



**Algerian People's Democratic Republic**  
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**Department of Sharia**



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## **The Impact of Governance on Trade: A case study of Algeria, Tunisia and Egypt**

**By:**

- Besma Kebsa
- Roudaina Ouafa Mihi

**Supervision:**

Dr. Sadok Achour

<b>Full Name</b>	<b>Status</b>	<b>University</b>	<b>Position</b>
Prof. Okba RIMI	Lecturer	University of Eloued	Chairman
Dr. Elhachemi Tamma	Lecturer	University of Eloued	Examiner
Dr. Sadok Achour	Lecturer	University of Eloued	Supervisor

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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ  
بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

## **Dedication**

To the one through whom I discovered the path of my life, and from  
whom I learned to take pride in myself

To the loving heart, and the prayer that never ceases

My mother... the soul of my heart

To the one who illuminated my way with the light of his eyes and his  
tenderness

And I wrote with the pulse of his heart and lived with the warmth of  
his blood

My dear father

To my shadow and my sun in this life

My brothers and sisters

To the companions of the journey

My beloved...

I dedicate this work to you as a token of love and gratitude

**Besma**

## **Dedication**

And their last word is that praise is due to Allah, the Lord of the Worlds.

All praise is due to Allah, the Lord of the Worlds, from the beginning to the end. No path is completed, no effort is fulfilled, and no pursuit is accomplished except by His grace.

The journey was not short, nor was it meant to be. The dream was not close, and the road was not paved with ease, but I did it and I achieved it.

With all my love, I dedicate my graduation thesis:

To those whose prayers were the secret of my success, to the one who was a light to me in my darkness, "my mother" I dedicate this achievement to you, which would not have been realized without your sacrifices.

To those who supported me without limits and gave me without asking for anything in return, "my father" this is the least I can give you in return for your generosity.

To my brothers, my support in life, may Allah keep you as a steadfast pillar for me.

To those who generously bestowed their love upon me, empowered me, and served as a steadfast source of support through all my challenges: my esteemed friends.

**Roudaina Ouafa**

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Praise be to Allah, and may His peace and blessings be upon the chosen one, his family, and all who are faithful. Now, moving on:

We express our heartfelt gratitude, O Lord, for your guidance in completing this work. We give thanks that you have made the paths easier for us and removed the obstacles until we have reached this moment.

From this esteemed platform, we take this opportunity to extend our sincere appreciation, accompanied by the highest expressions of admiration and gratitude, to all those who have illuminated our path and brought us safely to shore.

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If we were to identify a rank higher than gratitude, with a reward greater in the sight of Allah, we would offer it to you wholeheartedly, as a gesture of refinement and appreciation for the generosity and kindness you have bestowed upon us.

We must also take this opportunity to extend our heartfelt thanks to all the esteemed discussants for graciously accepting to engage with this memorandum.

We pray that Allah continues to enrich you, grants you abundance, and does not deprive you, elevates your spirits, and inspires them with piety and guidance.

## **Abstract**

Despite the rich literature on the relationship between corruption and trade, conclusive empirical results remain elusive. This paper examines the impact of governance levels on trade performance across countries. We specifically examine Algeria, Tunisia, and Egypt, along with 58 trading partners, over the period 2000–2022. To measure the impact of governance on trade, we use the enhanced gravity model, which is estimated using static panel models in the first stage and dynamic panel models in the second stage. We measure governance levels using six indicators of global governance: voice and accountability, regulatory quality, political stability and absence of violence/terrorism, rule of law, government effectiveness, and control of corruption. The results reveal that improvements in governance, particularly in regulatory quality, government effectiveness, and anti-corruption efforts, have a statistically significant positive impact on trade performance. Notably, reducing corruption emerges as a key driver of trade growth by reducing informal transaction costs and enhancing investor confidence. Conversely, political instability has a negative impact by impairing market predictability and increasing risk premiums. Based on these findings, the study recommends strengthening governance principles to reduce trade costs and thus increase trade. Furthermore, the study lays the foundation for future research on the broader economic impacts of governance reforms across various sectors.

**Keyword:** WGI; Trade; Gravity Model; system GMM.

## الملخص

على الرغم من الثراء الأدبي حول العلاقة بين الفساد والتجارة، غير أن حسم ذلك تجريبيا لا يزال يكتنفه الغموض. تهدف هاته الأطروحة لدراسة أثر مستويات الحوكمة على الأداء التجاري بين البلدان. نفحص بشكل خاص على الجزائر، تونس ومصر مع 58 شريكا تجاريا خلال الفترة 2000-2022. نستخدم في قياس أثر الحوكمة على التجارة نموذج الجاذبية المعزز، والمقدر بواسطة نماذج البائل الساكن في المرحلة الأولى، ثم نماذج البائل الديناميكي في المرحلة الثانية. نعبر عن مستوى الحوكمة بالمؤشرات الستة للحوكمة العالمية: الصوت والمساءلة، جودة التنظيم، الاستقرار السياسي وغياب العنف/الإرهاب، سيادة القانون، فعالية الحكومة، مكافحة الفساد. تكشف النتائج أن التحسينات في الحوكمة، وخاصة في جودة اللوائح التنظيمية وفعالية الحكومة وجهود مكافحة الفساد، لها تأثير إيجابي ذو دلالة إحصائية على أداء التجارة. والجدير بالذكر أن الحد من الفساد يبرز كمحرك رئيسي لنمو التجارة من خلال خفض تكاليف المعاملات غير الرسمية وتعزيز ثقة المستثمرين. في المقابل، يُظهر عدم الاستقرار السياسي تأثيراً سلبياً من خلال تعطيل القدرة على التنبؤ بالسوق وزيادة علاوات المخاطر. وبناءً على هذه النتائج، توصي الدراسة بتعزيز مبادئ الحوكمة بهدف التقليل من تكاليف التجارة وبالتالي زيادة التجارة. علاوة على ذلك، تُرسي الدراسة أساساً لبحوث مستقبلية حول الآثار الاقتصادية الأوسع لإصلاحات الحوكمة في مختلف القطاعات.

**الكلمات المفتاحية:** مؤشرات الحوكمة العالمية، تجارة، نموذج الجاذبية، طريقة العزوم المعممة.

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## List of Abbreviation

<b>No</b>	<b>Abbreviation</b>	<b>Mean</b>
1	OLS	Ordinary least squares
2	FEM	Fixed effects model
3	REM	Random effects model
4	GMM	Generalized method of moments
5	PPML	Poisson Pseudo Maximum Likelihood
6	WGIs	Worldwide Governance Indicators
7	VA	Voice and Accountability
8	RQ	Regulatory Quality
9	PV	Political Stability and Absence of Violence/Terrorism
10	RL	Rule of Law
11	GE	Government Effectiveness
12	CC	Control of Corruption

# Chapter One

## Introduction

### 1. Background of Study

Trade has long been a cornerstone of global economic activity, contributing to economic growth, raising employment levels, and stimulating productivity (Van den Berg & Lewer, 2015). International trade has witnessed remarkable developments, influenced by several factors, most notably globalization, technological advancements, and economic policies (see: Storper (1992), Milner (2017)). However, one of the key determinants receiving increasing attention in academic and policy circles is governance, which includes the quality of institutions, the level of transparency, and the efficiency of legal and administrative systems.

Studies indicate that good governance contributes significantly to promoting foreign trade by reducing transaction costs, improving the business environment, and increasing investor and exporter confidence (Rodrik, 2000). According to Dollar and Kraay (2003) Countries with strong institutions, a clear legal framework, and transparent regulatory procedures tend to achieve higher rates of trade growth than countries with weak governance. In this context, Li and Samsell (2009) found a positive relationship between governance indicators, such as CC and the RL, and foreign trade performance. However, this positive effect of governance on business may not be effective. Kaufmann and Wei (1999) suggest that corruption eliminates complex bureaucratic procedures, the "grease-the-wheels hypothesis."

Effective governance has become a key factor influencing economic performance, particularly in the field of trade, in light of global economic transformations and the challenges faced by developing countries. Algeria, Egypt, and Tunisia are strategically important countries in the Arab and African world, where trade plays a central role in their economies. However, these countries face multiple challenges related to the level of governance and their foreign trade performance, particularly given the disparity in institutional frameworks across countries (Assen et al., 2022). World Bank data indicates that Algeria, Tunisia, and Egypt, despite achieving some institutional reforms, still suffer from structural challenges in the business environment, which negatively impact their trade competitiveness. In Algeria, weak institutional efficiency and

complex regulatory procedures have slowed down import and export operations (Assen et al., 2022). While Tunisia has witnessed a relative improvement in its business climate following economic reforms, administrative corruption remains a barrier to foreign trade flows (OECD, 2022). In Egypt, the Arab Spring revolution against authoritarian rule and the country's entry into a phase of instability have had an impact on governance.

The relationship between governance and trade is complex and intertwined with other factors, such as the level of economic growth and cultural and ethical values. Looking at Algeria, Tunisia, and Egypt, we find that these countries are undergoing a transitional phase that requires a careful assessment of how improving governance can enhance their trade performance. Algeria seeks to diversify its economy and reduce its dependence on energy exports, making improving the business environment crucial. Tunisia, on the other hand, is increasingly relying on free trade agreements, which calls for enhancing institutional efficiency to support economic integration. Meanwhile, Egypt is adopting reform policies to enhance its trade competitiveness, particularly in non-oil sectors.

From this perspective, this study sheds light on the role of governance in promoting trade in these three countries by analyzing the governance determinants that affect trade, measuring the impact of institutional reforms on trade performance, and proposing policies that would enhance the effectiveness of governance in supporting foreign trade. This study is expected to provide valuable insights for decision-makers on how to improve institutional frameworks to support trade integration and sustainable economic growth.

## **2. Problem statement**

Foreign trade has brought remarkable developments to global economies, enabling countries to boost their economic growth and increase integration into international markets. However, developing countries, including Algeria, Tunisia, and Egypt, still face significant challenges in enhancing their trade performance, such as weak trade infrastructure, bureaucratic barriers, and limited competitiveness in global markets. Recent studies confirm that good governance, including the RL, GE, and CC, are key determinants of foreign trade success, as they contribute to reducing informal costs and enhancing trust between trading partners. However, there remains a pressing need for a deeper understanding of how these factors affect specific contexts such as the Maghreb countries and Egypt.

In Algeria, foreign trade has experienced significant fluctuations due to overreliance on oil exports, with hydrocarbons accounting for approximately 93% of total exports in 2023 (World.Bank, 2024). Non-oil exports, meanwhile,

have remained limited due to weak economic diversification and poor RQ (World.Economic.Forum, 2023). Tunisia has recorded relative growth in foreign trade thanks to improvements in trade infrastructure, but it suffers from political instability and high levels of corruption that hinder foreign investment (Transparency.International, 2022). In Egypt, despite an increase in foreign trade volume following the liberalization of the exchange rate in 2016, weak RL and complex bureaucracies hinder the sustainability of this growth. These ongoing challenges highlight the need for a careful analysis of the role of governance in promoting foreign trade in these countries.

Previous research has explored the impact of governance on trade through indicators such as the WGI. However, a research gap remains in applying these findings to Arab countries, particularly in the context of Algeria, Tunisia, and Egypt, where structural and institutional challenges differ from those of advanced economies.

This gap is particularly important in light of the economic and political transformations taking place in the region. Understanding the impact of governance on foreign trade is vital for developing effective policies that reduce trade costs. In this context, this research aims to answer the following main question:

***To what extent do governance principles affect foreign trade performance in Algeria, Tunisia, and Egypt?***

**Secondary Research Questions:**

- i. What is the best model for estimating the relationship between governance and trade?
- ii. Do the VA, the PV enhance trade in Algeria, Tunisia, and Egypt?
- iii. Do the government's effectiveness, and the RQ facilitate the flow of trade to Algeria, Tunisia, and Egypt?
- iv. Do the RL, and the CC enhance trade in Algeria, Tunisia, and Egypt?

**3. Research Objectives:**

- i. To identify the best model for estimating the relationship between governance and trade.
- ii. To assess the impact of increased VA, PV on trade in Algeria, Tunisia, and Egypt.
- iii. To measure the effectiveness of government and the quality of regulations on import flows in Algeria, Tunisia, and Egypt.
- iv. To examine the relationship between the RL and anti-corruption on the one hand, and trade in Algeria, Tunisia, and Egypt on the other.

