الجمهورية الجزائرية الديمقراطية الشعبية
Ministry of Higher Education and Scientific Research
وزارة التعليم العالي والبحث العلمي
People's Democratic Republic of Algeria

HIGHER SCHOOL OF MANAGEMENT AND DIGITAL ECONOMY

H.S.M.D.E

المدرسة العليا للتسيير والاقتصاد الرقمي

Dissertation Submitted in Partial Fulfillment Of The Requirements for Master's Degree

Major: Digital Finance Banking Management

Topic:

The Role of Domestic Credit to the Private Sector in Promoting Economic Growth

Study case: Arab Countries

Submitted by:

EUTAMENE Baraa

Supervised by:

Dr. BOUATELLI Mohamed

Senior Lecturer (Class A)

Academic year
2024-2025

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To Kamilia, To the one who embraced me and taught me kindness and tenderness And we will be together always & forever .

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To Hasna, the newlywed

To Djaber, who supported me with all he had,

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List of abbreviations:

NBFIs	Non-Banking Financial Institutions
NBFCs	Non-Banking Financial Companies
GDP	Gross Domestic Product
COE	Compensation of Employees
GPI	Genuine Progress Indicator
HDI	Human Development Index
GNI	Gross National Income
GNP	Gross National Product
MFP	Multifactor Productivity
BLS	Bureau of Labor Statistics
SMEs	Small and Medium-sized Enterprises
OECD	Organisation for Economic Co-operation and Development
DCP	Domestic Credit to the Private Sector
OLS	Ordinary Least Squares
GLS	Generalized Least Squares
FGLS	Feasible Generalized Least Squares
GDP	Main Indicator of Economic Growth
FDI	Foreign Direct Investment
CPI	Consumer Price Index (Inflation)
GCE	Government Consumption Expenditure
UR	Unemployment Rate

Abstract

Finance is a fundamental pillar of economic growth, with domestic credit to the private sector serving as a vital tool to stimulate investment, enhance productivity, and expand economic activity. In the Arab context, a critical question arises regarding the effectiveness of this type of financing in driving development, especially amid structural challenges faced by financial and banking systems in many countries of the region.

This thesis aims to study the impact of domestic credit to the private sector on economic growth in a sample of ten Arab countries over the period 1990–2023, employing panel data econometric methods. Statistical analysis and model estimation were performed using R software. Gross Domestic Product (GDP) was used as the growth indicator alongside explanatory variables including investment, inflation, government spending, and unemployment. The results show a weak and statistically negative effect of domestic credit on economic growth, contradicting traditional hypotheses.

The study emphasizes that fostering economic growth in Arab countries requires not only expanding credit volume but also comprehensive institutional and financial reforms to ensure financing is directed toward high value-added economic activities.

Keywords: Domestic credit, private sector, economic growth, panel data, R software, Arab countries.

summary

Le financement constitue un pilier fondamental de la croissance économique, le crédit intérieur accordé au secteur privé étant un levier essentiel pour stimuler l'investissement, renforcer la productivité et élargir l'activité économique. Dans le contexte arabe, une question cruciale se pose quant à l'efficacité de ce type financement pour promouvoir le développement, en particulier face aux défis structurels rencontrés par les systèmes financiers et bancaires dans plusieurs pays de la région.

Ce mémoire vise à étudier l'impact du crédit intérieur accordé au secteur privé sur la croissance économique dans un échantillon de dix pays arabes durant la période 1990–2023, en utilisant la méthodologie économétrique des données de panel. L'analyse statistique et l'estimation des modèles ont été réalisées à l'aide du logiciel R. Le produit intérieur brut (PIB) a servi d'indicateur de croissance, accompagné de variables explicatives telles que l'investissement, l'inflation, les dépenses publiques et le chômage. Les résultats révèlent un effet faible et statistiquement négatif du crédit intérieur sur la croissance économique, ce qui contredit les hypothèses traditionnelles.

L'étude souligne que la promotion de la croissance économique dans les pays arabes nécessite non seulement une augmentation du volume de crédit, mais également une réforme institutionnelle et financière complète afin de garantir une orientation du financement vers des activités économiques à forte valeur ajoutée.

Mots-clés : Crédit intérieur, secteur privé, croissance économique, données de panel, logiciel R, pays arabes.

ملخص

يمثّل التمويل إحدى الركائز الأساسية للنمو الاقتصادي، إذ يعدُ الائتمان المحلي الموجّه إلى القطاع الخاص أداة حيوية لتحفيز الاستثمار، دعم الإنتاجية، وتوسيع النشاط الاقتصادي. وفي السياق العربي، يثارُ تساؤل جوهري حول مدى فاعلية هذا النوع من التمويل في دفع عجلة التنمية، خاصةً في ظل التحديات الهيكلية التي تعاني منها الأنظمة المالية والمصرفية .في العديد من دول المنطقة .

تهدف هذه المذكرة إلى دراسة أثر الائتمان المحلي الموجّه للقطاع الخاص على النمو الاقتصادي في عينّة مكوّنة من عشر دول عربية خلال الفترة 1990–2023، وذلك باستخدام منهجية بيانات البانل ونماذج الاقتصاد القياسي، مع إجراء التحليل وقد تم اعتماد الناتج المحلي الإجمالي كمؤشر للنمو، إلى جانب إدراج عدة .**R** الإحصائي وتقدير النماذج باستخدام برنامج متغيرات تفسيرية مثل: الاستثمار، التضخم، الإنفاق الحكومي، والبطالة .أظهرت النتائج تأثيرًا ضعيفًا وسلبيًا من الناحية الإحصائية للائتمان المحلي على النمو الاقتصادي، وهو ما يتعارض مع الفرضيات لتقليدية .

تؤكد الدراسة أن تعزيز النمو الاقتصادي في الدول العربية لا يتطلب فقط توسيع حجم الائتمان، بل يقتضي أيضًا إصلاحًا مؤسسيًا ومال يًا شاملاً يضمن توجيه التمويل نحو الأنشطة الاقتصادية ذات القيمة المضافة العالية .

الكلمات المفتاحية : الائتمان المحلي، القطاع الخاص، النمو الاقتصادي، بيانات بانل، برنامج R، الدول العربية.

General introduction

General Introduction

The world known today is a result of a long process of development marked with humans great potential to evolve. Humans have always sought to manage society's mutation and its growing needs and desires and that's why many mechanisms have been invented to allow optimal management of production and distribution of goods using different resources to satisfy the maximum of needs, this is what is called the economy. Economic growth constitutes a strategic objective pursued by all countries due to its central role in improving living standards, reducing unemployment rates, and achieving social balance. Among the key factors influencing the realization of this growth, domestic financing particularly credit directed to the private sectoremerges as an effective tool for stimulating investment, enhancing production, and generating employment opportunities.

Amid the accelerating economic transformations observed globally, Arab countries face significant challenges in achieving comprehensive and sustainable growth that goes beyond mere increases in gross domestic product (GDP) to include the quality of growth and its capacity to foster economic stability and social equity. This calls for the effective mobilization of resources and the strengthening of macroeconomic policies, especially those linked to financing productive activities.

Empirical experiences have shown that the private sector is a fundamental pillar of any successful growth trajectory, acting as the main engine of economic activity and a vital source of employment. However, the extent of its contribution to economic growth largely depends on the available financing environment particularly domestic credit provided by banks and financial institutions which facilitates the mobilization of savings and their allocation toward productive investments, thereby reducing reliance on public or external funding sources.

This topic holds particular importance in the Arab context due to the significant disparity in growth rates across countries, reflecting differences in economic policies, income source diversification, and the quality of financial institutions. While some countries have leveraged oil revenues to achieve high levels of growth, others continue to rely on internal mechanisms such as private sector financing through domestic credit to stimulate economic activity.

These disparities have led to a widening growth gap both among Arab countries and between them and other global regions, highlighting the urgent need to reconsider growth financing mechanisms. Directing domestic credit toward productive sectors is considered one of the most effective approaches to narrowing this gap and fostering more inclusive and sustainable economic growth.

Several Arab experiences have also demonstrated that financing vital sectors such as agriculture and industry has contributed to job creation and local economic stimulation, emphasizing the importance of the quality of credit allocation rather than merely its volume. Hence, it becomes essential to analyze the relationship between domestic credit and economic growth, particularly in light of distributional considerations and development equity, to ensure that growth translates into qualitative improvements benefiting all segments of society.

The relevance of this topic is further reinforced by the current economic conditions facing many Arab countries, characterized by sluggish growth, weak economic diversification, and the lack of effective financial tools to support the private sector. Therefore, this research seeks not only to address a gap in Arab economic literature but also to provide practical recommendations to policymakers regarding the efficient allocation of financial resources to productive sectors.

In addition to its academic significance, the choice of this research topic stems from a personal interest in deepening understanding of key economic issues in the Arab region and contributing to the development of solid economic knowledge among students. This is achieved by analyzing the long-term trajectory of economic growth in Arab countries and examining the role of domestic financing particularly credit extended to the private sector in supporting this growth, while proposing practical solutions where applicable.

The main research problem is formulated as follows:

- **To what extent does domestic credit to the private sector contribute to enhancing economic growth in Arab countries?**

To answer this question comprehensively, the study proposes a series of sub-questions, including:

1. **How did the volume and role of domestic credit to the private sector (DCP) and Gross Domestic Product (GDP) evolve in Arab countries during the period 1990–2023?**
2. **Does the contribution of private sector credit to economic growth vary across countries based on their economic and financial structures?**
3. **Is there a statistically significant relationship between domestic credit to the private sector and economic growth?**
4. **What is the effect of macroeconomic variables such as inflation, unemployment, government spending, and foreign direct investment on economic growth ?**

B

Based on the economic literature, the following hypotheses are formulated:

- **H1: Domestic credit to the private sector and Gross Domestic Product (GDP) has undergone significant structural changes in terms of volume and role during the period under study.**
- **H2: The effect of domestic credit on economic growth is tangible and shaped by both the characteristics of the credit itself and the broader economic and financial environment, causing variations across countries depending on their economic and financial structures.**
- **H3: Domestic credit to the private sector has a statistically significant positive effect on economic growth in Arab countries during the period 1990–2023.**
- **H4: Macroeconomic variables such as inflation, unemployment, government spending, and foreign direct investment have a significant impact either positive or negative on economic growth in Arab countries during the period 1990–2023.**

The study adopts a primarily quantitative analytical approach using Panel Data covering ten Arab countries over the period 1990–2023. This type of data allows for the simultaneous analysis of temporal (time-based) and spatial (country-based) effects. Data were collected from the World Bank Database (2025 edition), and econometric analyses were conducted using R software, due to its flexibility and precision in handling complex economic data structures.

The selected variables include:

- Dependent variable: GDP per capita growth rate.
- Main independent variable: Domestic credit to the private sector (as a percentage of GDP).
- Control variables: Unemployment rate, inflation rate, government expenditure as a percentage of GDP, and foreign direct investment.

To ensure comprehensive analysis, the research is structured into two complementary chapters—one theoretical and the other empirical. The first chapter provides the theoretical framework through three main sections. The first section defines and explores the characteristics, sources, forms, and determinants of domestic credit to the private sector. The second section discusses economic growth, including its definitions, measurement methods, and key determinants, with a focus on the role of the private sector as a driver of economic activity. The third section examines the relationship between credit and growth from both

theoretical and practical perspectives, reviewing key economic theories, exploring how access to credit stimulates private sector development, and highlighting the risks that may hinder the translation of credit into effective and sustainable growth.

The second chapter focuses on the empirical analysis using panel data econometric models. It begins with a methodological introduction to panel data, its importance in economic research, and a review of key model types and comparison tests (such as the Hausman test). This is followed by a descriptive analysis of the evolution of domestic credit and GDP per capita in the selected Arab countries, enabling a better understanding of structural patterns and differences over time.

Subsequently, the chapter details the adopted econometric methodology, including variable specification, stationarity testing, parameter estimation, and diagnostic testing. The results are then interpreted from both statistical and economic perspectives, followed by a contextual discussion of the Arab region. The research concludes with strategic recommendations aimed at enhancing the effectiveness of domestic credit in promoting economic growth in the Arab world.

Chapter I: Theoretical Framework on the Domestic Credit to the Private Sector in Promoting Economic Growth

Introduction

In recent decades, increasing attention has been paid by researchers and policymakers to the role of the financial sector in supporting the paths of economic growth and development, particularly through financing mechanisms directed toward the private sector. Domestic credit to the private sector is considered one of the most prominent tools capable of financing investment projects, supporting innovation, and expanding economic activity especially in developing countries that seek to close the financing gap and stimulate sustainable growth.

In this context, domestic credit emerges as a critical means of enhancing productivity and increasing consumption and investment, ultimately leading to improved overall economic performance. The effectiveness of this credit, however, is not solely determined by its volume, but also by the nature of its sources, conditions, regulatory framework, and alignment with the real economy's needs. This topic is particularly relevant to Arab countries, which are striving to activate the role of the private sector in their economies and diversify sources of growth away from excessive reliance on natural resources.

To understand the theoretical underpinnings of the role of domestic credit in supporting economic growth, this chapter is structured into three main sections:

- **The first section** presents the conceptual framework of domestic credit to the private sector, covering its definition, characteristics, sources, forms, and the main factors influencing its volume.
- **The second section** addresses the fundamental concepts of economic growth, its measurement methods, key determinants, and the essential role of the private sector in achieving it.
- **The third section** explores the relationship between domestic credit to the private sector and economic growth by reviewing relevant economic theories, analyzing the impact of credit availability on private sector performance, and highlighting the main challenges and risks associated with this relationship.

Section One: The Conceptual Framework of Domestic Credit to the Private Sector

1. Definition and Characteristics of Domestic Credit to the Private Sector

1.1. Definition of Domestic Credit to the Private Sector and its importance in the economy.

Domestic credit to the private sector refers to the financial resources provided by financial institutions within a country to private-sector entities, including businesses, households, and non-governmental organizations. These resources are extended through mechanisms such as loans, purchases of non equity securities, trade credits, and other accounts receivable that establish claims for repayment. In some countries, this category may also encompass credit extended to public enterprises.

The financial institutions involved in providing domestic credit include monetary authorities (central banks), deposit money banks, and other financial corporations. These corporations may not accept transferable deposits but incur liabilities such as time deposits and savings deposits. Examples of such institutions include finance and leasing companies, money lenders, insurance companies, pension funds, and foreign exchange companies.[1]

Importance in the Economy

Domestic credit is crucial for economic performance as it facilitates capital formation, technological advancement, and innovation essential components for large-scale production economies and specialization. It helps bridge budget gaps and improves monetary policy implementation. In developing countries, domestic credit is particularly important for sustaining increased investment necessary for long-term economic growth.[2]

[1] World Bank Group, Data Bank, https://databank.worldbank.org/metadataglossary/world-developmentindicators/series/FS.AST.PRVT.GD.ZS Accessed on: 02/03/2025 at 11.58.

[2] Atadiose, S, Eleje, E. C, Ambam, A. P, & Onwumere, J.U.J, (2024), *Impact of Domestic Credit on Economic Performance in Nigeria*,Journal of Xi'an Shiyou University, Natural Sciences Edition, Vol. 67, Issue 01, p.40-41.

Sustaining Long-Term Economic Growth through Domestic Credit: domestic credit to the private sector is essential for sustained economic growth, especially in developing countries. It has a proven positive impact on GDP by enabling businesses and households to invest in productive assets like machinery and technology. This boosts productivity and output, while also supporting household consumption and overall economic activity. Startups and small businesses, in particular, rely on credit to grow, innovate, and create jobs key drivers of long-term economic performance.

- **Enabling Investment and Output Expansion:** access to domestic credit enables capital formation by supporting investment in machinery, infrastructure, and technological upgrades. These investments expand a nation's productive capacity and improve economic output. Furthermore, credit systems promote the accumulation of physical and human capital key elements of sustainable growth.
- **Stabilizing Demand and Enhancing Resilience:** credit availability helps smooth household consumption during periods of income fluctuation, maintaining stable demand levels in the economy. This consistency encourages firms to sustain or increase production, contributing to economic resilience and reducing vulnerability to external shocks.
- **Strengthening Private Sector Development:** an efficient domestic credit system enhances the performance of the private sector by providing firms especially small and medium sized enterprises (SMEs) with access to financing needed for growth, innovation, and competitiveness. In developing countries, where the private sector is a key driver of employment and economic activity, access to credit plays a crucial role in promoting financial inclusion and encouraging entrepreneurship.
- **Promoting Efficient Capital Allocation:** well regulated credit markets facilitate optimal capital allocation by directing funds to the most productive sectors. This ensures that scarce financial resources generate high returns and support strategic economic priorities, thereby amplifying the developmental impact of investment.
- **Supporting Economic Diversification:** in resource dependent economies, such as many Arab countries, domestic credit can help reduce reliance on volatile commodity sectors. Channeling credit toward non oil industries fosters diversification, strengthens trade balances, and broadens the economic base ultimately contributing to macroeconomic stability and sustainable growth.

1.2. Characteristics of Domestic Credit and Its Role in Economic Development

A. **Credit Maturity:** The maturity of credit significantly influences its economic impact. Short-term credit supports operational needs but has limited effect on long term growth. Conversely, long-term credit enables large investments in infrastructure, business expansion, and innovation. It fosters productivity and sustainable development by financing research, technological progress, and new product development, making it essential for economic competitiveness[1].

B. **Interest Rates:** Interest rates, whether fixed or variable, directly affect borrowing decisions. High rates can deter investment, while low rates stimulate credit demand but may lead to excessive debt. Lenders also adjust rates based on borrower risk, influencing access to finance and overall economic activity[2].

C. **Collateral Requirements:** Collateral reduces lender risk and improves credit availability. Tangible assets and personal guarantees are often required, particularly for small businesses. Efficient collateral systems promote financial stability, lower borrowing costs, and encourage investment.[3]

D. **Regulatory Oversight: Effective** regulation ensures fair lending, prevents over-indebtedness, and maintains financial stability. Without proper oversight, credit markets may become vulnerable to crises. Well designed regulatory frameworks enhance confidence and contribute to sustainable growth.[4]

E. **Sectoral Diversification of Credit:** Balanced allocation of credit across various sectors especially beyond resource based industries reduces economic volatility and enhances resilience. Diversification supports innovation, industrial transformation, and long term stability.[5]

---

[1] Nikola Tasic, Neven Valev, (2008), *The Maturity Structure of Bank Credit: Determinants and Effects on Economic Growth*, Andrew Young School of Policy Studies, Working Paper 08-12. p .06.

[2] Thabiso Sthembiso Msomi, (2023), *the effect of interest rates on credit access for small and medium-sized enterprises: A South African perspective*. Banks and Bank Systems, 18(4), p .140-143.

[3]European Central Bank, (2013), *COLLATERAL ELIGIBILITY REQUIREMENTS A COMPARATIVE STUDY ACROSS SPECIFIC FRAMEWORKS*, p. 07.

[4] Jiro Tsunoda, Muzaffar Ahmed, and Mohammed Tajul Islam ,(2013) , *Regulatory Framework and Role of Domestic Credit Rating Agencies in Bangladesh* ,, ADB South Asia Working Paper Series , p. 3-4.

[5] Khoo, Vu, Xing , (2022), *investigates the impact of sectoral diversification on credit ratings*, The University of Birmingham University of Aberdeen.

F. **The Role of Credit in Innovation:** Bank liquidity directly affects their lending capabilities. High liquidity supports credit availability and economic activity, especially during downturns. Sound banking systems with strong capital buffers are better equipped to sustain lending and foster stable economic growth.[1]

G. **Bank Liquidity and Lending Capacity:** Bank liquidity determines lending ability. High liquidity supports ongoing credit supply and economic stability, while shortages limit credit and economic activity. Well capitalized banks better absorb shocks and sustain growth.[2]

1.3. Difference between domestic and external credit

Domestic and External Credit

Domestic credit refers to financial resources provided by a country's financial institutions to its residents. It includes loans, securities, and other financial instruments, typically regulated by local authorities and denominated in the national currency. It is essential for economic growth, providing liquidity, enabling business expansion, and enhancing financial stability. [3]

On the other hand, external credit, also known as foreign debt, refers to borrowing from foreign lenders, including commercial banks, governments, or international financial institutions such as the International Monetary Fund (IMF) or the World Bank. In this case, the lender is a non resident, while the borrower is a resident of the country. External credit is usually denominated in foreign currencies and subject to international financial regulations. It directly impacts a country's balance of payments and can lead to sovereign debt risks if not managed effectively.[4]

Domestic and external credit are interconnected. A well developed domestic credit market can reduce reliance on external borrowing. Conversely, when domestic credit supply is insufficient, countries may turn to external sources for financing. Studies indicate that capital inflows

[1] Arnone, Massimo and Costantiello, Alberto and Leogrande, Angelo , (2024) , *Banking Credit and Innovation Technology: a Global Perspective*, University of Catania, Lum University Giuseppe Degennaro.

[2] Foly Ananoua Dimitris K. Chronopoulosb Amine Tarazia,c John O.S Wilsonb, *Liquidity Regulation and Bank Lending* .

[3] ATADIOSE SUNDAY ,Dr. ELEJE EMMANUEL CHINEDU, AMBAM, AWAH , ONWUMERE J.U.J , *op.cite.*, p. 39-40 .

[4]Investopedia , External debt**,** https://www.investopedia.com/terms/e/external-debt.asp Accessed on: 23/0 3/ 2025 at 01:30.

considered a form of external credit are closely linked to domestic credit cycles, highlighting their interdependence. For instance, research by Avdjiev et al. (2016) shows that the composition of external debt can influence domestic credit cycles, particularly through the instrument and sector dimensions of external debt.[1]

As shown in the following table, which highlights the main differences between domestic and foreign credit.

Table N° 1.1: Difference between domestic and external credit.

Aspect	Domestic Credit	External Credit
Source of Funds	Provided by national financial institutions, such as local banks and credit unions.	Sourced from foreign lenders, including international banks, foreign governments, and multilateral institutions.
Regulatory Framework	Governed by domestic financial authorities and subject to national regulations.	Subject to international financial regulations and agreements, often involving multiple jurisdictions.
Currency Denomination	Typically denominated in the local currency, reducing exposure to exchange rate fluctuations.	Often issued in foreign currencies, such as the US dollar or euro, introducing currency risk.
Economic Implications	Enhances domestic liquidity, supports investment, and contributes to financial stability within the country.	Impacts foreign reserves, exchange rates, and increases the nation's external debt burden.
Examples	Bank loans, mortgages, consumer credit	Sovereign bonds, IMF loans, cross-border lending

Source: Self-made after referring back to literature.

Both domestic and external credit play vital roles in economic growth. Domestic credit enhances local investment and financial inclusion, while external credit provides access to

[1] Avdjiev, Stefan, Stephan Binder, and Ricardo Sousa, (2017), *External Debt Composition and Domestic Credit Cycle,* BIS Working Papers No. 627. Bank for International Settlements.

international funding but may pose currency and debt risks. Studies show that in some Arab countries, domestic credit contributes more to GDP growth than stock markets. Therefore, strengthening domestic credit systems is essential for long-term development.

2. Sources and Forms of Domestic Credit to the Private Sector

Extension of domestic credit to the private sector is essential to catalyze economic growth, encourage entrepreneurship, and finance investment. Domestic credit comes from multiple sources and manifests in various forms, but each contributes to an economy's overall finance environment. This section discusses the roles of key sources and forms of credit extended to the private sector, including commercial banks, non-banking financial institutions (NBFIs), and financial markets.

2.1. Sources of domestic financing

- **Commercial Banks:** commercial banks are the primary source of credit for the private sector, especially for businesses seeking short-term and long-term loans. They provide funding to a wide range of economic activities, including manufacturing, services, and infrastructure projects. Commercial banks use deposits from individuals and businesses as a base to offer credit to the private sector, often through loans, overdrafts, and credit lines. Banks also play a key role in offering trade credit, where businesses extend credit to one another for purchasing goods and services.[1]

Commercial banks typically offer two broad categories of credit:

- **Short-term credit**: Typically utilized to meet working capital needs, funding running costs such as raw materials, wages, and manufacture.
- **Long-term credit**: Primarily used for capital investment, i.e., infrastructure construction, purchasing machinery, and expanding business.

The credit supply by commercial banks depends on many factors, such as the monetary policy stance of the central bank, interest rates, and the overall state of the economy. Policies of the

[1]Maimbo, S. M., & Kumah, L, (2023*),The Role of Commercial Banks in Economic Development and Financial Inclusion*, Academy of Accounting and Financial Studies Journal.

central bank, for instance, the reserve requirement and the capital adequacy ratio, also impact how much credit can be lent by commercial banks.

- **Non-Banking Financial Institutions (NBFIs):** non-banking financial institutions (NBFIs) complement the services of commercial banks by offering alternative forms of credit and financial services, especially to underserved segments of the private sector. NBFIs typically provide credit in the form of leasing, factoring, microfinance, and housing loans. These institutions often cater to specific market segments, such as small and medium sized enterprises (SMEs), rural businesses, and individuals without access to formal banking services.[1]

The advantages of NBFIs in credit provision include:

- **Flexibility in loan terms**: NBFIs can offer more customized financing options for businesses that do not qualify for bank loans, particularly in emerging markets.
- **Targeting underserved sectors**: NBFIs play a crucial role in financing sectors like agriculture, micro enterprises, and low income housing, which are often overlooked by traditional banks.

Common forms of credit provided by NBFIs include:

- **Microfinance**: Providing small loans to individuals or businesses in low-income communities to promote entrepreneurship and economic inclusion.
- **Leasing**: Offering financing for the acquisition of equipment or machinery, which is paid for through installment payments over time.
- **Factoring**: Providing working capital to businesses by purchasing their receivables at a discount, allowing businesses to manage their cash flows more effectively.

Non-Banking Financial Companies are (NBFCs) financial intermediaries that render flexible and economical services to enhance access to capital, particularly in rural and underdeveloped regions. They are different from commercial banks as they are focused on personal, trade, and infrastructure financing. While less regulated, NBFCs play an important role in promoting

[1] Naresh, M, & Swarnalatha, M, (2024*),Role and Challenges of Non-Banking Financial Companies in Economic Development of India*, Journal of Nonlinear Analysis and Optimization , p. 647 -649 .

economic growth, jobs, and financial inclusion by supplementing the traditional banking system extremely well.

