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FOREWORD

The International Journal on Optimization and Applications (IJOA) is an open access, double blind peer-reviewed online journal aiming at publishing high-quality research in all areas of : Applied mathematics, Engineering science, Artificial intelligence, Numerical Methods, Embedded Systems, Electric, Electronic engineering, Telecommunication Engineering... the IJOA begins its publication from 2021. This journal is enriched by very important special manuscripts that deal with problems using the latest methods of optimization. It aims to develop new ideas and collaborations, to be aware of the latest search trends in the optimization techniques and their applications in the various fields..

Finally, I would like to thank all participants who have contributed to the achievement of this journal and in particular the authors who have greatly enriched it with their performing articles.

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A comparative analysis of islamic and developed equity markets

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Abstract:

This paper aims to comprehensively compare the risk-return profiles of Islamic and conventional equity markets, providing valuable insights into the financial performance of stock market indices in Islamic countries as compared to those in developed nations. The objective is to delve into the intricate dynamics of these markets, shedding light on how they respond to various economic and financial factors. By focusing on the performance metrics of stock market indices in both Islamic and developed countries, this study intends to analyze not only the overall returns generated but also the associated risks involved. In doing so, it seeks to unearth the nuances in investment opportunities, uncovering potential patterns of divergence or convergence between these two market segments. Furthermore, this research endeavors to discern how different economic and regulatory environments impact these markets, contributing to a more profound understanding of global investment.

Keywords: Islamic equity markets, Risk-return analysis, Capital Asset Pricing Model, Markowitz's algorithm, Ethical investment

I. INTRODUCTION

The intersection of finance and faith has long been the subject of academic research and market speculation. In the investment realm, one area that has received considerable attention is the performance of Islamic equities compared to their conventional counterparts. The dynamics of Islamic finance, guided by Sharia principles that prohibit certain financial activities and promote ethical investment, have created a unique landscape for investors and researchers alike.

Over the years, numerous studies have attempted to unravel the complex relationship between Islamic and conventional equities, seeking to answer a fundamental question: Do Islamic stocks outperform their conventional counterparts, or do they operate in a similar performance realm? This paper seeks to contribute to this ongoing debate by conducting a rigorous analysis of the performance of Islamic and conventional equities in various global markets.

The literature on this subject reveals a complex mixture of findings. Some studies suggest that Islamic stocks have superior performance metrics, while others argue that there is no significant difference in returns between these two categories of stocks. Moreover, the comparative analysis spans different time periods, market conditions and methodologies, resulting in a rich tapestry of evidence that invites further exploration.

This paper aims to compare the markets of Islamic countries and the markets of developed countries, we employ various methods, including the estimation of betas of the capital asset pricing model (CAPM), the calculation of synthetic indices, and the construction of efficient borders using Markowitz's algorithm. Our analysis provides valuable insights for investors interested in the equity markets of Islamic countries and helps them make informed investment decisions.

Our findings suggest that Islamic stocks offer attractive investment opportunities for investors who seek to align their financial activities with their religious and ethical beliefs. However, investors should also be aware of the risks and challenges associated with investing in the equity markets of Islamic countries and should conduct thorough due diligence before making investment decisions.

The rest of the paper is organized as follows, we provide a literature review of the key differences between Islamic and conventional equities, the performance of Islamic and conventional equities, and the diverse findings in the literature on this topic. Then we describe our methodology, including data sources and sample selection, the estimation of betas of the capital asset pricing model (CAPM), the calculation of synthetic indices, and the construction of efficient borders using Markowitz's algorithm. Next, we present our results and analysis. Finally, we summarize our study, highlight our contributions and implications, and provide some future work directions.