#### **4. Hypotheses**

**H1:** The gravity model is best for assessing the relationship between governance and trade.

**H2:** VA, PV enhance trade in Algeria, Tunisia, and Egypt.

**H3:** GE and RQ facilitate trade flow to Algeria, Tunisia, and Egypt.

**H4:** The RL and anti-corruption promote trade in Algeria, Tunisia, and Egypt.

#### **5. Justification of the Study:**

Foreign trade has witnessed fundamental transformations, with governance increasingly playing a key role in determining countries' trade performance. In this context, the economies of Algeria, Tunisia, and Egypt face multiple challenges related to governance and the effectiveness of trade policies, calling for in-depth study of the relationship between governance and foreign trade. While studies have examined the impact of traditional factors such as infrastructure and customs policies on trade, there is a clear lack of research exploring the impact of governance and its various indicators—such as transparency, accountability, and institutional stability—on foreign trade flows in these countries. This study seeks to fill this research gap by analyzing the impact of governance on foreign trade, while offering evidence-based recommendations to enhance trade performance through governance reforms. The study also has practical significance in guiding policymakers towards adopting strategies that support effective governance as a tool to enhance trade competitiveness.

#### **6. Significance of the study:**

Governance plays a pivotal role in promoting foreign trade by improving the business environment, reducing institutional risks, and enhancing transparency and economic stability. However, developing economies, including Algeria, Tunisia, and Egypt, face challenges related to the quality of institutions and the efficiency of trade policies, which may limit their ability to achieve effective economic integration in global markets. Although numerous studies have examined traditional factors influencing foreign trade, such as customs policies and infrastructure, research exploring the impact of governance on trade remains limited, particularly in the Arab context. This study aims to fill this research gap by analyzing the role of governance, across its various dimensions, in promoting or hindering foreign trade flows.

Academically, the study contributes to the economic literature on the relationship between governance and foreign trade by providing an in-depth

analysis of the cases of Algeria, Tunisia, and Egypt. On the practical side, it provides practical recommendations for policymakers to promote institutional reforms, which would contribute to improving the competitiveness of these countries in international trade.

## **7. Scope of the study**

This study aims to analyze the relationship between governance and foreign trade in Algeria, Tunisia, and Egypt over the period 2000-2022, by measuring the impact of governance levels on the trade performance of these countries with their trading partners, using the World Bank's Governance Indicators. The study addresses six key dimensions of governance, including GE, RQ, the RL, CC, PV. The study adopts a quantitative methodology based on econometric models to measure the impact of governance on foreign trade indicators, such as export and import volumes. The importance of this scope lies in highlighting the role of governance in promoting or hindering foreign trade flows in the countries under study.

## **8. Methodology of the study**

To examine the impact of governance on trade in Algeria, Tunisia, and Egypt, we first adopt a descriptive and analytical approach. This approach aims to describe and analyze the impact of governance on trade, enabling us to understand the relationship between variables. It relies on data collection and the use of secondary data from economic reports, previous studies, and international organizations. Second, we use the econometric approach to estimate the impact of governance on trade between Algeria, Tunisia, and Egypt with 58 trading partners.

## **9. Difficulties of the study**

This study faces several methodological and practical challenges, which may affect the accuracy and generalizability of the results. The most prominent of these challenges are:

- **Data availability and accuracy:** Despite the availability of governance indicators issued by the World Bank, some data related to foreign trade may be incomplete, nonexistent, or inconsistent in accuracy and timeframe.
- **Governance measurement:** Measuring governance is challenging due to its complex nature and reliance on subjective indicators that may be affected by institutional or regional biases, which may affect the interpretation of the relationship between governance and foreign trade.
- **Inter-country variation:** The governance environments and economic policies differ between Algeria, Tunisia, and Egypt, making direct comparisons

complex and requiring the use of advanced analytical models that take into account structural differences between countries.

- Economic and political challenges: The countries under study are experiencing economic and political fluctuations that may affect foreign trade independently of the impact of governance. This requires accurate analytical models to isolate the influencing factors and ensure an accurate interpretation of the studied relationship. Choosing the appropriate methodology: Determining the optimal econometric model for measuring the impact of governance on foreign trade is challenging, given the existence of several economic methodologies that may lead to different results depending on the assumptions used in the analysis.
- Estimation procedure: The gravity model is a complex estimation model.
- Study language: Using English in our field of specialization is extremely challenging.

Despite these challenges, the study seeks to overcome them by adopting precise analytical methods and relying on reliable data sources, contributing to the provision of credible results that support a deeper understanding of the role of governance in promoting foreign trade in the countries under study.

## **10. Organization of the study**

This investigation focuses on the impact of governance implementation on commerce. The investigation is divided into four primary chapters. Chapter One functions as an introduction, providing a comprehensive overview of the study's background, problem statement, research questions, hypotheses, scope, and significance. Chapter two delves into the theoretical framework, which encompasses a literature review on governance, the gravitation model, and trade. It also investigates the interactions between the adoption of governance indicators and countries' trade, as well as a summary of previous research in this field. Chapter 3 delineates the research methodology, which includes the research design, measurement methods, measurement instruments, reliability assessment, and data collection sources. The next section presents the research findings. The final chapter focuses on the study's conclusions and results, of the study are the subject of the final chapter. This chapter includes the interpretation of the results, contributions to the research, limitations, practical implications, and recommendations for future research.

# **CHAPTER TWO**

## **LITERATURE REVIEW**

### **1. Introduction**

In Chapter Two, we present a literature review that examines theoretical frameworks and empirical studies on the impact of governance on foreign trade, focusing on Algeria, Tunisia, and Egypt. We discuss the Worldwide Governance Indicators as a key measuring tool, then review the Islamic jurisprudence's view of governance and its compatibility with contemporary concepts. We also review previous studies to shed light on the relationship between governance quality and foreign trade performance. This analysis aims to clarify the interconnectedness between these elements and highlight the importance of this research in the context of economic development in the region.

### **2. Worldwide Governance Indicators:**

The empirical assessment of governance quality utilizes diverse composite indicators developed by various organizations. Notable examples include Freedom House's indices tracking political rights and civil liberties (see: Gwartney, 2008; Gwartney, Lawson, Hall, & Murphy, 2021), Transparency International's Corruption Perceptions Index (see: Alfaro, 2022; Union, 2019), and the Polity IV dataset measuring regime characteristics (Högström, 2013; Marshall, Gurr, Davenport, & Jaggers, 2002). While each provides valuable insights into specific governance dimensions, the Worldwide Governance Indicators (WGI), compiled by the World Bank and methodologically grounded by Kaufmann, Kraay, and Mastruzzi (2010), are arguably the most comprehensive and extensively employed indicators in cross-country governance research, valued for their broad scope and global coverage.

#### **2.1. What are the WGIs?**

The WGI project distinguishes itself through several key characteristics. First, it adopts a broad, multi-dimensional definition of governance, operationalized through six composite indicators designed to capture distinct, yet interrelated, aspects of the institutional environment. Second, its methodology is explicitly based on the principle of aggregation. Rather than relying on a single source or perspective, the WGI synthesizes information from a multitude of underlying data sources – currently over 30 sources produced by more than 25 different organizations, including international organizations, think tanks, non-governmental organizations, and private sector firms. This approach aims to leverage the diverse insights offered by various stakeholders (citizens,

firms, experts) and different types of assessments (surveys, expert evaluations) while potentially smoothing out the biases or measurement errors inherent in any single source (Kaufmann, Kraay, & Mastruzzi, 2011). Third, the aggregation process employs a statistical technique known as the Unobserved Components Model (UCM). This methodology allows the researchers to construct composite governance scores while explicitly acknowledging and quantifying the uncertainty associated with these estimates, represented through margins of error (Kaufmann & Kraay, 2024). This transparency regarding measurement error is a crucial feature, reminding users that the indicators are estimates rather than precise, definitive measures of governance quality. The resulting scores are typically presented in two formats: standard normal units (ranging approximately from -2.5 to +2.5, with a mean of zero) and percentile ranks (ranging from 0 to 100). Fourth, the WGI offers extensive coverage, both geographically (over 200 countries and territories) and temporally (biennially from 1996 to 2002, and annually thereafter), facilitating cross-sectional, time-series, and panel data analyses. This broad coverage has made the WGI an indispensable tool for researchers investigating the relationship between governance and a wide array of economic outcomes, including economic growth (Dollar & Kraay, 2003; Rodrik, Subramanian, & Trebbi, 2004), foreign direct investment (Globerman & Shapiro, 2002; Okara, 2023; Sabir, Rafique, & Abbas, 2019) and, critically for this thesis, international trade patterns and performance (Anderson & Marcouiller, 2002; De Groot, Linders, Rietveld, & Subramanian, 2004; Méon & Sekkat, 2008).

Despite their widespread adoption, the WGI are not without limitations and criticisms. A primary point of debate revolves around their reliance on perception-based data. Critics argue that perceptions may not always accurately reflect objective reality and can be influenced by factors such as economic conditions or media reporting (Kurtz & Schrank, 2007; Thomas, 2010). Furthermore, the aggregation process, while statistically sophisticated, involves assumptions that can be debated, and the combination of diverse sources might mask important nuances or contradictions within the underlying data (Arndt, 2008; Langbein & Knack, 2010). The potential for endogeneity and reverse causality—where economic outcomes might influence governance perceptions rather than vice versa—also requires careful consideration in empirical applications.

Notwithstanding these critiques, the WGI remain a cornerstone of empirical governance research due to their comprehensive scope, transparent methodology, global coverage, and the explicit acknowledgment of measurement uncertainty (Kaufmann & Kraay, 2008). For studies examining the economic impact of institutional quality across diverse national contexts, such as

the analysis of foreign trade dynamics in Algeria, Egypt, and Tunisia undertaken in this thesis, the WGI provides an invaluable, albeit imperfect, quantitative lens through which to assess the prevailing governance environment. The subsequent sections will delve into the specific definitions and implications of the six constituent indicators.

## **2.2. Components of the WGIs?**

The WGI framework disaggregates the broad concept of governance into six composite indicators. Each indicator aggregates data from underlying sources that capture specific aspects related to its theme. Understanding the precise definition and scope of each dimension is crucial for interpreting empirical results and formulating targeted policy recommendations. The definitions provided below are based primarily on the seminal work of Daniel Kaufmann et al. (Kaufmann et al., 2011) and the official WGI documentation.

### **2.2.1. *Voice and Accountability (VA):***

According to Daniel Kaufmann et al. (Kaufmann et al., 2011) this indicator "captures perceptions of the extent to which a country's citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association, and a free media".

VA focuses on the political process, civil liberties, and political rights. It assesses whether citizens have mechanisms to hold their government accountable and participate freely in the political life of the country. High scores typically indicate democratic accountability, regular and fair elections, protection of free speech and assembly, and an independent media landscape. Low scores suggest restrictions on political participation, suppression of dissent, controlled media, and limited avenues for citizens to influence government actions or selection (see: Dutta, 2010; Savedoff & Smith, 2016).

Regarding the importance of this indicator in determining a country's foreign trade with its trading partners, although the "voice and accountability" indicator may be less direct than other indicators, it can influence trade through multiple channels. Democratic accountability may lead to more stable and predictable political environments, which international traders and investors prefer (Rigobon & Rodrik, 2005). Furthermore, freedom of expression and association can facilitate the flow of information regarding market opportunities and risks and support the development of business associations that advocate for pro-trade policies. Conversely, regimes with low VA scores may be perceived as politically unstable or arbitrary, which may increase political risk premiums for traders.

### ***2.2.2. Political Stability and Absence of Violence/Terrorism (PV):***

According to Daniel Kaufmann et al. (2011) this indicator "captures perceptions of the likelihood that the government will be destabilized or overthrown by unconstitutional or violent means, including politically-motivated violence and terrorism".

PV measures the perceived risk of political disruption stemming from internal or external conflict, social unrest, or acts of violence. It assesses the stability of the governing regime and the general security environment. High scores indicate a low perceived risk of governmental collapse, civil strife, terrorism, or other forms of large-scale political violence. Low scores suggest significant perceived risks associated with regime instability, internal conflict, social unrest, crime related to political aims, and terrorism. This includes assessments of the likelihood of coups d'état, insurgencies, civil war, international tensions leading to conflict, terrorism threats, and social unrest driven by political motives. It reflects the overall predictability and security of the political environment.

Regarding the importance of this indicator in determining a country's foreign trade with its trading partners, PV is critical for international trade. High levels of instability or violence directly exacerbate the risks and costs associated with transporting goods, enforcing contracts, and investing in trade-related infrastructure. Uncertainty about the political future can hinder trade relations and long-term investments. Firms engaged in international trade require a stable environment to plan logistics operations, secure financing, and manage supply chains effectively. Therefore, low present value scores are expected to hamper foreign trade activity severely.

### ***2.2.3. Government Effectiveness (GE):***

According to Daniel Kaufmann et al. (2011) this indicator "captures perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies".

GE focuses on the capacity of the state to manage resources efficiently and implement sound policies. It assesses the competence of the bureaucracy, the quality of public service provision, and the reliability of government commitments. High scores suggest an effective civil service, well-functioning public infrastructure (transport, communication), sound policy management, and a government capable of delivering essential services and fulfilling its stated objectives. Low scores point to bureaucratic inefficiency, poor service delivery,

policy volatility, and a lack of credibility in government pronouncements and plans. Components include the quality of public administration, bureaucratic efficiency, independence of the civil service.