- **Financial Markets:** financial markets are systems in which various financial instruments and assets are traded. The prices of these assets are determined by supply and demand within the respective market. These markets are essential for the financial and economic activities of any country, as they facilitate the efficient allocation of capital. For example, consider a bank where individuals deposit their savings. The bank can use these funds, along with others from other depositors, to lend money to borrowers, charging interest while providing returns to the depositors. Thus, the bank serves as a financial intermediary, benefiting both depositors and borrowers.[1]

Types of Financial Markets[2]

- **Stock Market:** A platform where shares of public companies are traded, allowing investors to buy equity and potentially earn returns through capital gains.
- **Bond Market:** Involves the issuance and trading of bonds, where companies or governments borrow funds from investors in exchange for periodic interest payments and principal repayment at maturity.
- **Commodities Market**: Deals with the trading of natural resources (e.g., oil, gold, agricultural products), with prices subject to market demand and supply fluctuations.
- **Derivatives Market**: Involves financial contracts, such as futures and options, whose value is derived from an underlying asset (e.g., stocks, bonds, or commodities), used for risk management or speculation.

Role of Financial Markets for Economic Growth

financial markets play a crucial role in promoting economic growth by mobilizing savings and directing them toward productive investments. They facilitate capital allocation for infrastructure and development projects, support job creation, and connect capital suppliers with borrowers. Additionally, they attract foreign investment, encourage public-private

[1] Sailakshmi, B, (2020), *The Role of Financial Markets for Economic Growth - A Study*,International Journal of Research and Analytical Reviews (IJRAR), CSSR & SRRM Degree and P.G. College, Kamalapuram-516 289, India .P.518.
[2] Ibid, p.519.

partnerships, and enhance financial stability. By supporting various sectors and controlling inflation, financial markets contribute to sustainable and inclusive economic development.

2.2. Forms of domestic credit

- **Bank Loans**

Loans are a form of direct credit facilities granted to bank clients under an agreement between the bank and the borrower. According to this agreement, the bank lends a specific amount of money to the client for a defined period to finance their short, medium, or long-term needs. The repayment method including both the principal and interest is agreed upon with the client and may involve annual, semi annual, or periodic installments. In some cases, the entire loan amount may be repaid in a single payment upon maturity.[1]

The Importance of Loans to the Economy[2]

Loans play a vital role in enhancing the efficiency of resource allocation within the economy, both in terms of consumption and production.

In the **consumption domain**, credit helps consumers to plan their spending over time in a way that maximizes their utility. This is especially effective when the borrower makes good use of the credit facilities provided.

In the **production domain**, modern production systems are increasingly characterized by economies of scale and capital concentration. Loans facilitate the expansion of large-scale enterprises by providing the necessary funding.

Moreover, loans contribute to the creation of additional payment instruments alongside legal tender, thereby supporting the overall economic activity in a way that aligns with the society's evolving financial needs.

[1] Ashish, H. S. (2010*), Credit analysis and its role in rationalizing lending and monetary expansion operations in banks,* Arab Society Library for Publishing and Distribution.
[2] Issa, M. H. N. (2010), *Credit portfolio risk management*, Dar Al-Raya for Publishing and Distribution.

Type of bank loan

❖ **Classification by Purpose**

- **Consumer Loans**: Granted to individuals for personal consumption or emergency expenses. Repayment is made through future income or asset liquidation. Common guarantees include salary transfers or personal collateral guarantees.
- **Productive Loans**: Aimed at financing productive activities such as the purchase of raw materials or equipment to enhance a company's operational capacity. Often supported by central banks due to their positive impact on national economic growth.

❖ **Classification by Economic Sector**

- **Reale Estate Loans**: Provided to individuals or businesses to purchase or build property. These are typically long-term loans, often secured by the real estate asset itself.
- **Industrial Loans**: Offered to manufacturing businesses and craftsmen for medium- or long-term investments. Specialized industrial banks often handle this type of credit.
- **Agricultural Loans**: Designed for farmers to finance seasonal activities (e.g., seeds, fertilizers). They are usually short-term loans tailored to agricultural cycles.

❖ **Classification by Collateral**

- **Unsecured Loans**: Issued without physical guarantees, based solely on the borrower's creditworthiness. Such loans are limited and granted under exceptional circumstances.
- **Secured Loans**: Backed by personal or tangible guarantees (e.g., goods, securities, bills of exchange, insurance policies). The bank assesses a margin between the value of the collateral and the loan amount to minimize risk.

❖ **Classification by Duration**

- **Short-Term Loans (Operational Loans)**: Generally under 12 months. Used for operational needs such as inventory, production, or distribution
- **Medium-Term Loans**: Typically range from 1 to 7 years. Used to finance assets with a limited useful life like machinery or vehicles.

- **Long-Term Loans**: Extend beyond 7 years, potentially up to 20 years. Used for acquiring fixed assets such as land or buildings, and require long-term financial planning.

➢ **Bonds :**

Bonds are long-term financial instruments issued by various entities such as corporations, governments, or local authorities with the aim of raising funds from the public. Under this financial agreement, the issuer commits to paying a fixed amount of interest periodically (annually or semi annually) to the bondholder, in addition to repaying the bond's face value at the maturity date. Bonds represent a formal debt obligation that grants the bondholder the right to claim the owed amounts according to the terms specified in the bond contract.[1]

Characteristics of Bonds:

- **Fixed and Regular Income:** Bonds offer a predictable and stable income stream, making them a preferred investment option for risk-averse investors seeking financial stability.
- **Capital Protection:** The principal amount of the bond is repaid at maturity, ensuring capital recovery for the investor.
- **Enhanced Creditworthiness of the Issuer:** The issuance of bonds contributes to strengthening the issuer's financial credibility and position in the market in terms of repayment capacity.
- **Call ability:** This feature allows the issuer to repurchase the bonds from the market before their maturity date, usually when market interest rates decline.
- **Flexibility in Maturity Structure:** Bonds provide companies with the ability to adjust the structure of their debt maturity according to their financial strategies.
- **Interest Rate Sensitivity:** Bond prices are inversely related to market interest rate fluctuations, which means their value can rise or fall based on changes in prevailing interest rates.

Bonds can be categorized into different types, where we can find bonds based on guarantees, such as convertible bonds, secured bonds, and income bonds. These categories are described as follows:

[1] Paul-Jacques Lehmann , (2003), *bourse et marché financier*,Paris: édition dunod .

- **Convertible Bonds**: These are ordinary bonds that can be converted into shares, where the bondholder has the right to convert the bond into shares at a later time, though they are not obligated to do so. This type of bond has several advantages, including allowing the investor to benefit from both bond features and the potential for capital gains from share conversion. Typically, these bonds have higher prices than regular bonds, which also allows financial intermediaries to trade them on the stock market. However, the potential for conversion depends on the performance of the underlying shares.[1]
- **Secured and Unsecured Debt Bonds**: Unsecured bonds are typically supported by regular interest payments. There is also a possibility of a higher interest rate on unsecured debt compared to secured bonds. These bonds differ from regular bonds in various aspects. For instance, secured bonds might be backed by specific assets of the company, while in the U.S., they can be guaranteed by the company's general assets. The payments on these bonds occur regularly, regardless of the company's financial situation. Because the interest rate is fixed, the market price of these bonds tends to rise when interest rates drop, and vice versa, ensuring that the yield on these financial instruments aligns with other market yields. [2]
- **Warrants**: A type of security often issued alongside secured bonds. These give the investor the right to purchase common stock from a specific company at a predetermined price in the future, known as the "strike price." These warrants are traded on the stock exchange at prices linked to the underlying company's stock.[3]
- **Covered Warrants**: These are new investments that are traded on large exchanges such as the London Stock Exchange. They are flexible options involving a wide range of financial instruments. Covered warrants can be based on a single stock or a basket of financial assets. They can be used to hedge against risks or market fluctuations or for tax optimization. Unlike trade guarantees issued by private ownership companies, covered warrants are issued by banks or other financial institutions for trading purposes.[4]
- **Government-Backed Bonds**: These are securities issued by the state and are considered safe and guaranteed. Although these bonds are not backed by specific

[1] Khrush, H, Archid, A., Wajda, M. (2010*), Financial Markets: Concepts and Applications*, Amman: Dar Zaran for Publishing and Distribution.
[2] Pict, M. (2006), *How the Stock Market Works: A Guide for Small Investors, Egypt*: Dar Al-Farouk, p. 13.
[3] Ibid. p. 15.
[4] Ibid. p 22.

financial assets, the state itself is the guarantor, and defaulting on these bonds is considered very unlikely, making them one of the least risky bonds. However, the stability of the country's economy is crucial in maintaining this low risk status.

- **International Bonds**: These are bonds issued by a country in a foreign currency or another market currency. These bonds are issued as part of a stabilization mechanism by a group of countries or a specific union. Countries like Greece or Italy often benefit from loans with lower interest rates from countries like Germany. These bonds are issued under a multi-national framework, which helps reduce the risks associated with individual country debt, but it also requires multi-nation cooperation .
- **Green bonds** are financial instruments designed to fund environmental sustainability projects. They are similar to standard bonds in structure but are dedicated to climate-related or eco-friendly initiatives. The proceeds are exclusively used for financing or refinancing eligible green projects, such as climate change mitigation or renewable energy. Green bonds aim to achieve economic, environmental, and societal benefits by meeting the needs of issuers, bondholders, and the environment.[1]

While each type of bond offers unique advantages, it is important to consider the associated risks, such as the performance of the company for convertible bonds or market fluctuations for covered warrants. Similarly, government bonds, although low-risk, are still subject to the economic conditions of the issuing state.

- **Islamic finance**

Islamic finance is a financial system based on the principles and conditions outlined in Islamic law (Sharia). It aims to provide financing and financial resources to individuals and institutions through Sharia compliant mechanisms that avoid interest (riba) and prohibited financial practices. Islamic finance is grounded in the legal principle that lawful profit should be derived either from ownership or labor.[2]

Islamic finance provides Sharia compliant financing alternatives to interest-based loans, promoting economic development in Islamic societies. It supports job creation by funding

[1] *GREEN BOND HANDBOOK: A STEP-BY-STEP GUIDE TO ISSUING A GREEN BOND, (2020),* International Finance Corporation.

[2] Qahf, M, (2004), *The concept of finance in Islamic economics: A jurisprudential and economic analysis*., Islamic Research and Training Institute, Saudi Arabia , 1st ed, p. 12.

businesses and small projects, improving living standards and economic opportunities. Additionally, it offers capital owners ethical investment options that yield returns while ensuring the sustainability of investors and their communities .[1]

The importance of Islamic finance lies in its role as a foundation for ethical economic development based on Sharia principles. Following a period of early prosperity, the Islamic world experienced decline and reliance on non Islamic financial systems. This created a need for collaboration between Islamic law and economics experts to develop Sharia-compliant financial alternatives that also align with modern economic progress.

These are the **types of Islamic finance contracts** categorized based on their duration and structure:

a. **Long-Term Finance Contracts:** These contracts are those with a duration exceeding five years and include:
   - **Mudarabah (Profit-Sharing):** A partnership where capital owners (investors) and the bank (as the entrepreneur) share profits based on an agreed ratio. The bank assumes the loss unless it is caused by the bank's negligence or violation of terms.
   - **Musharakah (Joint Venture):** The bank participates with the client in financing a project without charging a fixed interest. Instead, the bank shares in the potential profits or losses based on an agreed-upon distribution formula.

b. **Medium-Term Finance Contracts:**
   - **Ijara (Leasing):** A contract where the bank or leasing institution leases an asset it owns to the lessee, who pays periodic equal installments. The lessee may have the option to purchase the asset at the end of the lease. There are two types of leasing:
     - **Operating Lease:** Usually short-term, and the owner may lease the asset to a new tenant once the lease period expires.
     - **Finance Lease (Lease-to-Own):** A long-term lease where ownership of the asset transfers to the lessee at the end of the lease period.

[1] Al-Shahloub, L. B. F, (2007), *the industry of Islamic finance and its role in development*, p. 04.

- **Istisna (Manufacturing Contract):** A contract where the buyer (the customer) and the seller (the manufacturer) agree on the production of a specified good at a future date. The buyer pays for the goods either in full upfront or in installments.

c. **Short-Term Finance Contracts:**

- **Murabaha (Cost-Plus Sale):** The client requests the bank to purchase goods, and once the bank owns the goods, it sells them to the client at the purchase price plus an agreed-upon profit margin, with repayment terms outlined.
- **Salam (Forward Sale):** A contract where payment for a specified commodity is made immediately, and the delivery of the commodity occurs at a future date.
- **Qard Hasan (Benevolent Loan):** A loan provided by the bank with a fixed amount of money to an individual or entity, where the borrower agrees to repay the loan at a later date without any interest.

2.3. The role of central banks in regulating domestic credit.

Central banks play a pivotal role in regulating domestic credit to maintain financial stability, economic growth, and the overall integrity of the financial system. Their influence can be traced through several primary tools, including monetary policy, interest rates, reserve requirements, and regulatory frameworks. Let's break down their responsibilities in the context of domestic credit regulation:[1]

- **Monetary Policy**: central banks adjust short-term interest rates to control borrowing costs. Higher rates reduce excessive credit expansion, while lower rates stimulate borrowing and investment.
- **Reserve Requirements**: central banks set the minimum reserves that commercial banks must hold. Increasing these reserves restricts the amount of credit banks can lend, tightening the money supply.
- **Open Market Operations**: by buying or selling government securities, central banks control the money supply. Purchasing securities injects money into the system, while selling reduces credit availability.

[1] Paolo Angelina, Stefano Neri and Fabio Panetta, (2012), *MONETARY AND MACROPRUDENTIAL POLICIES*, WORKING PAPER SERIES, European Central Bank (ECB).

- **Capital Adequacy Requirements**: central banks require banks to maintain a capital buffer. These regulations ensure banks can absorb losses without jeopardizing financial stability.
- **Macroprudential Policies**: beyond traditional tools, central banks use macroprudential measures to manage systemic risks. These help prevent excessive credit growth in vulnerable sectors like real estate.
- **Credit Controls**: central banks set limits on the types and amounts of credit available in specific sectors. This includes restrictions like loan to value ratios for mortgages.

3. Factors Affecting the Volume of Domestic Credit to the Private Sector

The volume of domestic credit to the private sector is influenced by a range of factors. Among these, three key determinants stand out: the economic and investment environment, monetary and fiscal policies, and the level of financial and banking development. Below is an overview of these factors:

3.1. Economic and investment environment

The economic environment plays a pivotal role in influencing the demand and supply of credit in the economy. Several key economic indicators shape credit behavior, including economic growth, inflation, investor confidence, political stability, and the investment climate.

- **Economic Growth:** economic growth fosters a favorable environment for borrowing, as businesses seek financing to expand, and consumers demand credit for consumption and investment. Strong economic performance often correlates with higher credit demand. On the other hand, during economic downturns, credit demand tends to decline due to reduced consumption and investment activities.[1]
- **Inflation :** inflation affects the real value of money, impacting both borrowers and lenders. High inflation can lead to higher interest rates, which may discourage borrowing. Conversely, low inflation encourages stable lending and borrowing

[1] Bendahmane Mohammed el amin, Kerrouche Noureddine, (2021), *Relationship between Domestic credit provided by financial sector and economic growth in Algeria since 1970-2018*, Economic and Management Research Journal 15 .2, p.119 -136.

conditions, as both parties feel confident in the future value of money. This relationship highlights the importance of price stability in sustaining credit flow.[1]

- **Investor Confidence:** investor confidence is closely tied to the perceived stability of the economy. A stable political and economic environment reduces perceived risks, leading to increased investments and demand for credit. High investor confidence promotes both domestic and foreign investment, which in turn can stimulate credit demand in the private sector.[2]
- **Political Stability:** political instability can deter lending, as it increases uncertainty and risk for financial institutions. The absence of reliable legal frameworks and the potential for economic disruptions discourage both domestic and international credit flow.[3]
- **Investment Climate:** a favorable investment climate, characterized by favorable regulations, low taxes, and strong infrastructure, encourages business growth.

  As businesses expand, the demand for credit increases. Therefore, a conducive investment environment can stimulate credit volume.[4]

3.2. Monetary and Fiscal Policies

Monetary and fiscal policies play a direct role in shaping the credit market. These policies determine the cost of borrowing, the money supply, and the broader economic conditions that affect credit demand.

- **Monetary Policy:** central banks control monetary policy, primarily through the manipulation of interest rates and reserve requirements. Lower interest rates make borrowing cheaper, thereby encouraging credit demand. Additionally, central banks may use open market operations to increase the money supply, further facilitating credit

[1] Tinoco-Zermeño, M. Á., Torres-Preciado, V. H., & Venegas-Martínez, (2022), Inflation and Bank Credit, Investigación Administrativa 51, p .1-20.

[2] King, R. G., & Levine, R. (2020), Finance and Growth: Schumpeter Might Be Right, The Quarterly Journal of Economics, 108(3), p. 717–737.

[3] Hassan, M. K., & Mahmood, M. (2017), Political stability and financial development, Journal of Financial Economic Policy, 9(1), p. 2–15.

[4] Rogoff, K., & Reinhart, C. M. (2015), The modern history of exchange rate arrangements: A reinterpretation, Quarterly Journal of Economics, 119(1), p. 1–48.

expansion. On the other hand, higher interest rates tend to dampen borrowing activities as debt servicing becomes more expensive. [1]

- **Fiscal Policy:** fiscal policies, such as government spending and taxation, influence the demand for credit. Government spending on infrastructure or subsidies can stimulate demand for loans as businesses seek financing for projects. In contrast, fiscal austerity measures, such as heavy taxation or reduced government spending, may suppress credit demand. Fiscal policies can also indirectly affect credit through credit guarantees or subsidies that support lending to specific sectors.[2]
- **Credit Regulations:** regulatory frameworks set by governments and central banks shape the lending behavior of financial institutions. Stringent capital requirements and lending restrictions can limit the volume of credit available, while deregulation often leads to increased lending, as banks are allowed to take on more risks.[3]

3.3. Level of Financial and Banking Development

The development of the financial system is crucial in determining the volume of credit available. A well-developed financial system, including robust banking infrastructure and a diverse range of financial products, facilitates higher credit flow to the private sector.

- **Banking Sector Stability:** stability in the banking sector is essential for promoting credit availability. Banks with strong capital positions and low default rates are more likely to lend to the private sector. Financial stability reduces the risk of bank failures, encouraging greater lending and borrowing activities.[4]
- **Access to Financial Services:** high levels of financial inclusion, where individuals and businesses have access to a variety of credit products (e.g., business loans, mortgages, consumer credit), increase credit demand. Financial inclusion is facilitated by the expansion of banking services and the development of digital financial services.[5]

[1] Bank of Zambia , Monetary Policy Instruments , https://www.boz.zm/monetary-policy-instruments.htm Accessed on: 03/04/ 2025 at 10:30

[2] Blinder, A. S., & Solow, R. M, (1973), does fiscal policy matter. Journal of Public Economics, 2(4), p. 319-337.

[3] Hassan, M. K., & Mahmood, M, (2017), *op.cit.*,*p.10.*

[4] Schularick, M., & Taylor, A. M, (2012), Credit booms gone bust: Monetary policy, leverage cycles, and financial crises, 1870–2008, American Economic Review, 102(2), p.1029-1061.

[5] Chen, G., & Li, S, (2017), financial inclusion and credit demand: The role of digital financial services, Journal of Banking & Finance, 77, p. 101-115.

- **Financial Infrastructure and Technology:** the development of financial infrastructure, such as payment systems, credit reporting agencies, and FinTech solutions, enhances the efficiency of lending processes. Technology facilitates better risk assessment and quicker loan approvals, making credit more accessible .[1]
- **Risk Management Practices:** effective risk management practices within the banking sector are essential for supporting credit growth. Banks with well-established risk assessment frameworks are more likely to extend credit to private sector businesses, as they can better evaluate and mitigate the risks associated with lending.[2]

[1] Chen, G., & Li, S, (2017), *op.cit*, *p.104.*

[2] Levine R. (2004), *Finance and growth*: *Theory and evidence [dans] Handbook of Economic Growth*, Vol. 1, sous la direction de P. Aghion & S. N. Durlauf, p. 865-934.

Section Two: The Conceptual Framework of Economic Growth

1. Concept and Measurement of Economic Growth

Economic growth refers to the sustained expansion of an economy's productive capacity, typically measured by indicators such as Gross Domestic Product (GDP), productivity, and investment rates. This section explores the theoretical and historical foundations of economic growth, examining how various economic models have conceptualized its drivers over time. It also reviews key measurement approaches, assessing both their relevance and limitations. A clear distinction is drawn between economic growth and economic development, the latter encompassing broader structural and social progress. The section then analyzes the principal determinants of growth, followed by an examination of the private sector's role in fostering economic expansion, highlighting its contribution to innovation, investment, employment, and overall productivity.

1.1. Definition of economic growth:

Economic growth is a key concept of economic sciences that can be defined as long-term production growth in real terms, means without counting inflation. It is seen as a steady process of increasing the productive capacity of the economy and hence of increasing national income being characterized by higher rates of per capita output and total factor productivity, especially labor's productivity.[1]

Economic growth does not merely refer to an increase in total GDP; rather, it must result in a rise in real per capita income. In other words, for economic growth to be meaningful, the rate of national income growth must exceed the rate of population growth. Often, GDP may increase in a given country, but if the population grows at a higher rate, there will be no real increase in per capita income. As a result, despite the rise in total GDP, the standard of living may remain unchanged.

From the above, it can be concluded that:

[1] Cisse Ndiaya, Kangjuan Lv (2018), *Role of Industrialization on Economic Growth: The Experience of Senegal (1960–2017)*, *American Journal of Industrial and Business Management*, p. 2079.

Economic growth rate = National income growth rate - Population growth rate[1]

Moreover, economic growth signifies an increase in **real** per capital income rather than **nominal** income. Nominal income refers to the monetary earnings received by an individual over a specific period, usually a year, in return for their productive services. On the other hand, real income is calculated by adjusting nominal income for changes in the general price level. It reflects the actual quantity of goods and services that an individual can obtain using their income.

If nominal income rises by a certain percentage while the general price level increases by the same percentage, real income remains unchanged, and there is no improvement in the individual's standard of living. Conversely, if nominal income grows at a rate lower than the inflation rate, real income declines, leading to a deterioration in the standard of living. Consequently, economic growth can only occur if the rate of increase in nominal income surpasses the inflation rate.[2]

From the above, it can be concluded that

Real economic growth rate = Rate of increase in real income - Inflation rate

Economic growth is a continuous phenomenon rather than a temporary one. For instance, a wealthy country may provide financial aid to a poorer country, temporarily increasing its real income. However, this short-term rise does not qualify as genuine economic growth.

1.2. Methods of measuring economic growth

Economic growth measures a country's progress through production, income, and well-being, with GDP as the primary indicator. However, GDP alone is insufficient, leading to alternative measures like the Human Development Index (HDI) and the Genuine Progress Indicator (GPI), which consider education, health, and environmental factors. Growth is driven by productivity, consumer spending, and investment in infrastructure, innovation, and human capital.

[1] Mohamed Abdel Aziz, Ajamiya Iman Atiya Nasif. (2000)**,** *Economic Development: Theoretical and Applied Studies*, Département d'économie, Faculté de commerce, Alexandrie, p. 51.

[2] Abdelkader Mohamed Abdelkader Atiya, (2000), *Modern Trends in Development, Dar Al-Jamea, Alexandrie*, p. 12–13.

Productivity enhances efficiency, spending sustains businesses, and investment ensures future expansion. Together, these factors shape economic progress in a dynamic global economy.

GDP : Main indicator of economic growth : [1]

Economic growth, as a macroeconomic phenomenon, necessitates quantification through an indicator that reflects the progression of national output, a role uniquely fulfilled by Gross Domestic Product (GDP).

GDP is the primary metric for assessing the monetary value of final goods and services produced within a country's borders during a specified time period. While GDP remains the most crucial indicator for capturing economic activities, it falls short as a comprehensive measure of societal welfare, providing only a partial representation of material living standards.

Countries calculate GDP in their own currencies. In order to compare across countries, these estimates have to be converted into a common currency. However, using current exchange rates for this conversion can lead to a misleading comparison of the actual volumes of final goods and services in GDP.

GDP is calculated using methodologies that avoid double counting by summing the value added across economic sectors, where value added equals production value minus intermediate inputs. It encompasses both market production, valued at market prices, and non-market production by government entities, estimated based on production costs due to the absence of market prices for such services. Some economic activities, such as voluntary work, are excluded from GDP measurement. GDP can be measured using three approaches production, income, and expenditure which differ in methodology and data sources but aim to yield the same overall estimate.

A. The production approach (all value added by each producer)

According to production approach, GDP can be measured by the following formula:

GDP = Value added at basic prices + Taxes less Subsidies on products.

[1] Mankiw Gregory N, (2020), *Principles of Economics*, 9e édition, Cengage Learning, Boston, p.864 .

With the production approach, value added is measured as the difference between output (at basic prices) and intermediate consumption (at purchasers' prices). This is similar to measuring gross operating surplus as residuals given data on compensation of employees (COE), other taxes, and fewer subsidies on production activities are available. This residual approach is applied to activities where market output can be measured. For nonmarket activities, net operating surplus is assumed to be zero, so value added can be measured directly as the sum of COE and fixed capital's consumption. For nonmarket activities, the measurement of value added is similar for both the production and the income approaches. [1]

B. The Income approach (all income generated)

The income approach sums the incomes generated by production for example, the compensation paid to employees, rent paid to land, interest paid on capital and profits paid to the company owners. By using income approach, value added is measured as follows:

Value added = Compensation of employees + Mixed income + other taxes less subsidies on production + Gross operating surplus.