II. REVUE DE LITERATURE

The literature review presents diverse findings when comparing the performance of Islamic and conventional stocks. Various studies have focused on analyzing risk-return relationships and stock performance in different markets using different methodologies. Some studies indicate that Islamic stocks outperform conventional stocks. For example, (Hakim & Rashidian, 2004) found that the Dow Jones Islamic Market Index (DJIM) achieves a satisfactory level of performance when compared to the Dow Jones Global Index (DJ Global) and shows lower performance levels in comparison to the Dow Jones Sustainability World Index (DJSI World).While (Jabeen & Kausar, 2022) compare the performance of Islamic and conventional stocks on the Pakistan Stock Exchange, using parametric and non-parametric approaches., and find that the Islamic index (KMI-30) outperforms the conventional index (KSE-30) in terms of returns, excess returns per risk unit, and stochastic dominance. Also (Al-Khazali et al., 2014) Found that Islamic indexes outperform their conventional peers during global financial crisis. While(Asutay et al., 2022) compare Islamic and conventional stock indices, showing Islamic indices' superior performance in the 2007-2009 crisis, the 2013-2017 post-crisis period, and mixed results in the 2009-2013 period, particularly excelling in European and Asia-Pacific markets. Furthermore, in the context of the COVID-19 pandemic, multiple studies have highlighted the resilience of Shariah-compliant investments.(Shear & Ashraf, 2022) observed that the prices of stocks that adhere to Shariah principles responded to the rise in confirmed Coronavirus cases and government-enforced social distancing measures with less severe negative impacts on their returns compared to stocks that do not follow Shariah principles. In general, their results suggest that Shariah compliant stocks performed more favorably throughout the Covid-19 crisis period.

Similarly,(Adekoya et al., 2022) found that Islamic markets exhibit a greater resilience to the pandemic compared to conventional markets. (Nomran & Haron, 2021) revealing that while both were negatively impacted by COVID-19, Islamic indices showed comparatively better performance with earlier positive returns by mid-April 2020.Building on the evidence of greater efficiency in Islamic financial markets, (Ali et al., 2018) employ MF-DFA to compare efficiency between Islamic and conventional stock markets, revealing that, except for a few, Islamic markets tend to be more efficient due to their distinctive characteristics, such as Sharia compliance, strong governance, and disclosure mechanisms. Furthermore,(Alam et al., 2016) conducts a pioneering 18-year analysis of 10 global sectoral indices in both conventional and Islamic contexts using multifractal de-trended fluctuation analysis. The study shows higher efficiency in Islamic sectoral indices over the last decade, aligning with the weak form efficient market hypothesis. Moreover , (Ben Rejeb & Arfaoui, 2019) use a state space model with GARCH(1,1) and structural breakpoints to find that Islamic stock indexes are more informationally efficient than conventional ones.

However, other studies suggest that here is no significant variation between non-Islamic and Islamic indexes. (Albaity & Mudor, 2012) examines Islamic and non-Islamic indices during different periods, finding no significant return differences and that index performance doesn't surpass conventional indices, but it may offer peace of mind to certain investors. Similarly,(Girard & Hassan, 2008) compare Islamic and non-Islamic indexes from 1999 to 2006, finding no significant performance differences. They attribute variations to style differences and conclude that both types of indexes offer similar risk and diversification benefits.

Another study by (Munusamy & Natarajan, 2011) analyzed Nifty Shariah and Nifty index in India from 2007 to 2010, finding no significant performance difference, both underperforming in terms of risk-adjusted returns. They also note lower volatility in Nifty Shariah, concluding that both indices perform similarly. Furthermore, (Touiti & Henchiri, 2016) evaluate Islamic and conventional indices during the subprime crisis. Both exhibited lower returns and higher volatility, except four Islamic indices that demonstrated resilience and continued outperformance even in calmer times. In addition,(El Amri & Hamza, 2017) examine Islamic against Conventional index performance from 2003 to 2011, across different periods. They find that faith-based screens have an insignificant impact on investment performance. Also the study by (Guyot, 2011) concluded that Shariah criteria don't compromise efficient investment allocation.(Aarif et al., 2020) and (Trabelsi et al., 2020) also supported these findings, suggesting that there is little to no significant variation in the return performance of Islamic and conventional stocks across both emerging and developed stock markets. While (Rana & Akhter, 2015) showed that the KMI-30 performs more poorly than the KSE-100 in terms of risk due to higher monitoring costs and smaller investment magnitudes associated with Islamic stocks. However, (Abu-Alkheil et al., 2020) took a different analytical approach, employing CAPM-GARCH analysis to compare Islamic and conventional stock indexes (DJ Global, MSCI, FTSE, S&P, and JII) using CAPM-GARCH analysis. Their findings show that Islamic stock indexes are less responsive to market changes than similar-risk conventional stock indexes, resulting in underperformance.

