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Small and Medium-Sized Towns in The Era of Economic Globalization: A Case Study of Algeria

Thesis for the Degree of Doctor of Philosophy (PhD)

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Debrecen, 2025

Hereby I declare that I prepared this thesis within the Doctoral Council of Natural Sciences and Engineering, Doctoral School of Earth Sciences University of Debrecen in order to obtain a PhD Degree in Natural Sciences at Debrecen University. The results published in the thesis are not reported in any other PhD theses.

Debrecen, 25 February 2025

signature of the candidate

Hereby I confirm that Feyrouz Ahlam Saidi candidate conducted her studies with my supervision within the Human geography – Regional development Doctoral Program of the Doctoral School of Earth Sciences between 2020 and 2024. The independent studies and research work of the candidate significantly contributed to the results published in the thesis. I also declare that the results published in the thesis are not reported in any other theses. I support the acceptance of the thesis.

Debrecen, 25 February 2025

signature of the supervisor

Small and Medium-Sized Towns in The Era of Economic Globalization: A Case Study of Algeria

Dissertation submitted in partial fulfilment of the requirements for the doctoral (PhD) degree in Earth Sciences

Written by Feyrouz Ahlam Saidi certified MSc degree in Geography and urban planning

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Chapter 1: INTRODUCTION

The integration into global value chains/production networks became a key research issue in understanding the spatially uneven development in the era of globalization (Coe & Yeung, 2019). These approaches positioned between macro- and microeconomics focus on the organization of spatially fragmented production systems connecting different regions and nations and on the upgrading possibilities (a shift toward higher value-added and capture) of the participants with particular attention to the global (semi-) periphery (Gereffi et al., 2005; Humphrey & Schmitz, 2002; H. W. chung Yeung & Coe, 2015). Using the concept of strategic coupling, GPN studies place the ways of participation in global production networks influencing regional development trajectories in the core of inquiry (Coe et al., 2004). Coupling processes are dynamic; "regional" is interpreted as an interplay of multiscalar (supranational, national, and subnational) assets and institutions, and although coupling is intentional and based on complementarity, it does not necessarily have a positive outcome (Dawley et al., 2019; MacKinnon, 2012; Yeung, 2015).

Over the past two decades, the global organization of production has accelerated significantly, driven by neoliberal policies promoting market liberalization, reducing trade barriers, and minimizing state intervention (Coe & Hess, 2013; Gereffi & Sturgeon, 2013). During this period of intensified globalization, frameworks like global commodity chains (GCCs), global value chains (GVCs), and global production networks (GPNs) have emerged, shifting the analytical focus from state-centered approaches to firm-centric models. These frameworks emphasize the role of global-led firms in shaping economic development through corporate governance and interfirm relationships (Gereffi, 1994; Ponte & Sturgeon, 2014). However, research has increasingly integrated state- and firm-centric perspectives, recognizing that the state remains a critical actor in global economic governance (Dicken, 2011). Scholars have demonstrated that the state continues to influence development policy and industrial strategy, even within globalized production networks (Carmody et al., 2012). Recent research on GVCs and GPNs emphasizes the expanding role of the state beyond its initial facilitative functions. Earlier studies focused on the state's role in creating favorable business conditions through policies promoted by organizations like the World Bank and World Trade Organization (WTO) to foster firm participation in GVCs (Neilson et al., 2014). However, more recent work highlights the state's multi-dimensional roles as a regulator, producer, and buyer, particularly in response to global developments like neo-nationalism and protectionism (Horner, 2017; Smith, 2015).

Regional and local economies are the backbone of economic activity that support and drive the global economy, operating within specific geographic areas like cities, towns, or regions, serve as vital drivers of community development, job creation, and essential services, encompassing diverse industries from small businesses to agriculture, manufacturing, and services (Hoover & Giarratani, 2020). Their strength and resilience significantly enhance residents' well-being by offering employment opportunities, supporting infrastructure development, and enriching cultural fabric. Tailoring economic strategies to local needs is crucial, as these economies often reflect unique characteristics and competitive advantages, holding the potential to drive sustainable growth, foster entrepreneurship, and develop vibrant, self-reliant communities (Fujita & Thisse, 2003). Cities play a pivotal role in economic development as centers of innovation and productivity, but their effectiveness relies on factors like agglomeration, urban size, and well-managed infrastructure (Bourdeau-Lepage, 2012). Dynamic localized capabilities refer to the specific, context-dependent strengths and resources that cities develop to support economic growth and innovation. These capabilities are often deeply embedded in local knowledge, skills, and institutions and evolve over time based on the unique characteristics of each urban area. Unlike static factors like urban size or basic infrastructure, dynamic localized capabilities focus on cities' capacity to leverage their distinct strengths—such as local expertise, cultural factors, and historical industrial clusters—to foster economic development. Furthermore, dynamic localized capabilities can also involve how cities manage their resources and address specific challenges, such as sustainable energy production, urban mobility, or digital infrastructure, which can drive growth in particular sectors. These capabilities evolve as a city continuously interacts with its environment, develops new business models, and responds to global economic trends (Audretsch, 2007).

Small and medium-sized towns can integrate into GPNs if they have the necessary local assets and resources that transnational corporations and other actors can utilize in the global economy. These local assets can include access to cheap labor, land, natural resources, and infrastructure. Additionally, towns that are located in strategic geographic locations, such as near major transportation hubs or ports, can also be attractive to firms seeking to integrate into GPNs. However, the integration of towns into a GPN is not solely determined by their local assets and resources. Other factors, such as government policies, institutional frameworks, and historical legacies, can also significantly shape the conditions for GPN integration. For example, government policies that promote investment in certain sectors or regions can attract transnational corporations and facilitate GPN integration.

Algeria is characterized by a rentier economy, heavily reliant on foreign customers' revenues, primarily through oil exports. This economic model is shaped by four key features: first, the predominance of external rent from natural resources, which contributes to the weakness of the national productive sector. Second, only a small portion of the active population participates directly in generating this rent. Third, the government is the principal beneficiary of these external revenues, allowing it to maintain extensive state control. Fourth, such control fosters bureaucratic inefficiencies, impedes private-sector growth, and contributes to the persistence of clientelism, further complicating efforts toward economic diversification (Aurèlia & de la Cámara, 2005; Hami, 2021; Matsunaga & Bouyssou, 2000). These issues are exacerbated by the heavy reliance on oil revenues, which makes the economy vulnerable to global oil price fluctuations, limiting diversification beyond the energy sector.

This rentier structure has also influenced Algeria's urbanization, which accelerated rapidly after the colonial period. Although large cities existed before colonization (Valette, 1975), Algeria lacked continuous urban traditions due to frequent shifts in rulers and foreign influences (Sanson, 1979). The post-independence period witnessed a surge in urbanization, with internal migration driving annual urban growth rates to 10.2% during the 1950s and 60s (Côte, 1994). However, by 2008, urban growth had slowed significantly to 1.7% per year (ONS, 2008). This rapid but uneven urban development further reflects the broader economic challenges Algeria faces, where urban expansion, often driven by state policy, mirrors the centralized control of its rentier economy.

Amidst this uneven urban growth, small and medium-sized towns have emerged as essential players in Algeria's urbanization landscape (Bousmaha et al., 2021). These towns, crucial for economic and social activities, have grown significantly, contributing to the overall urban population and alleviating pressure on larger cities. Their development fosters critical urban-rural interactions, promoting a more balanced urban network that supports regional stability and sustainability (Saidi et al., 2023). These towns provide vital services, infrastructure, and improved access to resources, positioning them as critical components in Algeria's strategy to achieve more equitable and sustainable urban development. Together, these trends underscore the interconnectedness between Algeria's rentier economic structure and the evolving role of small and medium-sized towns in navigating urbanization challenges.

1.1 Aims and structure of the research

The primary aim of this research is to explore the complex interplay between small and medium-sized towns (SMSTs) in Algeria and their roles in the global production network (GPN), with particular attention to the socio-economic and spatial transformations in the context of economic globalization.

The specific research objectives are as follows:

1. Urbanization as a Catalyst for Economic Growth: Urbanization creates economic activity, innovation, and labor concentration hubs. Algeria's urban centers are increasingly serving as engines of growth by connecting local economies to broader global markets. Well-urbanized SMSTs can mitigate overconcentration in large cities, distributing economic benefits evenly across regions.
2. Integration with Global Production Networks (GPNs): On the one hand, exploring the sectoral and regional patterns of Algeria's participation in global production networks, focusing on the influence of the country's rentier-state economic structure on its integration into the global economy. On the other hand, by integrating into GPNs, Algerian industries in SMSTs can access global markets, improve production standards, and benefit from knowledge transfer.
3. State's Role in Development: Algeria's state policies, such as subsidies, infrastructure investments, and industrial decentralization, are critical in fostering urban growth and integrating local industries into global systems. The state's push to develop SMSTs aligns with its goal of reducing urban-rural disparities and ensuring equitable development.
4. Importance of Small and Medium-Sized Towns: SMSTs are intermediaries between rural and urban economies. They provide localized production capabilities, close-knit community ties, and cost-effective labor, which are essential for industries requiring proximity to both raw materials and markets. Focusing on SMTSs helps alleviate the pressures on larger cities, fostering sustainable urban growth.
5. Conduct a Case Study of an Algerian Small Town's Integration into GPNs: Investigate how a specific small town in Algeria can be integrated into global production networks, offering insights into the processes and factors that facilitate or hinder such integration locally.
6. Unique Algerian Context: Algeria's resource wealth, especially in hydrocarbons, and its strategic geographic location between Africa and Europe make it well-positioned for GPN integration. However, the country's

vast territory and uneven development necessitate a balanced approach, where SMSTs become pivotal nodes of growth and development.

This thesis is structured into five chapters, each addressing a key aspect of the research objectives:

- Chapter 1: Introduction

A comprehensive overview of the research topic, including background information, the research problem, and the significance of the study.

- Chapter 2: Materials and Methods

This chapter is divided into two parts: the first is the study area description, which gives a brief description of Algeria in relevant ways (location, population, economics, and politics). The second part, the methodology, describes the research design, data collection methods, and analytical techniques in detail in three parts according to the three main goals of the research.

- Chapter 3: Literature Review

Review of the existing literature on the topic. It is organized into two main sections: urban studies and economic studies, each further divided into subsections. The urban studies section examines urbanism and urbanization, the development of cities and towns, small and medium-sized towns, and Algerian urban studies. The economic studies section explores globalization, Global Production Networks (GPN), the rentier state, and GPN-related economic studies.

- Chapter 4: Results and Discussion

Presentation of the results and highlighting the key findings related to the research objectives. It discusses them according to the literature background, dividing it into four parts (Figure 1). The first section focuses on Algerian urban studies, addressing (1) an overview of the urbanization phenomena from 1886 to 2008, (2) regional tendencies in urbanization, and (3) urban growth and spatial rebalancing. The second section explores the GPN participation of the Algerian rentier state, discussing (1) the national socio-economic context of Algeria, (2) the regional pattern of GPN participation, and (3) the state's role in shaping GPN participation. The third section is about the place of Algerian small and medium-sized towns, presented through (1) the Algerian population distribution according to Zips law, (2) the distribution of urban settlements by type of cities, and (3) the distribution of economic entities by different types of cities and sectors of activates. The fourth section presents a case study on integrating an Algerian small town into GPNs, specifically examining (1) the Algerian cement industry and (2) the case study of Sigus.

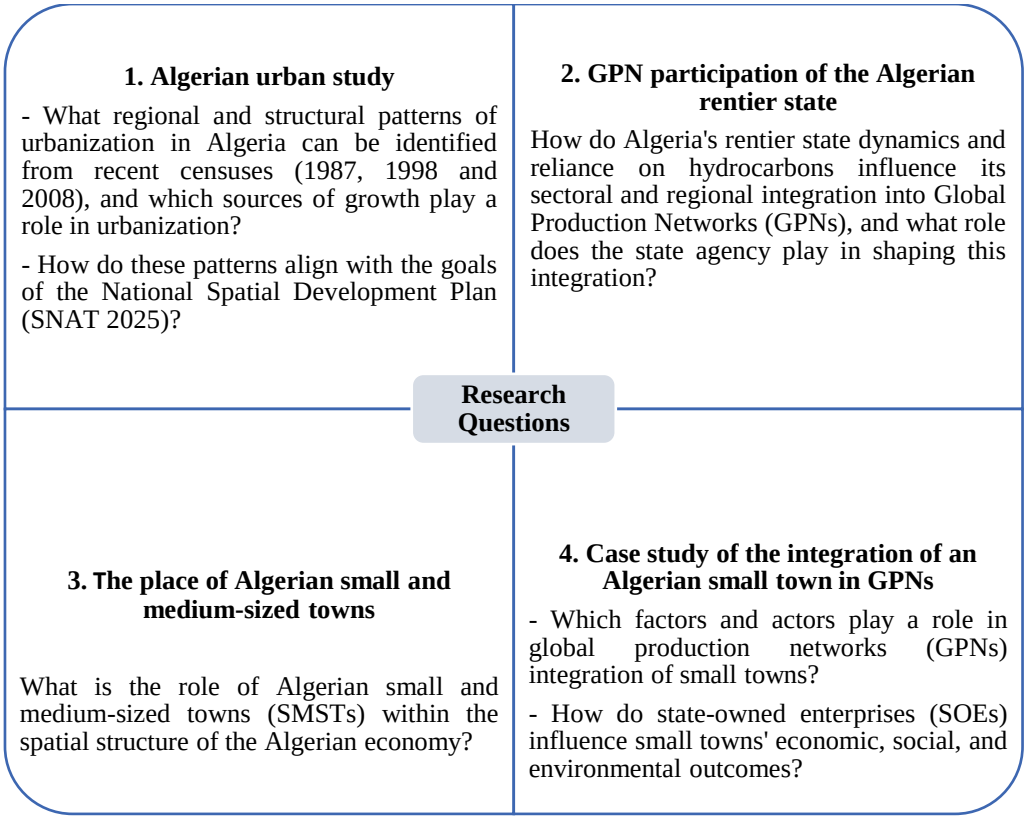


Figure 1. The structure of the results. Source: edited by the author

- Chapter 5: Conclusion and Future Research

Summary of the dissertation's key contributions in six theses, key novalities, and future research recommendations.

Chapter 2: MATERIALS AND METHODS

2.1 Study Area Description

2.1.1 Basic Demographic Characteristics of the Study Area

Algeria is situated in the Southern Mediterranean region, within North-West Africa, and at the heart of the Maghreb (Figure 2). Covering a total area of 2,381,741 km^2, Algeria ranks as the 10th largest country globally and the largest in Africa. It encompasses three primary geographical regions: the Tell region in the North, the Highlands, and the Sahara Desert in the South (Jules, 1859).

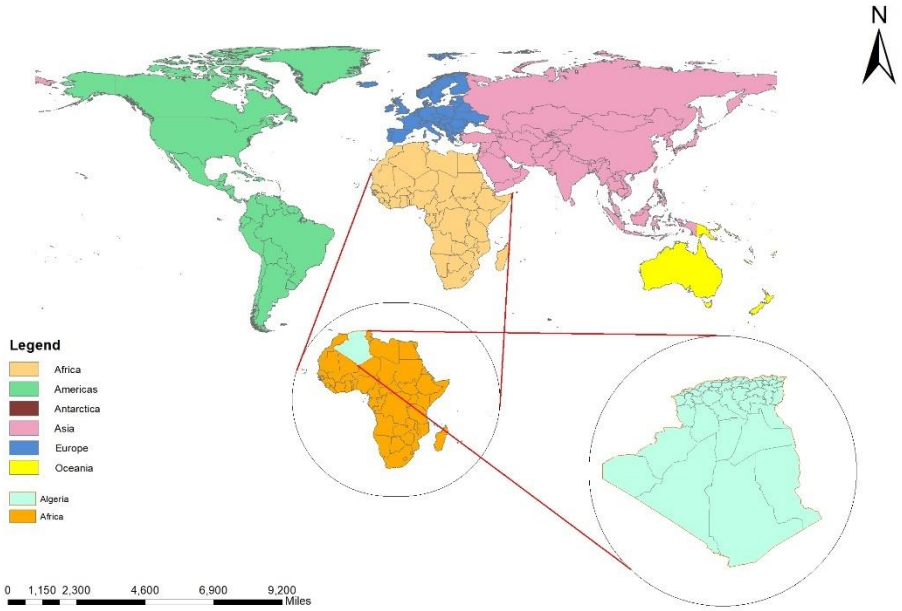


Figure 2. The location of the study area. Source: edited by the author

Algerian cities bear the imprint of a rich historical tapestry shaped by successive cultures and civilizations. Dating back to the Roman era, cities like Timgad, Jamila, and Tipasa exemplify early urban planning efforts characterized by organized layouts and comprehensive urban life regulations. The Islamic and Ottoman periods further fueled urban growth, fostering a flourishing urban network and developing detailed urban legislation governing street widths, building alignments, and infrastructure provision. The Ottoman legacy encompasses architectural achievements and enduring urban planning principles. However, French colonial rule introduced significant changes to Algeria's urban landscape, often at the expense of Arab and Islamic

architectural heritage, by imposing European laws that disregarded local nuances. Post-independence, Algerian cities grappled with rapid and disorderly urbanization, leading to substantial land resource depletion (Côte, 1994). This phase ushered in transformative shifts across various spheres, including unprecedented urbanization dynamics, population migrations, and the emergence of new urban forms that define contemporary urban growth. In 1998, the average population density was approximately 12 inhabitants/km^2, rising to nearly 15 inhabitants/km^2 by 2008 (Table 1). Algeria cannot be classified as densely populated, though significant variations exist among its three geographical regions. In 2008, the population of the North was estimated at around 21.5 million, resulting in a density of 209 inhabitants/km^2. In contrast, the South recorded about 3.2 million inhabitants with a population density of 1.64 inhabitants/km^2 during the same period. The Highlands occupied an intermediary position with a density of 30.75 inhabitants/km^2 (Table 1). This uneven population distribution is further pronounced at the provincial or municipal levels. Approximately 70% of the population resides in metropolitan areas and major cities, where population densities are notably higher, mainly due to industrial activities.

Table 1. Population distribution along the three major zones of Algeria. Source: national censuses (1998 and 2008)

Regions	**Area (km^2)**	**Area (%)**	**Population (%)**		**Density (Inhabitant/km^2)**	
			1998	**2008**	**1998**	**2008**
North	102,781	4.32	64.70	63.13	183.18	209.29
Highlands	303,231	12.73	26.50	27.37	25.43	30.75
South	1 975,729	82.95	8.80	9.50	1.30	1.64
Total	2,381,741	100	100	100	12.22	14.30

2.1.2 The spatial development tools

In the Algerian urban planning field, numerous laws played essential roles in population distribution and land use after independence. The first Law 87-03, was related to urban development (Loi No 87-03 Du 27 Janvier 1987 Relative à l'aménagement Du Territoire, 1987), which allowed for decentralized planning for the development process at the local level. The aim was to balance the distribution of national wealth and land occupancy, upgrade spaces, control large urban gatherings, and rationalize the exploitation of natural resources. However, the implemented policies of this law failed to align with it, rendering it merely theoretical, which led the government to persist in central planning, adopting a sectoral approach that overlooked the need for coordination with local dynamics and neglected local peculiarities. Furthermore, the economic downturn of 1986, precipitated by

plummeting oil prices, relegated urban development to a secondary concern. In the nineties, the pivotal legislation was the Real Estate Guidance Law 90-25 (Loi n° 90-25 du 18 novembre 1990 relative à l'orientation foncière), which provided the legal foundation for reconstruction efforts, and in its articles 66 and 70 delineated the parameters for durable and buildable lands. Additionally, Law 90-29 on urban planning in Article 10 outlined the tools and mechanisms for reconstruction. In response to escalating regional disparities, there was a growing call for formulating a new national agenda to guide urban development strategies in Algeria. This prompted the establishment of the Supreme Council for Environment and Sustainable Development, tasked with formulating national environmental policies; this body seeks to foster broad inter-sectoral collaboration. Law 20-01, about territorial planning and sustainable development *(Loi N° 01-20 Du 12 Décembre 2001 Relative à l'aménagement et Au Développement Durable Du Territoire., 2001)*, has been enacted in line with these efforts, complementing and refining Law 87-03 provisions; this law aims to tailor national development initiatives to each regional domain's unique characteristics and potential.

Subsequently, two additional laws were introduced to address critical environmental protection and urban development aspects. Law 03-10, concerning environmental protection within the sustainable development framework (Loi 03 10 du 19 juillet 2003 relative à la Protection de L'environnement Dans Le Cadre Du Developpement Durable), lays down foundational principles and regulations for environmental stewardship. It emphasizes safeguarding, restoring, and sustainable management of natural resources and mitigating pollution and environmental degradation. Moreover, it aims to enhance overall environmental quality and promote the prudent utilization of available resources while also targeting the root causes of regional disparities. Furthermore, Law 06-06, known as the city Orientation Law (*Loi N°06-06 Du 20 Février 2006 Portant Loi d'orientation de La Ville*, 2006), supplements the legislative framework about regional planning, sustainable development, and preserving ecologically sensitive areas. This legislation underscores the importance of monitoring urban policies, delineating the responsibilities of stakeholders, addressing urban imbalances, and overseeing urban expansion initiatives.

These laws established several national and regional tools that were presented hierarchically in the following plans:

a. The *National Territorial Development Plan* (*Schéma National d'Aménagement du Territoire*, SNAT), initiated by Law 87-03 and amended and supplemented by Law 01-20, declares the State's territorial vision and objectives and is established for 20 years and assessed and updated every five years periodically. The SNAT 2025 serves as a guiding force for action and a

strategic planning document at the national level. It aims to integrate Algeria into its natural geographical contexts in the face of globalization and global competitiveness. The SNAT 2025 outlines the State's intentions to achieve territorial balance, equity, and attractiveness over the next two decades within a sustainable development framework. These Guidelines are implemented through 20 Territorial Action Programs (Plan d'Action Territorial, PAT) presented in Table 2.

Table 2. Territorial Action Programs of SNAT 2025. Source: SANT 2008

Guidelines	Territorial Action Programs (PAT)
Towards a sustainable territory	PAT 1: Sustainability of water resources
	PAT 2: Soil conservation and fight against desertification
	PAT 3: Ecosystems
	PAT 4: Major risks
	PAT 5: Cultural heritage
Create the dynamics of territorial rebalancing	PAT 6: Slowing down and rebalancing the coastal region
	PAT 7: Developing Highland
	PAT 8: Developing the South
	PAT 9: Relocation of activities and administrative deconcentration
	PAT 10: Developing a hierarchical and articulated urban system
Create the conditions for the attractiveness and competitiveness of territories	PAT 11: Modernization and networking of public works, transport, logistics and communications infrastructures
	PAT 12: Metropolization
	PAT 13: Clusters of competitiveness and excellence
	PAT 14: New areas of growth: the 14 Program Regions
	PAT 15: Local development
	PAT 16: The opening of territories internationally
	PAT 17: The Maghreb
Achieve territorial equity	PAT 18: Urban renewal and city policy
	PAT 19: Rural renewal
	PAT 20: Upgrading damaged areas

b. The *regional territorial development scheme* (Schéma Régionale d'Aménagement du Territoire, SRAT): initiated by Law 87-03, amended and supplemented by Law 01-20, established at the regional level for 20 years, and periodically assessed and updated every five years. The plan comprises nine regions (Figure 3) at the interprovincial scale. These regions are defined according to the physical characteristics and development vocations, as set

forth in Article 41 of Law 87-03). Its development approach is based on the consultation and participation of partners, distributes activities and settlements across the region, locates infrastructure and equipment, and regulates the regional urban framework. It aims to:

- ensure the preservation and enhancement of natural resources
- protection of ecological spaces and heritage
- development of agricultural land and rural areas
- programming and location of significant infrastructures
- development of activities and employment (economic development)
- the distribution of activities and resources across the region
- the regulation of the regional urban framework

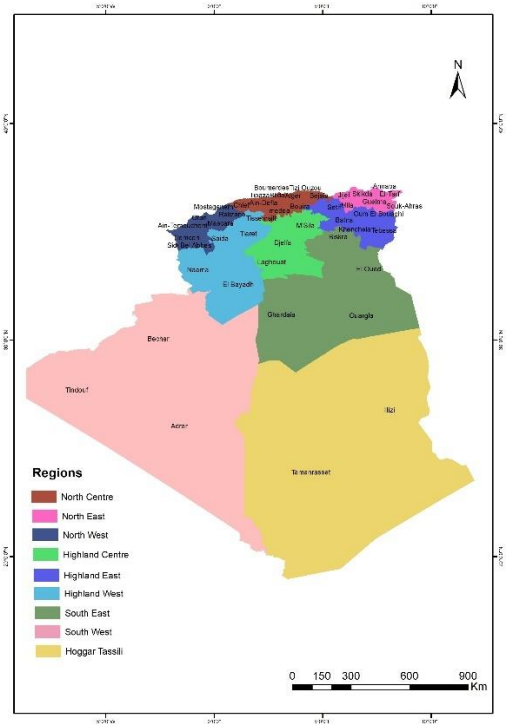


Figure 3. The nine Algerian regions. Source: edited by the author

c. The *development plan of provinces* (Plan d'Aménagement de Wilaya, PAW): is an instrument of planning and development at the province level (Algeria is divided into 48 provinces and after 2019 into 58 provinces) (Figure 4), initiated by Law 01-20. It is the flagship instrument that sheds light on the decision-making power regarding the major orientations inherent in the

micro-regional space. Its pivotal position between the SNAT, SRAT, and the master plans for development and urbanism gives it a guiding force for local efforts drawing on national and regional directives and, in turn, feeding the trends of the provinces and municipalities. It aims to:

- establish master plans for the organization of public services and facilities
- realize in terms of programs for municipal territories the actions and provisions adopted by the SRAT
- ensure the distribution of local activities and services of public interest throughout the province's territory
- determine the location of the various infrastructures and development areas
- determine the inter-municipal development areas
- tenhance the assets and vocations of the different municipalities of the province
- fix the vocations of each municipality of the province.

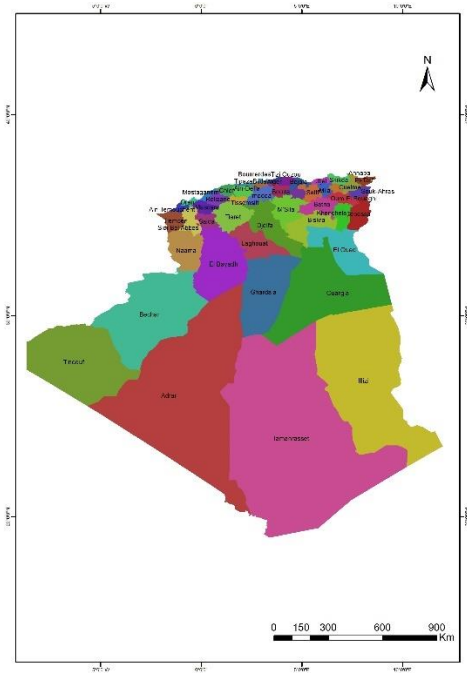


Figure 4. The distribution of the 48 Algerian provinces. Source: edited by the author

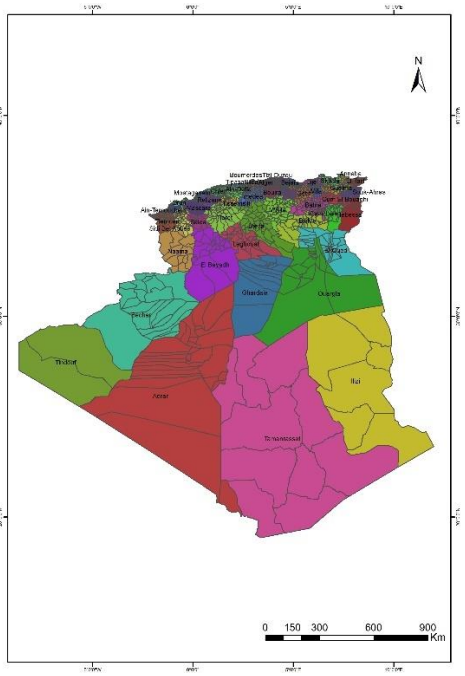


Figure 5. The distribution of the 1541 Algerian municipalities. Source: edited by the author

d. The *Master Plan for Development and Urbanism* (Plan Directeur d'Aménagement et d'Urnaisme, PDAU): initiated by Law 90-29, is an instrument of urban planning and management at the local level that specifies to divide its territory into municipalities (Figure 5) or group of municipalities, as urbanized, to be urbanized in the future and non-urbanizable sectors. It aims to:

- Determine the areas of intervention for the existing urban fabrics and the areas to be protected (historical sites, forests, agricultural land, coastline).
- Defines the urban extension, the location of services and activities, and the nature and location of major equipment and infrastructure.
- Determines the general destination of the land.
- Rationalization of the use of urban and peri-urban spaces.
- Forecasting future urbanization and its rules.

e. *The land-use plan* (Plan d'Occupation des Sols, POS): is a detailed plan at the last (local) level of urban planning research. Established by Law 90-29. It comes from the guidelines and prescriptions of the PDAU and defines the rights of land use and construction on the plot. It ensures and specifies:

- architectural and urban quality
- rational consumption of building land
- maximum protection of agricultural land
- the functional and formal aspect of the city
- the nature and importance of the construction
- historic areas, sites, and monuments to be protected
- the minimum and maximum number of builds allowed
- he conservation of historic sites, natural spaces and landscapes
- the rules concerning the exterior appearance of buildings.

2.1.3 Definition and Classification of Urban Settlements

According to Law 06-06 (2006), an urban concentration is designated as urban if its population aggregates to at least 5,000 inhabitants. Article 4 of this law defines any urban concentration with requisite population size and administrative, economic, social, and cultural functions as a "city". Law 01-20 (2001) introduces various conceptual classifications, like metropolitan area, big city, new city, and sensitive urban zone. In contrast, Law 06-06 (2006) outlines definitions for medium-sized towns, small towns, and urban concentrations (Table 3), with Article 5 highlighting that cities may also be categorized based on their functional roles and influence across

local, regional, national, and international spheres, as well as their historical, cultural, and architectural significance.

Table 3. Classification of urban settlements according to the Algerian Laws 01-20 (2001) and 06-06 (2006)

Law	Typology	Definition
01-20 (2001)	Metropole	Urban concentration with a total population of at least 300,000 inhabitants, with developing regional, national and international functions.
	Large city	Urban concentration with a total population of at least 100,000 inhabitants.
06-06 (2006)	Medium-sized city	Urban concentration with a population between 50,000 and 100,000 inhabitants.
	Small town	Urban concentration with a population between 20,000 and 50,000 inhabitants.
	Urban concentration	Urban settlement with an agglomerated population of at least 5000 inhabitants.

2.2 Methods

Secondary data, as presented in Table 4, was utilized alongside primary data gathered through semi-structured interviews, the details of which are provided in Table 5.

Table 4. List of secondary data used in the research. Source: edited by the author

Type of data	Source	Purpose
Literature	- Urban /Urbanization - Cities and towns - Small and medium-sized towns	To define urbanization processes, analyze the role of towns in spatial and economic development, and emphasize the significance of small and medium-sized towns in shaping balanced urban networks.
	Rentier State	To examine how Algeria's rentier state model impacts economic structures and governance.
	Globalization /GPN research	To comprehensively understand how global economic forces and state structures shape urban and regional development, especially in the context of smaller urban centers within global and national economies.

Statistical data	Algerian general census of population and inhabitants of 1987, 1998, 2008	For examining Algerian urbanization trends across regions.
	Export data from the International Trade Centre	Examines the economic progress in Algeria between 2003 and 2022.
	Foreign trade data from the International Trade Centre	Examines the place of Algeria in cement exporters and imports
	OPEC	To have the needed data about the Algerian oil prices
	Algerian economic census of 2011	To have the needed data about the distribution of economic entities in Algerian SMSTs
Economic and policy documents	Algeria's National Spatial Development Plan (SNAT, 2025)	To compare our results with the state's strategies for reducing spatial inequalities and enhancing the attractiveness
	Master Plan for Development and Urbanism of Sigus.	To have the needed information about the case study of Sigus
	Deferent Algerian cement factory web pages	To summarize the cement plants in Algeria
	Newspaper articles	For examining the recent industrial development of Algeria's small towns.
	Official Journal of the Algerian Republic (SGG)	To obtain the relevant Algerian laws
	Deferent national Algerian development programs	To have a background about the national socio-economic context of Algeria

The most recent Algerian general census was held in 2008, as the planned census for 2018 was postponed to September 2022 due to financial constraints and challenges posed by COVID-19, and its results have not been published yet. The three census records offer a consistent and comprehensive dataset, ensuring uniformity in spatial and settlement size structures for the periods surrounding the transition into and out of the millennium. Algeria's 2011 economic census was its first and only one, serving several key purposes. First, it aimed to update the directory of individuals and entities, forming the backbone for statistical operations at the National Office of Statistics. This directory provides a comprehensive, reliable, and current database for economic analysis at all levels. Second, it offers a sampling framework for enterprise surveys, particularly in the private sector, which had previously been less understood. Third, it

facilitates monitoring various economic sectors (excluding agriculture), such as industry, commerce, construction, and services. Finally, it contributes to developing key activity indicators, particularly for the private sector, which plays an increasingly significant role in Algeria's economy.