With: **Gross operating surplus = Net operating surplus + Consumption of fixed capital.** Direct measurement of value added requires direct measurement of gross operating surplus GDP by income approach, similar to GDP by production approach, also aims at measuring value added, but there are two fundamental differences between the two approaches: [2]

- The first one is that the GDP by income approach measures GDP as the sum of all components of value added while the GDP by production approach measures value added as a residual the difference between gross output and intermediate consumption.
- The second fundamental difference is that the statistical unit for the income approach is the enterprise unit while the statistical unit of the production approach is the establishment unit.

[1] Vu Quang Viet (2009), *GDP by production approach: A general introduction with emphasis on an integrated economic data collection framework, Consultant auprès du projet de la Division de statistique des Nations Unies « Statistical Capacity Development in China and other Developing Countries in Asia »*, quatrième révision, p. 5.

[2] Cheung P. (1998), *The income approach to Gross Domestic Product, Département des statistiques*, Ministère du commerce et de l'industrie, République de Singapour, p. 3–4.

C. The Expenditure approach (all spending)

The expenditure approach, which is the third method, adds up the value of purchases made by final users for example, the consumption of food, televisions, and medical services by households; the investments in machinery by companies; and the purchases of goods and services by the government and foreigners.[1]

GDP = C + I + G + X – M

Table N°1.2: Components of GDP

C	I	G	X	M
Consumption	Investment	Government spending	Export	Import

Source: Self-made after referring back to literature.

In theory, the three approaches should give the same answer. However, in practice they will always diverge to some extent as they are derived from different data sources. This is the experience of all countries. Countries resolve the problem in various ways. In Ireland, for example, the official level of GDP is taken to be the average of the income and expenditure estimates. A balancing item (statistical discrepancy) is also displayed which is half of the difference between the two estimates. This is the amount by which both estimates have to be adjusted to agree with the official level of GDP. The statistical discrepancy is just a small component of the total estimate because the source data is analyzed in fine detail to resolve as many inconsistencies as possible.[2]

Real GDP per capita for greater accuracy: Economists and decision-makers typically adjust nominal GDP to enhance precision in assessing total output dynamics a process known as real GDP adjustment enabling a more accurate determination of a nation's growth rate. To calculate

[1] Vu Quang Viet, (2011), *GDP by Final Expenditure Approach: An Operational Guide for Using Commodity Flow Approach*, Consultant to the UNSD's project "Statistical Capacity Development in China and other Developing Countries in Asia.

[2] Central Statistics Office (CSO), *Gross Domestic Product: How it is measured*, https://www.cso.ie, Accessed on 21/03/2025 at 14h07.

real GDP, its nominal value must be adjusted to exclude the effects of price changes, allowing for an assessment of whether output has genuinely increased due to higher production levels rather than inflation. A statistical tool known as the GDP deflator is employed to convert nominal GDP into constant prices.[1]

- **Genuine Progress Indicator (GPI):**

The Genuine Progress Indicator (GPI) is an alternative measure to Gross Domestic Product (GDP) that aims to evaluate economic growth from a more comprehensive and sustainable perspective. It is not limited to economic aspects only, but also takes into account the social and environmental impacts of economic activity, such as the cost of crime, climate change, and resource depletion.[2]

The GPI consists of 26 indicators, including education, family stability, pollution, and others. It relies on subtracting negative impacts from positive ones to determine whether economic growth is truly reflected in the well-being of society. This index originated from green economy theories, which consider the economy as part of the ecosystem, and its proponents see it as a more accurate measure of sustainable development than traditional GDP.[3]
The formula to calculate GPI is below, along with a brief explanation of what each component means.

GPI = Cadj + G + W - D - S - E – N

[1] Callen, Tim, (2008), *Gross Domestic Product: An Economy's All, Finance & Development, International Monetary Fund*, Vol. 44, No. 1.

[2]*(2017),* International Labour Organization (ILO**).** World Social Protection Report 2017–19: Universal social protection to achieve the Sustainable Development Goals.

[3]Maryland.gov ,Maryland's Genuine Progress Indicator, *https://dnr.maryland.gov/mdgpi/Pages/what-is-the-GPI.aspx Accessed on:* 21/03/2025 at 18:30

Table N°1.3: Components of GPI

Cadj	G	W	D	S	E	N
personal consumption with income distribution adjustments	capital growth	unconventional contributions to welfare, such as volunteerism	defensive private spending	activities that negatively impact social capital	costs associated with the deterioration of the environment	activities that negatively impact natural capital

Source: Self-made after referring back to literature.

It is important to note that assigning monetary values to non-market goods and services and assessing the impact of social and environmental factors involves a degree of subjectivity. It's entirely possible for one analyst or economist to have a GPI calculation that differs from another because the two just may not have the same perspective on a less quantitative item from above. [1]

Assigning monetary values to non-market goods for the Genuine Progress Indicator (GPI) involves methods like the use of market proxies, surveys, and revealed preferences in consumer value estimation. Shadow prices are also applied by economists in estimating costs of using resources and benefits, and hedonic pricing in making indirect estimates of the impacts on values depending on how non-market factors influence market prices.

The following table represents the advantages and disadvantages of GPI in economyics

[1] Investopedia. *Genuine Progress Indicator (GPI)*, https://www.investopedia.com/terms/g/gpi.asp , Accessed on: 21/03/2025 at 22:06.

Table N°1.4: Advantages and Disadvantages of GPI

Advantages	Disadvantages
Includes environmental and social factors not considered in GDP, providing a more comprehensive measure of economic progress.	Difficult to compare GPIs across countries or regions due to subjectivity in assigning values to non-market activities.
Recognizes and assigns value to societal contributions such as volunteer work, housework, and higher education, which GDP ignores.	Allows for different interpretations and calculations, leading to inconsistencies in measurement.
Accounts for negative externalities like pollution, crime, and social breakdown, offering a more realistic picture of economic well-being.	Relies on subjective valuation of non-monetary factors, making accuracy difficult to achieve.
Provides a single, simplified measure of overall economic impact, making it easier to track progress over time.	May lead to assumptions when assigning monetary values to non-market activities, reducing precision.
Encourages sustainable economic policies by integrating social and environmental considerations into economic measurement.	Not widely adopted as a standard economic metric, limiting its influence in policymaking

Source: Self-made after referring back to literature.

- **Human Development Index (HDI):**

The Human Development Index (HDI), developed by the United Nations in 1990, is a composite statistical measure designed to assess and compare countries' levels of social and economic development. It evaluates three key dimensions health, education, and standard of living using four sub indicators: life expectancy at birth, mean years of schooling, expected years of schooling, and Gross National Income (GNI) per capita. Unlike traditional economic metrics such as Gross Domestic Product (GDP), the HDI provides a broader perspective by

highlighting individual opportunities in education, health, and economic well being. It serves as a valuable tool for tracking development trends over time, analyzing the impact of public policies, and revealing disparities among countries with similar income levels but differing human development outcomes. By offering a more comprehensive understanding of development, the HDI aims to foster constructive policy debates and support improvements in education systems, healthcare services, and overall living standards. [1]

Measurement of the Human Development Index (HDI)

The HDI is calculated by aggregating normalized scores across three core dimensions of human development: health (measured by life expectancy), education (measured by years of schooling), and standard of living (measured by GNI per capita). Each dimension is converted into an index, and the geometric mean of these indices yields the final HDI value:

a) **The health aspect** of the HDI is measured by the life expectancy, as calculated at the time of birth, in each country, and normalized so that this component is equal to zero when life expectancy is 20 and equal to one when life expectancy is 85.

$$\textbf{Health Index} = \frac{\textbf{Life Expectancy} - \textbf{20}}{\textbf{85} - \textbf{20}}$$

b) **Education is measured on two levels :** the mean years of schooling for residents of a country, and the expected years of schooling that a child has at the average age for starting school. These are each separately normalized so that both 15 mean years of schooling and 18 years of expected schooling equal one, and a simple mean of the two is calculated.

$$\textbf{Education Index} = \frac{MYS/_{15} + EYS/_{18}}{2}$$

c) **The economic metric** chosen to represent the standard of living is GNI per capita based on purchasing power parity (PPP), a common metric used to reflect average income. The

[1] United Nations Development Programme (UNDP), *Human Development Index (HDI) Data Center*, https://hdr.undp.org/data-center/human-development-index ,Accessed on: 22/03/2025 at 21:04.

standard of living is normalized so that it is equal to one when the GNI per capita is $75,000 and equal to zero when the GNI per capita is $100.

$$\textbf{Income Index} = \frac{\ln(\textbf{GNI per capita}) - \ln(100)}{\ln(75000) - \ln(100)}$$

The final HDI score for each country is calculated as a geometric mean of the three components by taking the cube root of the product of the normalized component scores.

$$\textbf{HDI} = (\textbf{Health Index} \times \textbf{Education Index} \times \textbf{Income Index})^{\frac{1}{3}}$$

The HDI sets a minimum and a maximum for each dimension, called 'goalposts,' and then shows where each country stands in relation to these goalposts. This is expressed as a value between 0 and 1. The higher a country's human development, the higher its HDI value. A high HDI essentially means that the country in question offers a generally high standard of living, with decent healthcare, education, and opportunities to earn money.[1]

- **Gross National Product (GNP)** :

Gross National Product (GNP) is a key economic indicator that measures the total monetary value of all final goods and services produced by the residents of a country, regardless of where the production takes place. In contrast, Gross Domestic Product (GDP) measures economic activity within a country's borders, irrespective of ownership. Although GDP is the most commonly used indicator today, GNP remains important for evaluating the overall health of the national economy, particularly in the context of globalization.[2]

GNP is calculated by summing personal consumption expenditures, private domestic investment, government spending, net exports (exports minus imports), and net income from abroad. This last component distinguishes GNP from GDP, as it accounts for income earned by

[1] Investopedia, *Human Development Index (HDI)*, https://www.investopedia.com/terms/h/human-development-index-hdi.asp Accessed on: 22/03/ 2025 at 22:54.

[2] Auerbach, M. P, (2021), Gross National Product and Gross National Income, EBSCO Research Starters: Economics.

a nation's residents from foreign sources and excludes income earned by foreigners within the domestic economy.

The official formula for calculating GNP is **Y = C + I + G + X + Z**

Table N°1.5: Components of GNP

C	I	G	X	Z
Consumption Expenditure	Investment	Government spending	Net Exports (Value of imports minus value of exports)	Net Income (Net income inflow from abroad minus net income outflow to foreign countries)

Source: Self-made after referring back to literature.

Alternatively, the Gross National Product can be calculated as:

GNP = GDP + Net Income Inflow from Overseas – Net Income Outflow to Foreign Countries , Where:

GDP = Consumption + Investment + Government Expenditure + Exports – Imports [1]

This method ensures that national economic output includes all earnings of domestic entities, whether generated locally or internationally.

As globalization expands, measuring economic growth within national borders becomes increasingly limited. GNP helps capture transnational economic activities, especially for countries with significant foreign investments or large expatriate populations. Nevertheless, challenges exist, such as accounting for dual citizenship, multinational corporations, and the complexities of global supply chains and remote work, which may lead to double counting or income underreporting.

[1] Corporate Finance Institute (CFI). *Gross National Product (GNP)*, https://corporatefinanceinstitute.com/resources/economics/gross-national-product-gnp/ , Accessed on 22/03/2025 at 23:30.

The Difference Between GNP and GDP

While Gross Domestic Product (GDP) remains the dominant metric for assessing domestic economic activity, Gross National Product (GNP) provides a broader perspective by accounting for the income earned by a country's residents, regardless of their location. This distinction is particularly relevant for economies highly integrated into the global market. In such cases, GNP per capita may offer a more accurate reflection of individual economic well being. Historically, the United States used GNP as its primary economic indicator until 1991, when the Bureau of Economic Analysis (BEA) adopted GDP to align with international standards and facilitate global comparisons.[1]

- **Productivity:**

Productivity is broadly defined as the ratio of output to inputs. In economic terms, it measures how efficiently goods and services are produced by comparing the amount of output with the inputs used, such as labor and capital. Productivity growth is widely recognized as the fundamental driver of long term economic growth and significant improvements in individual living standards.

Economists consider productivity a key factor in enhancing competitiveness at the business, industry, and national levels. A country's ability to raise output per worker determines its capacity to improve the standard of living, which may result from improvements in technology, production processes, and working conditions rather than merely increasing individual effort.

Moreover, productivity growth informs models of economic capacity and capacity utilization, which are essential for forecasting business cycles and predicting future GDP growth. As productivity rises, societies can generate more goods and services with the same resource levels, leading to higher incomes, better access to goods and services, and increased leisure time.[2]

[1]Investopedia. *Gross National Product (GNP)*, https://www.investopedia.com/terms/g/gnp.asp#:~:text=What%20Does%20Gross%20National%20Product,income%20earned%20by%20foreign%20residents ,Accessed 22/03/ 2025 at 02:30.

[2] Investopedia. *Productivity*, https://www.investopedia.com/terms/p/productivity.asp , Accessed on 24/03/2025 at 14:38.

Policymakers also prioritize productivity growth because it is influenced by government policies, institutional frameworks, and regulatory environments. For example, robust patent laws can stimulate investment in research and development, fostering innovation and contributing to sustained productivity improvements.[1]

Productivity Measures [2]

There are two prominent measures of economic productivity: labor productivity (also known as output per hour) and multifactor productivity (also known as total factor productivity), both of which are produced by the Bureau of Labor Statistics (BLS).

Labor productivity is defined as the ratio of real (inflation adjusted) output per labor hour. The most commonly cited measure of labor productivity is for the nonfarm business sector. Non farm business sector output is defined as gross domestic product excluding outputs from farms, general government, nonprofit institutions, paid employees of private households, and rental value of owner-occupied dwellings. BLS releases estimates of labor productivity, across several sectors and industries, quarterly. Growth in labor productivity depends upon how real output and hours worked change in relation to each other and is an important factor in the overall economy.

Labor productivity is calculated as:

$$\textbf{Labor Productivity} = \frac{\textbf{Real Output (GDP)}}{\textbf{Total Labor Hours Worked}}$$

Multifactor productivity (MFP) is an alternative measure of productivity that compares real private business sector output to the level of combined inputs (labor and capital) used to produce goods and services. BLS releases estimates of MFP annually.

MFP, unlike labor productivity, differentiates among workers with respect to educational attainment and work experience. Therefore, changes in labor force composition that increase the workers' efficiency (e.g., increased work experience) would not be registered as an increase

[1](2025), Introduction *to U.S. Economy: Productivity*, Congressional Research Servise.
[2] Jorgenson, D. W, Ho, M. S., & Stiroh, K. J, (2005), *Productivity Information Technology and the American Growth Resurgence*, MIT Press.

in MFP, but would be registered as an increase in labor productivity. Likewise, increases in the capital stock would boost labor productivity but not MFP.

MFP considers both labor and capital inputs and is calculated as:

$$\textbf{MFP} = \frac{\textbf{Real Output (GDP)}}{\textbf{Weighted Sum of Labor and Capital Inputs}}$$

Measurement Complications

Measuring productivity is challenging due to complexities in quantifying outputs and inputs. Adjusting nominal output for inflation is difficult, especially with rapid technological advancements affecting price index accuracy. Labor input measurement is hindered by data limitations, requiring estimates for nonproduction, supervisory, self employed, and unpaid family workers. Capital input assessment for Multifactor Productivity (MFP) relies on valuing capital services rather than physical capital, incorporating depreciation schedules and assumptions, making MFP estimates less precise than labor productivity measures.

- **Investment :**

Investment is one of the fundamental components of aggregate demand and plays a crucial and central role in economic theory. It is considered a dynamic and effective factor in national income and the expansion of production, positively influencing economic growth. Consequently, investment can be relied upon to address various economic challenges.

Investment takes multiple forms; it can be economic investment, also known as direct investment, which involves combining production factors to generate goods and services. Alternatively, it can be financial investment, also known as indirect investment, which includes acquiring existing capital assets, purchasing shares, or bonds. The key distinction between these two types lies in their impact on capital assets: financial investment does not lead to changes in capital assets, whereas economic investment results in the formation of productive capital assets.[1]

[1] Jorgenson, D. W, (1967), *Determinants of Investment Behavior*, The theory of investment behavior. In R. Ferber (Ed.), National Bureau of Economic Research, p. 129–175.

The Relationship Between Investment and Economic Growth According to Economic Theory

Most previous theories explaining the phenomenon of economic growth suggest that economic growth is determined through the following production function :[1]

Y = f (K, L, and Z) , Where:

- **Y** represents the annual gross output at constant prices.
- **K** denotes the amount of capital.
- **L** represents the labor force.
- **Z** indicates the level of technological advancement.

From this function, it can be inferred that output is dependent on both the quantity and quality of productive resources used in production. These factors collectively contribute to achieving comprehensive economic growth.

However, it is essential to clarify the impact of each of these factors on growth. This can be done through quantitative measurement of the contribution of each factor by developing an economic growth model based on the previously mentioned production function. By relying on this function, it is possible to determine the changes in output resulting from variations in these three factors. This relationship can be further illustrated by the following equation:[2]

$$\Delta Y = \frac{\Delta Y}{\Delta K}\Delta K + \frac{\Delta Y}{\Delta L}\Delta L + \Delta Z$$

Dividing both sides of the equation by **Y**, we obtain:

$\frac{\Delta Y}{Y} = \frac{\Delta Y}{\Delta K}\frac{\Delta K}{Y} + (\frac{\Delta Y}{\Delta L}\frac{L}{Y})\frac{\Delta L}{L} + \frac{\Delta Z}{Y}$, Where:

- $\frac{\Delta Y}{Y}$ represents the annual economic growth rate.

[1] Solow, R. M, (1956), *a contribution to the theory of economic growth. Quarterly Journal of Economics*, 70(1), p. 65–94.

[2]Thirlwall, A. P, (1989), *Growth and Development: With Special Reference to Developing Economies (4th ed.)*, Macmillan Education.

- $\frac{\Delta K}{Y}$ represents the fixed capital formation ratio to total national output.
- $\frac{\Delta Y}{\Delta K}$ The marginal productivity rate of capital
- $\frac{\Delta Y}{\Delta L}\frac{L}{Y}$ represents the elasticity of output concerning the labor force.
- $\frac{\Delta Z}{Y}$represents the growth rate of total output resulting from technological change

The final equation can be formulated as follows:

$\mathbf{R_Y = R_0 + R_1 I^* + R_2 L^*}$, Where:

$R_Y=\frac{\Delta Y}{Y}$, $R_0 = \frac{\Delta Z}{Y}$, $R_1 = \frac{\Delta Y}{\Delta K}$, $I^* = \frac{\Delta K}{Y}$, $R_2 = \frac{\Delta Y}{\Delta L}\frac{L}{Y}$, $L^* = \frac{\Delta L}{L}$

In summary, investment remains a cornerstone of economic growth models due to its influence on capital accumulation, labor productivity, and technological progress.

1.3. Distinction Between Economic Growth and Economic Development

Definition and Evolution of Economic Development

The United Nations (1956) defined economic development as the processes through which citizens and governments improve the economic, social, and cultural conditions of communities. Over time, this concept expanded to include structural transformations in political, economic, and institutional systems that sustain long-term increases in real per capita income alongside social progress. Later models, such as sustainable and participatory development, and frameworks like the World Bank's Comprehensive Development Framework (1999), emphasized a holistic approach to development.[1]

Historically, economic growth and development were often used interchangeably, referring mainly to increases in real national output. However, since the 1970s, economists have differentiated the two. Economic growth is a quantitative rise in a country's output, commonly measured by GDP. Economic development is broader, involving qualitative improvements in living standards, poverty reduction, inequality, and enhanced access to education and healthcare.

[1] Michael P. Todaro and Stephen C. Smith , (2020), *Economic development* ,13th ed, Pearson Education.

Key Differences Between Economic Growth and Development

Economists such as Schumpeter and Hicks highlighted that economic growth is a gradual process, more applicable to developed economies, while economic development is a transformative and often disruptive process more relevant to developing contexts. Development requires strategic planning, institutional reform, and good governance to be effective.

The primary differences can be summarized as follows:

- **Nature and Scope**: growth is quantitative (output increase), while development includes both quantitative and qualitative changes across sectors.
- **Causality**: Development often drives growth, but not all growth leads to development.
- **Time Horizon**: growth may occur in the short term; development is a long-term, cumulative process.
- **Sustainability**: growth can result from temporary or external factors; development is rooted in structural change.
- **Stability**: development promotes institutional resilience; growth is prone to cyclical volatility.
- **Human-Centric Focus**: the ultimate goal of development is to improve human welfare, reduce disparities, and empower individuals as both agents and beneficiaries of progress.

2. Determinants of Economic Growth

2.1. Capital

Capital, in its narrow sense, refers to productive assets that directly generate goods and services, such as machinery, tools, equipment, and buildings. In a broader sense, capital encompasses all man-made means of production. Capital contributes to economic growth by enhancing labor productivity per unit of time. In Solow's economic growth model, capital accumulation is regarded as one of the most significant factors influencing growth.[1]

Capital accumulation occurs through the reinvestment of savings and profits into productive assets, such as machinery, infrastructure, or research and development. These investments

[1]Acemoglu, Daron, (2011), *Introduction to Modern Economic Growth*, Department of Economics, Massachusetts Institute of Technology, Princeton University Press.

enhance the economy's productive capacity and contribute to long term growth. Financial investments, including stocks and bonds, also play a role by generating returns that can be redirected into further capital formation.

Capital Accumulation and Its Impact on Production

Solow's growth model provides a clear explanation.[1]

The capita stock is considered as a key determinant of economic growth, and guides the trajectory of the growth process. There are two forces that influence the level of capital stock: Investment and depreciation. Investment, by definition, is expenditure on new machines and equipment, and causes the capital stock to rise. Depreciation, on the opposite side, is the wearing out of old capital, and causes the capital stock to fall.

Robert Solow concluded that changes in capital stock are determined by the difference between investment and depreciation. If investment exceeds depreciation, both the stock of capital and output per worker increase, leading to economic growth. In this context, economic growth is primarily reflected in increased output.

$$\Delta K = sY - \delta K$$

$$if\ sY > \delta K\ then\ \Delta K > 0\ which\ leads\ to\ an\ increase\ in\ production$$

2.2. Human capital

Human capital Human capital is the knowledge and skill embedded in human being. It is the most important factor of the growth. Economists9 right from the early days recognised knowledge, the mental power of human beings, as the most important factor in human survival and its material prosperity. As Todaro has observed, "most economists would probably agree that it is the human resource of a nation and not its capital or its material resource that ultimately determines the character and pace of the economic and the social development".[2]

[1] Mankiw, G. N.(2013), *Macroeconomics*, New York, NY: Worth Publishers, 8th ed, Part 3, p. 209.

[2] Dwivedi, D. N, (2012), *Principles of Economics*, 2nd Ed, New Delhi: Vikas Publishing.

If the human resource of a country is well skilled and trained then the output would also be of high quality. On the other hand, a shortage of skilled labor hampers the growth of an economy. Therefore, the human resources of a country should be adequate in number with required skills and abilities, so that economic growth can be achieved .[1]

2.3. Technological progress and innovation

This factor is considered one of the most important qualitative factors that determine the economic growth of any country. The speed in developing and applying technical knowledge leads to an increase in the standard of living of the population. The inventions that took place in the eighteenth and nineteenth centuries serve as the best evidence of the extent of economic development that accompanied these inventions in both England and the United States. Additionally, the growth of the banking sector contributed to financing inventions and technological innovations.[2]

Romer (1986) and Lucas (1988), contrary to Robert Solow, indicated that it is crucial to introduce technology as an endogenous factor affecting growth, which means that it's proper to the economy. From this point of view, endogenous growth theorists assume macroeconomic growth as an investment that leads to technological improvement.[3]

Therefore, technological progress represents more than just the emergence of inventions; it signifies the continuous efforts made by the entire society to enhance the utilization of available economic resources.

This impact of technological progress can be illustrated through the following aspects:

- Introducing or inventing new goods that are unknown to the consumer or producing a good with new quality;
- Using a new method in production;

[1] Gruzina, Y, Firsova, Strielkowski, & W, (2021), I Dynamics of human capital development in economic development cycles. *Economies*, 9(2).

[2] Arikat, M. M. H, (1997), *Introduction to Development and Economic Planning*, Amman, Jordan: Dar Al-Karmel for Publishing and Distribution, p. 70.

[3] González, J. A., & Rodríguez, A. L, (2024), *The interrelationships between economic growth and innovation*: *International evidence. Journal of Applied Economics* .

- Adding new markets;
- Discovering new resources of raw materials or semi-manufactured materials;
- Establishing a new organization in the industry

3. The Role of the Private Sector in Achieving Economic Growth

3.1. Definition and The Importance of the private sector

The private sector refers to the segment of the economy owned by individuals or private entities and driven by market forces with the objective of maximizing profits. It is typically divided into two sub-sectors: [1]

- The organized private sector, which operates under regulatory frameworks and maintains systematic financial records.
- The unorganized private sector, which includes small-scale businesses, traditional crafts, inherited family trades, and occupations practiced by individuals, often without formal accounting practices. Ownership in this sub-sector is usually individual or family-based.

The Importance of the Private Sector :

The private sector plays a vital role in economic development through multiple channels. It contributes by producing goods and services, generating employment, enhancing tax revenues, and stimulating market competition. Its enterprises ranging from large corporations to small and medium sized enterprises (SMEs), including financial institutions and intermediaries engage in profit seeking activities that directly impact economic growth. Through investment, innovation, and efficient resource allocation, the private sector supports national development goals and strengthens the overall economic structure.[2]

[1] Al-Rubaie, A. M. F, (2004), *Privatization and Its Impact on Development in Developing Countries*, 1st ed, Cairo: Madbouli Library. p.49.

[2] Di Bella, J., & K. A, (2013), *The Private Sector and Development*: Key Concepts, North-South Institute (NSI), p.02.

The Experience of the Private Sector in Algeria

The private sector in Algeria has grown notably since the 1990s economic reforms aimed at reducing public sector dominance and promoting private investment. It has contributed to job creation and income diversification, especially through small and medium-sized enterprises. However, persistent challenges remain, including limited access to financing, underdeveloped infrastructure, and a lack of competitive market conditions. Technological advancement also lags. Additionally, government unemployment benefits serve as temporary support but raise concerns about their impact on labor market reintegration and long-term development sustainability. Continued reform is essential to enhance private sector effectiveness.