In the landscape of portfolio comparisons, various studies have contributed valuable insights. Starting with a different perspective, (González et al., 2019) found that Islamic sector portfolios consistently outperformed conventional sector portfolios across all performance metrics. Similarly, (Hoque et al., 2020) conducted a performance analysis of Islamic and conventional stock portfolios in Malaysia, revealing that Islamic stock portfolios delivered higher returns while carrying lower systematic risk, as indicated by CAPM statistics. Turning to efficiency and volatility, (Ben Rejeb & Arfaoui, 2019) discovered that Islamic stock indexes exhibited greater efficiency and volatility compared to conventional indexes. In contrast, (Hendranastiti & Asutay, 2016) reported that, when comparing conventional and Islamic portfolios, Sharīah portfolios carried higher levels of risk than their conventional counterparts. In conclusion, the literature presents different conclusions regarding the performance comparison of conventional and Islamic stocks. Some studies suggest that Islamic stocks outperform, while others find no significant difference or even indicate the outperformance of

conventional stocks. These findings vary across different markets, time periods, and methodologies employed. Further research is needed to comprehensively investigate the performance of conventional and Islamic stocks, considering both returns and risk.

III. THEORETICAL REFERENTIAL

A. Theorical capital asset pricing model - CAPM

The Capital Asset Pricing Model (CAPM), developed by Sharpe (1964), Linter (1965) and Mossin (1966), is generally accepted as the symbol of the beginning of the theory of arbitrage theory. The CAPM is still used extensively.

The CAPM is expressed as follows:

$$R_{it} = \varphi_i + \beta_i \, MSCW_t + \varepsilon_{it} \quad (1)$$

With:

R_{it}: return of index i for the period t,
φ_i, β_i: model coefficients,
ε_{it}: specification error.
$\mathbf{MSCW_t}$: return of MSCI world index for the period t.

$$\beta_i = COV(i, MSWt)/Var(MSCW) \quad (2)$$

B. Construction of two synthetic indices

This method consists of the calculation of two synthetic indices (weighted average), one index concerns the indexes of developed countries and the other index concerns an index of Islamic countries.

$$Synthetic\ index_j = \sum_i^n indices_i \quad (3)$$

For the comparison of the two synthetic indices, we will normalize the two indices in the form of bell curves.

C. Efficient Frontier (Markowitz Algorithm)

The Efficient Frontier is an asset selection model developed by Harry Markowitz in 1952 as part of what he calls modern portfolio theory(Markowitz, 1952). The model principle is as follows; or $\mathbf{R_p}$. the return of the portfolio consisting of assets characterized by their respective returns $\mathbf{R_1}, \mathbf{R_2}, \ldots, \mathbf{R_n}$. It is further assumed that each asset i enters a $\mathbf{X_i}$ proportion in the composition of the P portfolio.