The SNAT serves as the spatial framework for regional analysis, emphasizing strategies to reduce spatial disparities and enhance the appeal of selected regions over the next two decades within sustainable development (Saidi & Saidi, 2022). The research analyzes Algeria's economy alongside Morocco and Tunisia, focusing on differences in commodity and regional trade structures. It highlights the utility of foreign trade data as a tool to assess and describe the countries' overall participation in global production networks, and the chosen timeframe the export data between 2003 and 2022 is justified by the availability of consistent data and the impact of globalization and new economic policies in Algeria during this period.

For the analysis, I used figures, tables, charts, and maps made by Excel 2016 and ArcMap 10.4.1 softwares for good visualization of the quantitative part of the results. Herfindahl-Hirschman Index (HHI) was also employed to examine the dynamics and variations in concentration across 97 commodity categories and 212 geographic regions. The HHI is a widely used measure of market or sectoral concentration that reflects the degree of concentration within a particular industry, market, or economic structure (Hirschman, 1945). I also used the Location Quotient (LQ) which is an analytical tool used in economic geography and regional planning to measure the concentration or specialization of a particular industry or sector within a specific geographic area compared to a broader reference area (Isserman, 1977). TheLQ helps identify the relative specialization of an economic sector within a medium-sized town, small town, and the smallest urban settlement compared to a broader area. An LQ greater than 1.5 suggests a significant concentration or overrepresentation of a particular activity in the town.

The cement industry is a compelling case study due to its multifaceted relevance to Algeria's economic and regional development strategies. As the country seeks to diversify its economy beyond hydrocarbons, the cement sector emerges as a vital component of the non-hydrocarbon economy, aligning with efforts to broaden economic bases and reduce dependency on oil and gas revenues. This industry is critical in addressing the surging domestic demand for construction materials, fueled by significant infrastructure and construction booms in recent years. Beyond its domestic contributions, Algeria’s cement sector has gained prominence as a major exporter, supporting the national objective of enhancing export diversification through resource-based industries. Predominantly located in smaller towns (see table 16), the cement industry significantly influences local economies and communities, providing

a valuable lens for examining socio-economic transformations in these areas. While environmental concerns associated with the sector are widely acknowledged, there remains a research gap regarding the broader developmental effects of cement factories. This presents an opportunity to investigate the intersection of economic growth, environmental considerations, and localized development impacts, highlighting the cement industry's dual role in fostering economic advancement and posing environmental challenges. One of the cement factories is located in Sigus, a small town that aligns with the type of city under study, representing one of the key reasons for selecting this town. Additionally, Sigus is classified as an overrepresented industrial town (as discussed in Chapter 4.4.2). The town's proximity to my home city facilitated access to essential data due to existing connections, including personal ties and an agreement between my previous university and the Sigus cement factory. These connections enabled me to conduct multiple interviews with various directorates at the province level (Table 5), providing valuable insights for this study.

Table 5. List of interviewees and their contributions to the case study of Sigus. Source: edited by the author

Position of interviewee	Contribution of interviewee
Operations manager of Sigus factory (interview 1)	General presentation of the Sigus factory, orders to the workers to help us in collecting the necessary information.
Head of production department of Sigus factory (interview 2)	Production information about the factory.
HR manager of Sigus factory (interview 3)	Employees' information about the factory.
A laboratory engineer of Sigus factory (interview 4)	Presentation of the products and their quality.
A mechanical engineer of Sigus factory (interview 5)	Presentation of the production process (oven, machines etc.).
Environmental Inspectorate / Directorate of Environment of Oum El Bouaghi province (interview 6)	Presentation of the environmental effects.
Director of the Directorate of Energy and Mines of Oum El Bouaghi province (interview 7)	Presentation of the relation between the factory and the directorate (of energy and mines), and order to the head of the fuel office to provide us more information.
Head of the Fuel Office / Directorate of Energy and Mines of Oum El Bouaghi province (interview 8)	Completion of information collected in the factory.

Mayor of Sigous municipality (interview 9)	Presentation of his role in the foundation of the plant/factory.
Directorate of Commerce of Oum El Bouaghi province (interview 10)	Presentation of the relation between the factory and the directorate (of commerce).
Directorate of Industry of Oum El Bouaghi province (interview 11)	Presentation of the relation between the factory and the directorate (of industry).
Head of the Directorate of Civil Protection of Oum El Bouaghi province (interview 12)	Conveyance of internal intervention plan of the plant/factory.
Lawyer of the province of Oum El Bouaghi province (interview 13)	Presentation how the processes of land expropriation and compensation were assisted by him.

The interviewees were selected based on their direct connections to the Sigus factory, focusing on individuals with relevant interactions and insights into its operations. The interviews were conducted openly and personally, allowing for in-depth discussions tailored to each participant's specific experiences and roles within the factory. Each interview typically lasted approximately an hour and was recorded, with detailed notes taken. The primary question focused on the interviewees' relationship and role with or within the Sigus factory, encouraging open discussions and comprehensive responses (see Appendix 1). This approach ensured that the information gathered was both specific to each interviewee and consistent in addressing key aspects of their involvement. The interviews were then compared with one another and, when relevant, cross-referenced with available statistical data, enhancing the consistency and reliability of the research through this triangulation process.

Chapter 3: LITERATURE REVIEW

3.1 Urban Study

3.1.1 Urban and Urbanization

According to Hall (2006), identifying urban and non-urban areas typically relies on indicators such as population size, density, services, and employment profiles. However, these classifications are descriptive and fail to define what is inherently "urban", as they identify differences in degree rather than type. For example, while shops in urban areas may be larger and more varied, they are not exclusive to cities. This subjectivity in classification leads to variation between countries, with places classified as urban based on human decisions rather than natural distinctions. The processes that shape both urban and non-urban areas are similar, meaning that urban characteristics, such as poverty, are social rather than inherently urban issues. Thus, "urban" is a convenient label used by geographers and social scientists for research and organization, reflecting social and academic perceptions rather than a fundamental distinction. Despite this, the term remains useful in structuring societal and governmental functions, making it a meaningful theme for inquiry. The definitions and characteristics of urban areas can vary significantly based on cultural, historical, and socio-economic contexts (Weeks, 2010): (1) Regional Differences: In Europe, urban areas are often defined by specific administrative boundaries and population density, while in Asia, the rapid urbanization and megacity phenomena present unique challenges and definitions. Urbanization patterns differ in Africa, particularly between North and Sub-Saharan Africa, due to historical, economic, and political factors. For instance, North African cities may have more historical ties to Mediterranean trade routes, while colonial legacies and post-colonial developments may shape Sub-Saharan cities. (2) Historical Context: The content and understanding of "urban" have evolved over different historical periods. In ancient times, urban areas were often defined by their role as centres of trade, governance, and culture. During the Middle Ages, the concept of urbanism was influenced by feudal systems and the growth of towns as centres of commerce and religion. Modern urban areas are increasingly characterized by industrialization, globalization, and technological advancements, leading to new forms of urban living and governance. (3) Changing Definitions: What constitutes an urban area has changed over time, reflecting shifts in population dynamics, economic activities, and social structures. For example, the rise of informal settlements and slums in contemporary urban areas challenges traditional definitions based solely on population size or density.

According to Geyer and Kontuly (1993), the differential urbanization model outlines several distinct phases of urban growth. The process begins with the Primate City Phase, where a dominant city attracts the most interregional migration and establishes

spatial control. This evolves into the Intermediate Primate City Stage, where rapid suburbanization emerges, indicating a shift toward a multi-nodal structure. In the Advanced Primate City Stage, agglomeration diseconomies lead to decentralization, fostering growth in smaller cities. The Small City Stage sees smaller urban centres, particularly those with locational advantages, growing faster than larger cities. Eventually, the urban system reaches a Saturation Point, where rural-to-urban migration slows, and natural population increases drive growth. A Second Cycle of Urban Development follows, with renewed growth across metropolitan areas, intermediate-sized cities, and small urban centres, reflecting ongoing adaptations to economic and social shifts.

Urbanization, characterized by the increasing concentration of populations in urban areas, has witnessed rapid growth in recent decades (Annez & Buckley, 2009). In 1900, fewer than 200 million people, accounting for 15% of the global population, resided in cities, but the twentieth century saw a significant transformation (Zinkina et al., 2017). By 2010, approximately 3.6 billion individuals, constituting 51% of the world's population, lived in urban areas, and projections suggest that this figure will reach 6.3 billion (70%) by 2050 (United Nations, 2018; World Economic and Social Survey, 2010). Urbanization encompasses quantitative and qualitative dimensions, involving the concentration of populations in urban areas and the spread of urban life, infrastructure, and culture into rural areas (Kumar, 2017; Tisdale, 1941). Factors such as natural population growth, rural-urban migration, the establishment of "de jure" towns, and the expansion of cities into rural territories contribute to urbanization, although urban areas generally experience lower rates of natural population growth compared to rural areas (Cohen, 2006; Kojima, 1996). Davis (2020) defines urbanization as the rise in the proportion of a population living in urban areas compared to rural ones. This increase can occur even without actual city growth, such as through a decline in the rural population, or city populations might expand without a rise in urbanization if both urban and rural populations grow at a similar pace. These concepts are crucial for understanding the historical development of urban areas. Most notably, this definition highlights how migration from rural areas to cities has consistently played a central role in urban growth, a trend that persists today.

According to Champion (2001), there are four stages of urban development: (1) urbanization, where certain settlements expand at the expense of surrounding rural areas; (2) suburbanization (or ex-urbanization), marked by the growth of the urban ring or commuter belt at the cost of the urban core; (3) dis-urbanization (or counter-urbanization), where the population loss in the urban core exceeds the growth in the surrounding ring, leading to an overall population decline in the agglomeration; and (4) re-urbanization, where the urban core either stabilizes its population loss or begins

to regain population, while the surrounding ring may still experience a decline. While urbanization broadly refers to the expansion and population growth of urban areas, differential urbanization highlights shift in growth patterns across regions and settlement sizes. It focuses on the dynamic interplay between urban, suburban, and rural areas at different stages of development and captures the cyclical nature of urban change across these phases, contrasting with the more general, unidirectional view of urbanization.

Vernon Henderson (2002) highlights the rapid and accelerated urban growth in emerging economies, often outpacing the pace seen in developed nations. This growth leads to urban concentration, where large populations are concentrated in megacities, causing challenges such as traffic congestion, pollution, and insufficient infrastructure. Economic activities in these cities often focus on non-traded goods, such as local services and retail, along with export-oriented industries benefiting from localization economies. However, the swift urbanization process frequently surpasses the development of critical infrastructure like transportation, housing, and public services. As a result, substantial investments in interregional transport and telecommunications are needed to manage urban concentration and support industrial deconcentration. Furthermore, the urbanization process is complicated by institutional and policy gaps, as many emerging economies struggle with governance structures that are not sufficiently robust for efficient urban planning. Globalization and economic liberalization further influence urbanization patterns, affecting migration, investment, and the growth of urban economies. Additionally, urban growth often results in excessive urban primacy, where one city dominates, exacerbating imbalances. To address these issues, effective urban planning, decentralized governance, and fiscal policies that support interior cities are crucial to counterbalance the disproportionate concentration of industries and populations in primate cities.

Urbanization in Africa is a complex and multifaceted process influenced by historical legacies, economic structures, and demographic dynamics. As the fastest urbanizing continent, Africa is projected to have over 60% of its population living in urban areas by 2050 (United Nations, 2018). This rapid urban growth is primarily driven by natural population increase, rural-to-urban migration, and the expansion of informal settlements. However, urbanization across Africa remains largely in an initial concentration stage, characterized by haphazard and unregulated growth. Many African nations exhibit monocentric urban networks, where a single city—often the capital—dominates in population, economic activity, and political influence, overshadowing secondary cities and contributing to uneven development. These patterns are deeply rooted in colonial histories, as urban centers were originally established as administrative and commercial hubs for extractive economies rather

than fostering widespread industrialization (Freund, 2007). Consequently, postcolonial cities inherited spatial segregation and economic dependencies that continue to shape urban inequalities today. Colonial governance structures reinforced urban-rural divides, with cities functioning as enclaves of economic and political power while vast rural areas remained marginalized (Mamdani, 1996). This legacy persists in contemporary urban governance, where weak institutional frameworks, political instability, and neoliberal policies have hindered the development of effective urban planning institutions (Myers, 2011;Elmqvist et al., 2013). Despite these challenges, African urbanization also presents opportunities for economic growth and social transformation. Cities act as engines of innovation, entrepreneurship, and cultural exchange, with rising middle classes and expanding consumer markets driving new forms of economic activity (Turok & McGranahan, 2013). However, the dominance of informal economies in most African cities poses governance challenges, as state institutions often struggle to regulate land use, provide services, and ensure sustainable development (Fox, 2012). Inadequate urban planning exacerbates these issues, leading to sprawling, unregulated settlements, environmental degradation, and the proliferation of slums due to overly strict zoning regulations in central areas (Elmqvist et al., 2013). Scholars point out that ineffective land tenure systems have resulted in precarious housing conditions, with informal settlements accommodating a significant share of urban populations (Huchzermeyer, 2011). Additionally, the lack of dedicated urban planning departments and mismanagement of essential urban services contribute to infrastructure deficits in housing, transportation, energy, and sanitation, reinforcing socio-economic disparities. Addressing these structural issues requires coordinated investments and inclusive urban policies to harness the potential of urbanization for long-term economic and social transformation.

Urbanization in Mediterranean countries has historically acted as a center of urban civilization, with cities like Athens, Carthage, and Alexandria serving as hubs for commerce, governance, and cultural exchange. Fernand Braudel (1982) emphasized the Mediterranean's historical role as a space of interconnected urban economies shaped by maritime trade and regional interdependencies. Unlike the rapid industrial urbanization observed in Northern Europe, Mediterranean urbanization has been more gradual and mostly driven by trade, tourism, and services rather than heavy industry. The colonial histories of North African and Eastern Mediterranean cities further complicate their urban trajectories, as post-independence urban planning often reinforced economic dependencies and uneven development patterns (Davis & de Duren, 2011). Stark contrasts characterize the urbanization process across different sub-regions in the Mediterranean. Southern European countries like Spain, Italy, and Greece experienced rapid urban expansion during the mid-to-late 20th century, largely due to industrialization, rural-to-urban migration, and European Union (EU)

integration. The resulting economic restructuring led to the emergence of secondary cities and metropolitan corridors, strengthening polycentric urban structures. In contrast, North African countries, including Algeria, Tunisia, and Egypt, have witnessed urban growth driven by demographic pressures, state-led industrialization, and the expansion of informal settlements. Urbanization in these regions is often characterized by a macrocephalic structure, where capital cities such as Cairo, Algiers, and Tunis dominate national urban networks, attracting a disproportionate share of investments while secondary cities remain underdeveloped (Bayat & Denis, 2000).

Jager and Arrif (1998) identify two key features of recent urbanization in Mediterranean countries: a preference for coastal regions, resulting in population concentration in large coastal metropolitan areas, and economic factors driving migration towards the coast. The Maghreb countries, shaped by Arab-Muslim civilization and French colonialism, share common urbanization trends. These nations exhibit a highly urbanized, coast-oriented urban network influenced by historical and colonial factors (Valette, 1975). Scholars like Harvey (1973), Doherty (1977), and Bardinet (1977) argue that colonial policies shaped this urban network to exploit agricultural and mineral resources for global markets. For example, Abu-Lughod (1989) notes that Moroccan cities like Casablanca and Rabat-Sale rose to prominence during colonization, contrasting with the precolonial dominance of Marrakesh and Fez. This reflects aspects of the Vance Model, where trade and transport routes shape urban hierarchies (Pacione, 2005).

The political economy of urbanization in the Mediterranean is profoundly shaped by state intervention, economic liberalization, and globalization. In Southern Europe, urban policies have been influenced by EU regional development programs, which aim to encourage balanced urban growth and sustainable infrastructure. The integration of Mediterranean cities into global production networks has enabled economic diversification, but it has also led to spatial inequalities, as specific urban regions disproportionately benefit from foreign direct investment and tourism (Scott, 2012). In contrast, urbanization in North Africa has been directed by state-controlled development policies, which often favor capital-intensive projects and overlook grassroots urban needs. The prevalence of state-owned enterprises (SOEs) in crucial economic sectors reinforces centralized decision-making, limiting the autonomy of local governments in shaping urban growth (Schlumberger, 2008). Migration plays a vital role in influencing urbanization patterns in the Mediterranean. Southern European cities have shifted from being sources of emigration to becoming destinations for migrants from North Africa, Sub-Saharan Africa, and the Middle East. This transition has resulted in demographic diversification, the expansion of informal labor markets, and challenges in social integration (King, 2001). Meanwhile, rural-to-

urban migration continues to be a primary driver of urban growth in North Africa, leading to the spread of informal settlements and peri-urban expansion. The inability of state institutions to provide adequate housing and infrastructure has fueled informal urbanization, exacerbating socio-economic inequalities and environmental vulnerabilities (UN-Habitat, 2014).

Environmental challenges significantly affect urbanization in Mediterranean countries, with climate change, water scarcity, and coastal erosion jeopardizing urban sustainability (Scoullos & Ferragina, 2008). Coastal cities confront rising sea levels and extreme weather conditions, while unregulated expansion—particularly in tourism-driven economies—depletes ecosystems and strains resources. The Mediterranean Strategy for Sustainable Development (MSSD) promotes compact growth and climate resilience (Plan Bleu, 2016), but governance challenges impede consistent implementation. From a theoretical standpoint, various frameworks offer insights into Mediterranean urbanization. Dependency theory emphasizes the historical and economic ties that shape urban hierarchies in North Africa and the Middle East, where cities remain connected to former colonial powers and global capital flows (Amin, 1976). World systems theory elucidates how Mediterranean cities operate within a semi-peripheral structure, where some urban centers assimilate into global networks while others remain marginalized (Wallerstein, 2004). The notion of informality, as explored by Roy (2005), is especially pertinent to North African urbanization, where significant segments of the population live in unregulated housing and engage in informal economies. As articulated by Hesse (2010), networked urbanism emphasizes the role of Mediterranean port cities as nodes of global trade and migration, influencing economic and spatial configurations.

3.1.2 Emergence and Evolution of Urban Settlements

Towns emerge and thrive due to spatial advantages, agglomeration benefits for firms, and consumer demand, with locations influenced by transport accessibility, raw materials, and economic cost reductions (O'Sullivan, 2000). Firms benefit from agglomeration through cost reduction, labor market accessibility, and mutual support during market fluctuations (McCann, 2004), while consumer concentration fosters demand, encouraging non-price competition (Lösch et al., 1954). These dynamics shape the relationship between towns and broader urban systems, which are further distinguished by density, diversity, and their role in communication networks (Pile ,1999). Cities, as opposed to towns, generate unique social effects due to their spatial complexity, including social detachment (Simmel, 1950), civic interactions beyond family ties (Mumford, 1938), and tolerance of differences (Wirth, 1938). Unlike traditional, pedestrian-friendly cities, modern metropolises are shaped by large-scale infrastructure, making them more challenging to navigate (Sudjic, 1992). Each

country classifies cities based on various factors, typically using population density, urban size (OECD, 2011), and functional or historical criteria (Dijkstra and Poelman, 2012). For instance, Japan considers housing density and economic activity, while India emphasizes population thresholds and occupational structures (Ritchie et al., 2018), reflecting diverse urban definitions. The fundamental distinction between cities and small towns also extends to economic, social, and cultural aspects. Cities, characterized by large populations and high densities, foster diverse interactions and industries, attracting innovation and investment (Jacobs, 1969). Small towns, in contrast, have localized economies that are more vulnerable to external shocks (Partridge et al., 2008) and display strong social ties and traditional lifestyles (Putnam, 2000). Cities face challenges such as congestion and inequality due to extensive infrastructure (Hall, 1998), while small towns offer a higher quality of life regarding affordability and environmental conditions (McGee, 1991). Culturally, cities serve as centers of diversity and innovation (Florida, 2019), whereas small towns maintain strong local identities (Woods, 2011). Governance in cities is complicated by population size and diverse needs, while small towns function with simpler mechanisms but often lack political influence (Savitch & Kantor, 2002).

Since the early 1960s, African cities have undergone four significant changes (Pacione, 2005). First, urban populations have grown, with large cities expanding more slowly, and the natural population has increased, replacing rural-urban migration as the primary driver. Medium-sized cities now grow as fast as large cities due to deteriorating infrastructure in the latter. Second, the demand for services like roads, water, and healthcare outstrips supply, creating stark inequalities between wealthy elites and the growing low-income population. Third, the urban labor market has shifted, with fewer public sector jobs and a growing informal economy catering to the poor. Finally, city forms have changed, with urban sprawl extending into peri-urban areas, leading to conflicts over land use and stressing infrastructure. This expansion and shrinking public resources present significant planning challenges for African cities in the twenty-first century.

Regional, historical, and cultural influences shape Algeria's urban development. The country's northern coastline ties it to the Mediterranean, where ancient civilizations like the Phoenicians, Romans, and Ottomans have left a lasting impact on urban centers such as Algiers, Oran, and Annaba, shaped by Mediterranean trade and cultural exchanges. As part of the Islamic world, Algeria's cities exhibit distinct features like medinas, mosques, and souks, reflecting Islamic principles in their layout and architecture, and emphasizing community and social life. The Arab-Islamic conquests also connected Algeria to the Middle East, introducing architectural and cultural influences from the Umayyad and Abbasid Caliphates. Moreover, Algeria's position

in Africa underscores its colonial and post-colonial urban experiences, particularly under French rule, which brought European urban planning models. Finally, the Sahara Desert's vastness influences southern Algerian cities like Tamanrasset and Ghardaia, where urbanization has adapted to challenges like water scarcity, extreme temperatures, and geographic isolation, typical of desert regions. In this context, Algeria's urbanization is a complex blend of Mediterranean, Islamic, African, Middle Eastern, and desert influences. It is part of the broader trend of global urbanization, characterized by rapid population growth in cities, migration from rural to urban areas, and the challenges of modernizing infrastructure and housing. The country is positioned at the crossroads of these diverse influences, making its urban development a unique case study in global urbanization. Algeria's urban centers, particularly along the Mediterranean coast, are increasingly integrated into global economic and cultural networks. At the same time, they grapple with the legacies of colonialism, the challenges of post-independence nation-building, and the demands of sustainable development in the face of rapid urban growth.

3.1.3 Small and medium-sized towns

Small and medium-sized towns (SMSTs) present unique economic and social dynamics, compared to larger urban centers and rural areas. Larger cities often have more diverse economies, higher population densities, and more extensive infrastructure, while rural areas usually have economies more focused on agriculture and fewer services. SMSTs, on the other hand, often have a mix of characteristics from both urban and rural settings, characterized by higher levels of manufacturing jobs, a more self-employed workforce, and a less diverse sectoral mix, with a lower proportion of service sector employment (Kozma et al., 2024; Valtenbergs et al., 2015). Many SMSTs are also popular tourist destinations with a high supply of second homes, although their development depends on spatial, socio-economic, and regional factors. As Mayer & Lazzeroni (2022) highlighted, these towns are increasingly gaining attention in urban studies due to their roles at different territorial scales. The focus is shifting beyond the traditional 'urban bias', allowing for a more nuanced understanding of SMSTs in relation to larger cities. This shift also underscores the importance of SMSTs in promoting sustainable development through urban planning, energy efficiency, and improved transportation systems. Studies such as that of Häußler & Haupt (2021), show that regional municipal networks can support climate change adaptation in SMSTs, positioning these towns as vital in tackling environmental challenges. The growing consensus in urban studies, as seen in the work of Camagni et al. (2014) and Frick & Rodríguez-Pose (2018), is that city size is not necessarily correlated with economic success. SMSTs can be profitable and

competitive, developing distinct economic patterns based on industrial composition, institutional capacities, and innovation processes.

Small and medium-sized towns are defined differently across regions, but they play a critical role in both developed and developing economies. In Europe, SMSTs generally have populations of 5,000 to 50,000 and a density exceeding 300 inhabitants per square kilometer (ESPON, 2014). France defines medium-sized towns as having populations between 30,000 and 200,000, while in Croatia, medium-sized cities range from 10,000 to 35,000 inhabitants. Austria emphasizes the functional role of SMSTs, focusing on service accessibility. Research indicates that SMSTs have experienced notable development post-2001 in Hungary, mainly due to formal urbanization processes that have promoted numerous municipalities to town status (Trócsányi et al., 2024). This period saw a significant increase in small towns, with the declaration of 111 new towns between 2001 and 2022. The population dynamics of these towns had shown growth and decline, reflecting a duality where some towns have thrived as dynamic agglomerations. In contrast, others have faced challenges related to rural shrinkage. The overall trend indicates that small towns are becoming increasingly important in the urban hierarchy, contributing to the spatial and functional diversity of the settlement network in Hungary (Horeczki et al., 2023). Dijkstra, Garcilazo, and McCann (2013) found that European towns with populations of 5,000 to 100,000 grew faster in population and GDP compared to larger cities between 2001 and 2006. In Germany, towns with 5,000 to 20,000 inhabitants grew by 14% from 2000 to 2016, though growth varied geographically (BBSR, 2018). Similarly, US cities with populations under 50,000 grew faster than larger cities between 1990 and 2000 (Brennan et al., 2005) , with recent trends continuing this pattern (US Census Bureau, 2020) . In contrast, the classification of SMSTs in Africa incorporates population size, economic functions, infrastructure, and administrative characteristics. Small towns typically have populations ranging from a few thousand to tens of thousands, serving as local service centers, agricultural hubs, or minor industrial nodes. Meanwhile, medium-sized towns may accommodate populations from tens of thousands to a few hundred thousand, exhibiting more diverse economic activities, administrative functions, and regional significance.

Additionally, the infrastructure, services, and amenities level distinguish between SMSTs, with the latter typically boasting more developed facilities. Finally, administrative status, including governance structure and local government capacity, also contributes to classifying towns as small or medium-sized. SMSTs serve as intermediary hubs, bridging major cities with other towns and rural areas and vice versa, playing a pivotal role in facilitating transitions across various scales. Positioned within a hierarchical structure, they function as centers for economic, social, cultural,

and historical services between urban centers and their regional hinterlands. Intermediate towns are crucial between contrasting extremes, facilitating local, regional, national, and international connections. They serve as conduits for exchanging information, ideas, people, goods, and services, acting as transitional zones between adjacent areas and global spheres (Mainet & Edouard, 2016). Their significance lies in their ability to seamlessly integrate into global networks, enabling them to play a vital role in broader economic and social dynamics (Carriére, 2008). According to the report made by the OECD/UN & ECA/AfDB (2022), these towns benefit from improved education access due to their proximity to larger cities, resulting in higher education attainment, particularly in secondary and higher education. Efforts are directed towards enhancing their economic role within regional resource potentials and economic networks, particularly within the agri-food system. Policy priorities include improving the business environment, augmenting economic contributions within regional contexts, and addressing economic fragmentation through integration and bolstering economic linkages. Additionally, policies impacting labor markets, favoring primary cities, labor mobility, and connectivity infrastructure, are pivotal in enhancing the economic performance of small and medium-sized African towns.

However, as Hinderink and Titus (2002) argue, small towns in Africa, as well as in Asia and Central America, are often more influenced by regional and national economic policies than by their own characteristics. Factors such as national policy impacts, uneven market access, competition from larger cities, fragmented trade relations, and limited local resources hinder their economic diversification. African small towns, in particular, act as crucial intermediaries between urban and rural areas, blending agricultural and non-agricultural activities (Wisner et al., 2015). They face significant challenges, including outmigration and reliance on the informal economy, largely due to underdeveloped infrastructure (Parnell & Pieterse, 2014). Often functioning as market centers for rural areas, these towns play an important role in facilitating the exchange of goods and offering some resilience against climate impacts. Nonetheless, their economies remain vulnerable to external pressures such as market fluctuations and policy shifts. Furthermore, these towns struggle to attract diverse funding sources due to limited economies of scale, legal constraints, and weak management capacity, which tend to channel investments toward larger cities (IPCC), 2014; Simon, 2014). Despite existing literature, integrating small towns in emerging economies into global production networks remains an underexplored topic.

To understand the dynamics of SMSTs and their role in economic development, it is crucial to examine various theoretical frameworks that elucidate their economic behavior and growth potential. Marshall's theory (1920) highlights knowledge

spillovers among closely-located firms, fostering increased productivity, innovation, economies of scale, and labor market pooling, with implications for regional economic development. Urbanization economies thrive in large cities with diverse economic activities and skilled labor pools, yet their benefits may be unevenly distributed across regions. Conversely, localization economies, associated with smaller cities or specialized regions, foster the clustering of firms, specialized suppliers, and knowledge-sharing, enhancing productivity and innovation (Duranton & Puga 2004). Firms pursue diversification by expanding product ranges or services into new markets, mitigating reliance on a single market. At the same time, specialization concentrates on a limited range of products or services within a specific industry, fostering efficiency and innovation, albeit with associated risks (Beaudry & Schiffauerova, 2009).

The human capital theory, which underscores the importance of education and skill development in driving economic growth (Naphat, 2017), is highly relevant to small and medium-sized towns (Florida et al., 2016). These towns can leverage this theory by investing in education, workforce training, and talent development to create a skilled labor force tailored to their unique local industries and needs. Given their smaller size and closer-knit communities, SMSTs have the advantage of fostering strong local educational programs and vocational training centers that directly address the demands of local businesses. By doing so, they attract businesses seeking a qualified workforce and empower residents to pursue higher-paying jobs and entrepreneurial ventures within their communities. This targeted focus on human capital can help SMSTs retain local talent, foster innovation, and increase their economic competitiveness. Equipped with a workforce with the knowledge and skills necessary for modern industries, these towns are better positioned to diversify their economies, stimulate job growth, and enhance their overall socio-economic well-being. The adaptability and close community ties of SMSTs make them particularly adept at implementing human capital strategies that yield tangible economic benefits.

Resource-based theory (Barney et al., 2021), is particularly relevant for small and medium-sized towns in resource-rich regions. By sustainably managing their unique natural and economic resources, these towns can drive economic growth, create resilient industries, and diversify their economies. SMSTs, often situated in areas abundant in resources such as minerals, agricultural land, or renewable energy potential. This approach leverages the distinctive assets of these regions, allowing them to develop specialized industries that contribute to broader economic stability and growth. The smaller scale and close-knit nature of SMSTs enable more efficient and community-focused resource management, fostering industries that are resilient and well-integrated with local needs and capabilities. This strategic utilization of local

resources not only boosts economic performance but also ensures that growth is sustainable and inclusive, reinforcing the economic fabric of these towns.

3.1.4 Urban studies literature in Algeria

To explore the dynamics of Algeria's urban development, several researchers have examined its urban network, focusing on various scales and regions. Key features of the Algerian urban network have been studied extensively. Marc Côte (1978) discusses the place of Algiers in the Algerian urban hierarchy in his study. He said that the capital crushes the country's urban hierarchy: its workforce is three times that of the country's second city (Oran, with 525,000 inhabitants). He proposed three possible solutions corresponding to three conceptions of land use planning: (1) the options of the second four-year plan which are: reduction of regional imbalances, curbing of the tendency towards coastal concentration, control of urban growth; he concluded that with this plan they ensured less by "metropolises of balance" than by urban ensembles: the thrust on the western and eastern regional capitals is distributed on one side on the Constantine - Skikda - Annaba triangle, on the other on the Oran alignment - Arzew - Mostaganem. (2) A specialized organization was set up in 1968 to plan Algiers (COMEDOR). It presented a Development Plan for the agglomeration in 1975, but in 1977, the Committee for Territorial Development recognized that the investments continued to be anarchic in Algiers and that the population was growing faster than anticipated in the Plan; he said that urban control was not easy, especially by negative methods. (3) Urban policy on a national scale, the main elements of which are the restructuring of the rural world, the territorial division of 1974, which organized the country into 31 provinces, the establishment of new infrastructures, and industrial deconcentration; he said that their effects will be long term, but they will be on the scale of the problem posed.

