**Anahtar Kelimeler:** Kurumsal Kalite, Sahra Altı Ülkeleri, Ekonomik Büyüme, Afrika

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# EMPIRICAL ANALYSIS OF THE IMPACT OF GOVERNMENT EFFECTIVENESS ON CONTROL OF CORRUPTION IN SOUTH AFRICA

İsmail Cem AY\*, Ayşe ATILGAN SARIDOĞAN\*\*, Nabi KÜÇÜKGERGERLİ\*\*\*

## Abstract

Corruption has a long-term detrimental effect on economic development and sustainable increase in social welfare by disrupting the efficient allocation of economic resources and damaging the level of institutionalisation of countries. For this reason, many government control and enforcing mechanisms are established in countries to prevent corruption. This study empirically analyses the effects of government policy effectiveness on the control of corruption in South Africa. According to the results of the econometric analysis, it is found that the effectiveness of government policies in South Africa has the same direction and statistically significant effect on the control of corruption. In this context, it has been determined in the study that it is important for the government to produce effective policies in order for countries to be successful in controlling corruption.

**Keywords:** South Africa, Corruption Control, Government Effectiveness

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# HUMAN CAPITAL AND ECONOMIC GROWTH IN THE GAMBIA: EVIDENCE FROM INSTRUMENTAL VARIABLE ESTIMATION

Mustapha NJIE\*

## Abstract

Human capital development has been a crucial factor for modern economic growth and convergence across countries. This study investigates the effect of human capital development on economic growth in the Gambia. The study employed the Mankiw, Romer and Weil human capital model with an augmentation of a vector of controls. Given the endogeneity that may arise on the relationship between human capital and economic growth, due to confounding effects, we estimated how school enrolment, educational and health expenditures affect human capital development which in turn affects economic growth. In a nutshell, these variables acted as instruments for human capital development. The study found that school enrolment, educational and health expenditures have statistically significant impact on human capital development, but human capital development cannot explain economic growth in the Gambia during the period. Finally, regarding the endogeneity that may arise between human capital and growth, the Wu-Hausman test shows that there is not no evidence of endogeneity, which implies that the instrumental variable estimation is not different from the ordinary least-square estimation which is shown in the reported estimation result. Therefore, human capital development alone is not sufficient to enhance economic growth, there should be quality institutions that will make sure that human capital is fully utilized.

**Keywords:** Human Capital, Economic Growth, Instrumental Variable Estimation

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# KARAYOLU TAŞIMACILIĞI ALTYAPI YATIRIMLARININ EKONOMİK BÜYÜME ÜZERİNDEKİ ETKİSİ

Aylin KOCA GÜRSOY\*

## Öz

Ulaştırma sistemlerine yapılan altyapı yatırımları, ekonomik büyüme, ihracat, doğrudan yabancı yatırımlar ve istihdam gibi makroekonomik göstergeler üzerinde önemli etkiler yaratmaktadır. Türkiye ekonomisi açısından incelendiğinde, en fazla yatırımın yapıldığı ulaştırma modunun karayolu taşımacılığı olduğu görülmektedir. Bu nedenle, çalışmanın kapsamı karayolu taşımacılığı olarak belirlenmiştir. Karayolu taşımacılığına yönelik altyapı yatırımlarının ekonomik büyüme üzerindeki etkisinin ampirik olarak incelenmesi, politika yapıcıların karar alma süreçlerine katkı sağlama açısından önem taşımaktadır. Ayrıca, literatürde karayolu taşımacılığının ekonomik büyüme üzerindeki etkisini ele alan çalışmaların sınırlı sayıda olması nedeniyle, çalışma bulgularının literatüre katkı sağlayacağı öngörülmektedir. Bu çalışmanın amacı, Türkiye’de karayolu taşımacılığına yapılan altyapı yatırımlarının ekonomik büyüme üzerindeki etkisini incelemektir. Bu amaç doğrultusunda, 1995-2021 dönemini kapsayan yıllık veriler, ARDL Modeli kullanılarak analiz edilmiştir. Analiz sonuçlarına göre, karayolu taşımacılığı altyapı yatırımları hem kısa hem de uzun dönemde ekonomik büyümeyi pozitif yönde ve istatistiksel olarak anlamlı şekilde etkilemektedir. Elde edilen bulgular, politika yapıcıların ekonomik büyüme politikalarını değerlendirirken karayolu taşımacılığını uzun vadeli bir stratejik araç olarak ele almaları ve altyapı yatırımlarının sürdürülebilirliğini sağlamaları gerektiğini açığa çıkarmıştır.

**Anahtar Kelimeler:** Altyapı Yatırımları, Ulaştırma Altyapı Yatırımları, Karayolu Taşımacılığı, Ekonomik Büyüme, Zaman Serisi Analizi

## THE IMPACT OF ROAD TRANSPORTATION INVESTMENTS ON ECONOMIC GROWTH

### Abstract

Infrastructure investments in transportation systems have significant effects on macroeconomic indicators such as economic growth, exports, foreign direct investment, and employment. In the context of Türkiye, road transportation has received the highest level of investment compared to other modes of transportation. Therefore, this study focuses on road transportation. Examining the impact of road transportation infrastructure investments on economic growth is crucial for providing valuable information to policymakers. Furthermore, since there are few studies that specifically address the effect of road transportation on economic growth, the findings of this study are anticipated to make a significant contribution to the existing literature. The aim of this study is to analyze the impact of road transportation infrastructure investments on economic growth in Türkiye. To achieve this, annual data from 1995 to 2021 have been analyzed using the ARDL (Autoregressive Distributed Lag) model. The results indicate that road transportation infrastructure investments have a positive and statistically significant effect on economic growth in both the short and long term. These findings suggest that policymakers should view road

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transportation as a strategic tool for long-term economic growth and prioritize the sustainability of infrastructure investments.

**Keywords:** Infrastructure Investments, Transportation Infrastructure Investments, Road Transportation, Economic Growth, Time Series Analysis

# ABD-ÇİN GERİLİMİNİN EKONOMİ VE PARA POLİTİKASI ÜZERİNE ETKİSİ

Hakan YILDIRIM\*

## Öz

ABD ile Çin arasında yaşanabilecek olası gerilim her iki ülkenin yatırım ve ticari faaliyetleri ile genel ekonomik görünümde ciddi değişimlerin yaşanmasına sebep olabilirken, söz konusu gerilim sadece iki ülke özelinde değil küresel anlamda etkilere de sahip olabilmektedir. Özellikle politika koyucuların kararları üzerinde belirleyici bir role sahip olabilen gerilim belirsizliklerin artış göstermesi ve ekonomik faaliyetlerin etkilenmesinde anahtar rol oynayabilmektedir. Bu bağlamda söz konusu çalışmada Ocak 1993 ile Şubat 2024 dönemi aylık verileri için Rogers vd. (2024) çalışmasında geliştirilen ABD-Çin Gerilim Endeksi'nin (UCT) Baker vd. (2016) çalışmasında geliştirilen ABD Ekonomik Politika Belirsizlik Endeksi (EPU) ve Husted vd. (2017) çalışmasında geliştirilen ABD Para Politikası Belirsizlik Endeksi (MPU) üzerindeki nedenselliği test edilmiştir. Uygulanan Granger (1969) nedensellik testi neticesinde elde edilen bulgular ABD-Çin Gerilim Endeksinden (UCT) ABD Ekonomik Politika Belirsizlik Endeksi (EPU) ve ABD Para Politikası Belirsizlik Endeksine (MPU) doğru istatistiksel olarak anlamlı bir nedenselliğin söz konusu olduğuna işaret etmektedir. Bu durum ABD ve Çin arasında yaşanabilecek olası gerginliğin ABD ekonomi politikası ve para politikası üzerinde belirleyici bir role sahip olduğunu gösterir niteliktedir.

**Anahtar Kelimeler:** ABD-Çin Gerilim Endeksi, Para Politikası Belirsizlik Endeksi, Ekonomik Politika Belirsizlik Endeksi, Granger Nedensellik Testi

## THE IMPACT OF US-CHINA TENSION ON THE ECONOMY AND MONETARY POLICY

### Abstract

The potential tension between the US and China could lead to serious changes in the investment and trade activities of both countries and in the overall economic outlook. Tensions, which can have a decisive role especially on the decisions of policymakers, can play a key role in increasing uncertainties and affecting economic activities. In this context, this study tests the causality of the US-China Tension Index (UCT) developed in Rogers et al. (2024) on the US Economic Policy Uncertainty Index (EPU) developed in Baker et al. (2016) and the US Monetary Policy Uncertainty Index (MPU) developed in Husted et al. (2017) for monthly data from January 1993 to February 2024. The findings of the Granger (1969) causality test indicate that there is a statistically significant causality from the US-China Tension Index (UCT) to the US Economic Policy Uncertainty Index (EPU) and the US Monetary Policy Uncertainty Index (MPU). This indicates that the potential tension between the US and China has a determinant role on US economic and monetary policy.

**Keywords:** US-China Tension Index, Monetary Policy Uncertainty Index, Economic Policy Uncertainty Index, Granger Causality Test

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# THE ECONOMIC IMPACTS OF DIGITAL TRANSFORMATION PROJECTS IN PUBLIC INSTITUTIONS

Emine YILMAZ\*

## Abstract

This study aims to examine the economic impacts of digital transformation projects in public institutions. Digitalization enhances efficiency, cost-effectiveness, and transparency in the provision of public services, offering numerous benefits such as reducing operational costs and improving budget management. Projects like e-Government applications, electronic procurement systems, and digital tax platforms enable more efficient use of public resources and provide faster, more accessible services to citizens. The study addresses how digitalization optimizes public spending, improves resource utilization, and enhances transparency in service processes. It also evaluates the potential of digital transformation to increase public revenues and its long-term contributions to the economy. The research method used in this study is a literature review, analyzing previous studies on the economic impacts of digital transformation projects. In conclusion, the contributions of digital transformation projects in public institutions to the economy support a sustainable approach to public administration by increasing the efficiency of public expenditures. In this context, it is recommended to accelerate the digitalization process and increase investments in this area.

**Keywords:** Digital Transformation, Economy, Resource Efficiency

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# AFRİKA KITASININ EKONOMİ-POLİTİĞİ: TÜRKİYE-AFRİKA İLİŞKİLERİ

Nida GÜNSAN\*, Haluk YERGİN\*\*

## Öz

Afrika kıtası, dil, din, toplumsal-kültürel bakımdan çeşitlilik gösteren zengin bir bölgedir. GSYH'nin %62'si yenilenebilir ve yenilenemeyen enerji kaynaklarından oluşmakta olup, kıta değerli maden yataklarına sahiptir. Bu sebeple, kıta uzun yıllar batılı ülkelerin ağır sömürgeleri altında kalmış ve yoksulluğa itilmiştir. Afrika, CO2 emisyon salınımı en az olan kıta olmasına rağmen, küresel ısınma nedeniyle iklim değişikliğine en fazla maruz kalan kıtadır. Kuraklık, susuzluk ve açlıkla mücadele eden coğrafyada yoksulluk ve insani kriz daha fazla derinleşmektedir. Batılı ülkeler, Afrika üzerinde belirledikleri politik stratejileri çerçevesinde ekonomik çıkarlar hedeflerken, Türkiye daha şeffaf politikalar içerisinde iş birliğini ilke edinmiştir. 2005 yılı Türkiye'de Afrika yılı olarak kabul edilmiştir ve bu tarihten itibaren Türkiye'de Afrika açılım politikaları hız kazanmıştır. 2003 yılında 5.4 milyar dolar olan ticaret hacmi 7 kat artarak, 2023 yılında Türkiye ile Afrika arasındaki ticaret hacmi yaklaşık 35 milyar dolara ulaşmıştır. Türkiye ve Afrika arasındaki ticaret hacminin genişlemesi, Türkiye'nin Afrika kıtası için izlediği dış politika stratejilerinin başarılı bir şekilde yürütüldüğünün göstergesidir. Dünyadaki jeopolitik gerilimler ve küresel riskler nedeniyle ekonomik ve siyasi açıdan bir belirsizlik hâkim sürdüğünden Türkiye-Afrika ilişkilerinin geleceği için ekonomi - politik perspektiften bir değerlendirmede bulunmak önemlidir. Bu çalışmada, Türkiye ve Afrika ilişkilerinde 1960'lı yıllardan itibaren başlayan değişim ve yaşanan gelişmeler çerçevesinde günümüzde Türkiye ve Afrika ilişkilerinin geldiği nokta ekonomi-politik çerçevede ele alınmaktadır.

**Anahtar Kelimeler:** Afrika Kıtası, Türkiye- Afrika İlişkileri, Sömürgecilik, Ekonomi- Politik

## ECONOMY-POLITICS OF THE AFRICAN CONTINENT: TURKIYE - AFRICA RELATIONS

### Abstract

The African continent is a rich region showing diversity in terms of language, religion, social-cultural aspects. Renewable and non-renewable energy resources account for 62 per cent of GDP and the continent has valuable mineral deposits. For this reason, the continent was heavily colonised by western countries for many years and pushed into poverty. Although Africa is the continent with the lowest CO2 emissions, it is the continent most exposed to climate change due to global warming. Poverty and humanitarian crisis are deepening in the geography, struggling with drought, thirst and hunger. While Western countries aim for economic interests within the framework of their political strategies in Africa, Türkiye has adopted the principle of cooperation within more transparent policies. 2005 was recognised as the Year of Africa in Türkiye and since then, Türkiye's policies of opening up to Africa have gained momentum. The trade volume of 5.4 billion dollars in 2003 has increased 7 times and the trade volume between Türkiye and Africa has reached approximately 35 billion dollars in 2023. The expansion of the trade volume between

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Türkiye and Africa is an indicator of the successful implementation of Türkiye's foreign policy strategies for the African continent. As economic and political uncertainty prevails due to geopolitical tensions and global risks in the world, it is important to assess the future of Türkiye-Africa relations from an economic-political perspective. In this study, Türkiye and Africa.

**Keywords:** African Continent, Türkiye-Africa Relations, Colonialism, Political Economy

# SÜRDÜRÜLEBİLİRLİK VE ÇEVRECİLİK AÇISINDAN AFRIKA'DA KOOPERATİFÇİLİĞİN ÖNEMİ VE GELECEĞİ

İsa ÇELİKDÖNMEZ\*

## Öz

Sürdürülebilirlik; canlıların yaşamlarını bugün ve gelecekte tehlikeye sokmadan üretim yapmak, doğal kaynakların ve çevrenin gelecek nesiller için korunması ve insan ihtiyaçlarının karşılanması amacıyla geliştirilen bir kavramdır. Sürdürülebilirlik; insanların doğal kaynakları, ekonomik faaliyetleri ve toplumsal yapıyı sürdürülebilir ve mantıklı bir şekilde kullanması ve yönetmesi için çok yönlü bir olgudur. Sürdürülebilirliğin üç temel unsuru; çevresel sürdürülebilirlik, sosyal sürdürülebilirlik ve ekonomik sürdürülebilirliktir. Çevrecilik; doğal kaynakları ve ekosistemleri korumak için lobi faaliyetleri yapmak, çevre eğitimi, çevreci eylemler ve olumlu örnekler geliştirerek merkezi ve yerel yönetimlerdeki karar alma süreçlerini etkileme amacıyla olan sosyal bir harekettir. Kooperatif ise, belirli bir topluluğun bir ihtiyacı karşılamak amacıyla iş birliği içerisinde gönüllü olarak kurulan ekonomik ve sosyal kuruluştur. Kooperatif, insan ihtiyaçlarının karşılıklı yardımlaşma yoluyla giderilmesini sağlamak ve ortakların çıkarlarını korumak amacıyla oluşturulmuş tüzel bir kuruluştur. Kooperatifçilik; birlikte iş yapma, birlikte çalışma ve iş birliğidir. Kooperatifler; insanların ihtiyaçlarını karşılıklı yardım, dayanışma ve kefalet suretiyle ve en az maliyetle karşılamak amacıyla kurulan tüzel kuruluşlardır. Kooperatifler hem kişilerin tek başlarına yapmaya güçlerinin yetmediği işleri bir araya gelerek yapmalarını sağlar, hem de toplumun çok yönlü olarak kalkınmasına katkıda bulunur. Kooperatifçilik ile sürdürülebilirlik arasındaki ilişki; hem insanların hem de doğal kaynakların ve çevrenin korunarak zenginleştirilmesi anlamında büyük bir öneme sahiptir. Bu çalışmada Afrika'daki ekonomik ve sosyal kalkınmada kooperatifçiliğin rolüne, sürdürülebilirlik ve çevrecilik açısından yeni yaklaşım ve öneriler üzerinden değinilerek; özellikle çevresel sürdürülebilirlik, sosyal sürdürülebilirlik ve ekonomik sürdürülebilirlik başlıkları altında kooperatiflerle ilgili yapılması gerekenlerden kısaca bahsedilmiş; sürdürülebilirlik ve çevrecilik kavramları analiz edilerek Afrika'da kooperatifçiliğin geleceğine dair bir takım öneriler paylaşılmıştır.

**Anahtar Kelimeler:** Sürdürülebilirlik, Çevrecilik, Kooperatifçilik, Afrika

## THE IMPORTANCE AND FUTURE OF COOPERATIVENESS IN AFRICA IN TERMS OF SUSTAINABILITY AND ENVIRONMENTALISM

### Abstract

Sustainability; it is a concept developed to produce without endangering the lives of living things today and in the future, to protect natural resources and the environment for future generations and to meet human needs. Sustainability; it is a multifaceted phenomenon for people to use and manage natural resources, economic activities and social structure in a sustainable and logical way. Three basic elements of sustainability; environmental sustainability, social sustainability

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and economic sustainability. Environmentalism; it is a social movement that aims to influence decision-making processes in central and local governments by lobbying to protect natural resources and ecosystems, environmental education, environmental actions and developing positive examples. A cooperative is an economic and social organization established voluntarily in cooperation to meet a need of a specific community. A cooperative is a legal organization created to ensure that human needs are met through mutual assistance and to protect the interests of the partners. Cooperativism; it is doing business together, working together and cooperation. Cooperatives; they are legal organizations established to meet people's needs through mutual aid, solidarity and guarantee at the least cost. Cooperatives not only enable people to come together to do work that they cannot do alone, but also contribute to the all-round development of society. The relationship between cooperatives and sustainability; it is of great importance in terms of protecting and enriching both people, natural resources and the environment. In this study, the role of cooperatives in economic and social development in Africa is touched upon through new approaches and suggestions in terms of sustainability and environmentalism; what needs to be done regarding cooperatives, especially under the headings of environmental sustainability, social sustainability and economic sustainability, was briefly mentioned; The concepts of sustainability and environmentalism were analyzed and some suggestions were shared regarding the future of cooperatives in Africa.

**Keywords:** Sustainability, Environmentalism, Cooperatives, Africa

# COMESA ÜLKELERİNDE ÇEVRESEL BOZULMA VE EKONOMİK BÜYÜME İLİŞKİSİ

Neslihan URSAVAŞ\*

## Öz

Günümüzde yaşanan iklim krizi, küresel ısınma, büyük ölçekli doğal afetler gibi çevresel sorunlar ekonomi alanında çevresel sorunların daha fazla ele alınmasına neden olmaktadır. Bu bağlamda çevresel bozulma ve ekonomik büyüme ilişkisi literatürde çok fazla araştırılan tartışmalı bir konudur. Bir yanda daha fazla ekonomik faaliyetin kaçınılmaz olarak çevresel bozulmaya yol açtığı görüşü yer alırken; diğer yanda çözülmeye değer çevresel sorunların ekonomik büyümenin bir sonucu olarak ele alınacağı görüşü yer almaktadır. Bu çalışma 19 COMESA (Doğu ve G. Afrika Ortak Pazarı) ülkelerinde çevresel bozulma ile ekonomik büyüme arasındaki ilişkiyi araştırmaktadır. Bu amaçla 1980-2022 dönemine ait yıllık veriler kullanılarak Dumitrescu Hurlin Panel nedensellik analizi uygulanmaktadır. Elde edilen bulgular COMESA ülkelerinde ekonomik büyümeden kişi başı CO<sub>2</sub> emisyonuna doğru tek yönlü bir nedensellik ilişkisi olduğunu göstermektedir. Diğer bir ifadeyle ekonomik büyüme arttıkça çevresel bozulma artmaktadır. Hızlı ekonomik büyüme sürecinde çevresel sorunları azaltabilmek için bu ülkelerde çevreci büyüme stratejilerinin uygulanması, üretim sürecinde birincil enerji kaynakları yerine yenilenebilir enerji kaynaklarının kullanılması ve bu alanda yatırımların artırılması önemlidir.

**Anahtar Kelimeler:** Çevresel Bozulma, Ekonomik Büyüme, COMESA Ülkeleri

## THE RELATIONSHIP BETWEEN ENVIRONMENTAL DEGRADATION AND ECONOMIC GROWTH IN COMESA COUNTRIES

### Abstract

Today's climate crisis, global warming, and large-scale natural disasters have led to an increased focus on environmental issues in the field of economics. In this context, the relationship between environmental degradation and economic growth is a highly researched and debated topic in the literature. On one hand, there is the view that increased economic activity inevitably leads to environmental degradation, while on the other, there is the perspective that environmental issues worth addressing arise as a consequence of economic growth. This study investigates the relationship between environmental degradation and economic growth in 19 COMESA (Common Market for Eastern and Southern Africa) countries. For this purpose, the Dumitrescu Hurlin Panel causality analysis is applied using annual data from the period 1980-2022. The findings indicate a unidirectional causality from economic growth to per capita CO<sub>2</sub> emissions in COMESA countries. In other words, as economic growth increases, environmental degradation also increases. To mitigate environmental issues during periods of rapid economic growth, it is important for these countries to implement green growth strategies, increase the use of renewable energy sources instead of primary energy sources in production processes, and boost investments in this area.

**Keywords:** Environmental Degradation, Economic Growth, COMESA Countries

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# İKLİM DEĞİŞİKLİĞİNİN SPOR ENDÜSTRİSİNE ETKİSİ

Oğuzhan YILMAZ\*, Şükran DERTLİ \*\*

## Öz

Bu araştırmanın temel amacı, iklim değişikliği ve küresel ısınmanın spor endüstrisi üzerindeki etkilerini incelemektir. Çalışma kapsamında iklim değişikliği ve spor arasındaki ilişki ele alındıktan sonra çevresel faktörlerin spor etkinlikleri üzerindeki etkileri tartışılmıştır. Çalışmada nitel araştırma yöntemi kullanılmış ve kavramsal analiz tekniğiyle iklim değişikliği, küresel ısınma, yeşil enerji ve sürdürülebilirlik arasındaki ilişki incelenmiştir. Literatür taraması yapılarak, konuya dair mevcut çalışmaların sonuçları değerlendirilmiştir. Gerçekleştirilen literatür taraması sonucunda spor endüstrisinde iklim değişikliği ve küresel ısınmanın etkisinin yeteri kadar ele alınmadığı tespit edilmiştir. Bu çalışmanın, sporun çevresel sürdürülebilirliğe katkıda bulunabilecek potansiyelini vurgulayarak, alan yazına önemli katkı sağlayacağı düşünülmektedir. Çalışmada iklim değişikliği ve küresel ısınmanın sporcuların fiziksel performansını olumsuz yönde etkileyebileceği sonucuna ulaşılmıştır. Aynı zamanda iklim değişikliği ile mücadelede sporun daha aktif bir rol oynaması gerektiği belirlenmiştir. Son olarak sürdürülebilir spor altyapıları, yenilikçi spor malzemeleri ve teknolojilerin kullanımının, çevresel etkilerin azaltılması ve sporun sürdürülebilirliğinin sağlanması açısından önemli olduğu sonucuna varılmıştır. İklim değişikliği ve küresel ısınmanın etkileri, spor endüstrisini doğrudan etkilemekte ve sürdürülebilirlik gereksinimlerini ön plana çıkardığı sonucuna ulaşılmıştır. Bu noktada spor tesislerinde enerji verimliliği ve çevresel etkilerin azaltılması noktasında yeşil enerjilerden ve sürdürülebilir uygulamalardan faydalanılması önerilmiştir.

**Anahtar Kelimeler:** İklim Değişikliği, Sürdürülebilirlik, Yeşil Enerji, Spor, Küresel Isınma

## THE IMPACT OF CLIMATE CHANGE ON THE SPORTS INDUSTRY

### Abstract

The main purpose of this research is to examine the effects of climate change and global warming on the sports industry. Within the scope of the study, the relationship between climate change and sports is discussed and the effects of environmental factors on sporting events are discussed. The qualitative research method was used in the study and the relationship between climate change, global warming, green energy and sustainability was examined through conceptual analysis. A literature review was conducted and the results of existing studies on the subject were evaluated. As a result of the literature review, it has been determined that the impact of climate change and global warming in the sports industry has not been sufficiently addressed. This study is thought to make a significant contribution to the literature by emphasizing the potential of sport to contribute to environmental sustainability. In the study, it was concluded that climate

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change and global warming may negatively affect the physical performance of athletes. At the same time, it was determined that sports should play a more active role in combating climate change. Finally, it was concluded that the use of sustainable sports infrastructures, innovative sports equipment and technologies is important in terms of reducing environmental impacts and ensuring the sustainability of sports. It has been concluded that the effects of climate change and global warming directly affect the sports industry and bring sustainability requirements to the forefront. At this point, it is recommended to utilize green energies and sustainable practices in terms of energy efficiency and reducing environmental impacts in sports facilities.

**Keywords:** Climate Change, Sustainability, Green Energy, Sports, Global Warming

# DÖNGÜSEL EKONOMİ VE GERİ DÖNÜŞÜM POLİTİKASINA İLİŞKİN BİR DEĞERLENDİRME

Durmuş Çağrı YILDIRIM\*, Tuğba KANTARCI\*\*

## Öz

Sıfır atık hedefi, sürdürülebilir ürünlerin tasarlanması, kaynak verimliliğinin artırılması ve yenilenebilir enerji kullanımının yaygınlaştırılması gibi stratejiler, döngüsel ekonominin temelini oluşturur. Bu stratejilerin başarılı bir şekilde uygulanması, hem çevresel sorunların çözümüne katkı sağlayacak hem de ekonomik büyümeyi sürdürülebilir kılacaktır. Geleceğe yönelik adımlar atarken, her bireyin ve kurumun döngüsel ekonomiye geçiş sürecinde oynayacağı rolü iyi anlaması ve bu doğrultuda hareket etmesi gerekmektedir. Eğitim ve bilinçlendirme çalışmalarının artırılması, yenilikçi teknolojilerin desteklenmesi ve etkin politikaların hayata geçirilmesiyle, döngüsel ekonomi modeline geçiş hızlandırılabilir ve daha yaşanabilir bir dünya için önemli bir adım atılmış olur.

**Anahtar Kelimeler:** Döngüsel Ekonomi, Sürdürülebilirlik, Geri Dönüşüm Ekonomisi

## AN EVALUATION OF CIRCULAR ECONOMY AND RECYCLING POLICY

### Abstract

Zero waste goals, designing sustainable products, increasing resource efficiency, and promoting the use of renewable energy are foundational strategies of the circular economy. Successful implementation of these strategies will contribute to solving environmental problems and make economic growth sustainable. As we move forward, it is essential for every individual and institution to understand their role in the transition to a circular economy and act accordingly. By enhancing education and awareness efforts, supporting innovative technologies, and implementing effective policies, the shift to a circular economy can be accelerated, taking a significant step towards a more livable world.

**Keywords:** Circular Economy, Sustainability, Recycling Economy

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# HUMAN CAPITAL FLIGHT IN ECOWAS SUB-REGION: THE HETEROGENEOUS INFLUENCES OF MACROECONOMIC AND INSTITUTIONAL FACTORS

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## Abstract

This study demonstrates a deep concern about the forces behind the recent upsurge of human capital flight in ECOWAS. This study examines the heterogeneous impacts of macroeconomic and institutional variables on migration in ECOWAS from 2009 to 2023 using the panel quantile approach with nonadditive fixed effects. The results explain that the effects of the selected macroeconomic and institutional determinants of human capital flight are heterogeneous along the quantiles. Specifically, a decrease in government effectiveness and political stability is an important source of human capital flight in ECOWAS. An increase in income significantly increases human capital flight but the adverse impact reduces from the lower quantiles of net migration to the highest quantile. Unemployment also has both negative and positive impacts on human capital flight at different quantiles. Likewise, the effects of freedom and corruption are both positive and negative across all the quantiles. Still, there are more robust indications that while human capital flight will increase as corruption control increases, freedom and accountability are more likely to reduce human capital flight. This study has shown that human capital flight is largely influenced by institutional indicators and income. The study recommends better institutional frameworks that will increase economic security and opportunities.

**Keywords:** ECOWAS, Human Capital Flight, Brain Drain, Migration, Macroeconomic Factors, Institutional Factors, Non-Additive Panel Quantile Regression

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# THE EFFECT OF DIGITAL MONEY TRANSACTIONS ON CURRENCY IN CIRCULATION EFFICIENCY ON THE NIGERIAN FINANCIAL SYSTEM

Bashir DAN-INNA\*

## Abstract

Technological advancements are rapidly transforming the payment system, while the demand for cash-like assets increases. The rise of technology is gaining acceptance in the financial world globally which is also gaining acceptance in the Nigerian financial system with the increased rate of cashless money transactions, digital currency, and other technological financial platforms. This study is set to ascertain the effect of digital money transactions on the currency in circulation efficiency in the Nigerian financial system limited to the period of (2010-2022). A least square regression analysis was carried out on time-series data to ascertain the relationships between the variables with the use of secondary data sourced from the Central Bank of Nigeria (CBN). The study uses EVIEWS-15.0 to test for ADRL test for the study with. The study found that the use of these platforms Point of sale (POS), Automated Teller Machine (ATM), Internet Web Transaction (INTW) and Mobile Money (MM) transactions have a positive role to play in currency circulation efficiency in the Nigerian financial system. However, the two most significant contributors to currency circulation efficiency are ATM and INW. The study concludes that there is a need for the central authority to promote this system of digital money transactions to replace the old system of transactions in the Nigerian financial system.

**Keywords:** Digital Finance, Digital Transfer, Online Payment System, Digital Efficiency, Cashless Policy

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# RAISING AWARENESS OF OPEN BANKING IN AZERBAIJAN: THE EXPERIENCE OF THE UNITED KINGDOM

Abbasov ALIAKBAR\*

## Abstract

Since 2021, Azerbaijan has officially begun the processes related to the introduction and development of open banking. However, as of 2024, challenges regarding information accessibility still hinder the adoption of open banking. In this study, awareness-raising steps in the case of the United Kingdom were investigated for the adoption of open banking in Azerbaijan. The main purpose of the study is the importance of creating an online open banking platform that will include all features, standards, terms, concepts, advantages, usage rules, instructions, and educational information related to open banking in Azerbaijan. Despite the presence of open banking legislation, security standards, and TPPs in Azerbaijan, low awareness within the society has a direct negative impact on the use of open banking services. By comparing the availability of information on open banking in Azerbaijan and the United Kingdom, the difficulties in Azerbaijan are reflected in this study. Information regarding the United Kingdom was gathered from "openbanking.org.uk," while data for Azerbaijan was obtained from the official website of the Central Bank of the Republic of Azerbaijan. To effectively foster the adoption of the open banking model in Azerbaijan, it is crucial to prioritize awareness-raising initiatives. The study suggests the development of an online platform along with a common information database, which would serve to enhance users' understanding and engagement with open banking in Azerbaijan.

**Keywords:** Open Banking, Fintech, TPPs, Awareness, Adoption, Information, Digital Platform

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# THE IMPACT OF FINANCIAL TECHNOLOGY ON BANK RISK-TAKING BEHAVIOUR: EVIDENCE FROM DEVELOPED AND DEVELOPING COUNTRIES

Elia PERROT\*

## Abstract

The evolution of financial services has seen traditional methods struggle to meet the technical demands of modern institutions and consumers, leading to a surge in FinTech innovations, yet the impact of bank-FinTech relationships on risk-taking behaviours remains understudied. This research investigates this critical relationship by examining banks' investments in FinTech firms, analysing data from 5,306 banks across 158 countries from 2008 to 2021. Employing a Generalized Method of Moments (GMM) estimation to address potential endogeneity concerns, we examine how banks' FinTech investments affect their risk-taking behaviour across different economic contexts and bank structures. Our findings reveal a compelling inverted U-shaped relationship between banks' FinTech investments and risk-taking. The results show that while initial FinTech investments correlate with increased risk-taking, this effect moderates significantly as investments grow, particularly in developed economies outside the USA and bank-based financial systems. These results align with disruptive innovation theory and are supported by robustness checks focusing on banks with at least one investment in a FinTech firm, though variations exist based on economic development and bank type. Our findings contribute significantly to banking literature by demonstrating how FinTech investment patterns influence institutional stability and have important implications for developing unified yet nuanced regulatory frameworks that can effectively balance innovation with financial stability across diverse economic contexts while ensuring consumer protection and equitable competition in developing markets.

**Keywords:** Fintech, Risk-Taking Behaviour, Z-Score, GMM

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# EFFECT OF CORRUPTION ON INFRASTRUCTURAL DEVELOPMENT IN TERTIARY INSTITUTIONS IN SOUTH WESTERN NIGERIA

Johnson Sunday OJEWUMI\*

## Abstract

Infrastructural development is a potent tool for economic development, and development in educational institutions is not an exemption. This paper therefore examines the impact of corruption on infrastructural development in Nigerian tertiary institutions. Descriptive survey research design was adopted, with the research instrument of structured questionnaire, administered to a sample of six hundred (600) respondents that were randomly selected from six institutions located in six states in South Western Nigeria. The data collected from the respondents was analyzed using descriptive and inferential statistical tools. The findings of the study revealed that corruption has a significant negative impact on infrastructural development in Nigerian tertiary institutions. Other factors that inhibit infrastructural development include inadequate funding, poor accountability, lack of transparency, improper prosecution of corruption offenders among others. The study also revealed that proper infrastructure development is of great benefit to Nigerian tertiary institutions as it will enable students to learn in a conducive environment, retain what is learnt and attract qualified staff into the Nigerian institutions. The study therefore recommends that funds released to higher institutions and the purpose be made public and anti-corruption agencies be empowered to effectively combat corruption in the education sector. Improved welfare package for workers and adequate fund allocation to Nigerian tertiary institutions be adopted to reduce the temptation for corrupt practices.