In other words:

$$\mathbf{R_P} = \sum_{i=1}^{n} \mathbf{X_i R_i} \quad (4)$$

And:

$$\begin{cases} \mathbf{E(R_P)} = \mathbf{E}\left(\sum_{i=1}^{n} \mathbf{X_i R_i}\right) = \sum_{i=1}^{n} \mathbf{X_i}\, \mathbf{E(R_i)} & (5) \\ \mathbf{V(R_P)} = \sum_{j=1}^{n}\sum_{i=1}^{n} \mathbf{X_j X_i Cov}\,(\mathbf{X_i}, \mathbf{X_j}) & (6) \end{cases}$$

Selecting a portfolio is like choosing one such as:

E(Rp) be maximum and V(Rp) is minimal under the constraint $\sum_{i=1}^{n} \mathbf{X_i} = 1$.

It is therefore a problem of maximizing an economic function under duress, to build the key border, it would have to iterate optimization for different yields and put on a graph, having to abscess the yields and to order the variances of portfolios, the different points obtained from the process of quadratic optimization.

IV. METHODOLOGY

For the comparison of the markets of Islamic countries and the markets of developed countries, four methods are taken into account, first we will estimate the betas of the capital asset pricing model (CAPM) of the two categories of the markets studied, then we will compare the estimated betas of the two types of markets, then we will estimate the variance of CAPM for the two groups.

The third method consists of the calculation of two synthetic indices (weighted average), one index concerns the indexes of developed countries and the other index concerns an index of Islamic countries, for the comparison of the two synthetic indices the two indices will be normalized in the form of bell curves.

The fourth method is to construct the two efficient borders of the two categories using Markowitz's algorithm and juxtapose the two efficient borders, that of the Islamic group and that of the group of developed countries for a possible comparison.

V. RESULTS AND DISCUSSION

The performance data for the various stock indexes in our sample is taken from Yahoo Finance's database. The data used are monthly frequencies ranging from January 2009 to March 2019. Our database consists of the Morgan Stanley -Co Index (MSCI WORLD) and two groups:

- The group of stock indexes of developed countries that are Italy, Singapore, Spain, Canada, Japan, the Netherlands, Denmark, Hong Kong, the United Kingdom and Australia.
- The group of stock indexes of Islamic countries that are Saudi Arabia, Kuwait, Pakistan, Indonesia, Turkey, the United Arab Emirates, Bahrain, Qatar and Oman.

Figure 1 presents the Comparison of CAPM betas of the indices of developed and Islamic countries. We find that the betas of developed countries are for the most part higher and higher in the indexes of the Islamic countries except for the index of Turkey and the United Arab Emirates. We note that the markets of the developed countries are more aggressive than the markets of Islamic countries since their betas are approaching unit and, in several markets, greater than 1 (Italy, Spain, Honkong and the United Kingdom). Similarly, it is not

very clear that the stock markets of Islamic countries are more defensive compared to the global market (MSCI) since all their betas are less than the unit.
The beta analysis leads us to conclude that the markets of developed countries are more dynamic than the markets of Islamic countries, this is mainly due to the fact that investors have more confidence in the stock markets of developed countries and they are more reluctant to invest in the markets of Islamic countries.

Figure 1: Comparison of Betas of Islamic and developed countries

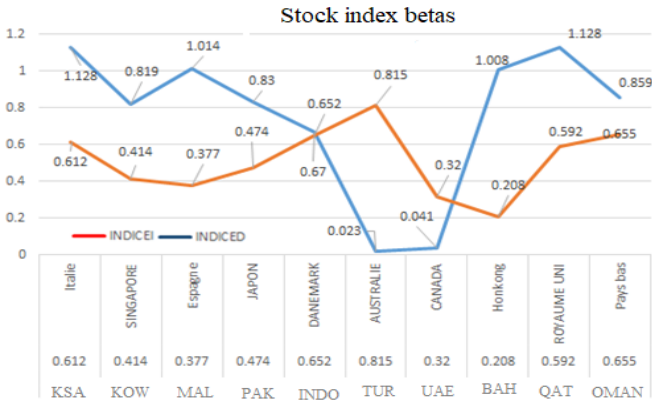


Figure 2 shows the risk profile of Islamic countries' indices (markets). We find that the stock markets of Islamic countries are characterized by the importance of their specific diversifiable risk. This importance of specific risk in the markets of Islamic countries can be explained by various factors such as the organization of these markets, the specifics of their political, economic and financial environment and the significant volatility and liquidity in these markets.