In a later study by Côte (1994), Five ideas on Algerian urbanization were analyzed: (1) Acceleration of urbanization, (2) Urbanization by rural exodus, (3) Coastal concentration, (4) Hypertrophy of industrial poles, and (5) An urban hierarchy with a fragile base. He showed that the foundations of these ideas are not always exact, and those nuances must be brought to them. He deduced, according to the order of his ideas, that (1) urban growth is rapid and problematic, but it is in no way "galloping" nor "accelerated", (2) city dwellers no longer need to blame rural people for the growth of their cities; the responsibility for this growth lies with the city dwellers themselves, (3) urban expansion has benefited towns in the interior more than those on the coast, and more to those in the East and South than those in the West, and (4) through creating industrial zones, territorial promotions, and related facilities, the policy of the public authorities has contributed to pushing forward a homogeneous category of towns, those with 50,000 to 150,000 inhabitants. Within the framework of regional

planning, which has proved to be relatively effective, this promotion has helped to counterbalance the hypertrophy of the major centers and the capital, (5) the small towns powerfully filtered the rural exodus, preventing the other towns from suffering the brunt of it (which had been the case during the independence war). They have thus emerged as a separate urban category and have strengthened their role in their local space.

At a more regional level Côte (2005) investigated the Saharan urban area, particularly the Lower Sahara. This expansive low-lying basin in the northeastern region of the Algerian Sahara hosts a population of 1.5 million inhabitants and encompasses four cities, each ranging from 100,000 to 200,000. The urbanization observed in this area is significant, stemming from centuries of trans-Saharan trade that animated the vast spaces between the northern and southern shores of the Sahara. However, this urbanization is characterized by its scale novelty and complex relationship with the environment. Moreover, its architectural forms draw more inspiration from northern models rather than the traditional Saharan culture of the ksour. Côte's inquiry delves into the foundational aspects of this urbanization, the involved stakeholders, and its everyday impact on the inhabitants' lives. According to Aziz Belkhatir (1999), Algeria faces three primary challenges in its urban development: (1) Economic and human disarticulation: There is a hyper-concentration of economic activities and populations in certain areas, particularly the Tell, to the detriment of other regions such as the highlands and the Sahara. (2) Urban hyper-concentration: Most infrastructures and services are concentrated in large cities, particularly Algiers, creating imbalances and inequalities between regions. (3) Under-integration of territories: Peripheral and rural regions are often marginalized and lack effective connections with the main urban centers, which limits their economic and social development. Belkhatir proposes a potential solution comprising four key components: rapid urbanization driven by modernization, the establishment of a competitive market economy with a human-centered approach, the development of a more balanced transportation and communication infrastructure, and the decentralization of decision-making processes. Meanwhile, Djamel Raham et al. (2004) examine the principles of administrative division in Algeria, particularly in the eastern regions, identifying significant imbalances. They stress the importance of any territorial reorganization considering spatial, social, and economic factors, focusing on marginalized areas to mitigate disparities between subregional units. To address this, they advocate for increased urban network density, the enhancement of transport infrastructure, improved accessibility and communication, the implementation of socio-economic development initiatives, and establishing regional-level institutions.

In a more focused study Mohamed Chadli and Ali Hadjiedj (2003) analyzed the contribution of small agglomerations in urban growth in Algeria showing that the rapid development of large agglomerations in general and of small centers, in particular, is linked to the administrative promotion and spread of industrial activity. Thus, the dynamism of small towns is driven by the creation of jobs in the administration and services in the state sector required by the territorial allocations resulting from the administrative division of 1985. This situation, which is accompanied by new flows of population, products, and induced activities, can be an asset for regional planning if the expansion of small centers serves as a relay for the influence of an area semi-urban or rural, which, despite promotion and development efforts, remains repellent. Otherwise, these small centers would only be population agglomerations without facilities for the inhabitants of the main town and without influence on the surrounding areas. Kamel Kateb's study (2003) also highlights the stark contrast between the well-equipped coastal urban centers and the relatively underdeveloped regions elsewhere. Kateb also observes a decrease in the proportion of sparsely populated areas, with a corresponding rise in the concentration of population in urban settlements, particularly small and medium-sized towns.

Ahmed Bousmaha's (2014) study dealt, on the one hand, with the role of small towns in the urbanization movement and with the trends of urban growth and the hierarchy of urban centers in the central Tell region of eastern Algeria. On the other hand, the study also revealed that the region is undergoing a rapid urbanization process, and the transition from rural to urban is a striking fact. He also showed that the urban system is characterized by a macrocephalic distribution, which is dominated by the Constantine metropolis despite the reduction in its demographic weight in recent decades due to its loosening and decongestion. In another study, Bousmaha (2021) indicated that the rapid growth of small cities notably characterizes the urban structure in Algeria. The growth of small towns through the transformation of rural areas into cities and the relaxing of large cities' residential restrictions have influenced the trend towards balancing the urban system in Algeria. He also mentioned that the "primatial" city is going through significant economic and social changes at the national level. He contends that the only measures that can impact how the Algerian urban system develops are land-use planning techniques.

The study of urban network development in Algeria has been notably underrepresented in the international literature on urbanization. This presents a significant research gap, particularly regarding empirical analyses of the country's urbanization processes and regional development policies. My dissertation addresses this gap by synthesizing these processes within a broader theoretical framework. Furthermore, it evaluates the impact of Algeria’s latest National Spatial Development

Plan (SNAT 2025) on the spatial development of its urban network, offering new insights into the relationship between urbanization trends and regional development in the Algerian context.

3.2 Economic study

3.2.1 Globalization

For a sizable portion of the worldwide population, globalization stands out as one of the critical concepts of late twentieth -century social consciousness. According to Anthony et al. (1992), the many relationships and linkages that make up globalization go beyond the country states and, subsequently, the societies that comprise the contemporary world system. It describes how events, decisions, and actions in a particular world region may significantly impact people and communities in very different areas. Another definition comes from Hirst and Thompson (1992), who argue that globalization is a process that leads to a highly internationalized and open economy, unprecedented in history, driven by the power and the will to expand transnational companies, with no roots in any country, thus enforcing vast amounts of capital mobility and eventually people all over the world. This definition focuses on the future outcome of globalization and its effects on capital and people's mobility. According to Rosenau (Rosenau, 1996), globalization is distinct from globalism, which refers to aspirations for a future state where shared values are relevant to all people globally, encompassing their roles as citizens, consumers, and producers, as well as their environment, with a coordinated focus on addressing common challenges. Similarly, globalization differs from universalism, which is the belief in the existence or desirability of universal values.

Reich (1998) provides four possible answers to what globalization is. These answers are not mutually exclusive but represent different perspectives on the phenomenon. The first is globalization as a historical epoch, which refers to the idea that we live in a new era of human history that differs fundamentally from previous eras. This perspective emphasizes the long-term historical processes that have led to global interconnectedness, such as the development of transportation and communication technologies, the rise of capitalism, and the spread of democratic values. From this perspective, globalization is a recent phenomenon and a continuation of historical trends unfolding for centuries. The second is globalization as internationalization, increasing international trade, investment, and cultural exchange. This perspective emphasizes the growing interconnectedness of national economies and societies and the increasing importance of international institutions and agreements. From this perspective, globalization is seen as a natural consequence of technological advances and the growth of global markets. The third, globalization as liberalization, removes barriers to international trade and investment. This perspective emphasizes the role of

policies such as free trade agreements, deregulation, and privatization in promoting economic openness and integration. From this perspective, globalization is seen as a positive force that can lead to increased economic growth and prosperity. However, critics argue that liberalization can also have negative consequences, such as increased inequality and environmental degradation. The fourth is globalization as universalization, spreading Western values and institutions worldwide. This perspective emphasizes the role of cultural and ideological factors in shaping the global order and the potential for conflict between different civilizations. From this perspective, globalization is seen as a process of cultural homogenization that threatens to erode local traditions and identities. However, proponents argue that universalization can promote human rights and democracy, and that cultural diversity can be preserved through dialogue and exchange. Globalization manifests in three primary forms (Pacione, 2005): economic, political, and cultural. Economic globalization involves the global integration of production, distribution, and consumption processes, characterized by the rise of transnational corporations (TNCs), foreign direct investment, flexible production models, and a global financial system. Economic factors are the primary drivers of globalization, which has diminished the influence of nation-states and national borders while reinforcing the infrastructures supporting global capitalism (Pacione, 2005). The classical liberal approach, grounded in the works of Adam Smith and David Ricardo, contends that free trade and comparative advantage enhance global economic efficiency (Krugman & Obstfeld, 2003). Neoliberal globalization, which became prominent in the late 20th century, advocates for deregulation, privatization, and the unrestricted movement of capital as crucial drivers of economic growth and development (Harvey, 2005). However, critics from the dependency and world-systems viewpoints underscore the ongoing inequalities embedded in global economic frameworks, asserting that globalization primarily benefits developed nations while sustaining underdevelopment in the Global South (Wallerstein, 2011)

Political globalization refers to the centralization and application of power through the growth of multi-state political and economic alliances and the consideration of local issues within a global framework. Globalization challenges the sovereignty of nation-states by shifting power dynamics toward supranational organizations, multinational corporations, and transnational networks (Sassen, 2001). The emergence of institutions such as the United Nations, the World Trade Organization, and the International Monetary Fund highlights the increasing influence of global governance mechanisms in shaping national policies. While some scholars argue that globalization enhances cooperation and economic interdependence, others contend it worsens political instability and undermines democratic accountability by concentrating decision-making power in non-elected global entities (Rodrik, 2011).

Cultural globalization encompasses the global exchange of symbols, ideas, and values facilitated by the distribution of images and information, leading to the emergence of cosmopolitanism in urban life. According to Scholte (2007), globalization refers to the spread of trans-planetary connections between people, which reduces barriers to trans-world social contacts. This means that people become more able to engage with each other physically, legally, linguistically, culturally, and psychologically, regardless of where they are on earth. There has recently been a shift towards supra-territorial connections, which means that globalization is increasingly characterized by connections that transcend national borders. Giddens (1990) characterizes globalization as the intensification of worldwide social relations, resulting in a "time-space compression" where distant events instantaneously affect local experiences. The homogenization thesis posits that globalization promotes cultural convergence, often driven by the dominance of Western media and consumer culture (Ritzer, 2004). In contrast, the heterogenization perspective contends that globalization facilitates cultural hybridity, blending global and local elements to create new cultural forms (Pieterse, 1994). Global cities, which house key agents that control and finance the global economy, determine the prosperity of regions based on their integration into global networks.

Technological advancements have also played a crucial role in accelerating globalization by transforming communication, transportation, and information exchange. The digital revolution, particularly through the internet and social media, has enabled instant global connectivity, reshaping social interactions, political mobilization, and economic transactions. However, digital globalization also raises concerns about surveillance, data privacy, and the digital divide, as access to technology is still uneven across different regions and socio-economic groups (Van Dijk, 2006). Critiques of globalization emphasize its uneven impact, especially regarding economic inequality, environmental degradation, and cultural imperialism. The emergence of anti-globalization movements reflects growing dissatisfaction with the negative consequences of neoliberal policies, such as job outsourcing, environmental exploitation, and financial instability (Stiglitz, 2002). Scholars support alternative models of globalization, including fair trade, sustainable development, and inclusive governance, to alleviate its adverse effects and encourage equitable global integration (Sen, 1999).

3.2.2 Global Production Network

Globalization and the Global Production Network (GPN) are closely interconnected. The concept of GPNs has been significantly shaped and expanded by globalization. A group of economic geography researchers created the GPN concept in the late 1990s in response to their growing dissatisfaction with the contemporary theories of

economic growth that failed to take into account the increasingly complex, networked nature of production activities that crossed international boundaries and resulted in uneven development in various regions and nations (Henderson et al., 2002; Coe et al., 2015; 2019). The GPN is an organizational structure comprising linked economic and non-economic players, managed by a leading global company, generating goods or services across numerous locations for global markets. These actors include various kinds of firms and non-firm actors from multiple localities, including the state, international organizations, labor groups, consumers, and civil society organizations (Yeung, 2015). According to Kano et al.(2020), it is the globally organized nexus of related functions and operations by firms and non-firm institutions through which goods and services are produced, distributed, and consumed.

The GPN approach comprises three conceptual categories: value, power, and embeddedness (Henderson et al., 2002). Value refers to the economic return generated by producing commodities for sale, which can be created through controlling specific product and process technologies, cultivating particular organizational and managerial skills, leveraging relationships between different firms, and establishing a strong brand presence in crucial markets. As firms face competition from others for a market share, they must also focus on enhancing value through activities like transferring technology and improving their skills and production capabilities. This leads to the critical question of how value is captured within the network, determining which actors and locations can rightfully claim and maintain value, thereby emphasizing issues related to ownership and control. Power capture involves the ability of actors and locations to appropriate and retain value, highlighting ownership and control. Power relations and governance regimes are explored, focusing on relational, networked, and institutional qualities. Ethnic embeddedness is identified as societal, network, and territorial embeddedness. GPNs can become territorially embedded due to historical ties to specific locations, which may provide advantages such as political support, links with key suppliers, and access to labor skills. However, such embeddedness may be eroded over time as competitive pressures prompt firms to invest in other, less costly locations, reflecting the tensions between spatial fixity and mobility endemic to capitalism.

On the other hand, strategic coupling (Figure 6) is a novel idea that economic geographers in the GPN literature have developed (Coe et al., 2004; Yeung, 2016). The GPN approach focuses on extra-regional relations, emphasizing multiple actors and strategic coupling rather than external domination. Three essential characteristics support the idea of strategic coupling (Coe & Yeung, 2015). Strategic coupling in GPNs involves intentional engagement by critical actors, particularly lead firms and regional institutions, and is an area underdeveloped in GPN research. The institutional

and political foundations behind temporary coalitions in GPNs can be better understood by exploring insights from territorial coalitions in inward investment and urban studies (Phelps and Wood, 2006; MacKinnon & Phelps, 2001; Cox & Mair, 1988). Territorial coalitions, typically led by business interests and political leaders, harness the capacities of regional actors to drive growth and resolve conflicts by fostering collective interests, such as job creation. These coalitions have evolved into multi-scalar entities, encompassing local institutions, national agencies, and global corporations (Lee et al., 2014). Studying these coalitions deepens our understanding of 'extra-firm bargaining' in sub-national political contexts (Coe & Yeung, 2015) and highlights 'local dependence' (Cox & Mair, 1988), where various actors rely on specific social relations within a territory, influenced by factors such as investments in infrastructure and political competition (Jacobs & Lagendijk, 2014). This dependency drives the formation of growth coalitions aimed at attracting inward investment. However, while firms' regional dependence might differ from local political institutions, these dependencies are often partial and transient, supporting cooperation on specific projects rather than a continuous inward investment regime. As a result, strategic coupling is dynamic and may evolve into decoupling and disinvestment as economic conditions change (MacKinnon, 2012). Additionally, strategic coupling has a spatial dimension, integrating horizontal firm networks with vertical governance scales and emphasizing the interconnectedness of various levels. GPN research underscores that strategic decisions affecting regional coupling often originate beyond the region from lead firms or national governments. However, intra-firm networks, shaped by organizational structure, also influence the value-added roles of regional plants, highlighting the importance of persistence and adaptability from regional institutions to sustain coupling over time.

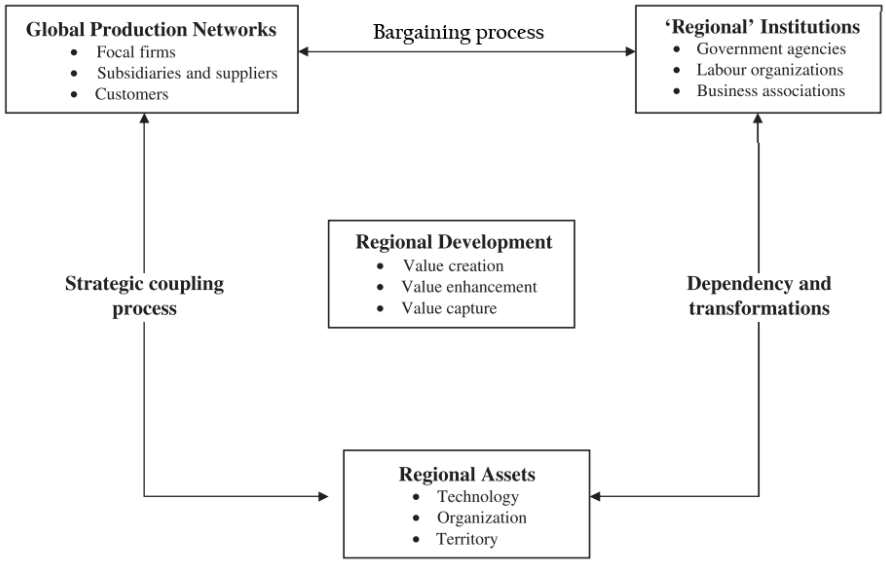


Figure 6. A framework for analyzing regional development and global production networks. Source: Coe et al. 2004

The integration of GPNs is influenced by several critical factors, including regional asset structures, strategic coupling, institutional support, competitive dynamics, local firm strategies, and technological capabilities (Liu, 2020). Regional assets, such as the alignment of local resources and capabilities with transnational corporations (TNCs), are essential for attracting TNCs and facilitating GPN integration. Strategic coupling is achieved when local firms and institutions align their capabilities with the needs of global firms, fostering deeper integration within Global Production Networks. Institutional support from policymakers plays a vital role in optimizing these assets and fostering favorable conditions for local firms. Additionally, competitive dynamics within GPNs, such as intense competition among TNCs, may create opportunities for collaboration and upgrading for local firms. Effective strategies, including partnerships, diversification across value chains, and joint ventures, are crucial for leveraging TNC resources and knowledge. However, recent research has highlighted the "dark side" of strategic coupling, emphasizing the power asymmetries between TNCs and local communities (Coe and Hess, 2011). These inequalities, often overlooked, are rooted in TNCs' spatial mobility and political influence, which allows them to shape regulatory environments to their advantage (Dawley, 2011). Neo-liberal deregulation has further reduced barriers to capital mobility, privileging business interests over local labor. The power imbalance between TNCs and regional institutions remains a challenge, particularly when disinvestment, the exit of foreign

firms, and the loss of markets cause decoupling from GPNs. These tensions and the long-term effects of strategic coupling should be a greater focus of GPN research.

GPN 2.0 is an evolved iteration of the Global Production Networks framework that aims to provide a deeper understanding of the causal relationships between the configurations of global production networks and the uneven development experienced at regional and national levels. It emphasizes the complex interactions among firms and territorial institutions, moving beyond descriptive analysis to explore how different value capture trajectories can result from engagements with these networks, which may lead to both positive and negative outcomes. The framework also introduces the concept of strategic coupling, examining how regions can effectively connect with global production networks. Additionally, it aims to integrate insights from various academic disciplines to enhance the understanding of global economic dynamics (Coe & Yeung, 2019). The theory has expanded its scope, involving various fields (Figure 7). The first is the state, which shapes regional strategic coupling dynamics through state and quasi-state activities at different spatial scales (Coe et al., 2004). States play multiple roles in GPNs, acting as facilitators by creating a supportive local environment through investment incentives and infrastructure development or as regulators by setting and enforcing standards and regulations related to foreign trade, foreign direct investment (FDI), taxation, and labor markets. Additionally, they can influence GPN integration as buyers through public procurement for state needs, such as administration, education, healthcare, and the military, or as producers by owning and managing firms in sectors like energy and transportation. However, state policies are not fixed; they are shaped by ongoing interactions and power struggles within state institutions and between state and non-state actors across different levels (Smith, 2014). In this context, several studies focused on the role of the state and the institutional contexts in shaping coupling processes and influencing the way of GPN integration (Molnár et al., 2022; Grumiller, 2021; Nagy et al., 2021; Smith et al., 2018; Horner, 2014) and many studies deal with the global integration of the Maghreb economies in different sectors Amachraa & Quelin, 2022; Nasser & Ouerghi, 2022; Del Prete et al., 2018; Msadfa & Ait Ali, 2016; Smith, 2015).

The second is financialization, where the interface between GPN analysis and studies of finance or financial geographies has been a productive area of exchange. Financial market pressures are being revealed more effectively, as these firms are financial and productive actors. Global financial networks (GFNs) articulate with productive global production networks and operate through specific territories, offering a different perspective on the global economy. The intersections between global production and financial networks are attracting serious scrutiny, with implications for understanding

global production networks' socially and spatially uneven development impacts. The third point is labor; the GPN research agenda has expanded with five intersecting lines of work. The first line investigates the impacts of global production on labor through social upgrading (Barrientos et al., 2011), focusing on wages and working hours. The second line explores workers' roles as active agents within global production networks, focusing on new modes of organization and their effectiveness in representing workers across transnational production systems. The third line examines how work is experienced, and value is created within global production networks, incorporating gendered reproductive processes and migration dynamics. The fourth line focuses on reinvigorating the integrative concept of the labor regime, integrating global production network dynamics and local landscapes of social reproduction. The fourth, environment, the relationship between global production networks and the natural environment, has gained attention in recent years. The materiality of commodities and their extraction and growth significantly impact these networks, including resource location, land/sovereignty concerns, and transformations. Regional engagement with resource industries can lead to precarious working conditions, power asymmetries, and environmentally unsustainable growth. Greening initiatives, beyond compliance leadership, eco-efficiency, eco-branding, and environmental cost leadership, have been explored to reduce environmental impacts. The fifth is development, GPN research aims to understand uneven development patterns in the capitalist world economy. Strategic coupling is useful for illustrating regional development driven by regional economies joining global production networks. However, Werner (2018) argues that GPN theory is prone to firm-centrism and fails to address global inequality and structural hierarchies. Other frameworks and lenses may be needed to analyze the developmental ramifications of different global production network engagement modes.

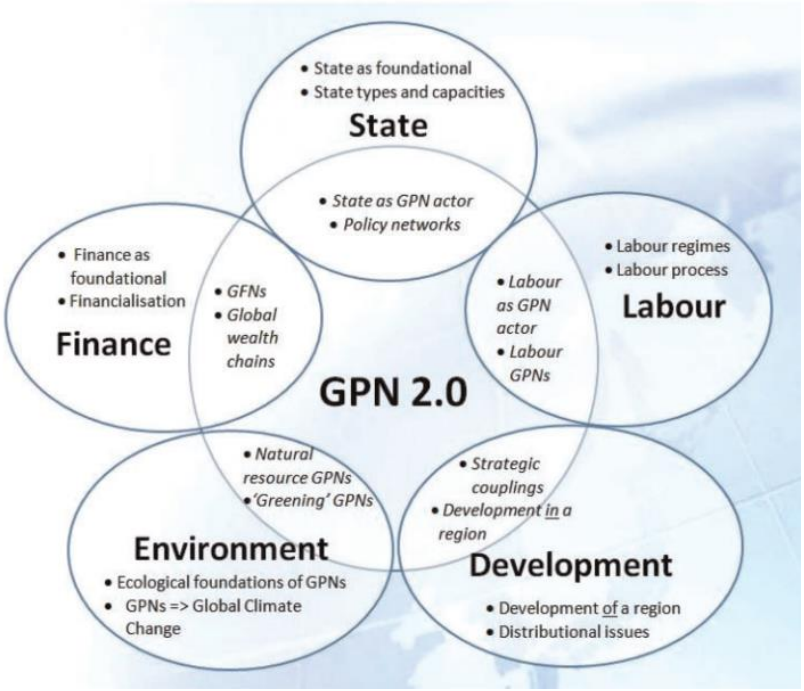


Figure 7. GPN theory and its intersections with the state, finance, labour, environment and development. Source: Coe and Yeung, 2019.

3.2.3 Rentier State

For decades, development scholars have debated the structural factors behind the economic "backwardness" of countries reliant on agricultural or mineral resources for production and export. Early works by Viner (1953), Lewis (1955), and Rostow (1960) suggested that such resources could serve as a foundation for economic development. However, other scholars like Baran (1957), Hirschman (1958), and Seers (1964) argued that reliance on these resources hindered development. Following the oil crises of 1973 and 1979, a second wave of scholarship emerged, focusing on the "rentier" nature of economies with abundant oil or primary resources. Mahdavi's (1970) pioneering work laid the foundation for further studies by Ferkat (1979), Amuzegar (1982)(1982)(1982), and Beblawi (1987) on oil-based rentier states. Concurrently, Gelb (1984, 1988) introduced the concept of the "resource curse," critiquing the poor public management of oil cycles and highlighting the challenges faced by weak states receiving substantial oil revenues. Around the same time, Corden (1982, 1984) and Corden and Neary (1982), explored the concept of the "Dutch Disease," analyzing the economic imbalances encountered in the Netherlands due to the intensive exploitation of natural gas for export.

Beblawi (1987) identifies several critical characteristics of a rentier state, particularly in the Arab world, where external rent, often from oil revenues, constitutes a significant portion of the budget and exports. This dependency on external rent is vital for sustaining the economy and government operations, with a small fraction of the population involved in wealth generation, such as oil production. The majority, however, is engaged in distributing and utilizing this wealth, creating a divide between those who control wealth-generating resources and those who benefit from them. As the principal recipient of external rent, the government redistributes it among the population, influencing social and economic interests. This fosters a rentier mentality, where income or wealth is not directly tied to work or risk-bearing activities, affecting economic behavior and societal dynamics. According to Puranen and Widenfalk (2007), rentier states also show limited development of modern social organizations tied to productive activities, as wealth is often obtained incidentally or through windfall gains, and citizenship itself can become a source of economic advantage.

Numerous hydrocarbon-dependent rentier economies are pursuing ambitious development agendas to counteract the challenges associated with the "rentier state" and the "resource curse." Scholars such as Ross (2012) underscore the importance of addressing revenue volatility, fostering employment in non-oil sectors, and cultivating a competitive private sector as central objectives of these strategies. Throughout history, economic development has been approached through various strategies. On a macroeconomic level, import substitution policies employed protectionist measures to promote self-sufficiency by reducing reliance on foreign goods, while an export-oriented model prioritized economic growth by fostering international trade and expanding exports of goods and services (Bagchi, 1977). At the microeconomic level, the resource-based view (RBV) highlights that a firm's long-term profitability and strategic advantage are driven by leveraging resources that are valuable, rare, and inimitable (Barney, 1991). This perspective underscores the importance of internal resources in sustaining competitiveness, aligning with contemporary insights into resource-driven firm strategies (Chahal et al., 2020). RBV highlights how access to unique resources allows firms to craft dynamic capabilities crucial for sustained success (Barney, 1991; Vorhies & Morgan, 2005). This framework is widely recognized in business literature for its link to enhanced organizational performance (Özçelik et al., 2016). In parallel, rentier economies rely heavily on natural resource exports, often leading to economic dependency and exposure to fluctuating commodity prices. This mirrors RBV's principles, where firms in resource-based industries benefit from leveraging rare resources for competitive advantage. However, rentier economies face broader socio-economic challenges, including the "resource curse," which complicates diversification efforts and sustainable development (Rugman et al., 2002; Wernerfelt, 1984). Understanding the relationship between

resource-based industries and rentier economies is critical for developing strategies that promote economic stability while mitigating over-reliance on narrow resource bases and facilitating growth through strategic resource management (Greer & Theuri, 2012; Hitt et al., 2016).

Diversification refers to a state's strategic shift from an overreliance on a single rent-generating resource to a more sustainable and diversified economic model that includes manufacturing, technology, tourism, and financial services. Theoretically, diversification aligns with modernization theory, which suggests that economic development results in structural transformations within political and social institutions (Rostow, 1960). Economic scholars also highlight institutional economics, arguing that effective institutions—such as regulatory frameworks, transparent governance, and human capital development—are essential for successful diversification (North, 1990). The diversification of rentier states is affected by both internal and external dynamics. Domestically, decisive state intervention, investment in human capital, and infrastructure development can promote diversification (Acemoglu & Robinson, 2012). However, political resistance often arises due to entrenched elite interests that benefit from rent distribution. Externally, globalization, foreign direct investment (FDI), and geopolitical shifts can either support or obstruct diversification efforts (Schlumberger, 2006).

The Gulf Cooperation Council (GCC) countries (Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates) are addressing diversification of their economies beyond hydrocarbons. They develop infrastructure and heavy industries like petrochemicals, fertilizers, steel, and aluminum, as well as services like finance, logistics, trade, and tourism, to create employment opportunities and reduce the reliance on hydrocarbons. GCC nations promote (organizational) diversification through public-private partnerships and entrepreneurship initiatives. However, the success of diversification efforts has been mixed. Overcoming the challenges of reducing reliance on hydrocarbons and building sustainable growth models remains a complex and ongoing process. The varying degrees of success and the unique challenges each country faces underscore the complexity of economic diversification and the importance of taking lessons from the experiences of other oil exporters, such as Indonesia, Malaysia, and Mexico, which have implemented successful diversification strategies. Indonesia focused on export-oriented industrialization, emphasizing labor-intensive manufacturing industries like textiles and electronics. However, limitations arose due to reliance on low-wage labor and insufficient investment in human capital. Malaysia pursued an industrialization strategy, balancing natural resource-related and higher-value-added industries, with success attributed to technological upgrading. Policies, such as tax incentives and export processing zones,

facilitated foreign direct investments. Mexico attracted FDI by establishing free trade agreements with the US and Canada. Policies supporting manufacturing clusters, infrastructure development, and worker training incentives contributed to Mexico's economic diversification (Cherif et al., 2016).

3.2.4 GPNs/economic studies literature in Algeria

Mañé-Estrada and de la Cámara (2005) offer a nuanced perspective on rentier economies, providing valuable insights into the multifaceted nature of this economic paradigm. Their analysis may shed light on the complexities and implications of Algeria's hydrocarbon-centric economic structure. Another study by Mañé-Estrada with Albinyana (2018) focuses on integrating Algeria's gas sector into regional gas chains in the Western Mediterranean. Their key findings can be summarized as follows: firstly, Algeria is depicted as an underdeveloped, rentier economy heavily reliant on revenues from its natural gas and oil resources. Secondly, the relational dynamics of Algeria's economy within the regional gas chain shape its decision-making capacity and political landscape. Thirdly, the study proposes a methodological framework incorporating concepts from development economics, rentier states, and international political economy to scrutinize Algeria's integration into the Global Production Network. Moreover, it underscores the significance of comprehending the inter-organizational relationships and power dynamics within the region's gas sector to evaluate Algeria's position in the geo-energy space. Lastly, the paper advocates for using qualitative and quantitative analytical tools to assess the power and influence of various stakeholders involved in the energy chain, emphasizing the importance of considering relational dynamics when analyzing Algeria's historical, current, and future decisions. The most recent paper written by the two authors was ‘Revisiting Rentierism through the Lens of Algerian Gas’ (2023). The paper's key findings encompass several points: firstly, the relationship between hydrocarbon exports and rent generation is not always directly proportional; in some instances, increasing export volumes may result in a relative decline in national rent rates, as evidenced in Algeria. Secondly, the future trajectory of rentiers in Algeria remains to be determined due to the increasing significance of gas in its hydrocarbon production and export, coupled with its limited integration into value chains. Thirdly, rentier states rely on specific conditions for rent generation, stemming from an unequal territorial relationship institutionalized through a singular market and its associated governance structure. Fourthly, the oil price and the rent it generates play a pivotal role in perpetuating global imbalances, challenging the notion that rentierism is solely attributable to individual mentalities or behaviors of rentier states. Lastly, Algeria's involvement in the Global Production Networks within the hydrocarbon sector is marked by minimal integration; specifically, it implies that Algeria predominantly

engages in the extraction and export of raw materials, such as crude oil and natural gas, without substantial participation in value-added processes like refining, advanced manufacturing, or the development of downstream industries. It signals a lack of involvement and potential supply and demand shock susceptibility.