3.2. The Role of the Private Sector in Employment

Many studies in this regard confirm that the development of the private sector contributes to creating rapid economic growth that persists in the long term. This has led to an increasing trend in many countries since the early 1980s towards the process of privatization and expanding the role of the private sector in economic activity. The contribution of this type of sector to achieving economic growth results in many advantages that help fulfill the social objective alongside the economic objective, such as reducing unemployment and poverty two of the most critical issues facing economic policymakers in developing countries. This is primarily due to their social impacts, as poverty reduction is manifested through the ability to provide job opportunities and increase incomes. In this regard, the private sector, within a competitive economy, plays a major role through institutions and companies, whether small or large, which serve as the primary driver for job creation and income growth, contributing to escaping the cycle of poverty . [1]

[1] Massoud, B. K, (2011), *A theoretical perspective on the strategy of developing the private sector in economic activity In The Role of the Private Sector in Enhancing the Competitiveness of the Algerian Economy and Preparing for the Post-Petroleum Era* , Jijel: Faculty of Economics, Algeria.p.4-5

TableN°1.6: Evolution of Employment Size by Legal Sector During the Period (2004-2018)

Year	Total Employment	Private Sector	Public Sector	Private Sector Contribution%
2004	7798	3250	4548	41,68
2005	8044	5080	2964	63,15
2006	8869	6123	2746	69,04
2007	8594	5607	2987	65,24
2008	9146	5997	3149	65,57
2009	9472	6238	3234	65,86
2010	9735	6389	3346	65,63
2011	9599	5756	3843	59,96
2012	10170	5816	4354	57,19
2013	10788	6348	4440	58,84
2014	10239	6139	4100	59,96
2015	10594	6139	4455	57,95
2016	10858	6490	4355	59,84
2017	10858	6857	4001	63,15
2018	11148	6961	4187	62,44

Source: Prepared by the researchers based on statistics from the National Office of Statistics www.ONS.dz

The employment data from 2004 to 2018 indicate a notable shift in the distribution of employment between the private and public sectors. During this period, the private sector's share of total employment steadily increased, peaking at 69.04% in 2006. Although fluctuations occurred, the private sector consistently maintained a dominant position, with its contribution ranging between 57.19% and 69.04%. This upward trend largely reflects government policies aimed at facilitating and encouraging private investment. Additionally, the significant presence of temporary workers in the public sector may have further influenced this shift.

3.3. The Role of the Private Sector in Fostering Innovation and Enhancing Productivity

The private sector is a fundamental driver of innovation and productivity enhancement, directly contributing to economic growth and sustainable development. It leverages its efficient resource utilization, adaptability to market changes, and entrepreneurial spirit to adopt advanced technologies and improve production processes.

The private sector contributes in several important ways:

- **Investment in Research and Development (R&D):** private firms play a pivotal role in technological advancement through substantial investments in R&D, leading to the creation of new products and processes that increase productivity across various economic sectors. This is particularly evident in industries such as energy and digital technologies, where private companies have driven significant breakthroughs in renewable energy and smart grid systems (Romer, 1986; Lucas, 1988).[1]
- **Digital Transformation:** digital transformation constitutes a cornerstone of innovation within the private sector, with companies adopting advanced technologies such as artificial intelligence and data analytics to enhance operational efficiency, reduce costs, and increase total factor productivity. This transformation also facilitates the development of new business models that address financial constraints and operational risks.[2]
- **Enhancing Market Competition and Efficiency:** the competitive nature of the private sector compels firms to continuously innovate and optimize resource use, thereby improving efficiency, reducing waste, and elevating the quality of goods and services. These improvements enhance competitiveness and foster sustainable economic growth.[3]
- **Collaboration with the Public Sector:** public-private partnerships are instrumental in fostering innovation, with governments providing regulatory support, initial funding,

[1] Magee, C. S. P. & Tansa, A, (2010), *Openness and internal conflict*, Journal of Peace Research, 47(6), p. 635–646.

[2] Brynjolfsson, E., & McAfee, A, (2014), *The Second Machine Age: Work, Progress, and Prosperity in a Time of Brilliant Technologies*, New York: W.W. Norton & Company.

[3]Lucas, R. E. Jr, (1988), *On the mechanics of economic development*. Journal of Monetary Economics, 22(1), p.3–42.

and infrastructure that enable private enterprises to assume risks and implement innovative projects. The complementary roles of public and private R&D efforts create an integrated ecosystem conducive to productivity growth.[1]

- **Human Capital Development:** private firms invest in upskilling their workforce through ongoing training and development programs, thereby enhancing the cognitive abilities necessary for innovation and increasing labor productivity.[2]
- **Flexibility and Addressing Global Challenges:** private companies exhibit flexibility and adaptability in responding to economic and regulatory changes, enabling them to capitalize on opportunities and mitigate risks in dynamic environments. Moreover, the private sector plays an increasingly vital role in addressing global challenges such as climate change by developing sustainable solutions that boost productivity while advancing broader sustainable development goals.[3]

[1] Nelson, R. R. (1993), *National Innovation Systems*: A Comparative Analysis. Oxford: Oxford University Press.

[2] Romer, P. M. (1986), *Increasing returns and long-run growth*. Journal of Political Economy, 94(5), p.1002–1037.

[3] Sachs, J. D. (2015), *The Age of Sustainable Development*. New York: Columbia University Press.

Section Three: The Relationship Between Domestic Credit to the Private Sector and Economic Growth

1. Economic Theories Explaining the Relationship Between Credit and Growth

1.1. Financial deepening theory and economic growth.

Financial deepening refers to the increased provision of financial services with a broad range of offerings directed at all levels of society. It generally signifies an increase in the ratio of money supply to Gross Domestic Product (GDP) or some price indicators. As liquidity in the economy increases, opportunities for sustained growth also increase.[1]

Financial deepening can also be described as the accumulation of financial assets at a rate faster than the accumulation of non financial wealth and production.[2]

Financial deepening encompasses various monetary and financial areas and is characterized by the following features:

- Growth in the number of institutions operating within the financial sector.
- Diversification of available financial services and the volume of funds intermediated through financial channels.
- A shift from government-dominated lending to increased private sector lending through private financial institutions.
- Expansion in the proportion of the population with access to credit and financial services.
- Improvements in the regulation, supervision, stability, and competitiveness of the financial system.

[1] Waleed Hanna Alrabadi, D. &. (2016). Financial Deepening and Economic Growth: The Case of Jordan. Journal of Accounting and Finance , 16(03), p. 158-166.
[2] Ngo Bakang, M. L, (2015), *EFFECTS OF FINANCIAL DEEPENING ON ECONOMIC GROWTH IN KENYA.* International , Journal of Business and commerce, 04(07), p. 09.

Theories Explaining the Relationship Between Financial Deepening and Economic Growth:

The relationship between financial development and economic growth has been a focal point in economic theory, especially following the evolution from commodity based exchange systems to monetary economies. This transformation gave rise to structured financial systems that play a pivotal role in facilitating economic activities. Consequently, several theories have emerged to explain how financial deepening contributes to economic growth. The most prominent of these include:

A. **Financial Structure Hypothesis**: this hypothesis traces its origins to economist Alexander Gerschenkron (1962), who focused on the role played by banks in creating capital during the industrial revolution in Europe. Gerschenkorn argued that banks have a significant role in supporting economic sectors through financial intermediation. He cited the example of the role banks played in improving the economies of France and Germany by financing infrastructure projects, which brought these countries closer to the economies of advanced nations. He noted that developing countries are often underdeveloped financially and require a more active financial system. In contrast, developed countries do not necessarily need a strong financial system to promote economic growth .[1]

❖ **Patrick's Financial Structure Hypothesis (1966)** offers a complementary perspective. Patrick identified two distinct phases in the relationship between financial development and economic growth: [2]

- **Phase One – Supply-Leading Mechanism:** Financial development precedes and stimulates economic growth. Financial institutions mobilize and allocate resources efficiently, redirecting capital from traditional, less productive sectors to modern, high yield sectors.
- **Phase Two – Demand-Following Mechanism:** Economic growth itself induces further development in the financial sector. As economic activity expands, the

[1] Jagadish, P. B. (2018*). Financial development and economic growth: Evidence from a panel of 16 African and nonAfrican low-income countries*, Cogent Economics & Finance, 06, p. 1-17.
[2] BENAOUDA, I. (2009). *Développement financier, supervision bancaire et croissance économique: cas des pays du Sud et de l'Est de la Méditerranée. Mémoire de Magister en Sciences Économiques, Option : Économie de l'intégration régionale* , Faculté des Sciences Économiques, des Sciences de Gestion et des Sciences Commerciales, algerie: Université d'Oran. p. 08-09 .

demand for financial services and instruments increases, prompting growth within the financial system.

B. **Financial Liberalization Hypothesis:** this hypothesis is based on the degree of financial liberalization or regulation imposed by governments on the financial system, which impacts economic growth. The main proponents of this hypothesis, Shaw and **McKinnon (1973)**, argue that reducing the restrictions imposed by governments on the financial sector will increase savings and private credit supply, thereby boosting investments due to increased funds allocated for lending, which in turn stimulates economic growth. Conversely, increasing restrictions on the financial sector will inevitably lead to a decline in the economic growth rate. Financial constraints include limits on interest rates, high reserve requirements, regulated lending, restrictions on entry and exit in banking activities, and limitations on foreign currency transactions.[1]

C. **Endogenous Growth Hypothesis:** the endogenous growth hypothesis emphasizes the role of capital both in terms of its accumulation and productivity within the investment growth cycle. Financial deepening supports capital accumulation by increasing savings, which subsequently finance investments. It also enhances capital productivity by improving information flow, reducing transaction costs, and facilitating the evaluation and funding of profitable investment opportunities.

One of the foundational studies in this area is that of Greenwood and Jovanovic (1990), who modeled the interaction between income distribution, financial sector development, and economic growth. Their study concluded that financial intermediation promotes economic growth by offering higher returns on capital. Moreover, economic growth, in turn, strengthens the financial system by increasing resources available for further development. Thus, financial development and economic growth are seen as mutually reinforcing processes.[2]

1.2. Schumacher's model on the role of finance in development

The relationship between credit and economic growth is an important topic in economic literature, with many economists proposing different theories to explain this connection. Among them, the German-British economist Ernst Friedrich Schumacher stands out with a

[1] Orji, A, Ogbuabor, J. E, & Orji, O. I, (2015), *Financial Liberalization and Economic Growth in Nigeria: An Empirical Evidence*, International Journal of Economics and Financial Issues , 05 (03).
[2] Greenwood, J. &, (1990*), Financial Development Growth, and the Distribution of Income* ,Journal of Political Economy , 98 (05), p. 1076.

distinctive model that focuses on the role of finance in sustainable development. Unlike traditional theories that emphasize quantitative growth and GDP, Schumacher called for directing finance toward meeting local human needs and preserving the environment. His philosophy, expressed in his book *Small is Beautiful*, offers an alternative vision centered on supporting small and medium-sized projects that contribute to the sustainable development of local communities.

a) Economic Theories on the Relationship Between Credit and Growth

Traditional Theories on the relationship between credit and growth primarily focus on the role of credit in stimulating investment and increasing productivity. According to these theories, credit is seen as a tool to expand projects and increase productivity, which leads to economic growth. These theories are based on the idea that credit enhances companies' ability to invest in advanced technology and production equipment, thereby increasing output and GDP.

However, in contrast, Schumacher, through his philosophy in *Small is Beautiful*, argues that economic growth should not be the only goal. The objective should be improving human well-being by addressing the needs of local communities sustainably, without harming the environment. Schumacher criticized this model, suggesting that economies focused on maximizing productivity might cause environmental and social harm.[1]

b) Schumacher's Model and the Role of Finance in Development

- **Criticism of Traditional Economics:** Schumacher strongly criticized the traditional economic model, which focuses on quantitative outcomes such as GDP and profits, while ignoring social and environmental dimensions. In his view, this model promotes growth driven by increasing productivity, without considering the environmental impacts or social justice.[2]
- **Philosophy of "Small is Beautiful":** Schumacher proposes the philosophy of **"Small is Beautiful"**, advocating for small and medium-sized enterprises that are managed using appropriate technology and align with the needs of local communities. The growth that Schumacher supports does not mean large-scale expansion, but rather the provision

[1] SCHUMACHER, E. F. (1973), SMALL IS BEAUTIFUL Economics as If People Mattered, London: Blond & Briggs.
[2] *E.F. Schumacher's founding philosophy and how it still guides us today, (2021), Retrieved from Practical Action .*

of finance to small projects aimed at improving human life and the environment without exploiting natural resources.[1]

- **Intermediate Technology and the Role of Finance:** the intermediate technology proposed by Schumacher is a key tool for financing sustainable development. This technology focuses on effectively using local resources with minimal environmental cost. Financing directed towards intermediate technology is an effective tool for achieving local development in areas that lack the financial resources to use advanced technology.[2]
- **Buddhist Economics and the Challenge of Excessive Consumption:** Schumacher was influenced by Buddhist thought, which believes that excessive consumption is not a means of achieving sustainable growth. Schumacher argued that the economy should aim for human contentment and sustainable development without relying on excessive consumption and the depletion of natural resources.[3]

[1] Ibid
[2] SCHUMACHER, E. F. (1973), op.cit. p.49.
[3] JHON FULLERTON, The Relevance of E. F. Schumacher in the 21st Century , https://centerforneweconomics.org/publications/the-relevance-of-e-f-schumacher-in-the-21st-century/ Accessed on :15/ 04 / 2025at 10.56

c) Comparison Between Schumacher's Model and Traditional Models

Table N°1.7: Comparison Between Schumacher's Model and Traditional Models

Aspect	Schumacher's Model	Traditional Models
Objective of Finance	Address local needs, sustainability	Maximize growth and productivity
Size of Projects	Small/Medium, Decentralized	Large, Centralized
Type of Technology	Intermediate, Simple, Environmentally Friendly	Advanced, Complex, Capital-Intensive
Social Dimension	Human well-being is central	Profit and productivity are central
Environmental Impact	Minimize harm, sustainability	Resource depletion, Pollution

Source: Self-made after referring back to literature.

d) Schumpeter's Model: The Role of Finance in Economic Creativity and Growth

Joseph Schumpeter, a prominent economist, significantly contributed to understanding the relationship between credit and economic growth. He distinguished between two types of economic analysis: "realistic analysis," where money is considered a secondary tool to facilitate exchanges, and "critical analysis," where money and credit play a central role in the economy. Schumpeter emphasized that banks are not merely intermediaries between savers and investors but act as "producers of purchasing power," fueling innovation and economic growth by providing entrepreneurs with the necessary resources. He argued that economic growth is driven not only by savings and investment but also by the creative redeployment of available resources. Innovation financed by banks leads to structural changes in the economy, as credit helps shift economic activities into new, growth-promoting channels.[1]

[1] Bofinger, P., Geißendörfer, L., Haas, T., & Mayer, F, (2022), *Discovering the True Schumpeter: New Insights into the Finance and Growth Nexus,* W.E.P Würzburg Economic Papers

1.3. Endogenous growth theory and the impact of finance on productivity and investment

A. Definition of Internal Growth: There are differences among researchers in their definitions of internal growth, which can be divided into two main categories:

- **Internal Growth and Sources of Finance:**

According to a group of researchers, internal growth is characterized by the specific source of its financing, meaning that it is renewed based on the resources used to fund each type. It is considered internal growth if its financing source is internal, and external growth if the financing source is external. This view was shared by Jacquemin, A., who defined internal growth as "*the use of the firm's own resources to implement its investment policy, financed by undistributed profits or through financial intermediaries." Houssiaux, J. also defined it as "the growth of the firm achieved through accessing the financial market or using accumulated reserves from previous periods*."[1]

On the other hand, Gennic, F. and Weber, B. defined it as "*the growth of the firm through self-financing or raising capital without merging with other firms*."

- **Internal Growth Linked to Productive Capacities:**

According to researchers who linked internal growth to productive capacities, such as Stoléru, internal growth is defined as the investments made by the firm to develop its markets and improve its productive capabilities.

Bienayménne, A. defined it as "*growth resulting from an increase in production capacities through the establishment or acquisition of new production means, leading to an increase in both the quantity and quality of production*."[2]

Thus, internal financing relies on internal investments and the development of the firm's productive capacities without resorting to alliances with other firms. This can be achieved by opening additional production workshops to support current activities or creating new units

[1] Ben Sasi Elias,(2008)*An Attempt to Define the Concepts of Internal Growth and External Growth of the Firm as a Logic for Comparing Them*, Researcher Journal, Issue 6, University of Ouargla, , p. 34-35.

[2] Bienaymé Alain, (1976) The Growth of Firms: A Dynamic Analysis of Firm Functions, Vol1, Bordas, p. 15.

focused on organizing new activities. Development may also extend to other capabilities of the firm, such as research and development capabilities, aiming to activate the firm's latent potential to evolve and acquire new skills. The increase in physical and human resources within the firm is the natural result of effective and efficient management. It leads to an expansion of production means, which are often financed through internal funding (depreciation, reserves, provisions), sometimes supported by external financing, such as long-term debt if necessary.[1]

From the previous definitions, we can conclude that internal growth refers to the increase in the firm's productive capacity through the creation of production means or the acquisition of new investments.

B. Theories Explaining Internal Growth:

❖ **The Traditional Economic Theory:**

The new neoclassical economic theory contributed significantly through its study of the behavior of the firm and the market, and the way to achieve general equilibrium between product markets and factors of production markets.

According to this theory: The firm is described as a "black box" characterized only by the quantitative elements that define its boundaries. It transforms inputs (capital and labor) into outputs (goods and services) without considering the details of the activities it performs in a perfectly competitive market, characterized by basic assumptions:[2]

- Freedom of entry and exit to market segments.
- **Homogeneity of products among firms in the market**, and thus competition is only based on price.
- **Freedom of movement of factors of production**, whether between firms or between markets.
- **Information is available and free**: All economic agents work simultaneously for free quantities are offered, and prices are set.

[1] Robert Leduff, (1999) *Encyclopedia of Management and Business*, Paris, Dalloz, p. 234.
[2] Ben Sasi Elias, (2011), *Strategic Options for Organizational Growth (The Theoretical Foundations of the Process of Comparing Strategic Growth Alternatives*, Dar Wael for Publishing and Distribution.

The firm integrates the capital factor and the labor factor to ensure production, and in the short run, the analysis assumes the stability of one factor of production while the other factor changes:

- **Productivity of factors**: It measures the increase in production resulting from the increase in the variable factor.
- **Economies of scale**: These are cost savings associated with the increase in production volume resulting from the decrease in unit costs due to the spreading of fixed costs over the increasing volume of production.

The pursuit of economies of scale analyzes growth behavior and explains that increasing the size of the firm means its production reaches the lowest level of average cost, aligning with the optimal size. The firm, in order to achieve profit and ensure its production, balances between capital and labor, and will only increase production if the additional unit produces an additional return, a marginal return higher than the additional cost. This unit has a marginal cost within the budget constraint, and cost reduction is considered in this analysis**.** A set of contradictions, among them**:**[1]

- This analysis is characterized by stagnation.
- The assumptions of perfect competition upon which the analysis is based do not align with the economic reality.
- The assumptions of equilibrium prices mean that the firm's growth will only occur in the case of a market equilibrium failure.

❖ **Evolutionary Theory: The Life Cycle Theory of the Firm**

The evolutionary theory conceptualizes the firm as a living organism that operates as an open system in continuous interaction with its environment. The Life Cycle Theory of the Firm contributes to organizational modeling by describing the firm's development through successive phases that reflect its life and evolution.[2]

[1] Dribal Somia, (2012), *Behavior of Economic Firms in Financing Their Internal Growth*, Master's Thesis in Economic Sciences, University of Kasdi Merbah, Ouargla.

[2] Witmeur Olivier, *The Evolution of Growth Strategies of Young Enterprises*, PhD Thesis in Management Sciences, University of Brussels, p. 36.

- **The Formation Stage**: This stage marks the beginning of the firm's life, during which its strategy is formulated and the key decisions related to specialization in its activity are made.
- **The Youth Stage**: This stage reflects the beginning of the implementation of the concepts and decisions related to specialization and the establishment of policies aimed at guiding the firm's operations and activities.
- **The Mid-Life Stage**: This stage reflects a degree of expansion, bureaucratic direction in its internal processes, and the methods used to coordinate work and delegate authority.
- **The Maturity Stage**: In this stage, efforts are focused on achieving the set goals based on the available work opportunities.
- **The Decline and Degradation Stage**: This stage represents the situation the firm has reached when it is unable to expand, grow, or achieve its objectives.

❖ **Theory of Internal Growth Process:**

The firm initially sets plans for its activities and determines the necessary production factors, working diligently to optimize their use. However, due to the indivisible nature of some inputs, certain resources often remain partially utilized. This underutilization prompts the firm to expand into new activities to make use of the surplus, which in turn requires acquiring new resources. As this process repeats, the firm enters a cycle of continuous growth.

This theory is based on the core idea that the renewal and redeployment of resources drive internal growth. For this process to be successful, it must be embedded within the firm's organizational structure. Managers must have sufficient experience to understand and interpret the environment, identify growth opportunities, and allocate resources effectively. Theories by researchers such as Tence and Hamel stress the importance of competencies, skills, and teamwork for sustaining growth, while Chandler and Job emphasize that organizational capabilities are essential for realizing a firm's full potential.[1]

[1] Ichak Adizes, (1991), The Awakening of the Business: Diagnosis and Theories, Edition d'Organisation, Paris, p. 26.

2. The Impact of Credit Availability on Private Sector Growth

2.1. Ease of access to financing and increased investment

The availability of credit and ease of access to financing are vital for fostering private sector growth and stimulating investment. Credit defined as the funds provided by banks and financial institutions enables businesses to finance projects, expand operations, and enhance their competitiveness. When companies can access financing quickly and at reasonable costs, they are more likely to invest in new technologies, increase production capacity, and enter new markets. These dynamics, in turn, lead to higher productivity, job creation, and greater economic stability. Furthermore, accessible credit policies help firms manage risks during economic downturns, thereby contributing to the resilience of financial systems.[1]

Empirical studies confirm a positive long-term relationship between credit availability and private sector development. For example, Othmana and Al-Atoom (2014) emphasize that increasing credit stimulates investment and economic growth by creating new job opportunities.

Increased Investment and Its Impact on Growth

Abduvaliev (2023) found a long-term positive relationship between foreign direct investment (FDI) and per capita GDP growth in Tajikistan, emphasizing that FDI enhances economic growth and employment, builds resilient infrastructure, stimulates job creation, increases output, and fosters competition among local businesses by enhancing technological knowledge. This conclusion is supported by broader international evidence, with studies across various countries confirming that FDI and domestic investment promote economic growth through channels such as technology transfer, human capital development, and increased competitiveness.[2]

[1] Abdelghani, K. H. (2024). The impact of bank credit on employment in various productive sectors of the Saudi private sector: An empirical study using the NARDL methodology for cointegration. *The Academic Journal for Research and Scientific Publishing, 65*, p. 43.

[2] Mubinzhon, Abduvaliev, (2023), *the Impact of Investments on Economic Growth: Evidence from Tajikistan*. MPRA Paper No. 116635, University of Nebraska Omaha.

Public investment, especially in infrastructure, increases labor productivity and stimulates private sector activity. It also creates an enabling environment for private investment, magnifying growth effects, as highlighted by Aschauer (1989a) and the IMF.[1]

A study of 90 middle income countries showed that a 1% increase in FDI leads to a 9.3% increase in economic growth. Total factor productivity (TFP) also plays a key role by improving labor quality and fostering innovation, strengthening the synergy between investment and productivity.[2]

2.2. The role of credit in enhancing productivity and expanding economic activities

Access to credit enables firms and microenterprises to invest in advanced technologies, infrastructure, and innovation key drivers of productivity and economic growth. In agriculture, for example, credit facilitates the adoption of modern techniques, such as high yield crop varieties and improved machinery, leading to greater efficiency and increased output. A study of agricultural microenterprises in Bangladesh found that credit access resulted in a 14% increase in productivity, with 11% attributed to technological advancements and 3% to improved resource allocation particularly benefiting small, resource constrained farms.[3]

During periods of financial instability, credit plays a critical role in sustaining investment and growth. Firms facing credit constraints tend to experience slower growth, whereas those with better access maintain investment levels, underscoring the importance of stable credit flows provided by financial institutions. Furthermore, credit supports structural drivers of productivity, including research and development (R&D), innovation, exporting, information technology adoption, and effective management practices. Evidence from the 2007–2009 financial crisis in Italy shows that disruptions in credit supply accounted for approximately one-quarter of the decline in total factor productivity growth.[4]

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[1] Hiroaki Miyamoto, Anja Baum, Nikolay Gueorguiev, Jiro Honda, and Sébastien Walker , *Growth Impact of Public Investment and the Role of Infrastructure Governance*. International Monetary Fund.

[2] *Hoa Thanh Phan Le , Ha Pham, Nga Thi Thu Do & Khoa Dang Duong ,(2024) , Foreign direct investment, total factor productivity, and economic growth: evidence in middle-income countries , Nature Humanities and Social Sciences Communications.*

[3] *Nusrat Abedin Jimi , Plamen Nikolov , Mohammad Abdul, 2019 , Malek Subal Kumbhakar , The Effects of Access to Credit on Productivity: Separating Technological Changes from Changes in Technical Efficiency , IZA – Institute of Labor Economics , No. 12514 , p.15-21 .*

[4] *Francesco Manaresi, Nicola Pierri, (2018), Credit Supply and Productivity Growth, Bank for International Settlements Working Paper No. 711, p. 01.*

Several economic theories highlight the significance of credit in fostering economic development. Schumpeter's theory of economic evolution emphasizes the role of financial institutions in funding entrepreneurial innovation. Similarly, the financial liberalization frameworks of McKinnon and Shaw argue that easing credit constraints stimulates investment and broad-based economic expansion.