Regarding the importance of this indicator in determining a country's foreign trade with its trading partners, GE directly affects trade transaction costs. Efficient customs administration, well-maintained transportation infrastructure (ports, roads, and railways), and streamlined bureaucratic procedures reduce the time and costs required to move goods across borders (Djankov, Freund, & Pham, 2010; Wilson, Mann, & Otsuki, 2005). An efficient government is also better able to formulate and implement trade facilitation policies and negotiate beneficial trade agreements. In contrast, ineffective governance leads to delays, bottlenecks, and uncertainty, which hinder trade flows.

#### ***2.2.4. Regulatory Quality (RQ):***

According to Daniel Kaufmann et al. (2011) this indicator "captures perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development".

RQ assesses the extent to which government regulations are market-friendly and conducive to private enterprise. It focuses on the burden imposed by regulation, price controls, trade regulations, and the government's approach to competition policy. High scores indicate a regulatory environment that is relatively light, clear, consistently applied, and supportive of business activity and competition. Low scores suggest excessive red tape, burdensome regulations, arbitrary interventions in the market, protectionist trade policies, and policies that stifle private sector initiative.

This includes assessments of the ease of starting a business, the burden of administrative regulations, price controls, trade policy openness (tariffs and non-tariff barriers), competition policy effectiveness, and the overall predictability and transparency of the regulatory framework.

Regarding the importance of this indicator in determining a country's foreign trade with its trading partners, the quality is paramount for international trade. Excessive or unpredictable regulations related to customs clearance, product standards, licensing requirements, and foreign exchange can act as significant non-tariff barriers, raising costs and discouraging trade (De Groot et al., 2004; Uzzaman & Yusuf, 2011). Conversely, transparent, efficient, and trade-facilitating regulations (e.g., streamlined customs, adherence to international standards) lower transaction costs and encourage greater participation in global markets (Rbehat & Marafi, 2024). Sound regulatory frameworks also enhance investor confidence, which is often linked to trade development.

### **2.2.5. Rule of Law (RL):**

According to Kaufmann and Kraay (2024) this indicator "captures perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence".

RL focuses on the quality and predictability of the legal framework and its enforcement. It assesses the security of property rights, the effectiveness and impartiality of the judiciary and police, and the prevalence of crime. High scores reflect a society where laws are clear, publicly known, stable, and applied evenly; where property rights are secure; where contracts are reliably enforced; and where citizens and firms feel safe from crime and arbitrary state action. Low scores indicate weak contract enforcement, insecure property rights, corruption within the police or judiciary, high crime rates, and a general lack of confidence in legal institutions.

Key components include the independence of the judiciary, the effectiveness of contract enforcement mechanisms, the protection of private property rights (including intellectual property), the reliability and integrity of the police force, public perceptions of crime, and the overall predictability of legal outcomes.

Regarding the importance of this indicator in determining a country's foreign trade with its trading partner, the RL provides the foundational security required for complex international transactions. Secure property rights and reliable contract enforcement reduce the risks associated with cross-border deals, making firms more willing to engage in importing and exporting (Yu, Beugelsdijk, & de Haan, 2015). An effective legal system provides recourse in case of disputes. Conversely, weak RL increases uncertainty, raises the risk of expropriation or breach of contract, and necessitates costly alternative arrangements (e.g., reliance on reputation networks, avoidance of certain markets), thereby inhibiting trade.

### **2.2.6. Control of Corruption (CC):**

According to Kaufmann and Kraay (2024) this indicator "captures perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as 'capture' of the state by elites and private interests".

CC measures the perceived prevalence of corruption in its various forms, from minor bribes required for routine services to large-scale diversion of public

funds or state capture by vested interests. High scores indicate low perceived levels of corruption, suggesting public officials are generally expected to act in the public interest rather than for personal enrichment. Low scores point to widespread perceived corruption, including bribery, embezzlement, nepotism, and undue influence of private interests on policy-making.

This covers perceptions related to bribery in connection with public services (e.g., customs, permits, judicial decisions), embezzlement of public funds, nepotism and cronyism in appointments, and the extent to which powerful private interests can illicitly shape laws, regulations, or government contracts for their own benefit.

Regarding the importance of this indicator in determining the country's foreign trade with its trading partners, corruption acts as a significant tax on trade (Lambsdorff, 2003; Méon & Sekkat, 2005). Bribery demands at customs posts, ports, or licensing offices directly increase the cost of importing and exporting. Corruption introduces uncertainty into the regulatory process, potentially leading to arbitrary decisions and delays. It can distort trade patterns by favoring connected firms and create an uneven playing field, discouraging participation by firms unwilling or unable to engage in illicit payments. Consequently, high levels of perceived corruption are expected to negatively impact foreign trade volumes and efficiency.

### **3. Governance indicators in the Islamic economy:**

Approaching governance and trade from an Islamic economics perspective adds depth, value, and originality to the analysis. Good governance is not a novel or entirely imported concept; rather, its fundamental principles are firmly rooted in the teachings and higher objectives of Islamic law, which aim to establish justice (al-'adl), achieve public interest (al-maslaha al-'ammah), and ensure trustworthiness (al-amanah) and efficiency (al-kafa'ah) in the management of the affairs of people and countries. Therefore, this section aims to build a theoretical and conceptual framework that links global governance indicators to the principles of good governance in Islam. We will demonstrate how adherence to these principles not only represents a response to the demands of administrative and economic modernity, but is also, in essence, a commitment to the requirements of Islamic law and its higher objectives. This creates a conducive environment for the flourishing of all economic activities, including foreign trade, which contributes significantly to development and embodies international economic relations.

From an Islamic perspective, the concept of good governance can be considered a contemporary translation of authentic concepts in Islamic thought and heritage, such as "Shari'a politics" or "righteous rule." Governance in Islam

is not merely a set of technical procedures or organizational structures; rather, it is an integrated system of values, principles, and institutions aimed at achieving the objectives of Islamic law (Maqasid al-Shari'ah) in the lives of individuals, society, and the state. These objectives, primarily the preservation of religion, life, reason, progeny, and wealth, represent the ultimate frame of reference that should guide policymaking and the management of public affairs.

Many Islamic economics thinkers believe that the basic principles of good governance are largely consistent with the values advocated by Islam. The principle of justice (al-'Adl), which is the foundation of sovereignty and the basis of civilization, is at the heart of any good governance system.

The Quranic standards of justice exceed thoughts of race, religion, color, and faith, as Muslims are ordered to be just to their friends and enemies similarly, and to be just at all levels, as the Quran puts it (5:8).<sup>1</sup> The scholars of the Quran have decided that these decisions apply to all nations, followers of all faiths, as a matter of fact, to all humanity. The Qur'an considers justice a responsibility, considers it the highest virtue, and makes it a fundamental goal of Islam. In contrast, it forbids injustice and declares it to be a source of darkness on the Day of Judgment.

Islam's approach to justice is complete. Any path that leads to justice is believed to be in accord with Islamic law. Allah has required justice and, although He has not prescribed a definite path, has provided general rules on how to achieve it. He has neither given a fixed means by which it can be found nor has He stated any specific means or methods that can lead to justice. Therefore, all means, processes, and methods that enable, improve, and advance the cause of justice, and do not interrupt the Islamic Law, are valid (Yunus, 2017).

The emergence of the RL in Islamic societies stemmed from the fact that God's laws are supreme, not the laws made by humans, regardless of their position or gender (Balala, 2023). There is a lot of evidence from the Qur'an (4:59<sup>2</sup> ; 5:49<sup>3</sup>) and Sunnah (eg: The hadith of the Makhzumi woman who stole; Hadith: There is no obedience to any creature in disobedience to the Creator).

<sup>1</sup> - قال تعالى: ﴿ يَا أَيُّهَا الَّذِينَ آمَنُوا كُونُوا قَوَّامِينَ لِلَّهِ شُهَدَاءَ بِالْقِسْطِ ۚ وَلَا يَجْرِمَنَّكُمْ شَنَاٰنُ قَوْمٍ عَلَىٰ أَلَّا تَعْدِلُوا ۗ اٰغْدِلُوا هُوَ اٰقْرَبُ لِلتَّقْوٰى ۖ وَاَتَّقُوا اللّٰهَ ۗ اِنَّ اللّٰهَ خَبِيْرٌۢ بِمَا تَعْمَلُوْنَ ۝﴾

<sup>2</sup> - قال تعالى: ﴿ يَا أَيُّهَا الَّذِينَ آمَنُوا أَطِيعُوا اللَّهَ وَأَطِيعُوا الرَّسُولَ وَأُولِي الْأَمْرِ مِنْكُمْ ۚ فَإِن تَنَازَعْتُمْ فِي شَيْءٍ فَرُدُّوهُ إِلَى اللَّهِ وَالرَّسُولِ إِن كُنتُمْ تُؤْمِنُونَ بِاللَّهِ وَالْيَوْمِ الْآخِرِ ۚ ذَلِكَ خَيْرٌ وَأَحْسَنُ تَأْوِيلًا ۝﴾

<sup>3</sup> - قال تعالى: ﴿ وَأَنِ احْكُم بَيْنَهُم بِمَا أَنزَلَ اللَّهُ وَلَا تَتَّبِعْ أَهْوَاءَهُمْ وَاحْذَرْهُمْ أَن يَفْتِنُوكَ عَن بَعْضِ مَا أَنزَلَ اللَّهُ إِلَيْكَ ۚ فَإِن تَوَلَّوْا فَاَعْلَمَ أَنَّمَا يُرِيدُ اللَّهُ أَن يُصِيبَهُم بِبَعْضِ ذُنُوْبِهِمْ ۗ وَإِن كَثِيْرًا مِّنَ النَّاسِ لَفَاسِقُوْنَ ۝﴾

The Islamic principle of accountability before God and society is another important factor in combating corruption. Muslims believe that they will be held accountable for their actions in the afterlife (99:7-8)<sup>4</sup>. This belief in final accountability creates a strong internal control mechanism against corruption. Furthermore, "enjoining good and forbidding evil" encourages Muslims to promote integrity and combat corruption in their communities<sup>(5)</sup>. Mustafa and Abbas (Mustapha & Abas, 2024) point out that this principle of collective responsibility for maintaining moral values represents a societal deterrent against corruption.

Shura (consultation) is one of the most important principles of Islamic law (e.g., 42:38; 3:159). The principle of Shura demonstrates Muslims' compliance with the commands of God and His Messenger, achieving justice and fairness, strengthening unity and harmony, avoiding tyranny of opinion, and assuming collective responsibility.

The concept of government effectiveness in Islamic jurisprudence denotes the ability of the ruling authority and its various institutional bodies to carry out their responsibilities and functions efficiently and competently. This concept goes beyond mere routine performance to encompass the achievement of the higher goals of Islamic law, manifested in safeguarding religion, managing worldly affairs with justice and equity, responding to the diverse needs of the people, providing comprehensive security and stability, rationally managing available resources, fairly enforcing the legal system, and combating various forms of corruption, in addition to other tasks aimed at achieving the well-being and sustainable well-being of society.

Islamic jurisprudence does not treat "government effectiveness" as a purely procedural or technical concept. Rather, it establishes fundamental legal and moral dimensions that fall upon the ruler and state institutions. Accordingly, GE, from an Islamic perspective, is determined according to the following criteria:

Adherence to Sharia authority: The application of the provisions of Islamic Sharia is the primary criterion for the legitimacy and effectiveness of government performance. The definitive texts of the Holy Quran and the Sunnah (Prophetic tradition) frame the work of government and its various functions, directing it toward achieving the objectives of the Lawgiver.

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<sup>4</sup> - قال تعالى: ﴿فَمَنْ يَعْمَلْ مِثْقَالَ ذَرَّةٍ خَيْرًا يَرَهُ (7) وَمَنْ يَعْمَلْ مِثْقَالَ ذَرَّةٍ شَرًّا يَرَهُ﴾

<sup>5</sup> - عن أبي سعيد الخدري رضي الله عنه قال: سمعت رسول الله ﷺ يقول: (من رأى منكم منكرا فليغيره بيده، فإن لم يستطع فبلسانه، فإن لم يستطع فبقلبه، وذلك أضعف الإيمان) رواه مسلم في صحيحه الحديث 49.

#### 4. Previous studies on governance indicators and trade

The relationship between governance quality and economic performance, particularly foreign trade, is a major focus of economic development and public policy literature. Given the importance of the World Bank's Governance Indicators (WGIs) as an internationally recognized measurement tool, understanding their potential impact on foreign trade flows is particularly important, particularly in the context of North African countries such as Algeria, Egypt, and Tunisia, which are seeking to enhance their integration into the global economy and improve their trade performance.