**Keyword:** Corruption, Infrastructure, Development, Tertiary Institution, South Western, Nigeria

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# THE ROLE OF TECHNOLOGICAL INNOVATION IN CONJUNCTION WITH NATURAL RESOURCES AND FINANCIAL RESOURCES IN PROMOTING HUMAN DEVELOPMENT – NEW EVIDENCE WITH THE HUMAN DEVELOPMENT INDEX

Nomazwe SIBANDA\*

## Abstract

Sub-Saharan African countries are associated with poor quality of life because of low-level standards of living, poor health facilities, weak technological systems, and low-level human capital. This research shows the existence of a dearth in the literature on the advancement of human development in the Sub-Saharan African countries. The studies available have employed human development proxies – human capital, health outcomes and economic growth. Therefore, this research differs from past studies by employing the Human Development Index of the United Nations Development Programme that consists of three key dimensions– being knowledgeable, a healthy life and high standards of living, to cover the gap existing in the literature and present key policies toward improving human development in Sub-Saharan Africa. Moreover, this research contributes to the growing body of knowledge by showing the importance of natural resources in supporting human development in this region, where they are available in abundance. The Methods of Moments Quantile Regression is used to analyse the annual data of the forty-three Sub-Saharan African nations for the period 2000 to 2023. The outcome of the research depicts the importance of technological innovations, Government effectiveness, natural resource rents, financial development and green finance in supporting human development. However, as much as green finance improves human development, its effect becomes insignificant in the upper-quantiles. This research also depicts that renewable energy reduces human development; hence, a great cause of concern in policymaking. Key policies that can be adopted in advancing human development in developing nations are presented.

**Keywords:** Human Development; Technology, Natural Resources, Financial Development, Green Finance

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# INFLUENCE OF CORRUPTION ON THE NEXUS BETWEEN PUBLIC HEALTH EXPENDITURE AND ECONOMIC GROWTH IN SUB-SAHARAN AFRICA

Omobola Hannah AROWOLO\*, Sunday Olabisi ADEWARA\*\*

## Abstract

This study investigated the connection between public health expenditure and economic growth and ascertained if the association is influenced by the level of corruption in 43 sub-Saharan African (SSA) countries between 1986 and 2022. The study used dynamic generalized method of moments (GMM) and static estimations to achieve the objective of the study. The study found that public health expenditure contributed to economic growth, as its indicators are positive and significant. The study also found that the connection that exists between health expenditure and economic growth also depends on the level of corruption. Generally, our finding emphasized that government spending on health is important to boost economic growth, and that policymakers must consider the level of economic development while formulating policies that can enhance the impact of health expenditure on economic growth in the presence of corruption in the Sub-Saharan Africa region.

**Keywords:** GMM, Public Health Expenditure, Economic Growth, Corruption

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# TOPIC: ECONOMIC GROWTH AND ENVIRONMENTAL QUALITY: EMPIRICAL EVIDENCE FROM CLIMATE CHANGE IN NIGERIA

Daniel AFOLABI\*

## Abstract

The challenge of environmental degradation, as indicated by CO<sub>2</sub> emissions, presents a substantial barrier to achieving sustainable economic development. This study delved into the intricate relationship between economic growth and environmental quality, particularly focusing on climate change in Nigeria. Employing the Autoregressive Distributed Lags (ARDL) approach due to mixed order of integration from unit root tests, the research scrutinized various factors including population dynamics, deforestation, and manufacturing sector output alongside greenhouse gas emissions as indicators of climate change. GDP per capita served as a proxy for economic growth during the period from 1992 to 2023. The study aimed to evaluate the validity of the Environmental Kuznets Curve (EKC) hypothesis in the Nigerian context, incorporating the square of GDP per capita in its analysis. Results revealed a significant and positive long-term impact of greenhouse gas emissions, manufacturing sector output, and population on CO<sub>2</sub> emissions in Nigeria. Furthermore, the study unearthed a positive long-term relationship between deforestation and CO<sub>2</sub> emissions, whereas a negative correlation was observed between per capita GDP and CO<sub>2</sub> emissions. The square of GDP per capita also displayed a negative long-term association with CO<sub>2</sub> emissions, affirming the existence of EKC in Nigeria. These findings underscore the urgent need for robust energy conservation policies in Nigeria, striking a delicate balance between fostering economic growth and safeguarding the environment. Additionally, the study emphasizes the imperative of addressing population growth, particularly in the Northern region of the country, where unchecked expansion exacerbates environmental pressures.

**Keywords:** Carbon Dioxide Emission, Economic Growth, Climate Change, EKC Hypothesis, Autoregressive Distributed Lags

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# OPTIMIZING TRADE RELATIONS WITH BIG DATA AND AI: INSIGHTS FROM AFRICA AND TÜRKİYE

Aslıhan YÖRDEM\*

## Abstract

Globalization today has been characterized by the promotion of international trade as a key factor in the development of many regions of the world, including Africa and Türkiye. Africa occupies a significant position as one of the largest trading partners of Türkiye. Alongside the enhanced and robust relations recently established in various fields, including education, culture, and diplomacy with numerous African nations, particularly focusing on Somalia, Tunisia, Nigeria, and Niger, it is worth highlighting that Africa continues to be a significant and growing partner for Türkiye in terms of exports and foreign direct investment. In brief, in 2023, 2.8% of Türkiye's total imports came from various African countries, while 8.3% of its exports were directed to Africa, underlining the importance of the region in Türkiye's trade activities. Total trade in goods between Africa and Türkiye amounted to \$31,8 billion in 2023 (TurkStat). Türkiye's exports to Africa totalled \$21,4 billion in 2023, reflecting a 9.4% decline from the previous year, and were led by nuclear reactors, boilers, machinery parts and mineral fuels and oil products (\$3,9 billion, 18.6%), iron and steel (\$1,7 billion, 8.2%), road vehicles and equipment (\$1,2 billion, 5.6%), plastic products (\$1,1 billion, 5.6%), etc. Türkiye's imports from Africa amounted to \$10,4 billion, an increase of 9% year-on-year, and were dominated by mineral fuels and oil products (\$3,1 billion, 29.5%), iron and steel (\$961 million, 9.2%), fertilisers (\$577 million, 5.5%), road vehicles and equipment (\$562 million, 5.4%), inorganic chemicals (\$494 million, 4.7%) and precious or semi-precious stones (\$471 million, 4.5%) (ITC Trademap). On the other hand, although Africa-Türkiye relations have expanded and developed rapidly in recent times, several factors must be taken into account that indicate the current state of affairs. The existence of year-to-year fluctuations in trade patterns, the relatively low volume of trade, and the vast untapped potential that remains, all point to the fact that it is perhaps a little early to confidently claim that there is a stable and fully saturated relationship profile in the context of bilateral trade. At this critical juncture, we are witnessing a significant revolution in the fields of big data analytics (BDA) and artificial intelligence (AI), which are having a profound impact on nearly every sector of the economy. This transformation is not only reshaping traditional business practices but is also seen as a beacon of hope for enhancing the efficiency and reliability of international trade transactions. As these advanced technologies continue to evolve and adapt, they promise to unlock new opportunities and streamline processes, ultimately benefiting global commerce in unprecedented ways. The primary objective of this research is to thoroughly investigate and analyze the contributions made by BDA and AI in facilitating more efficient trading practices. This study will focus on how these advanced technological tools can streamline the trading process, significantly reduce operational costs, and enhance decision-making capabilities within the trade sector, specifically in Africa and Türkiye. This study further bases its analysis on a comparative approach to understanding how businesses in the African continent and Türkiye are applying BDA, and AI to surmount these barriers to trade and gain better market access to complement their

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competitiveness globally. The study employs case studies, coupled with an examination of trade figures, to show and discuss appropriate examples, reveal barriers, and propose possible policy measures to enhance the use of such technologies in global business. The results will fill the literacy gap regarding AI and BDA capacity in supporting economic development and provide knowledge of how emerging economies can implement these technologies in sustainable development.

**Keywords:** Africa, Türkiye, Bilateral Relations, BDA, AI, Case Study

# ENDÜSTRİYEL ROBOTLAR ÜRETKENLİĞİ ARTIRIYOR MU? ÇİN, ALMANYA, JAPONYA, GÜNEY KORE VE ABD'DEN KANITLAR

Cuma DEMİRTAŞ\*

## Öz

Bilgi iletişim teknolojileri, robotlar ve üretkenliği artıran dijital teknolojiler sürdürülebilir bir oranda gelişmeye devam ederken, son birkaç on yılda tüm gelişmiş ekonomilerde üretkenlik büyümesi yavaşladı. Robot teknolojisindeki gelişmelerle birlikte robotlar üretim sürecinde daha fazla kullanılmaya başlanmıştır. Bu durum robotların ülkenin üretken kapasitesi üzerine etkisini araştırılması gerektiğini göstermektedir. Çalışmanın amacı dünyada endüstriyel robotların en fazla kullanıldığı ülkelerde (Çin, Almanya, Japonya, Güney Kore ve ABD) robotların üretken kapasite üzerindeki etkisini 2011-2022 dönemi için Driscoll- Kraay tahmincisi ile analiz etmektedir. Elde edilen bulgular robotların üretken kapasiteyi negatif etkilediğini göstermektedir. Ülke bazlı analizde ise sadece Güney Kore'de anlamlı ancak negatif etkiye sahipken, diğer ülkelerde ise pozitif ancak istatistiksel olarak anlamsızdır. Bu durum, robotların üretim süreçlerinde insan gücüyle yeterli uyum sağlayamaması ve işgücü verimliliği üzerindeki etkilerinin sınırlı kalmasıyla ilişkilendirilebilir. Çalışma, robotlaşmanın otomasyonda beklenen verimliliği her zaman sağlamadığını ve teknolojik yatırımların etkili bir şekilde optimize edilmesi gerektiğini göstermektedir.

**Anahtar Kelimeler:** Robotlar, Üretken Kapasite, Lider Ülkeler, Panel Veri Analizi

## DO INDUSTRIAL ROBOTS INCREASE PRODUCTIVITY? EVIDENCE FROM CHINA, GERMANY, JAPAN, SOUTH KOREA AND USA

## Abstract

While information communication technologies, robots and new productivity-enhancing digital technologies continue to develop at a sustainable rate, productivity growth has slowed in all advanced economies over the past few decades. With the developments in robot technology, robots have started to be used more in the production process. This situation shows that the impact of robots on the productive capacity of the country should be investigated. The aim of the study is to analyse the effect of robots on productive capacity in the countries where industrial robots are used the most in the world (China, Germany, Japan, South Korea and the USA) with the Driscoll-Kraay estimator for the period 2011-2022. The findings show that robots have a negative impact on productive capacity. In the country-based analysis, it has a significant but negative effect only in South Korea, while it is positive but statistically insignificant in other countries. This can be attributed to the fact that robots are not sufficiently compatible with manpower in production processes and their effects on labour productivity remain limited. The study shows that robotisation does not always provide the expected efficiency in automation and that technological investments need to be optimised effectively.

**Keywords:** Robots, Productive Capacity, Leading Countries, Panel Data Analysis

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# TÜRKİYE'NİN AFRİKA'DAKİ DOĞRUDAN YABANCI YATIRIMLARININ EKONOMİK, POLİTİK VE KÜLTÜREL BELİRLEYENLERİ

Okan ŞENOL\*, Meral ALTAN\*\*

## Öz

Türkiye ekonomisinde son dönemde yükseliş eğiliminde olan göstergelerden biri, yabancı ekonomilerde yapılan doğrudan yatırımlardır. Türkiye'nin dış ekonomilerde yaptığı yabancı yatırımlar konusunda dikkat çekici bölgelerden biri Afrika'dır. Başta Kuzey Afrika olmak üzere kıta ekonomisinde yapılan yabancı doğrudan yatırımların payı ağırlık kazanmış, bölge ülkeleriyle yapılan ticaret anlaşmalarıyla da bu ilişki güçlenmiştir. Türkiye - Afrika ülkeleri arasındaki doğrudan yabancı yatırım ilişkilerini konu alan çalışmalarda, özellikle uluslararası ticaretin belirleyicilerinin incelendiği Gravity modeli kullanılmış ve ülkeler arası ticari faaliyetler; ekonomik faaliyetlerin yapısı ve ülkeler arası politik ve kültürel benzerlik gibi faktörler aracılığıyla araştırılmıştır. Bu çalışmada, Türkiye'nin başta Kuzey Afrika bölgesi olmak üzere Afrika ekonomilerinde yaptığı yatırımların temel belirleyicileri incelenmiş; ekonomik, politik ve kültürel faktörlerin Afrika'da yapılan yabancı doğrudan yatırımlar üzerindeki etkisi araştırılmıştır. Çalışmada Gravity model kullanılmıştır. Söz konusu model, ülkeler arası uluslararası ticaret hacminin hangi faktörlere bağlı olduğunu gösterdiğinden, yabancı doğrudan yatırım bağımlı değişkeni ile diğer bağımsız değişkenlerin de iki ülke arasındaki ticareti nasıl etkilediğini ortaya koymaktadır. Çalışmada 2013-2023 yılları arasındaki dönem incelenmiştir, bunun sebebi özellikle Türkiye'nin yurtdışındaki doğrudan yabancı yatırımlarına ait resmi verilerin bu dönemler için geçerli olması ve çalışmaya konu olan yabancı doğrudan yatırım artışı trendinin bu dönemler arasında gerçekleşmesidir. Çalışmada tercih edilen hedef ülkeler Türkiye'nin yabancı doğrudan yatırımlarının istikrarlı olarak gerçekleştiği ülkelerdir. 2-3 yıllık dönemlerde ani yatırım artışı ve azalışı yaşanan ülke ekonomileri bulunmakla birlikte çalışmaya bu nedenle dahil edilmemiştir.

**Anahtar Kelimeler:** Türkiye Yatırımları, Afrika Ticareti, Gravity Model

## ECONOMIC, POLITICAL AND CULTURAL DETERMINANTS OF TURKIYE'S FOREIGN DIRECT INVESTMENTS IN AFRICA

### Abstract

In recent years, foreign direct investment (FDI) has become a rising indicator in the Turkish economy, with Africa emerging as a significant region. Particularly in North Africa, Türkiye's FDI share has grown, supported by the trade agreements made with regional countries. This study examines the determinants of Turkish investments in African economies, with an emphasis on North Africa, using the Gravity model—an econometric model to focus on international trade

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dynamics between countries. The analysis considers economic, political, and cultural factors that influence FDI flows, as well as similarities between Türkiye and recipient countries. The Gravity model identifies the relationship between FDI, as the dependent variable, and other factors, as the independent variables, that affect trade between nations. The study focuses on the period 2013–2023, when official data on Türkiye's FDI abroad is available, and significant growth in investment also occurred. Countries with stable Turkish FDI flows in the Africa region were included, while the countries that experienced sudden fluctuations over short periods, like 2–3 years, were excluded to ensure reliability. By focusing on economic and non-economic drivers of Türkiye's investments, this research aims to understand how trade agreements and common cultural or political ties impact FDI. The findings provide insights into the factors shaping Türkiye's growing economic engagement with Africa, particularly in regions where its investments are consistent and strategic.

**Keywords:** Turkish Investment, Africa Trade, Gravity Model

# THE SIGNIFICANCE OF TRADE FACILITATION IN WEST AFRICA: AN EMPIRICAL REVIEW

Sageer Shehu DANGADO\*

## Abstract

Trade facilitation plays a significant role in promotion of economic growth and development of regions globally especially the west Africa countries. The review examined the importance of trade facilitation in West Africa countries with emphasis on the current stage, challenges, and impacts of these trade indicators on the region. The major issue with the region includes high trade cost and complex procedures in trade customs, the review identified how trade facilitation led to cost reduction, export performance increase, and integration in terms of firm development within the regions. The roles of trade facilitation in sustainable development were also reviewed with focus on economic growth and regional integration in the form of regional trade agreements (RTAs) with the West Africa Countries. The study concluded that for the West African countries to overcome several challenges regarding the trade situation there is need for holistic efforts from international development partners and regional stakeholders on policy improvement which can promote infrastructure development. The effective utilization of trade facilitation tends to lead to social and economic impacts for west Africa countries on a long run. West Africa countries should pay attention to development in the form of ports establishment, transportation improvement, and custom management. The combination of policies with the region that will reduce delay in border activities and increase flow of trade.

**Keywords:** Trade, Facilitation, Significance

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# THE ECONOMIC IMPACTS OF CLIMATE CHANGE ON RURAL LIVELIHOODS IN ALGERIA: EXPLORING THE ROLE OF ENERGY TRANSITION

Lina BOUGOUFFA\*, Ahmed GHERIBI\*\*

## Abstract

This study examines the economic implications of climate change on rural communities in Algeria. The present study draws strength from the United Nations Sustainable Development Goals (UNSDGs- 8, 12, and 13) which highlight the need for decent economic growth, responsible consumption and production, and climate action mitigation respectively while focusing on agriculture-dependent livelihoods. To this end, the primary objective of the present study is to explore the effects of climate change on agricultural productivity, water resources, and household income while exploring how energy transition—specifically the adoption of renewable energy technologies such as solar panels—can mitigate these challenges. The study utilizes a quantitative approach with a survey administered to 200 (farmers from rural areas severely affected by climate change (the High Plateaus and Southern regions)). The sample was selected through stratified sampling to ensure representation across diverse geographic demographic and economic conditions as well as to circumvent for biases. Furthermore, data was analyzed using SPSS for descriptive statistics and hypothesis testing, while SMART PLS was employed to assess the relationships between variables and the impact of energy transition on resilience. Additionally, empirical results indicate a significant decline in agricultural output, with production falling by (20-30%) over the last decade due to shifting weather patterns and water scarcity. Moreover, (65%) of respondents reported a decrease in their income levels. Conversely, farmers adopting renewable energy technologies saw a (15%) increase in productivity, accompanied by reduced operational costs. Statistical analysis confirmed a positive correlation between renewable energy adoption and improved economic and environmental sustainability. Furthermore, from a policy standpoint, the present study recommends policies to support the transition to renewable energy, including financial incentives, small-scale financing for farmers, and awareness campaigns. It also advocates for investing in water-efficient irrigation systems and enhancing water storage infrastructure to bolster climate resilience in rural Algeria.

**Keywords:** Climate Change, Renewable Energy, Rural Economy, Agricultural Productivity, Economic Resilience

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# CARBON EMISSION, INCOME INEQUALITY, AND ECONOMIC GROWTH NEXUS IN NIGERIA: AN ARDL APPROACH

Shehu EL-RASHEED\*, Bello Muhammad ABDULLAHI\*\*

## Abstract

This study investigates the long-run and short-run relationship between carbon dioxide (CO<sub>2</sub>) emissions, income inequality, and economic growth in Nigeria from 1990 to 2023. We utilized the Autoregressive Distributed Lag (ARDL) bound testing approach to cointegration, this study also employed robust pre- and post-estimation techniques to confirm the robustness and significance of our results and analysis. The study also looked into the Environmental Kuznets Curve (EKC) hypothesis, examining whether income inequality in Nigeria follows the inverted U-shaped curve in relation to economic development as developed by Simon Kuznetz. This study fills the gap in the literature by incorporating variables such as Urban Population and Gini inequality index as control variables therefore adding to the ongoing debate on socio-economic development towards building a resilient economy in the changing environmental conditions. Our results offer some policy implications and recommendations for policymakers and the government as they try to reconcile economic growth with environmental protection and sustainable development.

**Keywords:** Carbon Dioxide Emissions, Income Inequality, Economic Growth, ARDL, EKC Hypothesis, Nigeria

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# IS THE WELFARE OF THE YOUTH, MIDDLE-AGED AND ELDERLY AFFECTED (A) SYMMETRICALLY BY COMBINED EFFECT OF DEPRIVATION, COVID-19 POSTTRAUMATIC GROWTH AND POST GENERAL EFFECT? EVIDENCE FROM AN EMERGING ECONOMY

Akinwumi SHARIMAKIN\*

## Abstract

While the impact of covid-19 is devastating, there is evidence that people in a deprived state might be worse off. However, there are still some positive personal changes gained as a consequence of experiences of covid-19. This study investigates the combined effect of deprivation, covid-19 posttraumatic growth and post-general effect of covid-19 on the welfare of rural youth, middle-aged and elderly in Nigeria. Analysis of data on livelihood deprivation, income deprivation and subjective deprivation shows that the welfare of elderly are less affected, and that real posttraumatic covid-19 growth are more experienced by the elderly while both the youth, middle-aged and elderly are adversely affected by post-general effect of covid-19 pandemic. This findings reveal the differences in the degree of resilience and capacity to cope with shocks using the existing resources and other necessities for living standard, and also suggests that rural welfare could be improved if causes of inequality are addressed and more policy effort to curtail the spread of covid-19 are put in place

**Keywords:** Covid-19, Deprivation, Posttraumatic Growth, Post-General Effect, Rural, Welfare

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# EMPIRICAL ANALYSIS OF THE IMPACT OF GOVERNMENT EFFECTIVENESS ON CONTROL OF CORRUPTION IN SOUTH AFRICA

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## Introduction

Corruption has a long-term detrimental effect on economic development and sustainable increase in social welfare by disrupting the efficient allocation of economic resources and damaging the level of institutionalisation of countries. Corruption is a serious obstacle to social and economic development, and corruption has a negative impact on the development process between classes in society.

For this reason, many government control and enforcing mechanisms are established in countries to prevent corruption. This study empirically analyses the effects of government policy effectiveness on the control of corruption in South Africa.

Figure.1. and Table.1 show Good Governance Indicators in South Africa. It is observed that there is a downward trend in the values of the variables. This situation reveals that there is a deterioration in good governance indicators in South Africa.

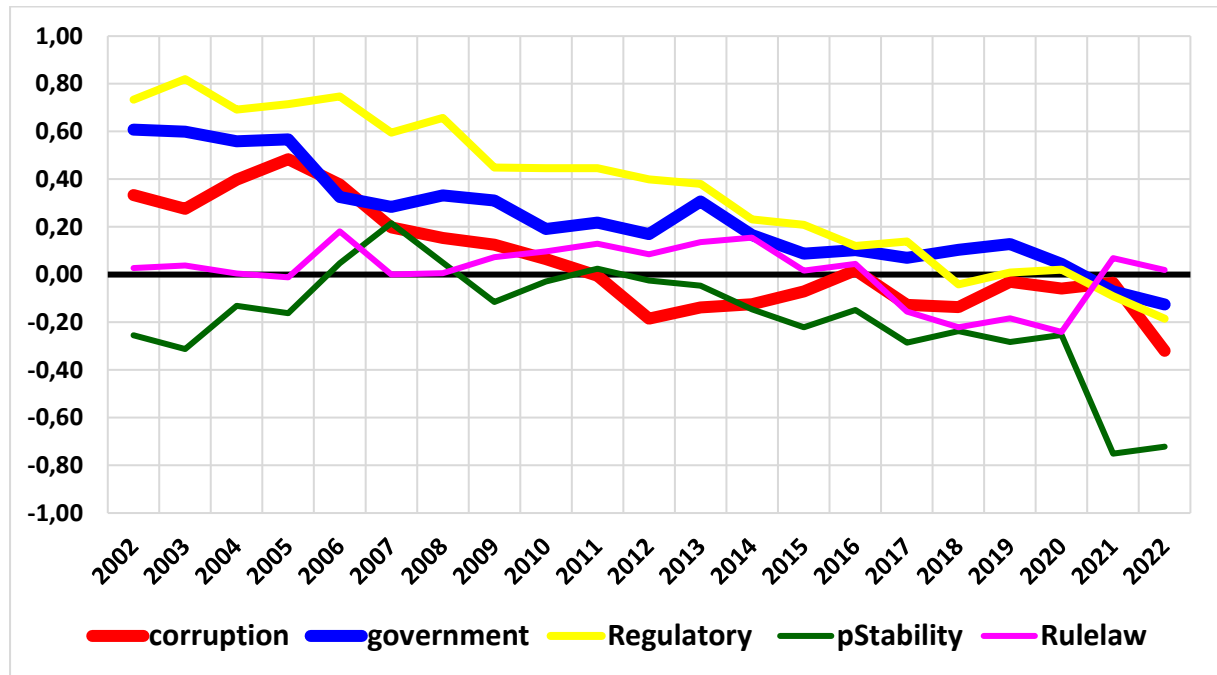


Figure.1. Good Governance Indicators in South Africa

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**Table.1.** Good Governance Indicators in South Africa

Year	Control of Corruption: Estimate	Government Effectiveness: Estimate	Regulatory Quality: Estimate	Political Stability and Absence of Violence/Terrorism: Estimate	Rule of Law: Estimate
	corruption	government	Regulatory	pStability	Rulelaw
2002	0.33	0.61	0.73	-0.25	0.03
2003	0.28	0.60	0.82	-0.31	0.04
2004	0.40	0.56	0.69	-0.13	0.00
2005	0.48	0.57	0.72	-0.16	-0.01
2006	0.38	0.33	0.75	0.05	0.18
2007	0.20	0.28	0.60	0.22	0.00
2008	0.15	0.33	0.66	0.05	0.01
2009	0.13	0.31	0.45	-0.11	0.07
2010	0.07	0.19	0.45	-0.03	0.10
2011	0.00	0.22	0.45	0.02	0.13
2012	-0.18	0.17	0.40	-0.03	0.08
2013	-0.14	0.31	0.38	-0.05	0.14
2014	-0.12	0.17	0.23	-0.15	0.16
2015	-0.07	0.09	0.21	-0.22	0.02
2016	0.02	0.10	0.12	-0.15	0.05
2017	-0.13	0.07	0.14	-0.28	-0.16
2018	-0.14	0.10	-0.04	-0.24	-0.22
2019	-0.03	0.13	0.01	-0.28	-0.18
2020	-0.06	0.05	0.02	-0.25	-0.24
2021	-0.03	-0.07	-0.09	-0.75	0.07
2022	-0.32	-0.13	-0.19	-0.72	0.02

**Source:** World Development Indicators

## Literature

There is a large body of research on corruption in South Africa. The most prominent of these studies are summarized below.

Lodge (1998) concludes that public opinion is that political corruption is entrenched in South Africa. They stated that although democratic regulations have reduced corruption to a certain extent, a significant part of corruption occurs in regional administrations. However, they noted that there are still corruption tendencies in public procurement.

Pillay (2004) argues that the impact of corruption in South Africa has severely constrained the development of the national economy and significantly impeded good governance in the country. Although the South African government has taken measures to prevent corruption, it has not achieved enough.

Kroukamp (2006) argues that traditional moral values in African societies are important in the prevalence of corruption in African states. In these states, it is culturally acceptable for officials to receive gifts and payments.

Bruce (2014) argues that addressing corruption is not only about addressing 'moral deficiencies' but also about how to promote justice and equity in South African society.

Manyaka and Nkuna (2014) argue in their study that increasing structural inequalities in South Africa widen the gap between the poor and the rich. This situation also negatively affects sustainable development. The persistence of corruption in South Africa is attributed to weak application of legislation and oversight mechanisms.

Jonck and Swanepoel (2016) report that corruption in law enforcement is a growing concern among South African citizens and that among demographic variables, gender and religion do not affect trust in law enforcement and satisfaction with service delivery.

In his study, Krsteski (2017) states that the factors affecting corruption in South Africa include personal use of public resources, bribery and nepotism. Bid rigging is a common form of corruption in South Africa, where corruption is often observed in the award of government contracts based on personal connections and corrupt relationships.

Budhram and Geldenhuys (2018) argue that corruption in South Africa is widespread and can take different forms. Corruption is a source of problems that distorts markets, leads to human rights violations, facilitates and finances organized crime and terrorism, and undermines democracy and the rule of law. Corruption is an obstacle to sustainable economic, political and social development, increases the cost of doing business, discourages investment and wastes public resources.

Salahuddin et al. (2020) argue that poverty and corruption can both bring down a nation. The study analyzed the effects of globalization and corruption on poverty in South Africa. According to the empirical results, the globalization findings are robust across different poverty measures, while the unidirectional results show that corruption increases poverty.

Vorster and Nwosu (2024) argue that corruption, which is a global phenomenon, spreads to all countries at different levels, and the weakness of preventive mechanisms leads to the continuation of corruption. Corruption has significant negative consequences in Africa. It undermines democracy, development and poverty reduction efforts. Increased pressure on these officials to legitimize the use of public funds, coupled with expectations of efficient service delivery, can contribute to corrupt practices.

Mlambo et al (2023) argue that corruption diverts funds and resources for the benefit of local people, making some rich while leaving those in need of basic services in turmoil. From a South African perspective, as in many parts of Africa, corruption has emerged as an obstacle to South Africa's prospects for sustained socio-economic growth. To reduce corruption, senior positions in local government should be appointed on merit; anti-corruption watchdogs should be supported; independent institutions should be allowed to operate without fear; and whistleblowers should be protected.

### **Method And Empirical Results**

Table.2. presents the data, variables and methodology for the empirical analysis. Accordingly, the control of corruption variables is modeled with the ARDL method for South Africa and the period 2002-2022.

<b>Table.2.</b> Data, Variables and Methodology For Empirical Analysis	
Country	South Africa
Data Period	2002-2022 (Annual Data)
Dependent Variable	Control of Corruption
Independent Variables	Government Effectiveness Political Stability and Absence of Violence/Terrorism Rule of Law
Estimation Method	Autoregressive Distributed Lag (ARDL)
Data Source	World Bank World Development Indicators

According to the ADF Unit Root Test Results for Variables from Table.3., all variables are stationary at first difference.

<b>Table.3.</b> ADF Unit Root Test Results Table					
Null Hypothesis: the variable has a unit root					
	<b>At Level</b>				
		Corruption	Government	Pstability	Rulelaw
With Constant	t-Statistic	-0.7626	-0.9242	-0.5723	-2.2676
	<b>Prob.</b>	<b>0.8080</b>	<b>0.7587</b>	<b>0.8562</b>	<b>0.1910</b>
With Constant & Trend	t-Statistic	-2.0507	-2.8047	-1.6682	-2.4834
	<b>Prob.</b>	<b>0.5401</b>	<b>0.2123</b>	<b>0.7273</b>	<b>0.3314</b>
Without Constant & Trend	t-Statistic	-1.1916	-2.2049	-0.0348	-2.3140
	<b>Prob.</b>	<b>0.2053</b>	<b>0.0297</b>	<b>0.6591</b>	<b>0.0234</b>
		n0	**	n0	**
	<b>At First Difference</b>				
		d(corruption)	d(government)	d(pstability)	d(rulelaw)
With Constant	t-Statistic	-3.3406	-5.0267	-4.6238	-5.6365
	<b>Prob.</b>	<b>0.0272</b>	<b>0.0008</b>	<b>0.0019</b>	<b>0.0002</b>
		**	***	***	***
With Constant & Trend	t-Statistic	-3.1482	-4.8848	-3.6447	-5.4767
	<b>Prob.</b>	<b>0.1240</b>	<b>0.0051</b>	<b>0.0560</b>	<b>0.0016</b>
		n0	***	*	***
Without Constant & Trend	t-Statistic	-3.1369	-4.1588	-4.6546	-5.8011
	<b>Prob.</b>	<b>0.0035</b>	<b>0.0003</b>	<b>0.0001</b>	<b>0.0000</b>
		***	***	***	***
<b>Notes:</b>					
a: (*)Significant at the 10%; (**)Significant at the 5%; (***) Significant at the 1% and (no) Not Significant					
b: Lag Length based on SIC					
c: Probability based on MacKinnon (1996) one-sided p-values.					

Table.4. shows long run cointegration results of the ARDL estimation of the model and diagnostic tests according to the results of the ARDL model estimation, For the long run cointegration coefficients, it is found that the effectiveness of government policies in South Africa has the same direction and statistically significant effect on the control of corruption. The coefficients of other control variables are statistically significant, and their signs are consistent with the literature. The model satisfies the criteria for diagnostic tests.

**Table.4.** Long Run Cointegration Results Of The ARDL Estimation Of The Model And Diagnostic Tests

Variable	Coefficient	Std. Error	t-Statistic	Prob.
<b>Government</b>	1.293978	0.006694	193.2981	0.0033
<b>Pstability</b>	0.301216	0.004579	65.78687	0.0097
<b>Rulelaw</b>	-0.749242	0.008826	-84.89005	0.0075
C	-0.267534	0.000957	-279.4263	0.0023
<b>F-Bounds Test</b>		Null Hypothesis: No levels relationship		
Test Statistic	Value	Signif.	I(0)	I(1)
			Asymptotic: n=1000	
F-statistic	1945.409	10%	2.37	3.2
k	3	5%	2.79	3.67
		2.5%	3.15	4.08
		1%	3.65	4.66
Actual Sample Size	18		Finite Sample: n=30	
		10%	2.676	3.586
		5%	3.272	4.306
		1%	4.614	5.966
<b>ECM Regression</b>				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
CointEq(-1)*	-1.334109	0.006049	-220.5339	0.0029

### ***Residual Diagnostic Results***

Jarque-Bera Test Result: Prob=0.585 ; CusumQ test result shows stability  
Autocorrelation and Heteroscedasticity: HAC standard errors & covariance (Bartlett kernel,  
Newey-West fixed)

Case 2: Restricted Constant and No Trend

### **Discussion And Conclusion**

According to the results of the econometric analysis, it is found that the effectiveness of government policies in South Africa has the same direction and statistically significant effect on the control of corruption.

In this context, it has been determined in the study that it is important for the government to produce effective policies in order for countries to be successful in controlling corruption.

In order to prevent corruption, it is necessary to strengthen and make transparent the legal regulations and objective criteria in the workflow processes in public institutions and to prevent interest groups from penetrating in their favor.

In order to be successful in the fight against corruption, it is important to adapt the best practice models and regulations in the fight against corruption in the world to the needs of countries and/or to develop country-specific models and regulations.

### **REFERENCES**

- Bruce, D. (2014). Control, discipline and punish?: Addressing corruption in South Africa. *South African Crime Quarterly*, 48, 49-62.
- Budhram, T., & Geldenhuys, N. (2018). Corruption in South Africa: The demise of a nation? New and improved strategies to combat corruption. *South African Journal of Criminal Justice*, 31(1), 26-57.
- Jonck, P., & Swanepoel, E. (2016). The influence of corruption: a South African case. *Policing: An International Journal of Police Strategies & Management*, 39(1), 159-174.
- Kroukamp, H. (2006). Corruption in South Africa with particular reference to public sector institutions: the evil of all evils. *Journal of Public Administration*, 41(si-1), 206-217.
- Krsteski, N. G. H. (2017). Corruption in South Africa: genesis and outlook. *Journal of process management and new technologies*, 5(4).
- Lodge, T. (1998). Political Corruption in South Africa. *African Affairs*, 97(387), 157-187.
- Manyaka, R. K., & Nkuna, N. W. (2014). The phenomenon of corruption in the South African public sector: Challenges and opportunities. *Mediterranean Journal of Social Sciences*, 5(27), 1572-1580.
- Mlambo, D. N., Mubecua, M. A., & Mlambo, V. H. (2023). Post-colonial Independence and Africa's Corruption Conundrum: A Succinct South African Critique Post-democratisation. *Insight on Africa*, 15(2), 184-202.
- Pillay, S. (2004). Corruption—the challenge to good governance: a South African perspective. *International Journal of Public Sector Management*, 17(7), 586-605.