Álvarez A. M. (2010) examined the phenomenon of rentierism within the Algerian economy, revealing its characteristics as a rentier economy heavily dependent on revenues derived from the hydrocarbon sector, particularly oil and natural gas. The study highlighted the substantial influence of the hydrocarbons sector on Algeria's GDP, exports, and overall state income, emphasizing its central role in shaping the country's economic landscape. Additionally, the research delved into the role of Sonatrach, the Algerian national oil company, in both energy policy formulation and the distribution of revenues. Musso (2017) and Ayad et al. (2023) explored the historical, political, and economic factors influencing the development of the oil industry in Algeria and its implications for international relations and decolonization processes. Similarly, other studies, such as those conducted by Yahia (2021), and Ghebouli (2023), focused on Algerian-European relations. Additionally, works by Nashashibi et al. (1998), Boukaraoun (1991), Saadoun (2012), and Rachid (2015) provided insights into Algerian economic reform initiatives. Moreover, Hasni et al. (2021), Fourneris (2022), Bounouh (2023), and Lagraa (Lagraa, 2023) discussed the importance of diversification of the Algerian economy and renewable energy potentials.

The literature on Global Production Networks (GPNs) in Algeria has predominantly focused on the hydrocarbon sector. This presents a noticeable gap in research addressing other sectors of the economy. My dissertation presents an opportunity to fill this gap by exploring how non-hydrocarbon sectors engage with global production networks in Algeria, contributing to a more diversified understanding of the country's economic landscape.

Chapter 4: RESULTS and DISCUSSION

4.1 Algerian Urban Study

4.1.1 An Overview of the Urbanization Phenomena

This section provides an overview of the phenomena of urbanization in Algeria from 1886 to 2008 as illustrated in Table 6. In the next part of the results, I will explain the process in depth between 1987 and 2008.

Table 6. Assessment of the urban and rural population in Algeria from 1886 to 2008. Source: edited by the author based on the data of the relevant censuses

Periods	Population in thousands			Urbanization rate (%)
	urban	rural	total	
1886	523	3229	3752	13.94
1906	783	3938	4721	16.59
1926	1100	4344	5444	20.21
1931	1248	4654	5902	21.14
1936	1432	5078	6510	21.99
1948	1838	5949	7787	23.61
1954	2158	6457	8615	25.05
1966	3778	8244	12,022	31.43
1977	6687	10,261	16,948	39.45
1987	11,420	11,631	23,051	49.54
1998	16,964	12,149	29,113	58.27
2008	22,471	11,609	34,080	65.94

Between 1886 and 1954, over a span of 68 years, the urban population surged from 523,000 inhabitants to 2,158,000 inhabitants, reflecting urbanization rates of 13.9% and 25%, respectively. This era was characterized by an outward-looking form of urbanization, driven by economic activities and a transport infrastructure geared towards external connections (Santos, 1971). These modern elements were integrated with traditional aspects, albeit somewhat arbitrarily, with dominance being a deliberate focus, leading to speculation taking precedence over genuine progress. Concurrently, the acceleration of population regrouping gained momentum in the 1950s, coinciding with the Algerian liberation revolution against French colonialism in 1954. This period witnessed initial population consolidation, driven by poverty and the relocation of people from mountainous and rural regions to the more developed plains and established camps.

From 1954 to 1966, notable transformations occurred, primarily driven by demographic shifts and economic growth. The urbanization pattern during this period

responded essentially to immediate societal and economic demands through adaptive measures (Santos, 1971). The period surrounding Algeria's independence in 1962 saw a significant exodus of Europeans, creating opportunities for local populations, particularly rural inhabitants engaging in subsistence farming and seasonal labor on settler farms in the surrounding plains (Bendjelid, 2001). Concurrently, the return of Algerians from neighboring countries accelerated the migratory process initiated in 1954. Urbanization during this phase was primarily demographic and physiological, driven by inherent societal needs and changes essential for the urban and general economies to function effectively.

Between 1966 and 1977, Algeria experienced a significant surge in urban population, escalating from 3.8 million to 6.7 million, representing a 77% increase and an average annual growth rate of 5.3%, surpassing the overall population growth rate of 3.2%. This period of urbanization was characterized by several factors (Belguidoum & Mouaziz, 2010): the influence of major coastal industrial hubs attracting inter-regional migration, a notable local rural exodus driven by regional population stabilization initiatives promoting employment, infrastructure, and social amenities, and a crisis impacting rural areas and agricultural activities due to short-term, sector-specific goals associated with local development programs. Consequently, this urbanization trend reflects a shift from rural to urban areas, leading to the abandonment of agricultural lands in interior regions and the expansion of urban sprawl around industrial complexes in the North and along the coast.

Between 1977 and 1987, urban population growth persisted, albeit slower than before, with a total increase of 71%, still significantly outpacing overall population growth in Algeria. Despite a slight decrease in natural growth to 3.1%, the urban growth rate slightly rose to 5.5% annually during this period. Subsequently, from 1987 to 1998, the average annual and urban population growth rates experienced a noticeable decline, dropping to 2.1% and 3.6% per year, respectively. However, the urbanization rate continued to climb, surpassing 58%. The following decade (1998-2008) witnessed a continuation of these trends, with urban population share reaching around 66%. Although the rate of urban population growth decreased to 2.9%, it remained higher than natural growth, which further declined to 1.6%. Notably, a negative average annual increase rate was observed in the rural population for the first time.

4.1.2 Regional Tendencies in Urbanization

As indicated in Tables 7 and 8, there was a significant increase of 65% in the number of urban settlements between 1987 and 1998 in Algeria. However, this growth was unevenly distributed across the country, with about 80% of the new towns emerging in the three northern regions and the Highland East experiencing the most substantial growth in urbanization during this period (Tables 7 and 8). Conversely, there were no new urban settlements in the Hoggar Tassili region. The urban population also rose by 58%, with over 75% of the growth concentrated in the three northern regions and the Highland East. The Highland regions saw above-average relative growth in their urban population, while the Hoggar-Tassili region's high relative growth was less visible due to its small local urban population. The urban network showed slightly more dynamism, with population concentration mainly occurring in some Highland and southern regions (Tables 7 and 8).

Table 7. Regional urban population growth dynamics 1987–1998 (1987=100%). Source: own calculation based on the data of the relevant censuses

Spatial Development Regions	Number of Urban Settlements	Total Urban Population	Population of smallest Urban Settlements between 5000–19,999	Population of Small Towns	Population of Medium-Sized Towns	Population of Large Cities	Population of Metro-poles	Population of Primary city
North Centre	+60	+50	+106	+56	+36	+64	+23	+23
North East	+63	+ 52	+79	+65	-22	+209	+9	+9
North West	+68	+ 53	+59	+68	+123	+43	+22	+22
Highland Centre	+72	+93	+117	-26	+65	/	0	+88
Highland East	+102	+71	+107	+62	+21	+85	0	+36
Highland West	+57	+77	+114	-14	+26	/	0	+55
South East	+40	+68	+45	+123	-56	+202	0	+38
South West	+56	+51	+55	+137	0	+25	0	+25
Hoggar Tassili	0	+142	-9	0	/	0	0	+72
Total	+65	+58	+85	+54	+34	+127	+19	+26

Table 8. Regional distribution of urban population growth 1987–1998 (in percentage of the national value). Source: own calculation based on the data of the relevant censuses

Spatial development regions	Number of urban settlements	Total urban population	Population of smallest urban settlements between 5000-19999	Population of small towns	Population of medium-sized towns	Population of large cities	Population of metropoles	Population of primary city
North Centre	31	34	36	38	40	11	68	46
North East	16	14	17	15	0	18	11	4
North West	17	16	14	15	23	9	21	15
Highland Centre	6	9	7	0	18	13	0	8
Highland East	17	14	14	11	8	20	0	8
Highland West	5	5	6	0	5	13	0	8
South East	6	7	5	20	0	13	0	4
South West	2	2	1	2	0	2	0	4
Hoggar Tassili	0	0	0	0	8	0	0	4
Total	100	100	100	100	100	100	100	100

Between 1998 and 2008, there was a national-level slowdown in urban network density and population growth compared to the previous period (1987-1998). This trend was observed in almost every region, except for Hoggar Tassili, concerning the number of urban settlements and the South West regarding urban population growth rate (Tables 9 and 10). Furthermore, there was a tendency towards greater population concentration within the urban network, with the majority of new urban settlements and urban population growth concentrated in the northern regions with average or under-average urban population dynamics. This spatial concentration of growth in new urban settlements was more pronounced compared to the previous period, while urban population growth was less spatially concentrated. The North Centre showed one of the highest growth rates in the number of urban settlements but the lowest urban population growth rate, indicating a suburbanization process around the capital city (Tables 9 and 10).

Table 9. Regional urban population growth dynamics 1998–2008 (1998=100%). Source: own calculation based on the data of the relevant censuses.

Spatial development regions	Number of urban settlements	Total urban population	Population of smallest urban settlements between 5000-19999	Population of small towns	Population of medium-sized towns	Population of large cities	Population of metro-poles	Population of primary city
North Centre	+27	+19	+11	+46	+0	+37	+13	+13
North East	+26	+ 27	+28	+44	+133	+17	-2	-6
North West	+20	+22	+23	+35	+14	+29	+ 9	+9
Highland Centre	+22	+43	+22	+71	- 8	+147	0	+68
Highland East	+16	+30	+24	+15	+15	+49	0	+17
Highland West	+18	+27	+25	+17	+52	+16	0	+20
South East	-11	+32	+21	+13	+259	+18	0	+16
South West	+14	+53	+46	+32	/	+23	0	+23
Hoggar Tassili	+40	+44	+18	/	+25	0	0	+25
Total	+20	+25	+21	+36	+22	+40	+9	+13

Table 10. Regional distribution of urban population growth 1998–2008 (in percentage of the national value). Source: own calculation based on the data of the relevant censuses

Spatial development regions	Number of urban settlements	Total urban population	Population of smallest urban settlements between 5000-19999	Population of small towns	Population of medium-sized towns	Population of large cities	Population of metro-poles	Population of primary city
North Centre	45	28	20	47	0	15	80	44
North East	20	16	25	16	30	5	0	0
North West	15	12	20	13	9	10	20	13
Highland Centre	5	12	5	5	0	28	0	19
Highland East	10	16	15	5	9	31	0	6
Highland West	5	4	5	3	13	3	0	6
South East	0	8	5	5	30	5	0	6
South West	0	4	5	3	9	3	0	6
Hoggar Tassili	0	0	0	3	0	0	0	0
Total	100	100	100	100	100	100	100	100

Approximately 20% of the urban settlements' growth and almost one-third of the urban population growth were attributed to the Highland regions, particularly the Highland Centre and Highland East. While urban population growth in the southern regions had the highest rate, the expansion of the urban network was only notable in the Hoggar Tassili region. The growth of urban population outpaced the expansion of the urban network in all other regions, especially in the Highland and two southern regions, indicating urban concentration processes. Large cities in the Highland Centre and Highland East exhibited remarkable dynamics, while medium-sized towns dominated the Highland West. The Hoggar-Tassili region emphasized the growth of small towns, and two other southern regions registered the highest growth rate of medium-sized towns.

Upon comparison of the tables (Tables 7-10), it is evident that large cities showed the highest dynamics during the two decades, surpassing even the metropoles at the national level. As a result of these urban development tendencies, three distinct urban zones can be identified in contemporary Algeria: The Northern Coastal Zone with a high urban network density and population concentration, the Highland Zone with a medium-level urban network density and population concentration, and the Southern Saharan Zone with a low urban network density and population concentration (Table 11). Each zone has a unique standout region: the North Centre, including the capital city of Algiers; the Highland East, with significant socio-economic development efforts since the war of independence; and the South East, where urbanization is closely linked to the growth of the oil and gas industry.

Table 11. Urban network in the Algerian regions (2008). Source: own calculations based on the data of the census

Spatial development regions	Number of urban settlements (unit/1000 km2	Total urban population (Inhabi-tants/km^2	Population of smallest urban settlements between 5000-19999 (%)	Population of small towns (%)	Population of medium-sized towns (%)	Population of large cities (%)	Population of metro-poles (%)	Population of primary city (%)
North Centre	9.95	254.39	22	26	18	8	26	26
North East	5.12	120.12	33	21	11	15	21	12
North West	4.73	110.16	30	19	13	18	20	20
Highland Centre	0.55	16,04	26	13	24	36	0	15
Highland East	2.45	59.06	29	16	15	40	0	9
Highland West	0.37	9.22	31	19	26	24	0	14
South East	0.15	5.01	26	33	17	24	0	11
South West	0.02	0.62	32	19	13	35	0	35
Hoggar Tassili	0.01	0.18	31	15	54	0	0	54
Total	0.42	10.70	27	22	16	19	16	9

To conclude this sub-chapter, Figure 8 highlights the crucial role of smaller towns (5,000–50,000 inhabitants) in Algeria's urban network, illustrating their evolving demographic significance across regions. The northern regions show the highest concentrations, reinforcing their importance as intermediate urban hubs that support economic and infrastructural growth. In contrast, smaller towns in the Highlands and the South experience slower population growth than the northern regions but still grow over the years. Despite regional disparities, these towns are essential for decentralizing urbanization, alleviating pressure on major cities, and fostering balanced territorial development. Their growth emphasizes the need for strategic policies to enhance their role within Algeria's urban hierarchy.

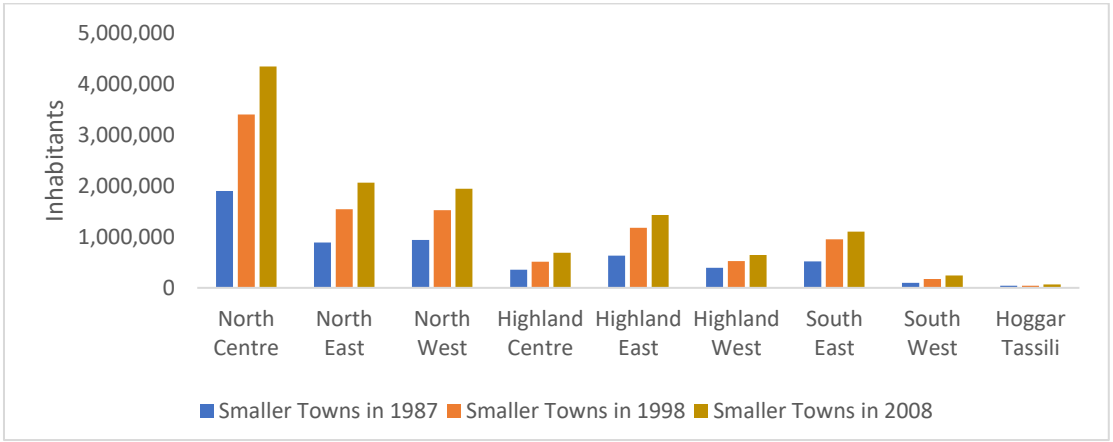


Figure 8. Distribution of the population of smaller towns (between 5,000 to 50,000 inhabitants) per regions in the last 3 censuses. Source: own calculation based on the data of the relevant censuses

4.1.3 The Background of Urbanization Processes

Urban growth in Algeria is shaped by several factors, including natural growth, rural-urban migration, the emergence of "de jure" towns, and integrated rural settlements resulting from urban sprawl. Although limited to three categories, my empirical research indicates that natural growth predominantly drove urban expansion in both decades (1987-1998 and 1998-2008). However, rural-urban migration significantly impacted the Highland Centre and Hoggar-Tassili region during the first decade. While potentially surprising, these findings align with previous research highlighting differences in natural growth rates between urban and rural areas. Although natural growth does not directly affect the relative proportions of urban and rural populations, it remains the primary driver of absolute urban population growth (Figures 9 and 10). This is particularly true despite Algeria's natural growth rate declining over the studied period. Rural-urban migration, typically involving younger individuals, indirectly contributes to local natural growth by boosting fertility rates in target settlements.

Secondary sources of urban population growth vary. Nationally, the growing number of new "de jure" towns is more significant than rural-urban migration to older cities and towns, with its importance increasing over time. However, the emphasis on new "de jure" towns may underestimate the role of rural-urban migration, as this migration becomes obscured when settlements attain "de jure" urban status during the study period. Regional trends also differ, with the expansion of the urban network through new "de jure" towns is more important in urbanized northern regions. At the same time, rural-urban migration plays a more decisive role in the Highland and Southern regions. Despite a general trend towards urban network extension, migration remains crucial in the second decade (Figures 9 and 10).

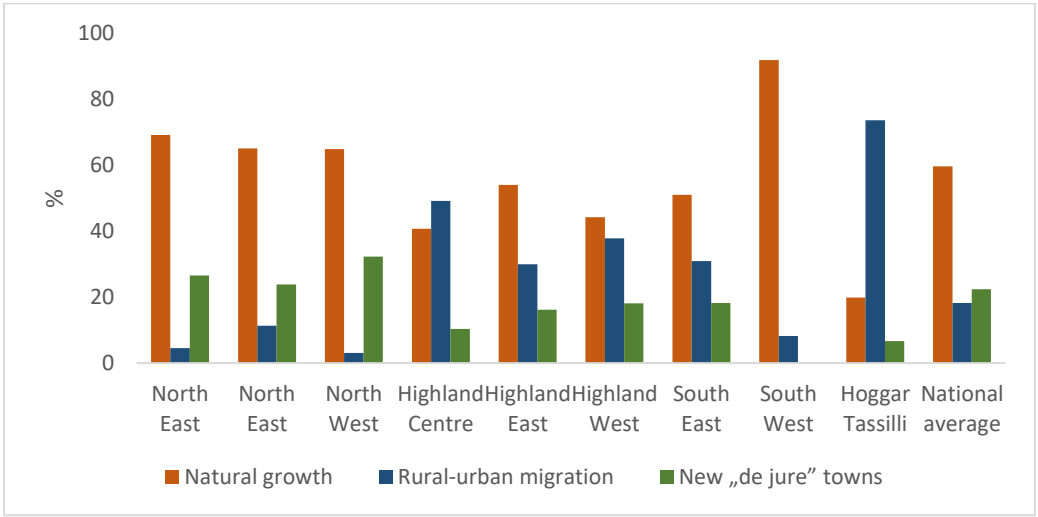


Figure 9. Sources of urban population growth in the regions (1987-1998). Source: own calculation based on the data of the relevant censuses

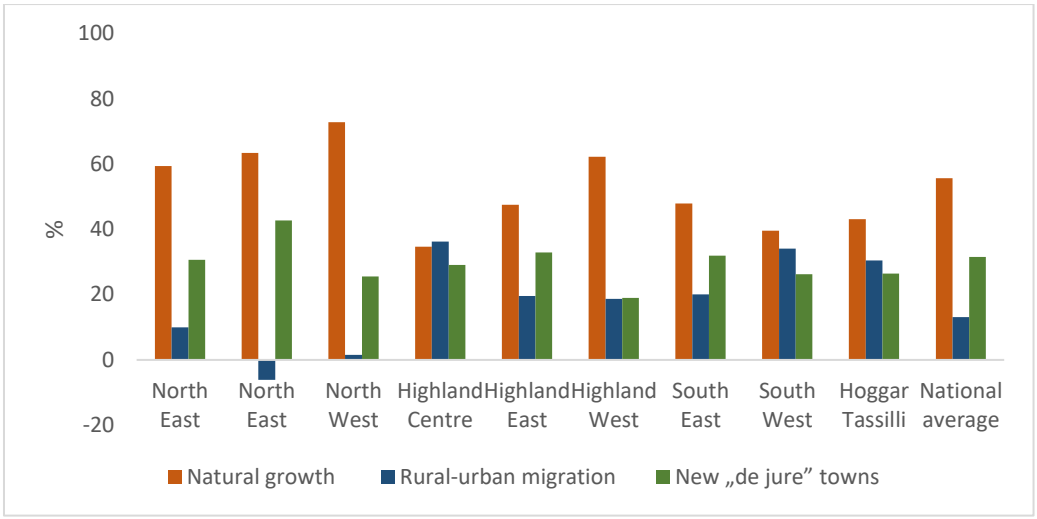


Figure 10. Sources of urban population growth in the regions (1998–2008). Source: own calculations based on the data of the relevant censuses

Various factors influence Algeria's urbanization. Firstly, French colonialism profoundly impacted Algeria's urban landscape, reshaping the country during the Algerian Revolution (1954–1962) by establishing new infrastructure and settlements (Hadjri & Osmani 2004; Bekkouche & Otmane, 2022). The colonial administration implemented various laws and directives to regulate the movement of Algerian residents, often compelling them to relocate to specific areas, particularly in the northern regions. This focus on the north was driven by its strategic advantages, such as port facilities, improved European communication, fertile agricultural plains, favorable climate, and attractive coastal areas. Consequently, regional disparities between the northern and southern parts of the country and between urban and rural areas intensified, fueling urbanization primarily in the colonized northern territories, particularly major cities. Even after independence, these spatial inequalities persisted, sometimes exacerbated by policies of administrative centralization and the concentration of significant investments in the northern regions due to their existing infrastructure and resources. Secondly, economic development policies significantly shaped the urbanization trajectory in Algeria. During the era of central planning, the government pursued a strategy to modernize and redistribute the country's population and economic activities by establishing new industrial hubs, such as Batna in the Eastern Highlands, M'sila in the Central Highlands, Saïda and Tiaret in the Western Highlands, Adrar in the Southwest, and Hassi-Messaoud and Hassi R'Mel in the Southeast, which attracted substantial rural-urban migration (Herizi & Belkacem, 2016)(Herizi & Belkacem, 2016)(Herizi & Belkacem, 2016). However, many state-owned manufacturing enterprises struggled to remain competitive due to outdated

management practices and technologies, resulting in losses that had to be covered by the public budget, leading to a rise in external debt and slowed economic progress. In response to these challenges, Algeria initiated economic liberalization efforts under the guidance of the International Monetary Fund in 1994, leading to significant restructuring of the economy and the closure of numerous industrial firms, resulting in substantial job losses (Herizi & Belkacem, 2016). For instance, since 1994, 935 out of 1324 local public enterprises across Algeria, employing approximately 220,000 individuals, have been shuttered. M'sila in the Central Highlands experienced a reduction of three-quarters of its industrial workforce by 2000. Consequently, rural-urban migration towards regions housing these companies decreased, while new migratory patterns emerged towards coastal metropolises with more robust economic prospects, potentially fostering urban-urban migration as well. However, the Saharan regions experienced renewed attractiveness due to vibrant economic development fueled by private sector engagement in agriculture, manufacturing, petroleum, and the service industry. Notable advancements include the revitalization of oases in agriculture and growth in the petroleum sector facilitated by domestic and foreign investments. Thirdly, political and economic challenges, including the civil war, caused instability and displacement, impacting urban growth patterns.

Thirdly, Algeria encountered economic and political challenges that created an unstable environment during the studied period. The civil war spanning from 1987 to 1998, known as the "Black Decade," resulted in approximately 200,000 fatalities and thousands of disappearances, displacing or exiling hundreds of thousands of people. Armed actions were prevalent in various regions, with 43% occurring in the North Centre, 12% in the North West and Highland West regions, and 4.3% in the North East region (Kateb, 2004). Consequently, around 1.5 million Algerians were compelled to flee their villages between 1993 and 1997, with over 100,000 seeking refuge in the outskirts of towns like Djelfa (Highland Centre), Médéa, and Chlef (North Centre). Many villages, including Ouled Ali near the capital, were deserted (Kouaouci & Rabah, 2013). While some of this migration was categorized as rural-urban migration, a significant portion settled in the suburbs of Algerian cities. However, the population growth witnessed in small towns with populations ranging from 5000 to 50,000 can be attributed to their proximity to rural areas, making them a preferred destination for those seeking security (Bousmaha Ahmed et al., 2021; Chadli & Hadjiedj, 2003). Fourthly, initiatives aimed at restraining the expansion of metropolises were enacted, such as demolishing precarious housing in major cities, implementing social housing projects outside urban areas, and restricting industrial investments. These measures led to the establishment of new "de jure" towns in northern regions, including Bab Ezzouar, Boumerdès, Dar el Beida near Algiers, and Sidi Amar near Annaba, among others. Notably, Ali Mendjeli emerged on the outskirts of Constantine in 2000

(Lakehal, 2015) in response to the city's landslide issues and the high demand for social housing (Foura & Foura, 2005). With Constantine facing 32,000 social housing applications annually and witnessing dynamic population growth, constructing a new city was deemed the most viable solution. Ali Mendjeli's population surged from 0 inhabitants in 1998 to 64,120 by 2008. Its establishment influenced the balance of rural-urban migration and the contribution of new "de jure" towns to urban population growth in the North East region.

My findings suggest that Algeria remains in the initial (concentration) stage of urbanization, with early signs of entering the second (suburbanization) stage around its northern metropolises. This conclusion contrasts with earlier study by Marc Côte (1994), which emphasized a rapid rate of urbanization driven primarily by rural-to-urban migration, the concentration of population growth in coastal regions, and the lack of small urban centers. The research, however, reveals a slowing urbanization rate, a diminished role for rural-to-urban migration, and a gradual shift in urban development toward inland regions.

One of the most notable findings is the growing importance of small towns and the smallest urban settlements, which account for approximately 50% of the urban population across all regions. This increasing significance of smaller towns challenges previous assumptions that focused heavily on large urban centers and coastal areas as the primary engines of growth. The dynamics of these smallest urban settlements reveal an evolving urban network in Algeria, where smaller towns, despite their size, play a crucial role in shaping regional development. These towns are becoming focal points for local economies and regional production networks, contributing to the decentralization of urban growth. The increasing prominence of small towns is particularly significant given Algeria's complex physical geography, which has historically constrained urban expansion. Mountainous regions and desert areas have limited the extent of urbanization in certain parts of the country, contributing to the conservative nature of settlement patterns. This has resulted in only moderate changes in the spatial distribution of the total and urban population, even as smaller towns become more prominent.

Despite these shifts, the urban landscape in Algeria remains uneven, and the issues raised by earlier scholars, such as Marc Côte (1993, 1994), Aziz Belkhatir (1999), and Djamel Raham et al. (2001), regarding regional imbalances and the challenges facing Algeria's network, continue to be relevant. While significant, the development of small towns has not yet substantially altered the broader spatial patterns of urbanization. These settlements, while growing, remain moderate in their overall impact on the national urban network. Nonetheless, their increasing role in the

regional distribution of the urban population suggests that small towns will be critical to understanding future trends in Algeria's urbanization and regional development.

To address the enduring impacts of colonialism and subsequent decades of development that have led to significant regional disparities and tensions, SNAT 2025 (2008) endeavors to enact spatial rebalancing measures aimed at mitigating inequalities in population distribution and economic activities while alleviating pressure on densely populated coastal areas. Under its second priority framework centered on spatial considerations, the document delineates three regional and two thematic sub-priorities to foster spatial development (Table 12).

Table 12. The five Territorial Action Program (TPA) of "Create the dynamics of territorial rebalancing - Guideline of SNAT". Source: SNAT 2008

Priorities		
(1) Slowing down and rebalancing the coastal region	**Goals**	- Controlling the growth of the coastline and more qualitative development. - Developing the entire Tell region as hinterland of the coastline.
	Strategy	- Mastering urban development and restructuring metropolitan regions. - Setting up a multipolar, articulated and hierarchical Tellian urban system. - Enhancing the competitive advantages of the coast and the Tell. - Protecting and strengthening ecosystems. - Enhancing spatial justice, preventing natural and industrial risks.
	Action program	- Restricting and controlling conurbation. - Preserving natural coastline in a width of 5 km. - Protecting agricultural lands. - Urbanizing the foothills. - Establishing new towns (reorganizing and extending urban development).
(2) Developing Highland	**Goals**	- Making the Highlands an attractive place by sustainable development. - Integrating the Highlands by building relations and complementarities.
	Strategy	- Establishing a hierarchical and articulated urban system. - Strengthening service and production base through relocations and incentives. - Putting sustainability at the center of the development of region. - Promoting the specific competitive advantages of the region. - Protecting and strengthening steppe ecosystems. - Enhancing spatial justice within the region.

	Action program	- Reorganizing urban system, creating new towns. - Carrying out 15 thematic action plans (eg. water management, rural renewal, transport and mobility, human and social development, renewable energies etc.)
(3) Developing the South	**Goals**	- Meeting the specificities of desert environment and the needs of inhabitants. - Integrating the South more into the spatial networks of Algeria.
	Strategy	- Organizing an urban system adapted to the regional specificities. - Strengthening service and production base in the region. - Putting sustainability into the focus of regional development. - Highlighting the specific competitive advantages of the region. - Protecting and strengthening oasis ecosystems. - Enhancing spatial justice within the region.
	Action program	- Supporting competitiveness and growth. - Protecting oasis system and sustainable water management. - Developing accessibility and public services. - Using modern technologies to supply the Great South.
(4) Relocation of activities and administrative deconcentration	**Goals**	- Unburdening the northern region, especially the coast. - Strengthening activities and employment in the other regions. - Relocating production from covercrowded (coastal) regions. - Deconcentrating public administration.
	Strategy	- Setting up a National Commission responsible for the relocation of activities. - Defining a coherent relocation strategy.
	Action program	- Carrying out administrative relocations. - Establishing an incentive system for relocations. - Doing accompanying measures helping relocations.
(5) Developing a hierarchical and articulated urban system	**Goals**	- Establishing a polarized, hierarchical and articulated urban system. - Promoting dense and dynamic city-countryside relations.
	Strategy	- Defining functions and relationships of different urban categories. - Establishing new towns to strengthen the urban framework. - Networking cities, generating synergies.
	Action program	- Organizing urban network along coastal metropoles and growth towns of the other (Tell, Highland, South) regions including also newly established towns. - Shaping more balanced urban-rural relations.

Regarding shifts in urbanization patterns, the notion of an equitable urban framework holds significant relevance, as depicted in Figure 11. SNAT 2025 (2008) highlights specific categories of urban centers as focal points, encompassing metropolises (4), growth hubs within the Tell region (9), counteracting hubs in the Highlands (10), and growth facilitators in the South (12), all aimed at enhancing and fortifying these 35 centers. Metropolises serve as pivotal nodes for production, services, research, and administrative functions, fostering connections among themselves and major global cities and acting as gateways. Growth hubs in the Tell region oversee and facilitate regional development by fostering urban-rural connections to alleviate pressure on coastal metropolises. Counteracting hubs in the Highlands contribute to expanding population growth spatially by organizing their rural hinterlands.

Meanwhile, growth facilitators in the South act as economic and service hubs, catalyzing growth and bolstering the region's appeal. Additionally, three types of new towns prioritize different functions based on their location (Tell, Highlands, or South), aiming to alleviate pressure on metropolises (Tell), extend growth (Highlands), exploit local resources (South), and infuse urban vitality further inland. Spatial connections, particularly the traditional North-South transport corridors linking coastal hubs to internal peripheries and the growing significance of East-West infrastructure, play a crucial role in urban networking, strengthening horizontal relationships within a historically vertically oriented system stemming from the colonial era. The concentration of economic activities and public administration serves as a tool for fostering more balanced urban network development alongside efforts to reinforce urban-rural linkages and establish an infrastructure that mitigates existing spatial disparities, thus aligning the urban network more closely with the Christaller model, which describes the internal differentiation of local marketplaces within a closed system. It emphasizes establishing and differentiating centers based on internal resources in a bottom-up manner. Characterized by a homogeneous space, the model proposes a hexagonal system of centers and attraction zones, influencing urban policies to achieve balanced structures globally (Pacione, 2005).

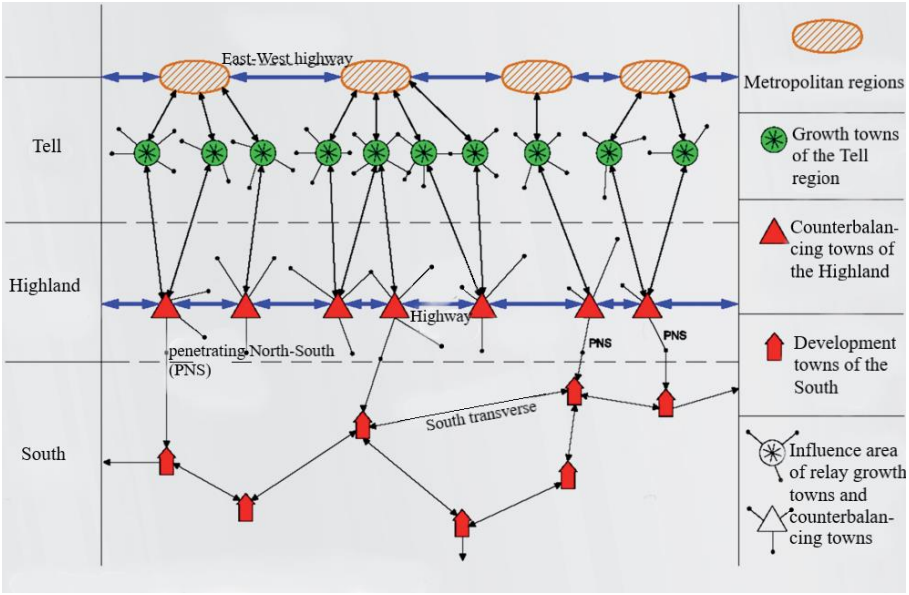


Figure 11. Functional organizational diagram of the urban network in Algeria. Source: SNAT 2008

The population change data of the focal urban categories outlined in SNAT reinforces a gradual transition of urban dynamics away from coastal regions. Notably, counterbalancing towns in the Highlands and development towns in the South exhibit swifter population growth than metropolises or emerging growth towns over decades, highlighting distinctions between coastal areas and their immediate hinterlands (Tell). SNAT aims to bolster prevailing spatial trends through this approach. Conversely, the population dynamics of prioritized cities and towns generally lagged behind the national urban population growth over the same periods, partly attributed to the substantial influx of new "de jure" towns, as previously discussed. To mitigate potential distortions from this settlement category, I adjusted the data by disregarding the contribution of new "de jure" towns based on our understanding of urban population growth sources. Nevertheless, even when compared against this revised data, the dynamics of prioritized urban centers appear to surpass the average solely in the case of counterbalancing towns in the Highlands and development towns in the South. Within this framework, SNAT aims to reshape prevailing spatial urbanization trends (Table 13).