Figure 2: Risk profile of Islamic countries

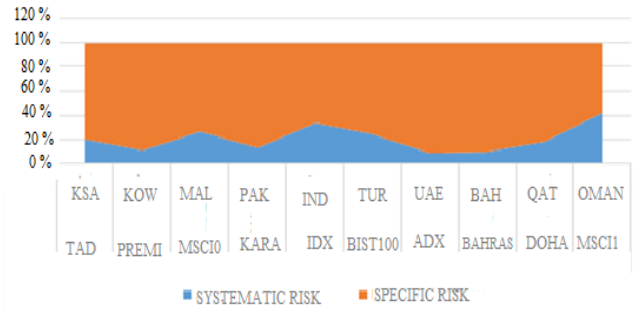


Figure 3 shows the risk profile of indexes (markets) of developed countries. We find that the stock markets of developed countries are characterized by the importance of their non-diversifiable systematic risk except for two glasses that are Canada and Australia. This importance of systemic risk in developed country markets can be explained primarily by the strong integration of these markets into the global market.

Figure 3: Risk profile of developed countries

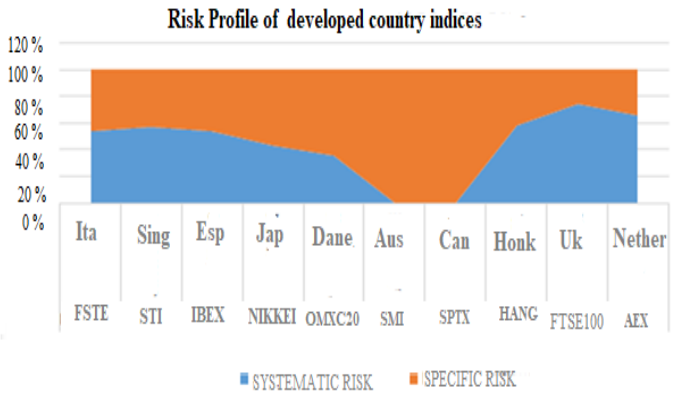
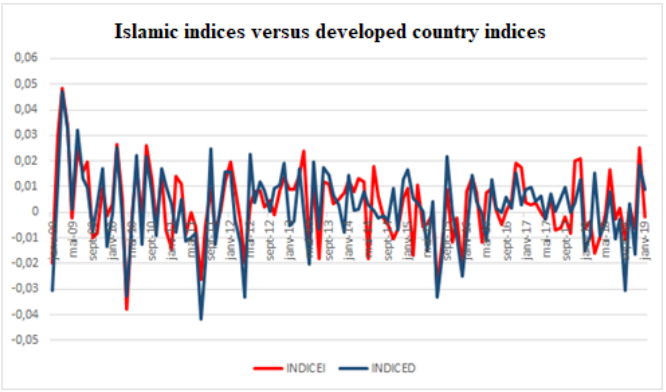


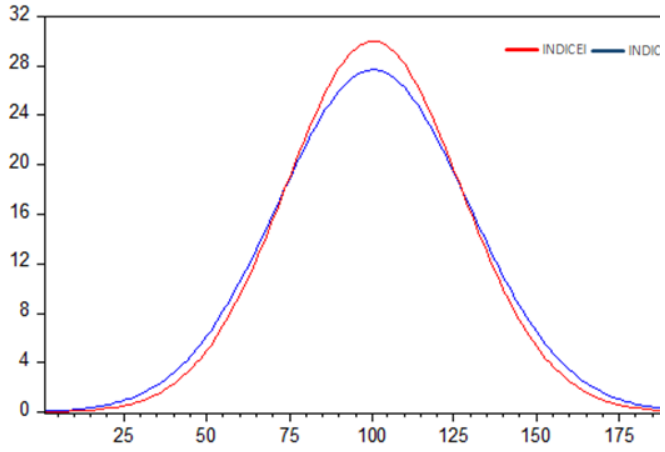
Figure 4 presents the development of two synthetic indices that represent the stock markets of developed countries and the stock markets of Islamic countries. The development of these two synthetic indices was done in a calculation of an arithmetic average of the different indices forming each group. We find that both indices are characterized by apparent volatility, as can be seen a fairly obvious correlation between the two indices during the beginning of the period of our sample. For a more obvious comparison of the two indices, the two indices were normalized by a Gaussian**.**