Salahuddin, M., Vink, N., Ralph, N., & Gow, J. (2020). Globalisation, poverty and corruption: Retarding progress in South Africa. *Development Southern Africa*, 37(4), 617-643.

Vorster, H., & Nwosu, L. (2024). Evaluating policies and regulations used to control corruption among accounting officers in the public sector of South Africa: a systematic literature review. *Frontiers in Sociology*, 9, 1371287.

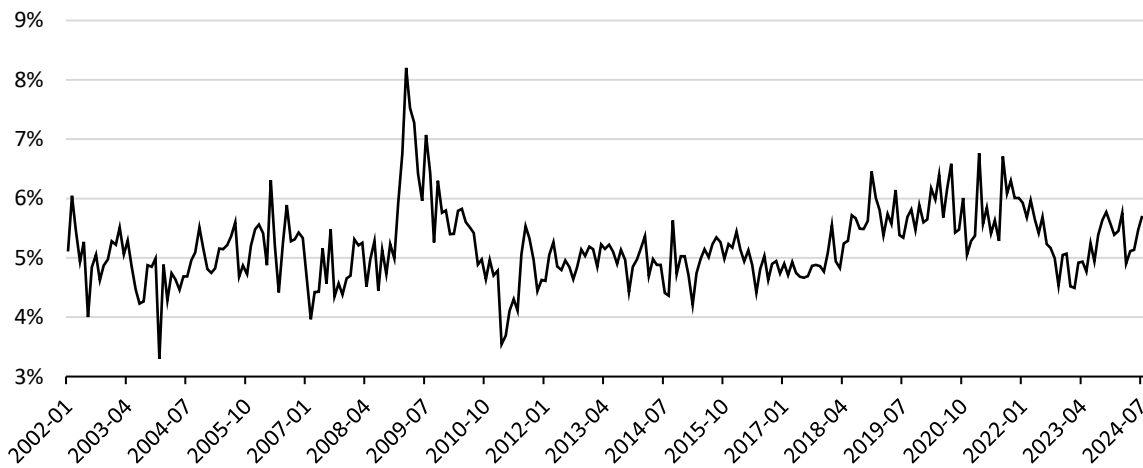
# THE IMPACT OF THE CHANGING TRADE STRUCTURE BETWEEN TURKIYE AND AFRICAN COUNTRIES ON THE TURKISH ECONOMY

Esat DAŞDEMİR\*, Mustafa Kerem BÖRÜ\*\*

## Introduction

The share of African countries in the foreign trade of the Turkish economy is around 5%. Despite the geographical proximity, the fact that foreign trade with these countries is low indicates that a significant potential has not been realized. The productivity gains that can be achieved through cooperation and international trade between Türkiye and African countries can be a significant gain for both the Turkish economy and the economies of African countries. However, due to various reasons, the ratio of the Turkish economy's trade with Africa to Türkiye's total trade has not increased at the desired level in the last twenty years. Figure 1 shows the share of African countries in Türkiye's total foreign trade. As can be understood from the figure, the share of trade with African countries has not increased significantly over the years.

**Figure 1:** The Ratio of Türkiye's Trade with Africa to Total International Trade (%)



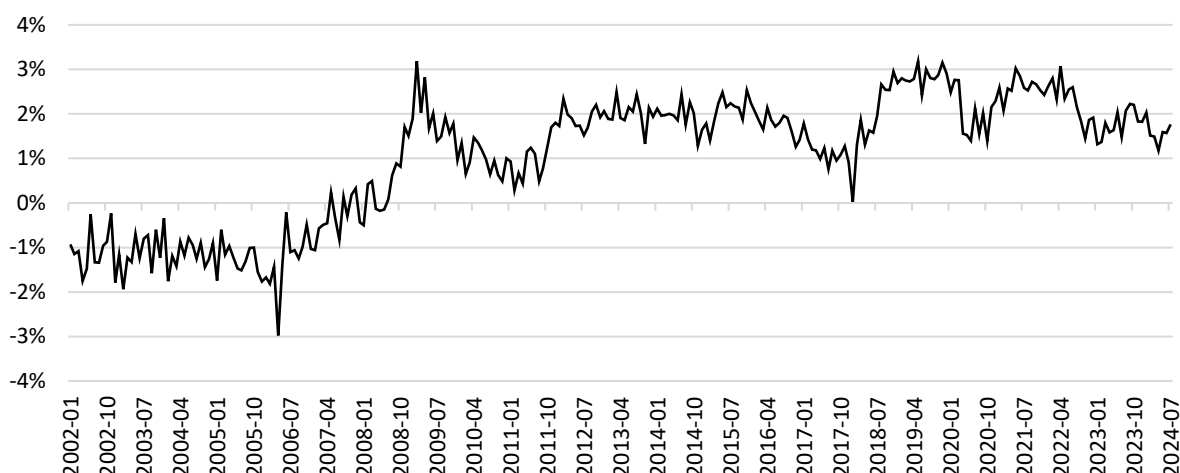
**Source:** Trade Map

Figure 2 shows the ratio of net exports in Türkiye's trade with African countries. Although there was no significant increase in the trade volume shown in Figure 1, there was a significant increase in net exports during this period. This can be seen through Figure 2.

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**Figure 2:** Net Exports to Africa as A Percentage of Total Trade with Africa (%)



**Source:** Trade Map

As seen in Figure 2, after the Global Financial Crisis in the 2007-2008 period, Türkiye's net exports exceeded 0 and maintained this level in the following years.

This study examines the impact of this transformation in Türkiye's trade with African countries on the macroeconomic variables of the Turkish economy. In the literature, the Turkish economy and African countries' trade are addressed within the scope of the gravity model (Aman et al., 2017). When the arguments of the gravity model are also taken into account, there are important findings in the literature that the trade potential between Türkiye and African countries is high (Arslan, 2018; Cicioğlu & Hafız Ahmed Ibrahim, 2023).

### Econometric Analysis

Within the scope of the study, the impact of the change in Türkiye's net exports to African countries on the Turkish economy was analyzed with data between January 2014 and July 2024. The variables and their definitions used in the analysis are given in Table 1.

**Table 1:** Variables and Definitions

Variable	Description
NExA	Net exports to Africa as a percentage of total trade with Africa (%)
INF	Consumer price index (CPI) monthly change rate of Türkiye
CUR	Manufacturing industry capacity utilization rate
EMP	Employment rate

**Source:** Trade Map, TURKSTAT

The models to be analyzed are listed below as Model 1, Model 2 and Model 3.

$$CUR_t = \beta_0 + \beta_1 NExA_{(t-2)} + \mu_t \quad (1)$$

$$EMP_t = \alpha_0 + \alpha_1 INF_t + \alpha_2 NExA_{(t-5)} + \rho_t \quad (2)$$

$$INF_t = \lambda_0 + \lambda_1 INF_{(t-1)} + \lambda_2 NExA_{(t-1)} + \varepsilon_t \quad (3)$$

In order to select the method to be used in the analysis of the models, the assumptions in the time series analysis were examined. First, the stationarity tests were examined. For this purpose, the

Augmented Dickey Fuller (ADF) (Dickey & Fuller, 1979) test was applied to the series. The test results are given in Table 2.

**Table 2:** Augmented Dickey Fuller (ADF) Test Results

	lag	P Value	Test statistic	1%	5%	10%
<b>NExA</b>	1	0.073	-2.707	-3.502	-2.888	-2.578
	1	0.236	-2.701	-4.032	-3.447	-3.147
	1		-0.795	-2.597	-1.950	-1.612
	2	0.194	-2.235	-3.502	-2.888	-2.578
	2	0.481	-2.215	-4.032	-3.447	-3.147
	2		-0.684	-2.597	-1.950	-1.612
<b><math>\Delta</math>NExA</b>	1	0.000	-11.082	-3.502	-2.888	-2.578
	1	0.000	-11.041	-4.032	-3.447	-3.147
	1		-11.126	-2.597	-1.950	-1.612
	2	0.000	-8.585	-3.502	-2.888	-2.578
	2	0.000	-8.556	-4.032	-3.447	-3.147
	2		-8.619	-2.597	-1.950	-1.612
<b>ICUR</b>	0	0.003	-3.767	-3.501	-2.888	-2.578
	0	0.019	-3.759	-4.031	-3.447	-3.147
	0		-0.039	-2.597	-1.950	-1.612
	1	0.001	-4.182	-3.502	-2.888	-2.578
	1	0.005	-4.180	-4.032	-3.447	-3.147
	1		0.023	-2.597	-1.950	-1.612
	2	0.002	-3.917	-3.502	-2.888	-2.578
	2	0.012	-3.912	-4.032	-3.447	-3.147
	2		-0.027	-2.597	-1.950	-1.612
<b><math>\Delta</math>ICUR</b>	0	0.000	-10.649	-3.502	-2.888	-2.578
	0	0.000	-10.606	-4.032	-3.447	-3.147
	0		-10.692	-2.597	-1.950	-1.612
	1	0.000	-8.523	-3.502	-2.888	-2.578
	1	0.000	-8.488	-4.032	-3.447	-3.147
	1		-8.559	-2.597	-1.950	-1.612
	2	0.000	-7.737	-3.502	-2.888	-2.578
	2	0.000	-7.705	-4.032	-3.447	-3.147
	2		-7.769	-2.597	-1.950	-1.612
<b>IEMP</b>	0	0.600	-1.363	-3.501	-2.888	-2.578
	0	0.777	-1.639	-4.031	-3.447	-3.147
	0		0.700	-2.597	-1.950	-1.612
	1	0.663	-1.224	-3.502	-2.888	-2.578
	1	0.837	-1.476	-4.032	-3.447	-3.147
	1		0.791	-2.597	-1.950	-1.612
<b><math>\Delta</math>IEMP</b>	0	0.000	-12.103	-3.502	-2.888	-2.578
	0	0.000	-12.080	-4.032	-3.447	-3.147
	0		-12.094	-2.597	-1.950	-1.612
	1	0.000	-8.996	-3.502	-2.888	-2.578
	1	0.000	-9.013	-4.032	-3.447	-3.147
	1		-8.975	-2.597	-1.950	-1.612

<b>INF</b>	0	0.924	-0.312	-3.501	-2.888	-2.578
	0	0.812	-1.549	-4.031	-3.447	-3.147
	0		0.740	-2.597	-1.950	-1.612
	1	0.492	-1.583	-3.502	-2.888	-2.578
	1	0.212	-2.759	-4.032	-3.447	-3.147
	1		-0.710	-2.597	-1.950	-1.612
<b>ΔINF</b>	0	0.000	-5.705	-3.502	-2.888	-2.578
	0	0.000	-5.661	-4.032	-3.447	-3.147
	0		-5.705	-2.597	-1.950	-1.612
	1	0.000	-5.786	-3.502	-2.888	-2.578
	1	0.000	-5.748	-4.032	-3.447	-3.147
	1		-5.768	-2.597	-1.950	-1.612

The expression “Δ” indicates that the 1st degree difference of the series was taken. The expression “l” in front of the series indicates that the logarithms of the series were taken to the base 10. Logarithmic changes were made for the series if possible. However, the logarithms of variables with zero and negative observation values could not be taken.

According to the values in Table 2, NExA, IEMP and INF variables contain a unit root at the level values with a 5% error margin, while ICUR does not contain a unit root statistically. When the first-degree differences of all series are taken, it is understood that the series are stationary. Therefore, the analysis is done by taking the differences of the series. Breusch-Pagan/Cook-Weisberg (Breusch & Pagan, 1979; Cook & Weisberg, 1983) tests were performed for the heteroskedasticity test in the analyzed models. The test results are given in Table 3.

**Table 3:** Breusch–Pagan/Cook–Weisberg Test for Heteroskedasticity

Model	Chi2	P Value
M1	11.43	0.0007
M2	1.84	0.1755
M3	2.71	0.0998

According to the results, there is heteroskedasticity at a 5% error margin in all models except Model 1. The method known as Breusch Godfrey Lagrange Multiplier (LM) (Breusch, 1978; Godfrey, 1978) was used for the autocorrelation test. The results are given in Table 4.

**Table 4:** Otokorelasyon Breusch Godfrey Lagrange Çarpımı (LM) Test (lag 1)

Model	Chi2	P Value
M1	0.350	0.5541
M2	0.230	0.6312
M3	3.219	0.0728

According to the results obtained, the null hypothesis could not be rejected for any model at a 5% margin of error. It can be said that there is no statistical autocorrelation in any model. According to the results obtained, the robust least squares method was used in the analysis of the models. The results obtained are given in Table 5. Table 6 provides information on the general models.

**Table 5:** Analysis Results

Model	Variable	Lag	Coefficient	std. err.	T	P> t
1	Constant	0	-.0000164	.00087	-0.02	0.9850
	$\Delta$ NExA	2	-0.3895	0.1909	-2.0400	0.0435
2	Constant	0	.000209	.000485	0.4300	0.668
	$\Delta$ NExA	5	-0.2816	0.1093	-2.5800	0.0112
	$\Delta$ INF	0	0.0001	0.0001	2.0900	0.0387
3	Constant	0	0.1392	0.2876	0.4800	0.629
	$\Delta$ NExA	1	-129.8994	69.0565	-1.8800	0.0623
	$\Delta$ INF	1	0.5583	0.1003	5.5700	0.0000

**Table 6:** Analysis Results of the Models

	Model 1	Model 2	Model 3
<b>Dependent Variable</b>	CUR	EMP	INF
<b>Number of obs</b>	124.000	121.000	125.000
<b>F</b>	4.160	4.770	15.510
<b>Prob &gt; F</b>	0.044	0.010	0.000
<b>R-squared</b>	0.025	0.056	0.302
<b>Root MSE</b>	0.010	0.005	3.092

According to the results obtained, the F test of all three models is statistically significant at a 5% margin of error. It is seen that the R square values are low in Model 1 and Model 2. The reason for this can be considered as the lack of many variables in the models and the fact that African trade has a small part in the Turkish economy. When the results of the three models are examined, it is seen that the fixed coefficients are statistically insignificant at a 5% margin of error. However, the coefficients of the explanatory variables are significant. When the coefficients of the variables are examined, it is understood that as Türkiye's net exports to African countries increase, the selected macroeconomic indicators of the Turkish economy show negatively accepted results. According to these results, the selected macroeconomic variables of the Turkish economy are negatively affected by the increase in net exports to African countries.

### Conclusion

According to our results and findings, we can list our suggestions under three headings. These are:

- Türkiye should not see African countries as an export market.
- Accordingly, our second suggestion is that Türkiye should establish as balanced a trade relationship as possible with African countries. Imports should not be avoided.
- Saharan countries have the highest share of Türkiye's trade with African countries. The share of sub-Saharan countries in trade is still quite low. Stronger trade relations should be established, especially with sub-Saharan countries.

The trade potential between Türkiye and African countries is not being sufficiently evaluated. An important reason for this situation is Türkiye's economic dependence on European countries. European countries are in the first place with more than 50% of Türkiye's total imports and exports. The fact that European countries have such a share of Türkiye's trade can also be

considered an obstacle to Türkiye finding more profitable trade partners. This study examined this situation specifically for African countries as required by the topics of the conference it was presented at. However, a similar situation is also valid for the countries of the Turkestan region. Our suggestion for other studies to be conducted is in this direction.

## REFERENCES

- Aman, A. W., Gönel, F., & Karaduman, H. (2017). Türkiye—Africa trade: A gravity model estimation of determinants. *Journal of Economics Library*, 4(4), 561-571. <https://doi.org/10.1453/jel.v4i4.1535>
- Arslan, K. (2018). Türkiye'nin Yeni Pazar Arayışları İçinde Afrika Ülkelerinin Yeri ve Önemi. *Verimlilik Dergisi*, 2, 133-162.
- Breusch, T. S. (1978). Testing for Autocorrelation in Dynamic Linear Models. *Australian Economic Papers*, 17(31), 334-355. <https://doi.org/10.1111/j.1467-8454.1978.tb00635.x>
- Breusch, T. S., & Pagan, A. R. (1979). A Simple Test for Heteroscedasticity and Random Coefficient Variation. *Econometrica*, 47(5), 1287-1294. <https://doi.org/10.2307/1911963>
- Cicioğlu, Ş., & Hafız Ahmed Ibrahim, R. (2023). Analysis of Foreign Trade Between Türkiye and Africa. *Türkiye Ortadoğu Çalışmaları Dergisi*, 10(2), 75-102. <https://doi.org/10.26513/tocd.1356970>
- Cook, R. D., & Weisberg, S. (1983). Diagnostics for heteroscedasticity in regression. *Biometrika*, 70(1), 1-10. <https://doi.org/10.1093/biomet/70.1.1>
- Dickey, D. A., & Fuller, W. A. (1979). Distribution of the Estimators for Autoregressive Time Series with a Unit Root. *Journal of the American Statistical Association*, 74(366), 427-431. <https://doi.org/10.2307/2286348>
- Godfrey, L. G. (1978). Testing Against General Autoregressive and Moving Average Error Models when the Regressors Include Lagged Dependent Variables. *Econometrica*, 46(6), 1293-1301. <https://doi.org/10.2307/1913829>
- Trade Map (2024), International Trade Centre, <https://www.trademap.org>
- TURKSTAT (2024), Turkish Statistical Institute, <https://www.tuik.gov.tr>

# CARBON EMISSION, INCOME INEQUALITY, AND ECONOMIC GROWTH NEXUS IN NIGERIA: AN ARDL APPROACH

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## Introduction

Climate change is a global phenomenon with profound impacts on both the environment and the economy. While issues such as inflation, unemployment, and poverty often dominate economic discussions, carbon emissions and its effect on climate change and the environment remains a pressing challenge, particularly in Nigeria. Despite the enactment of the Climate Change Act of 2021, carbon emissions continue to rise, reflecting the significant environmental challenges the country is being faced with. For instance, the trend has indicated a consistent increase in carbon emissions over time, positioning Nigeria as one of the African countries with high levels of environmental pollution. According to world energy and climate statistics, CO<sub>2</sub> emission intensity in Nigeria has been steadily rising, reaching a peak of 0.097kCO<sub>2</sub>/\$15p in 2021 (Enerdata, 2024). This increase is primarily attributed to growing industrialization that characterizes the economy, as evidenced by significant trade growth during this period peaking at 17.14% in 2021 which is way above the global average of 12.59% (WITS, 2024). The impact of the climate emissions extends beyond mere numbers; it has severe consequences for livelihoods and infrastructure (Rising et al, 2022). Many people have had their homes destroyed and lives disrupted by floods across the country (UNDP, 2023). This vulnerability was highlighted by the Nortre Dame University which ranked Nigeria among the most vulnerable countries in the world with a high vulnerability score of 0.486 and a readiness score of 0.2566 characterized by extreme climate issues such as droughts, floods, erosion and other weather variabilities (ND-Gain Index, 2021).

Empirical studies have examined the effects of carbon emissions, highlighting their severe impacts on the environment, health, and economy. Reports indicate that carbon emissions have significantly harmed people's health and well-being over the years, largely due to Nigeria's heavy reliance on fossil fuels like coal for cooking and other purposes (Edomah, 2016). At COP 26 in Glasgow, Nigeria reiterated its commitment to achieving net-zero carbon emissions by 2060, followed by the development of the Climate Change Act to mitigate the emissions crisis. In addition to the environmental challenges, Nigeria grapples continuously with rising income inequality and economic disparities, which are key drivers of the socio-economic crises affecting the country. The increasing poverty rate further worsens these issues. For example, in 2018 only about 90.9 million people were in multidimensional poverty, this figure has further spiraled in 2022 with 63% of Nigerians, approximately 133 million wallowing in multidimensional poverty (NBS, 2022).

This background serves as a motivation to our research and this study intends to investigate the nexus between carbon, emission, income inequality, carbon emission, and economic growth in Nigeria during the period 1990-2023. The study aims to achieve several objectives. Firstly, it

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seeks to examine the relationships between Carbon emissions (CO<sub>2</sub>), income inequality, population, and trade openness on economic growth in Nigeria, using the ARDL model by Peseran et al. (2001). The choice of ARDL is informed by the need to capture both short-run and long-run relationship between the variables. Secondly, the study will test the novel Environmental Kuznets Curve (EKC) hypothesis to determine whether this hypothesis still holds true in Nigeria for the period under study. The rest of the study is presented as follows: section 2 presents the reviews of the related literature, in section 3 we present the data and methodology, in section 4 we present and discuss the results, and in section 5 we conclude with policy implications.

## **Literature Review**

Research on carbon emissions has been conducted extensively examining the various factors influencing the levels of the emission and its impacts on the environment and the economy. Studies like Ali et al. (2015) examine the relationship between energy consumption, carbon emissions, and economic growth, whose results reveal significant short and long-term relationships. The study also found that the Kuznet environmental curve hypothesis is valid only in the long run. The EKC hypothesis holds a very great importance specifically in trying to understand the environmental impact of carbon emission as it relates to industrialization and urbanization. For instance, Liu (2020) used the EKC hypothesis to examine the link between CO<sub>2</sub> emission and economic growth. The result highlighted that it is an inverse U-shaped relation. Similarly, Xu et al. (2018) supported this view where they investigated the CO<sub>2</sub>-economic growth nexus in 30 provinces in China over 12 years. While the results also proved the existence of the EKC hypothesis, it further showed that a partial correlation also exists showing that while economic development boosts economic growth, it also increases CO<sub>2</sub> emissions. Yao et al (2019) also using a FMOLS and the DOLS methodology confirmed the existence of the EKC and RKC hypothesis and that a long-run relation exists between CO<sub>2</sub> emission and economic growth in the 17 countries. The result further showed that when RKC rises by 10%, CO<sub>2</sub> emission reduces by 1.6% across the countries.

Since our study expands further into the link between income inequality and the CO<sub>2</sub>-economic growth nexus, we reviewed some relevant studies on the link where some have shown that income inequality can have direct and indirect effects on carbon emissions. For instance, Che et al (2023) argued that there exists a positive significant impact between CO<sub>2</sub> emission and income inequality, highlighting that income inequality worsens environmental quality where the impact is more significant in the developed economies. Similarly, Knight et al (2017) using a two-way longitudinal model showed that income inequality has a significant positive relationship with CO<sub>2</sub> emission. Kang (2022) also highlighted that income inequality and economic growth both have an inverted U-shaped relationship with CO<sub>2</sub> emission. However, according to Yang et. Al (2022) income inequality impact on CO<sub>2</sub> emission varies depending on the level of income inequality, with the relationship reverting from negative to positive with increasing income inequality in France, while in the US, the effect reverses with deepening income inequality. Moreover, Li et al (2021) argued that while the inequality in CO<sub>2</sub> emissions of the inter-income groups gets worse, it is improving with the intra income group, adding that the high-income group has expanded their CO<sub>2</sub> emission to the upper-middle-income group through the importation of high-carbon intensive goods while the lower-income group does not even partake in international trades to start with. Ghazouani and Beldi (2022) also supported this argument emphasizing the re-existence of the “equity-pollution dilemma”.

While some of these studies have provided insight into the nexus between CO<sub>2</sub> emission, income inequality, and economic growth across other countries, the studies in Nigeria are still growing with limited studies exploring the CO<sub>2</sub>-Economic growth nexus only. Some of the studies include

Natufe and Evbayiro-Osagie (2023) who found that the CO<sub>2</sub> and NO<sub>2</sub> emissions followed the EKC exhibiting positive and negative impacts on economic growth in the short and long run respectively. Similarly, Maduka et al (2022) examined the CO<sub>2</sub> emission-growth nexus looking at the moderating effect of institutional quality over 30 years in the country. The study found that, unlike the EKC hypothesis, the CO<sub>2</sub> emission growth nexus in Nigeria is N-shaped with capital investment contributing significantly to the increasing CO<sub>2</sub> emission. In another study, Egetokun et al (2019) also examine the EKC hypothesis considering the impact of institutional quality in Nigeria. The result shows that there exists an EKC for CO<sub>2</sub> in Nigeria. Furthermore, Bekun et al (2020) also in their study offered fresh insight into the EKC hypothesis in Nigeria. Their result shows that EKC exists in Nigeria highlighting that a 1% increase in real income increases pollutant emission by 79.33% and 117.18% in the short run and long run, respectively, while electricity consumption positively increases pollutant emission in Nigeria. Other studies that argued contrarily the existence of the EKC hypothesis include (Okon, 2020; Omisakin, 2009) and this provides some basis for further research.

Despite the extensive body of research in the Nigerian context, one key gap we identify in the literature review is the limitation of the studies to integrate income inequality with carbon emission. In this study we fill this gap by including the gini income inequality index and other key variables to understand comprehensively how this interaction affects the environment and the economy. The results of our study will guide our recommendations to enable policy makers and governments develop comprehensive strategies for reducing carbon emission taking into cognizant factors other than economic growth, for instance, social equity.

## **Data and Methodology**

### **Theoretical Framework**

To examine the effect of carbon emission on the environment, we incorporated the Environmental Kuznet Curve (EKC) theory that explores the relationship between environmental degradation and economic growth. The EKC hypothesizes that in the early stages of economic growth, environmental quality tends to deteriorate as attention is focused on industrialization and economic expansion. However, as the country reaches a particular level of income, the society becomes more concerned about the environmental consequences and implications and the trend tends to reverse, improving the environmental quality (Stern, 2017; Guo & Cai, 2009). This shift is often followed by stricter environmental regulations and the adoption of more clearer energy sources and technologies that will contribute towards reducing the environmental degradations (Robbi et al., 2020; Maroufi & Hajilary, 2022). While the EKC theory has been widely used to study the relationship between economic growth and various environmental indicators, such as carbon and nitrogen oxide emissions, empirical evidence remains mixed with some of the studies supporting the EKC hypothesis, showing that environmental quality improves with higher income levels, while others find no such relationship or only partial evidence (Stern, 2017).

### **Data**

Table 1. Shows the variables utilized and their various sources. The study employed annual data spanning the period 1990-2023.

**Table 1.** Variables, Description, Measurement and Sources

Variable	Description	Source
<b>CO2 (Carbon dioxide emission)</b>	Carbon dioxide emission resulting from the burning of fossil fuels and the manufacturing of cement. This includes emissions from the consumption of solid, liquid, and gas fuels, as well as from gas flaring.	Enerdata
<b>GDP (Economic Growth)</b>	GDP per capita	WDI
<b>IEQ (Income Inequality)</b>	Gini Coefficient of Income Inequality (Disposable Income)	SWIID
<b>POP (Population)</b>	Population in the largest city (% of urban Population)	WDI
<b>TRD (Trade openness)</b>	Volume of trade as a share of GDP (Export plus import % GDP)	WDI

## Methodology

The study investigates the nexus between carbon dioxide (CO<sub>2</sub>) emissions, income inequality, and economic growth. Furthermore, the study tests for the EKC hypothesis. Following the footprint of existing studies, we adopt the famous standard EKC model by Grossman and Krueger (1991) which has been utilized subsequently by Osabuohien et al. (2014); Egbetokun et al. (2020). To analyze the data, we utilized the ARDL technique. The study also uses the ADF, and PP unit-root tests to examine the stationarity property of these variables. We expressed the model as follows;

$$CO2_t = \beta_0 + \beta_1 GDP_t + \beta_2 IEQ_t + \beta_3 TRD_t + \beta_4 POP_t + \epsilon_t \quad (1)$$

$$CO2_t = \beta_0 + \beta_1 GDP_t + \beta_2 GDP_t^2 + \beta_3 IEQ_t + \beta_4 TRD_t + \beta_5 POP_t + \epsilon_t \quad (2)$$

In the above equation 2 we assume GDP<sup>2</sup> capture and test for the EKC hypothesis which suggests that an inverted U-shaped relationship between the economic growth and environment exists. As a further phase in the analysis, the long-run cointegration between CO<sub>2</sub> and IEQ, TRD, POP, GDP, and GDP<sup>2</sup> is examined using the ARDL bounds test. The advantage of the ARDL approach is that it provides the opportunity to analyze short- and long-term relationships when the series is either I(0) or I(1) or both I(0) and I(1).

In the model, CO<sub>2</sub><sub>*t*</sub> represents carbon dioxide emission, GDP<sub>*t*</sub> is the real GDP per capita, IEQ<sub>*t*</sub> denotes income inequality, TRD<sub>*t*</sub> denotes trade openness and POP<sub>*t*</sub> population. The coefficients  $\vartheta_0$  to  $\vartheta_6$  measure the impact of each variable and  $\epsilon_t$  is the error term. We formulated the ARDL model as follows;

$$\begin{aligned}
\Delta CO2_t = & \vartheta_0 + \sum_{i=1}^t \vartheta_1 \Delta CO2_{t-1} + \sum_{i=1}^t \vartheta_2 \Delta GDP_{t-1} + \sum_{i=1}^t \vartheta_3 \Delta GDP_{t-1}^2 + \sum_{i=1}^t \vartheta_4 \Delta IEQ_{t-1} \\
& + \sum_{i=1}^t \vartheta_5 \Delta TRD_{t-1} + \sum_{i=1}^t \vartheta_6 \Delta POP_{t-1} + \beta_1 CO2_{t-1} + \beta_2 GDP_{t-1} + \beta_3 GDP_{t-1}^2 \\
& + \beta_4 IEQ_{t-1} + \beta_5 TRD_{t-1} + \beta_6 POP_{t-1} + \epsilon_t
\end{aligned} \tag{3}$$

The sign  $\Delta$  in the model denotes the first difference of the variables, and the long-run relationship between the variables are captured by the coefficients  $\beta_1$  through  $\beta_6$ . The Error Correction Model (ECM) that allows for analyzing both the short run and the ECT is also integrated into the model as follows;

$$\begin{aligned}
\Delta CO2_t = & \vartheta_0 + \sum_{i=1}^t \vartheta_1 \Delta CO2_{t-1} + \sum_{i=1}^t \vartheta_2 \Delta GDP_{t-1} + \sum_{i=1}^t \vartheta_3 \Delta GDP_{t-1}^2 + \sum_{i=1}^t \vartheta_4 \Delta IEQ_{t-1} \\
& + \sum_{i=1}^t \vartheta_5 \Delta TRD_{t-1} + \sum_{i=1}^t \vartheta_6 \Delta POP_{t-1} + \alpha ECT_{t-1} + \epsilon_{t-1}
\end{aligned} \tag{4}$$

$\alpha$  denotes the speed of adjustment and  $ECT_{t-1}$  is the error correction term

## Results and Discussion

### Descriptive Statistics

The descriptive statistics of the variables in this study period are shown in Table 2. It shows that carbon emission in Nigeria is relatively high, ranging between the minimum of 1.80 tCO<sub>2</sub>/capital to the maximum of 3.25 tCO<sub>2</sub>/capital and a mean average of 2.37 tCO<sub>2</sub>/capital. This could be attributed to the population explosion in the country, which has led to increased carbon-emitting practices like increased industrialization, higher number of vehicles on the road, and more widespread use of fossil fuels for cooking and electricity generation as Nigeria's clean cooking access remains significantly low with about 4.6 percent of Nigerian household having access to clean cooking while others continue using solid biomass for their cooking activities (Roche, et al., 2024). Similarly, the result shows that the gross domestic product per capita measured in local currency ranged between 494.12 and 3200.95 with a mean average of 1632.61 indicating a great disparity and change over time. Moreover, income inequality measured by the gini coefficient averaged 41.28 with a minimum value of 35.05 and a maximum of 43.10. Additionally, trade openness ranged between 16.35 percent and 53.27 percent with a mean of 35.54 percent, this indicates an upward increase over the years as a result of the increase in industrialization and efforts to integrate into the global economy. Urban population, a measure of the percentage of people living in urban areas, ranged between 13.12 percent and 17.30 percent, indicating a relative increase in the number of urban populations. This shift is majorly driven by rural-urban migration in search for better economic opportunities, improved infrastructure, and access to services (Ayuba, et al., 2023).

**Table 2.** Descriptive Statistics

Variables	CO <sub>2</sub>	GDP	GDP <sup>2</sup>	IEQ	TRD	POP
Mean	2.373235	1632.619	3286875.	41.28150	35.54342	15.47756
Median	2.165000	1818.417	3309487.	41.75000	35.25825	15.81509
Maximum	3.250000	3200.953	10246099	43.10000	53.27800	17.30470
Minimum	1.800000	494.1292	244163.7	35.05000	16.35220	13.12552
Std. Dev.	0.481964	800.1632	2670869.	1.830500	9.445056	1.551441
Skewness	0.549850	-0.014097	0.697689	-1.390935	-0.031747	-0.257743
Kurtosis	1.810865	1.888922	2.900770	5.149230	2.325321	1.459450
Jarque-Bera	3.716459	1.749992	2.772309	17.50715	0.650566	3.738611
Probability	0.155949	0.416864	0.250035	0.000158	0.722323	0.154231
Sum	80.69000	55509.05	1.12E+08	1403.571	1208.476	526.2369
Sum Sq. Dev.	7.665544	21128617	2.35E+14	110.5741	2943.900	79.43000
Observations	34	34	34	34	34	34

\*\* The data for CO<sub>2</sub> and Gini Coefficient were limited to 2021 and 2020 respectively, following Molugaram and Rao, (2017) and Saeipourdizaj et al., (2021) we used a moving average imputation method to account for the data for the missing years.

### Unit Root Test

To examine the stationarity properties of the variables, we employed the Augmented Dickey-Fuller (ADF) (1979) and Phillips-Perron (PP) (1988) unit root tests, and the results are presented in Table 3. The ADF test results indicate that Income Equality (IEQ) is stationary at level, i.e., I(0), while CO<sub>2</sub> emissions, GDP per capita (GDP), GDP per capita squared (GDP<sup>2</sup>), Population (POP) and Trade openness (TRD) are integrated of order one, I(1) implying that they became stationary after first difference. Our PP test results also show that IEQ and POP are stationary at level I(0). CO<sub>2</sub> emissions, GDP, GDP<sup>2</sup>, and TRD on the other hand became stationary after the first difference and are integrated of order one (1). The integration of the variables in order of I(0) and I(1) justified our use of the ARDL bounds testing approach to cointegration, as it can accommodate a mix of I(0) and I(1) variables. This method is particularly suitable when the order of integration of the variables is not uniform, as is the case in our study and many other studies like Elrasheed et. al (2024) and Osabohien et, al. (2017).