2.3. The effect of interest rates and liquidity on investment decisions

The interest rate represents the price of accessing goods or resources in the present rather than in the future, reflecting the current value of future goods, even without inflation. It is determined by supply and demand and serves as a key economic variable linking borrowers and lenders. Borrowers pay it as a cost for using funds over a period, while lenders receive it as income from loans. By holding funds instead of lending, lenders incur an "opportunity cost," as they forgo potential returns. [1]

Excessive credit expansion can create debt bubbles by pushing asset prices beyond their true values. When defaults rise, this leads to bankruptcies and wider economic downturns. Such bubbles, especially in real estate and financial markets, often precede severe recessions and threaten both national and global financial stability. The 1997 Asian Financial Crisis exemplifies this, triggered by rapid private lending without adequate regulation, causing market collapses and currency depreciation.

Liquidity is controlled by raising interest rates, which encourages high financial surpluses to be deposited in banks, earning relatively high interest rates after the decision to increase the rate is made. On the other hand, raising interest rates on loans reduces the demand for credit, thereby controlling liquidity levels. conversely, lowering interest rates is a decision made when the country observes a noticeable slowdown in economic growth. In such cases, interest rates are gradually reduced to inject sufficient liquidity that encourages higher production and consumption, leading to an increase in economic growth rates until an economic recovery is achieved.[2]

[1] *Abdel Moneim Al-Sayed Ali, Nizar Saad Al-Din Al-Eisi, (2004), Money, Banking, and Financial Markets 1st ed. Dar Al-Hamed, Amman. p. 298.*
[2] *Thomas Mayer, et al, (2002), Money, Banks, and the Economy Translated by: Sayyid Ahmed Abdel Khaleq, Dar Al-Mareekh. p. 353.*

The Impact of Interest Rate Liberalization on Private Investment

Economists have different views on the impact of money supply and interest rates on private investment. While Friedman argued that an increase in money supply boosts liquidity and credit availability, Keynes saw interest rates as the mediator influencing investment decisions. Traditional theories have not been widely accepted in developing countries, leading them to adopt financial reforms aimed at liberalizing interest rates and removing credit restrictions to reflect true market prices. Raising interest rates on deposits encourages more funds for investment, while higher rates discourage inefficient investments and enable small enterprises to finance themselves without relying entirely on bank loans. Additionally, countries may reform banking systems by restricting credit access for certain institutions to improve productivity.

3. Third Requirement: Risks and Challenges in the Relationship Between Credit and Growth

3.1. Risks of excessive credit expansion (debt bubbles, financial crises)

Excessive credit expansion during periods of economic growth leads to the accumulation of risks, as banks engage in competition to capture market share by lending to borrowers with lower credit quality. This risk increases when banks enter new markets or product segments, as the true risk becomes apparent over time. Additionally, principal-agent problems may drive managers to adopt risky strategies to maximize short-term profits. Credit expansion is closely linked to the economic cycle, exacerbating risks during periods of economic growth, which may lead to financial crises when debt levels become unsustainable.[1]

Excessive credit expansion can create debt bubbles by inflating asset prices beyond their true value. When borrowers default, it may cause widespread bankruptcies and economic downturns. Such bubbles, especially in real estate and financial markets, often precede severe recessions and threaten national and global financial stability. The 1997 Asian Financial Crisis exemplifies this, triggered by rapid private lending in U.S. dollars without adequate regulation, resulting in market collapse and currency devaluation.

[1] *Santiago Fernandez de Lis, Jorge Martínez Pagés , Jesús Saurina , (2000) , CREDIT GROWTH, PROBLEM LOANS AND CREDIT RISK PROVISIONING IN SPAIN , Banco de España Servicio de Estudios Documento de Trabajo n.º 0018, p.6 – 7.*

Empirical studies have shown that rapid credit expansions can predict increased crash risk in equity markets. For instance, Baron and Xiong (2014) find that bank credit expansion predicts not only a significantly increased crash risk in the returns of the bank equity index and equity market index but also lower future equity returns. [1]

3.2. Weak financial infrastructure and its impact on financial sustainability

A strong financial infrastructure is considered essential for achieving sustainable economic growth. The Organisation for Economic Cooperation and Development (OECD) points out that weak financial systems hinder the efficient allocation of capital and long term investment, particularly in infrastructure projects. Moreover, weak financial information systems may lead to what is known as the "fiscal illusion," where distorted financial data undermines the sustainability of public services.[2]

Studies have also shown that infrastructure financing has a significant positive effect on financial sustainability. For example, a study by Julius et al. (2021) concluded that infrastructure financing positively and significantly influences the financial sustainability of water service providers in Kenya.[3]

Financial infrastructure encompasses legal and regulatory systems, banking institutions, payment systems, and capital markets. The weakness of these components leads to misallocation of resources, increased corruption, and reduced investor confidence.

Negative impacts of weak financial infrastructure include:

- Difficulty accessing financing for productive projects, especially in rural or developing areas.
- Weak transparency and the absence of accurate data systems hinder financial risk monitoring.
- High credit costs due to the lack of reliable creditworthiness assessment tools.

[1] Matthew Baron, Wei Xiong , (2014) , Credit Expansion and Neglected Crash Risk , PRELIMINARY DRAFT.
[2] OECD, Financing infrastructure , https://www.oecd.org/en/topics/financing-infrastructure.html Accessed on: 02/04/2025 at 03.22
[3] Julius, C. M., & Okech, T. C. (2021). Influence of infrastructure financing on financial sustainability of water service providers in Kenya. European Journal of Management Issues, 29(1), p.12-24.

3.3. The role of financial stability in strengthening the credit-growth relationship

Financial stability plays a crucial role in ensuring that credit expansion leads to sustainable economic growth. The risk associated with credit allocation is a key indicator of potential economic recessions and systemic banking crises, with studies demonstrating its ability to predict declines in GDP and financial crises two to three years in advance. Moreover, financial inclusion and financial stability are closely linked, with research suggesting that enhancing financial inclusion in countries with underdeveloped financial sectors significantly contributes to overall financial stability.

According to the International Monetary Fund (2019), it is not only the volume of credit but also the riskiness of its allocation that serves as a significant predictor of future economic fluctuations. A well regulated and stable financial system ensures that credit is directed toward productive and sustainable uses. Furthermore, a study by the Federal Reserve Bank of New York highlights how financial vulnerabilities can amplify the impact of external shocks, underscoring the importance of financial stability for effective macroeconomic management.[1]

[1]Luis Brandão-Marques, Qianying Chen, Claudio Raddatz, Jérôme Vandenbussche, and Peichu Xie , *(2019)*, The Riskiness of Credit Allocation and Financial Stability , *IMF Working Paper No. 19/207*.

Conclusion

This chapter addressed the conceptual framework of the role of domestic credit directed to the private sector in supporting economic growth. It provided a comprehensive overview of the definitions, characteristics, and sources of credit, in addition to the key factors influencing its volume. The chapter also clarified the strong relationship between private sector financing and economic expansion, as domestic credit is considered one of the primary mechanisms for stimulating investment and enhancing productivity, particularly in developing economies.

It was emphasized that the effectiveness of this role depends on the existence of a stable economic and financial environment, appropriate monetary and fiscal policies, and a well-functioning banking system. At the same time, caution must be exercised regarding uncontrolled credit expansion, as it may pose significant risks to financial stability. This theoretical framework sets the foundation for the following chapter, which will present an applied case study of selected Arab countries, analyzing the impact of domestic credit to the private sector on their economic performance.

Chapter II: Econometric Study of the Impact of Domestic Credit to the Private Sector on Economic Growth in Arab Countries

Introduction

Following the conceptual framework established in the first chapter, this chapter shifts the focus toward the empirical investigation of the relationship between domestic credit to the private sector (DCP) and economic growth within a selection of Arab countries. Given the structural specificities of these economies such as heavy reliance on natural resources, vulnerability to political and financial instability, and varying degrees of financial sector development this practical analysis aims to provide a nuanced understanding of how domestic credit has influenced growth trajectories over time.

The chapter is divided into three main sections. The first section introduces the methodological foundation of the study, particularly the use of panel data as a robust econometric tool in economic research. It discusses the nature, types, and benefits of panel data, as well as the basic models employed for its analysis, including pooled, fixed effects, and random effects models. Tests used to determine the most appropriate model are also presented.

The second section provides a descriptive overview of the evolution of domestic credit to the private sector and Gross Domestic Product (GDP) from 1990 to 2023 across ten Arab countries. This section also investigates the effects of political instability, oil price volatility, and global health crises particularly the COVID-19 pandemic on credit dynamics and overall economic performance. A comparative analysis is then conducted to assess how different countries adapted or struggled under such pressures.

Finally, the third section presents the empirical study, outlining the methodology, data sources, study sample, and econometric model used for the estimation. The analysis focuses on the statistical and economic interpretation of the results, with special attention to the role of DCP as the core explanatory variable. The chapter concludes with practical insights and strategic reflections drawn from the empirical findings, offering a clearer reading of the Arab financial and economic reality and its implications for policy design.

Section 01: General Concepts of Panel Data

Theoretical Introduction to Panel Data (Time Series Cross-Sectional Data)

Panel data, also known as time series cross-sectional data, is widely used in various research fields such as economics, statistics, and social sciences. Panel data is considered multidimensional, as it includes a set of descriptive variables that change over time and across observations.

Panel data consists of a sample of individuals or units being observed over time, with multiple data points collected at each time. This allows researchers to study the changes in behaviors and variables over time and across different units in the sample.

Panel data represents a valuable resource for research on numerous economic topics, such as economic development, investment, international trade, government policies, employment, wages, and other subjects related to economics and statistics. Panel data provides more comprehensive information about individuals and the units being observed, enabling researchers to better analyze economic and social relationships.

1. **Significance of Panel Data in Economic Analysis: Definition, Types, and Importance**

Panel data plays a significant role in modern economic studies, which is why this section addresses its definition, types, and importance.

1.1 Definition of Panel Data

Panel data is generally defined as data that contains time series observations for a specific number of individuals. As a result, this data has at least two dimensions: a cross-sectional dimension and a time dimension.[1]

[1] *Hsiao Cheng,(2007) , Panel Data Analysis - Advantages and Challenges, Test, Vol. 16, No. 1, pp. 1-22.*

It can also be defined as a dataset that combines the characteristics of both cross-sectional data and time series data. Cross-sectional data describes the behavior of a set of units or individuals at a specific point in time, while time series data describes the behavior of a single unit over a specified period.[1]

1.2 Types of Panel Data

Panel data is classified into two categories based on balance and length.

- ❖ **Panel Data Based on Balance:** [2]A panel dataset consists of a set of observations for individuals, where:

- **Balanced Panel:** Each individual in the dataset is observed the same number of times, usually represented as T.
- **Unbalanced Panel:** Individuals may be observed a varying number of times, represented by Ti.

- ❖ **Panel Data Based on Length :**

Panel data is divided into two categories based on length: short panels and long panels. The comparison between these two is made by comparing the number of individual units with the number of time units, where:

- **Short Panel:** The number of individual units exceeds the number of time units.
- **Long Panel:** The number of time units exceeds the number of individual units.

1.3 The importance of panel data:

The fact that panel data has a dual dimension, both temporal and individual, has made its study the most effective and active field in economic measurement, and thus it holds significant importance, which we summarize in the following points:

[1] *Dielman, (1989), Pooled Cross-Sectional and Time Series Data Analysis, Texas Christian University, USA, p. 2.*
[2] *William H. Greene, (2012), Econometric Analysis, Seventh Edition, International Edition, Pearson Education Limited, p. 388.*

- Controlling for individual variation, which may appear in the case of cross-sectional or time-series data, leading to biased results;

- Panel data contains more informational content than cross-sectional or time-series data, thus allowing for higher confidence estimates. Additionally, the issue of multicollinearity between variables is less severe than in time-series data. On the other hand, panel data is characterized by a greater number of degrees of freedom and better efficiency.

- Panel data provides a better opportunity to study the dynamics of adjustment that may be achieved by cross-sectional data, and it is suitable for studying periods of economic conditions, such as unemployment and poverty. On the other hand, panel data allows for linking the behaviors of sample units from one point in time to another.

- They help reduce the possibility of the omitted variables problem resulting from the unobserved characteristics of the units, which leads to biased estimates in single regressions.

- The importance of using panel data lies in its consideration of what is described as unobserved heterogeneity specific to the sample units, whether cross-sectional or temporal.

2.Basic Models for Panel Data Analysis

Panel data analysis relies on three fundamental models, which are derived from the original basic panel data regression model as proposed by (William H. Greene, 1993). These models are as follows:

$$\boldsymbol{Y_{it} = \alpha_i + X'_{it}\beta + \varepsilon_{it}}$$

Although: $\begin{cases} i = 1, \dots, N \\ t = 1, \dots, T \end{cases}$

Where i indicates individuals and countries, referring to the cross-sectional dimension, while t indicates time, referring to the temporal sequential dimension.

Similarly, if we have k independent variables, then:

iα: represents the constant term (intercept);

B: A vertical vector **(1× k)** for the parameters of the explanatory variables (regression coefficients);

Y_{it}: the dependent variable, a vertical vector **(1 × NT)**;

X_{it}: the independent variables, matrix **(k × NT)**;

εit: The limit of random error.

The three basic models for panel data differ from each other in the individual effect **iα**, where we distinguish between two cases:

- The individual effect can be constant across all units, meaning the fixed intercept for all units is equal **(α = iα).** In this case, the original panel data model is treated as a pooled regression model.
- The individual effect can also vary across units, meaning that each individual can have a specific fixed intercept **(α ≠ iα)**. In this case, the individual effects can either be random or fixed, and the original model is divided into two sub-models:[1]

- Fixed Effects Model: **iα** is considered a fixed intercept specific to unit i;
- Random Effects Model: **iα** is considered a random intercept specific to unit i.

A. The pooled model:

The pooled model in panel data is considered one of the simplest models used, as it assumes a fixed individual effect across all units, meaning that this model does not distinguish between units and assumes their homogeneity over time.

This model uses the information available from all individual units in the entire panel, instead of focusing on each individual separately. Since the aggregate model uses the information available from all individual units, it provides a more accurate estimation of the relationships between different variables over time periods.

The pooled model allows researchers to analyze the variables affecting changes in observed outcomes over time periods, helping to understand the dynamic relationships between different

[1] *Bade H. Baltagi, et al,(2011), Testing for Sphericity in a Fixed Effects Panel Data Model, The Econometrics Journal, vol. 14, no. 1, JSTOR, p: 26.*

variables in panel data. The pooled model is used in economics and social sciences, and is often employed in the analysis of financial and economic data.

The equation of the pooled model takes the following form:[1]

$$Y_{it} = \alpha + X'_{it}\beta + \varepsilon_{it}$$

Although the coefficients α and β are constant across time.

In the same context, the pooled model is based on three key assumptions, as follows:

- The expected value of the random error term is zero;
- Homogeneity of variance of the random error terms across individuals;
- The random error terms are not auto correlated, meaning the covariance of the random error terms for any two individuals across all time periods is zero.

These assumptions of the pooled model can be summarized as follows:[2]

$$\begin{cases} E\left[\varepsilon_{it}|X_{i1}, X_{i2}, \dots, X_{iT_i}\text{---}\right] = 0 \\ Var\left[\varepsilon_{it}|X_{i1}, X_{i2}, \dots, X_{iT_i}\text{---}\right] = \sigma_{\varepsilon}^2 \\ Cov\left[\varepsilon_{it}, \varepsilon_{js}|X_{i1}, X_{i2}, \dots, X_{iT_i}\text{---}\right] = 0 \; si \; i \neq j \; ou \; t \neq s \end{cases}$$

For the optimal method of estimating the pooled model, the ordinary least squares method provides consistent and efficient estimates for the intercept α and the slope β.[3]

B. Fixed Effects Model:

In the fixed effects model, cross-sectional or temporal effects are treated as intercepts that represent individual differences, such as countries or years. The model allows for intercepts that vary by each country or each time period (each year), in order to account for unobserved factors

[1] *A. Colin Cameron, Pravin K. Trivedi, (2005), Micro econometrics: Methods and Applications, Cambridge University Press,p: 699.*
[2] *William H. Greene, (2012), op.cit, p: 389.*
[3] *William H. Greene, 2003, ECONOMETRIC ANALYSIS, FIFTH EDITION, Prentice Hall, p: 285.*

or effects, whether they are cross-sectional or temporal, which are essentially unobserved variables.[1]

The fixed effect also appears in iα as a fixed term. The term "fixed" as used here indicates that the effect does not change over time.Additionally, the term "fixed" originated in the econometric literature on panel data, where the unobserved heterogeneity over time is fixed.[2]

Thus, the equation of the fixed effects model takes the following form:[3]

$$\mathbf{Y_{it} = \alpha_i + X'_{it}\beta + \varepsilon_{it}}$$

C. Random Effects Model:

Unlike the fixed effects model, the random effects model treats cross-sectional and time effects as random parameters rather than fixed ones. This assumption is based on the idea that cross-sectional and time effects are independent random variables with a mean of zero and a specified variance, and they are added as components in the model's random error term. This model is based on a fundamental assumption that the random effects are not correlated with the explanatory variables of the model. In comparison to the fixed effects model, which assumes that each country or each year has a different intercept, the random effects model assumes that each country or each year differs in its random intercept. This is the case when both time and cross-sectional effects are present in the random effects model. It is sometimes referred to as the error components model or variance components model because the random effects are included within the random error term.[4]

Thus, the equation of the random effects model takes the following linear form:[5]

$$\mathbf{Y_{it} = (\alpha + \mu_i) + X'_{it}\beta + \varepsilon_{it}}$$

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[1] *Abed Ben Abed Al-Ghadli,(2010), Determinants of Intra-Trade among Islamic Countries Using the Panel Data Analysis Method, Journal of Islamic Economic Studies, Vol. 16, No. 1, Islamic Research and Training Institute, Jeddah, Saudi Arabia, p. 19.*

[2] *Gardiner. J. C., Luo. Z., Roman. L. A., (2009), fixed effects, random effects and GEE: What are the differences? Statistics In Medicine, p: 226.*

[3] *Bramati, Maria Caterina, Christophe Croux,(2007), Robust Estimators for the Fixed Effects Panel Data Model, The Econometrics Journal, vol. 10, no. 3, JSTOR, p: 525.*

[4] *Abed Ben Abed Al-Ghadli,(2010), Determinants of Intra-Trade among Islamic Countries Using the Panel Data Analysis Method, Journal of Islamic Economic Studies, Vol. 16, No. 1, Islamic Research and Training Institute, Jeddah, Saudi Arabia, p. 19.*

[5] *William H. Greene, (2012), op.cit, p: 411.*

The assumptions of the random effects model can be summarized as follows:[1]

$$\begin{cases} E[\varepsilon_{it}|X\text{---}] = E[\mu_i|X\text{---}] = 0 \\ E\left[\varepsilon_{it}^2|X\text{---}\right] = \sigma_\varepsilon^2 \\ E\left[\mu_i^2|X\text{---}\right] = \sigma_\mu^2 \\ E\left[\varepsilon_{it}\mu_j|X\text{---}\right] = 0 \ pour \ tous \ i, t, et \ j \\ E\left[\varepsilon_{it}\varepsilon_{js}|X\text{---}\right] = 0 \ si \ t \neq s \ ou \ i \neq j \\ E\left[\mu_i\mu_j|X\text{---}\right] = 0 \ si \ i \neq j \end{cases}$$

The random errors can also be combined into a single component, making the relationship for the random effects model as follows:

$$\begin{cases} Y_{it} = \alpha + X_{it}'\beta + \eta_{it} \\ \eta_{it} = \mu_i + \varepsilon_{it} \end{cases}$$

Where itη represents the composite error term for the random effects model. It is subject to a set of assumptions as follows:

$$\begin{cases} E\left[\eta_{it}^2|X\text{---}\right] = \sigma_\varepsilon^2 + \sigma_\mu^2 \\ E[\eta_{it}\eta_{is}|X\text{---}] = \sigma_\mu^2 \ si \ t \neq s \\ E[\eta_{it}\eta_{is}|X\text{---}] = 0 \ pour \ tous \ t \ et \ s \ si \ i \neq j \end{cases}$$

Relying on the ordinary least squares (OLS), method to estimate the random effects model does not allow us to obtain unbiased and efficient estimates for the model parameters. Therefore, this model should be estimated using the generalized least squares either (GLS) method or the feasible generalized least squares (FGLS) method.

The random effects estimator allows for controlling for heteroscedasticity. The most efficient method for dealing with heteroscedasticity is the feasible generalized least squares (FGLS) method.[2]

[1] *William H. Greene, (2012), op.cit, p: 411.*
[2] *Dieleman JL, Templin T, (2014), Random-Effects, Fixed-Effects and the within-between Specification for Clustered Data in Observational Health Studies: A Simulation Study, PLOS ONE, p: 3.*

3.Tests for Determining the Optimal Base Model for Panel Data Analysis:

In this part of the study, we will discuss the most important tests that allow us to select and determine the most appropriate model for the study from among the three panel data models. The selection process is conducted in two stages: the first stage is between the pooled model on one hand and the fixed and random effects models on the other hand. The second stage involves a comparison between the fixed and random effects models.

3.1 Test for Determining the Optimal Model between the Pooled Model and the Fixed and Random Effects Models:

The first stage in determining the optimal model for panel data analysis is to test the suitability of the pooled model compared to the fixed and random effects models, using the Lagrange Multiplier (LM) test proposed by Breusch and Pagan (1980).

Breusch and Pagan (1980) indicated that the significance of the test lies in the importance of the Lagrange Multiplier statistic, which offers three key benefits as follows:[1]

• This statistic usually requires ordinary least squares residuals;
• It is rarely difficult to calculate it;
• we were able to find the exact distribution of the small sample in some specific cases.
Thus, the hypotheses of the Breusch and Pagan (1980) test can be summarized as follows:

$$\begin{cases} \boldsymbol{H_0}: \boldsymbol{\sigma_\mu^2 = 0} \\ \boldsymbol{H_1}: \boldsymbol{\sigma_\mu^2 \neq 0} \end{cases}$$

Where the null hypothesis $\sigma_\mu^2 = 0$ states that there are no individual effects[2], meaning the pooled model is optimal for panel data analysis. The alternative hypothesis states that individual effects are present, thus making either the fixed or the random effects model optimal.

[1] T. S. Breusch, A. R. Pagan, (1980), The Lagrange Multiplier Test and its Applications to Model Specification in Econometrics, The Review of Economic Studies, Volume 47, Issue 1, p. 251.
[2] *T. S. Breusch, A. R. Pagan, op.cit., p: 246.*

3.2 Test for Determining the Optimal Model Between the Fixed Effects Model and the Random Effects Model:

After completing the first stage of determining the optimal model for panel data analysis and concluding the presence of individual effects, the second stage involves conducting the Hausman test (Hausman, 1978).

The Hausman test is the traditional method used to help researchers choose between the two conventional estimators: fixed effects and random effects.[1] The basic idea behind this test is to assess the consistency of the fixed effects estimator, whether these effects are or are not correlated with the independent variables.[2]

This is because the random effects and fixed effects models provide different estimation results, especially when **T** is small and **N** is large.[3]

The null hypothesis H_0: $E(\mu_i/X_{it}) = 0$[4] states that individual and time effects are uncorrelated with the independent variables. If this hypothesis is true, the fixed effects estimator is inefficient under the random effects specification, as it relies solely on within-data variance. [5] In this case, the random effects model is selected as the optimal model for panel data analysis. However, if the null hypothesis is false, the random effects estimator becomes biased and inconsistent.[6]

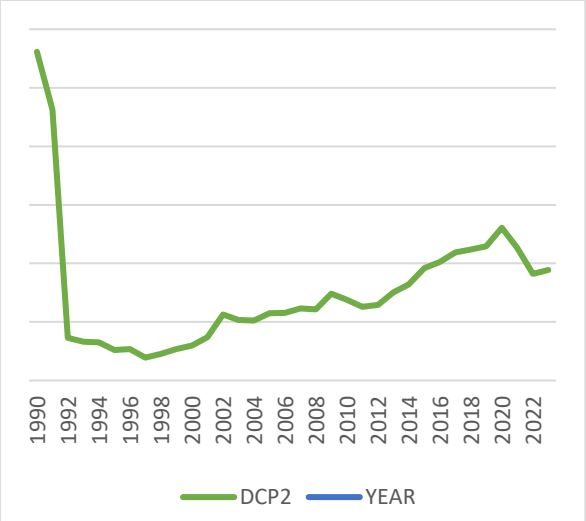
[1] *Dieleman JL, Templin T, op.cit., p: 2.*
[2] *Badi H. Baltagi, Panel Data Methods, Prepared For The Handbook of Applied Economic Statistics, Department of Economics, Texas A&M University, College Station, p: 6.*
[3] *Badi H. Baltagi, op.cit, Department of Economics, Texas A&M University,(p: 6.*
[4] *Hausman J. A, 1978, Specification Tests in Econometrics, Econometrical, vol. 46, no. 6, p: 1263.*
[5] *Badi H. Baltagi, op.cit, Department of Economics, Texas A&M University, p: 7.*
[6] *Hausman J. A, op.cit, p: 1263.*

Section 02: The Evolution of DCP and GDP in Each Arab Country

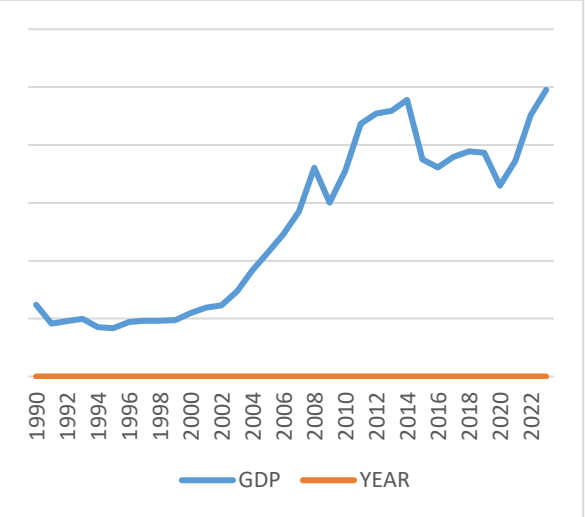
The analysis of the evolution of Domestic Credit to the Private Sector (DCP) and Gross Domestic Product (GDP) in Arab countries is a key tool in understanding the factors that influence economic growth in these nations. In this section, we will present the graphical curves that illustrate the annual evolution of DCP and GDP over the period from 1990 to 2023, focusing on ten Arab countries. Through these curves, we will be able to analyze how domestic credit to the private sector has contributed to economic growth in these countries, while comparing economic performance over time. Additionally, we will highlight periods that saw significant changes in economic growth and how financial and banking policies have impacted these developments.