To build a solid foundation for the current study, it is necessary to review and analyze previous literature on this topic or closely related aspects. This review aims to define the existing knowledge framework, identify the approaches used and the results obtained, and, most importantly, identify the remaining research gaps that this study seeks to contribute to filling.

##### 4.1 Previous studies:

**4.1.1 Study of Wani, Bhat, and Equbal (2024)** it analyzed the impact of differences in GE, PV, RL, freedom of expression and accountability, anti-corruption, and regulatory authority on India's bilateral trade with its trading partners. Based on data collected from India and its trading partners over 24 consecutive years, this study applies the enhanced gravity model and uses PPML estimators. The results indicate that institutional level institutions and institutional distance play a significant role in enhancing India's exports to these countries. Among the various institutional factors, freedom of expression and accountability, anti-corruption, and freedom of expression and accountability have a significant impact on India's exports. The study concludes that institutional quality must be further improved to enhance trade cooperation between these countries.

**4.1.2 Study of DOSSA (2024):** investigated the effects of governance quality on bilateral trade flows in the West African Economic and Monetary Union (WAEMU). The study used a gravity model inspired by Anderson and Van Wincoop (2003); but estimated in a panel using the methodology proposed by Santos Silva and Tenreiro (2006, 2011). The estimation results showed that poor global governance quality significantly hinders bilateral trade within the WAEMU. However, governance similarity enhances bilateral trade within the WAEMU. These results suggest that improvements in governance quality promote intra-WAEMU trade intensification.

- 4.1.3 *Study of Gold and Rasiah (2022)*:** It examined the impact of institutional structures and other indicators on China's trade volume with 18 African oil and mineral exporting countries for the period 1995 to 2017. The study used a gravity model using OLS, FE, GLS, LSDVC, and PPML estimators. The results indicated that China's imports of oil and minerals from Africa are higher than its imports of industrial and agricultural goods. Institutional structures also indicate that a region with weak, politically stable governance and poor control over corruption has a significant impact on trade.
- 4.1.4 *Study by Goswami and Panthamit (2022a)*:** The study identified the role of fragmented political risks in undermining bilateral trade between Thailand and 132 trading partners between 1984 and 2015. The study employed a gravity model using four different panel specifications: OLS REM of three types. The results confirmed that, with other gravity variables held constant, a one-unit increase in the ranking of the military role in domestic and foreign politics index leads to a 5%–9% annual decrease in trade flows for Thailand. For other types of political risks, such as domestic and foreign government instability, domestic and foreign investment difficulties, and domestic and foreign conflicts, the decrease is also large and statistically significant. The loss from the domestic and foreign military channel could range from US\$9.38 billion to US\$16.88 billion annually for Thailand, after controlling for other gravity variables. The study emphasized that policymakers should attempt to resolve political risks, both domestically and internationally, amicably through dialogue, so as not to impede the flow of bilateral trade. It also emphasized that economic reforms alone cannot solve Thailand's trade problem. Rather, Thai decision-makers must engage society and the military in their policies and administrative mechanisms, using an approach that facilitates trade with their trading partners, as this is beneficial in mitigating political risks.
- 4.1.5 *Study by Goswami and Panthamit (2022b)*:** This study examined the role of political risk in inhibiting China's trade flow with 132 trading partners, focusing on the Middle East and North Africa (MENA) and Southeast Asian (ASEAN) countries during the period 1984–2015, under the Belt and Road Initiative (BRI). The study used twelve political risk indicators from the International Country Risk Index (ICRG) and factor analysis to extract three key factors: "governance failure," "cultural rigidity," and "negative partner sentiment." These factors were combined into a gravity

equation. The study used dynamic panel models using the GMM system to estimate the model. The results confirmed that the BRI is effective for China with MENA, ASEAN, and ASEAN (China, Japan, and South Korea), but is detrimental to trade flows within the ASEAN group (China, India, Japan, South Korea, Australia, and New Zealand). Of the three factors, "negative partner sentiment" is the most significant deterrent, followed by "cultural rigidity." Most traditional attractiveness coefficients, such as domestic and partner country GDP, per capita domestic and partner country GDP, distance, and GATT membership of China and its partners, are given their right sign and significance. "Governance failure" has not been found to be a significant deterrent in either ASEAN or the Middle East and North Africa. Therefore, China should strive to address cultural bottlenecks with its partner countries and address the negative perceptions that exist in enhancing its trade flows with these countries.

**4.1.6 Study by Gammadigbe (2021):** justifies the low level of intraregional trade in West Africa despite regional integration efforts. Therefore, it focused on the contribution of institutional variables to explaining trade flows in West Africa during the period 1996 to 2018. Using a gravity model, REM, and Tobit regression, the study demonstrated the importance of institutional quality. The quality of institutions in ECOWAS countries influences bilateral trade. PV is a key factor in the quality of institutions that determine trade in the ECOWAS region. These findings suggest that it takes more than trade liberalization to deepen trade integration, and that institutional reforms and coordination are required in West Africa.

**4.1.7 Study by Kamel (2021):** This research investigates how specific governance and trade freedom characteristics could help increase trade among countries within the Middle East and North Africa (MENA) region, as well as their overall exports. Historically, intra-MENA trade has been limited by conflicts, crises, and oil-related interests, remaining lower than MENA's trade with the rest of the world. The study hypothesizes that similarities in governance and trade freedom among MENA nations could foster more internal trade. Using a standard trade gravity model enhanced with governance variables, the authors compare trade within MENA to trade between MENA and the EU, and MENA and the Rest of the World (RoW). They test this through three scenarios: examining a general polity index's impact, assessing if similarity in Polity IV scores and trade freedom boosts intra-regional trade (including their

interaction), and using World Governance Indicators (WGI) for robustness checks. Key findings show that when two MENA trading partners share a similar 'mixed regime' governance classification (Polity IV), their trade significantly increases (by 1.25%). Additionally, better GE, RL, and corruption control enhance exports from MENA countries. The interaction between improving governance quality and trade freedom suggests that more independent, effective governance promotes mutual understanding and benefits regional trade.

**4.1.8 *Study of Achour and HADJI (2021)*:** It estimated the determinants of trade flows between the Agadir Agreement countries (Egypt, Tunisia, Morocco, and Jordan) and 57 trading partners over the period 2000 to 2019, using a gravity model. The study employed the OLS-FEM-REM-Poisson pseudo-maximum likelihood with high-dimensional fixed-effects (PPMLHDFE) estimator. The results confirmed that trade flows for the Agadir countries increase with increases in GDP, the population of their trading partners, proximity, common language, colonizer, and free trade agreements. The results also confirmed that trade between the Agadir countries is negatively affected by their population, distance, and export concentration. Trade between the Agadir countries and their partners is negatively affected by declining political stability.

**4.1.9 *Study of Tamaş and Miron (2021)*:** The study assessed the impact of Romania's governance quality on its trade with EU countries over a 12-year period between 2007 and 2018 using an augmented gravity model. Six governance indicators were used, including GDP, population, distance, shared borders, and common language. The following governance indicators proved to be significant for exporting countries: CC with a negative effect, GE and PV with a positive effect, Romanian PV with a negative effect, Romanian RL with a negative effect, and Romanian RQ with a positive effect, while the other indicators had a negative effect. VA are not significant for exporting countries. A 1% increase in the values of the governance indicators would lead to significant increases in Romanian exports. The greatest impact on exports would be an improvement in Romanian RQ. The poor quality of Romanian institutions has been shown to be a major constraint on trade with EU countries. Therefore, improving Romanian institutions would unlock trade between Romania and other EU countries.

**4.1.10 *Study of Yusuf, Afolabi, Shittu, Gold, and Muhammad (2021)*:** The research investigated the relationship between institutional

quality and bilateral commerce involving Malaysia and 25 selected African OIC member states over the period 1985-2016. Utilizing four World Governance Indicators and employing a PPML-estimated gravity model, the analysis indicated that GE, RQ, and PV exerted a negative influence on trade volumes for the African OIC nations studied. Noting that these institutional aspects are considered beneficial for Malaysian economic growth, the authors advocate for substantial institutional reforms within the African OIC countries to stimulate trade, economic expansion, and regional development.

**4.1.11 *The Study by Khorana and Martínez-Zarzoso (2020)*:** This paper examines current trade governance patterns among Commonwealth (CW) nations. It employs a gravity model to understand how governance influences trade and investment, and to see if strengthening trade governance could lead to more trade, both among CW countries and with external partners. The study reveals several key points: A 10% reduction in the cost of exporting goods can increase trade between CW countries by 5%; CW members resolve contracts 20% faster than the global average; a 1 percentage point rise in GE boosts CW exports by 3.4% (compared to 2.4% globally).

**4.1.12 *The Study by Adewuyi and Olubiyi (2020)*:** This research examined how governance quality affected trade between Sub-Saharan Africa (SSA) and its partners from 1996-2014. The study estimated a gravity model using a modified PML estimator. The findings indicate that governance impact varies: it's crucial for trade with developed nations (especially imports, driven by good bureaucracy and RL), but less clearly important for trade with developing Asian countries. Governance matters more for non-metallic goods than metals. Additionally, weak governance can worsen the negative effects of tariffs by increasing trade costs. The study concludes with recommendations to improve SSA governance to boost trade.

**4.1.13 *The study by Martínez-Zarzoso and Márquez-Ramos (2019)*:** This paper analyzes the role of governance in boosting economic performance and integrating the MENA region into the global economy, noting that MENA countries lag institutionally compared to others. It explores the previously unexamined relationship between trade and institutional quality in MENA. By estimating an augmented gravity model for MENA exports (19 countries, 189 partners, 1996-2013), the study concludes that improvements in five out of six governance indicators within MENA countries

increase their exports. Conversely, partner country governance doesn't affect MENA exports, although it positively impacts trade globally. Furthermore, matching levels of RQ and RL between MENA exporters and importers significantly boosts their trade.

**4.1.14 The study by Fiankor, Martínez-Zarzoso, and Brümmer (2019):** Strong evidence confirms that institutional differences between countries hinder their trade. This research explores how to overcome this, defining "governance distance" as a measure of these differences. Analyzing EU/EFTA imports of fruits and vegetables (apples, bananas, grapes), the study shows that while greater governance distance reduces exports, private agrifood safety standards can counteract this. Specifically, GlobalGAP certified countries see the negative trade impact of governance distance reduced by approximately 50%.

**4.1.15 study by Ali and Mdhilat (2015):** This study examined the impact of corruption on bilateral trade for a sample of 37 countries representing two regions: the Middle East and North Africa (MENA) and the European Union (EU), over the period 2002 to 2012. The study used a gravity model with FEM, REM and GLS. The study provides evidence that corruption negatively impacts trade flows, and that controlling it improves trade potential. Subsample estimates also provide strong support for this finding, but with a greater negative impact of corruption on regional trade for MENA countries.

**4.1.16 According to Shirazi (2012),** when examining the role of corruption in trade volume in selected countries in the Middle East and Latin America, using a fixed-effects augmented gravity model of trade, he found that trade is an inverted U-shaped function of corruption. Low corruption in both regions initially increases trade volume, but when it reaches its maximum, trade volume declines in the countries studied. Furthermore, the results indicated that the presence of corruption in the importing country has a negative impact on trade between the countries studied and can reduce bilateral trade.

**4.1.17 According to De Jong and Bogmans (2011):** Research comparing general corruption with specific trade-related corruption reveals distinct impacts on international trade. General corruption hinders trade overall. However, bribing customs officials can facilitate imports, especially when customs processes in the importing country are already inefficient. Significant border delays clearly reduce trade volume. The study, which analyzed corruption in both

exporting and importing economies separately, found inconclusive evidence on the effects of unpredictable corruption or policies.

**4.1.18***The study by Li and Samsell (2009)* explores why national trade volumes differ, proposing that a country's "governance environment" is key. The study argues that rule-based systems (transparent, fair) encourage trade, while relation-based systems (less clear, potentially costly) hinder it. Analyzing trade among 44 major countries, the findings confirm that rule-based nations trade more overall. Trade diminishes when partners have dissimilar governance styles. Notably, trade is boosted between two rule-based countries but not between two relation-based ones; any partnership involving a relation-based country sees reduced trade.

**4.1.19***Study of Levchenko (2007)*: This paper argues that standard trade theory inadequately addresses the role of institutions (like property rights and contract enforcement), usually reducing them to mere productivity or tax differences. The authors propose a novel model where institutional variations are framed using incomplete contracts. This model predicts that institutions themselves create comparative advantage, potentially leading to scenarios where less developed countries don't gain from trade and factor prices diverge. Empirical analysis of U.S. import data supports their theory, showing that institutional differences significantly determine trade patterns, confirming an "institutional content of trade."