**Table 3.** Unit Root Test

Variables	ADF			PP		
	Level	First Difference	Remark	Level	First Difference	Remark
CO <sub>2</sub>	-1.6547	-5.6205***	I(1)	-1.5986	-10.6194***	I(1)
GDP	-1.4787	-4.5904***	I(1)	-1.4787	-4.4954***	I(1)
GDP <sup>2</sup>	-1.3485	-4.3065**	I(1)	-1.5981	-4.0880**	I(1)
IEQ	-4.6242***	-3.0319	I(0)	-4.5992***	-34.1145***	I(0)
TRD	-3.5242*	-5.7455**	I(1)	-3.4846*	-17.7579***	I(1)
POP	-0.4319	-3.8383**	I(1)	-3.6436**	-3.5440**	I(0)

Note: \*, \*\*, \*\*\* denote significance at the 10%, 5%, and 1% levels, respectively and I(0) indicates that the variable is stationary at level, while I(1) indicates stationarity at first difference.

## ARDL Results

The ARDL bound test to cointegration developed by Peseran et al (2001) was employed to examine the long-term relationship between our variables. The results are presented in Table 4.

**Table 4.** ARDL Bound Test to Cointegration

Test Statistics	Value	No of regressor (K)
F-Statistics	3.472626	5
Critical Value Bounds		
I(0)	I(1)	Signif. Level
2.26	3.35	10%
2.62	3.79	5%
2.96	4.18	2.5%
3.41	4.68	1%

The F-statistic value obtained from our model result is 3.47. To determine the existence of cointegration, we compare this value with the critical value bounds provided at different significance levels. However, at the 10% significance level, the lower bound I(0) is 2.26, and the upper bound I(1) is 3.35. Our F-statistic (3.47) exceeds the upper bound at this level. This indicates that we can reject the null hypothesis of no cointegration and conclude that there is evidence of a long-run relationship (cointegration) among our variables indicating that the variables in our model have a tendency to move together in the long run.

**Table 5.** ARDL Estimates

Long run estimates	
Dependent variable: C02 emission	Coefficient
GDP	-0.000476 (0.0870)
GDP <sup>2</sup>	1.69E-07 (0.0370)***
IEQ	0.011810 (0.7931)
TRD	0.005668 (0.3241)
POP	0.189435 (0.0178)***
Short Run Estimates	
$\Delta$ (GDP)	2.32E-05 (0.8159)
$\Delta$ (GDP(-1))	0.000316 (0.0109)***
$\Delta$ (GDP <sup>2</sup> )	3.89E-08 (0.1878)
$\Delta$ (GDP <sup>2</sup> (-1))	-8.78E-08 (0.0104)***
$\Delta$ (POP)	1.454806 (0.0001)***
CointEq(-1)*	-0.507948 (0.0001)***

Table 5 presents the estimated long-run and short-run results. In the long run, the results show that a 1% increase in GDP has a negative but statistically insignificant effect on CO<sub>2</sub> emissions. However, the squared term of GDP (GDP<sup>2</sup>) has a positive and statistically significant impact at the 5% level, suggesting an N-shaped relationship between economic growth and CO<sub>2</sub> emissions. Our finding contradicts the Environmental Kuznets Curve (EKC) hypothesis, which suggests that an inverted U-shaped relationship exists as well as the results of (Egbetokun et al., 2019 and Bekun et al., 2020) who confirm the EKC hypothesis. This could be due to Nigeria's rapid urbanization and industrialization, which have led to increased pollution and environmental degradation, that the government struggles to address due to limited resources and capacity. Additionally, the oil sector has remained a major contributor to the economy, resulting in high and significant emissions (Maduka et al., 2022). On the other hand, population growth was found to have a significant positive impact on CO<sub>2</sub> emissions in the long run. A 1% increase in population is associated with a 0.189% increase in CO<sub>2</sub> emissions, statistically significant at the 5% level. This finding indicates that population growth is one of the key drivers of carbon emissions in Nigeria, our finding supports (Lawal and Abubakar, 2019; Kojo and Pascal, 2018; and Lin et al, 2015) who also noted that population growth affects environmental sustainability as a result of increase in emission. However, it contradicts (Suleiman and Abdul-Rahim, 2018). Furthermore, the results on income inequality (IEQ) and trade openness (TRD) show positive but statistically insignificant effects on CO<sub>2</sub> emissions in the long run.

In the short run, the lagged values of GDP per capita (GDP) and its squared term show significant effects on CO<sub>2</sub> emissions. The positive coefficient of GDP(-1) and negative coefficient of GDP<sup>2</sup>(-1) suggest a potential inverted U-shaped relationship in the short term, contrasting with the long-run findings therefore corroborating (Grossman and Krueger, 1991) that in N-Shaped EKC, the original inverted U shaped EKC hypothesis will not hold in the long run as in our own case. Population growth maintains a strong positive effect on CO<sub>2</sub> emissions in the short run, with a coefficient of 1.455, significant at the 1% level. The error correction term (CointEq(-1)) is negative (-0.508) and statistically significant at the 1% level. This indicates that about 50.8% of any disequilibrium in CO<sub>2</sub> emissions is corrected within one year, suggesting a relatively fast adjustment to long-run equilibrium.

### Robustness Checks

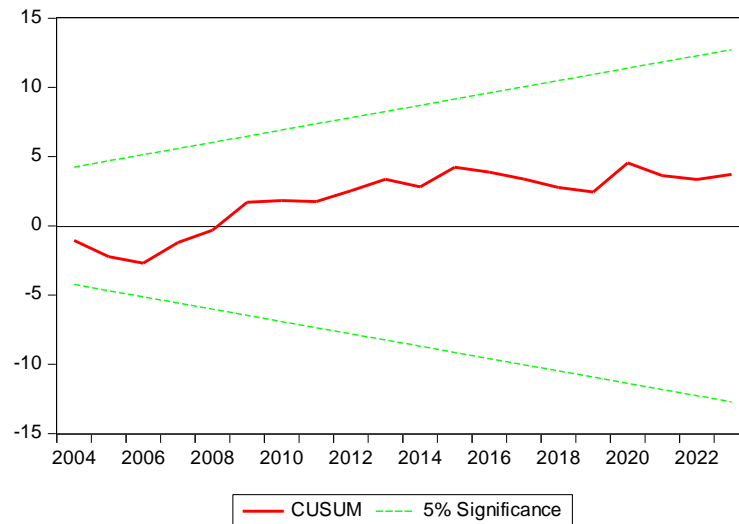
<b>Table 6.</b> Diagnostic Tests		
R <sup>2</sup>	0.980440	
Adj R <sup>2</sup>	0.969683	
	T-statistic	P-value
Breusch-Godfrey Serial Correlation LM Test	1.433024	(0.2645)
Heteroskedasticity Test: Breusch-Pagan-Godfrey	0.600823	(0.8065)
Normality test (Jarque-Bera)	3.590	(0.1660)

To confirm the robustness of our result we conduct some diagnostic tests to examine the robustness of our model. The results indicate that our model is well-specified and meets the key assumptions of the ordinary least squares (OLS) and therefore reliable to draw conclusions and policy recommendations. The Breusch-Godfrey Lagrange multiplier (LM) test for serial correlation shows that the model does not suffer from any serial correlation, as the probability

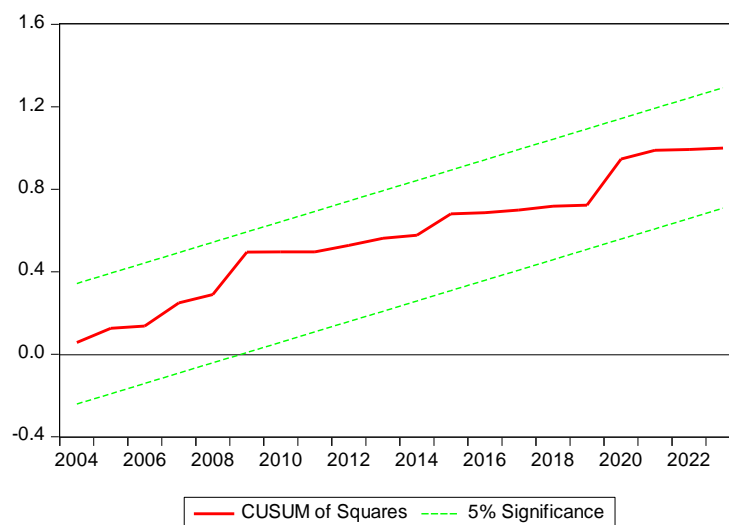
value (0.2645) is higher than the 5% significance level. The model is also free from heteroscedasticity, as shown by the Breusch-Pagan-Godfrey test result. The result indicated that the null hypothesis of homoscedasticity cannot be rejected due to the high p-value (0.8065), which is above the 5% significance level. Furthermore, the Jarque-Bera normality test confirms that the model's residuals are normally distributed, with a p-value (0.1660).

### Stability Test

The Cusum and Cusum Squared graph for stability further showed that the plot of the residuals are within the lower and upper critical bound at 5% significance level.



**Fig 1.** Cumulative sum of recursive residuals



**Fig 2.** Cumulative sum of recursive squares residuals

### Conclusion

This study examines the relationship between carbon dioxide emissions, income inequality, and economic growth in Nigeria from 1990 to 2023, using an autoregressive distributed lag model. Our ARDL shows an N-shaped relationship between economic growth and CO<sub>2</sub> emissions in the long run, contradicting the EKC hypothesis. This indicates that after surpassing a specific threshold of economic growth, the environmental deterioration in Nigeria is likely to accelerate due to rapid industrialization without adequate environmental policies and regulations. Secondly, population growth was found to be a significant driver of CO<sub>2</sub> emissions in both the

short and long term. Continuous population growth increases the demand for energy, transportation, and other carbon-emitting resources highlighting the need for sustainable urban planning and population policies in Nigeria, particularly in the urban areas. For instance, the frequent flooding in states such as Lagos and Abuja have been attributed solely to the lack of proper urban planning, water and irrigation channels being blocked with buildings, and some buildings being erected without proper guidance and consultation with the property development agencies. Furthermore, our results also show that while income inequality and trade openness are positively related to CO<sub>2</sub> emissions, they did not have any statistical significance. This finding, therefore, presents some limitations in this case, providing a foundation for further research using other methodologies, particularly given the persistent income disparities as well as the increasing global trade integration that characterizes the economy. The policy implication of our study is as follows; Policymakers should focus on implementing stringent environmental regulations that evolve with economic growth stages, particularly concerning residential and industrial building development. Moreover, there is also a pressing need to invest in renewable energy sources and promote energy efficiency measures. This will not only help reduce the environmental impact of economic growth but also create new job opportunities and stimulate innovation in the clean energy sector, enhance energy security, and reduce the over-reliance on fossil fuels, which are finite.

## REFERENCES

- Ali, A., Khatoon, S., Ather, M., & Akhtar, N. (2015). Modeling energy consumption, carbon emission and economic growth: Empirical analysis for Pakistan. *International Journal of Energy Economics and Policy*, 5(2), 624-630.
- Bekun, F. V., Agboola, M. O., & Joshua, U. (2020). Fresh insight into the EKC hypothesis in Nigeria: accounting for total natural resources rent. *Econometrics of Green Energy Handbook: Economic and Technological Development*, 221-243.
- Che, C., Li, S., Yin, Q., Li, Q., Geng, X., & Zheng, H. (2023). Does income inequality have a heterogeneous effect on carbon emissions between developed and developing countries? Evidence from simultaneous quantile regression. *Frontiers in Environmental Science*, 11, 1271457.
- Dickey, D. A., & Fuller, W. A. (1979). Distribution of the estimators for autoregressive time series with a unit root. *Journal of the American Statistical Association*, 74(366a), 427-431
- Edomah, N. (2016). On the path to sustainability: Key issues on Nigeria's sustainable energy development. *Energy Reports*, 2, 28-34.
- Egbetokun, S., Osabuohien, E., Akinbobola, T., Onanuga, O. T., Gershon, O., & Okafor, V. (2020). Environmental pollution, economic growth and institutional quality: exploring the nexus in Nigeria. *Management of Environmental Quality: An International Journal*, 31(1), 18-31.
- Elrasheed, S., & Muhammad Abdullahi, B. (2022). Revisiting Foreign Direct Investment-Economic Growth Nexus In Nigeria: An ARDL Approach. *El-Rasheed S. & Abdullahi BM (2022). Revisiting Foreign Direct Investment-Economic Growth Nexus In Nigeria: An ARDL Approach. Journal of Economics and Allied Research*, 7(4), 29-41.
- Elrasheed, S., Muhammad Abdullahi, B., & Mustapha, A. (2024). Inflation Dynamics and Food Prices in Nigeria. *Gusau International Journal of Management and Social Sciences*, 6(3), 237-255.

- Enerdata (2024). CO2 intensity Map World CO2 Intensity by region. Retrieved from <https://yearbook.enerdata.net/co2/world-CO2-intensity.html>
- Ghazouani, T., & Beldi, L. (2022). The impact of income inequality on carbon emissions in Asian countries: Non-parametric panel data analysis. *Environmental Modeling & Assessment*, 27(3), 441-459.
- Grossman, G. M., & Krueger, A. B. (1991). Environmental Impacts of a North American Free Trade Agreement. NBER Working Paper, (w3914).
- Guo, Q., & Cai, Z. (2009, June). Environmental Pollution and Economic Growth: a complex perspective. In *2009 3rd International Conference on Bioinformatics and Biomedical Engineering* (pp. 1-4). IEEE.
- Ibrahim, Mohammed, Lawal. (2019). Impact of population growth on Carbon Dioxide (CO2) emission: empirical evidence from Nigeria. doi: 10.22437/PPD.V6I6.6730
- Kang, H. (2022). Impacts of income inequality and economic growth on CO2 emissions: comparing the Gini coefficient and the top income share in OECD countries. *Energies*, 15(19), 6954.
- Knight, K. W., Schor, J. B., & Jorgenson, A. K. (2017). Wealth inequality and carbon emissions in high-income countries. *Social Currents*, 4(5), 403-412.
- Kojo, R., & Paschal, N. (2018). Urban population growth and environmental sustainability in Nigeria. *Journal of Empirical Studies*, 5(1), 12-19.
- Li, R., Wang, Q., Liu, Y., & Jiang, R. (2021). Is global carbon inequality getting better or worse? A decomposition analysis of carbon inequality in intraincome and interincome groups. *Management of Environmental Quality: An International Journal*, 32(6), 1255-1283.
- Lin, B., Omoju, O. E., & Okonkwo, J. U. (2015). Impact of industrialisation on CO2 emissions in Nigeria. *Renewable and Sustainable Energy Reviews*, 52, 1228-1239.
- Liu, W. (2020). EKC test study on the relationship between carbon dioxide emission and regional economic growth. *Carbon Management*, 11(4), 415-425.
- Maduka, A. C., Ogwu, S. O., & Ekesiobi, C. S. (2022). Assessing the moderating effect of institutional quality on economic growth—carbon emission nexus in Nigeria. *Environmental Science and Pollution Research*, 29(43), 64924-64938.
- Maroufi, N., & Hajilary, N. (2022). The impacts of economic growth, foreign direct investments, and gas consumption on the environmental Kuznets curve hypothesis CO2 emission in Iran. *Environmental Science and Pollution Research*, 29(56), 85350-85363.
- NBS (2022). Nigeria Multidimensional Poverty Index. Retrieved from <https://nigerianstat.gov.ng/elibrary/read/1241254>
- ND-Gain Index (2021). Nigeria Vulnerability Index. Retrieved from <https://gain-new.crc.nd.edu/country/nigeria#vulnerability>
- Okon, E. O. (2020). Empirical analysis of the environmental kuznets curve for co2 emissions in nigeria: the role of industrialization and urbanization. *Sumerianz Journal of Economics and Finance*, (312), 265-272. <https://doi.org/10.47752/sjef.312.265.272>
- Omisakin, D. O. A. (2009). Economic growth and environmental quality in Nigeria: does environmental Kuznets curve hypothesis hold?. *Environmental Research Journal*, 3(1), 14-18.

- Oritsegbubemi Kehinde Natufe, & Esther Ikavbo Evbayiro-Osagie. (2023). The Effects of CO<sub>2</sub> and NO<sub>2</sub> Emissions on Economic Growth in Nigeria. *The International Journal of Business & Management*, 11(3). <https://doi.org/10.24940/theijbm/2023/v11/i3/BM2303-010>
- Osabohien, R., Osabuohien, E., & Urhie, E. (2017). Food security, institutional framework and technology: Examining the nexus in Nigeria using ARDL approach. *Current Nutrition and food science*, 13(4), 1-10.
- Osabuohien, E. S., Efobi, U. R., & Gitau, C. M. W. (2014). Beyond the environmental Kuznets curve in Africa: evidence from panel cointegration. *Journal of Environmental Policy & Planning*, 16(4), 517-538.
- Pesaran, M. H., Shin, Y., & Smith, R. J. (2001). Bounds testing approaches to the analysis of level relationships. *Journal of applied econometrics*, 16(3), 289-326.
- Pesaran, M. H., Shin, Y., & Smith, R. J. (2001). Bounds testing approaches to the analysis of level relationships. *Journal of applied econometrics*, 16(3), 289-326.
- Phillips, P. C., & Perron, P. (1988). Testing for a unit root in time series regression. *biometrika*, 75(2), 335-346.
- Rising, J., Tedesco, M., Piontek, F., & Stainforth, D. A. (2022). The missing risks of climate change. *Nature*, 610(7933), 643-651.
- Robbi, I., Ismail, M., & Hoetoro, A. (2020, June). Environmental Degradation in Indonesia 1969–2016. In *23rd Asian Forum of Business Education (AFBE 2019)* (pp. 352-356). Atlantis Press.
- Saeipourdizaj, P., Sarbakhsh, P., & Gholampour, A. (2021). Application of imputation methods for missing values of PM<sub>10</sub> and O<sub>3</sub> data: Interpolation, moving average and K-nearest neighbor methods. *Environmental Health Engineering and Management Journal*, 8(3), 215-226.
- Stern, D. I. (2017). The environmental Kuznets curve after 25 years. *Journal of Bioeconomics*, 19, 7-28.
- Sulaiman, C., & Abdul-Rahim, A. S. (2018). Population Growth and CO<sub>2</sub> Emission in Nigeria: A Recursive ARDL Approach. *Sage Open*, 8(2). <https://doi.org/10.1177/2158244018765916>
- UNDP (2023). Nigeria Flood Impact, Recovery and Mitigation Assessment Report 2022-2023. Retrieved from <https://www.undp.org/sites/g/files/zskgke326/files/2023-12/nigeriafloodimpactrecoverymitigationassessmentreport2023.pdf>
- WITS (2024). Nigerian Trade Statistics.
- Xu, S. C., Miao, Y. M., Gao, C., Long, R. Y., Chen, H., Zhao, B., & Wang, S. X. (2019). Regional differences in impacts of economic growth and urbanization on air pollutants in China based on provincial panel estimation. *Journal of Cleaner Production*, 208, 340-352.
- Yang, Z., Ren, J., Ma, S., Chen, X., Cui, S., & Xiang, L. (2022). The emission-inequality nexus: empirical evidence from a wavelet-based quantile-on-quantile regression approach. *Frontiers in Environmental Science*, 10, 871846.
- Yao, S., Zhang, S., & Zhang, X. (2019). Renewable energy, carbon emission and economic growth: A revised environmental Kuznets Curve perspective. *Journal of Cleaner Production*, 235, 1338-1352.

# AFRİKA SERMAYE PİYASALARININ GELİŞİMİ VE KÜRESEL PİYASALARLA ENTEGRASYONU

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## Giriş

Afrika sermaye piyasaları, son yıllarda çeşitlilik, derinlik ve işlem hacmi açısından önemli bir gelişme kaydetmiştir. Bu gelişim, küresel piyasalara entegrasyonun da önünü açarak Afrika'nın artan sermaye ihtiyaçlarına cevap vermeye ve yatırımcıların ilgisini çekmeye yönelik çalışmaları ve girişimleri kapsamaktadır. Afrika Borsalar Birliği (ASEA) gibi kuruluşlar, kıta çapında sermaye piyasalarını birbirine entegre etmek ve likiditeyi artırmak amacıyla önemli projeler yürütmektedir. Örneğin, Afrika Borsaları Bağlantı Projesi (AELP) sayesinde Güney Afrika, Nijerya, Fas, Kenya gibi büyük borsaların yatırımcıları kıta genelinde çeşitli menkul kıymetlere erişebilmekte ve sınır ötesi işlemler yapabilmektedir.

Bunun yanında, Güney Afrika Borsası (JSE) gibi bazı borsalar, bölgesel lider olarak öne çıkmakta ve Afrika'daki en büyük sermaye piyasalarından biri olarak kıtanın yatırım potansiyelini göstermektedir. Öte yandan, Mısır ve Nijerya gibi diğer borsalar da yüksek büyüme potansiyelleri ile dikkat çekmektedir. Nijerya ve Mısır, artan yerli yatırımcı tabanı ve ekonomilerinin dinamizmi sayesinde borsa performanslarını artırmaktadır. Bu ülkelerdeki borsalar da hem yurtiçi hem de yurtdışı yatırımcılar için cazip fırsatlar sunarak, Afrika piyasalarının küresel yatırım fonları için güvenilir bir seçenek haline gelmesine katkı sağlamaktadır.

Afrika sermaye piyasalarının gelişimi, ayrıca kıtadaki ekonomik büyüme, kurumsal yönetim reformları ve teknolojik altyapı geliştirmeleri gibi faktörlerle desteklenmektedir. Özellikle mobil bankacılık ve dijital ödeme sistemlerindeki yenilikler, sermaye piyasalarına erişimi genişleterek daha fazla yatırımcıya ulaşılmasına olanak tanımaktadır. Kısacası, Afrika sermaye piyasalarının küresel piyasalara entegrasyonu, kıtadaki ekonomik büyüme hedeflerine katkı sağlayarak Afrika'yı küresel ekonomi içinde daha aktif bir oyuncu haline getirme potansiyeline sahiptir.

Bu çalışmada öncelikle piyasa kapitalizasyonuna göre Afrika kıtasında yer alan ülkelerde faaliyet gösteren en büyük 10 menkul kıymet borsası hakkında bilgi verilmektedir. Ardından, küresel sermaye akımlarından ne ölçüde pay aldıklarını göstermek üzere bu ülkelere 2000-2023 yılları arasında doğrudan yabancı yatırımlar niteliğindeki net sermaye girişleri ile ilgili bilgiler yer almaktadır. Sonraki bölümde 2013-2023 döneminde borsaların getirileri performansları ile hem borsaların kendi aralarında hem de MSCI gelişmekte olan ülkeler endeksi ve GEPÜ endeksi ile ne düzeyde etkileşim içinde olduklarını göstermek üzere oluşturulan korelasyon matrisine yer verilmektedir.

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## Afrika Borsaları Arasındaki Etkileşime İlişkin Literatür

Literatürde, farklı ülkelerdeki finansal piyasalar arasındaki ilişkilere odaklanan çok sayıda çalışma mevcuttur. Bazı çalışmalar, uzun vadeli ilişkileri ele alırken, bazı çalışmalar kısa vadeli ilişkileri ele almıştır. Taylor ve Tonks (1989), finansal piyasalar arasındaki uzun vadeli ilişkiyi eşbütünleşme testleri kullanarak incelerken, Longin ve Solinik (1995), çok değişkenli genelleştirilmiş otoregresif koşullu heteroskedastisite (GARCH) modelini tahmin ederek kısa vadeli dinamikleri ele almıştır. Bu çalışmanın konusu olan Afrika borsaları arasındaki ilişkiye ele alan çalışmalara ilişkin literatür çalışması aşağıda sunulmaktadır;

Johannesburg Borsası (JSE) ile Namibya Borsası (NSX) arasındaki korelasyon, öncelikle Güney Afrika ve Namibya arasındaki tarihi bağlar ve ekonomik entegrasyondan kaynaklanmaktadır. NSX'in yapısı ve dinamikleri, her iki borsada da ikili listelenmiş (kote edilmiş) şirketlerin varlığı nedeniyle JSE tarafından büyük ölçüde etkilenmektedir ve bu da önemli bir piyasa entegrasyonuna yol açmaktadır. Bu ikili kotasyon, Namibyalı yatırımcıların aynı şirketlerin iki ülke borsalarında işlem gören hisse senetlerine erişmesine olanak tanımaktadır ve bu durum hisse senetlerinin her iki borsadaki performansını dengelemektedir.

Neidhardt (2009) tarafından yapılan bir çalışmada, Johannesburg Borsası (JSE) ile Namibya Borsası (NSX) arasındaki piyasa bütünleşme düzeyini tahmin etmek için; Ocak 2002'den Ekim 2007'ye kadar günlük borsa endeksi verileri kullanılarak, JSE'den NSX'e tek taraflı getirileri ve oynaklık yayılma etkilerini ölçmek için bir EGARCH modeli uygulanmıştır. Bu analizde, bazı oynaklıkların ve getiri yayılımının JSE piyasasından NSX Yerel endeksi tarafından yakalanan Namibya hisse senetlerine aktarıldığı tespit edilmiştir. Bulgular, Güney Afrika piyasa katılımcılarının Namibya hisse senetlerine yatırım yaparak büyük çeşitlendirme fırsatlarından yararlandığını ortaya koymuştur.

Namibya Borsası (NSX) ile Mısır Borsası (EGX) arasındaki ilişki, nispeten farklı ekonomik ve finansal yapıları nedeniyle asgari düzeyde doğrudan piyasa entegrasyonu göstermektedir. Namibya'nın piyasası, ekonomik ilişkiler nedeniyle Güney Afrika'dan yakından etkilenirken, daha büyük ve daha likit olan Mısır borsası, öncelikle Orta Doğu ve Kuzey Afrika (MENA) bölgesi ve küresel yatırımcılarla etkileşim halindedir. Sugimoto, Matsuki, ve Yoshida, (2014) tarafından; özellikle, Diebold ve Yılmaz (2012) tarafından, Pesaran and Shin (1998) modeline cevap olarak, geliştirilen ekonometrik yöntemle, bölgesel (yedi Afrika piyasasının birleşimi), küresel (Çin, Fransa, Almanya, Japonya, İngiltere ve ABD), emtia (altın ve petrol) ve nominal efektif döviz kuru (Euro ve ABD doları) yayılımının iki kriz sırasında Afrika ülkelerine nasıl etkilediği incelenmiştir. Afrika piyasalarının küresel piyasalardan ciddi şekilde, emtia ve döviz piyasalarından ise daha az etkilendiği tespit edilmiştir. Tersine, Afrika içindeki bölgesel yayılımların küresel olanlardan daha küçük olduğu ve dolayısıyla Afrika piyasalarını küresel krizlerden koruduğu tespit edilmiştir.

Onour (2010), yaptığı çalışmada, üç Kuzey Afrika borsa piyasasının (Mısır, Fas ve Tunus) fiyatları arasında çok değişkenli doğrusal olmayan uzun vadeli bir bağlantı olduğunu tespit etmiştir. Zambiya için bölgesel yayılım, küresel yayılmayı birkaç kez aştığını ve örneklemin sonunda daha yüksek olmaya devam ettiği tespit edilmiştir. Piesse ve Hearn (2005), EGARCH modelini kullanarak Sahra Altı Afrika'daki hisse senedi piyasaları arasında potansiyel entegrasyona dair kanıtlar sunmuştur. Afrika borsa piyasalarının çoğu yeni olmasına rağmen, yapılan çalışmalarla, bu piyasalar arasında bölgesel karşılıklı bağımlılığa dair önemli kanıtlar sunulmuştur. Alagidede ve diğerleri (2011) ve Anoruo ve Gil-Alana (2011), Afrika borsalarının karşılıklı bağımlılığını karakterize etmek için eşbütünleşme (veya kesirli entegre) yöntemini kullanmıştır. Alagidede ve diğerleri (2011), küresel piyasaların Afrika borsaları üzerinde çok az etkisi olduğunu öne

sürmektedir. Bunun tersine, Piesse ve Hearn (2005), N'dri (2007), Chinzara ve Aziakpono (2009) ve Anoruo ve Braha (2011), Afrika borsa yayılımını incelemek için GARCH yöntemini kullanarak piyasalar arasındaki yayılımın etkisi kanıtlamıştır. Ek olarak, Agyei-Ampomah (2011), küresel mali krizden önce Afrika borsalarının aylık getirilerini inceleyerek farklı bir metodoloji olan Barari (2004) yöntemini kullanılmış ve Güney Afrika hariç tüm Afrika borsa piyasalarının küresel mali krizden önce küresel piyasalardan ayrıştığını belirtmektedir.

### Piyasa Değerine Göre Afrika'nın En Büyük 10 Borsası

Afrika kıtasında yer alan menkul kıymet borsalarının toplam piyasa değeri Aralık 2023 itibarıyla yaklaşık 1,6 trilyon ABD doları olup, küresel borsaların toplam değerinin yaklaşık %2'sini oluşturmaktadır. Afrika Ülkeleri Menkul Kıymetler Borsaları Birliği (ASEA), 2.400'den fazla borsaya kayıtlı şirket ile 38 ülkeyi kapsayan yaklaşık 28 üyeli borsaya sahiptir (<https://nairametrics.com/>). Tablo 1'de piyasa değerine göre Afrika'nın en büyük 10 borsası, bu borsalarda hisse senetleri işlem gören toplam şirket sayıları ve başlıca şirketlere ilişkin bilgiler yer almaktadır.

Tablo 1'de görüldüğü gibi, Fas, Mısır, Nijerya, Bostvana ve Namibya borsaları piyasa değerleri bakımından diğer kıtalardaki gelişmekte olan ülkelerle kıyaslandığında sermaye piyasaları henüz derinlik kazanamamıştır. Örneğin, bu 5 ülkenin borsalarının toplam piyasa değeri Borsa İstanbul'un piyasa değerine yakındır. Grafik 1'de yer alan doğrudan yabancı yatırımların ağırlıklı olarak Güney Afrika, Mısır, Nijerya ve Fas üzerinde yoğunlaşmakla birlikte, küresel sermaye akışı içinde oldukça düşük düzeyde ve istikrarsız bir seyir izlediği görülmektedir. Bu durum, Güney Afrika Borsası dışındaki diğer borsaların gelişimini sürdürme, büyüme ve derinlik kazanması için önünde uzun bir yol olduğunu göstermektedir.

**Tablo 1:** Piyasa Değerine Göre Afrika'nın En Büyük 10 Borsası

Ülke	Borsa adı	Kuruluş Yılı	Piyasa Değeri	İşlem Gören Şirket Sayısı	İlk Sıralarda Yer Alan Şirketler
Güney Afrika	Johannesburg Stock Exchange (JSE)	1887	987 (Milyar \$)	354	Naspers Limited (33.2 Milyar \$), First Rand Limited (19.9 milyar \$), Standard Bank Group (17.6 milyar \$)
Fas	Casablanca Stock Exchange (MASI)	1929	60 (Milyar \$)	76	Attijariwafa Bank, Banque Centrale Populaire, Bank of Africa, Lafarge Holcim Maroc, Maroc Telecom
Mısır	Egyptian Exchange (EGX)	1903	57 (Milyar \$)	217	Abu Qir Fertilizers, Beltone Financial Holdings, Alexandria Containers and Goods, Commercial Int. Bank (Egypt)
Nijerya	Nigerian Exchange (NGX)	1960	44 (Milyar \$)	155	Airtel Africa Plc, MTN Nigeria Comm., Dangote Cement, BUA Cement, BUA Foods, Zenith Bank, GT Holdings Company,
Botsvana	Botswana Stock Exchange (BSE)	1994	51 (Milyar \$)	30	Anglo American Plc, First National Bank Botswana, Absa Bank Botswana, Botswana Insurance Holdings
Namibya	Namibian Stock Exchange (NSX)	1904	41 (Milyar \$)	40	First Rand Namibia, Namibia Breweries, Capricorn Group, , Mobile Telecom. Limited, SBN Holdings Ltd, Letshego Holdings
Fildişi Sahili, Nijer, Mali, Benin Cumh., Burkina Faso, Togo, vd.	Bourse Régionale des Valeurs Mobilières (BRVM)	1996	13 (Milyar \$)	56	SONATEL, Orange Cote D'Ivoire, Ecobank Cote D'Ivoire, Société Générale Côte d'Ivoire

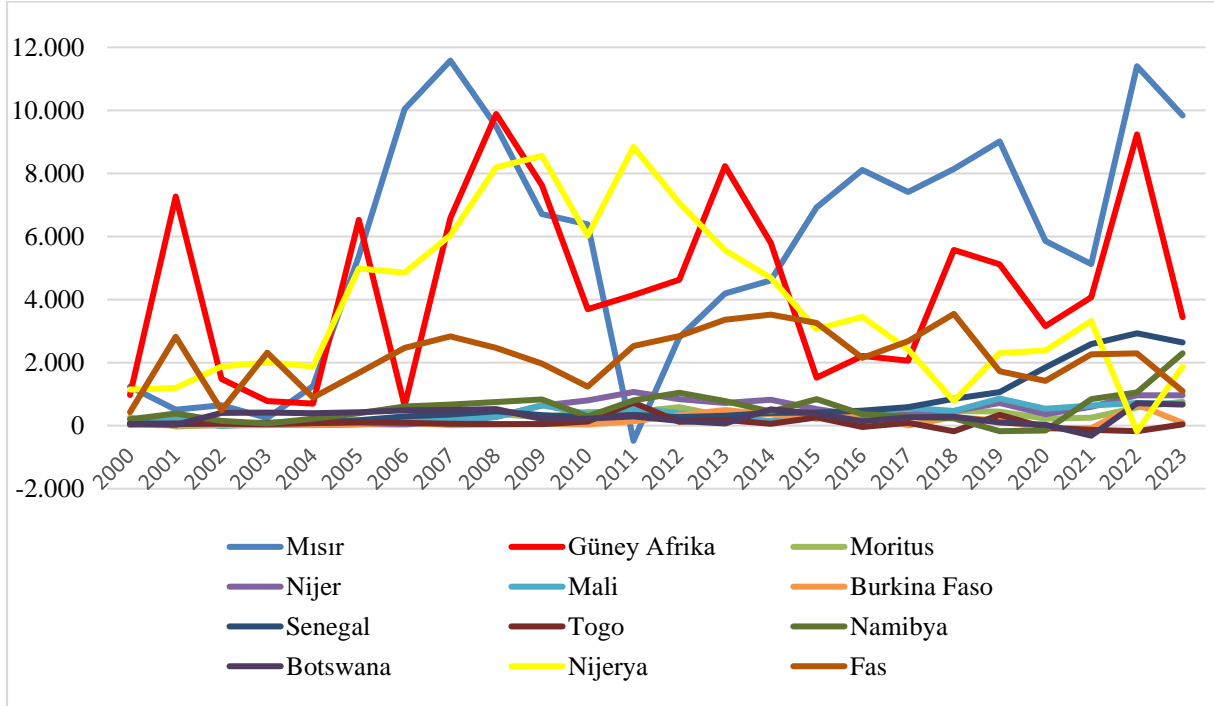
Kenya	Nairobi Securities Exchange (NSE)	1954	9.6 (Milyar \$)	65	Safaricom, Equity Group Holdings, East African Breweries Limited, Co-operative Bank of Kenya
Moritus	Stock Exchange of Mauritius (SEM)	1989	7.3 (Milyar \$)	42	MCB Group, CIEL Group, Ireland Blyth, SBM Holdings,
Gana	Ghana Stock Exchange (GSE)	1989	6.4 (Milyar \$)	31	Ecobank Transnational Inc., Anglo Gold Ashanti Plc, Tullow Oil Plc, Access Bank Ghana,

**Kaynak:** <https://nairametrics.com/2023/12/09/top-10-largest-stock-markets-in-africa-based-on-market-capitalization/>

## Yöntem

Seçilmiş Afrika ülkeleri arasında ve MSCI ile DJI endekslerinin getirileri arasındaki ilişkinin yönü ve büyüklüğünü incelemek üzere getiri serilerinin korelasyon matrisi oluşturulmuştur. Çalışmada Ocak 2013 - Haziran 2024 dönemi aylık getiri verileri kullanılmıştır. Seçilen borsa endeksleri: Güney Afrika (JSE), Fas (MASI), Mısır (EGX), Nijerya (NGX), Botswana (BSE), Namibya (NSX), Fildişi Sahili vd.(BRVM), Moritus (SEM), Gelişmekte Olan Ülkeler Endeksi (MSCI) ve ABD (DJI).