Table 13. Population dynamics along the SNAT urban development categories (1987–2008). Source: edited by author based on the data of the relevant censuses

	1987 Population	1998 Population	2008 Population	1987-1998 Change (%)	1998-2008 Change (%)
Metropoles (Coastline)	3,040,137	3,632,039	3,958,290	19	9
New growth towns (Tell)	815,221	1,063,591	1,245,523	30	17
Counterbalancing towns (Highland)	918,132	1,332,546	1,817,956	45	36
Development towns (South)	609,776	893,425	1,109,618	47	24
Total urban population	12,894,332	20,365,104	25,471,869	58	25
Total urban population without new "de jure" towns	n. a	n. a	n. a	45	17

4.2 GPN Participation of the Algerian Rentier State

4.2.1 The National Socio-economic Context of Algeria

Algerian economy and society endured numerous adverse consequences under French colonial rule, marked by the economic exploitation of the country's natural resources and widespread impoverishment among the local population. The settler-colonial model further deepened the socio-economic disparities, concentrating the wealth in the hands of the European settlers and fostering class divisions. Land expropriation and forced labor disrupted traditional farming practices, pushing the indigenous population into arid regions, particularly into harsh mountainous areas. The imposition of the French language and culture eroded the Algerian identity, perpetuated systemic discrimination, limited access to education, and restricted economic opportunities for the native population. The scars of this historical period, including the brutal War of Independence (1954-1962), continue to shape Algeria's contemporary socio-economic and political landscape, underscoring the enduring impact of French colonialism (Brown, 2018). While the French government introduced infrastructure and educational institutions, these developments often served the interests of colonizers and contributed to economic inequalities and tensions (Henni, 2016). Exploiting Algeria's natural resources – especially the hydrocarbons – played a crucial role in the colonial economy (Musso, 2017).

After a transitional period of the independent Algeria (1962-1966), a new political leadership emerged which – as a consequence of the military support and technical assistance provided by the Soviet Union for the Algerian liberation forces (Gridan & Le Boulanger, 2007) adopted socialist orientation and built up a centrally planned economy. Algeria's development, including an ambitious industrialization strategy, was carried out along plans (1967-1970, 1970-1973, 1973-1977) financed by oil revenues (after gaining its independence, Algeria nationalized the hydrocarbon industry and established the state-owned Sonatrach) and external loans (Saidi & Saidi, 2022; Mernache, 2017; Boukaraoun, 1991). Industrialization was based on state-owned enterprises (SOEs) and considerable investments in the public sector, but it ignored two factors that led to its failure (Boukaraoun, 1991). At first, outdated technology challenged the competitiveness of the economy. It was a heritage of the colonial period (lack of necessary infrastructure, expertise, and technological capabilities), a consequence of socialist economic policy resulting in inefficient and uncompetitive SOEs, and an outcome of foreign corporations' strategies often transferring old technologies and equipment to the country. As a second factor, the demographic pressure of the rapidly growing population can be mentioned. As a result of these points, industrial growth was insufficient to meet the national demand in quantity and quality without imports. Due to the enormous deficits of the state-owned industrial enterprises, the government implemented a restructuring policy (1980–1985). It aimed to separate production and commercial functions and create a more specialized industrial structure to improve overall productivity and reduce Algeria's enormous dependency on foreign markets (Boukaraoun, 1991; Mundy, 2015). However, this policy proved to have some shortcomings and dysfunctions four years after it was implemented. With the decline in oil prices in 1986, the country, which depended on oil revenues financing more than half of its budget, faced economic collapse. Growing inflation led the government to take harsh austerity measures represented in increasing taxes, reducing imports and external borrowing, not to mention the hundreds of thousands of young unemployed people, wages falling sharply, and food prices increasing by 40% (Mundy, 2015). This situation led to the demonstrations of October 1988, the end of the socialist regime, which dominated until 1989, and the beginning of the so-called "black decade".

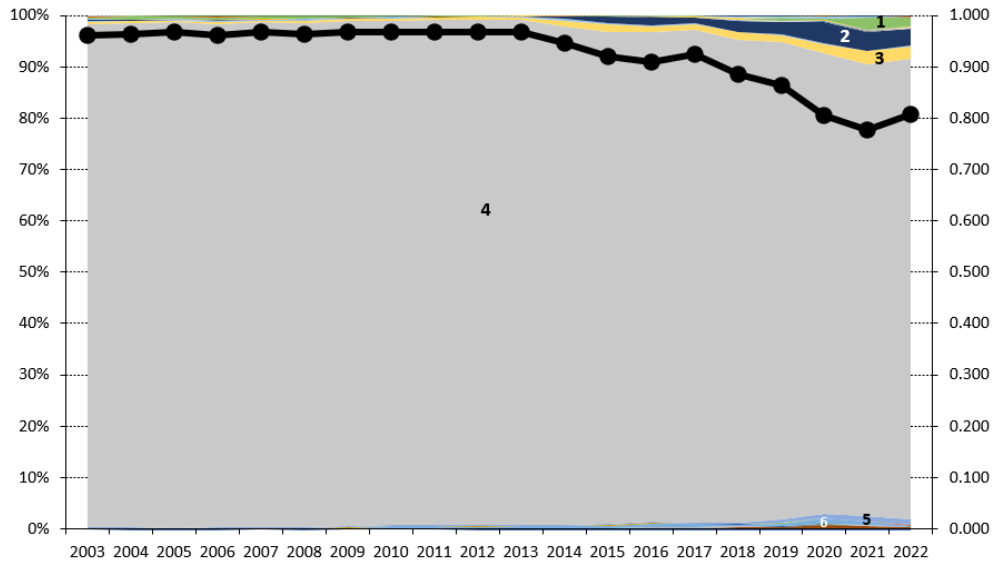
In the late 1980s and early 1990s, various reforms were implemented based on agreements between the Algerian government, the International Monetary Fund (IMF), and the World Bank (WB), reflecting the neoliberal economic policy approach of the Washington Consensus. To lower the external debt, a structural adjustment program (1994-1998) combined with austerity measures was carried out. Price liberalization, setting up more rigorous budgetary restrictions for SOEs, removal of international trade monopolies, and establishing the central bank's autonomy were its

foundations. The change in the institutional framework by making Algeria more attractive for foreign direct investments targeted a globally competitive market economy. Privatization of state-owned enterprises plays a significant part in economic reforms. Officially launched in 1995, this policy's primary goal was to restore the balance of state budget and foreign accounts, attract FDI, and transfer key technologies. Consequently, international investors have driven increased foreign capital inflows (Boukaraoun, 1991). Many SOEs have been dissolved, and their assets have been sold to their former employees. Numerous small private businesses emerged, particularly in the construction industry. However, there have been only a few successes: the privatization failed because it could not benefit from the earlier strategic restructuring of the enterprises, and it could not be efficiently controlled by the government (Kichou L, 2011; Saadoun R, 2012; Werenfels, 2007). In 1997 and 1998, a collaborative effort of state banks and SOEs could be observed: SOEs consented to multi-year performance contracts with quantifiable goals in order to secure their economic survival in exchange for their financial restructuring (Nashashibi et al., 1998). Algerian economy faced several challenges as it approached the turn of the millennium (Zerrouki, 2010). The government had to delineate a comprehensive economic and social development strategy that effectively harnessed the national resources. Internal conflicts between workers and senior managers within the enterprises, slow production advancements, and a dependence on Western technologies and raw materials could be observed. Economic and social repercussions of declining oil prices in 1992 and a substantial share of the hydrocarbon export revenues in foreign debt service exacerbated Algeria's difficulties. The nation experienced low economic growth, a heavy reliance on imports, and the slow progress of privatization. Algeria's integration into the global production networks remained one-sided, showing the predominance of the hydrocarbon sector and state-owned enterprises.

4.2.2 Sectoral and Regional Pattern of GPN Participation

The analysis of Algerian export commodities illustrated in Figure 11 reveals that hydrocarbon products dominate, although their share has slightly decreased from 98% to 90%. Emerging sectors include fertilizer (3-4%), inorganic chemical (2-3%), and iron and steel (1-3%) production, which are semi-finished goods derived from local raw materials. In 2022, Algeria ranked among the top 10 global exporters of ammonia and nitrogenous fertilizers, reflecting its role in global production networks as a critical supplier of energy and semi-finished products. Although the concentration index (Herfindahl–Hirschmann Index) remains exceptionally high, there is a moderate downward trend (Figure 12). In contrast, Morocco and Tunisia have more diversified

export structures, with higher concentrations in manufactured goods (see Appendices 2 and 3).



Legend: 1. Iron and steel; 2. Fertilisers; 3. Inorganic chemicals; 4. Mineral fuels, mineral oils and products of their distillation; bituminous substances; mineral waxes; 5. Salt; sulphur; earths and stone; plastering materials, lime and cement; 6. Sugars and sugar confectionery

Figure 12. Commodity structure of the Algerian exports. Source: own calculation based on data of International Trade Centre

Europe is the dominant export market for all three Maghreb economies, although Algeria is less dependent on European markets than Morocco and especially Tunisia (see Appendices 4 and 5). Between 44% and 66% of Algerian exports went to Europe, with peak dependence in the early 2010s (Figure 13). North America plays a notably larger role for Algeria, with its share nearing Europe's in 2007 (Figure 13). Morocco shows a higher but declining European share, while Tunisia, the most Europe-dependent, also maintains significant Maghreb ties (see Appendices 4 and 5). Major European partners include France, Italy, and Spain, with relational diversification indicating increasing integration into global production networks.

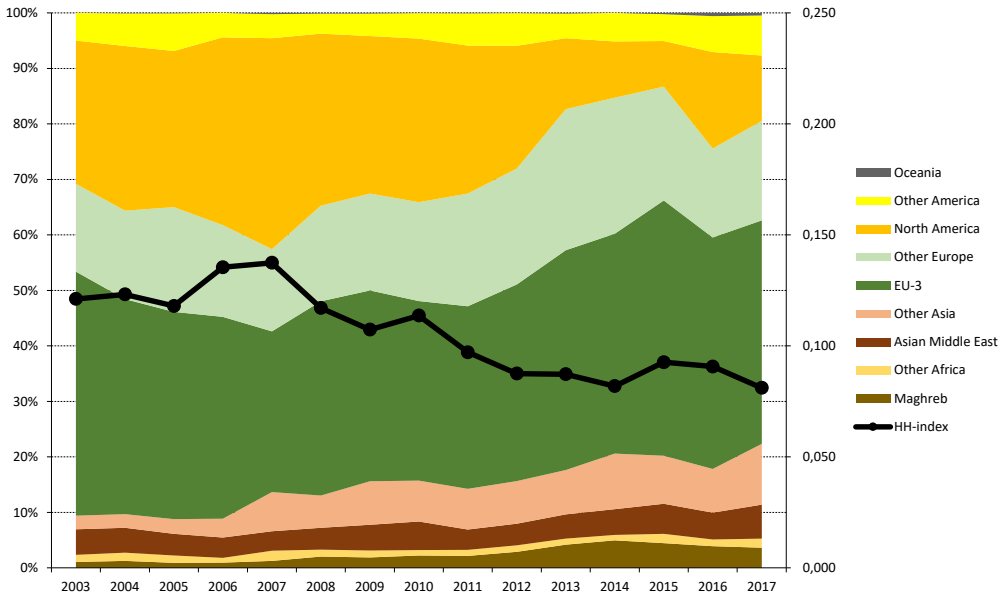


Figure 13. Regional structure and concentration index of the Algerian exports. (Concentration index is for 200 countries.) Source: based on the data of International Trade Centre

The generally strong European orientation of the Maghreb economies can be explained – beyond their traditions – by the *Euro-Maghreb Partnership Agreement (EMP)*. European cooperation with the countries of the Arab Maghreb Union started after the Barcelona Declaration of 1995, which approved the establishment of a free trade zone by 2010. While the European Union considered the EMP primarily as a tool to solve geopolitical and security challenges in the Mediterranean region, it is quite conceivable that the Maghreb nations' decision to join the Partnership was primarily motivated by economic reasons (Munevver & Tobias, 2018). Unquestionably, the European Union (EU) also had economic reasons for liberalizing trade with the Maghreb countries since it contributed to increased EU exports, opened up new investment possibilities, and helped to strengthen the EU's influence in the region. From the point of view of the Maghreb nations, economic interests take precedence over political and security ones. The EMP was primarily considered as a chance to "anchor" their economies to the EU and carry out "development strategies" based on FDI and foreign trade. But even on an economic level, Maghreb-European relations are characterized by a clear dependence of the Maghreb countries on the European Union. As for Algeria, after 16 years of its implementation, it achieved losses of $30 billion in 2020, which made it necessary to review the partnership

agreement with the European Union, which was described as unfair and only served the European Union (Yahia, 2021).

This section examines the relationship between rentier state agencies and external dependencies, particularly in the context of *bilateral free trade agreements* (FTAs) established by the EU with North African countries in the 1990s and 2000s, including Tunisia (1997), Morocco (2000) and Algeria (2005), . With the exception of agricultural exports, most goods are eligible for duty-free and quota-free entry under these FTAs (Ainhoa, 2020). However, while North African imports from the EU have grown since adopting these agreements, North Africa's exports to the EU remained modest. To achieve more ambitious agreements known as *Deep and Comprehensive Free Trade Areas* (DCFTAs), which call for deepening integration with the European market, the EU began talks with Tunisia and Morocco. These DCFTAs are based on already existing agreements and aim to liberalize the trade of most goods and services by cutting back technical obstacles and carrying out legislative approximation. They also seek ways to make it easier for European investors to enter these countries (Ainhoa, 2020). EU-Tunisia DCFTA negotiations advanced fast, and until May 2019, significant progress was being made. Unfortunately, the talks have stalled since then: the European Commission attributes this to civil society complaints and changes in the Tunisian government (Benner, 2019). EU-Morocco DCFTA negotiations had been suspended since 2014, but both parties agreed to continue them in 2019. Although negotiations have yet to pick back up, the agreement is embroiled in the Western Sahara conflict. EU chose to involve these areas in the DCFTA together with Morocco despite the fact that it recognizes the Moroccan sovereignty over Western Sahara (Ainhoa, 2020).

As reflected in the regional structure of the exports, the main beneficiaries of the EU-Maghreb trade – based on their historical relations and geographical proximity – are *France, Italy, and Spain*. They all played pivotal roles in the hydrocarbon sector in Algeria and the wider region. Before its independence, France had extensively invested in exploiting hydrocarbon resources. These trends continued after the independence of Total, one of the largest foreign investors holding production-sharing agreements with Sonatrach. Italy's ENI, a significant competitor, advised the FLN (National Liberation Front) during the Algerian War of Independence and maintained a strong presence in the region after the War. Through companies like Repsol, Spain was also engaged in hydrocarbon exploration and production. These nations maintained significant interests in the hydrocarbon sector, which was marked by ongoing investments, production-sharing agreements, and close ties with Algeria's government and Sonatrach (Musso, 2017; Sonatrach, 2022).

Remarkably, the Maghreb region and the African continent play a marginal role as an export market for Algeria, even in comparison with Morocco and Tunisia. The situation can be explained primarily by unsuccessful economic cooperation attempts. The *Arab Maghreb Union* (AMU), established in 1989, represents a regional economic and political group including five countries: Algeria, Tunisia, Morocco, Libya, and Mauritania (Finaish & Bell, 1994). Although there was great optimism about the union, a set of institutional obstacles can be mentioned. The restricted (collective) decision-making, political and security barriers between the union's countries, especially in the case of Western Sahara disputed by Morocco and by the Polisario Front, also constituting the main reason for conflict between Algeria and Morocco are the key factors (Asmita, 2020; Rawhani, 2018; Cammett, 1999; Finaish & Bell, 1994). Only 6 of the more than 30 agreements have been ratified by each of the five member states of the AMU (Allouche, 2019). They include establishing the Maghreb Bank for Investment and Foreign Trade, encouraging and guaranteeing investments, exchange of agricultural products, land transportation of passengers and goods, agricultural quarantine, and guidelines for avoiding double taxation and income taxes (Finaish & Bell, 1994). Consequently, one of the lowest rates of intra-regional trade growth in Africa can be observed within the AMU. According to Asmita (2020), three critical factors are responsible for this poor performance: (1) search for other new markets by the most diverse economies, (2) overreliance on the European markets, (3) insufficiently integrated regional infrastructure. The AMU loses over $530 billion annually due to legislative barriers and trade restrictions (Allouche, 2019). Algeria (and Libya) is the worst performer in intra-regional transactions. Although Morocco has more varied exports of textiles, machinery, and electrics, it still needs to catch up to what is required to change the region's economic situation and inter-trade initiatives. And even though Morocco is the region's top fish exporter, Tunisia (and Libya) imports their fish from Europe. The end effect is that European parties benefit most from direct commerce rather than the Arab Maghreb, which hurts the region's economic development because trade must go through third parties (Allouche, 2019).

As a "specialty" of Algerian exports, the relative *importance of North America* (especially the United States) could be mentioned. Algeria has been a significant supplier of crude oil and liquefied natural gas (LNG) to the United States (US), while the US is one of the major importers of Algerian oil and gas for several reasons. Algeria's strategic proximity provides easy access to the US market, while the country's large hydrocarbon resources, including natural gas and oil, make it an energy provider of critical size. The US wanted to diversify its energy sources, and Algeria

offered the possibility of reducing its dependence on other regions, especially on the Middle East. At the same time, the US strategy allowed Algeria to diversify its export markets and reduce its dependence on Europe, its traditional primary market. Energy cooperation agreements, including a notable memorandum of understanding on energy collaboration in 2014, have supported the long-term development of trade relations between the United States and Algeria. However, Algeria's oil exports to the United States have fluctuated over the years: they have been influenced by the changes in global oil prices, production volume, and market dynamics (Musso, 2017). With the increasing US shale gas production and exports, the role of Algeria in the US hydrocarbon supply has decreased (Lopez-Calix & Touqeer, 2016).

Because of its commodity structure, *trends in Algerian exports are closely linked to oil prices* (Figure 14), with financialization playing a significant role in market dynamics. Factors such as increased Asian and American demand and OPEC decisions impact oil prices. The global economic crisis interrupted this trend, but between 2011 and 2014, oil prices remained high before dropping rapidly due to factors including US shale oil production growth and Saudi Arabia's market share preservation efforts (Lopez-Calix & Touqeer, 2016). The decline in hydrocarbon export revenues negatively affected Algeria's balance of payments, leading to deficits (Ayad et al., 2023; Ghebouli, 2023). Despite fluctuations, oil price increases due to the effects of COVID-19, economic recovery, and the Russian-Ukrainian War have generated record export revenues for Algeria (Ayad et al., 2023; Ghebouli, 2023). However, Algeria's reliance on hydrocarbons and its rentier state nature impact economic stability and trade performance, necessitating strategic reforms to address oil price challenges.

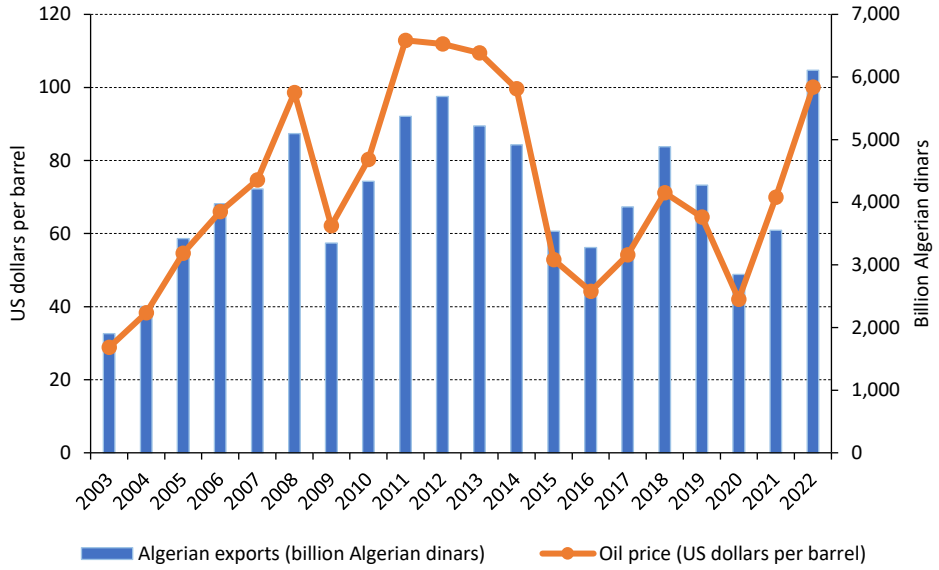


Figure 14. Oil prices of Saharan blend and Algerian export revenues; Source: OPEC

Based on the analysis of the export data and national economic development and trade policies in their background, two key features of Algeria can be emphasized. Firstly, Algeria is a rentier economy heavily reliant on hydrocarbons, creating structural dependencies that limit the state's capacity to diversify its economy. The dominance of the hydrocarbon sector can lead to a narrow economic base, making the state vulnerable to fluctuations in global oil prices and hindering efforts to develop other industries. This structural dependency can constrain the state's ability to implement policies for economic diversification and sustainable development, which aligns with the study of Lagraa (2023), Hami (2021) and Álvarez (2010). Secondly, due to historical and geographical factors, Algeria maintains strong ties with the EU economic bloc, particularly with major economies in southern Europe, which aligns with Yahia (2021) and Ainhoa (2020). The EU's interconnectedness can shape Algeria's trade patterns, investment flows, and regulatory frameworks, impacting the state's autonomy in decision-making. The EU's economic interests and policies can influence Algeria's economic strategies, potentially limiting the state's flexibility in pursuing independent development paths.

Furthermore, our results are align with a report by the World Bank (2023): between 2018 and 2022, non-hydrocarbon sectors accounted for 78% of GDP, but – despite the diversification efforts – hydrocarbons still account for over 92% of commodity exports and 43% of budget revenues. The report also suggests that the key to Algeria's GPN integration is the export of hydrocarbon products. Still, the country also has the potential to increase its non-hydrocarbon exports and create private-sector jobs. The International Monetary Fund (2023) emphasizes the necessity of reforms to diversify

the economy and promote private sector-led growth for sustainable medium-term economic development. This interplay between structural and spatial dependencies, along with the state's rentier nature, underscores Algeria's challenges and imperatives within the current global neoliberal regime.

4.2.3 State's Role in Shaping GPN Participation

Strategic coupling within Global Production Networks (GPNs) and the integration of the hydrocarbon sector in Algeria reveal significant commonalities in their impact on industrial upgrading and economic development. In Algeria, the nationalization of the oil and gas sector in 1971 and subsequent production-sharing agreements (PSAs) with foreign companies illustrate a form of strategic coupling. These PSAs facilitate the exchange of capital and technical expertise from foreign firms, while Sonatrach, the national oil company, provides infrastructure and local knowledge (Musso, 2017). This collaboration highlights how strategic coupling can enhance technological capabilities and competitiveness through knowledge and technology transfer. Additionally, the power dynamics in these relationships, governed by PSAs, influence the ability of local firms to upgrade by regulating production sharing, investment commitments, cost recovery, and profit sharing. Geographical and institutional contexts, such as Algeria's nationalization policy and regulatory frameworks, shape the effectiveness of these strategic couplings. Furthermore, the evolutionary nature of these agreements, adapting to global market conditions and local economic needs, underscores the dynamic trajectory of industrial upgrading. Thus, integrating Algeria's hydrocarbon sector into GPNs through strategic coupling exemplifies the broader principles of industrial upgrading and economic diversification.

Because oil product prices exhibit asymmetric responses to both positive and negative crude oil shocks of varying magnitudes (Deheri & Carmel, 2024), *changeable crude oil prices* affect export revenues and, thus, external balances and economic growth (Oukaci, 2012). A decline generates economic recession: unemployment rates rise, budget deficits emerge, and sectors not directly related to oil, such as the construction industry, are negatively affected as well (Hamilton, 2009). It often leads the government to cancel programs and projects planned earlier: it rushes to control spending and stops public investments, which affects the rate of economic growth and the welfare of the population. Fluctuating but huge export revenues of the hydrocarbon sector ensured the financial background for large-scale state development programs, including infrastructural development, economic diversification, and social welfare (Table 14).

Table 14. Algerian development programs after the turn of the Millennium. Source: own edition

Programs	**Years**	**Finance**	**Objectives**
Economic Recovery Support Plan	2001-2004	7 billion dollars.	- Reducing poverty. - Creating jobs. - Supporting value-added activities. - Preservation of regional balances. - Revitalization of rural areas.
Complementary Growth Support Program (PCSC)	2005-2009	Its amounts have not been fixed; it increased successively from 55 billion dollars at the end of 2004 to 100 billion dollars at the end of 2005, then to 140 billion dollars at the end of 2006, and closed at the end of 2009 at almost 200 billion dollars.	- Rebalancing the territory. - Improving the quality of housing, health care, and education. - Development and modernization of the public service.
Five-year development plan	2010-2014	286 billion dollars.	- Continuing projects already started, particularly in transport, public works, and water management. - Reducing unemployment by creating three million new jobs. - Enhance rural living with improved water supply and infrastructure development to reduce isolation - Promote the knowledge economy through research support, education, and widespread ICT integration in national systems. - Expand housing, revamp urban areas, and boost real estate development in construction and public works. - Improving the country's food security. - Valuation of energy and mining resources.

Five-year economic and social development plan	2015-2019	200 billion dollars.	- Reducing unemployment. - Preserve social gains by improving housing, education, training, and public health and supporting disadvantaged classes. - Job creation: combat unemployment and promote investment to create wealth and jobs. - Focusing on training and improving the quality of human resources by promoting the development of a skilled workforce.

Despite their uncertainties, these programs achieved remarkable growth rates, particularly in infrastructure (road network, modernizing ports, and extending and modernizing the railway network.) and social services like education, medical care, and housing (Mernache, 2017; Consulat d'Algérie à Créteil, n.d.; Programme Quinquennal 2015-2019 – Ambassade de La République Algérienne Démocratique et Populaire à Bruxelles, n.d.).

However, beyond the growing private sector, including small and micro enterprises, Algeria's economic landscape is heavily dominated by a few large state-owned companies, most notably Sonatrach. This concentration of economic activity in state-owned enterprises contributes to the characteristics of a rentier state. As noted by UNECA (2016), the predominance of these state-owned entities, mainly in crucial sectors such as oil and gas, reflects the one-sided nature of the Algerian economy. Moreover, the reliance on these state-owned enterprises poses obstacles to the country's deep integration into more global value chains, further reinforcing its status as a rentier state. These circumstances can be summarized according to UNECA (2016) as follows:

- Small size of private companies (98% are micro-enterprises).
- Small number of private enterprises employing more than ten employees in the industry: there are less than 2,000 companies compared to 5,669 units in the much smaller Tunisia.
- Ineffectiveness of the public sector, including the most prominent companies.
- Management structures and strategies of local companies oriented towards the domestic market, showing little interest in exporting.
- Bureaucratic management of the Algerian economy
- Underdeveloped logistical and industrial infrastructure.

To develop manufacturing sector and answer the economic challenges like globalization, the Algerian government adopted an industrial development strategy in 2007. This strategy was updated in July 2013 and approved at the National Conference for Economic and Social Development in 2014 (Ministry of Industry and Pharmaceutical Production of Algeria, n.d.). The government's decisions in terms of industrial policy are part of the 2015-2019 five-year plan. The latter is listed as an axis of growth, "the continuation of efforts to integrate the national economy into its external environment by prioritizing the national productive sphere to achieve the fundamental objective of a gradual exit from dependence on hydrocarbons" (Ministry of Industry and Pharmaceutical Production of Algeria, n.d.). This plan, in its industrial policy aspect, reflects, on the one hand, the desire to consolidate the industrial capital already in place and, on the other, the more emphasized diversification of the industry as well as to promote the global value chain integration of the Algerian economy through a series of strategic measures. This includes the implementation of a new legislative framework aimed at attracting foreign direct investments and fostering the growth of small and medium-sized enterprises.

Additionally, real estate facilities are being provided to encourage industrial investments. Efforts are also underway to harmonize oil and gas legislation to attract more foreign investments to explore and exploit new reserves, including unconventional and offshore resources. Furthermore, steps are being taken to enhance the involvement of the national oil and gas company in downstream activities through new international projects in North Africa and beyond. A clear strategic plan is being delineated to develop industrial branches, meet local demand, and reduce the import bill through import-substitution strategies. Establishing and upgrading subsidiaries are encouraged to achieve deeper local integration and gradually increase local value added in Algeria. Industrial handling is being facilitated through exemptions from customs duties and value-added tax on components and raw materials imported or acquired locally by contractors. Additionally, a network of technical centers is being established to provide support that improves the productivity and competitiveness of enterprises. Clusters are being established to increase the competitiveness of industrial enterprises by spatially concentrating the actors of the value chains, allowing them to benefit from cost reduction, application of modern technologies, and access to raw materials and input suppliers. Finally, the general contracting sector is being rehabilitated by establishing large groups of regional/global contractors and joint ventures with leading international companies, focusing on export-oriented projects. These sectoral industrial policy choices, according to the Economic Commission for Africa (2017), are essentially oriented towards (1) The production of cement,

phosphate, fertilizers, steel products, and metal constructions in terms of the valorization of natural resources; (2) Industries that serve to supply strategic sectors such as energy, hydraulics and agriculture; (3) The pharmaceutical industry, as a salient example of an industrial sub-sector exposed to the import substitution policy, the Algerian market being in first position among the countries of the South of the Mediterranean and the objective set by the public authorities is to achieve a market coverage rate of 70% in local production (via local and foreign investments). According to Rachid (2015), these investments made it possible to modernize industrial infrastructure, improve Algerian companies' productivity and competitiveness, and develop new higher-value-added products intended for exports. However, as reflected in the exports data, they are only visible in a few sectors based on local raw material and energy supply and producing semi-finished products for the global market.

Furthermore, the National Spatial Development Plan (SNAT) 2025 is a strategic planning document outlining Algeria's territorial vision and action plan. It comprises four Guidelines distributed across 20 Territorial Action Programs (PATs), forming the backbone of Algeria's planning framework. These Guidelines and their PATs aim to address spatial development challenges while integrating existing mechanisms. They emphasize sustainability, rebalancing, attractiveness, and equity, reflecting Algeria's overarching planning strategy. Additionally, the SNAT incorporates a fifth guideline focused on governance, facilitating effective decision-making processes and coordination among public and private stakeholders for comprehensive implementation. According to the SNAT, the state in Algeria is redefining its role and its actions to respond to the challenges of (1) Economic Restructuring: The State is committed to implementing policies and measures aimed at diversifying the national economy, promoting innovation, entrepreneurship, support non-oil sectors, strengthen infrastructure and services, promote public-private partnerships, and invest in training and education to meet the needs of the labor market, (2) Global integration: The State seeks to position Algeria competitively on the international scene by promoting economic openness, encouraging trade and foreign investment, strengthening ties with international partners, and by adapting to technological developments and the demands of global competition. (3) Social processes: The State is committed to taking into account social and societal issues by promoting equity, solidarity, and social cohesion by reducing the gaps between social categories and regions, encouraging historical transition and modernization of values, and promoting citizen participation and participatory governance, and by ensuring the well-being and quality of life of populations throughout the territory.