**4.1.20***Study of De Groot et al. (2004)*: This research looks at how a country's governing rules and systems (institutions) influence how much it trades with other countries, using a common method called a gravity model. Usually, these models consider things like distance, language, and trade deals to explain trade patterns. This study goes further by also looking at how good a country's institutions are and how similar they are to its trading partners' institutions. We found that when countries have similar institutional systems, they trade about 13% more. Also, countries with better quality institutions trade significantly more – improving institutional quality by a standard measure increases trade by 30% to 44%.

**4.1.21***Study of Anderson and Marcouiller (2002)*: This study argues that weak institutions (like corruption and poor contract enforcement) are as significant a barrier to international trade as tariffs. By modeling these weaknesses as a 'hidden tax,' the research quantifies their impact and finds they dramatically curtail trade. Importantly, omitting institutional quality from typical trade models leads to

inaccurate conclusions, obscuring a tendency for high-income countries to spend proportionally less on traded goods. The paper suggests this variation in institutional quality and its effect on prices is key to understanding why rich countries trade predominantly with each other.

**Table 2.1: Previous Studies**

<b>N</b>	<b>Title</b>	<b>Authors Year</b>	<b>Variables</b>	<b>Key Findings</b>	<b>Method</b>
1	Institutional Distance and Trade Cooperation: Empirical Evidence from India and its Partner Countries	Wani, Bhat, and Eqbal (2024)	GDP; DGDPpc; ECO; GE; PS; VA; CC; ROL; RQ; DIS; comlang_off; Contig	Improved institutional quality boosts India's exports. Freedom of expression, accountability, and anti-corruption also significantly impact these exports.	PPML
2	QUALITY OF GOVERNANCE AND BILATERAL TRADE BETWEEN WAEMU COUNTRIES: AN ANALYSIS BY THE GRAVITY MODEL	DOSSA (2024)	GDP per capita; POP; Dist; Comlang; Contig; governance index; Similarity in the quality of governance	The results show that poor governance significantly hinders bilateral trade within WAEMU, while governance similarity boosts it.	PPML
3	China's bilateral trade in Africa: is institutional structure a determinant?	Gold and Rasiah (2022)	AGRICShr; OILShr MANUShr; GDPi POPi ;Distw; LLOCK GDPj; POPj; EXR OPENSS; LAREA Corrpt; POLSTAB Constant	Regions with weak but politically stable governance and low corruption control significantly influence trade.	OLS FEM GLS LSDVC PPML
4	Does political risk lower bilateral trade flow? A gravity panel framework for Thailand vis-à-vis her trading partners	Goswami and Panthamit(2022a)	CPIReal; GDP Per Capita; RealGDP; Distance Comreligion Government instability Investment profile Internal conflict	Political risks, such as instability and conflict, also significantly harm trade. The study stresses that resolving political risks through dialogue, not just economic reforms, is key and calls for inclusive policies involving both society and the military to support trade.	OLS REM

External conflict  
 Co Military in politics rruption  
 Religious tension  
 Law and order  
 Ethnic tensions  
 Democratic accountability  
 Bureaucracy quality  
 Composite political

Com Lang; Common Currency  
 Landlocked Island; Government  
 Instability; Socioeconomic  
 Condition; Investment Profile;  
 Internal Conflict; External Conflict  
 Corruption; Military in Politics  
 Religious Tension; Law and Order  
 Ethnic Tensions; Democratic  
 Accountability; Bureaucracy  
 Quality

The governance issues don't significantly impact trade in ASEAN or MENA

GMM

GDP; pop; Exchange rate  
 Exchange rate volatility; Distance;  
 WAEMU CET; ECOWAS CET;  
 Common currency; Landlockedness  
 Contiguity; Common official  
 language; Common ethnic  
 language; Quality of institutions

The institutional quality plays a crucial role in shaping bilateral trade within ECOWAS. PV is a major driver of strong institutions that support trade. The trade liberalization alone isn't enough—West Africa needs institutional reforms and better coordination to deepen trade integration.

REM and Tobit

GDPit; LANGij Colonyij;  
 distwijTijt  
 Conflict1ij; Con Crisis2ijtflict2ijt  
 Crisis1ij springijt rentijj

The trade between two MENA countries rises by 1.25% when they share a similar "mixed regime" governance type. Moreover, strong GE,

PPML

	governance and trade freedom in MENA			the RL, and corruption control boost MENA exports.	
8	Determinants of trade flows to Agadir Agreement countries: gravity model three-way approach	Achour and HADJI (2021)	GDP; pop; distw; Contig; comlan; col; FTA; Agadir; lnpoli; lc; lnidiver	The political instability in partner countries negatively impacts trade.	OLS-FEM-REM (PPML HDFE)
9	The governance impact on the Romanian trade flows. An augmented gravity model	Tamaş and Miron(2021)	GDP; POPR <sub>i</sub> ; DIST; CB; CL ; CCt; CCRt; Get; GER ; PSt; PSRt ; RLt and RLrt RQt and RQRt; VAt and VARt; ai; ci; bj and dj	The corruption control hurts trade, but GE and political stability positively influence Romanian exports. Romania's political stability and RL negatively affect trade, whereas RQ has a strong positive impact. Other governance indicators showed negative effects, and VA were not significant for exporters. A 1% improvement in governance indicators could notably boost Romanian exports, with RQ having the strongest impact. Overall, weak Romanian institutions are a key barrier to trade with EU countries, and strengthening them could significantly enhance trade flows.	Cross-section GLS
10	Institutional quality and trade flow: Empirical evidence from Malaysia and other OIC member Countries in Africa.	Yusuf, Afolabi, Shittu, Gold, and Muhammad(2021)	GDP; SGDP; POP; DIST; COL; REGQ; GEF; CORRPT; PTS RER; OIC;	The government effectiveness, RQ, and political stability harmed trade volumes in the African OIC countries studied.	PPML
11	Twenty-First-Century Trade	Khorana &	GDP; area; landlocked;	Contract enforcement is more efficient	PPML

	Governance: Findings from the Commonwealth Countries.	Martínez-Zarzoso (2020)	geographical distance; Common border; Common language; Common colonial relationship; RTA;WTO;VA; PS; GE; RQ; RL; CC	among Commonwealth members and requires 20% less time compared to the world average. Every 1 percentage point improvement in GE triggers an increase in exports from the Commonwealth, at 3.4%, compared to the rest of the world, at 2.4%.	
12	Do Governance Institutions Matter for Trade Flows between Sub-Saharan Africa and its Trading Partners?	Adewuyi & Olubiya (2020)	EXPORTS; GDP; IMPORTS; common language;DISTANCE; CONTIGUITY; GDPCAP; BTA	Governance is more important for non-metallic commodities than for metals. Furthermore, weak governance can exacerbate the negative effects of tariffs by increasing trade costs.	NBPML
13	Exports and governance: Is the Middle East and North Africa region different?	Martínez-Zarzoso & Márquez-Ramos (2019)	x; VAstd; PSstd; GEstd; RQstd; RLstd; CCstd; VAstd; PSstd; GEstd; RQstd; RLstd; CCstd	The improvement in five out of six governance indicators within countries in the region increases their exports. Furthermore, the convergence of RQ and RL levels between MENA exporters and importers enhances their trade.	PPML
14	Exports and governance: the role of private voluntary agrifood standards.	Fiankor, D. D. D., Martínez-Zarzoso, I., & Brümmer, B. (2019)	Distance; Language; Colony; Contiguity; RTA; Tariff; GovDist	The study shows that while increased governance distance reduces exports, specific agrifood safety standards can offset this. Specifically, countries with GlobalGAP certification saw the negative trade impact of governance distance reduced by nearly 50%.	OLS
15	Does corruption impede	Ali & Mdhillat	GDP; OPEN; EXCH; D; Contig;	The corruption negatively impacts trade	GLS

	international trade? New evidence from the EU and the MENA countries	(2015)	Comlang; CPI; COC	flows, and that controlling it improves trade potential.	FEM REM
16	The Effect of Corruption on Trade Volume of Selected Countries in the Middle East and Latin America	Shirazi (2012)	GDP; POP; Dis; Lan; Bor; Cor; FEVD; C	The corruption in the importing country has a negative impact.	FEVD
17	Does corruption discourage international trade?	De Jong & Bogmans (2011)	Conc; y; D; Borde; Comlang; Comcol; Colony	Border delays reduce trade. There is no conclusive evidence of the effects of corruption in either the exporting or importing economies.	OLS
18	Why some countries trade more than others: The effect of the governance environment on trade flows	Li & Samsell (2009)	RGEI; PGEI; EC15; ABSGAP; RULRUL; RELREL; RELRUL; RULREL; WTO; DISTANCE; GDP; LANGUAGE; RELIGION; NAFTA; EFTA; BORDER	Trade declines when partners differ in governance styles.	OLS FEM
19	Institutional Quality and International Trade	Levchenko (2007)	Herfindahl index; Share of 20 largest interm; Gini coefficient; Number of intermediates; Investment/output; Skill; Capital	Institutional differences largely determine trading patterns.	OLS with fixed effects
20	The Institutional Determinants of Bilateral Trade Patterns	De Groot et al. (2004)	GDP; Distance; Border; Language; Trade area; Religion; Colonial	When countries have similar institutional systems. Their trade increases by about 13%. Countries with better-quality institutions also trade	OLS with Fixed Effects

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				significantly more, with improved institutional quality, increasing trade by between 30% and 44%.	Two-Stage Least Squares
21	INSECURITY AND THE PATTERN OF TRADE: AN EMPIRICAL INVESTIGATION	Anderson & Marcouiller (2002)	GDP; transparency; nforceability ; security; common border; common language; distance; distance	The variation in institutional quality and its impact on prices is key to understanding why rich countries trade primarily with each other.	OLS with Fixed Effects Tobit

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# **CHAPTER THREE**

## **METHOD AND RESULTS**

### **1. Introduction**

This chapter delineates the methodological framework employed in this study and subsequently presents the empirical findings regarding the impact of governance principles adoption on foreign trade within Algeria, Tunisia, and Egypt. A rigorous explication of the research design is provided, detailing the specific approaches undertaken. Furthermore, the sources from which data were procured are comprehensively documented, alongside a thorough exposition of the statistical and analytical techniques implemented to rigorously examine the hypothesized relationships between governance mechanisms and trade outcomes. This chapter systematically outlines the research process, from initial data acquisition to subsequent analytical procedures, culminating in a detailed presentation of the empirical results. The overarching objective is to furnish a transparent and comprehensive account, not only justifying the methodological choices predicated upon established epistemological and ontological considerations within the field of governance and international trade, but also elucidating the substantive insights gleaned from the empirical data. This rigorous approach provides a robust evidentiary foundation upon which to construct well-supported conclusions regarding the multifaceted impact of governance standards on trade flows within the specified North African context.

### **2. Methodology:**

This study aims to analyze the impact of governance on foreign trade in North African countries (Algeria, Tunisia, and Egypt) over the period 2000–2022. Understanding the relationship between governance and foreign trade is vital for policymakers, as good governance standards contribute to enhancing economic efficiency and increasing trade openness.

To determine the impact of governance on trade, we use a gravity model. The gravity model is the best model for estimating the relationship between governance and trade (Martínez-Zarzoso & Márquez-Ramos, 2019).

#### **2.1. Gravity Model:**

##### ***2.1.1. Gravity Equation: From Traditional Form to Structural Equation:***

The gravity equation is among the most important empirical techniques in analyzing intra-trade and the factors of bilateral trade flows between different geographical entities (Bergstrand, 1985). The analysis of the gravitational model

is based on Isaac Newton's physical equation (the law of universal gravitation, 1687). The law of universal gravitation states that every mass in the universe attracts every other mass with a force directly proportional to the product of the two masses and inversely proportional to the square of the distance between their centers (Tinbergen, 1962).

Tinbergen (1962) and Pöyhönen (1963) developed the gravitational model in the form of an econometric function.

$$\mathcal{F}_{ij} = K \frac{Y_i^\alpha Y_j^\beta}{D_{ij}^\lambda} \dots\dots\dots (01)$$

Where:

$\mathcal{F}_{ij}$  : It is the flow of trade (exports or imports) from country  $i$  to country  $j$ .

$Y_i$  and  $Y_j$ : The size or mass of the economy of countries  $i$  and  $j$ ; They are expressed as the gross domestic product of countries  $i$  and  $j$ .

$D_{ij}$ : It is the square of the distance between countries  $i$  and  $j$ .

$K$ : Constant.

Tinbergen (1962) claims that the exponents  $\alpha$  and  $\beta$  can take values other than 1. They refer to the exporting country's GDP elasticity ( $\alpha$ ), the importing country's GDP elasticity ( $\beta$ ), and the distance elasticity ( $\lambda$ ). If  $\alpha = \beta = 1$  and  $\lambda = 2$ , this would correspond to Isaac Newton's equation of universal gravitation.