**Grafik 1:** Doğrudan Yabancı Yatırımlar, Net Sermaye Girişleri (Milyon \$)



**Kaynak:** <https://databank.worldbank.org/> verilerinden oluşturulmuştur.

## Borsaların Getirileri ve Aralarındaki Korelasyon İlişkisi

Tablo 2’de başlıca Afrika ülkelerinin Ocak 2013-Haziran 2024 döneminde GSYİH ve endeks getirileri karşılaştırmalı olarak verilmektedir. İlgili dönemde sırasıyla Mısır, Nijerya ve Namibya’nın en yüksek endeks değer artışına sahip olduğu, GSYH artışı ile paralel olarak Mısır ve Nijerya’nın en iyi toplam performansa ve gelişme potansiyeline sahip olduğu değerlendirilebilir.

**Tablo 2:** Başlıca Afrika Ülkelerinin GSYİH ve Endeks Getirileri (2013/01-2024/06)

Ülke	G. Afrika	Fas	Mısır	Nijerya	Botswana	Namibya	Fildişi Shl.	Moritus
<b>Endeks Adı</b>	JSE	MASI	EGX30	NSE30	BSE	NSX	BRVM10	SEMDEX
<b>Endeks Reel Artışı (2013-2023)</b>	40.22%	29.20%	355.92%	108.90%	18.92%	66.14%	-2.85%	17.68%
<b>GSYH Reel Artış (2013-2023)</b>	10.22%	30.92%	56.93%	30.02%	48.20%	21.10%	69.34%	32.28%

**Kaynak:** <https://databank.worldbank.org/> ve <https://tr.investing.com/> verilerinden oluşturulmuştur.

### Bulgular

Tablo 3'te 2013-2023 döneminde borsaların hem kendi aralarında hem de MSCI gelişmekte olan ülkeler endeksi ve GEPÜ endeksi ile ne düzeyde etkileşim içinde olduklarını göstermek üzere oluşturulan korelasyon matrisi yer almaktadır. Tablo 3'te Afrika borsaları arasında genel olarak yüksek bir korelasyon ilişkisi olmadığı, sadece Johannesburg ile Namibya arasında %41 ve Mısır ile Namibya arasında %37 korelasyon olduğu görülmektedir. En yüksek korelasyon ilişkisinin Johannesburg Borsası (JSE) ile Namibya Borsası (NSX) arasında olması ise öncelikle Güney Afrika ve Namibya arasındaki tarihi bağlar ve ekonomik entegrasyondan kaynaklanmaktadır. NSX'in yapısı ve dinamikleri, her iki borsada da ikili listelenmiş (kote edilmiş) şirketlerin varlığı nedeniyle JSE tarafından büyük ölçüde etkilenmektedir ve bu da önemli bir piyasa entegrasyonuna yol açmaktadır. Bu ikili kotasyon, Namibyalı yatırımcıların aynı şirketlerin iki ülke borsalarında işlem gören hisse senetlerine erişmesine olanak tanımaktadır ve bu durum hisse senetlerinin her iki borsadaki performansını dengelemektedir. Diğer yandan MSCI gelişmekte olan ülkeler endeksi ile Namibya arasındaki korelasyon %62, diğerleri ile zayıftır. DJI endeksi ile en yüksek korelasyon ilişkisi Namibya %56, Mısır %40. Küresel Ekonomik Politika Belirsizliği (GEPÜ) endeksi ile Afrika borsaları arasında herhangi bir korelasyon gözlenmemiştir; bu da onların küresel risklerden göreceli olarak daha yalıtılmış olduklarını göstermektedir.

**Tablo 3:** Korelasyon Matrisi

	JSE	MASI	EGX30	NSE30	NSX	BSE	BRVM	SEMDEX	MSCI	DJI	GEPÜ
JSE	<b>1.00</b>	0.14	0.04	0.21	0.41	0.04	0.14	-0.04	0.21	0.24	-0.04
MASI	0.14	<b>1.00</b>	0.29	0.16	0.27	-0.05	0.01	-0.03	0.35	0.22	-0.17
EGX30	0.04	0.29	<b>1.00</b>	0.15	0.37	0.03	0.07	0.02	0.31	0.40	0.05
NSE30	0.21	0.16	0.15	<b>1.00</b>	0.16	0.16	-0.09	-0.03	0.17	0.14	-0.12
NSX	0.41	0.27	0.37	0.16	<b>1.00</b>	-0.05	-0.05	-0.03	0.62	0.56	-0.06
BSE	0.04	-0.05	0.03	0.16	-0.05	<b>1.00</b>	0.04	0.12	-0.05	0.00	-0.06
BRVM	0.14	0.01	0.07	-0.09	-0.05	0.04	<b>1.00</b>	0.08	-0.07	-0.02	0.03
SEMDEX	-0.04	-0.03	0.02	-0.03	-0.03	0.12	0.08	<b>1.00</b>	-0.14	-0.14	-0.01
MSCI	0.21	0.35	0.31	0.17	0.62	-0.05	-0.07	-0.14	<b>1.00</b>	0.65	-0.10
DJI	0.24	0.22	0.40	0.14	0.56	0.00	-0.02	-0.14	0.65	<b>1.00</b>	-0.08
GEPÜ	-0.04	-0.17	0.05	-0.12	-0.06	-0.06	0.03	-0.01	-0.10	-0.08	<b>1.00</b>

## Sonuç ve Tartışma

Çalışmada elde edilen bulgulara göre;

- i. Piyasa değeri en yüksek ilk 5 borsa arasında pozitif, ancak düşük bir korelasyon vardır.
- ii. En yüksek korelasyon Güney Afrika ile Namibya arasında %41 ve Mısır ile Namibya arasında %37, diğer ülkeler arasında korelasyon ilişkisi yoktur.
- iii. MSCI gelişmekte olan ülkeler endeksi ile Namibya arasındaki korelasyon %62, diğerleri ile zayıftır.
- iv. DJI endeksi ile en yüksek korelasyon ilişkisi Namibya %56, Mısır %40.
- v. Küresel Ekonomik Politika Belirsizliği (GEPÜ) endeksi ile Afrika borsaları arasında herhangi bir korelasyon gözlenmemiştir; bu da onların küresel risklerden göreceli olarak daha yalıtılmış olduklarını göstermektedir.
- vi. Bu çalışma, Afrika pazarlarının küresel sermaye akımlarından ve küresel piyasaların entegrasyonundan büyük oranda izole kaldığını, ancak Mısır ve Nijerya için önemli fırsatların bulunduğunu açıklamaktadır.

## KAYNAKÇA

- Agyei-Ampomah, S., (2011). Stock market integration in Africa. *Manag. Finance Spec. Issue* 37 (3), 242–256
- Alagidede, P., Panagiotidis, T., Zhang, X., (2011). Why a diversified portfolio should include African assets. *Appl. Econ. Lett.* 18, 1333–1340.
- Anoruo, E., Braha, H., (2011). Volatility transmission between stock market and foreign exchange returns: evidence from Botswana, Kenya and South Africa. *Afr. J. Bus. Econ. Res.* 6 (2–3), 73–91.
- Anoruo, E., Gil-Alana, L.A., (2011). Mean reversion and long memory in African stock market prices. *J. Econ. Financ.* 35, 296–308. A
- Barari, M., (2004). Equity market integration in Latin America: a time varying integration score analysis. *Int. Rev. Financ. Anal.* 13, 649–668.
- Chinzara, Z., Aziakpono, M.J., (2009). Dynamic return linkages and volatility transmission between South African and world major stock markets. *J. Stud. Econ. Econ.* 33 (3), 69–94.
- Diebold, F.X., Yilmaz, K., (2012). Better to give than to receive: predictive directional measurement of volatility spillovers. *Int. J. Forecast.* 28, 57–66.
- Longin, F., Solnik, B., (1995). Is the international correlation of equity returns constant: 1960–1990? *J. Int. Money Financ.* 3–26.
- N'dri, K.L., (2007). Stock market returns and volatility in the BRVM. *Afr. J. Bus. Manag.* 1 (5), 107–112.
- Neidhardt, T.N., (2009). Solving the Puzzle: Stock Market Spillover Effects between Namibia and South Africa. Available at <http://dx.doi.org/10.2139/ssrn.1340147>
- Onour, I.A., (2010). Analysis of portfolio diversifications efficiency in emerging African stock markets. *Int. Res. J. Finance Econ.* 40, 30–37.
- Pesaran, M.H., Shin, Y., (1998). Generalised impulse response analysis in linear multivariate models. *Econ. Lett.* 58, 17–29.

Piesse, J., Hearn, B., (2005). Regional integration of equity markets in Sub-Saharan Africa. S. Afr. J. Econ. 73 (1), 36-52

Sugimoto, K., Matsuki, T. and Yoshida, Y. (2014). *The global financial crisis: An analysis of the spillover effects on African stock markets. Emerging Markets Review, 21,201-233*

Taylor, M.P., Tonks, I., (1989). The internationalization of stock markets and the abolition of U.K. exchange control. Rev. Econ. Stat. 71, 332-336

<https://databank.worldbank.org/> (Eriřim Tarihi: 21.10.2024)

<https://tr.investing.com/> (Eriřim Tarihi: 21.10.2024)

<https://nairametrics.com/> (Eriřim Tarihi: 13.10.2024)

# AFRİKA KITASININ EKONOMİ-POLİTİĞİ: TÜRKİYE – AFRİKA İLİŞKİLERİ

Nida GÜNSAN\*, Haluk YERGİN\*\*

## Giriş

Köklü ve tarihsel geçmişe sahip olan Afrika kıtası, uzunca yıllar sömürgeci devletlerin hegemonyası altında kalmıştır. 21. Yüzyılda da sahip olduđu enerji kaynakları ve demografik potansiyeli sebebiyle küresel güçlerin ilgi odağı olmaya devam etmektedir. Küresel güçlerin hedeflediđi politikaların aksine daha yumuşak güç ile Afrika kıtasındaki jeopolitik mücadeleye Türkiye’de dahil olmuştur (Söğütü, 2021: 259).

Neden Afrika? sorusu politika yapımcılar ve akademisyenler tarafından inceleme konusu olmuştur. Afrika açılımı politikası ile birlikte yaşanan gelişmeler ulusal ve uluslararası alanda yakından takip edilmektedir. Türkiye’nin Afrika’ya yönelik izlediđi stratejilerin neler olduđu ve Afrika stratejisinin başarısının arkasında yatan temel etmenin ne olduđu üzerine yoğunlaşmıştır. Elbetteki Türkiye’nin Afrika politikasındaki başarısının temel nedeni Türkiye’nin yapmış olduđu girişimlerde sömürgecilik faaliyetinin olmamasıdır. Bu durum Afrika’nın Türkiye’ye yönelik bakış açısını daha fazla yumuşamasına neden olmuştur (Cannon, 2017: 93).

Türkiye’nin Afrika’ya yönelik politikalarının sömürgeci bir yaklaşım içermemesi, diđer ülkeler için de örnek olacak ve benzer yaklaşımın benimsenmesine katkı sağlayacaktır. Bu durum, Afrika kıtasının ABD, Fransa, Çin, İngiltere, Hindistan veya diđer dış aktörlere aşırı bağımlı hale gelmesini önlemeye yardımcı olabilir (Gamawa, 2017: 74).

Türkiye ve Afrika arasındaki ilişkiler ticaret, yatırım ve işbirliđi anlaşmaları ile daha fazla pekişmiştir. Türkiye’nin uyguladıđı açılım politikası ticaret hacminin artmasında da etkisini gösterdi. 2003 yılından Afrika kıtası ile 5,4 Milyar dolar civarında olan ticaret hacmi 2023 yılında 7 kat artarak 37 milyar dolar seviyesine ulaştı. İlerleyen dönemler ticaret hacmindeki hedef ise 50 milyar dolar olarak belirlenmiştir (Cerit, 2024). Genişleyen ticaret hacmi, Türkiye Afrika ekonomik ilişkilerinin geliştiđinin de kanıtı olmaktadır.

Bu doğrultuda çalışmada, Türkiye Afrika ilişkilerinin mevcut konjonktürdeki durumunun değerlendirilmesi ve ekonomik, siyasi ve ticari ilişkilerin daha da pekişmesi amacıyla değerlendirmelerde bulunmaktadır.

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## Afrika Kitasının Ekonomi-Politik GemiŖi

*“Akdeniz’in gney kıyısından kuzey kıyısına baktığınız zaman, orada Avrupa vardır. Fakat bunun gney kıyısına baktığınızda da Afrika olduğunu da unutmamakta fayda vardır ve Akdeniz, aslında hepimizin ortak bir i denizidir.”*

*Jean Ping, akt: BoztaŖ, 2011: 139.*

Afrika kıtası dnya topraklarının %24’n oluŖturmaktadır. Byk bir toprak parası olsa da nfusu yzlmne gre azdır. 2024 rakamlarına gre Afrika nfusu, yıllık %2,273 artıŖ oranıyla 1.525.095.503'dir. Tm geliŖmekte olan lkeler gibi nfus artıŖ hızı yksektir. Afrika'nın nfusu 2050 yılına kadar 2,5 milyara ulaŖacađı ve dnya nfusunun drtte birini oluŖturacađı tahmin edilmektedir. in, ABD ve Avrupa gibi byk ekonomilerin byk demografik dŖŖler yaŖaması beklenirken, Sahra Altı Afrika yakında dođum oranlarının yksek olduđu tek yer olacađı tahmin edilmektedir. Yoksulluk, AIDS, sıtma gibi hastalıklar dikkat ekmektedir. Kıtada AIDS'in yaygın oluŖu gen kesimi olduka fazla etkilemektedir. Afrika, Siyah Afrika, Arap Afrikası, Fransızca konuŖan Afrika lkeleri, İngiliz Uluslar Topluluđu gibi ok fazla dilin ve kltrn olduđu bir cođrafyadır. Afrika kıtası, Asya kıtasından sonra dnyanın ikinci byk kıtasıdır. Afrika, diđer kıtalarla etkileŖim halinde olmuŖtur. Bu etkileŖim olumlu ve olumsuz pek ok sonu dođurmuŖtur. Olumlu ve olumsuz sonular smrgecilik etrafında ŖekillenmiŖtir. Olumlu iliŖkiler diđer kıta lkelerinin dost yaklaŖımları olurken, olumsuz iliŖkiler diđer kıta lkelerinin srekli bir rant elde etme isteđi sonucunda benimsedikleri smrgecilik anlayıŖlarıdır (Population Today, 2024; Hazar, 2011: 3; Daban, 2021: 926; Zabelin, 2023).

Afrika toplam 54 lkeden oluŖmaktadır. Altın, elmas, manganez, platin, vanadyum, kmr, petrol ve dođal gaz gibi deđerli madenlere sahip yer altı ve yer st zenginliđi olan kıtadır. Bunun dıŖında demografik yođunluđu ve tarımsal potansiyeli yksek bir kıtadır. Dnyanın diđer blgeleri dŖk nfus endiŖesi yaŖarken ve enerji kaynaklarının tkenirken Afrika kıtası o endiŖeyi yaŖamamaktadır. Bu iki faktr diđer lkelerin Afrika ile iŖbirliđi yapmaya zorlamaktadır (m5dergi, 2021). Ŗekil 1’de Afrika'nın dođal kaynaklar haritası gsterilmektedir.



**Şekil 1.** Afrika'nın Doğal Kaynaklar Haritası

**Kaynak:** <https://iktibasdergisi.com/2020/12/13/afrikanin-dogal-kaynaklarinin-haritasi/> (Erişim Tarihi: 13.12.2020).

Afrika doğal kaynaklar bakımından oldukça zengin bir bölgedir. Afrika dünyanın en büyük ekilebilir kara parçasına ve en uzun nehirlerine (Nil ve Kongo) sahiptir. Sadece balıkçılık ve su ürünleri yetiştiriciliği sektörünün toplam katma değerinin 24 milyar ABD doları olduğu tahmin edilmektedir. Ayrıca, tüm küresel maden rezervlerinin yaklaşık %30'u Afrika'da bulunmaktadır. Kıtanın kanıtlanmış petrol rezervleri dünya stokunun %8'ini, doğal gaz rezervleri ise %7'sini oluşturmaktadır. Madenler, Afrika'nın toplam ihracatının ortalama %70'ini ve gayrisafi yurtiçi hasılanın yaklaşık %28'ini oluşturmaktadır (African Development Bank, 2016: 3).

Batılı ülkelerin enerji kaynaklarına ulaşma isteği 21. yüzyılda Kuzey Afrika'ya da sıçramıştır. Enerji kaynaklarına ulaşma isteği, I. Dünya Savaşı'ndan Arap Baharı'nın tetiklediği Ortadoğu ve Kuzey Afrika'daki iç savaşlara kadar devam etmiştir (Kakışım, 2021: 193). Enerji krizleri ile mücadele veren kıtada en önemli sorunlardan biri de elektrik kesintisi olmaktadır. Son zamanlarda Afrika'nın güneyindeki elektrik sıkıntısı önemli ölçüde kötüleşti. Zambiya'da Kariba Gölü'ndeki su seviyesi son 20 yılın en düşük seviyesine inerek hidroelektrik üretiminde kısıtlamalara neden oldu. Güney Afrika'da Eskom'un kömür yakıtlı filosunun kullanılabilirliğinin daha da kötüleşmesi, yaygın ve sürekli yük atmalarıyla sonuçlandı. Botswana'da Morupule enerji santralinde devam eden sorunlar düzenli yük atmaya neden olmuştur. Başlıca enerji

üreticilerindeki üretim sorunları, Güney Afrika bölgesinde ciddi elektrik kesintilerine neden olmuş ve birçok ülkede düzenli olarak elektrik kesintileri ve yaygın yük atmalar yaşanmıştır. Güney Afrika'da bölgesel enerji krizi 'Felaket Durumu' olarak ilan edildi (African Energy, 2024). Elektrik kesintilerinin yoğun olarak yaşandığı bölgede Afrika'da yaklaşık 600 milyon kişi, enerji krizi nedeniyle elektriğe erişememektedir. Bu durum kıtada önemli sosyo-politik ve ekonomik sonuçları ortaya çıkarabilecektir (Akinyemi, 2024). Elektrik sıkıntılarının yaşandığı bölgede halk yemek pişirmek, ısınmak, ev ve iş yerlerinde ışıkları açık tutmak için yakacak odun ve odun kömürüne bağlı hayatlarını devam ettirmektedirler. Afrika'nın elektrik sıkıntısına çözüm bulmak amacıyla Dünya Bankası ve Afrika Kalkınma Bankası ortaklaşa aldığı bir kararla 2023 yılına kadar Sahra Altı Afrika'da 300 milyon kişinin elektriğe erişimini sağlamak amacıyla Mission 300 başlıklı bir görev başlatmışlardır. Yoğun nüfusu ile dünyanın en büyük emek gücüne sahip olacak Afrikalılar, elektrik erişimlerinin önündeki engellerin kalkması sonucunda küresel bir ekonomik güç merkezi haline gelecektir (World Bank Group, 2024).

Uluslararası arenada önemi artan Afrika'nın üzerinde durduğu önemli projelerden biri de Trans-Afrika Karayolu projesidir. Toplam dokuz projenin yer aldığı Trans Afrika Karayolu Ağı, gerek bölgesel gerek bölgeler arası bağlantıyı ve işbirliğini arttıracak potansiyelde olması nedeniyle stratejik öneme sahiptir. Doğu-batı rotasında 6, kuzey-güney rotasında 3 bağlantı hattı bulunmaktadır (Kızılay, 2023). Şekil 2'de Trans Afrika Karayolu'nun haritası gösterilmektedir.

Şekil 2: Trans Afrika Karayolu



**Kaynak:** <https://www.mapsofworld.com/answers/world/trans-african-highway-network/amp/> Erişim Tarihi: 01.12.2024.

Şekil 2'den görüldüğü üzere Afrika ülkelerini birbirine bağlayan bir kara yolu olan Trans-Afrika Otoyolu, çağımızın en büyük projelerinden biridir. Mısır- Kahire'den başlayıp Sudan, Etiyopya, Kenya, Tanzania ve Güney Afrika'dan geçmektedir. Otoyol yaklaşık 60.000 km uzunluğundadır ve en az 18 ülkeden geçmektedir. Trans-Afrika Otoyolu, ticari mallar için önemli bir rota olarak kabul edilmektedir. Bu rotanın ana odak noktası, yol boyunca ticaret için yeni fırsatlar sunarak ilgili tüm ülkelerde ekonomik büyümeyi artırmaktır (Transportafrica, 2022).

**ABD'nin Afrika Politikası:** 21. yüzyılda ABD – Afrika ilişkilerinin başlangıcından bazı önemli olaylar bulunmaktadır. Bunlar; 11 Eylül 2001 saldırıları, 2002 yılında ABD Güvenlik Stratejisi'nin ilan edilmesi, 2007'de küresel ekonomik kriz ayrıca 2007'de Afrika Komutanlığı'nın hayata geçirilmesidir (Halatçı, 2023: 63). Kuzey Afrika ülkelerinde enerji kaynaklarının varlığı ABD için oldukça önemlidir. ABD, bölgede çıkarları için belirlediği dış politika izlemiştir. Soğuk Savaş sonrasında ABD, Kuzey Afrika dış politikasında benimsediği faydacı yaklaşımlar çerçevesinde bölgedeki etkinliği artmıştır. Örneğin; ABD, Kuzey Afrika dış politikasında Libya ve Sudan gibi devletler ile enerji kaynaklarına yatırım yapmak için yakın ilişkiler geliştirilmesi hedeflenmiştir (Duman, 2022: 76).

**Çin'in Afrika Politikası:** 21.yüzyılda Çin, dünyanın yükselen gücü ile tüm dünya tarafından yakından izlenmektedir. Çin'in hızlı yükselişi, ABD'nin hegemonyasını sarsabileceği yönündeki düşünceleri de beraberinde getirmektedir. Ancak Çin'in benimsediği barışçıl, eşitlikçi politikalar, uluslararası arenada Çin'i avantajlı bir konuma getirmiştir ve diğer ülkelerle olan rekabetinde üstünlük sağlamasına neden olmuştur. Uzun yıllar boyunca sömürgecilik ile mücadele eden Afrika ise, Çin'in avantaj elde etmeye yönelik politikalarının en etkili olduğu coğrafi bölge olmuştur (Yüksel, 2016: 1401-1402). Çin Afrika'da uzun vadeli bir oyun oynuyor ve demiryolları, limanlar, barajlar ve hidroelektrik üretim kaynakları gibi altyapı projelerine stratejik yatırımlar yapıyor. Ancak bu yatırımlar, Çin'in Microsoft, Boeing, Google ve General Electric gibi Amerikan ağır toplarıyla rekabet etmeyi hedeflediği, geleneksel olarak ABD'nin hâkim olduğu teknoloji ve bankacılık gibi alanlara girmesi için bir ısınma hareketi olabilir. Oyunun kurallarını değiştirecek bu tür hamleler Çin'in ABD dolarını tahtından indirmeye yönelik daha büyük hırsına hizmet edecektir (Yade, 2021).

### **Türkiye – Afrika İlişkilerindeki Gelişmeler**

Türkiye'nin Afrika ile olan ilişkileri oldukça derin bir geçmişe sahiptir. Hem tarihsel hem de kültürel ilişkileri oldukça eskidir... İslam dini hem Afrika'nın hem de Türklerin ortak kültürel ve dinsel değeridir. 7.yüzyılda Araplarla birlikte Afrika'da yaygınlaşmaya başlayan İslam dini, Afrika kıtasını zenginleştirdi. Dahası Türklerin Afrika girişinde başlangıç oldu. 9.yüzyıldan itibaren Müslümanlığı benimseyen Türkler Araplarca Afrika'ya götürüldüler sonra Türkler bu bölgede hanedanlıklar kurdular. Köklü geçmiş 1517'de Yavuz Sultan Selim'in Mısır'ın fethiyle daha da derinleşti. Osmanlı İmparatorluğu, Kuzey Afrika'da egemen olduğu zamanda İspanya ve Portekiz gibi ülkelerle mücadele etti. Bu sebeple Afrika tarihinde Osmanlı devleti önemli bir noktada yer almaktadır (Fırat, 2007: 1).

Türkiye, Osmanlı dönemine dayanan tarihi, dini ve geleneksel bağları sebebiyle çoğu Kuzey Afrika ülkesi ve özellikle Etiyopya ve Somali gibi bazı Afrika boynuzu ülkeleriyle her zaman yakın ilişkiler içinde olmuştur. Fakat Sahra altı Afrika ülkeleri ile ilişkilerin kurulması 1960'lı yılları bulmuştur. Türkiye sömürgecilikten uzak izlediği şeffaf politikalar ile 1960'lardan itibaren kıta ülkelerinin bağımsızlıklarını tanımış ve bu ülkelerle diplomatik ilişkiler kurmuştur. Bu minvalde, 1962'de Nijerya, 1963'te Cezayir, 1964'te Gana ve 1968'de Kenya ile diplomatik ilişkiler geliştirilmiş ve bu ülkelerde Türk Büyükelçilikleri açılmıştır (Oruç, 2022: 107).

Türkiye'nin 1960'lardaki Afrika politikası, Kıbrıs sorunu ile ilgili Birleşmiş Milletler görüşmelerinde yeni bağımsızlık kazanan Afrika ülkelerinin desteğini almak istemiştir. 1970 yılında Türkiye Afrika'ya yönelik bir açılım planı tasarlamış olsa da ülke gündeminde başka problemler bulunmaktaydı. Örneğin, Kıbrıs konusunda Batılı ittifaklarıyla yaşadığı problemler ve Türkiye'nin Afrika kıtasına yönelik ilgi, bilgi ve strateji eksikliği' en önemli problem olarak değerlendirmiştir. Türkiye, 1980'lerden bu yana, Afrika da dâhil olmak üzere, ticari ilişkilere dayalı bir dış politika izlemiştir. Türkiye'nin Afrika ile olan dış politikası 1960'lı yıllara kadar tek taraflı olmuştur, Kıbrıs sorunu gündemden düşünce Afrika ile ilişkiler geçici süre ile askıya alındı. 1980'lere gelindiğinde Doğu Blok'unun çöküşü ve SSCB'nin çöküşü ile neoliberalizmin egemenliğine giren yeni dünya düzeninde Türkiye'de yeni arayışlara yönelmiştir. Doğu Bloku ve SSCB'nin çöküşünden sonra Türkiye yeni küresel düzende kendine bir yer edinmeye çalışmıştır. Ekonomik, ticari ve teknik işbirliğine odaklanan Afrika Eylem Planı 1998 yılında hazırlanmış, ancak iç siyasi gelişmeler nedeniyle uygulanamamıştır. 2002 yılında Afrika'ya olan ilgi artmıştır. Afrika Ülkeleri ile Ekonomik İlişkilerin Geliştirilmesi Stratejisi 2003 yılında hazırlanmıştır. Türkiye 2005 yılını "Afrika Yılı" ilan etmiş ve diplomatik ziyaretler gerçekleştirmiştir (Çuvalcı Köroğlu ve Kalkan, 2024: 50; Fırat, 2009: 3; Derince, 2024 :92).

*Afrika Eylem Planı (1998):* Dışişleri Güncesi (1998), Kıta Afrikası ülkeleriyle olmayan ilişkilerimizin her alanda geliştirilmesi amacıyla Afrika'ya açılım politikasına yönelinmiştir. Afrika kıtasındaki büyükelçiler, kamu ve özel sektör temsilcilerinin görüşleri alınarak düzenlenmiştir. Siyasi ve ekonomik ilişkilerimizin geliştirilmesi için alınacak önlemleri olarak kapsayan bir Eylem Planı hazırlanmıştır. Kuşkusuz böyle bir açılımın gerçekleştirilmesinde sadece Türkiye'nin arayışı değil soğuk savaşın etkisinin azalarak çok kutuplu bir uluslararası ilişkiler ağının oluşması, küreselleşme kavramının birçok alanda olduğu gibi dış politikada da gündeme gelmesi, ekonomi ve dış politika ilişkisinin öneminin artması gibi pek çok faktör etkili olmuştur (Oruç, 2022: 108).

1998 yılının Kasım ayında hazırlanan Afrika Eylem Planı, koalisyon hükümetlerinden kaynaklanan problemler ve 2000-2001 ekonomik krizi gibi sorunlar nedeniyle uygulanmamış; fakat 2002'de Türkiye'deki hükümet değişikliği ile Afrika ile dış ilişkiler daha sıklıkla gündeme gelmeye başlamış ve 2003'te Afrika'ya ekonomik yoğunlaşma hız kazanmış ve 2005 yılı Afrika Yılı olarak ilan edilmiştir. Afrika Yılı ilan edilmesinin ardından Türkiye Afrika Birliği'ne gözlemci üye olmuştur. 18-21 Ağustos 2008 tarihlerinde İstanbul'da düzenlenen Birinci Türkiye-Afrika Ortaklık Zirvesi'nde Türkiye, Afrika Birliği tarafından stratejik ortak kabul edildi. İkinci zirve 19-21 Kasım 2014 tarihlerinde Malaba'da, üçüncüsü ise 16-18 Aralık 2021 tarihlerinde İstanbul'da gerçekleştirilmiştir. 1998'de başlatılan Afrika'ya açılım politikası 2013'te ortaklık politikasına dönüşürken, açılımın zemin kazanmasıyla Türkiye'nin kıtaya ilişkileri siyasi, ticari, askeri kalkınma ve kültürel boyutları da içeren çok boyutlu ve derin bir süreklilik kazandı (Öztürk ve Duman, 2023).

*2005 Afrika Yılı:* Türkiye'de 2005 yılının Afrika Yılı olarak ilan edilmesi Türkiye-Afrika ilişkilerinde 1960 yılından sonra 45 yıllık süreç içerisinde en önemli adımlardan biridir. Türkiye'nin Afrika ile ilişkileri kuvvetlendirme istediği Afrika'da da memnuniyetle karşılanmıştır. Türkiye, 12 Nisan 2005'te Afrika Birliğinde gözlemci statüsünde bulunmuş 2008 yılında 10. Afrika Birliği Devlet ve Hükümet Başkanları Zirvesi'nde alınan karar ile Afrika Birliği'nin stratejik ortaklarından birisi olmuştur. Dahası Türkiye, 2008 yılında yaptığı başvuru sonucunda Afrika Kalkınma Bankası ve Afrika Kalkınma Fonu'nun bölge dışından 25. üyesi olarak kabul edilmiştir (Eren, 2022: 130).

İkinci Türkiye-Afrika Zirvesinde 2015 ve 2019 yılları arasında ticaret, yatırım, barış ve güvenlik başlıklarının yer aldığı birtakım kararlar oluşturulmuştur. 16-18 Aralık 2021 tarihlerinde,

“Birlikte Kalkınma ve Refah için Güçlendirilmiş Ortaklık” temasıyla üçüncü Türkiye-Afrika Ortaklık Zirvesi düzenlenmiştir. Zirveye Afrika ülkelerinden 38 temsilci katılmıştır. Üçüncüsü düzenlenen zirvede 2015-2019 planlarının değerlendirilmesi yapılmış 2022-2026 dönemi için 57 proje için karara varılmıştır. Günümüzde ise projelerin hayata geçirilmesi için çalışmalar devam etmektedir (SAM, 2024).

Türkiye, 44 büyükelçilikle Fransa’dan sonra kıtada en fazla büyükelçilik sahibi ülkedir. Afrika açılımı hem siyasi hem de ekonomik olarak ilişkilerin gelişmesine katkı sunmuştur. Türkiye’nin Afrika’daki hayata geçirdiği projeleri dış politikadaki sergilediği önemli bir başarıdır. Bu durum sömürgeci anlayışa sahip batılı güçlere de örnek teşkil etmektedir. (Güder vd., 2020: 23).