1) The Evolution of DCP and GDP in Algeria (1990-2023)

Graph 2.1: DCP in Algeria (1990-2023)



Graph 2.2: GDP in Algeria (1990-2023)



Source: Prepared by the researcher using Excel.

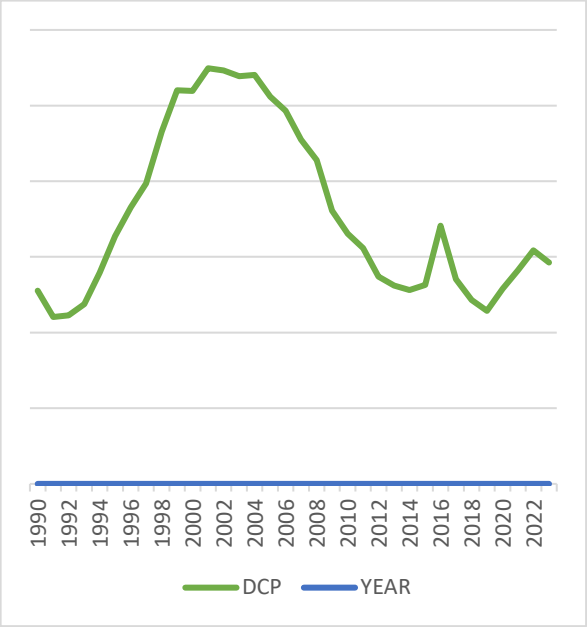
- The graph illustrating the evolution of Domestic Credit to the Private Sector (DCP) in Algeria from 1990 to 2023 reveals a noteworthy drop during the 1990s due to having internal crises. Including political instability and economic challenges. In the early 2000s, a period of slow recovery began, with gradual growth in DCP as the country stabilized politically and economically. However, an era of stagnant recovery

commenced then. This was due as the country began stabilizing politically and economically. Thereafter, with the increase of oil revenues, DCP underwent a boost starting from 2005, which fell back on spending in the oil industry, supportive of strengthening the private sector and stimulating economic growth. The peak of DCP occurred in 2020, marking the highest levels of credit availability to the private sector. This increase may be attributed to relative improvements in the economic situation before the significant decline caused by the COVID-19 pandemic. In 2022 and 2023, DCP showed signs of stabilization, indicating the beginning of an economic recovery despite global challenges.

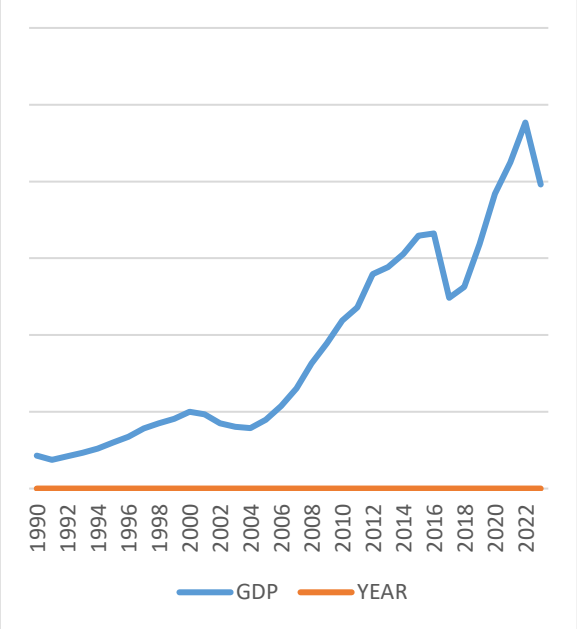
- The graph of Algeria's Gross Domestic Product (GDP) between the years 1990 and 2023 illustrates consistent growth beginning from the early 2000s, particularly after 2005, occasioned by increasing oil prices. The period from 2004 to 2008 witnessed rapid growth, with a peak in 2014 when GDP reached its highest point, driven by strong oil revenues. This period represents the economic peak, fueled by high global oil prices and substantial investments. Despite challenges in the following decade, such as fluctuating oil prices, Algeria’s GDP remained relatively stable. However, GDP contracted significantly in 2020 due to the COVID-19 pandemic and global economic factors. Since 2021, GDP has experienced a recovery, supported by rising oil prices and stabilization in key sectors, indicating a return to growth despite external economic challenges.

2) **The Evolution of DCP and GDP in EGYPT (1990-2023)**

Graph 2.3: DCP in EGYPT (1990-2023)



Graph 2.4: GDP in EGYPT (1990-2023)



Source: Prepared by the researcher using Excel.

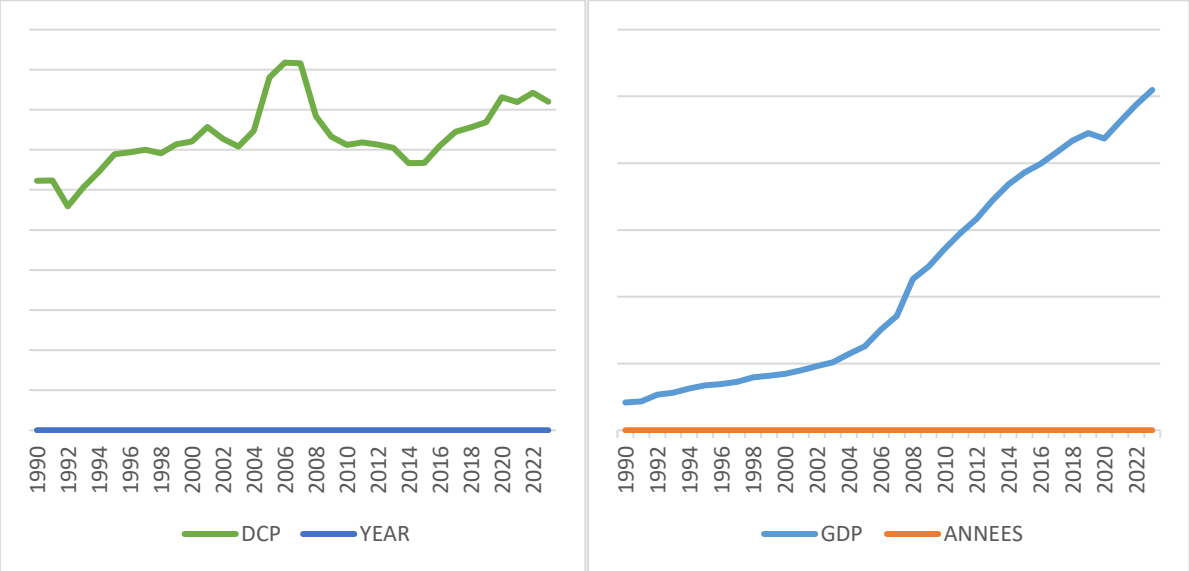
- The curve for Domestic Credit to the Private Sector (DCP) in Egypt reflects significant changes in the private sector's access to financing. Initially limited in the early 1990s due to economic and political challenges, it was initially constrained in the early 1990s by economic and political problems, but credit slowly started increasing, especially during the late 1990s and early 2000s. Between 2000 and 2006, Egypt experienced extremely high growth of DCP concurrent with increased investments and a growth of the private sector due to economic growth and financial performance. However, after 2011, the DCP curve experienced significant fluctuations, linked to the political and economic crises Egypt faced, which affected the flow of credit to the private sector. Despite some recovery in recent years, credit remains relatively low compared to previous periods.

- The curve for Egypt's Gross Domestic Product (GDP) illustrates a varied economic development over the years. Initially, GDP was very low during the 1990s, reflecting weak economic development due to domestic and international factors. However, since the beginning of the new millennium, the Egyptian economy began to accelerate, especially after 2005, with remarkable growth due to improved economic policies and increased investments. Between 2010 and 2015, Egypt experienced the largest surge in GDP, supported by infrastructure

expansion and increased foreign investments. However, after 2016, the Egyptian economy underwent a period of decline due to the political and economic crises that followed the revolution. Since 2018, the economy has been recovering, with noticeable growth in GDP. Despite the fluctuations in the last two years, possibly due to global or local economic challenges.

3) **The Evolution of DCP and GDP in JORDAN (1990-2023)**

Graph 2.5: DCP in JORDAN (1990-2023) **Graph 2.6: GDP in JORDAN (1990-2023)**



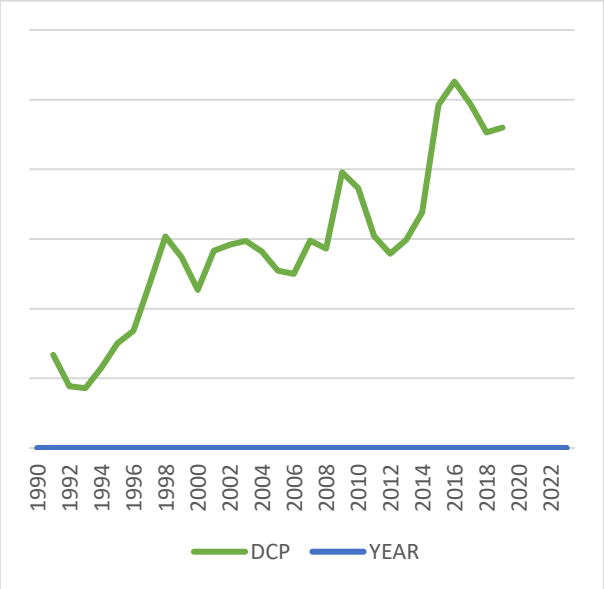
Source: Prepared by the researcher using Excel.

- The graph depicting the evolution of Domestic Credit to the Private Sector (DCP) in Jordan, between 1990-2023 shows a rising trend with clear fluctuations. In the early 1990s, the credit was very low, followed by a gradual increase and relative stability until the early 2000s. In 2004 to 2008, DCP experienced a significant surge, reaching its peak, which reflects a period of economic prosperity and heightened financial activity. Subsequently, from 2008 to 2013, there was a marked decline in credit levels, likely due to the effects of the global financial crisis and regional circumstances. Beginning in 2014, DCP picked up a consistent increasing trend with slight fluctuations, which it maintained through improvement until around 2021, when it plateaued with a decrease in the last two years. Overall, the graph illustrates the Jordanian economy's ability to recover and adapt to changing conditions, while the provision of credit to the private sector remains sensitive to economic and political fluctuations.

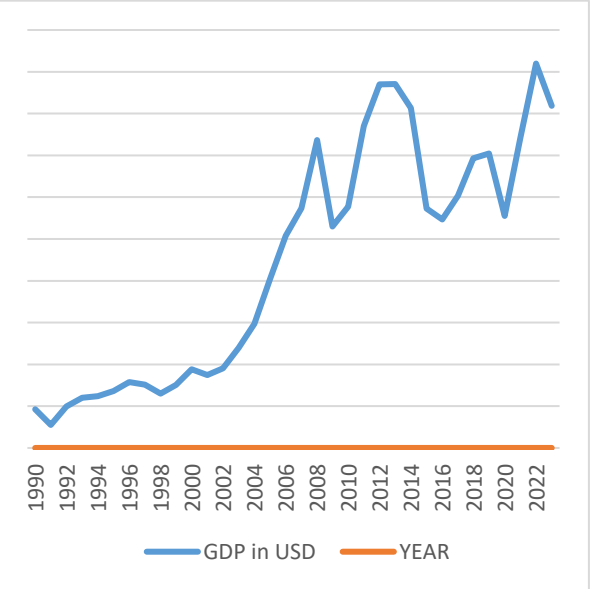
- The graph illustrating the evolution of Jordan's Gross Domestic Product (GDP) from 1990 to 2023 demonstrates a clear upward trend with minor fluctuations. During the early 1990s and up to the early 2000s, economic growth was relatively slow, with GDP remaining low and only gradually increasing. Starting in 2004, the GDP began to accelerate noticeably, and this growth became even more pronounced between 2006 and 2016, reflecting improved economic performance and increased investment. After 2016, GDP continued to rise, albeit with slight fluctuations, reaching its peak in 2022. Overall, the graph highlights Jordan's capacity to achieve sustained economic growth despite challenges, maintaining a strong upward trajectory over the past three decades.

4) **The Evolution of DCP and GDP in KUWAIT (1990-2023)**

Graph 2.7: DCP in KUWAIT (1990-2023)



Graph 2.8: GDP in KUWAIT (1990-2023)



Source: Prepared by the researcher using Excel.

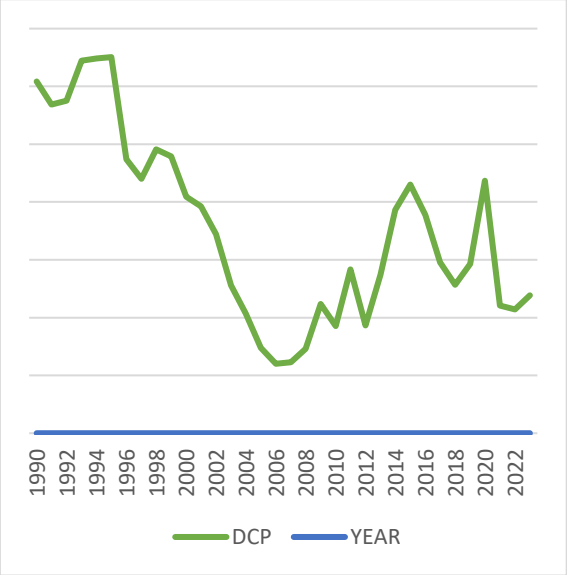
- The graph depicting the evolution of domestic credit to the private sector (DCP) in Kuwait from 1990 to 2023 reveals a clear upward trajectory with several notable fluctuations. The DCP increased steadily from the early 1990s, with significant acceleration between 1994 and 2002. The period from 2002 to 2008 was marked by further growth interspersed with some volatility, as credit levels rose sharply and then experienced a mild decline before rising again up to 2008. Following the global financial crisis, there was a noticeable decrease in DCP between 2008 and

2011. From 2011 to 2016, domestic credit to the private sector rebounded strongly, reaching its peak in 2016. In the years after 2016, the DCP exhibited moderate fluctuations and a slight decline, yet remained at elevated levels compared to earlier decades. Overall, the graph reflects Kuwait's financial policies aimed at strengthening the private sector's role in the national economy, particularly through increased credit provision in the post-2011 period, while also highlighting the sector's sensitivity to both global and local economic challenges.

- The graph of Kuwait's Gross Domestic Product (GDP) is clearly rising from the early 1990s, reflecting a slow pick-up in Kuwait's economy, mainly driven by excessive reliance on oil as the major source of generation. During the early 2000s, particularly after 2003, the economy sharply stepped up its growth, which also coincided with a sudden spurt in global oil prices. This trend of growth persisted, but the GDP experienced a major decline in 2008–2009 due to the global financial crisis. The economy then recovered, reaching new peaks between 2011 and 2014, before experiencing some fluctuation and a major decline in 2015–2016, likely due to the fall in oil prices during this period. After a short stint of stability, GDP declined again in 2020 as a result of the COVID-19 pandemic and the resulting decline in oil demand and prices. The Kuwaiti economy made a spectacular comeback in 2021, reaching an historic high in 2022, driven by the recovery in global oil markets. GDP declined again in 2023, due to OPEC+ oil production cuts and international economic trends. Overall, the graph shows that Kuwait is immune to global economic recession due to its robust economic foundation, especially in the petroleum sector.

5) **The Evolution of DCP and GDP in LIBYA (1990-2023)**

Graph 2.9: DCP in LIBYA (1990-2023)



Graph 2.10: GDP in LIBYA (1990-2023)

Source: Prepared by the researcher using Excel.

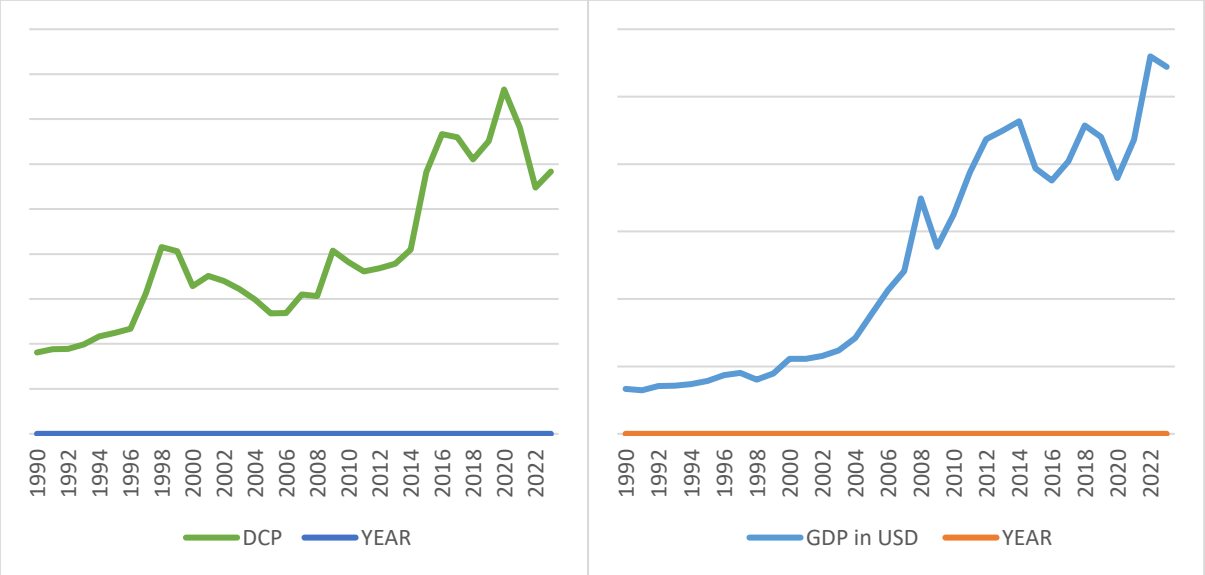
- The domestic credit curve to the private sector in Libya (DCP) shows a consistent downward trend from the beginning of the 1990s until the mid-2000s, with a sharp fall-off starting after 1994 and persisting until it reached its lowest levels around 2007. This is due to the reduction of resources offered to the private sector due to the political and economic crises that beset the country. Since 2007, the credit curve has shown some improvement with repeated fluctuations, more so since 2016, when a relative increase in credit flowing into the private sector has been observed, with efforts by the government to increase private economic activity. However, credit volume has been fluctuating over the last few years, reflecting the ongoing political and economic travails of Libya's private sector and the issue of accessing sufficient finance for it.

- Libya's Gross Domestic Product (GDP) from 1990 to 2023 is highly volatile across the period. After a relatively stable decade in the 1990s, GDP began to accelerate strongly in the early 2000s to its initial major peak around 2008, likely driven by increased oil revenues and high world prices for oil. This was reversed by significant declines, particularly in 2011, reflecting the acute impact of political and economic unrest throughout the Libyan revolution, triggering a severe economic contraction. Following a small bounce back in 2012, GDP remained extremely unstable, with additional steep declines in following years such as 2014 and 2016,

coincident with renewed instability and interruptions in oil production. In the most recent years, from 2020 to 2023, the chart demonstrates a steady increase in GDP, showing relative economic recovery as security conditions improved and oil production resumed. Nevertheless, the overall pattern shows the persisting susceptibility of the Libyan economy to political and economic shocks primarily due to its heavy dependence on the oil sector.

6) The Evolution of DCP and GDP in OMAN (1990-2023)

Graph 2.11: DCP in OMAN (1990-2023) **Graph 2.12: GDP in OMAN (1990-2023)**



Source: Prepared by the researcher using Excel.

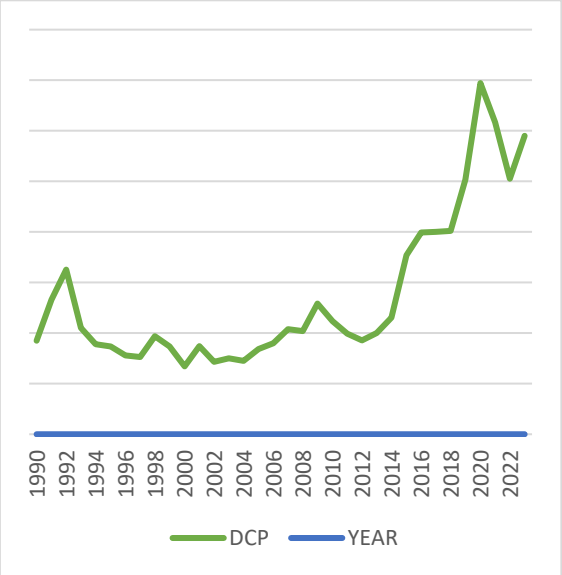
- The Oman domestic credit to private sector (DCP) graph reveals a clear rising line between 1990 and 2023 with increased acceleration in the period 1998-2002 when growth in credit was of large size. The rise plateaued through to 2010, where after a clearly visible spike occurred between 2012 and 2016 concurrent with a coordinated policy shift by the government to facilitate the private sector and economy diversification coupled with improved finance access. DCP reached its peak in 2020, followed by a decline in 2021 and a moderate recovery in 2022 and 2023. Despite minor fluctuations, the overall trend remains positive, underscoring the essential role of credit in stimulating private sector activity and broader economic growth in Oman.

- The graph depicting Oman's Gross Domestic Product (GDP) between 1990 and 2023 reflects a steady upward trend, with significantly rapid growth since 2004. This growth represents a period when world oil prices were rising, which greatly boosted national revenues. While there

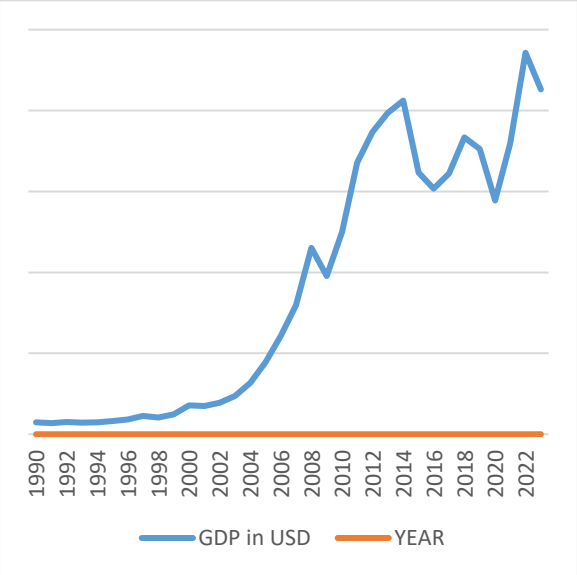
is a noticeable decline in 2009, the effect of the global financial crisis, GDP recovered strongly and continued to go up, creating new records thereafter. From 2014, the line has fluctuation and bumps, especially in 2016 and 2020, likely due to oil price drops and the economic impact of the COVID-19 pandemic. Yet, Oman's GDP recovered strongly in 2021 and 2022, which is a testament to the resilience of the economy and the positive impact of diversification efforts and investment in non-oil sectors. Overall, the graph demonstrates Oman's capacity to recover economically and grow steadily, notwithstanding periodic external shocks.

7) The Evolution of DCP and GDP in QATAR (1990-2023)

Graph 2.13: DCP in QATAR (1990-2023)



Graph 2.14: GDP in QATAR (1990-2023)



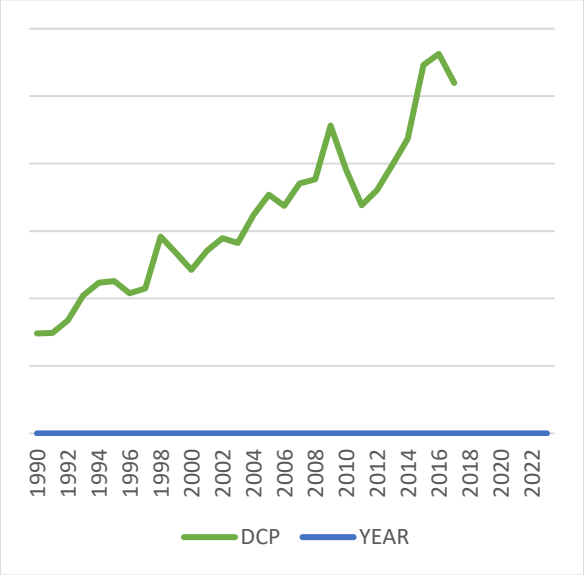
Source: Prepared by the researcher using Excel.

- The plot of domestic credit to the private sector in Qatar shows relative stability at low levels between 1990 and 2005, indicating subdued financial activity in the private sector over these years. Beginning in 2006, the level of domestic credit started to rise steadily, then with a more pronounced acceleration from 2013 onward, reaching a peak in 2020. The rapid growth reflects government policies aimed at enhancing access to finance for the private sector, including the expansion of bank loans and credit facilities, which stimulated investment in key sectors of construction, real estate, and services. After 2020, domestic credit experienced a precipitous decline in 2021, followed by a modest recovery in 2022 and 2023 but at levels much higher than anything experienced prior to 2015. Overall, the trend has been such that the growth in domestic credit has been one of the key drivers of private sector expansion in Qatar in recent years.