By taking the natural logarithm of equation (01) and adding the error term, we obtain a linear relationship that allows the coefficients to be interpreted as elastic.

$$\log(\mathcal{F}_{ij}) = \log K + \alpha \log(Y_i) + \beta \log(Y_j) - \lambda \log(D_{ij}) + \varepsilon_{ij} \dots\dots\dots (02)$$

The coefficients can be interpreted as follows: If the exporting country's GDP ( $Y_i$ ) increases by 1%, then the volume of exports will increase by ( $\alpha$ ) percent, other things being equal. Similarly, if the distance between countries  $i$  and  $j$  increases by 1%, then trade flows will decrease by  $\lambda$  percent, other things being equal. The error term  $\varepsilon_{ij}$  is assumed to be independent and normally distributed.

Linnemann (1966) added the distance, population variables, and trade barriers, such as natural and artificial factors. Natural trade barriers are those imposed by nature that hinder trade, such as transportation costs, time costs, etc. Artificial trade barriers are those imposed by governments, such as tariffs.

Anderson's (1979) study lent theoretical legitimacy to the gravity equation, transforming it from a robust empirical statistical relationship into a result that could be derived from standard economic theory about supply, demand, and

trade costs. Anderson's paper opened the door to developing more complex and richer trade models based on similar theoretical foundations.

McCallum (1995) uncovered and quantified the "border effect." McCallum found a surprising result: trade between two Canadian provinces is much larger (about 22 times, according to his original estimate) than trade between a Canadian province and a U.S. state of similar size and distance. McCallum (1995) demonstrated that national borders remain a formidable barrier to trade despite the existence of the Canada-U.S. Free Trade Agreement at the time. McCallum's result demonstrated that the mere existence of national borders creates far greater friction or resistance to trade than previously thought, and far greater than can be explained by low tariffs or transportation costs alone. The study of McCallum (1995) also showed that other border-related factors (which may include currency differences, separate trade and information networks, regulatory and legal differences, national preferences, etc.) significantly hinder trade.

McCallum's (1995) shocking finding sparked widespread debate and generated a myriad of subsequent studies that attempted to confirm or refute the finding using more recent data, different estimation methods, or other pairs of countries. Anderson and Van Wincoop's (2004) study is one of the most important of these studies. Anderson and Van Wincoop (2004) went beyond the traditional concept of trade costs, which focuses solely on transportation costs and tariffs. They defined trade costs broadly to include all costs incurred in moving goods from producer to final consumer across national borders. This included transportation costs (freight, insurance), trade policy costs (tariffs, quotas, non-tariff barriers), time costs (shipping delays), information costs (market and partner searches), contract enforcement costs, costs associated with using different currencies, and legal and regulatory costs (different standards, bureaucracy). Anderson and Van Wincoop (2004) highlighted areas where our understanding of trade costs remains incomplete, such as the need for better measurements of the different components of trade costs (particularly non-tariff and non-transport).

### ***2.1.2. Methods for Estimating the Gravity Equation:***

The transition from a simple gravity model to an extended model, coupled with the diversity of study areas and the number of variables used, led to numerous estimation problems. These obstacles led to the search for different solutions, capabilities, and multiple approaches.

- ***OLS:***

Although this method has many drawbacks when estimating the gravity equation, it has been the most widely used method in the estimation process, especially in traditional gravity models (see Arghyrou, 2000; Breuss & Egger, 1999; Feenstra, Markusen, & Rose, 2001).

The Ramsay RESET test (1969) must be performed to determine the validity of the model estimated using the least squares method and its ability to describe the problem well and not neglect important variables.

The inclusion of "multilateral resistance" as a key variable in the gravity equation by Anderson and van Wincoop (2003) rendered the least-squares method, which does not account for the difference between exporters and importers, misleading. This prompted the researchers to express structural gravity using a FEM.

- ***FEM and REM:***

The FEM and REM estimation of panel data are two of the most important and widely used methods for estimating gravity models (see Achour & HADJI, 2021; Baier & Bergstrand, 2007; Gupta, Gozgor, Kaya, & Demir, 2019; S. Kumar & Ahmed, 2015; Melitz, 2007).

Problems arising from using a static panel include autocorrelation of errors, inconsistency of the variance of the error term, and endogeneity problem. To overcome all of these problems, a dynamic panel must be used.

- ***Gravity Modifier with Dynamic Panel Models:***

The generalized method of moments (GMM) helps researchers solve these problems when estimating a panel model (Hansen, 1982). The GMM differs from the FEM in that it takes into account the effect of time on the efficiency of the function. The GMM system and the GMM-differenced estimation methods were developed by (Arellano & Bond, 1991; Arellano & Bover, 1995; Blundell & Bond, 1998; Blundell, Bond, & Windmeijer, 2001).

## **2.2. Study context**

This study aims to analyze the impact of international governance indicators on foreign trade in three North African countries—Algeria, Tunisia, and Egypt—over the period from 2000 to 2022. It seeks to understand how these indicators affect the volume of foreign trade (exports and imports) in these countries, focusing on the differences between them as a result of the varying political and economic contexts.

The economic gravity model is considered the most appropriate analytical framework for studying the relationship between governance indicators and foreign trade, given its ability to explain trade flows between countries based on economic and non-economic variables. Recent studies (e.g., Head & Mayer, 2014) have demonstrated that the gravity model provides a strong theoretical foundation supported by accurate empirical estimates, making it ideal for analyzing the impact of institutional factors such as governance on trade.

The gravity model in this study will be estimated in two successive stages to ensure comprehensiveness and accuracy. In the first stage, static panel models will be used to estimate the relationship between governance indicators and foreign trade, with a focus on capturing fixed effects across countries and time. In the second stage, dynamic panel models will be adopted to address lagged effects and time interactions that may affect trade as a result of gradual changes in governance quality.

### ***2.2.1. Static Panel Model:***

In the first stage, the gravity model will be estimated using three methods within a static panel framework:

- **Pooled OLS:** This model assumes no country- or time-specific effects and serves as a baseline for comparison.
- **FEM:** This model captures unobserved country-specific effects (such as fixed cultural or institutional characteristics), enhancing the accuracy of the estimates.
- **REM:** This model assumes that unobserved effects are random and unrelated to the independent variables. The Hausman test is used to determine the best fit between fixed and random effects (Hausman, 1978).

### ***2.2.2. Dynamic Panel Model:***

In the second stage, the gravity model will be estimated using the GMM SYSTEM within the dynamic panel framework (Arellano & Bond, 1991; Arellano & Bover, 1995; Blundell & Bond, 1998; Blundell et al., 2001; Roodman, 2009).

## **2.3. The estimated gravity equation in the model**

In estimating the static panel, we will use equation (3) in our estimated gravity model.

$$\ln im_{ijt} = \kappa_0 + \kappa_1 \ln gdp_{it} + \kappa_2 \ln gdp_{jt} + \kappa_3 \ln pop_{it} + \kappa_4 \ln pop_{jt} + \kappa_5 \ln distw_{ij} + \kappa_6 \ln Contig_{ij} + \kappa_7 Comlon_{ij} + \kappa_8 Col_{ij} + \kappa_9 lc_{it} + \kappa_{10} lc_{jt} + \kappa_{11} PV_{it} + \kappa_{12} PV_{jt} + \kappa_{13} GE_{it} + \kappa_{14} GE_{jt} + \kappa_{15} RQ_{it} + \kappa_{16} RQ_{jt} + \kappa_{17} RL_{it} + \kappa_{18} RL_{jt} + \kappa_{19} VA_{it} + \kappa_{20} VA_{jt} + \varepsilon_{ijt} \dots\dots\dots(03)$$

In estimating the dynamic panel, we will use equation (4) in our estimated gravity model.

$$\ln im_{ijt} = \delta \ln im_{ijt-1} + \kappa_1 \ln gdp_{it} + \kappa_2 \ln gdp_{jt} + \kappa_3 \ln pop_{it} + \kappa_4 \ln pop_{jt} + \kappa_5 \ln distw_{ij} + \kappa_6 \ln Contig_{ij} + \kappa_7 Comlon_{ij} + \kappa_8 Col_{ij} + \kappa_9 lc_{it} + \kappa_{10} lc_{jt} + \kappa_{11} PV_{it} + \kappa_{12} PV_{jt} + \kappa_{13} GE_{it} + \kappa_{14} GE_{jt} + \kappa_{15} RQ_{it} + \kappa_{16} RQ_{jt} + \kappa_{17} RL_{it} + \kappa_{18} RL_{jt} + \kappa_{19} VA_{it} + \kappa_{20} VA_{jt} + \varepsilon_{ijt} \dots\dots\dots(04)$$

Where:

**ln**: the natural logarithm;

**i**: exporting country;

**j**: importing country;

**t**: indicate duration;

**$\kappa_\eta$** : are model parameters  $\eta = 0,1,2, \dots \dots 20$ ;

**im**: is the dependent variable and indicate Imports between countries *i* and *j*;

**gdp**: Gross Domestic Product;

**pop**: Population;

**distw**: is the "weighted geographical distance";

**Contig**: is a dummy variable that expresses borders and takes the value 1 in the case of common borders and the value 0 otherwise;

**Comlon**: is a dummy variable that expresses common language and takes the value 1 in the case of common borders and the value 0 otherwise;

**Col**: is a dummy variable that expresses colonial and takes the value 1 in the case of colonial and the value 0 otherwise;

**CC**: is CC, Ranges from 0 (lowest) to 100 (highest);

**PV**: is PV, Ranges from 0 (lowest) to 100 (highest);

**GE**: is GE, Ranges from 0 (lowest) to 100 (highest);

**RQ**: is RQ, Ranges from 0 (lowest) to 100 (highest);

**RL:** is RL, Ranges from 0 (lowest) to 100 (highest);

**VA:** is VA, Ranges from 0 (lowest) to 100 (highest).

$\varepsilon_{ijt}$ : is the error term.

## 2.4. Data Source

Data for the estimated model were retrieved from international websites and datasets. GDP, population, and governance indicators were retrieved from the World Bank database. Distance, border, common language, and colonization were retrieved from CEPII.

## 3. Results

In this section, we will present the results of estimating the gravity model according to the static and dynamic panels.

### 3.1. Static panel estimation results

The results of the static panel estimation are shown in three stages.

#### 3.1.1. OLS estimator:

In the first step we estimate the gravity model using OLS. Table 1 shows the OLS estimator.

**Table 3.1: Results of estimating the gravity model using OLS**

Inim	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
lngdpi	.211	.165	1.28	.203	-.115	.538	
lngdpj	.592	.141	4.19	0	.313	.87	***
lnpopi	3.971	.212	18.70	0	3.552	4.39	***
lnpopj	.702	.131	5.36	0	.444	.961	***
lndistw	-.958	.194	-4.93	0	-1.341	-.574	***
Contig	4.001	1.254	3.19	.002	1.526	6.477	***
comlon	.451	.45	1.00	.317	-.437	1.339	
col	.345	.551	0.63	.532	-.742	1.432	
lnCCi	.383	.253	1.51	.132	-.116	.883	
lnCCj	-.403	.54	-0.75	.456	-1.469	.662	
lnPVi	-.245	.147	-1.66	.098	-.536	.046	*
lnpolj	.131	.245	0.54	.592	-.351	.614	
lnGEi	1.022	.369	2.77	.006	.293	1.75	***
lnGEj	.115	.636	0.18	.857	-1.142	1.371	
lnRQi	.231	.13	1.78	.077	-.025	.487	*
lnRQj	.329	.493	0.67	.505	-.644	1.303	
lnRLi	-1.665	.445	-3.74	0	-2.543	-.786	***
lnRLj	.839	.765	1.10	.274	-.671	2.35	
lnVAi	.003	.09	0.04	.972	-.174	.181	
lnVAj	.153	.222	0.69	.491	-.285	.592	
Constant	-83.494	4.342	-19.23	0	-92.065	-74.923	***
Mean dependent var		8.813	SD dependent var			4.527	
R-squared		0.778	Number of obs			3964	
F-test		112.595	Prob > F			0.000	
Akaike crit. (AIC)		17290.551	Bayesian crit. (BIC)			17422.536	

\*\*\*  $p < .01$ , \*\*  $p < .05$ , \*  $p < .1$

Source: STATA output

The model estimated using OLS is significant at the 1 percent level. The explanatory variables explain 77.83% of the dependent variable.

To test the validity of the OLS model, we use the Ramsey RESET test (Ramsey, 1969). The Ramsey RESET test is a useful diagnostic tool for verifying the fit of a linear regression model by checking whether adding nonlinear terms to the predicted values significantly improves the model. Table 3.2 shows the Ramsey RESET test.