Translating to the "language" of global production network theory, it means that new strategic couplings beyond the predominating hydrocarbon sector are needed in order to decrease the dependence on energy exports and to build up a more diverse national economy producing higher value-added export commodities as well. GPN participation can directly and indirectly contribute to the development of the private sector as well. Regional assets, including (1) natural, (2) infrastructural and material, (3) industrial, (4) human as well as (5) institutional elements, should be shaped in accordance with the needs of the targeted GPN participants in order to achieve successful integrations (Dawley et al., 2019). Overcoming the obstacles and bottlenecks in bilateral economic relations with the EU and with the neighboring economies can play a crucial role in preparing a more robust GPN integration. Despite the multiscalar approach of regional assets and institutions in theory (Coe et al., 2004), it should be emphasized that the national state – primarily as facilitator and regulator – plays the primary role in this change. Through a well-prepared and comprehensive strategy, it should be important to avoid the "dark side" of GPN participation, resulting in exploitation and a continuous danger of decoupling processes offering only limited options for economic diversification and modernization (Yeung, 2015). The diversification experience of other hydrocarbon-exporting economies, ranging from relatively successful to less so, offers valuable insights. Additionally, lessons gleaned from the GPN integration efforts of Morocco and Tunisia can be instructive for Algeria. While Algeria remains heavily reliant on hydrocarbon exports, Morocco and Tunisia have embarked on a path of diversification, evidenced by a notable increase in the proportion of capital and consumer goods in their total export portfolios. This divergence in export composition underscores the differing approaches to economic policy. Algeria has historically maintained state control over its industries, whereas Morocco and Tunisia have pursued policies to foster openness and attract investment. These policy initiatives include reforms designed to enhance the competitiveness of their respective industrial sectors.

Algeria also has potentials within the renewable energy sector like solar and wind power. This fosters job creation, decreases the dependence on hydrocarbons, and addresses environmental challenges tied to fossil fuels (Hasni et al., 2021). The transition enhances energy security by tapping domestic renewable resources, diminishing reliance on imports, and boosting production capabilities. Moreover, the renewable energy sector attracts foreign direct investments, with global players investing in projects like solar thermal power plants and wind farms, contributing to Algeria's economic growth and reflecting a broader trend in the global energy market towards increasing investments in renewable energy sources. Algeria's ambitious

plans, including distributing solar kits to remote areas, signify a commitment to achieving 15,000 MW of solar energy by 2035, reflecting a comprehensive strategy for sustainable energy development (Bounouh, 2023; Fourneris, 2022), which aligns with the global shift towards renewable energy adoption and the transition away from fossil fuels (IEA, 2023). This trend is echoed in Hungary, where the New Hungary Development Plan emphasizes the significance of renewable energy resources for economic and rural development; the allocation of substantial EU funds during the 2007–2013 budgetary period aimed to enhance the dissemination of renewable energy technologies, thereby fostering local and regional development (Czimre et al., 2019). The involvement of various stakeholders, including private undertakings and local governments, highlights the collaborative effort to modernize energy systems and reduce reliance on traditional energy sources, ultimately aligning with global movements towards sustainable energy solutions (Czimre et al., 2019) .

This chapter is about the limits of economic restructuring at the macroeconomic (national, macroregional, and global) scale and, more specifically, limits for state agencies in a highly dependent (resource-based) economy for change. As the main contributions, two key points should be mentioned. On the one hand, I demonstrated the diversification challenges and results of the Algerian economy reflected in its export data. On the other hand, I discussed the role of the national state focusing on economic development initiatives and foreign trade / FDI policies as part of the multiscalar regional institutional framework shaping strategic coupling processes between GPN participants and regional assets. This part of the dissertation connects the ongoing discourse on GPN-based regional development and state agencies in regional development, with special attention to the rentier states. Thereby offering valuable insights for policymakers and scholars dedicated to regional development and economic diversification. Algeria's rentier character, heavily influenced by hydrocarbon revenues, reinforces the state's dependence on resource extraction and external markets. The state's rentier nature may be further solidified in the context of the global neoliberal regime, characterized by market-oriented policies and liberalization. The pursuit of neoliberal economic reforms, driven by global institutions and market forces, could prioritize short-term gains from resource extraction over long-term sustainable development, perpetuating Algeria's dependence on hydrocarbons and external actors and constraining the state's autonomy in shaping its economic trajectory. The study's findings suggest the necessity of a comprehensive approach that prioritizes diversification, stimulates private sector growth, and improves the business environment. Furthermore, my analysis aligns with the Algerian State's endeavor to redefine its role and implement

strategic policies to tackle economic, social, and international challenges. This ensures sustainable, balanced, and competitive development aligns with the SNAT orientations.

4.3 The Place of Algerian Small and Medium sized Towns

4.3.1 SMSTs in the Urban Network

To highlight the vital role of smaller towns in Algeria, it is important to recognize the significant disparities in urban settlement distribution across the country. Figure 15 highlights the significant growth of urban settlements in Algeria across three decades, from 1987 to 2008, showing that the number of large cities raised from 16 to 33. Medium-sized towns saw a substantial increase, from 26 to 47. Small towns grew even more dramatically, from 79 to 142, reflecting significant urban expansion. The smallest urban settlements exhibited the highest growth, surging from 326 in 1987 to 521 by 2008. This indicates a broad trend of urbanization in Algeria, particularly among the smallest urban settlements. While Figure 16 about the spatial distribution of urban settlements of different sizes in 2008 shows that major cities like Algiers, Annaba, Constantine, and Oran dominate the northern regions, many smaller towns contribute to the country's urban fabric: the north hosts 14 of the 33 urban settlements with populations exceeding 100,000 and 24 of the 47 ranging from 50,000 to 100,000, and numerous smaller towns (totaling 90 concentrations). The Highlands have 13 urban settlements with over 100,000 residents, seven located in the eastern part. Furthermore, there are 17 concentrations with populations between 50,000 and 100,000, alongside numerous smaller towns. In the south, a notable shift has occurred over the past fifty years, with several sizable towns emerging, including six with populations surpassing 100,000. Except for Bechar, located in the southwest with a population of 165,241, these concentrations are predominantly situated in the southeast, where oil fields are concentrated.

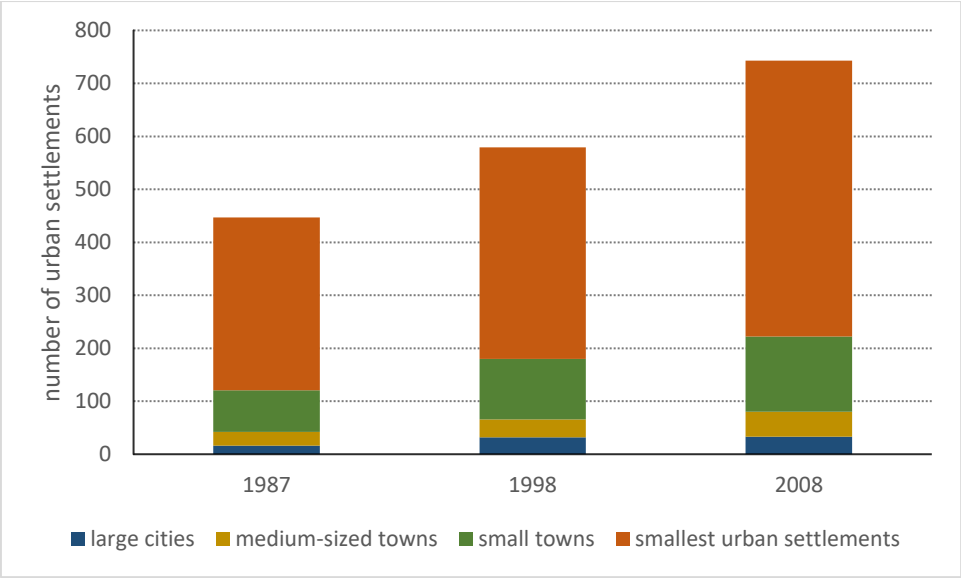
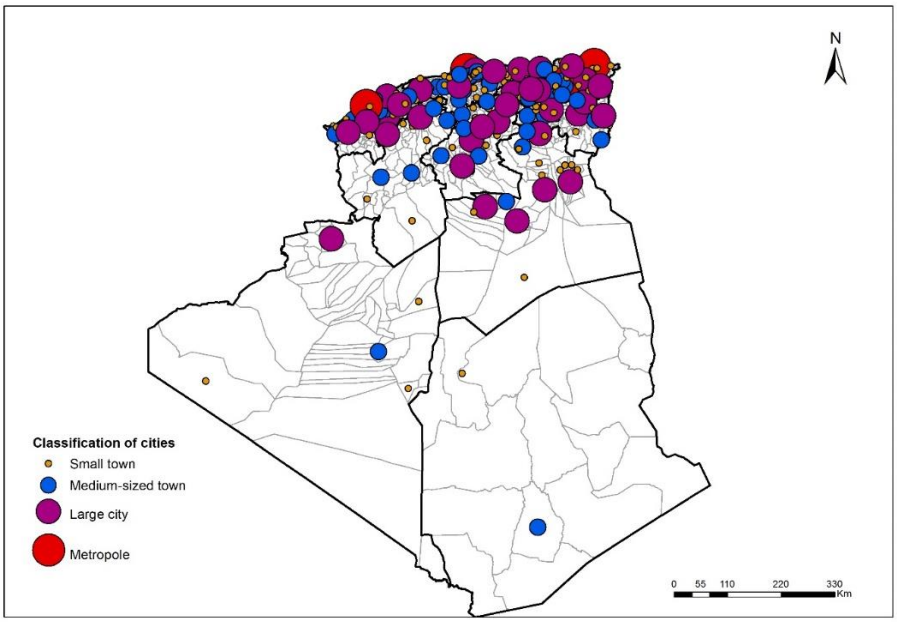


Figure 15. Distribution of the number of urban settlements by type of cities in 1987, 1998, and 2008. Source: edited by the author based on the relevant data



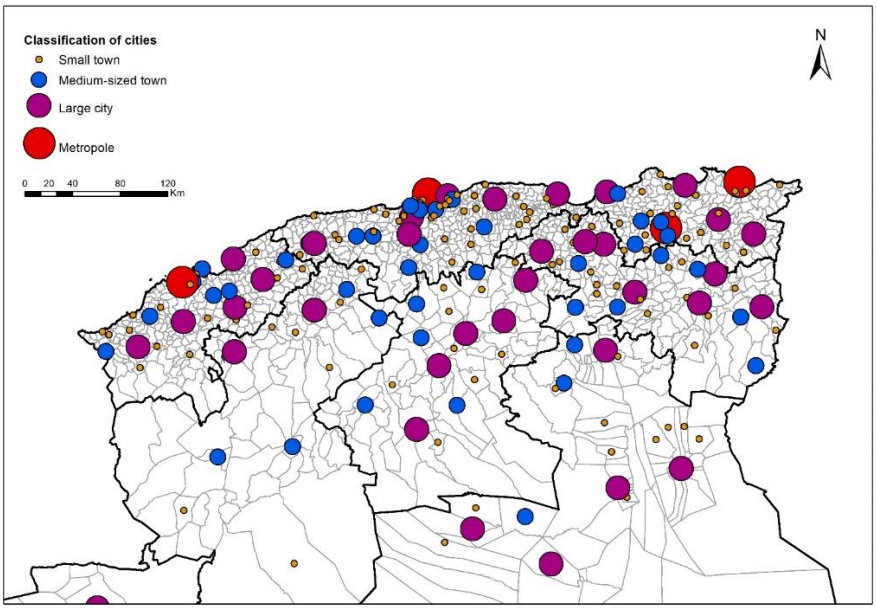


Figure 16. Spatial distribution of urban settlements of different sizes in 2008. Source: edited by the author based on the data of the relevant census

4.3.2 SMSTs in the Spatial Structure of the Economy

I provide an overview of the distribution of economic entities across different types of cities in Algeria, categorized by the number of enterprises per 1000 inhabitants, percentage of total enterprises, and the share of sectors (construction, trade, industry, and services) in percentage terms in Table 15. All entities whose primary function is producing market goods and services are considered economic entities. Their resources come from their sales and cover their expenses. The entities cover all economic activities, excluding agriculture. The range of activities relating to economic entities is extensive; we find industrialists, wholesale and retail traders, workers working in construction, craftsmen (bakers, butchers, jewelers, etc.), and the liberal professions (private doctors, lawyers, notaries, etc.). As it can be seen in Table 15, the number of enterprises per 1000 inhabitants varies significantly across the different urban settlement types. Smaller towns (both small towns and the smallest urban settlements) have the highest concentration of enterprises relative to their population, with 42.19 and 42.62, respectively. This suggests a higher entrepreneurial density in these areas than in metropoles, which have the lowest concentration of enterprises at 14.23/1000 inhabitants. On the other hand, the smallest urban settlements account for the highest share of total enterprises after large cities, with small towns also contributing significantly (Table15). This suggests that urbanization

does not solely drive business activity; rather, smaller towns play a substantial role in economic dynamics.

Table 15. Distribution of economic entities by deferent types of cities and sectors of activities. Source: edited by the author using ONS 2008 and the Algerian economic statistics of 2011

	Number of enterprises /1000 inhabitants	**% of enterprises**	**Share of sectors (percentage)**				
			Construction	**Trade**	**Industry**	**Services**	**Total**
Metropoles	14.23	7.52	0.98	56.32	8.16	34.54	100
Large cities	37.19	27.18	0.99	56.38	9.56	33.07	100
Medium-sized towns	35.65	13.55	0.79	58.47	10.02	30.73	100
Small towns	42.19	24.12	0.88	51.34	13.70	34.09	100
Smallest urban settlement	42.62	27.63	0.97	52.99	11.35	34.69	100
Total	**34.98**	**100**	**0.93**	**54.51**	**11.01**	**33.55**	**100**

The range of service activities is wide. According to the economic census, approximately 26.1% of the entities in this sector carry out their activity in transportation with its different modes and warehousing, 18.8% are in the catering activity, 14.5% in other personal services, 10.3% in telecommunications (including payphones), 5.3% in legal and accounting activities, 5.3% in human health activities (private physicians, private surgeons, dentists, etc.). While in the industrial entities, 24.8% are active in the agro-food industry (grain processing, milk, and dairy products, beverages, etc.), 23.4% in the manufacture of metal products, 11.1% in the clothing, 1.7% in woodworking and the manufacture of wooden and cork articles, 1.3% in textiles, 1.3% in the repair and installation of machinery and equipment. Finally, the number of enterprises registered in the construction sector was around 3,497, which is mainly below the reality. This underestimation is inherent in the methodological approach of the economic census. It is primarily explained by the constraint relating to the census only of entities carrying out their activity within a fixed premise. Indeed, as regards the construction sector, the tiny businesses comprised of workers (plumbers, building electricians, scrap metal workers, tilers, painters, etc.) do not have fixed premises and are challenging to locate on the ground because they are not visible.

The distribution of economic entities across sectors (Table 15) reveals that the share of construction enterprises is relatively low across all city types, ranging from 0.79% in medium-sized towns to 0.99% in large cities. Trade consistently represents the largest share of economic entities, varying from 51.34% in small towns to 58.47% in medium-sized towns. The industrial sector shows moderate variation, most significant in small towns at 13.70% and most diminutive in metropoles at 8.16%. The services sector beyond the trade also varies, with the highest share in the smallest urban settlements at 34.69% and the lowest in medium-sized towns at 30.73% (Table 15). Overall, trade is the predominant sector in all types of urban settlements, indicating a strong emphasis on commercial activities across the country. A remarkably higher share of industry in small towns suggests a localized concentration of industrial activities, while the services sector is more uniformly distributed but slightly more significant in the smallest urban settlements.

The spatial distribution of enterprises across Algerian smaller and medium towns (Figure 17) reveals significant regional disparities, with the northern regions and Highland East hosting the majority of economic activity. These areas, characterized by higher population densities, better infrastructure, and proximity to major cities such as Algiers, Constantine, and Oran, show a higher concentration of enterprises. In contrast, southern and remote northern SMSTs have far fewer enterprises, likely due to sparse populations, geographic isolation, and limited infrastructure. This uneven distribution reflects Algeria's broader urbanization patterns, where economic opportunities are concentrated in well-connected northern regions, leaving southern areas relatively underdeveloped. The clustering of enterprises in northern SMSTs highlights the need for targeted policies to promote economic growth in less-represented regions, such as improving infrastructure, incentivizing investments, and supporting small and medium enterprises in underdeveloped areas. Addressing these disparities is crucial for fostering a more balanced and inclusive economic development across Algeria.

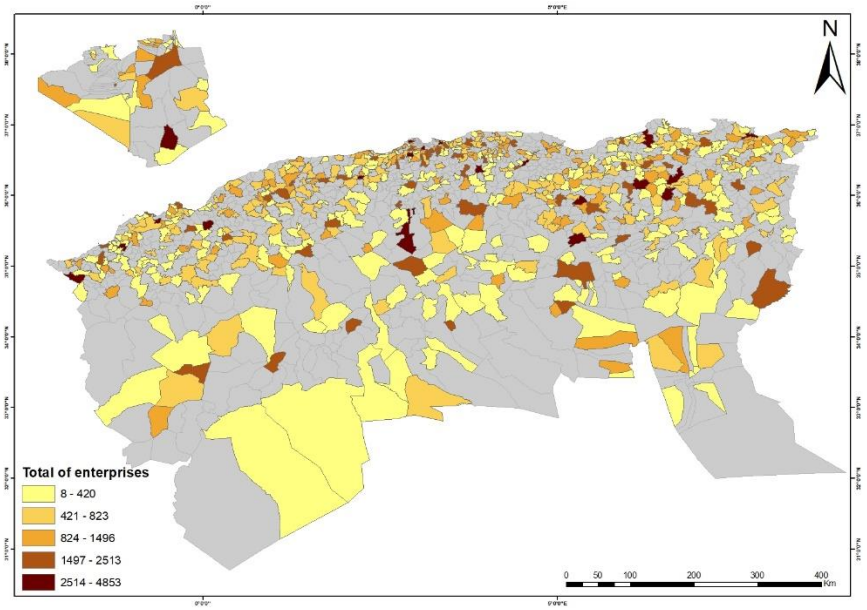


Figure 17. Distribution of the absolute number of enterprises in smaller and medium-sized towns (from 5,000 to 99,999 inhabitants). Source: edited by the author using the Algerian economic statistics of 2011

Figure 18 illustrates the distribution of enterprises per 1,000 inhabitants across small(er) and medium towns in Algeria. A notable pattern emerges in the northern and coastal regions, where high concentrations of enterprises align with areas of greater economic activity and urbanization. In contrast, the southern and highland regions display significantly lower enterprise densities. This highlights the economic centralization around the northern urban areas, emphasizing the disparities between the northern and southern regions.

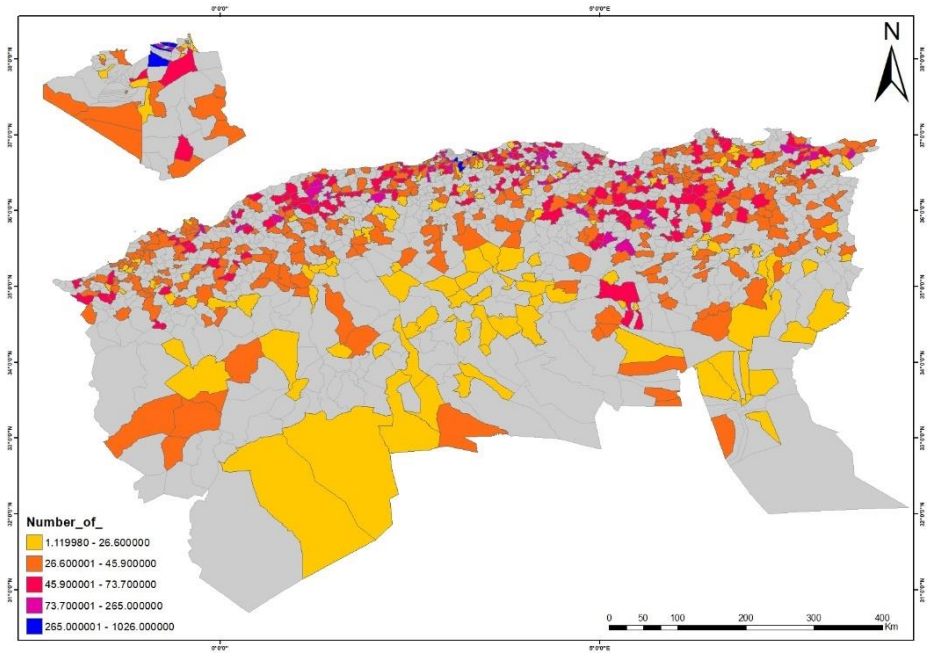


Figure 18. Distribution of the number of enterprises per 1,000 inhabitants in smaller and medium-sized towns (from 5,000 to 99,999 inhabitants). Source: edited by the author using the Algerian economic statistics of 2011

Figure 19 shows that most medium-sized towns have a location quotient of less than 1.5 (LQ < 1.5), indicating no significant economic specialization in the sectors of construction, industry, trade, and services, or even a combination of two or more sectors. A minority of towns show overrepresentation, primarily in construction and industry. Towns such as Ain Defla, Khemis Miliana, Bouira, and El Khroub in the northern regions, Oum El Bouaghi, Barika, and Ain Oussera in the highlands, and Adrar in the southeast exhibit significant specialization in construction. This may indicate ongoing infrastructure development or an economy heavily reliant on building projects. Towns such as Sig and Hamma Bouziane in the northern regions and Ain M'Lila in the Highland East are identified as having a concentration of industrial activities. This reflects the presence of manufacturing plants, industrial zones, or specific industries dominant in these areas. Many towns, such as Ain Oulmene and Ksar Chellala in the highlands, Tolga in the southeast, and others, do not exhibit overrepresentation in any sector. These towns may have a more diversified economy or lack a pronounced specialization in the measured sectors.

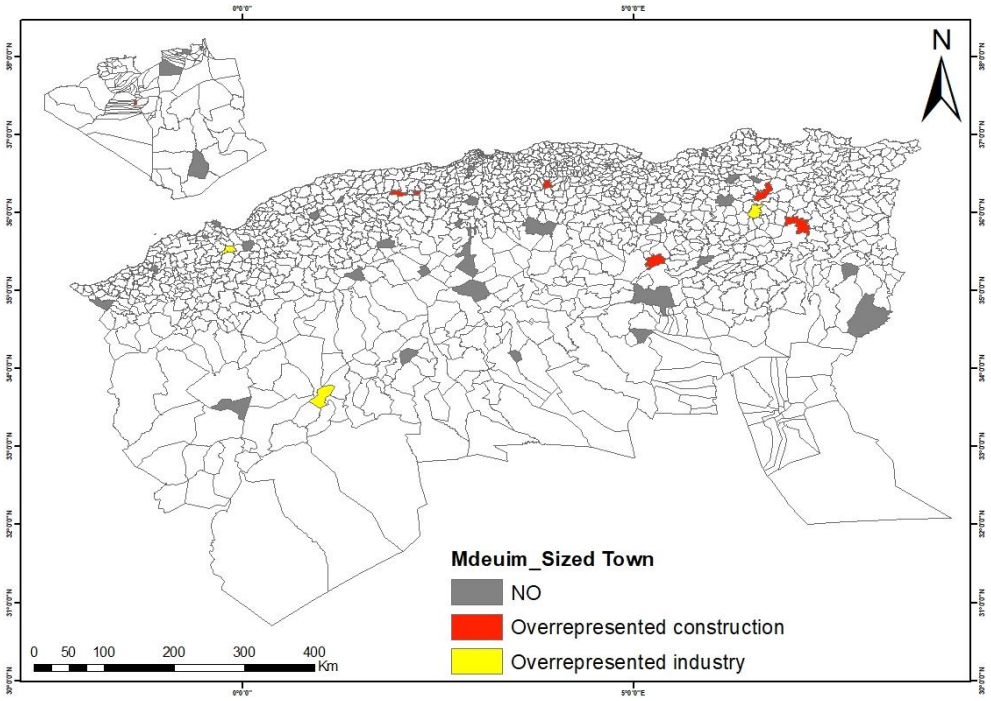


Figure 19. Distribution of location quotient in medium-sized towns. Source: edited by the author using the Algerian economic statistics of 2011

Figure 20 shows that a significant majority of the small towns (approximately 75%) have no notable overrepresentation (LQ < 1.5). This indicates a relatively balanced economic profile or lack of specialized economic activity in these towns. Construction is the most prevalent among the overrepresented sectors, followed by industry, services, and trade. Construction is the most commonly overrepresented sector in towns such as Amizour in the northeast, Arris in the Highland East, Ain Salah in Hoggar Tassili, and Hassi Messaoud in the southeast. This dominance suggests that many small towns in Algeria are experiencing localized construction booms, possibly linked to infrastructure development or urbanization projects. The industry is overrepresented in towns like Ouzellaguen and Tazmalt in the province of Bejaia in the Kabylie area, with the production of olive oil and Tadjenanet in the province of Mila in the clothing industry. Overrepresented services are only in one town (Magrane in the southeast); this scarcity of specialized service-based economies suggests limited-service sector development in small towns. Trade is represented solely by Menea in the province of Ghardaïa, which has pockets of economic activity tied to both local crafts and regional trade.

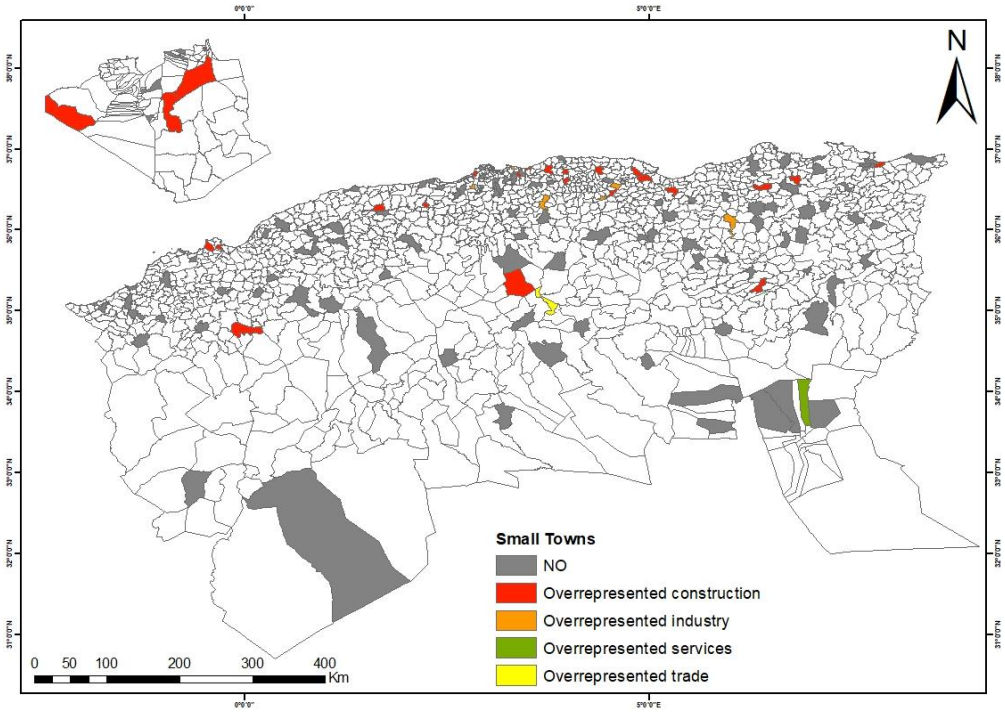


Figure 20. Distribution of location quotient in small towns. Source: edited by the author using the Algerian economic statistics of 2011

Figure 21 shows that most of the smallest urban settlements exhibit an LQ below 1.5, indicating a lack of significant economic specialization. These settlements, such as Baraki and Ain Ben Khellil in the highlands, rely on a more generalized economic structure without a dominant sector. Construction is the most frequently overrepresented, with settlements like El Braya and Souk El Had in the norther region, and others showing high LQ values (>1.5). This highlights the pivotal role of construction in driving local economies, likely due to urbanization or infrastructure development. Certain settlements' industries in significant provinces of highlands like Batna and Sétif, such as Sefiane, Mezloug, as well as Sigus in the province of Oum El Bouaghi show industrial overrepresentation. Services overrepresentation is observed in fewer settlements, such as N'Goussa and Beni Amrane, reflecting limited specialization in tertiary activities. Trade-isolated instances like Sed Rahal in Djelfa in the center of the highlands suggest local retail. Six towns have both overrepresented construction and industry (Beni Yenni and Beni Zmenzer in the province of Tizi Ouzou, Leflay and Oued Ghir in the province of Bejaia, and Khiredine in the province of Mostaganem, and Ain Melouk in the province of Mila), and one town has both overrepresented construction and trade in the province of Tizi Ouzou in the north region.

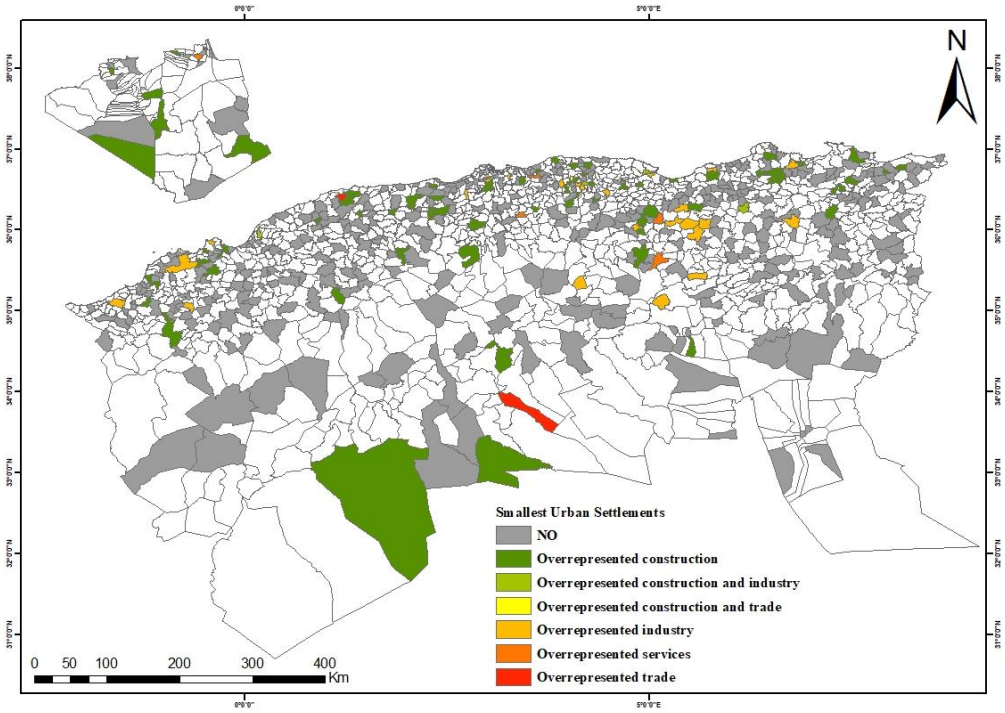


Figure 21. Distribution of location quotient in the smallest urban settlements. Source: edited by the author using the Algerian economic statistics of 2011

4.3.3 Industry in Smaller Algerian Towns

Figure 22 illustrates the distribution of industries in Algeria's small towns and smallest urban settlements. A notable pattern emerges, with a concentration of industries predominantly within populations of less than 30,000. While there is variability, most settlements with populations below 20,000 host fewer than 200 industries, indicating a limited industrial base in the smallest settlements. Conversely, a few outliers appear above this threshold, with settlements hosting over 300 industries despite modest population sizes, suggesting the presence of industrial hubs or specialized economic zones. For settlements with populations closer to 50,000, the number of industries becomes more dispersed, reflecting a broader range of industrial activity. This distribution highlights the uneven industrial development in Algeria's smaller urban areas, potentially influenced by local resource availability, infrastructure, or policy-driven industrial placement. The lack of a strong correlation between population size and the number of industries suggests that population alone is not the primary determinant of industrial distribution.