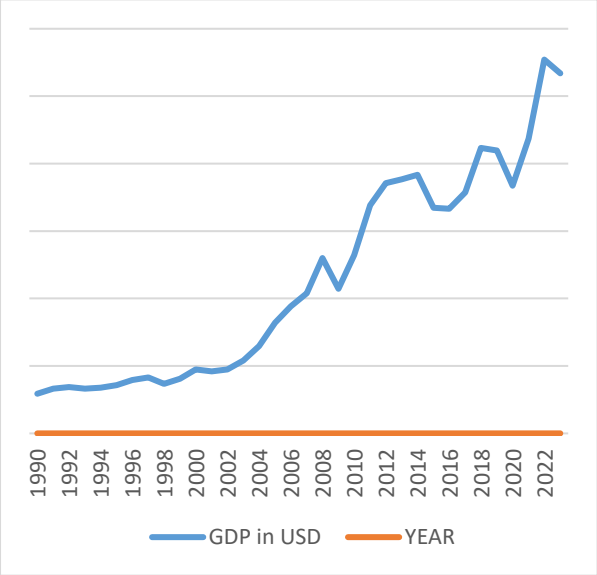
- The graph of Qatar's Gross Domestic Product (GDP) shows a clear increase beginning around 2003, with a significant surge from 2004 onwards. This initial rise coincides with the increase in oil and natural gas prices, which are the primary drivers of Qatar's economy. Additionally, substantial investments in infrastructure, rapid growth in the real estate sector, and greater global economic openness contributed to the acceleration of GDP growth. From 2011 to 2014, Qatar experienced an economic boom due to large-scale investments directed toward major projects. This was followed by a relative decline in GDP between 2015 and 2017, in line with falling oil prices. Subsequently, GDP resumed a gradual upward trend until 2019, before dropping sharply in 2020 because of the COVID-19 pandemic. The economy rebounded strongly in 2021, with GDP reaching its highest level in 2022, driven by the hosting of the World Cup and increased investment in major projects. This substantial rise in investment reflects Qatar's efforts to diversify its economy and foster sustainable growth, even beyond the peak in oil prices.

8) The Evolution of DCP and GDP in Saudi Arabia (1990-2023)

Graph 2.15: DCP in SAUDI (1990-2023)



Graph 2.16: GDP in SAUDI (1990-2023)



Source: Prepared by the researcher using Excel.

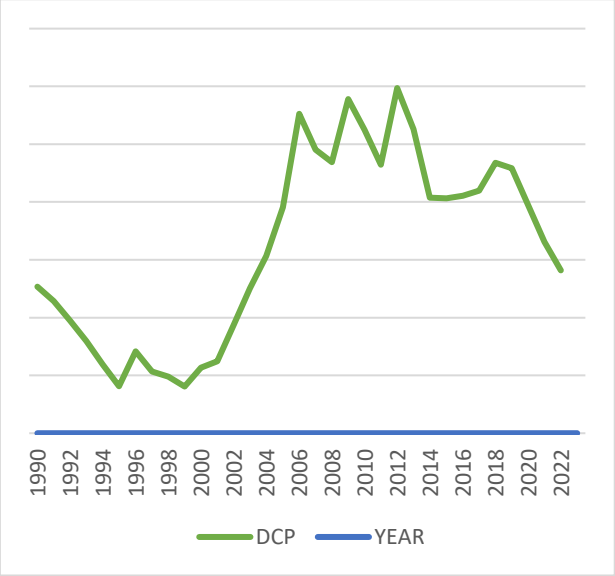
- The line graph depicting the journey of domestic credit provided to the private sector of Saudi Arabia between the years 1990 to 2018 indicates tremendous and consistent growth with periodic slight fall. The growth from the early 1990s to the early part of the new millennium was a consistent, but not significant, trend where credit values evolved consistently, though

modestly in a relative sense since the primary source of this economy has always been the oil sector. Entering the first decade of the new millennium (2000–2010), credit began to accelerate further because of economic reforms and increased financial liberalization, with a marked rise in lending to the private sector, especially after 2005. Since 2010, growth has accelerated more significantly, reaching its peak in 2016, driven by government policies aimed at strengthening the role of the private sector and diversifying national income sources, in line with Saudi Vision 2030. Since 2016, the line on the graph shows a comparative drop in the volume of credit that is possibly a reflection of short-term economic effects or an adjustment of lending operations. In general, the said historical event points to the direction of Saudi economic policy towards encouraging the private sector and providing an enabling financial environment for growth and investment other than in the oil sector.

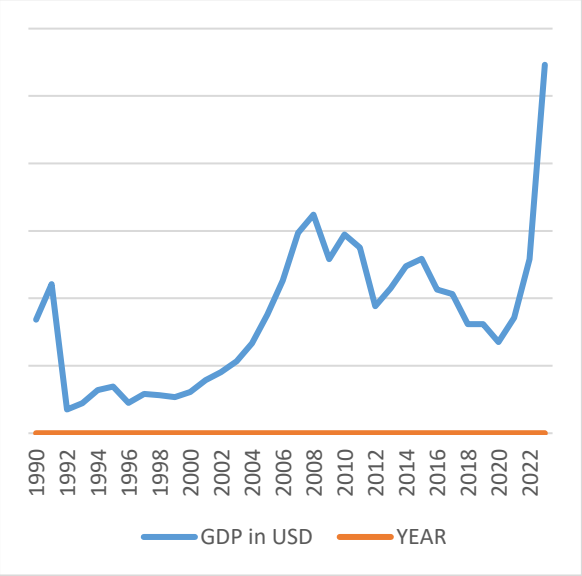
- The chart of Saudi Arabia's Gross Domestic Product (GDP) from 1990 to 2023 reveals a consistent and gradual increase during the 1990s and early 2000s and then a steep acceleration from about 2003 onwards. The early boom is largely attributable to the increased world oil prices and the increased government expenditure on massive infrastructure projects. GDP growth from 2010 onward reflects the effect of economic reforms, growth in the financial sector, and the introduction of Vision 2030—a plan for the diversification of the economy and the activation of the development of the private sector. There are high GDP peaks in 2018 and again in 2022. The steep increase after 2021 is concurrent with the rebound in international oil demand and strong growth in the non-oil sectors. However, 2023 faced a short-term slowdown, primarily due to challenging global economic conditions. In the meantime, the consistent growth in domestic credit to the private sector illustrates a positive correlation, as improved access to finance has eased private enterprise growth, productivity, and employment generation. Besides, the Hajj season annually continues to play an effective role in stimulating economic activity particularly in Medina and Mecca by increasing demand for transport, hospitality, and services and thereby contributing to the overall growth in GDP.

9) The Evolution of DCP and GDP in SUDAN (1990-2023)

Graph 2.17: DCP in SUDAN (1990-2023)



Graph 2.18: GDP in SUDAN (1990-2023)



Source: Prepared by the researcher using Excel.

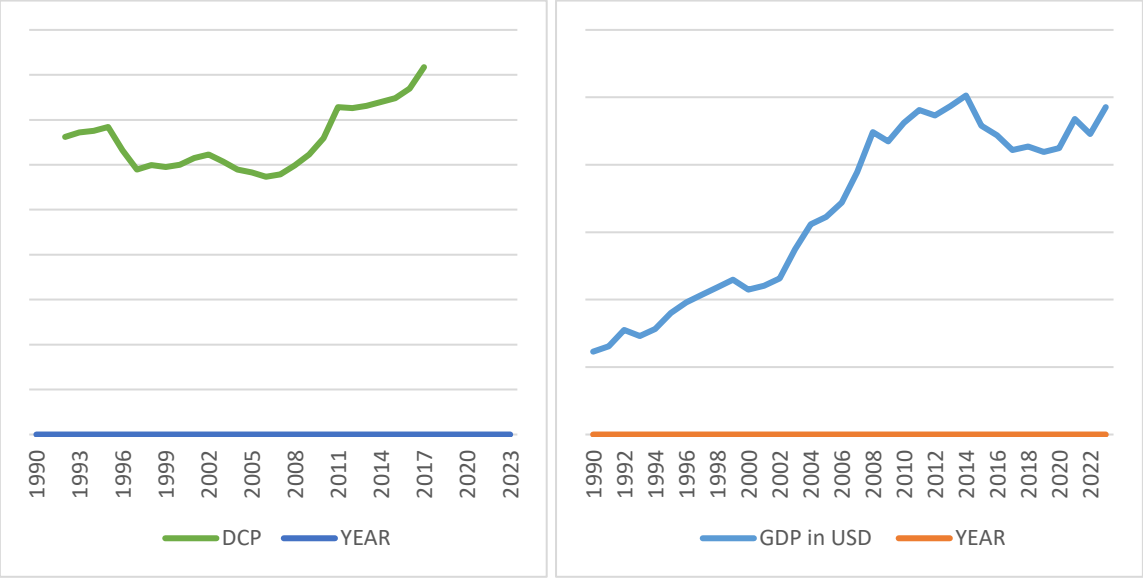
- The private sector domestic credit in Sudan from 1990 to 2023 has definite fluctuations that reflect its immediate response to the political and economic conditions in the country. The credit levels declined gradually from 1990 to approximately 2003, with negligible fluctuations in the mid-1990s. This was preceded by a spurt in growth, beginning 2003/2004 and continuing until the credit volume peaked between 2008 and 2012. Later, a sharp decline ensued, particularly from 2017 onwards, primarily due to increasing economic crises and political instability. From 2018 to 2023, there were signs of recovery; however, these were unstable, and credit levels were lower than the record achieved over the past decade. This implies that private sector credit evolution in Sudan remains directly associated with the internal stability of the nation.

- Regarding Sudan's Gross Domestic Product (GDP), the curve demonstrates significant fluctuations, with notable increases during specific periods, such as in 2005 and the years that followed. These increases coincided with rising oil prices and higher oil revenues, which served as a primary source of income for the Sudanese economy at the time. However, the GDP experienced a sharp decline after 2011, following the secession of South Sudan. This event resulted in Sudan losing approximately 75% of its oil production, which had a severe impact on the economy. The decline was clearly reflected in the years that followed, as the country faced economic deterioration due to the loss of vital oil revenues on which it had heavily

depended. Subsequently, the Sudanese economy entered a phase of contraction, with the GDP continuing to decline until 2018, when modest signs of recovery began to emerge due to certain economic reforms and government incentives. In recent years particularly between 2021 and 2023, the GDP recorded a dramatic and unprecedented surge, more than tripling within just two years, reflecting major economic transformations during that period.

10) The Evolution of DCP and GDP in TUNISIA (1990-2023)

Graph 2.19: DCP in TUNISIA (1990-2023) **Graph 2.20: GDP in TUNISIA (1990-2023)**



Source: Prepared by the researcher using Excel.

- The graph showing the growth of the private sector's domestic credit in Tunisia from 1990 to 2023 demonstrates strong fluctuations, as one should expect from economic and institutional developments over the past three decades. It began with more or less significant volumes of credit in early 1990s, then there was quite a decline that persisted until the mid-1990s or so. Throughout 1995-2008, credit fluctuated with a general declining trend and touched its troughs around 2008. Post 2008, domestic credit to the private sector began to increase slowly, and the growth accelerated at a rising rate, particularly post-2014, not necessarily right after the Tunisian revolution of 2011 as would be presumed. This rising tendency grew more aggressive and steepened over the most recent years (2017–2023) with sharp spurt rises in credit, to peak to unprecedented levels towards the close of the observed time horizon. This secular growth of credit over the last decade is the reflection of seismic structural changes to Tunisia's financial system, registering the deepening of the financial system and improving access to funding for

businesses. Recent statistics confirm this trend, given that private sector lending to the domestic economy was up to 62.3% of GDP by 2023 and ranks as a lead economic growth driver in the country.

- The second graph illustrates how the Gross Domestic Product (GDP) of Tunisia evolved from 1990 to 2023, and various trends of growth can be traced throughout this period. During the period from 1990 until about 1999, GDP fell considerably, with minor oscillations. Starting from 2004, the economy set off on a track of gradual growth, though with high levels in certain years, such as 2005 and 2008. This is a result of increased local and foreign investment and the implementation of economic reforms throughout the period. This increasing trend, nevertheless, considerably decelerated after 2010, particularly after the 2011 revolution, as Tunisia started experiencing political and economic transition. The instability that ensued brought about a relative stagnation that persisted until around 2015. From 2017, the GDP began to grow at a faster rate, culminating in a sharp increase by 2023, indicating a new phase of recovery and economic growth in recent years.

11) Analysis of the Impacts of Political and Economic Instabilities, Oil Price Fluctuations, and Health Crises on Domestic Credit and the Economy in Arab Countries

- **Political impacts:**

Political instability in certain Arab nations, like Libya and Sudan, results in instability in the financial system. These disruptions reduce confidence in financial institutions, which is reflected in less domestic credit extended to the private sector. In the case of Libya, the conflict has resulted in the destruction of infrastructure and loss of confidence in the domestic market, thereby denying companies access to finance.

Political change has an adverse impact on investment patterns in nations such as Egypt and Algeria, where the private sector has found it harder to establish or undertake viable investment ventures due to political constraints. In Algeria, for instance, the political change has helped destabilize the economy, resulting in a decline in development projects.

Conversely, certain governmental policies for reform can play a significant role in improving economic and financial stability and thereby boost credit availability within the private sector.

In the instance of Jordan, such government policies have improved an investment climate, which has encouraged financial institutions to provide a broader credit range towards the private sector and stimulate GDP growth.

- **Economic implications:**

The majority of Arab nations, such as Saudi Arabia and Kuwait, rely on the oil sector as a significant source of revenue, and they are therefore susceptible to international variations in oil prices. Arab economies are prosperous and the loans extended to the private sector increase, and production and GDP increase when there are high oil prices. In Saudi Arabia, for instance, the rise in oil prices has helped to spur the private sector along with enhancing investment projects.

When there are falling oil prices or global economic downturns, such as the financial crisis of 2008, domestic credit shrinks considerably to the detriment of the capacity of the private sector to develop and expand. In Algeria, for example, the drop in oil prices seriously affected the government's capacity to fund the private sector, triggering an economic slowdown.

Economic shocks such as inflation, budget deficits, and rising public debt also affect the ability of governments to provide financial incentives or support to the private sector. As demonstrated by the situation in Tunisia, chronic inflation and budget deficits have reduced the ability of the government to support the private sector, negatively affecting economic activity and GDP.

- **Health impact :**

The COVID-19 pandemic was one of the most significant health challenges that affected the economies of Arab countries in general. In Egypt, for example, the general lockdown and the imposition of health restrictions reduced economic activity, which lowered production and led to a decline in credit levels for the private sector. Small and medium-sized enterprises were more affected during this period, as it was difficult to obtain financing. It can be added that in some countries like the UAE and Saudi Arabia, financial measures were implemented to support companies affected by the pandemic.

Health crises have caused banks to be more conservative in loan approval, which has decreased new investments. Economic and health crises have caused a drop in investments in Jordan that has greatly affected the private sector's capacity to get funding, therefore affecting economic activity. In nations like Qatar, financial incentives have been provided to motivate banks to provide credit to the private sector.

Some Arab nations have implemented economic and health policies to mitigate the effects of the epidemic, including subsidized loans in Saudi Arabia and Egypt. These policies have helped to speed up economic recovery and improve the financial stability of the private sector. Saudi Arabia has provided direct assistance initiatives to small and medium-sized businesses to enable them to survive the crisis.

❖ **Social and Humanitarian Impacts:**

Beyond economic metrics, political and economic instabilities, oil price fluctuations, and health crises have deep social and humanitarian consequences in Arab countries. These impacts include:

- Rising Unemployment and Poverty: Economic slowdowns and contractions in private sector credit reduce job opportunities, leading to increased unemployment rates, particularly among youth and vulnerable populations in countries such as Tunisia and Egypt. This exacerbates poverty and creates additional pressures on social safety nets.
- Widening Social Inequality: The crises often deepen social disparities, with low-income groups disproportionately affected by reductions in income and access to services. Increased costs of living, especially for essentials like food and healthcare, have heightened the gap between wealthier and poorer segments of society.
- Strain on Social Services and Humanitarian Needs: Health emergencies like the COVID-19 pandemic have strained healthcare systems and social services. Many governments faced increased demand for healthcare and social support while managing shrinking budgets. International humanitarian aid and social assistance programs played vital roles in mitigating the impact on the most vulnerable populations, especially in countries experiencing conflict or displacement, such as Sudan and Libya.
- Migration and Displacement: Economic hardships and political unrest have driven increased migration flows within and outside the region. Displaced populations, refugees, and internally displaced persons face heightened vulnerability, with impacts on both host countries and international humanitarian frameworks.

❖ Most Arab nations have experienced intricate political, economic, and health-related challenges over the past few years; nevertheless, nations such as Saudi Arabia, Egypt, Jordan, and Algeria have been able to adjust to these challenges. Through the implementation of versatile economic policies and stabilizing government

interventions, these countries have been able to enhance their stability and realize growth amidst persistent crises. Despite the challenges posed by health emergencies, including the COVID-19 pandemic, economic downturns precipitated by oil price volatility, and political unrest, these nations have successfully managed to maintain a level of stability that has promoted the growth of domestic private sector credit and has contributed significantly to national economic growth. These policies have mitigated the negative impacts of these crises on GDP, exhibiting the ability of these nations to adapt and develop in the midst of adverse conditions.

12) Differences in Crisis Response Between Oil-Producing and Non-Oil-Producing Arab Countries and Their Implications for Growth and Credit

Following the general analysis of the political, economic, and health crises' effects on domestic credit and economic growth in Arab countries, this section presents a comparative study between oil-producing and non oil-producing nations. The aim is to understand how their crisis responses differ based on disparities in revenue structures and fiscal capacities.

The classification of Arab countries into oil-producing and non-oil-producing economies offers a crucial lens for analyzing their differing vulnerabilities and adaptive responses to various shocks. Oil-rich countries such as **Saudi Arabia, Algeria, Kuwait, Qatar, Libya, and Oman** derive a significant portion of their public revenues from hydrocarbon exports. This financial reliance allows them to deploy substantial fiscal buffers during periods of crisis, particularly when oil prices are high. For example, Algeria experienced a marked improvement in credit provision and economic performance following the oil boom in 2004, while Saudi Arabia recorded notable recovery in 2021 as global oil prices rebounded.

Conversely, non-oil economies such as **Egypt, Tunisia, Jordan, and Sudan** depend on a mix of revenue sources ncluding taxation, tourism, remittances, and external aid which tend to be more volatile and sensitive to political and global disruptions. Following the Arab uprisings of 2011, both Egypt and Tunisia saw a decline in investor confidence, a contraction in domestic credit, and a slowdown in economic growth due to policy instability and limited fiscal space.

Empirical evidence suggests that oil-producing countries benefit from reater financial flexibility, enabling them to implement stimulus programs and support the private sector during times of crisis. This was evident during the COVID-19 pandemic, when Saudi Arabia and Qatar introduced targeted financial packages to cushion the economic impact. In contrast, non-oil-producing nations struggled to mobilize sufficient resources, exacerbating economic contraction and curbing credit growth.

Ultimately, the divergence in revenue models helps explain the variation in crisis response strategies. While oil revenues act as a buffer enabling counter cyclical fiscal measures, the lack of such buffers in non oil countries renders them more exposed to prolonged downturns and limited credit availability. This structural difference has significant implications for the resilience, recovery, and long-term growth trajectories of Arab economies.

13) **Comparative Analysis of Arab Countries' Responses to Political, Economic, and Health Crises: Case Studies of Affected and Adapted Nations**

❖ **<u>Countries That Successfully Adapted to Crises</u>**

➢ **Arab African Countries:**

Several African Arab nations, such as Algeria, Egypt, and Tunisia, have shown an extraordinary ability to adjust to the political, economic, and health issues the area has confronted over the last decades.

In **Algeria**, times of high oil prices helped to strengthen the state's financial resources, therefore allowing the execution of major economic reforms that increased domestic credit and backed private sector activity, which then helped to attain a degree of relative economic stability.

Political and economic difficulties notwithstanding, the economy of **Egypt** went through successive phases of recovery. Targeted fiscal and economic policies helped support both domestic and foreign investments, so promoting economic growth.

By strengthening its financial system and enhancing private sector financing mechanisms, **Tunisia** also demonstrated tenacity in overcoming political and economic crises, therefore promoting economic growth in the last years.

- **Asian Arab Countries:** Among Asian Arab countries, Saudi Arabia, Qatar, and Oman have emerged as successful models in adapting to multiple crises.

Saudi Arabia built a thorough strategic framework meant to diversify national income sources and lower oil reliance under its "Vision 2030." This approach has improved the adaptability of the economy and its ability to handle changes in the world market.

Qatar's significant infrastructure and major project investments, especially in light of its hosting of the 2022 FIFA World Cup, helped it to strengthen economically by broadening the economic foundation and diversifying income sources.

At the same time, **Oman** carried out changes meant to encourage the private sector and provide more financing possibilities, therefore offsetting the adverse effects of oil price fluctuation and regional conflicts.

❖ **Arab Nations Still Struggling to Adjust to Crises**

- **Arab African Countries:** On the other hand, certain African Arab nations like Libya and Sudan have experienced basic difficulties that have prevented them from properly adjusting to political, economic, and health crises.

Ongoing wars caused **Libya** to suffer extensive infrastructural devastation. Political unrest caused the financial system to fail, therefore hindering the private sector's access to required funding and greatly slowing economic development.

Sudan experienced severe economic repercussions following the secession of South Sudan, losing a substantial portion of its oil revenues. Furthermore, persistent political crises adversely affected economic stability and limited the government’s capacity to support the private sector.

- **Asian Arab Countries:** Among Asian Arab countries, nations such as Kuwait and Jordan face challenges related to oil price volatility and its effects on domestic credit and economic growth.

However, **Kuwait's** robust economy is mostly based on oil; worldwide market changes have affected the stability of domestic credit, therefore heightening economic risks in times of crisis and harming private sector performance and economic expansion.

Regarding **Jordan**, the country has shown a relative ability to adjust to crises by carrying out structural economic reforms meant to enhance the investment environment and increase credit availability to the private sector, notwithstanding concerns related to oil price changes and regional instability influencing its economic stability.

SECTION 03: Study Data Presentation

1. Study Methodology :

The study employed a quantitative approach using panel data models to analyze the relationship between domestic credit to the private sector and economic growth. Panel data allows for analyzing data that tracks multiple countries over time, which is crucial for studying the dynamics of economic growth across different countries and years. To estimate the models and perform statistical tests, R software was used, providing an efficient platform for data handling and advanced econometric analysis.

2. Sample and Study Period:

The study covered the period from **1990 to 2023** and included a sample of **10 Arab countries**, divided between **Africa** and **Asia** as follows:

Africain Arab Countries:

1. Algeria
2. Egypt
3. Libya
4. Sudan
5. Tunisia

Asian Arab Countries:

1. Jordan
2. Kuwait
3. Oman
4. Qatar
5. Saudi Arabia

These countries were selected for their availability of comprehensive data on economic indicators and their geographical and economic diversity within the Arab world.

3. Data Sources:

Multiple international sources were used to gather the data for this study, including:

- World Bank database (World Bank, 2025).

4. Study Variables:

In the initial stage, the study uses several key variables that are critical for understanding the economic dynamics within these countries. Below is a detailed presentation of all the variables used:

TableN° 2.1: Variables Constituting the Study Model

Variable Code	Variable Name	Variable Nature	Variable Data	Source
GDP	Gross Domestic Product	Dependent Variable	Annual growth rate of GDP per capita (%)	World Bank, 2025
DCP	Domestic Credit to the Private Sector	Main Independent Variable	Percentage of domestic credit relative to total GDP	
FDI	Foreign Direct Investment	Independent Variable	Share of Foreign direct investment in GDP	
CPI	Consumer Price Index	Independent Variable	Annual inflation rate	
GCE	Government Consumption Expenditure	Independent Variable	Percentage of government consumption relative to GDP	
UR	Unemployment Rate	Independent Variable	Percentage of total labor force that is unemployed	

Source: Prepared by the researcher

These variables have been selected based on their relevance to the economic growth and financial dynamics in the studied countries.

5. Study Model:

To measure the role of domestic credit to the private sector in promoting economic growth, we constructed a model containing a dependent variable represented by economic growth (GDP) and a set of explanatory variables that we deemed necessary and important. These variables include domestic credit to the private sector as the main independent variable, foreign direct investment (FDI), inflation rate (CPI), government expenditure rate (GCE), and unemployment rate (UR).

The mathematical formula for the model can be written as follows:

GDP = f (DCP, FDI, CPI, GCE, UR)

This model was selected for several key economic reasons to ensure comprehensive analysis and the accuracy of results when studying the impact of domestic credit to the private sector on economic growth. Therefore, we will present and explain the reason for choosing each independent variable and how it can contribute to explaining economic growth.

Variables Definition, Economic Importance, and Expected Impact:

A. **Domestic credit to the private sector (DCP):**

Domestic credit to the private sector refers to the financial resources provided by financial institutions to the private sector, including loans, purchases of non-equity securities, trade credits, and other accounts receivable. These resources establish a claim for repayment. In some countries, public enterprises are also included within these claims. Financial institutions such as monetary authorities, commercial banks, and financing companies contribute to this credit.

- **Economic Importance:**

Domestic credit is vital for promoting investment in the private sector, supporting business growth, and driving economic development in Arab countries by providing necessary funding for sectors such as infrastructure, technology, and industry.

- **Expected Impact:**

The expected impact is positive on economic growth. An increase in domestic credit to the private sector enhances the ability to finance business projects, leading to higher investment

and growth in vital sectors such as industry and infrastructure, thereby supporting economic growth in Arab countries.

B. **Gross Domestic Product (GDP):**

Gross Domestic Product is the annual growth rate of GDP per capita (%) and is considered a measure of economic growth based on per capita output. It is calculated as the percentage change in GDP per capita compared to the previous year.

- **Economic Importance:**

GDP is a key indicator of the overall performance and health of the economy in Arab countries. It reflects economic growth on a per capita basis and serves as a fundamental measure of the standard of living in the population.

C. **Foreign Direct Investment (FDI):**

Foreign Direct Investment refers to the deployment of foreign capital in fixed capital assets within a specific country. These investments help transfer capital, technology, and expertise to the host country, contributing to the improvement of the industrial base.

- **Economic Importance:**

FDI contributes to the economy by bringing in capital, technology, and expertise, which enhances local industries, increases competitiveness, and creates job opportunities in Arab countries.

- **Expected Impact:**

The expected impact is positive on economic growth. Foreign direct investment brings capital, technology, and expertise, enhancing the local production base and contributing to job creation, thus supporting economic growth in Arab countries.