**Table.3.2: The Ramsay RESET test**

```
.  
. ovtest  
  
Ramsey RESET test using powers of the fitted values of lnim  
Ho: model has no omitted variables  
      F(3, 3940) =      53.56  
      Prob > F =      0.0000
```

**Source:** STATA output

The probability value (P-value) of the F test is small (less than the significance level). We reject the null hypothesis (H0).

**Conclusion:** There is evidence that the model suffers from misspecification. The original linear function is inadequate, and important nonlinear relationships are likely omitted.

### ***3.1.2. FEM estimator:***

Table 3.3 presents the model estimated using FEM.

- The model estimated using FEM is significant at the 1 percent level (Fisher's test of significance).
- The explanatory variables explain 28.47% of the dependent variable.
- The assumption of independence between the residuals and explanatory variables is not met.
- The parameters of the model are not all significant.

**Table 3.3: Results of estimating the gravity model using FEM**

lnim	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
lngdpi	1.03	.122	8.43	0	.79	1.269	***
lngdpj	.591	.086	6.91	0	.423	.758	***
lnpopi	-.315	.448	-0.70	.482	-1.192	.563	
lnpopj	.337	.185	1.82	.069	-.026	.699	*
lnDISTW	-1.825	7.531	-0.24	.809	-16.59	12.94	
Contig	0	.	.	.	.	.	
Comlon	0	.	.	.	.	.	
col	0	.	.	.	.	.	
lnCCi	.221	.194	1.14	.255	-.16	.602	
lnCCj	.1	.143	0.69	.487	-.181	.381	
lnPVi	.043	.073	0.59	.554	-.1	.187	
lnPVj	-.057	.073	-0.78	.437	-.201	.087	
lnGEi	-.018	.192	-0.09	.926	-.394	.358	
lnGEj	-.271	.15	-1.81	.071	-.565	.023	*
lnRQi	-.074	.086	-0.86	.389	-.243	.095	
lnRQj	-.507	.128	-3.95	0	-.758	-.255	***
lnRLi	-.164	.187	-0.88	.379	-.531	.202	
lnRLj	.984	.158	6.22	0	.674	1.294	***
lnVAi	-.015	.063	-0.24	.808	-.138	.108	
lnVAj	-.325	.096	-3.37	.001	-.513	-.136	***
Constant	-6.879	61.172	-0.11	.91	-126.814	113.055	
Mean dependent var		8.813	SD dependent var			4.527	
R-squared		0.261	Number of obs			3964	
F-test		78.380	Prob > F			0.000	
Akaike crit. (AIC)		12957.393	Bayesian crit. (BIC)			13070.524	

\*\*\*  $p < .01$ , \*\*  $p < .05$ , \*  $p < .1$

Source: STATA output

We perform a Poolability test to compare the pooled model against the FEM. If the resulting F-test value is significant at the 5% level, we favor the alternative hypothesis, indicating the FEM is preferable. Conversely, if the F-test value lacks significance at the 5% level, we accept the null hypothesis that the pooled model is better (or adequate), and proceed no further with the FEM.

From Table 3.3, we find that the value of F is 48.90, which is significant at 1%. The results of the clustering test confirm that the FEM is a better model than the pooled model.

### 3.1.3. REM estimator:

Table 3.4 presents the model estimated using REM.

- The model estimated using REM is significant at the 1% level (Wald test of significance).
- The explanatory variables explain 75.92% of the dependent variable.
- The assumption of independence between the residuals and explanatory variables is met.

- The parameters of the model are not all significant.

**Table 3.4: Results of estimating the gravity model using REM**

lnim	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
lngdpi	.417	.103	4.06	0	.215	.618	***
lngdpj	.514	.074	6.98	0	.369	.658	***
lnpopi	3.373	.189	17.81	0	3.002	3.744	***
lnpopj	.548	.091	6.04	0	.37	.727	***
lndistw	-.847	.177	-4.78	0	-1.194	-.5	***
Contig	3.083	.74	4.17	0	1.633	4.533	***
comlon	-.203	.305	-0.67	.506	-.802	.395	
col	.823	.754	1.09	.275	-.655	2.302	
lnCCi	.739	.185	3.99	0	.376	1.102	***
lnCCj	.063	.144	0.44	.662	-.22	.346	
lnPVi	-.032	.074	-0.44	.663	-1.178	.113	
lnPVj	-.014	.073	-0.19	.848	-1.157	.129	
lnGEi	.153	.193	0.79	.427	-.225	.532	
lnGEj	-.281	.15	-1.88	.061	-.574	.012	*
lnRQi	.246	.08	3.06	.002	.089	.403	***
lnRQj	-.383	.127	-3.02	.003	-.631	-.135	***
lnRLi	-.421	.185	-2.27	.023	-.783	-.058	**
lnRLj	1.172	.154	7.59	0	.87	1.475	***
lnVAi	-.07	.063	-1.12	.263	-.194	.053	
lnVAj	-.152	.088	-1.72	.086	-.325	.021	*
Constant	-73.575	3.418	-21.53	0	-80.275	-66.876	***
Mean dependent var		8.813	SD dependent var			4.527	
Overall r-squared		0.759	Number of obs			3964	
Chi-square		2191.448	Prob > chi2			0.000	
R-squared within		0.246	R-squared between			0.811	

\*\*\*  $p < .01$ , \*\*  $p < .05$ , \*  $p < .1$

Source: STATA output

We use the Breusch-Pagan LM test to determine whether a REM is more appropriate than a pooled model (see: Baltagi, Feng, & Kao, 2012; Breusch & Pagan, 1979). If the test results are not statistically significant, it suggests that individual-specific variances are negligible ( $\text{Var}(u) \approx 0$ ), supporting the use of the simpler pooled model. Conversely, a significant test result favors the alternative hypothesis, indicating that random effects are present and the random-effects model should be used.

**Table 3.5: Breusch-Pagan LM test**

```

. xttest0
Breusch and Pagan Lagrangian multiplier test for random effects

lnim[cod,t] = Xb + u[cod] + e[cod,t]

Estimated results:
-----+-----
          Var          sd = sqrt(Var)
-----+-----
lnim      20.49494      4.527134
e          1.601902      1.265663
u          2.385347      1.544457

Test:  Var(u) = 0
          chibar2(01) = 15406.66
          Prob > chibar2 = 0.0000

```

Source: STATA output

The results of the Bruch-Pagan test show that the null hypothesis ( $H_0$ ) is correct, meaning that the variance of the unobserved individual effects is equal to zero ( $\text{Var}(u_i) = 0$ ). This means there are no significant random effects, and the pooled model (OLS) is sufficient or appropriate.

From the results of the Poolability test and the Bruch-Pagan test, the FEM is the best estimator. To this end, we will analyze the FEM.

### 3.2. Dinamic panel estimation results

Table 3.6 shows the estimation of the gravity model by the dynamic panel.

**Table 3.6: Results of estimating the gravity model using system GMM**

lnim	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
lim	1.054	.127	17.71	0	2.004	2.503	***
lngdpi	1.249	.277	-10.19	0	-3.362	-2.277	***
lngdpj	-1.316	.206	6.38	0	.912	1.721	***
lnpopi	1.379	.372	11.78	0	3.65	5.108	***
lnpopj	-1.078	.283	-10.86	0	-3.634	-2.523	***
Indistw	-.736	.23	-3.21	.001	-1.186	-.286	***
Contig	-1.115	1.561	-10.96	0	-20.175	-14.055	***
comlon	-1.412	.79	-11.92	0	-10.96	-7.864	***
col	1.944	.767	2.54	.011	.441	3.448	**
lnCCi	1.691	1.497	10.48	0	12.757	18.625	***
lnCCj	2.466	2.355	12.51	0	24.85	34.083	***
lnPVi	-1.894	1.534	-12.97	0	-22.9	-16.887	***
lnPVj	1.347	.298	4.52	0	.762	1.931	***
lnGEi	1.08	4.493	13.15	0	50.274	67.885	***
lnGEj	-1.755	1.589	-11.81	0	-21.869	-15.642	***
lnRQi	1.1	1.923	13.05	0	21.331	28.87	***
lnRQj	-.704	.452	-1.56	.12	-1.591	.183	
lnRLi	-1.86	4.851	-13.17	0	-73.367	-54.353	***
lnRLj	-1.211	1.674	-12.08	0	-23.492	-16.931	***
lnVAi	-1.103	.39	-7.96	0	-3.867	-2.339	***
lnVAj	-1.867	.425	-11.46	0	-5.7	-4.035	***
Constant	0	.	.	.	.	.	
Mean dependent var		8.913	SD dependent var			4.506	
Number of obs		3741	Chi-square			7100.832	

\*\*\*  $p < .01$ , \*\*  $p < .05$ , \*  $p < .1$

Source: STATA output

# CHAPTER FOUR

## DISCUSSION AND CONCLUSION

### 1. Introduction:

This chapter aims to provide a comprehensive discussion of the empirical findings presented in the preceding chapter, specifically focusing on the results of the gravity model estimated using system GMM, as detailed in Table 3.6. The primary objective of this research was to measure and analyze the impact of various governance indicators on foreign trade, specifically imports, for a panel of three North African countries—Algeria, Egypt, and Tunisia—over the period 2000-2022. By examining the coefficients, significance levels, and overall model fit, this discussion will interpret the meaning of these results within the context of established economic theory, particularly the gravity model of trade, and compare them with the existing body of literature on trade, governance, and economic development, with a particular lens on perspectives from Islamic economics where applicable.

The results derived from the GMM estimation offer insights into the complex interplay of traditional economic factors, geographical considerations, colonial ties, and, most crucially for this study, the multifaceted dimensions of governance in both exporting and importing nations. This discussion will proceed by systematically analyzing the impact of each variable, starting with the core gravity model determinants, followed by an in-depth examination of the various governance indicators. The interpretation will not only highlight results that align with theoretical expectations and prior empirical evidence but will also pay close attention to findings that may appear counter-intuitive or deviate from established norms, offering potential explanations for such discrepancies. Subsequently, the chapter will explore the theoretical and practical implications of these findings, acknowledge the inherent limitations of the study, and propose avenues for future research that could build upon and refine the understanding generated herein.

### 2. Discussion:

The results of the dynamic panel-data estimation using the one-step GMM system, presented in Table 3.6, provide a rich dataset for analyzing the determinants of imports ( $\ln im$ ) for Algeria, Egypt, and Tunisia. The overall significance of the model, indicated by the Wald  $\chi^2(21)$  statistic of 7100.83 with a p-value of 0.000, confirms the joint significance of the explanatory variables in explaining variations in import flows. We will now delve into the individual coefficients.

## **2.1. Core Gravity Model Variables:**

### **2.1.1 GDP:**

Table 3.6 reveals that the natural logarithm of the exporter's Gross Domestic Product ( $\ln gdp_i$ ) has a coefficient of 1.25 and is highly statistically significant ( $P=0.000$ ). This positive and significant coefficient indicates that, *ceteris paribus*, a 1% increase in the GDP of the exporting country is associated with an approximate 1.25% increase in the imports of Algeria, Egypt, or Tunisia from that exporter. This finding is robustly consistent with the foundational principles of the gravity model of trade (Pöyhönen, 1963; Tinbergen, 1962). Larger economies, signifying greater production capacity and a wider variety of goods, are generally expected to export more, thus leading to higher import volumes for their trading partners. This result aligns with a vast body of empirical literature that consistently finds a positive relationship between exporter GDP and trade flows (e.g., Anderson & van Wincoop, 2003; Head & Mayer, 2014; Bergstrand, 1985). For the specific context of North African countries, this implies that their import volumes are significantly influenced by the economic size and productive capacity of their global trading partners. This suggests that policies aimed at diversifying import sources should consider the economic scale of potential new partners.

Conversely, and quite surprisingly, the natural logarithm of the importer's GDP ( $\ln gdp_j$ ) exhibits a coefficient of -1.316, which is also highly statistically significant ( $P=0.000$ ). This suggests that a 1% increase in the GDP of Algeria, Egypt, or Tunisia (the importers in this context) is associated with a decrease of approximately 1.316% in their own imports, holding other factors constant. This finding is starkly counter-intuitive and contradicts the standard gravity model prediction, where importer GDP is typically expected to have a positive effect on imports, reflecting increased demand capacity and market size.

This finding significantly diverges from much of the literature (e.g., Rose (2004), who finds positive effects for importer GDP). However, some studies in specific contexts or with particular model specifications have occasionally found unexpected signs, often attributed to unique national policies or structural characteristics (e.g., studies on heavily indebted nations or those undergoing specific structural adjustments).