Figure 4: Synthetic indices of developed countries versus Islamic countries



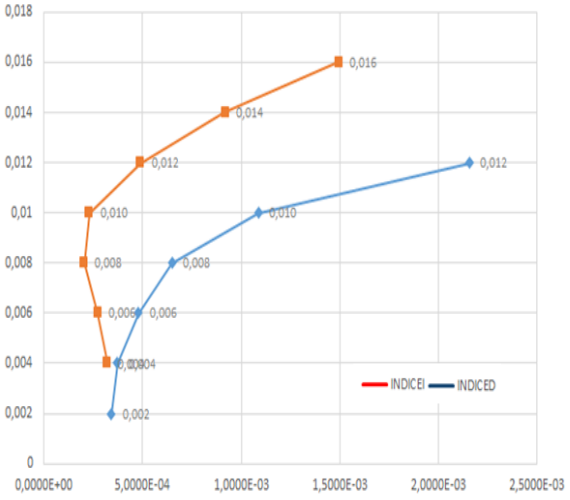
The normalization of both series gives the following two normal curves. It is clear from Figure 5 that the Islamic stock index gives a greater expectation and a lesser variance than the stock index of developed countries.

Figure 5: Normalization of and developed indices countries



The second model to be used is the Markowitz model, which consists of the non-linear optimization of the quadratic form of the transposed weight vector multiplied by the variances/covariances matrix multiplied by the weights, under constraints a given yield vector, with the condition of the sum of weights equal to the unit. The algorithm for both samples gives the boundaries as shown in Figure 6.

Figure 6: Efficient frontiers of Islamic countries versus developed countries



It is clear from Figure 6 that the frontier of Islamic stock indices dominates that of the stock indexes of developed countries, which shows that Islamic financial markets have a much higher return and a much lower risk, in other words, it can be said that Islamic financial markets perform better than the financial markets of developed countries.

CONCLUSION

In conclusion, this paper provides a comprehensive analysis of the performance of Islamic and developed equity markets. The literature review presents diverse findings when comparing the performance of Islamic and conventional stocks. While some studies suggest that Islamic stocks outperform, others find no significant difference or even indicate the outperformance of conventional stocks.

The comparison of the markets of Islamic countries and the markets of developed countries is done using four methods, including the estimation of betas of the capital asset pricing model (CAPM), the calculation of two synthetic indices, and the construction of two efficient borders using Markowitz's algorithm.

The paper highlights the advantages and risks of investing in the equity markets of Islamic countries and discusses the main investment barriers in these markets. Further research is needed to comprehensively investigate the performance of conventional and Islamic stocks, considering both returns and risk. Overall, this paper provides valuable insights for investors interested in the equity markets of Islamic countries and helps them make informed investment decisions.

The future study will introduce the deep learning models in terms of comparing the risk/return between investing in stock market indices in Islamic countries and those in developed countries.

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Promoting immaterial heritage through content marketing focused on the tourist destination's sustainability

Case study: Essaouira Gnaoua Festival-Morocco

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Abstract:

A crossroads of cultures and civilizations for over a million years, "Morocco is endowed with a cultural heritage of extraordinary richness and variety, reflecting the plurality and diversity of the contributions that have, over the millennia, forged and built what today constitutes the hallmark of Moroccan culture" [1]. This cultural heritage is a driving force behind sustainable development.