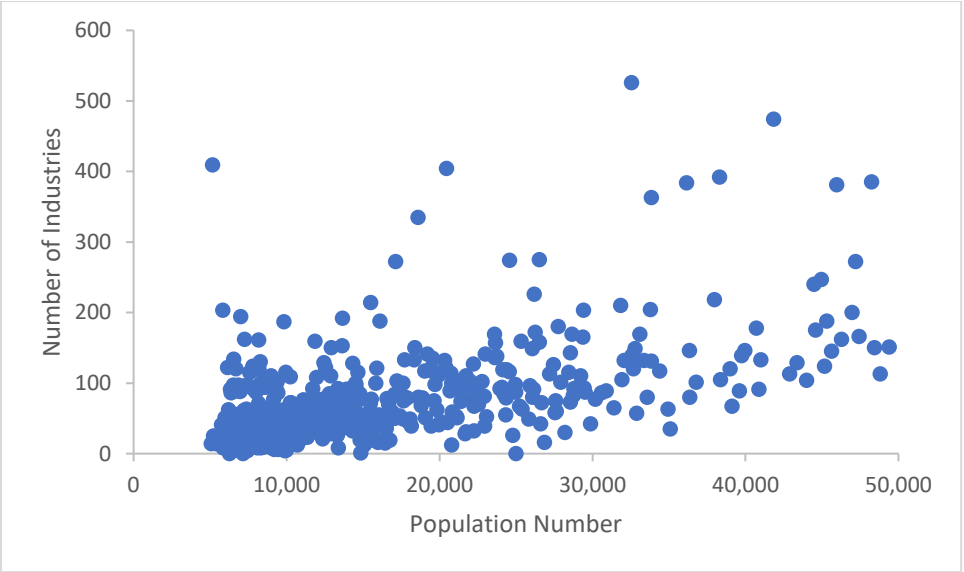


Figure 22. Distribution of industry sector in small towns and the smallest urban settlements (from 5,000 to 49,999 inhabitants). Source: edited by the author using the Algerian economic statistics of 2011

Several key location factors shape the development of industries in Algeria's smaller towns, each contributing to establishing and growing specific sectors (Seddi, 2013). Proximity to raw materials is a significant factor, with towns located near agricultural zones or natural resources like minerals, hydrocarbons, and forests. For example, towns in agricultural regions often focus on agro-industrial activities, such as food processing or olive oil production. Similarly, areas rich in resources like phosphates and iron foster mining and resource-processing industries. Local market demand is another important factor, as small towns tend to cater to the needs of nearby villages, producing goods like food, building materials, and artisanal crafts, ensuring consistent demand despite their limited populations. Infrastructure also plays a crucial role, as towns near transport corridors—such as roads, railways, and ports—become attractive for industries due to logistical advantages (Ouaziz et al., 2020). Additionally, the availability of a cost-effective labor force, often with traditional skills in areas like weaving, pottery, or metalworking, supports the growth of labor-intensive industries like textiles and food processing. Government policies aimed at decentralizing industry and providing subsidies and incentives for industries in underdeveloped regions have further encouraged industrial development in small towns (SNAT, 2008). These factors collectively enable small towns to establish a diverse industrial base, including local-scale industries and those catering to larger markets.

The industrial development in Algeria's smaller towns varies significantly by region, reflecting geographic and resource advantages. Smaller towns in the province of Oran in the northwest region have industrial influence spanning several sectors, for example, the automobile assembly plant "Renault Algeria" in Oued Tlelat and an Algerian-Turkish steel complex "Tosyali" in Bethioua, where the products of the Tosyali complex are exported to European, American and African countries, export operations generated more than USD 700 million in 2021. the medical gas plant "Rayan oxy" in Bethioua has a production capacity of 100,000 liters of medical oxygen per day, a seafood and tuna cannery in the commune of Es-Sénia, and several units involved in the agri-food sector (Journal Eddiwan, 2022). Industries like olive oil production and artisanal crafts flourish in the Kabylie area in the north center region, including towns near Tizi Ouzou and Béjaia (Algérie presse service, 2023a, 2023b; El Watan. DZ, 2024). The highland east, with towns in Sétif Bordj Bou Arréridj and Oum-El-Bouaghi, hosts agro-industries and construction material production (L'EST, 2024). Sétif, in particular, is a center for grain milling and dairy production, leveraging the region's fertile lands; while Tiaret in the Highland West has seen growth in mechanical and light engineering industries. Further southeast, some towns in the province of Ghardaïa host textile industries and traditional crafts, benefiting from trade routes (Algérie maintenant, n.d.). On the Sahara fringe, smaller settlements specialize in niche industries like dates processing (Algérie presse service, 2023c)), salt extraction, and small-scale mining. This regional diversification reflects Algeria's efforts to foster localized industrial growth across its vast territory.

4.4 A Case Study of the Integration of an Algerian Small Town in GPNs

4.4.1 Algerian cement industry

Cement is a vital material in everyday life and a cornerstone of the global economy, extensively used in construction and repair. Few materials are as universally applied as cement (Rodrigues & Joekes, 2011). Its production involves several key stages: (1) the extraction of limestone, clay, gypsum, and other minerals from quarries, (2) the crushing and blending of these materials in precise ratios, (3) calcination, where the mixture is heated in a kiln (1400-1600°C) to form clinker, (4) rapid cooling of the clinker to stabilize its structure, (5) grinding, where the cooled clinker is milled with gypsum and other additives to produce cement, and (6) storing the finished product in silos before packaging or bulk shipment. These stages can either be vertically integrated within a single factory or distributed across multiple specialized facilities, forming a production network. While vertical integration allows complete control over the process, factors such as raw material availability, energy costs, and transportation often result in clinker production and cement grinding being located at separate sites.

The global cement industry is primarily shaped by major transnational corporations, such as LafargeHolcim, HeidelbergCement, and Cemex, which operate across multiple countries and benefit from economies of scale and advanced technologies. In addition to these global players, local firms play a significant role in meeting domestic demand. These companies often capitalize on logistical and cost advantages, focusing on regional markets. For example, UltraTech Cement in India and Dangote Cement in Nigeria dominate their respective national markets, with some involvement in export activities. The industry includes both state-owned enterprises (SOEs) and private companies. The largest producer, China National Building Material (CNBM), is an SOE, while companies like LafargeHolcim, HeidelbergCement, and Cemex are privately owned and publicly traded (Heidelberg Materials, n.d.; Global Leader In Sustainable Construction | Holcim, n.d.). These firms typically oversee the entire cement production process, from raw material extraction to the final production of cement.

In 2022, China produced over half of the world's cement, estimated at 2.1 billion tons, making it the largest global producer. India followed as the second-largest producer, with 370 million tons (Garside, 2023). Among the top five producers, Vietnam (95 million tons), the US (89 million tons), and Turkey (76 million tons) are notable (Cement Industry Events, News & Research - Global Cement, n.d.). Due to high transportation costs, the cement industry is predominantly oriented toward national markets. However, exports are essential in regions with production surpluses. Vietnam

and Turkey, in particular, are global leaders in cement exports. The cement industry is a critical economic sector in Algeria, crucial for enhancing market self-sufficiency. Although Algeria is integrated into global production networks (GPNs) mainly through its hydrocarbon sector (Mañé-Estrada & Albinyana, 2023; Albinyana & Mañé-Estrada,2018), the resilience of its cement industry demonstrates its potential to become a profitable component of non-hydrocarbon exports (AISU 2023). Most studies on Algeria's cement industry have focused on environmental concerns (Guettouche et al., 2023; Shahri, 2020; Bahmed et al., 2016; Boughrara et al., 2015; Kaabèche-Djerafi et al., 2014; Zakane & Azzaz, 2008) consistent with international research (Kusuma et al., 2022; Radukić & Perović, 2019; Branger & Quirion, 2015; Maradan & Zein, 2011; Worrell et al., 2001). Other studies have explored occupational health and safety in the cement industry (Zeb et al., 2019; Çankaya & Çankaya, 2015; Rachid et al., 2015; Koh et al., 2013). However, there is a lack of published case studies examining the integration of cement factories into global production networks. My paper addressed this gap by analyzing the GPN integration of Algerian towns through the lens of the cement industry (Saidi et al., 2024).

Algeria ranked among the top 20 global cement exporters (Figure 23), shipping over 1.5 million tons of cement during the first nine months of 2019, primarily to Mali and Niger (Algerian Embassy in the United States of America, 2023). This significant growth reflects successful diversification efforts and enhanced competitiveness in the international cement market. Furthermore, this positive trend aligns with Algeria’s broader strategy to reduce reliance on hydrocarbons, indicating the potential for continued expansion in the cement sector (World Bank, 2023; IMF 2023).

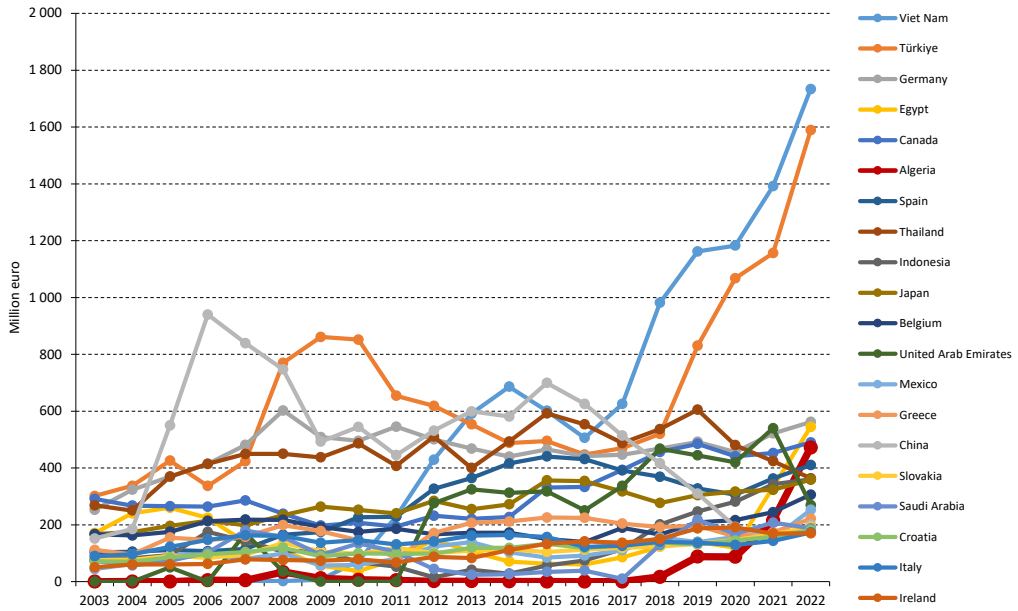
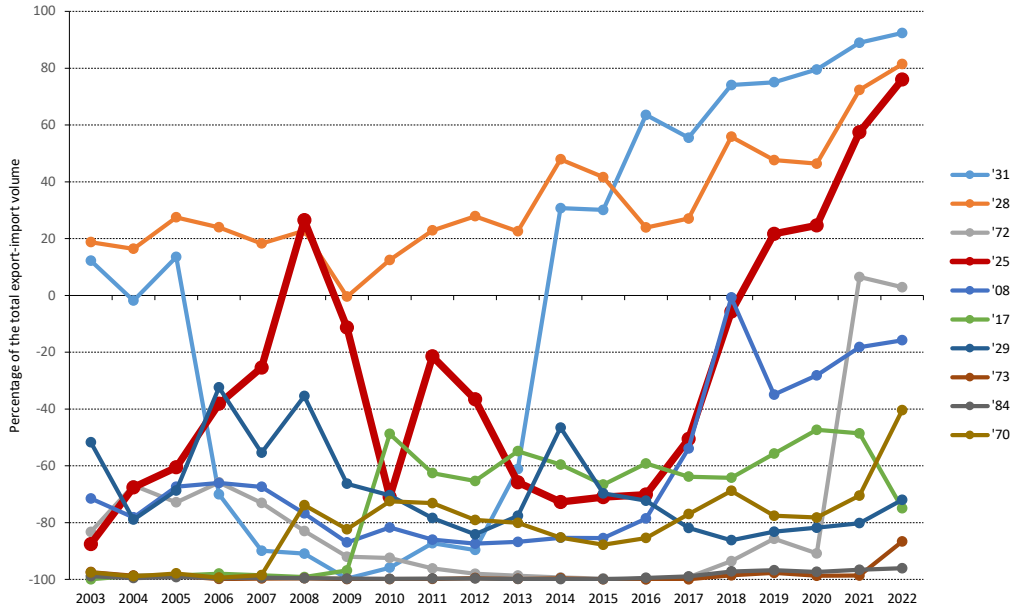


Figure 23. Top 20 cement exporters. Source: edited by the author based on the data of the International Trade Center

Based on the relative trade balance concerning total export and import volumes, the cement product group has become a key area of specialization in Algeria's foreign trade. Initially, Algeria had a significantly negative trade balance in 2003, but it improved steadily until reaching a peak in 2008. This was followed by a period of decline from 2009 to 2017, with a notable recovery from 2018 to 2022 (Figure 24). These fluctuations are attributed to several factors: (1) increased domestic production capacity and surplus output, which at times boosted exports; (2) domestic infrastructure projects and economic cycles, which impacted local demand and export availability; (3) trade policies, global market dynamics, and political and social conditions, such as tariffs, global demand, competition, and regulatory changes, and (4) seasonal and climatic variations, which affected production and transportation, contributing to changes in cement export and import patterns.



Legend: '31 Fertilisers; '28 Inorganic chemicals; organic or inorganic compounds of precious metals, of rare-earth metals; '72 Iron and steel; '25 Salt; sulphur; earths and stone; plastering materials, lime and cement; '08 Edible fruit and nuts; peel of citrus fruit or melons; '17 Sugars and sugar confectionery; '29 Organic chemicals; '73 Articles of iron or steel; '84 Nuclear reactors, boilers, machinery and mechanical appliances; parts thereof; '70 Glass and glassware.

Figure 24. Trade balance of the Top 10 non-hydrocarbon products exported by Algeria, in percentage of the total export-import volume. Source: edited by the author based on the data of the International Trade Center

As of 2022, Algeria's cement industry is thriving, with 17 operational production facilities (Table 16) capable of producing over 23 million tons annually. This output, depending on demand, serves both domestic and export markets and is largely driven by the efficient dry production technique employed in nearly all plants. A key feature of Algeria's cement industry is its heavy reliance on natural gas as the primary energy source, a logical step given Algeria's significant hydrocarbon reserves. This makes the cement sector a strategic national economic diversification policy component.

Table 16. Cement plants in Algeria. Source: collected by the author based on factory web pages.

Cement plants	Type of town (in 2008)	Company name	Start of production	Production (tones/year)
Meftah (Blida)	small town	GICA	1901	800,000
Rais Hamidou (Algires)	small town	GICA	1914	300,000
Zahana (Mascara)	smallest urban settlement	GICA	1948	800,000
Hadjar Soud (Skikda)	smallest urban settlement	GICA	1973	900,000
El Hassasna (Saida)	smallest urban settlement	GICA	1978	400,000
Oued Sly (Chelef)	smallest urban settlement	GICA	1978	1,200,000
Aïn el Kebira (Sétif)	small town	GICA	1978	3,000,000
Beni Saf (Ain timechent)	small town	GICA	1979	800,000
Hamma Bouziane (Constantine)	medium-sized town	GICA	1982	700,000
Sour-el-ghozlane (Bouira)	small town	GICA	1983	1,000,000
Ain Touta (Batna)	medium-sized town	GICA	1987	1,000,000
El Ma Labiod (Tebessa)	smallest urban settlement	GICA	1995	500,000
Hammam Dhalaa (M'sila)	small town	Lafarge	2004	4,000,000
Oggaz (Mascara)	smallest urban settlement	Lafarge	2008	3,500,000
Branis (Biskra)	smallest urban settlement	Société Biskria Ciment (S.B.C).	2009	2,700,000
Sigus (Oum el Bouaghi)	smallest urban settlement	GICA	2019	2,000,000
Bechar	large city	GICA	2020	1,000,000

Cement production in Algeria is concentrated in smaller towns, with 14 out of 17 cement plants located in small and smallest urban settlements (table 16), and is characterized by three types of enterprises. First, state-owned enterprises dominate, particularly the Industrial Group of Algerian Cements (GICA). GICA evolved from the Société Nationale des Matériaux de Construction (SNMC), founded in 1967 to

manage small production units. SNMC expanded by building new plants to meet rising demand and was restructured in 2009 into GICA, a state-owned joint stock company. GICA has diversified into aggregates and ready-mixed concrete sectors and provides services such as distribution, maintenance, training, and technical support. GICA has also expanded its operations internationally, entering markets in Africa, Europe, and Latin America, transforming Algeria's construction materials sector into a dynamic and diversified industrial group (La Patrie News, n.d.).

Second, international private companies, such as Lafarge, contribute to Algeria's cement capacity through collaborations with local partners. This partnership highlights the global reach of multinational corporations combined with local expertise, fostering a competitive and dynamic market. Lafarge's first export of gray cement in December 2017 marked the beginning of a growing export market that now includes cement, clinker, and mortars in various forms and packaging, targeting African and Mediterranean markets (LafargeHolcim En Algérie Confirme Sa Contribution Pour l'exportation, n.d.).

Finally, a few local companies also contribute to Algeria's cement production, contributing to the sector's diversity.

4.4.2 Sigus Case Study

Sigus is one of the 29 municipalities that constitute the province of Oum El Bouaghi. It is located in the Highland East region, 56 km from the province of Oum el-Bouaghi, 36 km from Constantine, 23 km from the municipality of Ain Melilla, and 12 km from El-Kharroub. Its area is estimated to be 210.24 km^2 (Figure 25). Sigus is divided into three phases in terms of its history: the Roman, pre-independence, and post-independence periods (Rosso, 2008). In the Roman era, it was known for its significance as a residence for Numidian kings due to its favorable location and conditions for agriculture and economic activities. There are rare ancient tombs called "Dolmen" and "Menhirs" in the area. However, many of these landmarks were lost due to wars and French colonization. During the colonial period, Sigus was a small settlement with a predominantly European population. After Algerian independence in 1962, Sigus underwent administrative changes and urban development projects, leading to its growth as a district center and municipality.

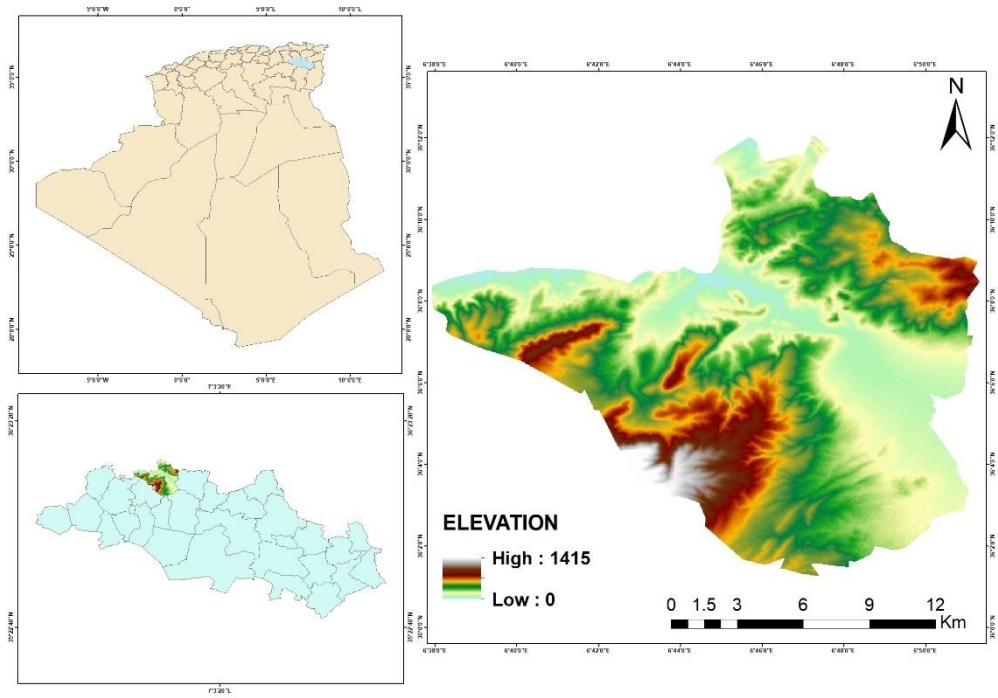


Figure 25. Location of Sigus. Source: edited by the author

Sigus is classified as a smallest urban settlement with a population of 17,597 inhabitants in 2008 and small town with 20,582 inhabitants in 2018 (Table 17). Between 1966 and 2018, the population of both the main and secondary agglomerations steadily increased, while the population in scattered rural areas declined. This shift is primarily attributed to rural-urban migration following Algeria's independence, driven by better living conditions in urban areas and the 1984 administrative reorganization, which brought numerous development projects that attracted migrants. The migration trend continued during the 1990s due to the country's civil war (1988-1998), as urban areas were perceived to offer greater safety compared to rural areas. After 1998, however, rural-urban migration slowed, aided by rural housing initiatives and government support for agriculture to stabilize rural populations. Despite these efforts, urban areas have become overcrowded due to the "housing estates policy" introduced in the 1990s, resulting in a scarcity of real estate that persists today. On the economic side, Sigus has an overrepresented industry according to the location equation (see Chapter 4.3.2). With the launch of the cement factory activity, Sigus constituted a center of attraction for the labor force at the local and regional levels (Figure 26).

Table 17. The development of the population of Sigus according to different types of areas. Source: censuses of 1966, 1977, 1998, 2008 and the estimate of the Directorate of Programming and Budget Follow-up of 2018

	1966	**1977**	**1987**	**1998**	**2008**	**2018**
Main agglomeration[1]	1846	3034	4982	9405	11,750	14,248
Secondary agglomerations[2]	/	/	1361	2168	2756	3333
Scattered areas[3]	10,516	9172	6642	3412	3091	3001
Total	12,362	12,206	12,985	14,985	17,597	20,582

[1]Agglomeration: a grouping of buildings adjacent to each other in a municipal territory, numbering 100 buildings or more, such that no building is more than 200 meters away from the other. Main agglomeration: The agglomeration is where the headquarters of the municipality are located.

[2]Secondary agglomeration: another grouping in the municipality.

[3]Scattered areas: the rest of the municipality comprises small groups of buildings and isolated constructions (ONS, 2008).

Several factors contributed to the cement plant's location: (1) the high quality, substantial capacity, and proximity of raw material deposits, particularly limestone; (2) the natural altitude difference between the limestone deposits and the factory site, which facilitates the efficient transport of raw materials; (3) the accessibility of essential infrastructure and utilities required for plant operations; (4) the site's lack of archaeological or historical significance, and its absence of ecologically significant fauna or flora; (5) the site's suitability for construction from a geotechnical perspective; and (6) the land's unsuitability for agriculture, due to its clayey and conglomerate soil which inhibits vegetation growth. Additionally, the reasons for choosing the site of the cement plant in Sigus are (1) proximity to the ports of Skikda, providing access to external markets; (2) nearness to the standard-gauge railway network connecting the eastern and western regions of Algeria, and the narrow-gauge line linking Constantine and Algiers; and (3) a relatively developed road network that facilitates the transport of materials, finished products, and personnel.

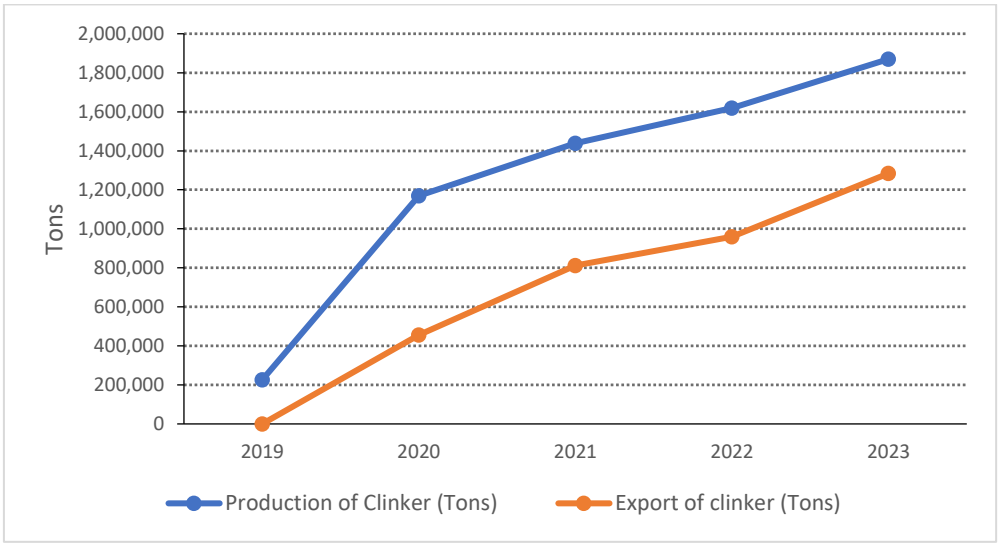
Figure 26. Field photos. Source: taken by the author

The establishment of the Sigus cement factory involved multiple stakeholders. It was managed by the state-owned enterprise GICA under Legislative Decree No. 13/390 of November 24, 2013, as part of Algeria's broader industrial revival and investment promotion policy. The Algerian government made this decision (interview 9). At the national level, several ministries were involved, including those responsible for Energy and Mines, Commerce, Environment, and Industry. These ministries were key in issuing decrees and authorizations necessary for the factory's construction and operation. Locally, the Directorate of Environment conducted an environmental impact assessment (interview 6). At the same time, the Directorate of Energy and Mines, representing the relevant ministry, participated in the site selection process, ensuring security for electricity and gas networks, granting licenses for sensitive materials and hazardous chemicals, and overseeing quarry exploitation (interview 7). The Directorate of Industry was responsible for requesting an internal intervention plan (PII) for addressing emergencies such as fires, explosions, or toxic substance releases, which could impact workers, property, the public, and the environment (interview 11). This plan was developed by a consulting office in collaboration with the Directorate of Civil Protection (interview 12). It was subject to approval by relevant departments, including the Directorate of Energy and Mines. The Directorate of Commerce handled market control and financing issues (interview 10). The

governor managed the expropriation process, including property confiscation and compensation of landowners, by Executive Decree No. 13-390 of November 24, 2013. The governor holds more significant power (48 provinces), particularly in strategic decisions, than the elected mayor of the municipality (1541 municipalities). The mayor's role is dual (interview 9): a representative of the state at the municipal level and a representative of the municipality's interests toward the province. However, it is more administrative and localized and has no authority to reject the decision from the top; for the factory, his role was to allocate land. The governor has control powers of both administrative and judicial types. Overseeing civil protection, organizing first aid, maintaining public order, respecting judicial independence, and responding to natural disasters and accidents. In the factory, his role was overseeing the expropriation process, confiscating property (interview 13).

The cement manufacturing process at the Sigus factory involves three critical stages: raw material preparation, clinker production, and cement production (Figure 27). The factory utilizes advanced technologies imported from France, designed to optimize energy efficiency and adhere to stringent environmental and safety standards (interview 5). Specifically, the technologies ensure that dust emissions are below 10 mg/Nm^3, gas consumption is 730 kcal/kg of clinker, power consumption is 89 kWh/ton of cement, CO emissions are ≤ 150 mg/Nm^3 and wastewater treatment facilities support a capacity of 700 people (interview 5). The factory has an installed production capacity of 2 million tons per year (interview 2). Clinker production commenced in September 2019 and has progressively increased (Figure 28).

Figure 27. Field photos. Source: taken by the author

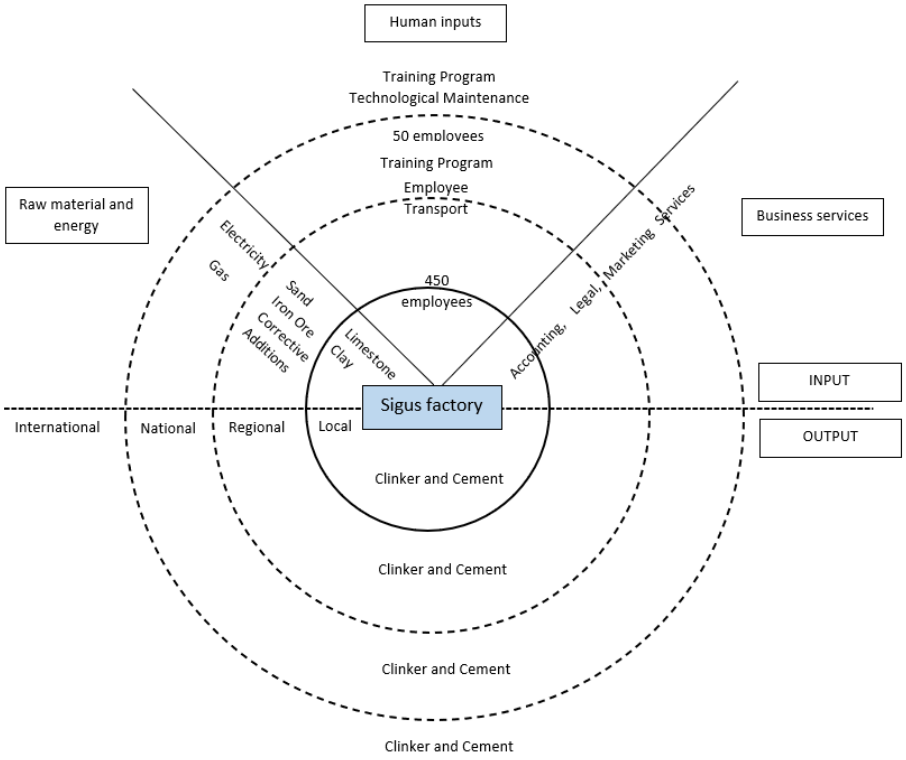


Clinker is the raw material of cement. It is a nodular material produced by heating a mixture of limestone and clay to high temperatures in a cement kiln. The mixture is then ground into a fine powder to make cement.

Figure 28. Production of clinker in the Sigus cement factory. Source: edited by the author based on the interview 2

The factory exhibits a multi-scalar spatial integration (Figure 29). On the input side, it relies primarily on local raw materials: limestone is sourced from Fortass Mountain (Sigus) and clay from Koudiat Birou (Sigus). Secondary raw materials are obtained from a broader regional area, with sand coming from Bhiret Chergui (23 km from Sigus) and iron ore from Ouenza (164 km from Sigus). Corrective materials such as tuff, pozzolan, slag, and gypsum are supplied from neighboring provinces (interview 4). The factory manages the transportation of limestone from the quarry to its facility, while various private suppliers deliver other raw materials. The workforce comprises 500 employees, including 20 senior executives, 120 management professionals, 155 engineers and technicians, 170 skilled workers, and 35 additional executives (interview 3). The majority, 90%, are residents of Sigus and nearby towns in the Oum El Bouaghi province, with the remaining 10% from other provinces such as Tebessa, Constantine, and Skikda (interview 3). To facilitate commuting, a fleet of buses operates on three main routes: Oum El Bouaghi to Sigus, Ain Melilla to Sigus, and Constantine to Sigus.

A comprehensive employee training program, held at the Cement Industry Training Centre in the capital, spans six months to one year, depending on specialization, with some training conducted in France due to the use of French technology (interview 3). These training programs, along with the provision of electricity, gas, and specific business services, represent inputs at the national level rather than local or regional. On the output side, the factory distributed clinker to local, regional, and national markets and began exporting to Ghana, Ivory Coast, Mauritania, and Senegal in 2020. Cement production, although smaller in volume than clinker, began exports to Germany in August 2024 following acquiring the necessary licenses from relevant ministries in March 2024 (interview 2, 10).



"Local" means the municipality of Sigus and the province of Oum El Bouaghi, "regional" covers the neighboring provinces, "national" means the level of the country, and "international" includes relations outside Algeria.

Figure 29. Spatial relations of Sigus cement factory. Source: edited by the author.

The establishment of the cement factory has had various effects at both the local and national levels across economic, social, and environmental aspects.