D. **Consumer Price Index (CPI) – Inflation:**

Inflation is the change in the prices of a fixed basket of goods and services consumed by the average consumer over a specific period. This index reflects changes in the purchasing power of money.

- **Economic Importance:**

Inflation affects purchasing power and price stability. Controlling inflation is crucial for ensuring economic stability, especially when expanding domestic credit.

- **Expected Impact:**

  The expected impact is negative on economic growth if inflation is high. High inflation reduces purchasing power and negatively affects financial stability, which may disrupt business investments. Controlling inflation is essential for maintaining economic stability and fostering growth.

E. **Government Consumption Expenditure (GCE):**

Government consumption expenditure includes all current government spending on the purchase of goods and services, including employee compensation and defense-related expenditures. This type of spending helps stimulate the economy by creating demand for goods and services.

- **Economic Importance:**

Government spending plays a significant role in supporting economic activities and providing job opportunities. In Arab countries, government spending can contribute to the development of infrastructure and the support of vital sectors such as health and education.

- **Expected Impact:**

The expected impact is positive on economic growth. Increased government spending, especially in infrastructure, education, and public services, boosts domestic demand and creates job opportunities, thereby stimulating overall economic activity.

F. **Unemployment Rate (UR):**

The unemployment rate refers to the percentage of individuals in the labor force who are not employed but are available for work and actively seeking employment.

- **Economic Importance:**

  The unemployment rate is a crucial indicator of the health of the labor market. In Arab countries, high unemployment reflects untapped potential in the economy.

- **Expected Impact:**

The expected impact is negative on economic growth. High unemployment indicates untapped potential in the economy. Therefore, reducing the unemployment rate by increasing domestic credit and stimulating business growth can positively enhance economic growth.

This model provides a comprehensive tool for understanding how domestic credit to the private sector influences economic growth in Arab countries. By linking traditional economic variables (GDP, unemployment, inflation, government expenditure, and foreign direct investment) with modern variables (domestic credit), the model offers an accurate view of the economic impacts in the region. This analysis helps design sustainable economic policies that promote investment, reduce unemployment, and support ongoing economic growth in Arab countries.

6. Stability Analysis of Study Variables:

We proceed to assess the stationarity of all variables included in the study models by applying a widely used test for detecting the presence or absence of unit roots in panel data:
the Im-Pesaran-Shin (IPS) Unit Root Test (2003).

Table N° 2.2: Results of Unit-Root Test on Study Variables

Variable	Im-Pesaran-Shin Unit-Root Test	Decision
DCP	0.973	Instable
GDP	< 2.2e-16	Stable
FDI	1.863e-07	Stable
CPI	0.0004661	Stable
GCE	0.3278	Instable
UR	0.299	Instable

Source: Prepared by the researcher based on R software

After conducting the IPS test, we found that the p-values for the variables DCP, GCE, and UR are less than 5%, indicating that these variables are non-stationary. Therefore, we apply the first differences and re run the test to confirm their stationarity. In contrast, the other variables were found to be stationary at level.

Table N°2.3: Unit Root Test Results for Study Variables after First Differencing.

Variable	Im-Pesaran-Shin Unit-Root Test	Decision
DCP	< 2.2e-16	Stable
GCE	< 2.2e-16	Stable
UR	< 2.2e-16	Stable

Source: Prepared by the researcher based on R software.

The stationarity of the variables in the model was analyzed using the unit root test, which paves the way for understanding the dynamic relationships between the various variables. After confirming the stationarity of the data, we move on to the next stage of the analysis, which involves estimating panel data models and selecting the most appropriate model.

7. Panel Data Model Estimation and Selection:

Panel data analysis involves estimating three main models: the Pooled Regression Model, the Fixed Effects Model, and the Random Effects Model. These models are used to assess the relationship between independent and dependent variables across multiple countries or time periods. The choice of the most appropriate model depends on assumptions related to individual factors (such as differences between countries or time periods) and their impact on the results.

For the proposed study model, which includes stable variables regardless of their stability levels, R software was used for estimation. The results derived from these models are presented in the following table:

Table N°2.4: Results of Panel Data Models Estimation

Dependent Variable: GPD		Pooled Regression Model	Fixed Effects Model	Random Effects Model
Explanatory Variables	Constant	5.137572 (*)	-	5.137572 (*)
	DCP	- 0.04211 (*)	- 0.125973 (***)	- 0.042113 (*)
	FDI	0.226920	0.243589	0.226920
	CPI	-0.032803	- 0.020293	- 0.032803
	GCE	- 0.092345	- 0.155153 (*)	-0.092345
	UR	-0.070344	- 0.076840	- 0.070344

Source: Prepared by the researcher based on R software.

8. Panel Model Comparison Tests:

As previously mentioned, there are three main models used in panel data analysis : the Pooled Regression Model, the Fixed Effects Model, and the Random Effects Model. This raises a crucial question: Which model is the most relevant for studying the impact of domestic credit to the private sector on economic growth ? To answer this question, we will conduct the Hausman test and Plm test to compare the Pooled OLS Model with the Fixed Effects and Random Effects Models. The results obtained from these tests are summarized in the following table:

Table N°2.5: Results of Panel Model Comparison Tests

Test Type	P-Value	Decision at 5% Significance Level
Lagrange Multiplier Test (Breusch-Pagan)	0.2837	Do not reject the null hypothesis (no significant individual effects), favoring **Pooled OLS Model**
Hausman Test	0.05232	No significant difference between Fixed Effects and Random Effects Models; thus, **Pooled OLS Mode**l is preferred based on other test results.

Source: Prepared by the researcher based on R software.

Explanation of Results:

❖ **Lagrange Multiplier Test (Breusch-Pagan):**

- **P-Value:** 0.2837 (greater than 0.05).

The **Pooled OLS Model** is chosen because the p-value is higher than 0.05, indicating no significant individual effects in the data, which favors the Pooled OLS Model over the Random Effects Model.

❖ **Hausman Test:**

- **P-Value:** 0.05232 (greater than 0.05).

Since the p-value is greater than 0.05, we do not reject the null hypothesis. This suggests that there is no significant difference between the Fixed Effects Model and the Random Effects Model. However, based on the results of the **Breusch-Pagan Test**, the **Pooled OLS Model** is preferred.

9. Final Decision:

Based on the tests conducted using R software, the **Pooled OLS Model** is chosen as the preferred model for this study. The model is represented by the following relationship:

GDP = 5.137572 - (0.042113) DCP + (0.226920) FDI – (0.032803) CPI – (0.092345) GCE – (0.070344)UR.

10. Statistical Interpretation of Each Variable

❖ **DCP (Domestic Credit to the Private Sector)**

- **Coefficient: -0.042** → A 1 percentage point increase in DCP leads to a 0.042% decrease in per capita GDP growth.
- **P-Value: 0.069** → statistically significant at the 10% level, indicating that the relationship is statistically valid.

❖ **FDI (Forgien Direct Investment)**

- **Coefficient: 0.227** → the relationship is positive, but not statistically significant.

- **CPI (Consumer Price Index - Inflation Rate)**
  - **Coefficient: -0.033** → the relationship is negative as expected, but not statistically significant.
- **GCE (Government Consumption Expenditure)**
  - **Coefficient: -0.092** → the relationship is negative and not statistically significant.
- **UR (Unemployment Rate)**
  - **Coefficient: -0.070** → the effect of unemployment is negative, as expected, but not statistically significant.

11. Economic Interpretation:

11.1 Economic Interpretation of each variables

a) Foreign Direct Investment (FDI):

The relationship between foreign direct investment and economic growth is generally positive, which aligns with economic theory suggesting that the inflow of foreign capital contributes to enhancing productive capacities, transferring technology, and generating employment opportunities ultimately boosting GDP.

Economic Interpretation in the Arab Context:

- In many Arab countries, FDI is primarily directed toward extractive sectors such as oil and gas, which are:
  - **Capital-intensive rather than labor-intensive,** thus offering limited potential for large-scale job creation.
  - **Weakly integrated with the domestic economy,** due to limited local supply chains and low levels of related manufacturing.
- Moreover, a substantial portion of these investments is managed by foreign companies and supported by external technological and managerial expertise, which reduces their multiplier effect within the host economy.

- Investment environments in several Arab countries also continue to face persistent structural challenges, including:
  - Complex administrative and bureaucratic procedures.
  - Lack of transparency and weak legal protection for investors.
  - Political and security instability in some regions, such as Yemen, Libya, and Syria, which undermines the attractiveness of long-term investment.

❖ Although Arab countries receive foreign investment flows, their impact on growth remains constrained due to the sectoral concentration of such investments, their limited integration with the national economy, and persistent investment climate challenges. This underscores the importance of aligning FDI with national development strategies and supporting private sector growth through targeted domestic credit policies to achieve more inclusive and sustainable economic development.

b) CPI – Inflation Rate:

The relationship between the inflation rate and economic growth is negative, which aligns with economic theory that suggests rising prices undermine consumers' purchasing power and generate uncertainty in the business environment, negatively affecting overall economic performance.

Economic Explanation in the Arab Context:

- High inflation rates in Arab countries lead to several adverse economic effects, the most notable being:
  - A decrease in consumer spending due to the erosion of households' purchasing power.
  - A decline in private investments resulting from difficulties in forecasting costs and future returns.
  - Fluctuations in exchange rates, particularly in countries heavily reliant on imports to meet domestic demand.

- In countries such as **Lebanon** and **Sudan**, inflation reached hyperinflationary levels, leading to a loss of confidence in the local currency and deep economic contraction.
- In contrast, countries like **Jordan** and **Tunisia** managed to maintain relatively moderate inflation rates thanks to more stable monetary policies, which alleviated the negative impacts on economic growth.

❖ Inflation acts as a constraint on economic growth in Arab countries, and its negative effects are exacerbated by the lack of monetary stability and effective economic policies. Therefore, maintaining moderate inflation rates is essential to improving the effectiveness of domestic credit and expanding its role in supporting private sector growth and achieving comprehensive and sustainable economic development.

c) **GCE – Government Consumption Expenditure**

The relationship between government consumption expenditure and economic growth is negative, suggesting that public spending is not being effectively utilized to support productivity and sustainable growth.

Economic Interpretation in the Arab Context:

- In many Arab countries, public spending tends to focus on:
  - Salaries and subsidies (especially subsidies for energy and basic goods).
  - Social protection programs that are economically unproductive.
- Capital expenditure (such as infrastructure, education, and research & development) is often neglected or poorly directed, reflecting a lack of focus on sectors that can improve long-term productivity.
- Despite the large size of government expenditure in some Arab countries, its allocation to short term or unproductive projects limits its ability to stimulate sustainable economic growth.
- In cases like Algeria or Saudi Arabia, government spending is often used as a political tool to absorb shocks or ease social tensions, rather than to support productive growth.

- Spending on unproductive sectors, such as energy and government services, does not contribute to fostering innovation or productivity, thus reducing its positive impact on economic growth.

❖ Government expenditure in Arab countries suffers from inefficiency and poor allocation, limiting its impact on economic growth. Prioritizing spending on strategic sectors such as education, research and development, infrastructure, and supporting private sector companies will foster sustainable growth and create long term positive economic effects.

d) Unemployment Rate (UR):

The relationship between the unemployment rate and economic growth is typically negative, which is considered normal from an economic standpoint. A rising unemployment rate reflects underutilization of human capital, leading to a decline in potential GDP.

Economic Interpretation in the Arab Context:

- Unemployment represents one of the most significant structural challenges facing Arab economies, particularly evident in:
  - High youth unemployment rates.
  - Elevated unemployment among women compared to men.
  - High unemployment among university graduates, indicating a mismatch between educational outputs and labor market needs.
- In many Arab countries, the formal economy struggles to create sufficient job opportunities. Consequently, a large segment of the population turns to the informal economy, which is not captured in official growth statistics and is typically less productive and less integrated into the formal financial system.
- Additionally, in the Gulf countries, a paradox is observed:
  - Robust economic growth is driven by sectors such as oil and real estate.
  - Yet, unemployment rates among nationals remain high due to the private sector's reliance on foreign labor.

❖ Although some Arab economies have achieved positive growth rates, this growth does not necessarily translate into improved labor market outcomes. This is due to structural

imbalances related to labor market composition, the nature of economic growth, and the allocation of credit. These issues highlight the need for more integrated policies aimed at stimulating and financing the private sector in a way that promotes job creation and fosters inclusive and sustainable growth.

11.2 Economic Interpretation of the Main Variable: DCP – Domestic Credit Directed to the Private Sector

Model Results:

The DCP coefficient was negative and statistically significant, meaning that as the volume of credit directed to the private sector (as a percentage of GDP) increases the growth rate of GDP per capita decreases.

Economic Explanation for This Result:

This contradicts classical economic theory, which assumes that an increase in financing to the private sector should expand economic activities, stimulate investment and production, support innovation and entrepreneurship, and create new job opportunities. However, in the Arab context, it appears that financing does not have a positive impact but is negatively correlated with growth, indicating a deep structural flaw in how financial resources are allocated and used.

Institutional and Financial Factors Leading to This Negative Result:

- **Weak Quality of Loans Granted:**
  A large portion of loans granted in Arab countries is directed towards:

- Individual consumption (car loans, consumer loans).
- Real estate and non-productive activities, especially in countries such as Egypt, Morocco, and Algeria.

• These activities do not generate long-term or substantial benefit in the economy.
• As a result, credit does not translate into productive growth.

- **Distortions in Credit Evaluation and Banking Supervision Mechanisms:** Weaknesses include:

- Creditworthiness assessment.
- Gouvernance systems within banks.
- Loan granting criteria.

• This leads to financing high-risk or economically unprofitable projects, exacerbating non-performing loans (NPLs) and restricting future lending.

➢ **Financial Exclusion of Small and Medium Enterprises (SMEs):**

• Although SMEs are considered a true engine of growth and employment, the majority of small and medium-sized projects face challenges accessing financing.

• Banks prefer lending to large companies or projects with significant real estate collateral.

• This narrows the channels through which credit can feed real growth.

➢ **Weak Legal and Regulatory Frameworks:**

In several Arab countries:

- The absence of clear bankruptcy laws discourages banks from taking risks in financing innovation.
- Weak protection for creditors forms an obstacle to expanding productive credit. Financing is directed toward safe investments (real estate, consumer loans) rather than true investment.

Reading the Arab Reality: Practical Examples

❖ **Algeria:**

The bulk of banking finance is directed towards the real estate sector and semi-public projects. There is significant weakness in financing innovation or supporting emerging industrial projects. This leads to an unsustainable, non-diversified economic growth model that relies heavily on oil revenues, limiting the economy's ability to adapt to global changes.

❖ **Egypt:**

Banks are largely focused on financing government debt through purchasing public debt instruments. The credit granted to the private sector remains limited in terms of quality and sectoral distribution, which hinders the ability of the private sector to grow and

expand. This means that banking activity does not translate into real GDP growth and does not contribute sufficiently to the development of productive economic sectors.

- **Gulf States (e.g. Saudi Arabia, Kuwait):**

  Credit is mainly directed towards the real estate, services, and consumption sectors. Despite the vast financial system, the private sector does not play a leading role in driving economic growth outside the oil sector. This results in continued reliance on oil revenues, limiting the diversification and sustainability of the economy.

Strategic Insights:

- ✓ **Credit Alone is Not Enough to Achieve Growth:** The critical factor is how credit is used and in which sectors it is directed.
- ✓ **Improving the Impact of Credit on Growth Requires Deep Reforms in the Arab Financial and Banking System:**

  This reform must focus on:

  - **Developing More Inclusive Financial Markets:** Expanding the financing base and effectively directing it to sectors that contribute to economic development.
  - **Improving Banking Governance:** Implementing effective creditworthiness assessment standards and improving internal governance systems within banks.
  - **Supporting Productive and Small Projects:** Creating a favorable financial environment for SMEs, which are a key driver of sustainable growth.

- ✓ **Redirecting Financial Policy Towards High-Value-Added Sectors:** Financial resources should be redirected to finance sectors that offer long-term added value such as industry, technology, and smart agriculture. Banks should be incentivized to finance innovation and projects that contribute to diversifying the economy, instead of focusing solely on real estate and consumption activities.

CONCLUSION

This chapter provided an empirical analysis of the role of domestic credit to the private sector in supporting economic growth across selected Arab countries. The analysis was based on panel data covering the period from 1990 to 2023 and employed econometric modeling using the **R** statistical software. According to the estimation results favoring the **Pooled OLS** model based on comparison tests the relationship between domestic credit and economic growth appeared negative and weakly significant, which contrasts with traditional economic expectations.

This counterintuitive result can be explained by structural and institutional imbalances. In many cases, credit is directed toward non-productive activities, amid weak financial inclusion and inadequate regulatory and institutional frameworks that fail to channel funding into high value added sectors. Therefore, the mere availability of credit does not guarantee economic growth; rather, it necessitates deep structural reforms within the financial and banking systems, an improved business climate, and more targeted financing tools aimed at productive investment.

In light of these findings, the chapter highlights the need to enhance the efficiency of financial resource allocation in order to serve sustainable development goals and transform domestic credit from a simple funding mechanism into a real engine of inclusive economic growth in Arab countries.

General conclusion

General conclusion

For decades, Arab countries have pursued sustainable development paths that balance economic and social aspects, aiming to reduce excessive reliance on natural resources and enhance the role of the private sector as a key economic actor. In this context, domestic credit directed to the private sector has received increasing attention as a fundamental financing tool to stimulate investment and drive growth.

Within this framework, this study aimed to analyze the role of such credit in promoting economic growth in Arab countries by assessing its effectiveness in supporting economic activity and identifying the factors influencing this relationship. The study included a theoretical component covering credit concepts and mechanisms, alongside economic growth theories and determinants, as well as an applied econometric analysis covering the period from 1990 to 2023.

Based on the results obtained, and in answering the study's central research question, it was concluded that domestic credit directed to the private sector has not had an effective impact on enhancing economic growth in Arab countries. Although financing is theoretically a fundamental pillar for driving growth by supporting investment and production, the quantitative analysis showed that its effect was either negative or statistically insignificant in most countries under study. This discrepancy between theory and reality is attributed to several structural and institutional factors, most notably the allocation of credit to non productive activities, inefficiency within the banking sector, lack of transparency in credit issuance, and the dominance of short term loans that fail to generate a lasting impact on growth.

In light of these findings, the study emphasizes the need to reconsider the financial and credit policies adopted in the Arab world to ensure that credit becomes a real driver of development.

Key Findings

To better understand the limited impact of credit on growth, the study identified several critical findings:

- **Domestic credit has a negative impact on growth** because it is often directed toward consumption and real estate rather than productive investments.
- **FDI positively affects growth**, but its impact remains limited due to its concentration in capital-intensive sectors like oil and gas.

- **High inflation reduces purchasing power and creates economic uncertainty**, discouraging investment and slowing growth.
- **Government spending negatively affects growth** when focused on unproductive areas like wages and subsidies instead of infrastructure.
- **High unemployment reflects underused labor resources**, reducing productivity and limiting economic expansion.
- **Loans are poorly allocated**, with weak support for high value-added sectors and dominance of short-term credit, limiting long-term productive investment.
- **Financial governance and oversight remain weak**, contributing to inefficient credit distribution and limiting the economic return on financing.
- **Financial inclusion is limited**, especially in rural areas, while small and medium enterprises suffer from lack of access and low financial literacy.
- **Banking innovation is insufficient**, with slow adoption of digital finance (FinTech), making the financial system less responsive to private sector needs.
- **The impact of credit varies across Arab countries**, depending on institutional stability, legal frameworks, and the efficiency of financial markets.

Hypothesis Testing

To assess the validity of the hypotheses proposed at the beginning of the study, the following conclusions were reached:

- ✓ **Acceptance of H1:** Domestic credit to the private sector and Gross Domestic Product (GDP) have undergone significant structural changes in terms of volume and role during the period under study.

  The results confirmed substantial shifts, particularly following the financial reforms initiated in the 1990s, which altered the dynamics and allocation patterns of domestic credit across the Arab region.

- ✓ **Acceptance of H2*:*** The effect of domestic credit on economic growth is tangible and shaped by both the characteristics of the credit itself and the broader economic and financial environment, causing variations across countries depending on their economic and financial structures.

The findings supported the notion that the credit growth relationship is context-dependent, influenced by institutional quality, financial depth, and macroeconomic conditions.

✕ **Rejection of H3:** Domestic credit to the private sector has a statistically significant positive effect on economic growth in Arab countries during the period 1990–2023. Contrary to expectations and existing literature, the empirical results indicated a statistically significant **negative** impact of domestic credit on growth in Arab countries. This may reflect inefficiencies in credit allocation, governance challenges, and structural weaknesses within financial systems.

✓ **Acceptance of H4:** Macroeconomic variables such as inflation, unemployment, government spending, and foreign direct investment have a significant impact either positive or negative on economic growth in Arab countries during the period 1990–2023.

The study confirmed that these variables play a critical role in shaping economic performance, highlighting the complex and multidimensional nature of growth dynamics in the region.

Key and Effective Recommendations

To address the detected imbalances, the study recommends the following policies and measures:

- **Improve credit allocation to productive activities:** Prioritize high value added sectors such as industry, agriculture, and technology.
- **Strengthen governance, oversight, and financial legislation:** Reform legal frameworks and regulate lending practices to ensure transparency and efficiency.
- **Expand financial inclusion and reduce financing gaps:** Focus on supporting marginalized regions and financing SMEs to promote spatial equity and local economic dynamics.
- **Leverage financial technology and enhance economic literacy:** Digitize financial services and launch national financial awareness campaigns.

- **Achieve integration between monetary and development policies:** Coordinate financial objectives with broader economic goals, establish national databases for risk assessment, and launch targeted funding mechanisms to support priority investments.

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Appendixes:

Appendix N°01: Estimation Results of the Pooled Regression Model for Panel Data

```
Pooling Model

Call:
plm(formula = GDP ~ DCP + FDI + CPI + GCE + UR, data = data,
    model = "pooling", index = c("PAYS", "ANNEES"))

Unbalanced Panel: n = 10, T = 22-33, N = 290

Residuals:
     Min.   1st Qu.    Median   3rd Qu.      Max.
-47.81714  -2.80226  -0.18615   1.56126  90.20841

Coefficients:
             Estimate Std. Error t-value Pr(>|t|)
(Intercept)  5.137572   2.011023  2.5547  0.01115 *
DCP         -0.042113   0.023150 -1.8191  0.06994 .
FDI          0.226920   0.201137  1.1282  0.26019
CPI         -0.032803   0.021140 -1.5517  0.12185
GCE         -0.092345   0.064913 -1.4226  0.15595
UR          -0.070344   0.079772 -0.8818  0.37863
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Total Sum of Squares:    24144
Residual Sum of Squares: 23506
R-Squared:      0.026426
Adj. R-Squared: 0.0092855
F-statistic: 1.54173 on 5 and 284 DF, p-value: 0.17686
```

Appendix N°02: Estimation Results of the Fixed Effects Regression Model for Panel Data

```
Oneway (individual) effect Within Model

Call:
plm(formula = GDP ~ DCP + FDI + CPI + GCE + UR, data = data,
    model = "within", index = c("PAYS", "ANNEES"))

Unbalanced Panel: n = 10, T = 22-33, N = 290

Residuals:
     Min.   1st Qu.    Median   3rd Qu.      Max.
-47.47357  -2.75368  -0.31826   1.79699  89.00637

Coefficients:
     Estimate Std. Error t-value  Pr(>|t|)
DCP -0.125973   0.036849 -3.4186 0.0007247 ***
FDI  0.243589   0.231398  1.0527 0.2934099
CPI -0.020293   0.023264 -0.8723 0.3837893
GCE -0.155153   0.084063 -1.8457 0.0660141 .
UR  -0.076840   0.190091 -0.4042 0.6863594
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Total Sum of Squares:    23897
Residual Sum of Squares: 22567
R-Squared:      0.055672
Adj. R-Squared: 0.0075967
F-statistic: 3.24245 on 5 and 275 DF, p-value: 0.0073231
```

Appendix N°03: Estimation Results of the Random Effects Regression Model for Panel Data

```
Oneway (individual) effect Random Effect Model
   (Swamy-Arora's transformation)

Call:
plm(formula = GDP ~ DCP + FDI + CPI + GCE + UR, data = data,
    model = "random", index = c("PAYS", "ANNEES"))

Unbalanced Panel: n = 10, T = 22-33, N = 290

Effects:
                 var std.dev share
idiosyncratic 82.060   9.059     1
individual     0.000   0.000     0
theta:
   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
      0       0       0       0       0       0

Residuals:
     Min.   1st Qu.    Median   3rd Qu.      Max.
-47.81714  -2.80226  -0.18615   1.56126  90.20841

Coefficients:
             Estimate Std. Error z-value Pr(>|z|)
(Intercept)  5.137572   2.011023  2.5547  0.01063 *
DCP         -0.042113   0.023150 -1.8191  0.06889 .
FDI          0.226920   0.201137  1.1282  0.25924
CPI         -0.032803   0.021140 -1.5517  0.12074
GCE         -0.092345   0.064913 -1.4226  0.15485
UR          -0.070344   0.079772 -0.8818  0.37788
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Total Sum of Squares:    24144
Residual Sum of Squares: 23506
R-Squared:      0.026426
Adj. R-Squared: 0.0092855
Chisq: 7.70867 on 5 DF, p-value: 0.17304
```

Appendix N04: Lagrange Multiplier Test (Breusch–Pagan) for Pooled OLS Model

```
        Lagrange Multiplier Test - (Breusch-Pagan) for unbalanced panels

data:  GDP ~ DCP + FDI + CPI + GCE + UR
chisq = 1.1495, df = 1, p-value = 0.2837
alternative hypothesis: significant effects
```

Appendix N05: Hausman Test for Model Consistency Between Fixed and Random Effects Models

```
        Hausman Test

data:  GDP ~ DCP + FDI + CPI + GCE + UR
chisq = 10.953, df = 5, p-value = 0.05232
alternative hypothesis: one model is inconsistent
```