In this new era of change and evolution, where the tourism sector has become a veritable growth industry, Morocco has created an attractive and well-thought-out tourism offering. With this in mind, players in the tourism sector have focused their development and research on the protection of intangible heritage. This strategy has been supported by the government in such a way as to initiate and promote fruitful actions "for a general mobilization, aiming at the implementation of the principles of the International Convention on Cultural Diversity"[2]. Content marketing combined with sustainability is one of the strategies implemented to communicate on cultural destinations such as Essaouira through its Gnaoua festival, which promotes the Gnaoua culture, an extraordinary cultural heritage available in Morocco. How do Moroccans perceive this promotional approach, and what factors influence their decision to visit?

I. INTRODUCTION

As in many countries around the world, tourism is seen in Morocco as a genuine lever for economic growth. It is a vector for development on several levels, notably social and territorial. As a result, the tourism sector has always been seen as a major consumer of local and rural products. As a result, tourist areas have seen a proliferation of activities thanks to policies to protect heritage, especially intangible heritage. According to UNESCO, this question of intangible cultural heritage concerns in particular "oral expressions, which include language, traditions and customs; social practices, which concern the performing arts, festivities, and rituals; knowledge and know-how relating to the universe and nature, and traditional craftsmanship" (Bortolotto, 2011).

In addition, several studies show that cultural tourism, which includes heritage-related activities, is a significant part of what inspires touristonauts (Cybertourists). To this end, the use of content marketing techniques is essential to attract Moroccan cultural heritage enthusiasts, so as to make eco-responsible practices a priority choice. In a highly globalized world with a globalized tourism industry, tourism product providers are increasingly aiming for an approach centered on the consumer experience. To achieve this, they rely on a specific marketing strategy: experiential content marketing. Consumers, for their part, are now looking for

[1] Direction du patrimoine culturel (2019), Inventaire du patrimoine culturel marocain, Récupéré le 04/07/2023 du site : https://mjcc.gov.ma/wp-content/uploads/2022/02/catalogue-exposition-100-invntaire-au-maroc-.pdf

[2] CRT. Définition du patrimoine immatériel, Projet de thèse de M Adil Boulghalat, Récupéré le 04/07/2023 du site : https://portailsudmaroc.com/articlesmenu/290610-102758-7-3-22-2-2-definition-patrimoine-immateriel.pdf

experiences that include activities linked to regional or local intangible heritage, in addition to the quality of the welcome and the information provided in advance. The world has undergone profound transformations at every level. We note that today, under the influence of technological innovations, there has been a considerable change in society, and more specifically in consumer behaviors and characteristics (Wenqi Zhou, 2019). Customers have become more sociable, more connected, and more mobile (Kotler et al., 2016). As a result, the sharing of consumer experiences and purchasing decisions is conditioned by the opinions and views circulating on the internet, particularly on social networks. These are the elements that guide us and enable us to take action.

Morocco is a popular destination for tourists in search of cultural discoveries. Faced with the evolution and complexity of consumer behavior, the Moroccan tourism sector needs to adapt to an environment that is more volatile and influenced by new technologies.

Our paper proposes a study of the reasons behind the shift towards the valorization of intangible heritage, and its consideration as one of the factors likely to play a role in the development of tourism in Morocco. protecting cultural identity through content marketing. The aim of this research is to assess the role of content marketing, combined with the notion of sustainability, in promoting intangible heritage in Morocco. We propose the example of Gnawa culture. Today, Gnawa culture is part of many aspects of Moroccan cultural identity, and in 2019 will be included on the Representative List of the Intangible Cultural Heritage of Humanity. This study raises a number of questions:

- How does intangible heritage leverage content marketing to claim a sustainable and authentic positioning?
- How do Moroccans perceive the content strategy used by tourism players to promote Gnawa culture in Morocco?
- To what extent can we consider content marketing as an opportunity to promote Gnawa music in a sustainable way?