Economic Aspects: At the local level, the factory has made significant contributions by fulfilling the cement demand in the provinces of Oum El-Bouaghi, as well as the province of Khenchela, and Constantine at the regional level, and by creating employment at the regional and local level but primarily for local residents. Beyond direct job creation, the factory generates substantial indirect employment opportunities, bolstering income through expanded commercial activities linked to its operations. This includes roles in transportation services, housing markets, equipment sales, maintenance, and contracts with construction firms and machinery suppliers. Additionally, the factory stimulates the local economy by increasing worker spending

in nearby businesses, especially along National Road N10. The state has supported the factory's operations through substantial infrastructure improvements, such as upgrading National Road N10 into a divided highway to facilitate efficient transportation of goods and materials (interview 8). The provision of essential utilities, including gas and electricity, with capacities of 6,000,767.76 Nm^3 and 106,028 kW per day (interview 2), respectively, further underscores the government's commitment to fostering industrial growth. Additionally, the Sigus factory benefits from exemptions from Corporate Income Tax (IBS) and Professional Activity Tax (TAP) for its initial ten years, reflecting further state support. While businesses in Algeria are generally subject to VAT at 19% and IBS at 26%, and the TAP was previously set at 2% for local development but abolished in 2024 (interview 9), the factory is required to pay an annual environmental tax of 810,000 DZD (interview 6). However, negative impacts include decreased real estate prices near the plant and uneven urban growth within the Sigus municipality (interview 9). Increased competition from more efficient businesses may also pressure local enterprises, potentially affecting their profitability. At the national level, the factory contributes to cement self-sufficiency, enhances foreign currency export revenues, supports economic diversification, and generates additional state income through its tax contributions. At the International level, the integration into global production networks is a pathway to attract foreign investment and expertise, linking the factory to international markets and technologies. Adhering to international standards enhances competitiveness, allowing the factory to compete in global markets

Social Aspects: at the local and regional levels, the factory has reduced unemployment, offered wages around the municipal average depending on job positions, invested in workforce training programs to enhance skills, and established a standard occupational health and safety system. The factory has improved worker conditions and rights by adhering to international labor standards, fostering better social outcomes, and contributing to a more equitable and sustainable labor environment. Conversely, it could potentially lead to social displacement and cultural erosion by forcing residents to move or disrupting their way of life. Land use or economic changes, such as shifts in job availability or rising costs, may make it difficult for people to remain in the area. As Sigus has traditionally been an agricultural community, the rise of industrial activities may weaken its farming-based cultural identity, replacing traditional customs and social relationships with industrial values and practices on a national scale, revenues from the factory can be utilized to address deficits in housing and public facilities.

Environmental Aspects: The factory has enhanced the value of primary resources and implemented modern, environmentally sustainable production technologies (interview 6), aligning with global environmental standards and contributing to international sustainability goals. However, its construction and operation have been associated with air and noise pollution. The production process—encompassing stages such as blasting, mining, transportation, crushing, grinding, burning, cooling, and packaging—contributes to dust and gas emissions that adversely affect air and soil quality and biodiversity. Despite the factory's use of advanced technologies aimed at minimizing environmental impact, there remains a risk of air pollution if filter systems are not adequately maintained or updated (interview 6). These emissions potentially diminish the agricultural productivity of nearby lands and pose health risks to the local population.

This chapter's findings suggest that the Sigus cement factory, managed by a state-owned enterprise within a predominantly national production network, exemplifies a strategic coupling of local economies with broader cement production systems (Coe et al., 2004; MacKinnon, 2012). This integration, however, is shaped by Algeria's centralized governance, which limits the influence of local factors. The factory's establishment required the supplementation of local deficits with external inputs, reflecting the state's dominant role in development decisions. This dynamic aligns with the observations of Horner (2017) and Smith (2015), highlighting the multifaceted role of national governments in production network integration. Institutions like GICA and the Cement Industry Training Centre have been instrumental in restructuring the local economy by enhancing workforce skills and introducing updated expertise. Unlike private enterprises, which often focus on short-term profits and minimizing compliance costs, state-owned enterprises (SOEs) like the one operating the Sigus factory prioritize long-term development objectives (OCDE, 2015; Shirley & Walsh, 2000). These include economic diversification, social welfare, and adherence to social and environmental standards. The Sigus cement factory represents the effectiveness of this state-led approach. Despite its recent inception, the factory has achieved strong profitability while adhering to state development priorities. Its state-owned nature fosters sustained regional commitment and economic stability, avoiding the short-term exploitation of local resources. Initiatives such as workforce training programs, competitive wages, and high labor standards contribute to both economic success and social advancement (Barrientos et al., 2011), demonstrating how SOEs can generate higher value-added outcomes compared to private enterprises. The case of Sigus illustrates a successful model of strategic coupling that balances profitability with long-term regional and national development goals.

The Algerian government facilitates this integration by providing tax exemptions, constructing infrastructure to ensure resource availability, and regulating the factory's operations through legal frameworks encompassing labor, safety, and environmental standards. Additionally, the state acts as a consumer by sourcing cement for major public projects, including dams and bridges, under the supervision of Cosidar Group, thereby supporting local economic growth. Moreover, as the factory is state-owned under the GICA company, the government maintains control over this critical industry to align production with broader national economic objectives, offering stability compared to private entities focused on short-term profits.

The strategic coupling between the state-owned enterprise and the local economy of Sigus has profound implications. At the national level, the cement factory contributes to sectoral and spatial economic growth in line with Algeria's goals of economic diversification and spatial rebalancing (IMF, 2023; World Bank, 2023). It significantly impacts GDP, employment generation, and state revenues, aiding in budgetary stabilization. The factory also enhances Algeria's cement self-sufficiency, curbing import dependency and bolstering trade balance through export revenues. Tax revenues generated further support national development initiatives. Environmentally, the facility adds value to primary resources by integrating sustainable production technologies. However, the potential for air pollution highlights the necessity for ongoing investments in environmental protection measures, as corroborated by studies such as Guettouche et al. (2023), Shahri (2020), Bahmed et al. (2016), Boughrara et al. (2015), and Kaabèche-Djerafi et al.(2014).

Locally, the factory stimulates economic activity by generating employment, improving infrastructure, and enhancing workforce skills. The Sigus Master Plan for Development and Urbanism (PDAU, 2006) emphasized agricultural, infrastructural, and industrial development by creating an industrial zone along National Road N10 to support local economic growth while safeguarding the environment. Similarly, the Provincial Development Plan (PAW, 2006) highlighted the significance of this industrial zone. However, establishing the Sigus cement factory was not part of the original local plan, indicating a decision made at the national level. This centralized decision-making aligns with Algeria's governance model, where provincial dynamics are influenced by appointed governors holding substantial authority over administrative and judicial functions, disaster management, and public order. These governors often overshadow the roles of elected municipal mayors, who largely serve administrative functions within a top-down system. This structure mirrors re-centralization trends observed in countries like Hungary, where local governments have limited influence over economic development (Molnár et al., 2022; Nagy et al., 2021). Algeria's approach is further shaped by its historical ties to French

administrative traditions, reinforcing the centralized framework that continues to shape regional and local development initiatives.

Regionally, the factory fosters economic integration, balanced development, and the sustainable utilization of local resources, contributing to regional economic stability. However, it also introduces challenges, including reduced property values near the facility, uneven urban growth in the Sigus municipality, potential social displacement, and cultural erosion. Moreover, a survey conducted in August 2020 (Sraa & Lahmer, 2020) involving 30 nearby residents revealed significant opposition to the factory. Concerns raised included potential environmental and health impacts and dissatisfaction with the lack of public consultation before its establishment. The factory's development reflects a top-down, large-scale industrialization model financed and directed by the state, with minimal community involvement. This approach aligns with the traditional methods of regional development observed in post-World War II Europe (Kozma et al., 2024), emphasizing centralized planning and state-driven projects over locally integrated initiatives.

The limitations of small towns significantly influence the necessity of multi-scalar assets and institutional support for successful production network integration. Sigus leverages its local advantages, such as access to raw materials, an available workforce, and transportation infrastructure, which facilitate its integration into production networks. However, the town faces challenges common to small settlements: a limited population restricts labor availability and skill diversity, resource constraints hinder infrastructure and workforce development, and a narrow economic base increases vulnerability to sector-specific economic fluctuations. Addressing these challenges necessitates collaborative efforts that combine local governance, community participation, and support from higher authorities and external stakeholders. Cement production networks serve as conduits for external knowledge and resources, helping to alleviate these local limitations (Crescenzi & Iammarino, 2017).

Chapter 5: CONCLUSIONS AND FUTURE WORK

This research employs a multi-dimensional methodological approach to address its central questions about the intersection of economic diversification and spatial rebalancing, focusing on small towns. It combines analysis of recent census data, national economic statistics, export data, and qualitative insights from case studies and stakeholder interviews to understand regional and structural urbanization patterns, the sources of population growth, and the urban network's spatial balance. Additionally, the study examines Algeria's integration into global production networks (GPN), emphasizing the national state's regulatory role and the challenges of hydrocarbon dependency. Focusing on small towns like Sigus explores how multi-scalar factors and local resources shape economic and industrial dynamics. This mixed-methods framework enables a nuanced understanding of Algeria's spatial and economic strategies, aligning findings with the priorities of development plans like SNAT 2025.

I conclude thesis statements as follows:

1. Algeria is characterized by large disparities, with a significant population concentration in coastal areas influenced by its geographical, historical, and socio-political characteristics and the need for spatial rebalancing, which aligns with the goals of SNAT 2025 for regional development.
2. Algeria is experiencing the first and second stages of urbanization, driven primarily by natural population growth and, secondly, by migration
3. Algeria is a rentier state that heavily depends on the hydrocarbon sector and needs economic diversification. The state plays a complex role in the production network.
4. Smaller and medium-sized towns play a crucial role in regional economic development. They act as local service hubs, foster economic activity, and support national urbanization trends while hosting significant industrial sectors, making them essential to economic diversification and spatial development policies.
5. The small-town case study presents the multi-scalar embeddedness in the industrial production network, and the Algerian state functions as a regulator, facilitator, consumer, and producer.
6. Strategic coupling between industrial production networks and small towns' economies, exemplified by the case study of the large-scale state-owned cement factory, can generate growth and wealth, but it also poses risks such as social disruption and environmental degradation

The key novelties of the research are:

1. Empirical Insights on Urbanization in Algeria: The study provides valuable empirical data and analysis regarding the urban network development in Algeria, addressing a significant gap in the existing literature. It highlights the unique characteristics of Algeria's urbanization processes, including the differentiation of urban growth rates and the roles of natural growth and migration.
2. Contextualization within National Policies: The research contextualizes its findings within Algeria's National Spatial Development Plan (SNAT 2025) framework, evaluating how this policy addresses regional imbalances and promotes a more balanced urban network. This connection between empirical findings and policy implications offers a comprehensive understanding of the challenges and opportunities in Algeria's urban development.
3. Algeria's Rentier Economy: Examining Algeria's structural dependencies as a rentier economy reveals how its heavy reliance on hydrocarbons constrains economic diversification efforts while highlighting the national state's pivotal role as a facilitator and regulator in driving economic development and shaping trade policies for sustainable growth.
4. The role of smaller and medium-sized towns: Smaller towns play a significant role in Algeria's urban network, showcasing unique economic patterns, significant growth over the decades, and substantial contributions to national urbanization. They are essential for economic diversification and territorial balance despite the dominance of major metropolitan areas.
5. Integration of Multi-Scalar Factors: The study highlights the importance of multi-scalar regional frameworks in understanding the integration of small towns into industrial production networks. It emphasizes how local, regional, national, and international factors interact, with a particular focus on the centralized role of the Algerian state in shaping these dynamics, which is often overlooked in existing literature.
6. Impact Assessment of State-Owned Enterprises: The research provides a nuanced analysis of the effects of state-owned enterprises (SOEs) on local economies, particularly in small towns. It demonstrates how the strategic coupling of the cement factory with the local economy can lead to sustainable growth and social upgrading. This insight contributes to the discourse on the role of SOEs in fostering long-term economic stability and development in emerging economies.

For the future work:

1. Incorporation of Updated Census Data: Future research should utilize the updated census data to reassess the Algerian urban network and spatial development. This will offer a more accurate and current understanding of the effectiveness of the urbanization and regional development policy.
2. Broader Examination of GPN Integration: Expanding the analysis beyond raw export data to include additional dimensions of Global Production network integration, such as labor dynamics, technological transfer, and environmental impact, could provide a more holistic understanding of the production network's role in regional development in Algeria.
3. Exploration of Multilevel Policy Frameworks: Future studies could investigate the influence of various policies and institutional frameworks beyond the national economic and foreign trade policies. Analysing local governance, regional strategies, and sectoral regulations would enrich understanding how these different layers affect production network integration.
4. Further Studies on Small and Medium-sized Towns: Future research should conduct more studies on small and medium-sized towns in Algeria across various sectors and contexts to generalize findings. This approach would help capture the diversity of experiences, challenges, and opportunities these towns encounter when integrating into national and global production networks.
5. More studies about small towns: Future research should focus more comprehensively on the socio-economic, infrastructural, and environmental factors specific to smaller urban areas to better understand their role in Algeria’s broader urban development and economic landscape.
6. Sectoral Analysis Across Small Towns: Investigating how industries contribute to integrating small towns into production networks could reveal variations in economic outcomes and regional development strategies. This could involve sectors such as agriculture, manufacturing, and services in small-town settings.
7. Impact of Local Characteristics on Network Integration: Future studies could delve into how specific local factors—such as infrastructure, population size, workforce capabilities, and resource availability affect the integration of small towns like Sigus into broader production networks, allowing for a deeper understanding of local dynamics.

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I extend my heartfelt gratitude to Allah for granting me the strength, guidance, and perseverance to successfully complete my PhD.

APPENDIX

Appendix 1: Interview Questions for the case study

Position of interviewees	Questions for the interviewees
Operations manager of Sigus factory	- What type of factory is the Sigus factory, and what does it produce? - How were the factory site chosen? What are the reasons for selecting the factory in the town of Sigus? - How did the town help you set up the factory? - When did the factory open? When did it start production? - When did the factory start exporting? Where? - In numbers, how much does the factory produce and export annually?
Head of production department of Sigus factory	- What does the factory produce? What kinds of materials are produced? - What are the raw materials used? The sources of these materials? - Who are the production suppliers?
HR manager of Sigus factory	- How many workers are in the company? Educational level of workers? On what basis are they chosen? - Are the workers all from the town of Sigus or outside it? - Where were they trained (in Algeria or abroad)? Is there a specific institute to train them? - Is there a specific means of transportation for workers?
A laboratory engineer of Sigus factory	- What are the key quality standards applied to the factory's products? - How does the laboratory ensure the quality of raw materials used in production? - What specific tests or analyses are conducted to maintain product quality? - Are there any certifications or compliance requirements that the factory's products meet? - How often are quality checks conducted during the production process?
A mechanical engineer of Sigus factory	- Can you provide an overview of the main production equipment used in the factory, such as ovens and machines?

	- How do the machines in the factory contribute to the efficiency of production processes? - What type of ovens are used in production, and what are their specific roles? Where is it equipped from? - How do you ensure the maintenance and optimal performance of the machinery? - Are there any recent upgrades or innovations in the mechanical equipment used in the factory? - How does the factory manage energy consumption related to its mechanical operations? - What safety measures are in place to ensure the secure operation of the machines? - How does the mechanical infrastructure support the factory's overall production goals?
Environmental inspectorate / Directorate of Environment of Oum El Bouaghi province	- What are the primary environmental concerns associated with the operations of the Sigus factory? - Does the factory comply with local and national environmental regulations? - What measures has the factory implemented to minimize its environmental footprint? - How does the factory manage its emissions and waste products? - Are there any monitoring systems to track the factory's environmental impact? - What role does the Directorate of Environment play in overseeing the environmental practices of the Sigus factory? - Have there been any recorded incidents of environmental pollution or violations linked to the factory? - How does the factory impact the local water supply, air quality, and soil conditions? - Are there initiatives in place to promote sustainability within the factory's operations? - What feedback, if any, has the local community provided regarding the environmental impact of the factory?
Director of the Directorate of Energy and Mines of Oum El Bouaghi province	- How many factories are there in the province of Oum El-Bouaghi? - Are there factories that export its products? In which municipality are they located?

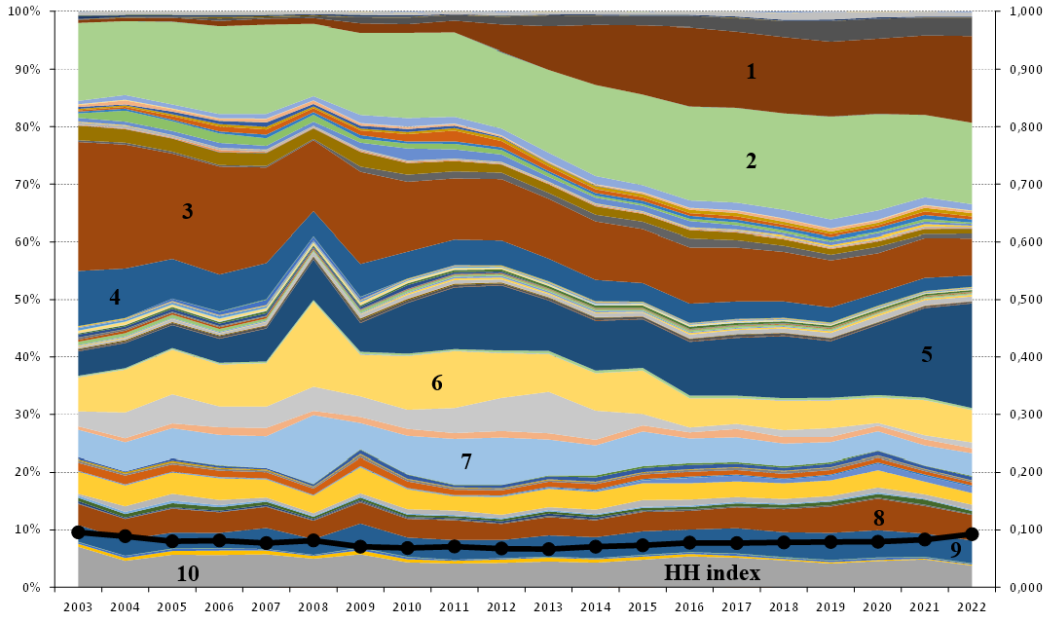
	- Is there a foreign investor in a specific company in the province of Oum El-Bouaghi? What are the most important investments made in the province in the last 10 years? Is there a particular sector that is being targeted in the province? Is there a specific municipality that is being targeted? After the choice of the Sigus factory, I did another interview by asking other questions: - What is the relationship between the Sigus factory and the Directorate of Energy and Mines? - How does the Directorate of Energy and Mines support or regulate the activities of the Sigus factory? - What specific role does the Fuel Office play in the factory's operations? - What kind of information does the Fuel Office manage regarding the Sigus factory? - How does the Sigus factory align with the objectives or policies of the Directorate of Energy and Mines? - How does the factory's energy consumption or resource use impact its relationship with the Directorate of Energy and Mines? - Does the Sigus factory face any energy or fuel-related challenges, and how are they addressed in collaboration with the Directorate of Energy and Mines? - What directives or policies from the Directorate of Energy and Mines influence the operations of the Sigus factory?
Head of the Fuel Office / Directorate of Energy and Mines of Oum El Bouaghi province	- How does the Directorate of Energy and Mines collaborate with the Sigus factory to ensure efficient energy management and resource use? - What specific regulatory measures does the Directorate of Energy and Mines implement to monitor or control the factory's energy consumption and fuel use? - In what ways does the Fuel Office work with the Sigus factory to guarantee a steady supply of energy or fuel for its operations?

	- How does the Sigus factory align with the Directorate of Energy and Mines' goals and policies to promote sustainable energy use and resource management?
Mayor of the municipality of Sigus	- What is the effect of the factory on the municipality of Sigus? - How the factory helps the development of the town? - What are the advantages and disadvantages of the small-town environment compared to larger cities in the competition for economic positions? - What was the mayor's role in the establishment of the Sigus factory? - What initiatives or policies did the mayor implement to support the foundation of the Sigus factory? - What challenges did the mayor face in supporting the factory's establishment, and how were they addressed? - Did the mayor's actions involve securing funding, land, or permits for the factory? - How has the factory impacted the municipality of Sigus, and how does this reflect the mayor's initial role? - Did the mayor lead any specific programs or community engagements to support the factory's development? - What long-term benefits did the mayor anticipate the factory would bring to the Sigus municipality? - How did the mayor's role influence the perception of local governance in the Sigus community?
Directorate of Commerce of Oum El Bouaghi province	- What role does the Directorate of Commerce play in overseeing the operations of the Sigus factory? - How does the Directorate collaborate with the Sigus factory to ensure compliance with commercial regulations? - Are there any agreements or partnerships between the Directorate and the factory to support local economic development?

	- What is the Directorate's involvement in monitoring the factory's trade activities, such as exports and imports? - How does the Directorate assess the factory's impact on local market dynamics and competition? - Are there initiatives from the Directorate to support or promote the Sigus factory's products at regional or national levels? - Does the Directorate provide the factory with any specific guidance or services regarding market regulations and consumer protection laws? - How does the Directorate facilitate the resolution of any trade or commercial disputes involving the factory? - What mechanisms are in place to ensure the factory's alignment with pricing, labeling, and quality standards? - Does the Directorate track the factory's contribution to the region's overall trade volume and economy?
Directorate of Industry of Oum El Bouaghi province	What is the role of the Directorate of Industry in supporting the establishment and development of the Sigus factory? How does the Directorate collaborate with the factory to promote regional industrial growth? What specific regulations or policies does the Directorate enforce concerning the factory's operations? Does the Directorate provide any technical or financial assistance to the factory? How does the Directorate monitor the factory's compliance with industrial standards and practices? Are there initiatives or programs from the Directorate aimed at enhancing the productivity or technological advancement of the factory? What strategies does the Directorate employ to ensure the factory's contribution to the province's industrial development goals? How does the Directorate handle any challenges or disputes arising between the factory and other industrial stakeholders? Does the Directorate work with the factory to address workforce development and training needs?

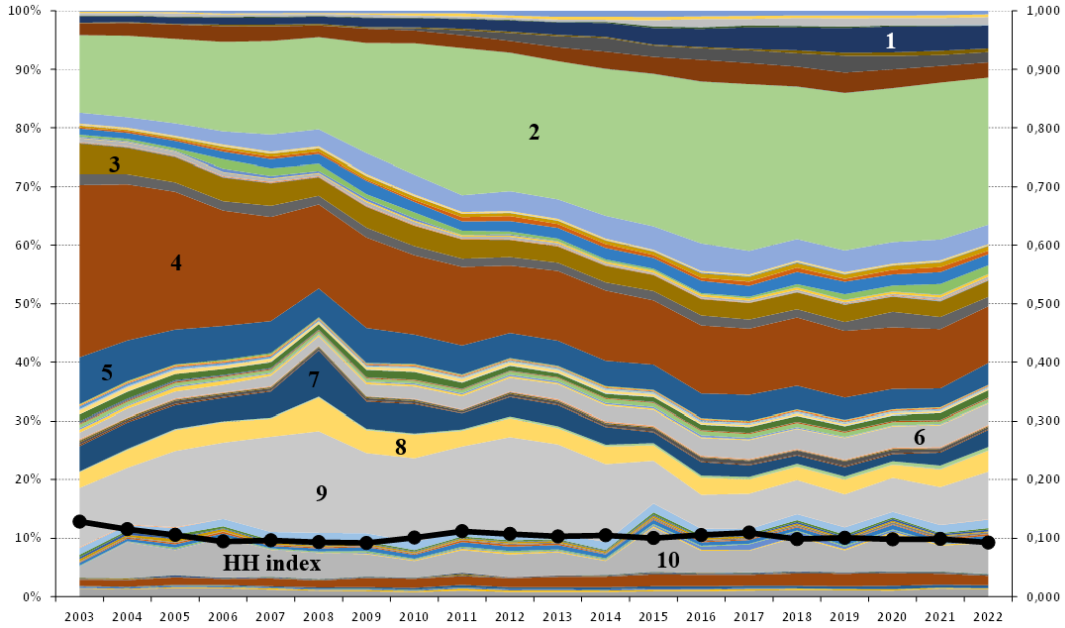
	How does the Directorate measure the factory's impact on the broader industrial landscape of the Oum El Bouaghi province?
Head of the Directorate of Civil Protection of Oum El Bouaghi province	- What safety protocols and measures are in place at the Sigus factory to ensure compliance with civil protection standards? - Can you explain the internal emergency intervention plan for the Sigus factory and how it addresses potential risks? - How does the Directorate of Civil Protection collaborate with the Sigus factory to enhance safety, provide training, and conduct inspections? - What steps are taken to ensure quick and effective response times during emergencies at the Sigus factory? - How does the Directorate ensure that the factory's operations do not pose risks to the surrounding community or environment, especially in emergencies?
Lawyer of Oum El Bouaghi province	- What legal frameworks and regulations govern the establishment and operation of the Sigus factory, and how does the factory ensure compliance with these laws? - Have there been any legal disputes or challenges involving the Sigus factory, and how have they been resolved? - What role does the legal department play in overseeing the environmental and labor standards at the Sigus factory? - How does the factory ensure its contracts and agreements with local authorities and suppliers adhere to provincial and national legal requirements? - Can you describe any legal actions or measures taken to address potential risks or liabilities associated with the Sigus factory's operations?

Appendix 2: Commodity structure of the Moroccan exports *Source: Edited by the authors based on the data of International Trade Centre*



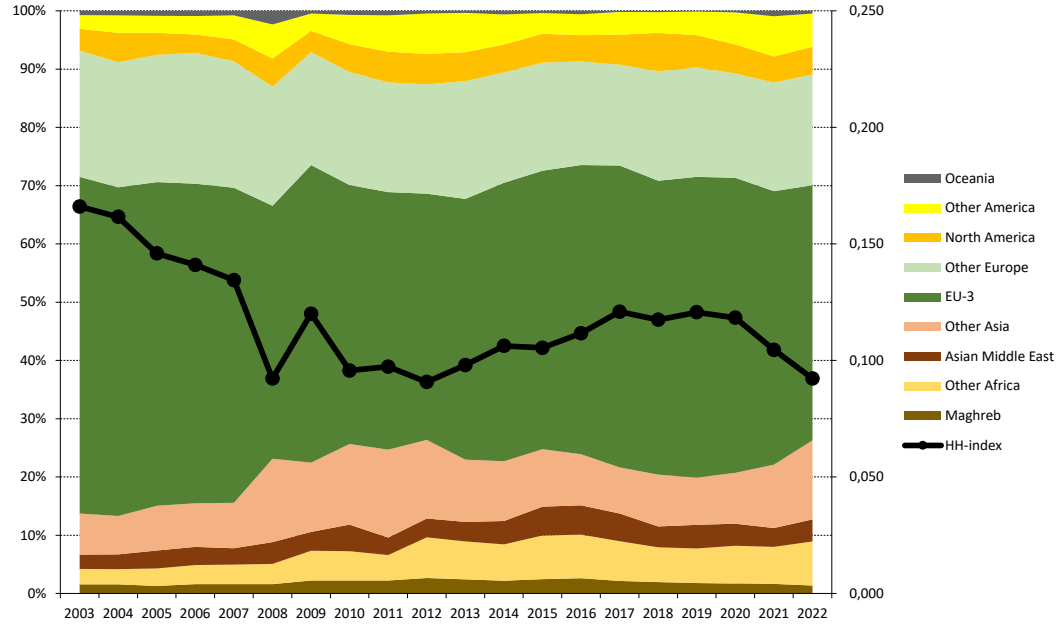
1. Vehicles other than railway or tramway rolling stock, and parts and accessories thereof; 2. Electrical machinery and equipment and parts thereof; 3. Articles of apparel and clothing accessories, not knitted or crocheted; 4. Articles of apparel and clothing accessories, knitted or crocheted; 5. Fertilisers; 6. Inorganic chemicals; 7. Salt; sulphur; earths and stone; plastering materials, lime and cement; 8. Edible fruit and nuts; 9. Edible vegetables and certain roots and tubers; 10. Fish and crustaceans, molluscs and other aquatic invertebrates.

Appendix 3. Commodity structure of the Tunisian exports. *Source: edited by the author based on the data of International Trade Centre*



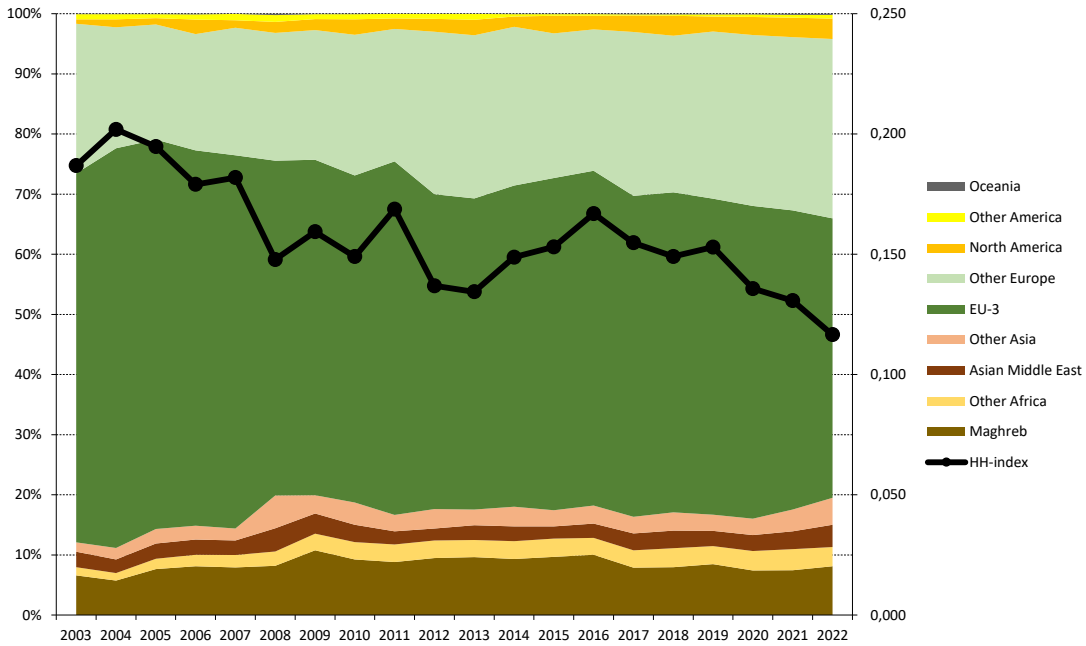
1. Optical, photographic, cinematographic, measuring, checking, precision, medical or surgical instruments and apparatus; parts and accessories thereof; 2. Electrical machinery and equipment and parts thereof; 3. Footwear, gaiters and the like; parts of such articles; 4. Articles of apparel and clothing accessories, not knitted or crocheted; 5. Articles of apparel and clothing accessories, knitted or crocheted; 6. Plastics and articles thereof; 7. Fertilisers; 8. Inorganic chemicals; 9. Mineral fuels, mineral oils and products of their distillation; bituminous substances; mineral waxes; 10. Animal, vegetable or microbial fats and oils and their cleavage products; prepared edible fats.

Appendix 4: Regional structure and concentration index of the Moroccan exports.
Source: based on the data of International Trade Centre



Concentration index is for 200 countries

Appendix 5: Regional structure and concentration index of the Tunisian exports.
Source: based on the data of International Trade Centre



Concentration index is for 200 countries

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Candidate: Feyrouz Ahlam Saidi
Doctoral School: Doctoral School of Earth Sciences
MTMT ID: 10099229

List of publications related to the dissertation

Foreign language scientific articles in Hungarian journals (1)

1. Molnár, E., **Saidi, F. A.**, Szabó, K.: Strategic coupling on the European periphery: A case study of a small Hungarian town.
   Tér társad. 36 (3), 122-144, 2022. ISSN: 0237-7683.
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Foreign language scientific articles in international journals (3)

2. **Saidi, F. A.**, Saidi, I., Molnár, E.: Industrial Production Networks and Small Towns: A Case Study from Algeria.
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4. **Saidi, F. A.**, Phinzi, K., Molnár, E.: Urbanization in Algeria: Toward a More Balanced and Sustainable Urban Network?
   Soc. Sci. 12 (3), 1-19, 2023. EISSN: 2076-0760.
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Foreign language conference proceedings (1)

5. **Saidi, F. A.**, Saidi, I.: The Development of Urban Policies in Algeria.
   In: Book of Proceeding 15th International Congress on Social Studies with Recent Researches / (ed.)Ömer Bozkurt, Hatem Fahd Hno, Asad Layek, Recent Academic Studies, Törökország, 39-50, 2022. ISBN: 9786057403476

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List of other publications

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6. Molnár, E., **Saidi, F. A.**, Lénárt, V. M.: Kisvárosi gazdaságok funkcionális településföldrajzi megközelítésben.
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Foreign language scientific articles in international journals (1)

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8. Benhizia, R., **Saidi, F. A.**, Aib, H., Ata, B.: Spatiotemporal Dynamics of Drought Conditions in Constantine, Algeria (2002-2022): Insights from MODIS-Derived Indices.
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9. **Saidi, F. A.**, Benhizia, R.: Enhancing public spaces to improve the quality of life in communal residential neighborhoods.
   In: Book of Proceeding 2nd International Sustainable Development Congress. Ed.: Asad Layek, Asad Layek, Antalya, 434-462, 2021. ISBN: 9786057403445

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