Türkiye Afrika ülkelerinde TİKA (Türk İş birliği ve Koordinasyon Ajansı Başkanlığı) aracılığıyla yürüttüğü faaliyetler ile sağlık, eğitim, tarım ve altyapı olmak üzere pek alanda katkılar sunmaktadır. Somali, Sudan ve Nijer’de inşa edilen hastaneler, okullar ve su kuyuları yerel halkın yaşam standartlarını artırıyor (Devecioğlu, 2024). Faaliyetlerini ulusal ve uluslararası sürdüren TİKA, Türkiye’nin tarihsel bağlarının bulunduğu tüm bölgelerde ekonomik, ticari, eğitim, alt yapı, sağlık ve sosyal alanlarda devam ettirmektedir (Bayram, 2019: 3737). Türkiye sömürgeciliğin en fazla olduğu coğrafyanın kalkınmasına yönelik devam ettirdiği faaliyetler ile ikili ilişkilerin daha sağlıklı zemine oturtulmasında önemli bir rol üstlenmektedir.

Türkiye - Afrika ilişkilerin ticari ve ekonomik ilişkilerin yanı sıra güvenlik işbirliği ile pekiştirilmektedir. Jeopolitik gerilimlerin arttığı bölgesel ve küresel çatışmaların önemli bir risk haline geldiği dönemde güvenlik ülkelerin gündemini meşgul eden önemli bir kavramdır. Türkiye’nin Sahraaltı Afrika’daki güvenlik iş birliği uzun vadeli bir gelişim içerisindedir. Terörle mücadele konusundaki tecrübesini savunma sanayindeki gelişmeyle birleştiren Türkiye, kıtlık ve susuzluk gibi kronik problemler gibi Afrika’daki güvenlik sorunlarına da kayıtsız kalmamaktadır (Yiğit, 2023). 3. Türkiye- Afrika Güvenlik Zirvesinde güvenlik konusu üzerinde durulmuş ve 2022-2026 Ortak Eylem Planı’nda yer alan 6 stratejik maddeler içerisinde ilk sırada yer almaktadır. 6 stratejik maddeler şunlardır (Tepebaş, 2021):

1. Barış, Güvenlik ve Yönetişim
2. Ticaret, Yatırım ve Sanayi
3. Eğitim, Bilgi ve İletişim Teknolojileri becerileri
4. Gençlik ve Kadın Gelişimi
5. Altyapı Geliştirme ve Tarım
6. Sağlık Sistemlerinin Teşvik Edilmesi.

### **Türkiye- Afrika Ekonomik İlişkiler**

Afrika açılım politikası Türkiye’nin kıta ülkeleri geliştirdiği siyasi ve ekonomi ilişkilerde önemli bir yer tutmaktadır. Açılım politikasında; kıta ülkeleriyle ticari anlaşmaların yapılması, bu ülkelerdeki bürokratların Türkiye’ye davet edilmesi, özel fonların oluşturulması, Türk bankalarının Afrika’da şubeler açması, deniz ve havayolu ulaşımının sağlanması gibi başlıklar üzerinde durulmuştur (Asa ve Güder, 2024: 157). Türkiye, Afrika’yı modernleşmenin ortasında bir kıta olarak görüyor ve hem insani hem de ticari çabaları genişleterek bu kalkınma sürecinde önemli bir aktör olmak istemektedir. Çok sayıda Afrika ülkesinde gelişen ekonominin bir sonucu olarak Türkiye, Sahra altı Afrika’da 23 ülkede 38 noktaya uçan Türk Hava Yolları aracılığıyla ulaşımına da yatırım yapmıştır (Ndayishimiye, 2023: 82).

2000 yılında Türkiye'nin Afrika'ya ihracatı 1,3 milyar dolar seviyesinde ve Afrika'dan ithalatı ise 2,7 milyar dolar seviyesinde gerçekleşmiştir. Fakat Türkiye-Afrika toplam dış ticaret hacmi 4 milyar dolara ulaşırken aynı yıl dış ticaret dengesinde Türkiye 1,4 milyar dolar açık vermiştir. 2009 yılında ise küresel mali krizin olumsuz ekonomik sonuçlarına rağmen Türkiye'nin Afrika ülkelerine ihracatının 10 milyar dolar seviyesini geçtiği görülmektedir. Bu rakam Türkiye'nin 2009 toplam ihracatının %10'una tekabül ederken aynı yıl içinde Afrika'dan yapılan ithalat 5,7 milyar dolar seviyesinde seyretmiştir. Bu da Türkiye'nin 2009 toplam ithalatının %4'üne denk düşmektedir. Böylelikle Türkiye ile Afrika ülkeleri arasındaki dış ticaret hacminin 2009 yılında 16 milyar dolar seviyesine ulaştığı ve en önemlisi de Türkiye'nin Afrika ile dış ticaret dengesinde fazla verdiği görülmektedir (Orakçı, 2011: 91).

Türkiye'nin 2003 yılında Afrika kıtasına ihracatı 2,1 milyar dolar ve Türkiye'nin toplam ihracatı içindeki payı yüzde 4,5 seviyesinde iken 2021 yılında ihracatı 21,2 milyar dolara yükselmiştir. Kıtanın Türkiye'nin 2021 ihracatı içindeki payı ise yüzde 9,4 seviyesine yükseldi. Kıtaya yönelik dış ticaret hacmi 2003 yılında 3,7 milyar dolardan 2021 yılında 29,4 milyar dolara çıkmıştır (Palabıyık, 2022). 2022 yılında ise Türkiye-Afrika dış ticaret hacmi 40,7 milyar dolar civarında gerçekleşmiştir (TRT Haber, 2023).

Türkiye'nin Afrika ülkelerine ihracatı 2024 yılının Ocak ve Ekim ayları arasında 15 milyar doları aştı. Afrika ülkelerine yapılan sevkiyat hacmi 2024 yılının ilk 10 ayında 2023'ün aynı dönemine kıyasla %1.8 artarak 15,1 milyar dolara ulaştı. Türkiye, inşaat ve enerji gibi alanlarda işbirliğini güçlendirerek Afrika'da kalkınma ve yatırım için önemli bir ortak haline geldi (Daily Sabah, 2024).

Türkiye, Gana, Sudan, Cibuti ve Kamerun gibi yeni pazarlarda Serbest Ticaret Anlaşmaları için görüşmeler yapmıştır. Ayrıca, Batı Afrika ülkeleriyle ticaret ve yatırım iş birliğinin başlatılmasına yönelik çabalar da mevcuttur. Türkiye, ihracatını artırmak ve uluslararası ticaret arenasında avantaj elde etmek için uluslararası konferans ve forumlara ev sahipliği yapmaktadır. Türkiye'nin hâlihazırda Afrika'da Mauritius, Mısır, Fas ve Tunus ile Serbest Ticaret Anlaşmaları bulunmaktadır. Ayrıca Gana, Sudan, Cibuti, Demokratik Kongo Cumhuriyeti, Kamerun, Çad ve Libya ile Serbest Ticaret Anlaşmaları müzakere aşamasındadır. Türkiye, Batı Afrika Ülkeleri ile Ticaret ve Yatırım İş birliği Anlaşmasında yer almıştır (İstanbul Africa Trade Company, 2018).

**Tablo 1.** Afrika Ülkeleri Yıllık İthalat Verileri (1000 \$)

Yıllar	Kuzey Afrika Ülkeleri	Diğer Afrika Ülkeleri
2013	3.630.736	2.559.946
2014	3.584.217	2.590.420
2015	3.173.401	2.151.915
2016	3.252.568	2.151.987
2017	4.203.460	2.968.629
2018	4.685.547	2.451.876
2019	4.009.992	1.810.756
2020	4.757.326	2.552.458
2021	5.417.703	2.814.891
2022	6.099.116	3.411.589
2023	7.291.323	3.076.184
2024(Ocak-Kasım)	6.664.029	2.724.484

**Kaynak:** TÜİK (2024).

Tablo 1' de Türkiye ile Afrika ülkeleri ile yıllık ithalat verileri verilmektedir. 2013 yılında Kuzey Afrika 3.630.876 iken 2024 yılında Ocak-Kasım arasında 6.664.029 olmuştur. Diğer Afrika ülkelerinin verilerinde 2013 yılında 2.559.946 iken 2024 yılında 2.724.484 olmuştur. İthalat artışlar olduğu halde arada dalgalanmalar oluşmaktadır. 2019 COVID-19 salgını sebebi ile alınan tedbirlerle dış ticaretler de dünya geneli bir azalma görülmektedir (Çiftçi, 2024: 61).

**Tablo 2.** Afrika Ülkeleri Yıllık İhracat Verileri (1000 \$)

Yıllar	Kuzey Afrika Ülkeleri	Diğer Afrika Ülkeleri
2013	10.930.556	4.465.698
2014	10.240.492	4.267.226
2015	8.918.833	4.212.322
2016	8.069.446	3.833.943
2017	7.918.462	4.318.839
2018	9.915.077	5.173.872
2019	10.828.878	5.794.323
2020	9.224.060	6.016.613
2021	13.336.357	7.875.566
2022	14.110.008	9.508.862
2023	13.674.210	7.724.257
2024(Ocak-Kasım)	11.703.302	3.821.779

**Kaynak:** TÜİK (2024).

Tablo 2'de Türkiye ve Afrika ülkeleri yıllık ihracat verileri verilmektedir. Kuzey Afrika ülkeleri 2013 yılında 10.930.556 iken 2024 yılında Ocak - Kasım arasında 11.703.302 olup, artış yaşanmıştır. Kuzey Afrika ülkeleri ile ihracatta en yüksek yıl 2022 yılıdır. 2015-2017 yılları arasında azalmalar görülmüş, 2019'a göre 2020 yılında tekrar azalmalar yaşansa da 2021 yılında tekrar toparlanarak hızla artışlar yaşanmıştır. Diğer Afrika ülkelerinde 2013 yılında 4.405.698 iken 2024 yılında 3.821.779 olarak artışlar olmuştur (Çiftçi, 2024: 61).

Türkiye'nin Afrika ile stratejik ekonomik ilişkileri, küresel ekonomi ve siyasi güç dengelerindeki değişimlere uyum sağlama çabasıyla şekillenmiştir. Bu bağlamda, Türkiye, Afrika ile ticaret anlaşmalarını çeşitlendirmeyi hedeflerken, aynı zamanda kendi ekonomik yapısında da dönüşüm gerçekleştirmiştir (Enwere ve Yılmaz, 2014: 292). Avrupa ile yakınlaşmanın ardından 1990'larda ve 2000'lerin başında Avrupa Birliği'ne katılma girişimleri sonuçsuz kalan Türkiye, odağını Afrika'ya kaydırды. Başlangıçta bu yönelimin nedeni uluslararası ortamlarda daha fazla diplomatik destek sağlama ihtiyacıydı. Ancak 2005 yılı civarında Türkiye-Afrika ilişkileri derinleşmeye başladı. Bu büyüme, küresel jeopolitiğin yanı sıra Türkiye'nin kararlı yaklaşımı ve Türkiye'nin 2000'li yılların ortalarında yaşadığı ekonomik patlama ile de desteklendi (Pinto, 2024). Türkiye'nin Afrika'ya açılım politikası ile ilgisi hızla artmaktadır. Çünkü Afrika, yoğun demografik yapısıyla, gelişen Türkiye ekonomisine önemli bir pazar sunmaktadır. Ayrıca Türkiye dış politikasına da diplomatik seçeneklerini çeşitlendirmek için yeni bir alan sağlamaktadır. Türkiye'nin, Afrika ilişkilerinde geldiği noktayı ve önümüzdeki süreçte izlemesi gereken politikaları, ilgili tarafların katılımıyla ele alınması ve ivedilikle değerlendirilmesi önemlidir (Karagül ve Aslan, 2013: 22).

## Sonuç

Bu çalışmada, Türkiye-Afrika ekonomik, ticari ve siyasi bağlarının 2002 yılından itibaren hem Türkiye hem de Afrika için yoğunlaştığının vurgusu yapılmıştır. Türkiye Afrika ilişkileri tarihsel

ve kültürel bakımdan köklü bir geçmişe sahiptir. 1960'lı yıllarda ilişkiler yoğunlaşmaya başlasa da Türkiye'de yaşanan siyasi ve ekonomik nedenlerden dolayı iki taraf arasındaki ilişkiler kesintiye uğramıştır. 2002 yılında Türkiye'deki hükümet değişikliği ile Afrika kıtasının stratejik önemine dikkat çekilmeye başlanmıştır. Geçmişten gelen bağların ticari, siyasi ve ekonomik işbirlikleri çerçevesinde artırılması istenmiştir. 1998 yılına kadar Afrika'da bir tane büyükelçilik bulunurken, 21. yüzyıl Türkiye'nin Afrika kıtasının önemini daha fazla anladığı bir dönem olmuştur. Günümüzde ise büyükelçilik sayısı 44'e ulaşmıştır. 2005 yılının Afrika Yılı olarak ilan edilmesinin ardından belirli dönemler arasında Türkiye-Afrika ilişkilerinin geleceğine dair perspektif sunulması için zirveler düzenlemiştir. Zirvelerde ticari, ekonomi, eğitim, güvenlik, teknoloji gibi temel konu başlıkları gündeme getirilmiştir. Fakat son zamanlarda artan jeopolitik riskler nedeniyle iki taraf arasındaki anlaşmalarda güvenlik ilk sırada yer almıştır.

Küresel güçler tarafından sürekli sömürülen Afrika 21. yüzyılda da ülkelerin rekabet alanı olmaya devam etmektedir. Türkiye'nin kıtada izlediği sömürgecilikten uzak şeffaf politikalar ile kıtadaki etkisini güçlendirmeye devam etmektedir. Yeni küresel düzenin şekillendiği dönemde Afrika kıtası, Türkiye için önemli bir pazar alanı olmaktadır. Ticari ve ekonomik ilişkilerini ile küresel ekonomide önemli bir rol oynamayı planlayan Türkiye, Afrika ile ekonomik ve ticari iş birliklerini artırmaktadır. Dış ticaret verileri incelendiği zaman ticaret hacminin genişlediği görülmektedir.

Sonuç itibariyle, Afrika kıtası Türk dış politikasında önemli bir yere sahiptir. Tarihsel ilişkilerini ivedilikle güçlendirmeye çalışan Türkiye'nin Afrika için uyguladığı sömürgecilikten uzak ekonomik ve siyasi politikalar ile kıtada önemli bir rol oynamaya devam etmektedir.

## KAYNAKÇA

Afrika'nın Doğal Kaynaklarının Haritası. Erişim Adresi:

<https://iktibasdergisi.com/2020/12/13/afrikanin-dogal-kaynaklarinin-haritasi/> Erişim

Tarihi:13.12.2020.

African Development Bank (2016). African Natural Resources Center Catalyzing Growth AND Development Through Effective Natural Resources Management. Erişim Adresi:

[https://www.afdb.org/fileadmin/uploads/afdb/Documents/Publications/anrc/AfDB\\_ANRC\\_BR\\_OCHURE\\_en.pdf](https://www.afdb.org/fileadmin/uploads/afdb/Documents/Publications/anrc/AfDB_ANRC_BR_OCHURE_en.pdf) (Erişim Tarihi: 30.11.2024).

African Energy (2024). African Energy Resources. *Erişim Adresi:*

<https://africanenergyresources.com/about/about-african-energy-resources/> Erişim Tarihi: 01.12.2024.

Akinyemi, A.(2024). Afrika'da Enerji Krizi: Yüzer Santraller Çözüm Olabilir mi? Erişim Adresi:

<https://www.bbc.com/turkce/articles/c1vv107geglo> Erişim Tarihi: 22.06.2024

Asa, R., Güder, B. E. (2024). 21. Yüzyılda Zirve Diplomasisi Bağlamında Türkiye-Afrika İlişkileri. *International Journal of Social and Humanities Sciences Research*, 11(103), 149-164.

Bayram, Y.(2019). Türk Dış Politikasında Balkanların Önemi ve STK'ların Balkan Politikalarında Rolü: TİKA be YTB Örnekleri. *Social Sciences Journal*. 5(39), 3732-3740.

Boztaş, A. (2011). Türkiye'nin Afrika İle İlişkilerinde Proaktif Politikalarının teorik Analizi:

Konstrüktivist Teori. Eleştirel Teori ve Uluslararası Toplum Teorisi. *Dumlupınar Üniversitesi*, 31, 139.

Cannon, B. J. (2017). Turkey in Africa: Lessons in Political Economy, *Florya Chronicles of Political Economy*, 3(1), 93-110.,

Cerit, O.N. (2024). Türkiye Afrika İlişkileri: Afrika ile ticaret hacmi son 20 yılda 7 kat arttı. Erişim Adresi: <https://anlatilaninotesi.com.tr/20241125/turkiye-afrika-iliskileri-afrika-ile-ticaret-hacmi-son-20-yilda-7-k> Erişim Tarihi: 25.11.2024.

Çiftçi, F. (2024). 2000'Lİ Yıllarda Türkiye-Afrika Ülkeleri Arasında İmzalanan Serbest Ticaret Anlaşmalarının Ekonomik Büyümeye Etkisi. *Sosyal Bilimler Akademik Gelişim Dergisi*, 2(1), 48-64.

Çuvalcı Köroğlu, S., Kalkan, E. (2024). Türk Dış Politikasında Afrika Açılımı: Doğu Afrika'da TİKA'nın Faaliyetlerini Anlamak. *İmgelem* (14), 33-72.  
<https://doi.org/10.53791/imgelem.1469358>

Daban, C. (2021). 21. Yüzyılda Türkiye'nin Afrika Ülkeleri İle Siyasi ve Diplomatik İlişkileri. *Abant Sosyal Bilimler Dergisi*, 21(3), 925-944.

Daily Sabah (2024). Turkish exports to African nations exceed \$15B in first 10 months. Erişim Adresi: <https://www.dailysabah.com/business/economy/turkish-exports-to-african-nations-exceed-im> Erişim Tarihi: 12.11.2024.

Devecioğlu, K.(2024). Türkiye-Afrika İlişkilerinde Güçlenen Bağlar. Erişim Adresi: <https://www.aa.com.tr/tr/analiz/gorus-turkiye-afrika-iliskilerinde-guclenen-baglar/3229988> Erişim Tarihi: 26.05.2024.

Derince, V.(2024 ). Türkiye-Afrika Ekonomik İlişkilerinin Afrika Kıtasal Serbest Ticaret Bölgesi Anlaşması (AfCFTA) Açısından Analizi. (Yayımlanmamış Yüksek Lisans Tezi). Hasan Kalyoncu Üniversitesi, Gaziantep.

Dışişleri Bakanlığı. (1998). Dışişleri Güncesi, Erişim Adresi: <http://diad.mfa.gov.tr/diad/gunce/aralik-1998.pdf> (Erişim: 15.10.2023).

Duman, Ö.(2022). ABD'nin Kuzey Afrika Dış Politikası: Donald Trump Dönemi (2017-2021). VI. Ortadoğu'da Siyaset ve Toplum Kongresi(11-13 Kasım 2022), Sakarya.

Enwere, C., Yılmaz, M. (2014). Turkey's strategic economic relations with Africa: Trends and challenges. *Journal of economics and political economy*, 1(2), 216-230.

Eren, S. (2022). Kamu Diplomasisi Bağlamında Türkiye'nin Afrika Açılım Politikası. *Marmara Üniversitesi Siyasal Bilimler Dergisi*, 10(1), 128-152.

Fırat, M. (2007). Türkiye-Afrika ilişkilerinin tarihsel arka planı ve Afrika açılımında sivil toplum kuruluşlarının rolü. *Uluslararası Türk-Afrika Kongresi*, 1(5).

Gamawa, Y. I. (2017). Turkey-Africa Relations: Opportunities and Challenges. *Australian Finance & Banking Review*, 1(1), 66-77.

Güder. S., Çemrek. M., Mercan. M. H., (2020). Geleceğin Türkiye'sinde Dış Politika: Eğilimler, Sorunlar ve Çözüm Önerileri. (Rapor No. 2020/24). İstanbul: İLKE İlim Kültür Eğitim Vakfı.

Halatçı, B. (2023). Amerika Birleşik Devletleri'nin Güvenlikleştirilmesi Bağlamında Radikalizm ile Mücadelesi: Afrika Komutanlığı (AFRICOM). *Uluslararası Afro-Avrasya Araştırmaları Dergisi*, 8(16), 54-66.

Hazar, N.(2011). Küreselleşme Sürecinde Afrika ve Türkiye -Afrika İlişkileri. Ankara: USAK Yayınları.

- İstanbul African Trade Company (2018). Trade With African Countries. Erişim Adresi: <https://www.istanbulafrika.com/trade-with-african-countries/> Erişim Tarihi: 02.12.2024.
- Kakışım, C. (2021). Tarihsel Perspektiften Hareketle Irak, Suriye ve Libya'da Yaşanan Enerji Savaşlarının Analizi. *Türkiye Ortadoğu Çalışmaları Dergisi*, 8(1), 191-228.
- Karagül, S., Arslan, İ. (2013). Türkiye'nin Afrika açılım politikası: Tarihsel arka plan, stratejik ortaklık ve geleceği. *Uluslararası Hukuk ve Politika*, 9(35), 21-55.
- Kızılay, Ş. (2023). Trans Afrika Karayolu'nun Zambiya'ya Etkisi. Erişim Adresi: <https://turzam.org/trans-afrika-karayolunun-zambiyaya-etkisi/> Erişim Tarihi: 03. 12.2023.
- m5dergi (2021). Türkiye'de Farika Politikasının Varlığı. Erişim Adresi: <https://m5dergi.com/dunya/turkiyenin-afrika-politikasi-ve-afrikadaki-varligi/> Erişim Tarihi: 25.01.2021.
- Ndayishimiye, F. (2023). Türkiye-Afrika dış ticaret ilişkileri ve büyüme etkisi: Burundi örneği (Yayımlanmamış Yüksek Lisans Tezi). Pamukkale Üniversitesi. Denizli
- Oruç, A. (2022). Türkiye'nin Afrika Stratejisinin Dış Ekonomik İlişkiler Bağlamında Değerlendirilmesi Ve Öneriler. *Cumhurbaşkanlığı, Strateji ve Bütçe Başkanlığı, İSEDAK ve Ulusal Kalkınma İş Birliği Genel Müdürlüğü, Ankara*.
- Orakçı, S. (2011). Afrika'da Küresel Rekabet ve Türkiye. *Avrasya Etüdlere*, 40(2), 73-96.
- Öztürk, M., Duman, M.(2023). A Founding Role in Türkiye's Africa Policy: The Action Plan For Opening To Africa. Erişim Adresi: <https://www.insightturkey.com/articles/a-founding-role-in-turkiyes-africa-policy-the-action-plan-for-opening-to-africa> Erişim Tarihi: 02.10.2023.
- Palabıyık, D.Ç.(2022). Afrika Açılımı Türkiye'nin Kıtayla Ticaret Hacmini 45 Milyar Dolar Seviyesine Çıkardı. Erişim Adresi. <https://www.aa.com.tr/tr/dunya/afrika-acilimi-turkiyenin-kitayla-ticaret-hacmini-45-milyar-dolar-seviyesine-cikardi/2698819#:~:text=Toplam%20d%C4%B1%C5%9F%20ticaret%20ha> Erişim Tarihi: 30.09.2022.
- Population Today (2024). Afrika Nüfusu. Erişim Adresi: <https://populationtoday.com/tr/continents/afrika/> Erişim Tarihi: 07.11.2024.
- Pinto, T.N.(2024). Turkey's push for Influence in Africa is working. Erişim Adresi: <https://www.gisreportsonline.com/r/turkey-influence-africa/> Erişim Tarihi: 09.04.2024.
- SAM(2024). Afrika Açılımı ve Ortak Politikamız. Erişim Adresi: <https://www.sam.gov.tr/bilgi-notlari/afrika-acilimi-ve-ortaklik-politikamiz-0> Erişim Tarihi: 08.11.2024.
- Söğütlü, G.(2021). Serhat Orakçı, Türkiye Afrika İlişkileri: Tarihi Süreç, Yaklaşımlar ve Beklentiler, İstanbul: Pelikan Basım, 2018, 261 s. *Marmara Üniversitesi Siyasal Bilimler Dergisi*, 9(1).
- Tepebaş, U. (2021). 3.Türkiye-Afrika Ortaklık Zirvesi'nin Ardından. Erişim Adresi: [https://tasam.org/tr-TR/Icerik/67997/3\\_turkiye\\_%E2%80%93\\_afrika\\_ortaklik](https://tasam.org/tr-TR/Icerik/67997/3_turkiye_%E2%80%93_afrika_ortaklik) Erişim Tarihi: 21.12.2021.
- TÜİK (2024). Dış Ticaret İstatistikleri. Erişim Adresi: <https://data.tuik.gov.tr/Bulten/Index?p=Dis-Ticaret-Istatistikleri-Ekim-2024-53533> Erişim Tarihi: 28.11.2024.

TRT Haber (2023). Bakan Bolat: Afrika ile ticaret hacmimiz 40,7 milyar dolara ulařtı. Eriřim Adresi: <https://www.trthaber.com/haber/ekonomi/bakan-bolat-afrika-ile-ticaret-hacmimiz-407-milyar-dolara-ulasti-802997.html> Eriřim Tarihi: 12.10.2023.

Transportafrica (2022). Transafrica highway, the next transport project of the century? Eriřim Adresi: <https://www.transportafrica.org/transafrica-highway-the-next-transport-project-of-the-century/> Eriřim Tarihi: 10.07.2022.

Yade, R. (2021). Africa is America's greatest geopolitical opportunity. Does the US know it? Eriřim Adresi: <https://www.atlanticcouncil.org/blogs/africasource/africa-is-americas-greatest-geopolitical-opportunity-does-the-us-know-it/> Eriřim Tarihi: 25.05.2021.

Yiğit, M.(2023). Türkiye – Afrika İliřkilerinin Yeni Boyut: Güvenlik İşbirliđi. Eriřim Adresi: <https://dunyasiyaseti.com/icerik/turkiye-afrika-iliskilerinin-yeni-boyutu-guvenlik-isbirligi.html> Eriřim Tarihi: 07.06.2023.

Yüksel, M. A. (2016). Afrika Jeopolitiđi ve ABD'nin Afrika Politikası. *Turkish Studies (Elektronik)*, 11(2), 1389-1408.

Zabelin, D. (2023). Why Africa Will Become A Prominent Player In Global Geopolitics. Eriřim Adresi: <https://www.weforum.org/stories/2023/07/why-africa-will-become-a-prominent-player-in-global-geopolitics/> Eriřim Tarihi: 12.07.2023.

What's is the Trans African Hihgway network? Eriřim Adresi: <https://www.mapsofworld.com/answers/world/trans-african-highway-network/amp/> Eriřim Tarihi: 01.12.2024.

World Bank Group (2024). Connecting Millions to Electricity in Africa With "Mission 300" Eriřim Adresi: <https://www.worldbank.org/en/news/feature/2024/09/19/five-ways-the-world-bank-will-achieve-mission-300> Eriřim Tarihi: 19.09.2024.

# THE SIGNIFICANCE OF TRADE FACILITATION IN WEST AFRICA: AN EMPIRICAL REVIEW

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## Introduction

The need to Improve social welfare for developing countries is among the global development priorities considering efforts by policymakers and international development partners towards attaining Sustainable Development Goals by 2030 (Sakyi, Bonuedi, and Opoku, 2018). The gains accruing from international trade to economies in general have been immense. Trade is considered to be one of the prime drivers of economic growth and development in developing countries. This is through trade promotion of global economic integration, foreign exchange generation, transfer of technology, enhancement of firms' efficiency due to competition, creation of more and better employment, and thus reduction of poverty (Zahanogo, 2017). Moïsé *et al;* (2011) noted that a broader range of definition for the concept of trade facilitation may involve customs, transport and transit, banking and insurance, business practices, and telecommunications, among other aspects. In recent times, the definition has included transparency, professionalism in customs, harmonisation of different standards, and conformity to international or regional laws and regulations among others (Buyonge and Kireeva, 2008). Tariff elimination on certain products for partner countries has substantially brought down the cost of trade, but trade facilitation is more than eliminating tariffs (Portugal-Perez and Wilson, 2009). It is considered that trade facilitation will improve the diverse social welfare outcomes by way of creating trade opportunities( Narayanan *et al.*, 2016). It enhances the competitiveness of firms in order to improve trade, especially in export performance. Some of the important social welfare concerns which have continued to characterize African countries include poverty, inequality, and poor outcomes regarding school enrollment, child health, life expectancy, and human development (Sakyi *et al.*, 2018). The driving force behind each move towards trade facilitation is related to the trade environment improvement and reduction of transaction costs between the business and government systems (Grainger, 2019).

According to Seck (2017), economic gain through trade facilitation would come due to reduction in the cost of trade, hence increasing the firms' efficiency and performance. The reduced trade costs spur the productivity growth of domestic firms that are more likely to export while the existing ones increase their trade volume. Sub-Saharan African economies continue to bear some of the highest trade costs of any region in the world, especially when trading with other countries within the region. Such costs have been advanced as one of the contributing factors to the persistently low recorded levels of intra-African trade and also a contributor to encouraging unrecorded informal trade. Sakyi *et al;* (2018), enhancing trade facilitation in Africa corresponds with better social welfare outcomes. This is the case since high trade costs associated with poor trade facilitation can adversely affect the well-being of individuals in Africa (World Bank (2011), where it has made emphasis on the fact that trade facilitation can indeed be regarded as an important developmental means through which improvement in individual social welfare in

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African countries, especially the poor, as it would indeed lower the cost of trade costs by reducing the prices people pay for the goods of consumption. Seck (2016) reported that the probability of firms engaging in international trade increases with an enhanced level of trade facilitation, and this is relatively important since Africa will increase trade facilitation within its continent and thereby integrate economically amongst themselves and also give an added boost to the proposed agreement of the African Continental Free Trade Area. Trade facilitation measures that reduce the cost of involvement in international trade should lie at the heart of long-term development policy in developing countries. The West African region, and more narrowly the Economic Community of West African States (ECOWAS), does not lie in a cocoon of immunity from these market forces. Economic welfare represents a monetary estimate of the well-being of both consumers and producers in a particular society.

Economic welfare changes on account of trade facilitation refers to the money value of what consumers would benefit from lower prices of imports plus the money value of the change in profits that producers accrue because of the reduction in the costs of doing business brought about by trade facilitation interventions. Seck (2018), however considered that trade liberalization schemes by their nature cannot create any scarcity in the removal of trade barriers, more so the non-tariff barriers, which are even more disastrous in their impact on trade than the actual tariffs themselves do.

### **Trade Facilitation**

Trade facilitation can be defined as the simplification and harmonization of international trade procedures or, in other words, as activities, practices and formalities involved in collecting, presenting, communicating and processing data required for the movement of goods in international trade (World Trade Organization, 2015). The concept of trade facilitation deals with the ease with which goods can be moved across borders, and this is most prominently related to the efficiency of customs administration and other agencies, the quality of physical infrastructure, and a competent logistics sector. Trade facilitation has great potential in improving trade flows regarding reduction of trade costs, export expansion, participation of more firms in foreign trade, and linking domestic to global value chains. It involves all arrangements aimed at improving border and transport efficiency and reducing transaction costs associated with trade flows (Sakyi and Afesorgbor, 2019). Trade facilitation has the potential for export diversification (Shepherd, 2009) which can be achieved via, lowering the cost of inputs, increasing competition, boosting exports and facilitating integration into value chains (Amoako-Tuffuor *et al*; 2016). Seck, (2018) reported that Trade facilitation increases the real income of consumers and profits of firms through reducing trade costs and, therefore, the price of tradable goods ( Hoekman and Shepherd, 2013).

According to Amoako-Tuffuor *et al*; (2016), two operational areas exist for trade facilitation, namely, simplification and harmonization. Yurendra and Isabella also extended them to include modernization of trade systems, sharing, and lodging of information between business and government stakeholders in particular; administration and management of trade and customs procedures; institutional mechanisms to ensure that the effective implementation of trade facilitation principles is committed to reform.

### **Trade Facilitation in West Africa**

Trade facilitation is a vital tool for the West Africa countries to meet the dimensions of the United Nations 2030 Agenda SDGs. The five dimensions of people, planet, peace, partnership, and prosperity outlined in this Agenda are expressed in the form of 17 goals. According to Odularu (2019), trade facilitation contributes to the realization of development goals, especially in

reduction of poverty and hunger, and sustained economic growth. The need for trade facilitation is felt more now in Sub-Saharan Africa (SSA) than anywhere else, as there has been a higher burden of trade costs now present in Sub-Saharan Africa relative to other parts of the world. There have been a variety of successful trade facilitation interventions accompanying the past two decades in SSA countries. Most of the subsequent studies have devoted their attention to the estimations of the possible extent international trade flows can be spurred by a reduction in the cost of trading. The Economic Countries of West Africa States (ECOWAS) came into being on 28 May 1975 under the Treaty of Lagos. It is a community located in the Western Africa region and comprises 15 member countries, namely: Benin, Burkina Faso, Cape Verde (Cabo Verde), Cote d'Ivoire (Ivory Coast), The Gambia, Ghana, Guinea, Guinea Bissau, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone, and Togo. The ECOWAS countries account, as of 2019, for more than US\$650 billion or about 40% of the total gross domestic product of SSA. With US\$448 billion accounting for 26% of sub-Saharan Gross domestic product, Nigeria is a major contributor to regional gross domestic product. A quarter of SSA merchandise import and a third of SSA merchandise export is contributed by members of the ECOWAS community only (World Bank 2020). These trading blocks, despite the formal commitment for financial-economic integration and freedom of movement, still have a lot of impediments with poor leadership, weak infrastructure, and low levels of intra-regional trade.

### **Objectives**

The main aim of this review was to examine the importance of trade facilitation in West Africa, while the specific objective includes:

- i. identify the state of Trade facilitation,
- ii. examine the impacts of Trade facilitation,
- iii. identify the challenges of Trade facilitation among West Africa countries,

### **Methodology**

This is entirely a review article and, therefore, relies on secondary sources of information. The review draws from various published reports and articles sourced from books, journals, proceedings, and online platforms. Through the synthesis and analysis of these sources, this review aims to present a comprehensive overview of the topic and identify key findings, trends, and gaps and how to implement them effectively in the current knowledge base.