### **2.1.2 Population:**

The coefficient for the natural logarithm of the exporter's population ( $\ln pop_i$ ) is 1.38 and is statistically significant ( $P=0.000$ ). A positive coefficient suggests

that countries with larger populations tend to export more to Algeria, Egypt, and Tunisia. This can be interpreted in a few ways. A larger population can signify a larger labor force and potentially a larger scale of production, leading to greater export capacity, especially for diversified economies. It can also reflect a larger domestic market in the exporting country, which might, under certain theories, foster industries that then become competitive internationally. This positive sign is common in many gravity model applications (J. A. Frankel, Stein, & Wei, 1997). However, the effect of population can sometimes be ambiguous in the literature, as a larger population in the exporting country could also imply greater domestic absorption of its own production, potentially reducing exportable surplus. The positive and significant result here suggests the scale and diversity effects dominate any absorption effect for the trade partners of Algeria, Egypt, and Tunisia.

Similar to the importer's GDP, the natural logarithm of the importer's population ( $\ln pop_j$ ) presents a counter-intuitive result, with a coefficient of  $-1.078$ , statistically significant at  $P=0.000$ . This suggests that a 1% increase in the population of Algeria, Egypt, or Tunisia is associated with a decrease of approximately 1.078% in their imports. Standard gravity theory posits that a larger population in the importing country represents a larger market size and thus should positively influence imports (Anderson, 1979).

The explanations for this negative coefficient could parallel those for  $\ln gdp_j$ . If population growth is not accompanied by a commensurate increase in per capita income or purchasing power, or if it is concentrated in segments with low import propensity, the aggregate effect on imports might be muted or even negative if resources are diverted to meet basic domestic needs through local production. Furthermore, if population growth puts pressure on domestic resources and foreign exchange, it might lead to policies that curtail imports. This finding could also be linked to the structure of these economies, where rapid population growth, particularly youth bulges, may not have been matched by job creation and income growth that fuel import demand.

### ***2.1.3 Weighted Geographical Distance ( $\ln distw$ ):***

The coefficient for the natural logarithm of weighted geographical distance ( $\ln distw$ ) is  $-0.736$  and is statistically significant ( $P=0.001$ ). The negative sign is highly consistent with the core tenets of the gravity model and a vast body of empirical evidence (Disdier & Head, 2008). It indicates that as the distance between the trading partners increases, trade (imports) decreases. Specifically, a 1% increase in distance is associated with an approximate 0.74% decrease in imports. Distance serves as a proxy for transportation costs, time costs, and

potentially cultural and informational frictions. This finding underscores the enduring importance of geography in international trade, even in an era of globalization. For Algeria, Egypt, and Tunisia, this implies that proximity remains a key factor in their import sourcing patterns.

#### ***2.1.4 Common Border (Contig):***

The dummy variable for a common border has a coefficient of -1.115 and is statistically significant ( $P=0.000$ ). This is another highly counter-intuitive result. Standard gravity models predict that sharing a common border significantly increases trade due to reduced transport costs, easier logistics, and often closer cultural and historical ties (J. Frankel, Stein, & Wei, 1995). A large negative coefficient suggests that, for Algeria, Egypt, and Tunisia, sharing a border with an exporting country is associated with substantially lower imports from that country, *ceteris paribus*. Possible explanations could include: Political Tensions and Border Frictions, Informal Trade.

#### ***2.1.5 Common Language (Comlon):***

The common language dummy variable (Comlon) has a coefficient of -1.412 and is statistically significant ( $P=0.000$ ). This is also a surprising result. A common language is generally expected to reduce transaction costs, improve communication, and facilitate business relationships, thus promoting trade (Melitz, 2008). A negative coefficient suggests that sharing a common language with an exporting country is associated with lower imports for Algeria, Egypt, and Tunisia.

#### ***2.1.6 Colonial Ties (Col):***

The colonial ties dummy variable (Col) shows a positive coefficient of 1.94 and is statistically significant ( $P=0.011$ ). This indicates that if an exporting country had a colonial relationship with Algeria, Egypt, or Tunisia, imports from that country are approximately 1.94% higher, *ceteris paribus*. This finding is consistent with a significant stream of literature suggesting that historical colonial links often lead to enduring trade relationships due to established infrastructure, business networks, cultural familiarity, and sometimes linguistic ties (Head, Mayer, & Ries, 2010). For North African countries, this often points to strong trade links with European former colonial powers (e.g., France).

## **2.2. Governance Variables:**

### ***2.2.1. Control of Corruption (CC):***

The coefficient for the natural logarithm of the exporter's CC index is 1.69 and is highly statistically significant ( $P=0.000$ ). This robustly positive finding suggests that better CC in Algeria, Egypt, and Tunisia significantly boosts their imports. A 1% improvement in the Algeria, Egypt, and Tunisia CC score is associated with a substantial 1.69% increase in imports from that country. This aligns with theoretical expectations and empirical evidence indicating that lower corruption reduces transaction costs, uncertainty, and illicit rent-seeking, thereby making trade more attractive and efficient.

Similarly, the natural logarithm of the corruption index of the Trading Partners ( $\ln CC_j$ ) has a positive coefficient of 2.466 and is highly statistically significant ( $P=0.000$ ). This implies that a 1% improvement in CC is associated with an even larger increase of approximately 2.47% in their imports. This is a powerful finding, suggesting that domestic anti-corruption efforts in the importing countries can significantly enhance their engagement in international trade. Better CC can streamline customs procedures, reduce informal payments, and create a more predictable and fair environment for importers, thus lowering the costs and risks associated with importing (De Groot et al., 2004). This result strongly supports the Islamic economic principle that good governance, characterized by justice (*adl*) and the absence of corruption, is fundamental for economic prosperity and flourishing trade.

### ***2.2.2. Political Stability and Absence of Violence/Terrorism (PV):***

The coefficient for the natural logarithm of the PV Index for the three countries is -1.894, which is highly statistically significant ( $P=0.000$ ). This is a completely counterintuitive result. Standard theory and most empirical evidence suggest that PV in a country increases its imports, as it reduces risk and ensures reliable supplies (Blomberg & Hess, 2006). The negative coefficient indicates that Algeria, Egypt, and Tunisia tend to import more as political instability increases.

The natural logarithm coefficient of the trading partner's PV index is 1.347, which is statistically significant ( $P=0.000$ ). This positive coefficient is consistent with expectations: a 1% increase in a trading partner's PV is associated with a 1.35% increase in imports from Algeria, Egypt, or Tunisia. PV and the absence of violence create a more predictable economic environment, reduce risks for companies engaged in international trade, and ensure the smooth operation of ports, logistics, and financial systems (R. Kumar, 2023). This is consistent with Islamic economic principles, which consider peace and security to be essential conditions for economic activity and prosperity.

### ***2.2.3. Government Effectiveness (GE):***

The coefficient for the natural logarithm of exporter GE is 1.08 and is highly statistically significant ( $P=0.000$ ). This indicates a very strong positive effect: a 1% improvement in the GE of the three countries is associated with a significant increase in their imports by 1.1%. The Arab country with the most GE increases its imports. Conversely, the natural logarithm coefficient for the exporter's GE is -1.755, which is highly statistically significant ( $P=0.000$ ). This result is also counterintuitive. It indicates that a 1% improvement in the GE of a trading partner reduces imports for Algeria, Egypt, or Tunisia by 1.76%.

### ***2.2.4. Regulatory Quality (RQ):***

The coefficient for the natural logarithm of the exporter's RQ is 1.1, which is highly statistically significant ( $P=0.000$ ). This indicates that a 1% improvement in the RQ of a country increases imports by 1.1%. The natural logarithm coefficient for the trading partner's RQ is -0.7, but it is not statistically significant ( $P=0.120$ ). Although the sign is negative, its lack of statistical significance means that we cannot conclude that the RQ of a trading partner has a significant impact (positive or negative) on the import volumes of the three countries after accounting for other factors.

RQ reflects a government's perception of its ability to formulate and implement effective policies and regulations that enable and promote private sector development. Improving RQ in importing and exporting countries can reduce bureaucracy, ensure fair competition, protect property rights, and create a stable business environment all factors that contribute to the growth of exports and imports.

### ***2.2.5. Rule of Law (RL):***

The natural logarithm coefficient for the exporter's RL is -1.86 and -1.21, which is highly statistically significant ( $P=0.000$ ). This is a very surprising and counterintuitive result. The RL reflects agents' perceptions of the extent to which they trust and adhere to societal norms, particularly the quality of contract enforcement, property rights, the police, and the courts. Strong RL in both the exporting and importing countries is expected to enhance trade by reducing risk and ensuring contract enforcement. A significant negative coefficient indicates that Algeria, Egypt, and Tunisia import more the weaker the RL in their own or their trading partner.

### ***2.2.6. Voice and Accountability (VA):***

The natural logarithm coefficient for the exporter's VA is -1.103 and -1.867, which is highly statistically significant ( $P=0.000$ ). This is a very surprising and counterintuitive result. Increased accountability may lead to tighter controls at customs ports and import contracts, reducing illegal imports or those carried out through corrupt channels (such as customs evasion or complicit importation of substandard goods). This may result in an apparent decrease in the volume of recorded imports that previously included illicit goods. A more accountable society may demand stricter quality, health, and safety standards for imported goods, potentially restricting the entry of some goods that do not meet these standards. When local citizens and businesses have a stronger voice and greater ability to hold their governments accountable, lobby groups representing local industries may successfully advocate for import restrictions to protect their products from foreign competition (such as higher tariffs, import quotas, or non-tariff barriers).

### **3. Conclusion**

This study has examined the impact of governance on trade performance in Algeria, Tunisia, and Egypt by employing an empirical approach within the gravity model framework. The findings clearly demonstrate that key governance indicators—such as government effectiveness, regulatory quality and control of corruption—play a critical role in influencing trade flows by either facilitating or impeding cross-border commerce. In doing so, the study not only confirms that better institutional quality enhances trade efficiency but also reveals that disparities in governance practices can lead to divergent trade outcomes among the selected countries.

The research objectives were successfully achieved by rigorously identifying the governance factors that enhance or constrain trade and by providing robust empirical validation through detailed econometric analysis. Moreover, these findings contribute to a deeper understanding of how institutional quality affects trade performance within the Arab region, thereby highlighting the significant implications for economic integration and the formulation of effective trade policies.

The results suggest that by addressing governance-related barriers, policymakers can design more effective strategies aimed at improving trade efficiency and competitiveness, ultimately fostering sustainable economic growth in these countries.

## **4. Study Contribution**

### **4.1. Theoretical Contribution**

This study makes a noteworthy theoretical contribution by integrating governance indicators into the traditional gravity model of trade, thereby expanding its application beyond conventional determinants such as infrastructure, tariffs and economic size.

The research demonstrates that institutional quality is a critical factor in shaping international trade flows, offering a governance-centric modification to an already established economic model. In doing so, the study provides empirical support for theories in institutional economics that emphasize the role of rule of law, regulatory frameworks, and anti-corruption measures in fostering market efficiency. Additionally, by incorporating elements of Islamic governance, the study contributes to a broader discourse on the compatibility of traditional governance principles with contemporary economic models.

This theoretical expansion enriches the academic debate by highlighting the interplay between formal institutional factors and trade performance, thereby offering a more comprehensive framework for future investigations.

### **4.2. Practical Implications**

The empirical findings of this study hold significant practical implications for policymakers, business leaders and international organizations. Governments in Algeria, Tunisia, and Egypt can utilize these insights to design and implement targeted institutional reforms aimed at reducing bureaucratic inefficiencies and enhancing regulatory frameworks.

Such measures are essential not only for improving transparency in trade-related processes but also for promoting competitive practices that lower trade barriers. Furthermore, international organizations and regional development bodies can leverage these findings to advocate for improvements in governance among developing economies, facilitating their better integration into the global market. For businesses and trade practitioners a clearer understanding of how specific governance conditions affect trade operations can support more informed decision-making regarding investments, market entries and strategic partnerships, ultimately contributing to improved trade performance and economic growth.

## **5. Limitation and direction for Future Studies**

Despite the significant contributions of this study, several limitations warrant consideration:

- First, while the research provides a focused analysis for Algeria, Tunisia and Egypt, the findings may not be universally applicable to other Arab or African economies, given the diverse institutional frameworks and varying levels of economic development across regions.
- Second, the study relies on established governance indicators, which, although robust, might not fully capture informal governance mechanisms or cultural factors that also influence trade performance.
- Third, the application of the gravity model, despite its widespread acceptance, has inherent limitations in accounting for dynamic trade policy shifts or sudden economic disruptions.

Future research should, therefore, consider expanding the geographical scope to include additional Arab and African nations, thereby enhancing the generalizability of the findings.

Incorporating qualitative methodologies, such as interviews with policymakers and business leaders, could also provide deeper insights into the role of informal governance structures in shaping trade outcomes.

Another promising direction would be to conduct longitudinal studies that examine the impacts of specific governance reforms over time, using time-series data to assess whether institutional improvements directly translate into enhanced trade volumes and efficiency. Such avenues of inquiry would not only deepen our understanding of the governance-trade nexus but also provide valuable guidance for refining economic policies aimed at stimulating international trade.

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