### **Findings and Discussion**

#### **State of Trade among West Africa Countries**

Burdensome customs procedures, complicated border procedures with high trade compliance costs, have resulted in a huge amount of informal trade. Efobi, and Osabuohien, (2016) observed that all these factors together with economic growth in the region does manage to well translate into an improvement of inclusive development. According to Onyekwena, and Oloko (2016) reported that higher cost of trade in serving a foreign market, where there is firm heterogeneity, forms a significant barrier to entering an export market. Trade, if effectively facilitated, can lower the transaction costs of domestic firms in export markets, and this could be a significant productivity gain for these firms. On one hand, Seck (2017) established that trade facilitation would encourage firms in sub-Saharan African countries to benefit more from the global systems of trade. In this respect, the surest way of taking advantage of these opportunities is through effective trade facilitation. This then becomes crucial in this regard, since, according to

Hartzenberg (2011) and Shepherd (2016), trade facilitation improves network connectivity and remains central in efforts to enhance Africa's trade inter-regionally and globally. Therefore, trade facilitation policy will play a decisive role in the performance of the economy. Among the policy measures that enhance economic growth, trade facilitation is particularly imperative given its direct impact on international trade costs. Sakyi, *et al*; (2017) examined the impact of trade facilitation and international trade on economic growth in two separate studies covering 35 and 52 African countries, respectively. Such international trade, which can be increased by extending the measures of trade facilitation, will affect economic growth. A series of studies have therefore been conducted to investigate different features concerning trade facilitation and its impacts on SSA's bilateral trade.

Regional trade agreements are strategies to improve trade ties between member countries within the west Africa countries. The ECOWAS Commission was formed by combining 15 countries in western Africa with the purpose of liberalizing trade flow through regional integration and economic cooperation. With over 375 million people, this large trading block comprises a huge population (World Bank, 2020). Balistreri *et al*.; (2018) gauged the impact of trade cost reduction on the incidence of poverty and on the incomes of the lowest 40% of the distribution of income within the East African Customs Union and the Tripartite Free Trade Agreement. In the same vein, Valensisi *et al*; (2016) considered Trade Facilitation Agreements within the African regional integration framework. The study determined the degree to which trade facilitation measures could enrich participation in international trade and determined how trade-related costs are a hindrance to the integration into not just the rest of the world but also into regional integration. In the context of the Regional Trade Agreements, there have been extensive studies within the literature (Osabuohien *et al*; 2019). In the process of accelerating the sustainable development of regional economic interactions, many regional trade agreements have been organized since the independence of African countries. The regional trade agreement, based on putting greater effort into cooperation and liberalization, can take place in various stages of integration: preferential trade area, free trade agreement, customs union, and an economic union.

### **Impacts of Trade Facilitation among West African Countries**

According to Olayiwola *et al*.; 2015, where they employed dynamic gravity model to estimate the impact of trade facilitation significance involving the required processing days on the ECOWAS agricultural exports, The findings revealed that a 1% reduction in the number of days taken to process agriculture commodities for export was associated with an increase of about 0.07% of agricultural exports. Odebiyi and Alege, (2019) established that for increasing trade flows under RTAs (Regional Trade Agreement), there is a need for adopting trade facilitation policies along with liberalization and elimination of tariffs. A similar trend was also found in the community of ECOWAS that volume of intra-regional trade would not rise considerably following the tariff reduction. Seck 2014 analyzed four broad trade facilitation indicators, which includes physical infrastructures indicating the quality of ports, airports, road and railroad infrastructure. The second one was border efficiency which refers to the number of documents needed, the time taken to clear customs and eventually the dollar cost. The next one was the regulatory environment which entails providing clear information about trade procedures, reducing the level of inconsistency in trade policies. The final indicator was e-business showing the extent to which the use of information and communication technology improves paperless trade and efficiency on one hand and reduces trade transaction costs on the other. The study included the World Bank's logistics performance index, which encompasses "on-the-ground" efficiency of trade supply chains, or logistics performance. Njuguna, (2013) disclosed that trade facilitation is yet to have an observable implication on intra regional trade patterns. Multiple membership to

regional trade agreements has a deterring impact on trade patterns which suggests the need for country specific analysis. UNECA, (2013) examined the trade flow and facilitation relationship. It was found that the exporter's port efficiency positively influences regional-intra export trade and that the application of e-business in importing and exporting Southern African Development countries' economies will lead to an increase in the intra-regional export trade. The findings reveal that facilitating domestic infrastructures and increasing engagement in ecommerce are very crucial benefits in enhancing intra-regional trade. It has been found in the United Nations report of 2016 that in low-income countries, the greatest impact is created on increasing trade flows by harmonization and simplification of documentation. Peterson (2017), through observation of World Bank's trading across Borders database, indicates that for countries across all income levels, border procedures those concerning customs clearance and inspection) account for the largest proportion of the costs and time associated with imports.

Seck, (2018) observed that a one standard deviation increase in trade facilitation measures could yield a 33% increase in Sub-Saharan Africa's exports, and that improvement in the efficiency of the borders in terms of reduction in the number of documents required when exporting and transit time is associated with greater export expansion. More trade has the effect of generating jobs, therefore, this has positive social welfare outcomes. Njinkeu, Wilson and Fosso (2008), analysed the impact of reforms on port efficiency, the customs environment, the regulatory environment and service infrastructure found that improvements in port efficiency and service infrastructure had been the major driving factors for intra-African trade expansion. Disdier *et al*; (2010) who included infrastructure variables in their work found that gains from trade facilitation would almost only arise for developing countries in sub-Saharan Africa.

### **Challenges of Trade Facilitations among West African Countries**

The trade complementarities of the ECOWAS members are poor. They produce almost similar primary commodities concentrated on oil, gas, and primary goods. The low level of comparative advantage appears by the local producers compared to the trading countries beyond the ECOWAS territory (Torres, and Van Seter, 2016). Nigeria is a large, dominant economy in the ECOWAS, which holds the position of the largest oil producer in the African region. Because its export product market would need to be diversified in order to drop its dependency on oil, a host of possible opportunities for the trade would be realized if industrial infrastructure capacity were to be enriched. An overview study of West African trade, Torres and Seters, 2016, noted that the ambitious ECOWAS Treaty has not hitherto actually implemented its commitments. The members also suffer from formal and informal trade obstacles and a low level of infrastructure, which are hurting the impact of the trade flows. About 75% of intra-region is informal trade, mainly conducted by small traders, where women are the majority, to avoid expensive and time-consuming as well as unpredictable procedures at the borders. The study shows that trade facilitation needs special consideration. Shepherd (2016) expressed that it is apparent there is an infrastructure gap between high- and lower-income countries; performance is strongest in information and communication technologies, which might suggest that the largest portion of progress by lower income countries has been made. Unfortunately, the gains that could be accrued from facilitating trade have not yet been realized in most African countries. This is notwithstanding the major trade reforms that have been implemented on the continent in the form of trade liberalization, regional initiatives, and other multilateral agreements. Whereas tariff levels are at an all-time low, the numerous non-tariff measures are costing and embattling the ease of doing business on the continent negatively (Arvis *et al*, 2013). Moïsé and Sorescu (2013) opined that bad practices for borders have led to the loss of revenues reaching up to 5 percent of the GDP of African countries, and this has created an argument in which Africa is still largely

considered the continent where there are more significant barriers on importation and exportation compared to any other continent from around the globe. Iwanow and Kirkpatrick (2009) suggested that poor infrastructure and the institutional environment were partly to blame for the generally poor performance of the African manufacturing sector in export markets. The study employed the gravity model approach, which showed that trade facilitation could be a way of increasing Africa's trade potential in manufactured goods.

### **Conclusion and Recommendations**

The review concludes that Trade facilitation is important to enhance economic growth in West Africa which will enable more participation of the region in international trade and promotes more integration. There is a need to reduce the cost of trade, improve the border and customs efficiency. The benefits of effective trade facilitations include increased exports increase, better competition within firms, and overall economic growth within the region. For the West African countries to overcome several challenges regarding the trade situation there is a need for holistic efforts from international development partners and regional stakeholders on policy improvement which can promote infrastructure development. The effective utilization of trade facilitation tends to lead to social and economic impacts for west Africa countries on a long run.

The study therefore recommends that West Africa countries should pay attention to development in the form of port establishment, transportation improvement, and custom management. The combination of policies with the region that will reduce delay in border activities and increase flow of trade. There is a need for capacity development of the major key stakeholders and institutions on trade facilitation to reduce cost and improve efficiency. Promotion of export on different commodities to enhance economic stabilization in the region, which can be done through trade processes that give advantages to micro units within the economy. Trade policies can be effective with the adoption of digital tools such as electronic customs and e-commerce systems. West Africa countries can be one of the leading regions in the world in terms of global trade if trade facilitation tends to address economic and social welfare issues.

### **REFERENCES**

Amoako-Tuffour, J., Balchin, N., Calabrese, L. and Mendez-Parra, M. (2016). Trade Facilitation and Economic Transformation in Africa. African Transformation Forum.

Arvis, J.-F., Saslavsky, D., Ojala, L., Shepherd, B., Busch, C. and Raj, A. (2014), Connecting to Compete 2014: Trade Logistics in the Global Economy: The Logistics Performance Index and its Indicators, Washington DC: World Bank.

Balistreri, E.J.; Maliszewska, M.; Osorio-Rodarte, I.; Tarr, D.G.; Yonezawa, H. (2018) Poverty, Welfare and Income Distribution Implications of Reducing Trade Costs Through Deep Integration in Eastern and Southern Africa. *J. Afr. Econ.*, 27, 172–200.

Buyonge, C., Kireeva, I., 2008. Trade facilitation in Africa: challenges and possible solutions. *World Cust. J.* 2 (1), 41–54. Cabote, N.J., 2014. Trade Facilitation and Poverty in Developing Countries. Unpublished Thesis, Institute of Social Sciences, University of Tokyo.

Sakyi, D, Bonuedi, I, Evans, E and Opoku, O (2018) Trade Facilitation and Social Welfare in Africa, *Journal of African Trade* 5:1-2, 35–53, DOI: <https://doi.org/10.1016/j.joat.2018.08.001>

Disdier, A. C., Tai, S. H., Fontagné, L. and Mayer, T. (2010), "Bilateral trade of cultural goods", *Review of World Economics*, 145(4), 575-595.

ECOWAS Economic Community of West African States (2020). About ECOWAS. Available online: <https://www.ecowas.int/about/ecowas/> (accessed on 18 April 2020).

Efobi, U.R.; and Osabuohien, E.S. Manufacturing Export, Infrastructure and Institutions: Reflections from ECOWAS. In *Accelerated Economic Growth in West Africa*; Seck, D., Ed.; Springer: Cham, Switzerland, 2016; 157–179.

FAO (2017). Formalization of informal trade in africa. Technical report, Food and Agriculture Organization of the United Nations.

Grainger, A. (2019). Customs and Trade Facilitation: from Concepts to Implementation. *World Customs Journal* 2(1).

Hassan, M.; Odularu, G.; and Babatunde, M.A.(2020). Introduction: Trade Relations, Business Opportunities and Policy Instruments for Fostering Africa's Trade. In *Fostering Trade in Africa*; Odularu, G.O.A., Hassan, M., Babatunde, M.A., Eds.; Springer: Cham, Switzerland, 1–4.

Hoekman, B. M. & Shepherd, B. (2013). Who Profits From Trade Facilitation Initiatives? Robert Schuman Centre for Advanced Studies. Global Governance Programme-55. European University Institute Working Papers.

Iwanow, T., Kirkpatrick, C., 2007. Trade facilitation, regulatory quality and export performance. *J. Int. Dev.* 19 (6), 735–753.

Moïsé, E. and Sorescu, S. (2013), "Trade Facilitation Indicators: The Potential Impact of Trade Facilitation on Developing Countries' Trade", Paris: Organisation for Economic Co-operation and Development (OECD), Trade Policy. 144.

Moïsé, E., Orliac, T., Minor, P., 2011. Trade facilitation indicators: the impact on trade costs. OECD Trade Policy Working Papers, No. 118. OECD Publishing <https://doi.org/10.1787/5kg6nk654hmr-en>.

Narayanan, B., Sharma, S., Razzaque, M., 2016. Trade facilitation in the commonwealth: an economic analysis. *Margin J. Appl. Econ. Res.* 10 (3), 305–336. <https://doi.org/10.1177/0973801016645218>

Njinkeu, D., Wilson, J.S., Powo Fosso, B., (2008). Expanding trade within Africa: the impact of trade facilitation. World Bank Policy Research Working Paper Series No. 4790 (<http://documents.worldbank.org/curated/en/435711468009020240/pdf/WP4790.pdf>).

Njuguna, L. (2013) Impact of Trade Facilitation on Intra-Regional Exports: A study of the COMESA Region. Master's Thesis in Economics.

Odebiyi, J.T.; and Alege, P. (2019) Bilateral trade flows, trade facilitation, and RTAs: Lessons from ECOWAS. In *Trade Facilitation Capacity Needs: Policy Directions for National and Regional Development in West Africa*; Odularu, G., Alege, P., Eds.; Palgrave Macmillan: Cham, Switzerland, 67–90, ISBN 9783030059460.

- Odularu, G. (2019). Introduction: The Changing Landscape of Trade Facilitation and Regional Development Issues in West Africa. In Trade Facilitation Capacity Needs; Odularu, G., Alege, P., Eds.; Springer International Publishing: Cham, Switzerland,; 1–23, ISBN 9783030059460.
- Olayiwola, W.; Osabuohien, E.; Okodua, H.; Ola-David, O. Economic Integration, Trade Facilitation and Agricultural Exports Performance in ECOWAS Sub-Region. In Regional Integration and Trade in Africa; Ncube, M., Faye, I., Verdier-Chouchane, A., Eds.; Palgrave Macmillan: London, UK, 2015; pp. 31–46, ISBN 9781137462053.
- Oluwusi, O.; Punt, C. The ECOWAS free trade area: An ex-ante and ex post analysis of the impact on Nigeria’s imports. *Afr. J. Agric. Resour. Econ.* 2019, 14, 72–85.
- Onyekwena, C.; and Oloko, T.F. Regional Trade for Inclusive Development in West Africa; Working Paper WPS/16/03; Centre for the Study of the Economies of Africa (CSEA): Abuja, Nigeria, 2016.
- Osabuohien, E.S.; Efobi, U.R.; Odebiyi, J.T.; Fayomi, O.O.; and Salami, A.O (2019). Bilateral Trade Performance in West Africa: A Gravity Model Estimation. *Afr. Dev. Rev.* 2019, 31, 1–14.
- Peterson, J. (2017). An Overview of Customs Reforms to Facilitate Trade. *Journal of International Commerce and Economics*. United States International Trade Commission.
- Portugal-Perez, A., Wilson, J.S., 2009. Why trade facilitation matters to Africa. *World Trade Rev.* 8 (3), 379. <https://doi.org/10.1017/S147474560900439x>.
- Safaeimanesh, S.; and Jenkins, G.P.( 2021) Trade Facilitation and Its Impacts on the Economic Welfare and Sustainable Development of the ECOWASRegion. *Sustainability* 2021, 13, 164. <https://dx.doi.org/10.3390/su13010164>.
- Sakyi and Afesorbor (2019) the Effects of Trade Facilitation on Trade Performance in Africa. *Journal of African Trade*, 6(1-2), pp. 1-15
- Sakyi, D.; Villaverde, J.; Maza, A.; Bonuedi, I. The Effects of Trade and Trade Facilitation on Economic Growth in Africa. *Afr. Dev. Rev.* 2017, 29, 350–361.
- Seck, A. (2014), “Trade Facilitation and Trade Flows in Africa”, paper presented at the 17th Annual Conference on Global Economic Analysis, Dakar, Senegal, 18–20 June. Retrieved at: [https://www.gtap.agecon.purdue.edu/resources/res\\_display.asp?RecordID=4408](https://www.gtap.agecon.purdue.edu/resources/res_display.asp?RecordID=4408)
- Seck, A. (2017). Trade Facilitation and Trade Participation: Are Sub-Saharan African Firms Different?. *J. Afr. Trade.* 3, 23–39. [doi:10.1016/j.joat.2017.05.002](https://doi.org/10.1016/j.joat.2017.05.002)
- Seck, A. (2018). How Facilitating Trade would benefit Trade in Sub-Saharan Africa. AERC Research Paper 352 African Economic Research Consortium, Nairobi
- Shepherd, B. (2009). Enhancing export diversification through trade facilitation. Asia-Pacific Research and Training Network on Trade
- Shepherd, B. (2016). Trade Facilitation and Global Value Chains: Opportunities for Sustainable Development. Geneva: International Centre for Trade and Sustainable Development.

Torres, C.; Van Seters, J. Overview of trade and barriers to trade in West Africa. Eur. Cent. Dev. Policy Manag. 2016. Discussion Paper, No. 195. Available online: <https://ecdpm.org/publications/trade-barriers-west-africa-political-economy-agricultural-food/> (accessed on 20 September 2020).

Turkson, F.E.; Adjei, R.M.; Barimah, A. Does Trade Facilitation Promote Bilateral Trade in Sub-Saharan Africa? Policy and Issues. In *Fostering Trade in Africa*; Odularu, G.O.A., Hassan, M., Babatunde, M.A., Eds.; Springer: Cham, Switzerland, 2020; 63–96,

UNECA (2013) Assessing the impact of trade facilitation on SADC's intra-trade potential

Valensisi, G.; Lisinge, R.; Karingi, S. The trade facilitation agreement and Africa's regional integration. *Can. J. Dev. Stud. Rev. Can. D'étud. Dév.* 2016, 37, 239–259.

World Bank (2017). *Doing business 2017*.

World Bank (2020) World Development Indicator. Available online: <http://datatopics.worldbank.org/world-development-indicators/> (accessed on 20 September 2020).

Yurendra, B. and Isabella, M. (2015). *Trade Facilitation: Rapid Evidence Assessment*. London: Overseas Development Institute.

Zahonogo, P., (2017). Trade and economic growth in developing countries: evidence from Sub-Saharan Africa. *J. Afr. Trade* <https://doi.org/10.1016/j.joat.2017.02.001>

# RAISING AWARENESS OF OPEN BANKING IN AZERBAIJAN: THE EXPERIENCE OF THE UNITED KINGDOM

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## Introduction

The open banking model is gaining traction worldwide and reshaping the financial sector. Its implementation varies by country, leading to different adoption rates. Azerbaijan has made progress with open banking legislation, but challenges remain in adoption. In this regard, this study covers the ways of raising awareness within society and the application of the example of the United Kingdom for the adoption of open banking in Azerbaijan.

The research has reflected the steps taken in connection with the implementation of open banking in Azerbaijan and the United Kingdom, TPPs that include open banking services in Azerbaijan, and the current situation. Then, to increase the awareness of open banking, the digital open banking platform of the United Kingdom was compared with the information provided through the digital channels available in Azerbaijan and the awareness of the advantages of open banking services provided to customers and business entities. Finally, steps to increase awareness and adoption of open banking within the community are detailed.

## Open Banking in Azerbaijan

Open banking is the sharing of financial information about customers with third-party providers through secure channels based on their explicit consent. "The concept of Open Banking is generally well understood as the practice of sharing banking data via standardized and secure interfaces at the request of clients." (Organization for Economic Co-operation and Development [OECD], 2023, p.6). Open banking includes three key features: "consumers having greater access to, and control over, their banking data; financial institutions being required to share their customer's data with customers; and with the consent of customers, financial institutions sharing customer data with accredited third-party providers (TPPs)" (Hamilton, 2019). The open banking model is not just about sharing financial information with third parties, but also an approach that includes a foundation of open finance and open data.

The first open banking framework in the United Kingdom (UK) was the Midata Initiative by the Department for Business, Innovation and Skills in 2011, which gave customers access to their data in a portable electronic format (Swinson, Shadbolt, & Bates, 2013). However, a major step towards introducing open banking was made in 2016 by the UK's Competition and Markets Authority, which concluded that the retail banking sector was dominated by large banks and that competition was low (Competition and Markets Authority [CMA], 2016). In 2017, the UK's Competition and Markets Authority introduced the first open banking regulation to increase competition and innovation in the existing banking sector (CMA). In 2018, customer financial information was securely shared with authorized TPPs based on their consent. The Payment Services Directive 2 (PSD2), which contains the open banking model across Europe, has

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influenced the development of open banking in the United Kingdom (Babina, et al., 2024), and “The PSR<sup>2</sup> is the transposition of PSD2 into UK Law” (Regulatory, n.d.). In addition to being the first in the world to implement open banking on a regulatory basis, the United Kingdom also played a significant role in shaping the interest, use, and future of the open banking model in the financial sector.

The first step regarding introducing open banking in Azerbaijan was taken in 2021 with the "Open Banking Road Map"<sup>3</sup>. The strategic road map includes all the processes and plans to be implemented in connection with the introduction of open banking in Azerbaijan for 2021-2025. The implementation of open banking in Azerbaijan includes the European approach, being regulatory-based (Həsənov, 2022). On July 14, 2023, the law "On Payment services and payment systems"<sup>4</sup> the open banking model was developed based on the legislation Payment Service Directive 2 (PSD2). There is no common API standard for the implementation of open banking services across the European region, and different countries have different API standards. Azerbaijan includes the Berlin Group API standard for open banking services. The Berlin Group API standard has been applied by 75% of banks across the European region (Berlin Group, n.d.).

According to Article 62 "Regulation and control" of the legislation on "Payment services and payment systems" on open banking, the Central Bank of the Republic of Azerbaijan acts as a regulatory and license-providing institution for open banking TPPs. As of 2024, the number of licensed TPPs that include Open banking services in Azerbaijan is eight. Awareness of open banking in Azerbaijan is at an exceptionally low level. In addition to the existence of restrictions related to the use of open banking services, there is a situation where users are not aware of the benefits of open banking services (Dratva, 2020).

Despite the sharing of information related to open banking by the Central Bank, the impact on consumers is weak. Lack of awareness about open banking is the main reason for poor adaptation to open banking. The privacy and security concerns of the financial information to be shared are then decided. Thirdly, it is possible to note that open banking does not introduce innovative approaches and does not attract customer interest (Heins, & Rigopoulos, 2023).

**Table 1.** Electronic Money and Payment Institutions Offering Open Banking Services

TPPs	Open Banking services
AniPay (Anipay)	AISP/PISP <sup>5</sup>
Akart ("A-Solutions Electronic Money Institution" LLC)	AISP/PISP
M10 ("PashaPay" LLC)	AISP/PISP
PulPal "PulPal" LLC	PISP
Goldenpay.az/ Hesab.az "Goldenpay" OJSC	AISP
Greentekpay "Greentek Group" LLC	PISP
Msolution "Multi Solutions" LLC	AISP/PISP
Fpay "Fizza Pay" LLC	PISP

Source: CBAR, 2024<sup>67</sup>

<sup>2</sup> [https://www.legislation.gov.uk/ukxi/2017/752/pdfs/ukxi\\_20170752\\_en.pdf](https://www.legislation.gov.uk/ukxi/2017/752/pdfs/ukxi_20170752_en.pdf)

<sup>3</sup> <https://uploads.cbar.az/assets/98ce036fa58c999a6e2874dfe.pdf>

<sup>4</sup> <https://e-qanun.az/framework/54872>

<sup>5</sup> AISP – Account Information Service Provider / PISP – Payment Initiation Service Provider

<sup>6</sup> <https://www.cbar.az/page-853/electronic-money-institutions>

<sup>7</sup> <https://www.cbar.az/page-854/payment-institutions>

In 2022, banks were fully integrated into the Instant Payment System in connection with open banking (Bankların açıq bankçılıq, 2022), the legislation for 2023 was approved, and for 2024, TPPs received a license for open banking services. However, low awareness and usage by society prevent open banking from being marked as *"fully implemented"* (Abbasov, 2024). Also, the non-presentation of statistical information on open banking services by TPPs has a negative impact on clarifying the real situation.

### **Information Accessibility Related to Open Banking in Azerbaijan**

Despite over 10 million open banking users across the UK by 2024, widespread consumer awareness of open banking is still low and is seen as a major barrier to open banking adoption (Berrai, 2024). Awareness is one of the factors that have a positive effect on the adoption of innovation. "The adoption of innovation causes an initial knowledge gap between the current knowledge and the knowledge needed for using the innovation effectively" (Badilescu-Buga, 2013). Filling the information gap is the main nuance that will increase the use of the introduced innovation. The low availability of information on open banking in Azerbaijan has a negative effect on the increase in the potential of use. A serious challenge is the poor availability of information about the open banking model to digitally educate the public and promote its use. It is possible to mention the example of the United Kingdom for providing information accessibility of open banking in Azerbaijan. Because providing real-time information to the public on open banking, verifying third-party providers (TPPs) that include open banking services on the official website, monitoring real statistical results, sharing key metrics on open banking usage, and other issues influence and encourage the use of open banking.

Comparison of the following features of the website "[openbanking.org.uk](https://openbanking.org.uk)", which contains information about open banking provided to consumers in the United Kingdom, with the current situation in Azerbaijan:

- Online registration of Account Servicing Payment Service Providers (ASPSPs) and Third-Party Providers (TPPs).
  - Online registration is not possible due to the lack of an online website and platform providing open banking services by the Central Bank of the Republic of Azerbaijan. Simply, Article 49 of the "Payment services and payment systems" legislation *"Application for granting a license to a payment organization and an electronic money organization"* applies with an application, and the process of issuing a license is refined within 60 days.
  - The central register established by the European Banking Authority (EBA) to ensure transparency across Europe reflects information on payment and electronic money institutions. In addition, TPPs that include open banking services must have an electronic ID to confirm that they are a licensed participant (Maldonado, 2022).
- In addition to the purpose of managing certificates covering open banking services within the OBIE ecosystem and verifying the services that the parties will offer for open banking, the possibility of testing Technical Service Providers (TSP) banking technologies in the *"Directory Sandbox"* is provided.
  - The Central Bank of the Republic of Azerbaijan has provided an opportunity to test not only open banking services but also other innovative financial services of financial institutions and fintech under the *"Regulatory Sandbox"*.

- Confirmation of the correctness of the person to whom the funds are sent, i.e. the recipient, by the person who sent the funds for transfers carried out under open banking (Confirmation of Payee).
  - Payments and transfers made through the Instant Payment System (IPS) in Azerbaijan are conducted using FIN, TIN, mobile number, and e-mail. This includes a feature of confirming the identity of the other person or party.
- Conformance and certification<sup>8</sup>, include checking that the services provided in open banking meet the required standards by checking with conformance tools and providing compliance with certification.
  - In Azerbaijan, there is a lack of an online instructional platform for checking compliance and certification of Open banking services.

Users are provided with detailed information on the benefits of using open banking across the UK, and this information fully covers all aspects of open banking. In Azerbaijan, the availability of information about open banking is limited.

**Information provided to clients:**

1. A complete explanation of the concept of open banking, a presentation of the advantages and benefits of using open banking services with illustrative videos, and sharing information about the services provided by TPPs.
  - A single dashboard for accounts
  - Smart savings account
  - Making quick decisions about providing the loan to the client
  - Easier mortgage applications and faster decision-making
  - Price-based comparison of bank products and services and credit score monitoring
  - Debt management service to be provided by TPPs
2. Providing a glossary of all operational, process, security, and other terms involved in open banking.
3. Availability of fully detailed information in real-time through the Financial Conduct Authority (FCA) about licensed and authorized providers (ASPSPs/TPPs) by open banking legislation and regulation and the possibility of making a complaint about them.
4. "FAQ" contains various questions and extensive information regarding open banking<sup>9</sup>.

**The most essential and valuable information for business entities:**

1. Presentation of detailed information about the advantages, benefits, and rules of use of open banking for business subjects and illustrative videos related to payments, credit, and other processes with open banking.
  - Cash flow and improved forecasting with a single control dashboard

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<sup>8</sup><https://openbanking.atlassian.net/wiki/spaces/DZ/pages/1061584956/Conformance+Certification+Service>

<sup>9</sup> FAQ (Frequently Asked Questions)

- Obtaining payment by sending a secure *"link"* containing invoice information specially prepared for sending an invoice.
  - Receiving payments from customers instantly and reflecting them in the bank account.
  - The possibility of cheaper cost of products and services by requiring lower costs and commissions than card-based payments.
  - Fewer manual errors and certain fees and commissions are required during refunds.
  - Use of effective accounting and contactless payment (QR, NFC) types.
2. Formation of more convenient management and control over financial resources.
  3. Instructions for business entities on obtaining financing and credit support, helping businesses with open banking payments, and setting up savings accounts.

General information about open banking in Azerbaijan was presented by the Central Bank in 2021 with the "Open Banking Road Map". However, information about illustrative videos, usage, and positive aspects of their services is still low. A glossary of open banking terms has not been provided. Even though information related to TPPs is provided on the official website of the Central Bank, there is no online service offered for any complaint procedure. A complaint made by a Payment Service User (PSU) to a Payment Service Provider (PSP) is considered within 7 days by Article 11 of the "Payment services and payment systems" legislation "*Appeals processing and dispute resolution*", and the result is recorded, if it has not been resolved within this time frame, information about the extension of time must be provided and the user has the right to appeal to the court. Also, the lack of awareness and promotion process regarding the advantages to be gained through open banking to business entities prevents the development of SMEs in general.

Here are statistics on open banking services provided by open banking users in the United Kingdom, along with the benefits and opportunities open banking provides to customers and businesses:

- Successful API calls
- Successful Payments
- Open Banking Users (AIS/PIS)
- Monthly performance metrics
- Results of API calls and response times
- Failed and Rejected API calls

The statistical data to be presented reflects the development of open banking across the country, the real situation, and the choice of users for open banking services. Additionally, it is critical to evaluate, refine, and debug successful, failed, and rejected API calls by destination.

## **Discussion**

The United Kingdom has established high standards for information accessibility and security in open banking. These standards allow us to assess the system as fully structured, developed, and continuously improved. Furthermore, the extensive awareness generated encourages customer confidence in using open banking services. Transparency and the provision of accurate

information about each service and product are key factors that contribute to the growing adoption of open banking.

Open banking users in Azerbaijan have an exceptionally low level of access to extensive information about the TPPs that include open banking services in the existing sector, as well as their use. Information sharing on open banking services and products by TPPs that include open banking services is also almost non-existent, and promotion-based steps are not noticeable. It is possible to note the existence of a very sharp difference when comparing the system provided by Azerbaijan and the system of the United Kingdom, which is the leader in open banking in the world.

To achieve full use of open banking in Azerbaijan, the following steps must be taken:

- Creation of an open banking platform to ensure online information availability
- Illustrative video and full written explanation of the transaction process for open banking services and products
- Presenting and promoting the benefits of open banking services and products to customers and business entities through various channels
- Attracting customers through special campaigns and return of a certain part of spent funds in connection with the use of open banking services and products
- Mandatory nature of providing information about open banking services to clients by banks
- Informative videos, real-world experience-based recommendations, sharing articles on open banking security
- All official information about TPPs, including open banking services, and the service of filing complaints about them through the Central Bank
- Presentation of complete and detailed statistical graphs on all performed open banking operations
- Providing information to the community about the future steps to be taken on open banking
- Refinement of the current state of open banking within certain time intervals and elimination of difficulties

As of September 2024, the number of bank customers in Azerbaijan was 15.8 million, the number of bank accounts was 45.3 million, and the total number of digital banking transactions in 9 months was 463.2 million (CBAR, 2024). In short, it is possible to note that the potential of using open banking in Azerbaijan will be high based on the mentioned bank indicators. Creating an online awareness platform on open banking will have a significant impact on the uptake and use of open banking.

## **Conclusions**

Despite the full implementation of the regulatory steps related to the introduction of open banking in Azerbaijan and the existence of TPPs covering open banking services, the adoption process by the society continues at a low level. The factor of awareness has a serious effect on the adoption. Compared to the United Kingdom, access to information on open banking is very low in Azerbaijan. To increase adoption, an online awareness platform must be created that will contain all the features and information base related to open banking. Illustrative description of open

banking services, security and usage instructions, explanation of the level of protection and sharing of financial information and providing information about other processes will encourage user trust and usage. Awareness will lead to user adoption of not just open banking, but also open finance and open data concepts.

## REFERENCES

- Abbasov, A. (2024, December 30). The Development of Open Banking and The Analysis of TPPs in Azerbaijan. *Journal of Accounting and Finance (Oblik i finansi) (OiF)*. (forthcoming)
- Babina, T., Bahaj, S. A., Buchak, G., De Marco, F., Foulis, A. K., Gornall, W., ... & Yu, T. (2024). *Customer data access and fintech entry: Early evidence from open banking* (No. w32089). National Bureau of Economic Research.
- Badilescu-Buga, E. (2013). Knowledge behaviour and social adoption of innovation. *Information Processing & Management*, 49(4), 902-911.
- Berlin Group. (n.d.). PSD2 Access to Bank Accounts.. Berlin-Group. <https://www.berlin-group.org/psd2-access-to-bank-accounts>
- Berrai, A. (2024, August 14). Fintechboostup. From awareness to adoption: Closing the Open Banking divide. <https://fintechboostup.com/insights/from-awareness-to-adoption-closing-the-open-banking-divide/>
- CBAR. (2024). Statistics of payment systems. <https://www.cbar.az/page-45/payment-system-indicators#page-2>
- CMA.(2016, August 9). Retail banking market investigation: final report, 441- 461. <https://assets.publishing.service.gov.uk/media/57ac9667e5274a0f6c00007a/retail-banking-market-investigation-full-final-report.pdf>
- Dratva, R. (2020) 'Is open banking driving the financial industry towards a true electronic market?'. *Electronic Markets* 30: 65-67
- Hamilton, P. (2019, July 17). "You're more likely to divorce than switch banks': will Open Banking encourage more switching?". [https://www.aph.gov.au/About Parliament/Parliamentary departments/Parliamentary Library/Research/FlagPost/2019/July/Open Banking](https://www.aph.gov.au/About%20Parliament/Parliamentary%20departments/Parliamentary%20Library/Research/FlagPost/2019/July/Open%20Banking)
- Heins, M. & Rigopoulos, G. (2023, September). Digital Innovation in Banking and Open Banking Applications: Key Factors and Barriers to Adoption. <https://ijecm.co.uk/wp-content/uploads/2023/09/1191.pdf>
- Həsənov, S. (2022, Noyabr 24). *AMB: "Azərbaycanda açıq bankçılıq modelinin tətbiqi müxtəlif xidmət haqlarını azaldacaq"*. *Banker*. <https://banker.az/amb-az%C9%99rbaycanda-aciq-bankciliq-modelinin-t%C9%99tbiqi-muxt%C9%99lif-xidm%C9%99t-haqlarini-azaldacaq/>
- Maldonado, L. (2022). World Bank. Technical Note on Open Banking: Comparative Study on Regulatory Approaches  
<https://documents1.worldbank.org/curated/en/099345005252239519/pdf/P16477008e2c670fe0835a0e8692b499c2a.pdf>
- Mərkəzi Bank: "Bankların açıq bankçılıq platformasına inteqrasiyası başa çatıb". (2022, İyul 14). <https://report.az/maliyye-xeberleri/merkezi-bank-banklarin-aciq-bankciliq-platformasina-inteqrasiyasi-basa-catib/>

OECD. (2023, January 27). *Shifting from open banking to open finance: Results from the 2022 OECD survey on data sharing frameworks*. OECD Business and Finance Policy Papers, No. 24, OECD Publishing, Paris. <https://doi.org/10.1787/9f881c0c-en>.

Regulatory. (n.d.). Openbanking. Revised Payment Service Directive (PSD2) and The Payment Services Regulations 2017 (PSRs). <https://www.openbanking.org.uk/regulatory/>

Swinson, J., Shadbolt, Sr. N., & Bates, D. (2013, November). The midata Innovation Opportunity. Learnings from the midata Innovation Lab. [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/262271/bis-13-1314-the\\_midata-innovation-opportunity-v2.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/262271/bis-13-1314-the_midata-innovation-opportunity-v2.pdf)

# HUMAN CAPITAL AND ECONOMIC GROWTH IN THE GAMBIA: EVIDENCE FROM INSTRUMENTAL VARIABLE ESTIMATION

Mustapha NJIE\*

## Introduction Background

Economic growth is an important branch of macroeconomic analysis which explains the determinant of the long run dynamics of GDP. The growth in this variable improves standard of living in an economic due to increasing production and output, this implies firms will hire more workers, paying them higher wages, which will lead to higher income to households and the marginal propensity dictates that, the higher income, the more consumption of households will increase, which will further improve economic growth.

Moreover, this is not the end of the story, increasing the firm's revenue and household's income also means the government will generate more tax revenues, thus will provide the government with more resources to fund public services, investment in infrastructural development, provision of educational and health care facilities and so on.

It is important to note that, economic growth can only influence other macroeconomic variables or improve standard of living, provide that there are tangible government policies and institutions that will make sure that public funds are not embezzled, and effective government policy creates investment confident in the economy (North, 2002; Acemoglu et al., 2005).

The factors that determine modern economic growth are numerous and it's importance has been credited since ancient times. The exogenous growth theory of Solow (1956) explained how the accumulation of physical and population growth can lead to economic growth, while Lucas (1988) and Mankiw et al., (1992) sees growth as an endogenous process, which in my opinion is more realistic, giving that a higher population due not necessary translate into improve economic growth rather the quality of education and training of the population has crucial impact in improving economic, this is because human capital determines the outcome of research and development and it also determines the type of institutions that will be created to guide economic process.

Human capital is the skills, knowledge, and abilities possessed by individuals. Understanding the mechanisms through which human capital affects economic growth is of utmost importance for policymakers and researchers alike. This short essay aims to provide empirical evidence on the link between human capital and economic growth in the Gambia by employing instrumental variable estimation to address potential endogeneity issues.

## Objectives of The Study

The main objective of this short essay is to.

- Examine the impact of human capital on economic growth using an instrumental variable estimation method.

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- Examine the determinants of human capital and endogeneity issues on human capital and growth. ▪ Examine robustness of the model by including other control variables and perform diagnostic tests.

### **Statement of Problem**

This short essay aims to examine the possible endogeneity that may arise in estimating the effect of human capital on economics by examining how other variables affect human capital and then how humans will in turn affect economic growth. Failing to consider this effect can lead to endogeneity problems since human capital is explained by other factors not in the model. Therefore, this essay will provide empirical evidence on the causal relationship between human capital and economic growth and will help to better understand the mechanism through which human capital can impact economic growth and development.

In the best of my knowledge, many studies examine the direct linkage between human capital and economic growth (Lucas 1988; Mankiw et al., 1992; Barro 2001) but only a handle of these studies tried to examine the indirect linkage, i.e., how other variables affect human capital which in turn affect economic growth. Ignoring this indirect linkage can lead to a confounding effect which will cause an endogeneity problem, leading to biased estimation. As a result of this potential endogeneity problem, this study will examine the indirect linkage between human capital and economic growth in the Gambia.

### **Related Literature**

The determinants of economics have been varying from different schools of thought. Ranging from Adam Smith's theory of capital accumulation of wealth, where wealth is intended as physical capital. The generation of wealth depends on the population and thus a more population implies a greater wealth which contradicts the Malthus theorem. From this theory, the division of labour promotes greater wealth. This is because, the division of labour, gives the labour the capacity to improve on the ways of doing a task which will reduce time spent on doing the task which in Arrow (1962) principle of learning by doing, which determines the ways of acquiring capabilities. In addition, the Solow (1956) and Swan (1956) with the help of some neoclassical assumptions sees growth because of the accumulation of physical capital and labour and this predict that countries with the same population, saving depreciation rate but different initial level of capital with converge to the same steady state with zero growth (Barro and Martin, 2004).

Empirically, this is not what we have seen over the years. Romer (1986, 1990) put forward that with human capital, the production function cannot have a non-concavity, and with concavity and constant return to scale, convergence across countries is likely possible. He further argues that modern economic growth is not due to pure physical growth but through the accumulation of knowledge, which acts as an engine of growth. Romer (1986) gives the difference between human capital and knowledge, where the latter is not embodied in the production function, but it governs technological progress while the former is embodied in the production process.

Lucas (1988) and Mankiw et al (1992) developed a model of human capital as endogenous in the production function which the quality of labour was neglected by the Solow (1956) and Swan (1956) model which they have shown that, long run growth is not uniquely determined by exogenous factors such as technical change. The improvement in human capital makes labour more productive, which is also an input in research and development, the higher the quality of the human capital the greater the outcome of research and development. Barro (2001) postulated that human capital makes it possible for adopting advanced technologies from

technologically advanced countries thanks to the role of education at both secondary and higher levels.

North (2002) and Acemoglu et al (2005) have shown how institutions affect economic growth. In a nutshell, the quality of institutions depends on the quality of human capital. The more human capital develops, the more it will create better institutions that will guide production and allocation of economic resources for greater economic outcome.

Cohen and Soto (2007) studied the across countries relationship between human capital and growth using data from 1960 to 2000. They found that years of schooling have a statistically significant impact on cross countries growth regressions. Given the impact of human capital on economic growth, there has been debate about the magnitude by which human capital can influence economic growth. Benhabib and Spiegel (1994) stated that the role of human capital has been overestimated while Mankiw et al (1992) believed this has been understated. Cohen and Soto (2007) believed the reason for this is due to measurement error in capturing the magnitude of human capital on economic growth. In my view, there can be many factors that might influence human capital which are used in this study as an instrument for human capital so that we can capture the magnitude of human capital on economic growth. Using years of schooling solely as a measure of human capital can lead to under-stating its impact on economic growth. Cohen and Soto (2007) further stated that using years of schooling as a proxy for human capital might be misleading, since regions with fastest growing human capital are also those that started from low levels of human capital. Griliches (1997) shows the endogeneity that arises between education level of the labour force with role of the public sector, schooling, and the investment in personal human capital development, which depends on parent income and education level.

In conclusion, given the findings on human capital can stimulate economic growth, and the understating/overstating its impact on economic growth that may arise as a result of measurement errors. The study investigated how human capital is impacted by school enrolment, educational and health expenditures and how this in turns affect economic growth in the Gambia.

## **Research Methodology**

### **Model Specification**

The model employed is an augmentation of the Mankiw et al (1992) growth model, which includes human capital in the production function as a factor of production and this will serve as the empirical framework for analysis the effect of human capital on economic growth and including some additional control variables such as institutions, foreign direct investment to capture their effect on economic growth which is presented as.

$$Y_t = K_t^\alpha H_t^\beta C_t^\gamma \quad (1)$$

Where  $K_t$  is the level of physical capital at time  $t$ ,  $H_t$  is the human capital at time  $t$  and  $C_t$  is a vector of other control variables such as institutions and foreign direct investment for robustness of the estimation. The parameters  $\alpha$ ,  $\beta$  and  $\gamma$  measures the share of capital, human capital, and the vector of the control variables respectively.

Taking the log transformation of the (1), we will obtain the econometric model (2), which is used to estimate the effect of human capital on economic growth, and this model can be represented as.

$$\ln Y_t = \alpha \ln K_t + \beta \ln H_t + \gamma \ln C_t + \mu_t \quad (2)$$

The  $\mu_t$  captured all terms that affects economic growth which are not included in the model.

In estimating the effect of human capital on growth, we may encounter some factors such as distance to the educational institutions, government expenditures to education, change in educational policies, family income and parental education all have a significant influence on the human capital development which may lead to violation to exogenous regressors if we estimate the effects of human on economic growth and cause biased to our estimates.

This brings us to the use of instrumental variable estimation, using these variables as instruments, for human capital will help remove bias in the estimates. Whether these instruments are valid or not in explaining human capital are determined by the first stage regression, which estimated the effect of these variables/instruments on human capital which is give as;

$$H_t = \tau Z_t + \varepsilon_t \quad (3)$$

And  $Z_t$  is a vector of all instrumental variables at time  $t$  and  $\varepsilon_t$  is a vector of standard errors.

### Data Source and Description

To estimate the effect of human capital on economic growth in the Gambia, we obtained annual data from the World Bank Development Indicator stretching from 2006 to 2021.

It's important to know that we used GDP growth as a measure of economic growth. This is because modern economic growth is based on GDP growth, the more economic growth, the more resources available to finance other development projects.

The human capital index measures an index score of productivity, where the higher score means higher productivity. To capture the confounding effect, we used educational expenditures, school enrolment and health expenditure as instrumental variables for human capital index. According to the World Bank, the former measure general government (local, regional and central) expenditures to education which also included expenditure funded by transfers from international sources to government while later measured the ratio of total enrolment in secondary education, this lay the foundation for human capital development<sup>10</sup> and the health expenditure variable measures public health expenditures on health facilities as a share of gross domestic product.

In addition, government effectiveness is used to measure institutions, which captured the quality of government policy formulation and implementation without favouring elites while gross capital formation captured the amount of physical, machineries etc used in the production process and FDI captured the inflow of foreign direct investment in the country which all affect economic growth and including them will help control their effect on economic growth.

### Result and Discussion

The Table 1 presents a descriptive statistic of the variables, to understand the distribution of the variables such that the appropriate estimation method can be employed. The descriptive statistics shows that on average, there has been improvement in Economic growth (measured

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<sup>10</sup> Secondary school enrolment is used, this is because on average it's the highest level of education received by the labour force before entering the labour market.

by GDP), educational expenditure, human capital index, health expenditure while a moderate improvement in number of school enrolment, FDI, capital and institutional development within the period. Moreover, there has been low deviation in human capital index, educational expenditure, school enrolment, FDI and capital while a significant change in economic growth process in the Gambia.

**Table 1:** Descriptive Statistics

Statistic	N	Mean	St. Dev.	Min	Max
GDP	15	2.984	4.081	-8.130	7.235
Educational Expenditure	15	2.131	0.620	0.752	2.789
Human Capital Index	15	1.531	0.103	1.390	1.720
Health Expectation	15	1.044	0.196	0.706	1.365
School Enrolment	15	87.271	8.844	77.926	103.526
FDI	15	4.623	2.249	1.872	10.461
Capital	15	18.253	5.838	10.522	31.954
Institutions	15	-0.741	0.093	-0.955	-0.576

We also performed a Pearson correlation analysis to understand the nature of correlation between any two variables. This correlation observed the linear correlation between the variables. From the correlation result given in table 2, we found a weak positive correlation between economic growth on human capital index, educational expenditure, school enrolment and capital while a negative correlation between health expenditure and institutional development.

When we consider the relationship between the instruments (school enrolment, health expenditure and educational expenditure) we found that there has been a strong positive correlation, which implies that these instruments have a crucial impact on human capital development in this country. Moreover, since this is a simple correlation analysis, the result of the empirical estimation will help to fully observe the nature of the relationship and estimate the effects of these instruments on human capital development and how human capital development will in turn impact economic growth.

**Table 2:** Pearson Correlation Analysis

	GDP	HCI	EE	HE	SE	FDI	Capital	Inst
GDP	1	0.14	0.12	-0.12	0.23	-0.07	0.06	-0.11
HCI	0.14	1	0.64	0.81	0.96	0.29	0.87	-0.29
EE	0.12	0.64	1	0.62	0.48	-0.29	0.45	-0.08
HE	-0.12	0.81	0.62	1	0.69	0.14	0.83	-0.16
SE	0.23	0.96	0.48	0.69	1	0.40	0.85	-0.31
FDI	-0.07	0.29	-0.29	0.14	0.40	1	0.50	-0.16
Capital	0.06	0.87	0.45	0.83	0.85	0.50	1	-0.27
Inst	-0.11	-0.29	-0.08	-0.16	-0.31	-0.16	-0.27	1

The table 3, presents the estimation result of the effect of human capital development on economic growth in the Gambia. The result (1) is the estimation of human capital on economic growth without factoring the confounding factors (simple OLS) when we compare this result with the result (1) in table 4 (instrumental variable estimation) we have seen that although all variables have similar signs in their impacts on economic growth which are not statistically significant. In Wu-Hausman diagnostic test presented in table 5, observe if this endogeneity might be an issue, i.e., if the instrumental variable estimation is different from the least square estimation, which accepts the null that they are not different. In a nutshell, this means there is no evidence of endogeneity in investigating the effects of human capital on economic growth. But to overcome this confounding effect, we used educational expenditure, school enrolment and health expenditures as instruments for human capital development which will allow us to analyse how they affect human capital development which in turn affect economic growth. The result 2 and 3 in the table 3 below, shows a positive statistically significant impact on human capital both if we used educational expenditure and school enrolment and if we also include health expenditure as additional instrumental variable. This means that educational expenditure, school enrolment and health expenditure will significantly lead to human capital development and these models are very significant in explaining human capital development in this country which are captured by the high R-square and the F-Statistics. In addition, if we further include STJ (Scientific Technical journal articles) and industrial employment, improved the model data, but they are not statistically significant in explaining human capital development in this country as show in the result (4).

Table 3: Least Square and First-Stage Regression:

Results	Human Capital			
	GDP OLS (1)	(2)	(3)	(4)
Human Capital Index	11.892 (26.471)			
Capital	-0.133 (0.512)			
FDI (0.692)	-0.132			
Government Expenditure (14.181)	-3.562			
Education Expenditure		0.039*** (0.011)	0.026** (0.010)	0.011 (0.012)
School Enrolment		0.010*** (0.001)	0.009*** (0.001)	0.003 (0.004)
Health Expenditure			0.106** (0.037)	0.071 (0.045)
STJ				-0.001 (0.001)
Industry Employment				0.240 (0.150)
Constant	-14.819 (33.631)	0.587*** (0.059)	0.608*** (0.047)	-0.387 (0.628)
Observations	15	15	15	15
R2	0.045	0.961	0.977	0.985
Adjusted R2	-0.337	0.954	0.971	0.977
Residual Std. Error	4.720 (df = 10)	0.022 (df = 12)	0.018 (df = 11)	0.016 (df = 9)
F Statistic	0.117 (df = 4; 10)	147.003*** (df = 2; 12)	158.402*** (df = 3; 11)	119.463*** (df = 5; 9)

Note:

\*p<0.1; \*\*p<0.05; \*\*\*p<0.01

Furthermore, the table 4 below is the estimation result of the two-stage least square, using instrumental variables on human capital to observe confounding effect i.e., the effects of other relevant variables (educational expenditure, school enrolment and health expenditure) which affect human capital development which are not capture in the model but affect economic growth through human capital development. The result 1 and 2 below show the empirical result if we used educational expenditure and school enrolment as instrumental variables for human capital and the later shows if we include health expenditure as an additional instrument for human capital. The result indicates that human capital development in this country has no statistically significant impact in explaining economic growth. However, increasing in educational expenditures, school enrolment rate and increasing health expenditure will have a strong statistically significant impact in promoting human capital development in this country which cannot be ignored.

**Table 4: Instrumental Variable Estimation:**

Results	GDP	
	(1)	(2)
Human Capital Index	18.650	10.860
	(26.971)	(28.042)
Capital	-0.247	-0.116
	(0.520)	(0.536)
Foreign Direct Investment		-0.070
-0.142		(0.699)
	(0.694)	
Government Expenditure		-3.043
-3.641		(14.244)
	(14.188)	
Constant		-23.001
-13.569		(34.209)
	(35.458)	
Observations	15	15
R2	0.038	0.045
Adjusted R2		-0.346
-0.338		
Residual Std. Error (df = 10)		4.735
4.720		
Wald test:	4.137 on 4 DF, p-value: 0.3878	5.479 on 4 DF, p-value: 0.2416

**Note:** \*p<0.1; \*\*p<0.05; \*\*\*p<0.01

Finally, given that human capital development has no statistically significant effect in accounting for economic growth during these periods, we tried to observe if this relationship is due to the presence of the instrumental variables used or not, which is reported by the regression diagnostic tests in table 5.

The results shows that educational expenditures and school enrolment are valid and strong instruments for human capital development and further including health expenditure will also be a valid instrument, thus this even improved the model. The Sargan test also indicates that the number of instruments is greater than the possible endogeneity that may arise in our estimation result. Although human capital cannot explain economic growth in the Gambia during the period, there is no evidence of endogeneity in observing the effect of human capital on economic growth in the Gambia.

**Table 5:** Diagnostic Tests:

	df1	df2	Statistic (1)	p-value (1)	Statistic (2)	p-value (2)	-----
<b>Weak instruments</b>	3	8	35.760	5.55e-05 ***	43.783	2.61e-05 ***	
<b>Wu-Hausman</b>	1	9	0.966	0.351	1.554	0.244	
<b>Sargan</b>	2	NA	3.694	0.158	3.640	0.162	

### Conclusion

Human capital plays a crucial role in modern economic growth, an improvement in human capital development implies our production function cannot exhibit a constant return to scale assumption and it's fundamental in countries ability to catch-up, the Solow model which predicts zero growth at the steady state, with human capital development, the economy will be able to grow at the cutting-edge. This study examines the effect of human capital on economic growth in the Gambia. Given that school enrolment, health and educational expenditure has a crucial impact on human capital development, to capture this confounding effect, we examine the magnitude in which these variables affect human capital development which in turn affect economic growth.

The empirical estimation shows that school enrolment, educational and health expenditures significantly impact human capital development, but the effect of human development cannot explain economic growth (measured by the GDP) in the Gambia during the period. One of the results of this is due to the lack of quality institutions and the inability of the government to formulate and implement policies that will translate to tangible economic growth.

Therefore, this country should not only focus on human capital development but should also put more effect in institutional development, formulating and implementing effective policies that will minimise corruption and promote transparency that will enhance economic growth by utilising the human capital.

### REFERENCES

Acemoglu, D., Johnson, S., & Robinson, J. A. (2005). Institutions as a fundamental cause of long-run growth. *Handbook of economic growth*, 1, 385-472.

Arrow, K. J. (1962). The economic implications of learning by doing. *The review of economic studies*, 29(3), 155-173.

Barro, R. J. (2001). Human capital and growth. *American economic review*, 91(2), 12-17.

Barro, R., & Sala-i-Martin, X. (2004). *Economic growth* second edition.

- Benhabib, J., & Spiegel, M. M. (1994). The role of human capital in economic development evidence from aggregate cross-country data. *Journal of Monetary economics*, 34(2), 143-173.
- Cohen, D., & Soto, M. (2007). Growth and human capital: good data, good results. *Journal of economic growth*, 12, 51-76.
- Griliches, Z. (1997). Education, human capital, and growth: a personal perspective. *Journal of Labor Economics*, 15(1, Part 2), S330-S344.
- Lucas Jr, R. E. (1988). On the mechanics of economic development. *Journal of monetary economics*, 22(1), 3-42.
- Mankiw, N. G., Romer, D., & Weil, D. N. (1992). A contribution to the empirics of economic growth. *The quarterly journal of economics*, 107(2), 407-437.
- North, D. C. (2002). Institutions and economic growth: a historical introduction. In *International political economy* (pp. 57-69). Routledge.
- Romer, P. M. (1986). Increasing returns and long-run growth. *Journal of political economy*, 94(5), 1002-1037.
- Romer, P. M. (1990). Endogenous technological change. *Journal of political Economy*, 98(5, Part 2), S71-S102.
- Solow, R. M. (1956). A contribution to the theory of economic growth. *The quarterly journal of economics*, 70(1), 65-94.
- Swan, T. W. (1956). Economic growth and capital accumulation. *Economic record*, 32(2), 334-361.

# THE ECONOMIC IMPACTS OF DIGITAL TRANSFORMATION PROJECTS IN PUBLIC INSTITUTIONS

Emine YILMAZ\*

## Introduction

Digital transformation is considered one of the most significant reforms in public administration today. With the rapid advancement of technological developments, digitalization has become an inevitable necessity in the delivery of public services. Traditional public services often face challenges such as bureaucratic barriers, long waiting times, and high costs, while digital transformation aims to overcome these difficulties. Digital technologies enhance efficiency, transparency, and accountability in public institutions, ensuring the provision of more effective and accessible services to citizens. This study investigates the economic impacts of digital transformation projects in public institutions and examines the benefits of digitalization. Particularly, projects such as e-government applications, electronic tender systems, and digital tax platforms facilitate the more effective use of public resources and optimize service processes. By reducing operational costs, digitalization contributes to the efficient management of public budgets and has significant potential to increase public revenues and optimize resource usage. Moreover, digital transformation contributes to economic development in the long term and enhances social welfare. However, the digital transformation process also brings challenges such as data security, digital inequality, insufficient infrastructure, and a lack of qualified personnel, which threaten the sustainability and effectiveness of digitalization projects in public institutions. This study addresses the economic impacts of digital transformation projects in the public sector and the challenges encountered during this process.

## The Importance of Digital Transformation in Public Institutions

The concepts of “digital transformation” and “digitalization” have become increasingly prevalent in today’s discourse. With the transition to the digital age, digital transformation and public services have emerged as critical topics for the modern era. Technological advancements deeply affect the delivery, efficiency, transparency, and citizen satisfaction of public sector services. In this context, the interaction between technology and public administration is evolving, necessitating the adoption of new ideas and solutions (Çaptuğ, 2021: 1317). The primary objective of public administration is to improve societal welfare and serve the public. However, in today’s rapidly developing technological world, digitalization is becoming increasingly vital for the successful and efficient delivery of public services. Compared to traditional methods, digitalization enhances the efficiency, transparency, and accessibility of public services, enabling governments and public organizations to address contemporary issues more effectively (Tanrıverdi, 2021: 294). Traditional management procedures are often characterized by long waiting times, complex processes, and bureaucratic obstacles. However, thanks to digital transformation, citizens can now complete their transactions quickly and access various services through electronic platforms. E-services improve citizen satisfaction by providing faster and

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more efficient services in areas such as social assistance, healthcare services, license applications, and tax payments (Uslu, 2023: 18). A fundamental component of improving the quality of public services is the accountability and transparency introduced by digitalization. When services are delivered through digital channels, monitoring and recording transactions and decision-making procedures become easier. This enables public institutions to operate more transparently and accessibly, fostering greater citizen participation in service processes and thereby strengthening perceptions of reliability and accountability (Bimay & Kaypak, 2019: 24). Efficiency and resource management are two other critical aspects of the digitalization of public services. Digital technologies, big data analytics, and artificial intelligence exemplify creative tools that allow public organizations to manage large amounts of data more efficiently and extract valuable insights from this data. Data analytics is vital for the formulation and implementation of public policies, ensuring the more effective use of available resources. Digitalization also promotes environmental sustainability by transitioning physical archives to digital spaces, reducing paper usage, and implementing eco-friendly procedures (Özaltın & Ersoy, 2020: 747). However, integrating digitalization effectively into public services presents certain challenges. The primary obstacles to digital transformation include data security and privacy, digital inequality, insufficient technological infrastructure, and a lack of personnel with necessary digital skills. Therefore, the development of reliable and efficient solutions and the support of policymakers are critical for the success of public administration technology in the digital transformation process (Uslu, 2023: 18).

### **The Impact of Digital Transformation Projects on Efficiency**

Digital transformation projects not only enhance the efficiency of operational processes in public institutions but also improve the standard of services offered to citizens. This topic has garnered the interest of numerous individuals, including public institutions, universities, and development agencies in Turkey. Strategic plans and incentive programs are being developed in large numbers. Many state institutions in Turkey have initiated significant projects and partnerships to help young people adapt to the digital revolution (Kurt, 2020: 3096). Today, e-government applications reduce bureaucracy, saving time and costs. These technologies eliminate the need for citizens to collect documents, wait in line, or physically visit public institutions, enabling fast and simple transactions. For example, citizens can perform transactions such as querying land registry records, obtaining military status certificates, and retrieving Social Security Institution service records with a few clicks through e-government platforms. This reduces the workload for both individuals and public employees, enhancing efficiency. Electronic tender systems create a transparent and competitive environment, enabling the more effective use of public resources. By minimizing the likelihood of human error and irregularities in traditional methods, these systems facilitate faster and more traceable processes through electronic submission and evaluation of bids. This ensures that projects are implemented on time and prevents resource waste. Digital tax platforms also contribute to increasing public revenues by offering innovative solutions in tax collection processes. These online systems, which allow taxpayers to declare their income and make payments, reduce error and delay rates while expediting the payment process (Akdoğan & Yavuz, 2022: 86). Additionally, digital systems optimize tax revenues by deploying data analytics and artificial intelligence-based audit tools to prevent tax evasion. These systems also promote environmental sustainability by eliminating paper, printing, postage, and document archiving costs, thus protecting trees and the environment (Nsocial).

## **Economic Impacts and Advantages of Digital Transformation**

Digital transformation profoundly impacts economic structures and offers numerous advantages. Especially in public institutions, digital projects not only ensure efficiency and cost-effectiveness but also strengthen the economy in the long term.

- Cost Savings and Efficiency
- Revenue Growth and Budget Efficiency
- Contribution to Economic Growth
- Sustainability and Environmental Benefits

In recent times, the idea of digitalization has become particularly significant for developing countries. Traditional approaches have evolved as a result of technological integration, giving way to digital opportunities (İşler, 2021: 220-221). Digital transformation in public institutions offers significant benefits in terms of cost-effectiveness and economic efficiency and supports the transition to a sustainable public management model in the long term. The digital transformation process reduces costs, optimizes resource usage, and increases transparency in the delivery of public services (Smith, 2016: 62). For instance, services offered through e-government platforms enable citizens to perform transactions such as tax payments or license applications online. This eliminates document costs and long queues at public institutions, saving both time and increasing transparency. With the advent of digital transformation, public services have become faster, more reliable, and more accessible, minimizing time loss, complex procedures, and high costs associated with traditional bureaucratic systems. The use of digital tax systems increases public revenues. Digital transformation helps prevent adverse outcomes such as tax evasion, while the digitalization of tax collection processes ensures more accurate and timely tax declarations and payments. This allows for more effective management of public budgets. Additionally, applications such as electronic tender systems increase transparency in public procurement, creating a competitive environment and preventing resource waste. Tender processes based on digital platforms reduce irregularities and ensure that public projects are completed on schedule and within budget (Yılmaz, 2024: 41-44). Digital transformation also contributes to economic growth. Investments in technological infrastructure support the development of a skilled workforce with digital competencies. This fosters innovation and competition in both public and private sectors, enabling the creation of new job opportunities. The digital transformation process makes economic activity more sustainable and efficient (Pakdemirli, 2019: 682-685). Another important advantage of digital transformation is environmental sustainability. By reducing paper usage and converting physical archives into digital material, it helps protect the environment and natural resources. Digitalization increases energy efficiency and facilitates the adoption of eco-friendly practices in public services. This contributes to the development of long-term sustainability strategies in public administration and supports economic development.

## **Challenges Encountered in The Digital Transformation Process in Public Institutions**

The digital transformation process in public institutions offers numerous advantages but also brings certain challenges. At the forefront of these challenges is data security and privacy. Sensitive data are processed and stored by public institutions, making the protection of such information against cyberattacks crucial for the sustainability of digital transformation projects. Security vulnerabilities not only cause disruptions in public services but also jeopardize the personal information of citizens. This situation necessitates the continuous updating of security infrastructures and the strengthening of cybersecurity policies (Yıldırım, 2021: 69-72). Another significant challenge is digital inequality. Although the aim of digital transformation is to provide

equal access opportunities for all individuals, access to services remains limited, particularly in rural areas and among low-income groups, due to the lack of digital infrastructure. This issue hinders the equitable use of public services and leads to social injustice. Furthermore, the inability of existing systems in public institutions to support innovative digital solutions restricts the effectiveness of digital transformation projects. Upgrading outdated and non-integrated systems, however, has adverse implications in terms of time and cost (Kökhan, 2021: 109-112). The success of the digital transformation process is also significantly impacted by the lack of qualified personnel. The absence of expert staff required for the efficient utilization of digital technologies can result in delays in the implementation and maintenance of projects. One of the biggest obstacles to digitalization is institutional resistance. Employees accustomed to traditional approaches may struggle to adapt to new digital systems, thereby resisting change. This resistance slows down and undermines the effectiveness of the transformation process.

## **Conclusion**

Digital transformation projects in public institutions offer significant gains in terms of economic efficiency, transparency, and sustainability, thereby strengthening the principles of modern public administration. Digitalization plays a critical role in reducing operational costs, enhancing the efficient use of public resources, and improving the quality of services delivered to citizens. Applications such as e-government systems, electronic procurement platforms, and digital tax systems streamline service processes, reduce bureaucratic burdens, and make public services more accessible. Additionally, digital transformation optimizes public revenues, curbs tax evasion, and enhances the efficiency of public expenditures. These factors contribute significantly to economic development and sustainable public administration in the long term. However, the digital transformation process faces several challenges. Data security and privacy are among the most critical factors influencing the sustainability of digitalization. The management of large volumes of sensitive data by public institutions necessitates the continuous updating and strengthening of cybersecurity measures. Moreover, digital inequality and inadequate infrastructure restrict citizens' access to digital services, thereby diminishing the societal benefits of digital transformation. Strengthening the digital infrastructure of public institutions and developing inclusive policies are crucial for addressing these issues. The success of digital transformation projects also hinges on the availability of qualified human resources. Enhancing the digital skills of public employees and improving their capacity to adapt to digital technologies directly impact the efficiency of the transformation process. In this context, implementing training programs to promote digital literacy in public institutions is essential. Factors such as institutional resistance and the lack of cultural transformation further hinder progress. To overcome this resistance, it is critical to communicate the benefits of transformation to employees clearly and to integrate change into organizational culture. In conclusion, digital transformation projects in public institutions lay the foundation for a transparent and sustainable public administration model by enhancing economic efficiency. Supporting digitalization investments with strategic planning and managing the transformation process with the participation of all stakeholders will ensure the success of these efforts. In this framework, digital transformation projects must go beyond merely improving technological infrastructure to encompass societal, cultural, and institutional transformation dimensions. By doing so, public administration can adapt to the demands of the digital age and achieve economic development and social welfare goals more effectively.

## REFERENCES

- Akdoğan, T., & Yavuz, H. (2022). *Dijitalleşme Perspektifinden Vergi Uyumu*, Iksad Publishing House.
- Bimay, M., & Kaypak, Ş. (2019), "Küreselleşme Sürecinde Kamu Politikalarında Yaşanan Değişimler", *ASSAM Uluslararası Hakemli Dergi*, Cilt 6, Sayı: 15, s.24- 40.
- Çaptuğ, M. (2021), "Covid-19 Salgınının Kamu Hizmetlerinin Dijitalleşmesi Sürecine Etkisi ve Sonuçları", *Dokuz Eylül Üniversitesi Hukuk Fakültesi Dergisi*, Cilt 23, Sayı: 2, s.1309- 1327.
- İşler, İ. (2021). "Dijital Dönüşümün Ekonomiye Etkileri: Dijital Ekonomi", *3. Uluslararası CEO İletişim, Ekonomi ve Organizasyon Sosyal Bilimler Kongre Bildiri Kitabı*, s. 219-223.
- Kurt, A. S. (2020). "Dijital Dönüşümün Ekonomiye Etkileri: Türkiye Ekonomisi'ne Yansımaları", *OPUS International Journal of Society Researches*, Cilt 16, Sayı: 30, s. 3083-3109.
- Kökhan, S. (2021). "Dijital Dönüşüm Sürecinde Yaşanabilecek Zorluklar", İ. Erdoğan Tarakçı & B. Gökteş (Ed.), *Dijital Gelecek Dijital Dönüşüm*, s. 93-118, Efe Akademi Yayınları.
- Nsocial, Eğitimde Dijital Dönüşüm. Eğitimde Dijitalleşme., "Çevrimiçi", Erişim Tarihi: 20.11.2024, <https://www.nsocialtr.com/egitimde-dijital-donusum.html>
- Özaltın, O., & Ersoy, M. (2020), "Kamu Yönetiminde Blokzincir Kullanımı: D5 Örneği", *Nevşehir Hacı Bektaş Veli Üniversitesi Sbe Dergisi*, Cilt 10, Sayı: 2, s.746-763.
- Pakdemirli, B. (2019). "Dijital Dönüşüm ve Ekonomik Büyüme", *Adıyaman Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, Cilt 12, Sayı: 32, s. 665-694.
- Smith, R. (2016). "Bureaucracy as Innovation", *Research-Technology Management*, Cilt 59, Sayı: 1, s. 61-63.
- Tanrıverdi, A. (2021), "Yapay Zekânın Kamu Hizmetinin Sunumuna Etkileri", *Adalet Dergisi*, Cilt 1, Sayı: 66, s.293-314.
- Uslu, H. (2023), "Dijital Dönüşüm ve Kamu Hizmetleri Yönetimde Yenilikçi Yaklaşımlar ve Zorluklar", *Uluslararası Politik Araştırmalar Dergisi*, Cilt 9, Sayı: 3, s. 15-31.
- Yıldırım, A. (2021). "Yerel Yönetimlerde Dijital Dönüşüm Uygulamaları", *Yüzüncü Yıl Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, Cilt 1, Sayı: 54, s. 61-82.
- Yılmaz, E. (2024). "Etik Problem Olarak Yolsuzluk, Nedenleri ve Yolsuzluğa Karşı Alınabilecek Önlemler", *Sosyal Araştırmalar ve Davranış Bilimleri Dergisi*, Cilt 10, Sayı: 22, s. 36-50.

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