The aim is to gain a better understanding of the factors influencing the decision to attend the Gnawa festival. This will give us an idea of the Moroccan tourist's appreciation of the content strategy used by public and private tourism players to enhance and promote Gnawa culture in Morocco.

II. CONCEPTS AND THEORETICAL CONTRIBUTIONS

1. Conceptual Study of Intangible Heritage and Cultural Tourism in a sustainable framework

- *Cultural Tourism*

Tourism can be defined as "the act of traveling, of visiting a site for pleasure" (LAROUSSE, 1999, p. 1020). Furthermore, "Tourism is the set of relationships and phenomena resulting from the travel of people for whom the place of stay is neither their principal and lasting residence nor their usual place of work"[3].

By the 1930s, this phenomenon was no longer systematically linked to culture, and other forms of tourism began to appear. Today, there are various forms of tourism, such as seaside and niche tourism... etc. "The 20th century saw cultural tourism open up to a wider audience. In the 1930s, cultural tourism also underwent an evolution. It diversified in terms of destinations, themes, and target audiences. Today, cultural tourism encompasses various types of tourism: religious, historical, artistic, gastronomic, linguistic, artisanal..."[4] .

Culture is the dominant concept in cultural tourism. Before explaining the notion of cultural tourism, it seems necessary to attempt to define culture. The Larousse dictionary defines culture as "the set of material and ideological phenomena that characterize an ethnic group or nation, a civilization as opposed to another group or nation".

The United Nations Educational, Scientific and Cultural Organization (UNESCO), at its 1982 Mexico City World Conference on Cultural Policies, gave a slightly more precise definition of culture: "The set of distinctive features, spiritual and material, intellectual and emotional, which characterize a society or social group. In addition to the arts and letters, it encompasses lifestyles, fundamental human rights, value systems, traditions and beliefs".

We can therefore describe culture as a set of productions, social practices, and activities of a society or social group. Tourism is a powerful vector

[3] TESSA Ahmed, (1999) la zone d'expansion touristique outil d'aménagement du territoire et méthode d'analyse spatiale, thèse de magister,

[4] TREBEN Margot, « La promotion d'un territoire par la valorisation de son patrimoine culturel

for promoting culture and generating income, contributing to the preservation and development of cultural heritage, cultural production, and creativity. As such, a cultural tourist is someone who travels to satisfy cultural needs. The main reason for their trip is cultural discovery. A cultural tourist generally belongs to a well-educated group of visitors, similar to visitors to most museums, monuments, and historical landmarks. Among those who indulge in cultural tourism include people with a good financial situation and intellectual professions.

- *Intangible cultural heritage*

Heritage is a collection of tangible or intangible assets, one of whose characteristics is to establish a link between past and future generations. It is therefore linked to a legacy to be passed on, stemming from the history, more or less ancient, of the territory or group in question. Heritage, in the sense used here, necessarily has a collective dimension, and its conservation is in the public interest"[5].

Heritage is the instrument of this to-and-fro between past, present, and future, as well as the receptacle of memories, it materializes the symbolic value of cultural identities and constitutes a structuring landmark for all those legacies and riches that still persist. In these times of increasing globalization, protecting, conserving, interpreting, and presenting the heritage and diversity of each place or region is an important issue for everyone, everywhere.

This heritage is made up of tangible assets that are inseparable from our material heritage. Although we sometimes discuss heritage in general, this article focuses on the notion of intangible cultural heritage.

Heritage is also an important factor in enabling individuals to demonstrate their differences from other societies, their way of thinking about the world, and their ability to create culture. Every nation's culture is an original creation that manifests itself in all aspects of life.

The new orientation of development was then to privilege an introspective perspective and to treat development as a process that must be initiated and maintained in the region, taking into account of course its natural resources and human potential.

Intangible heritage plays an increasingly important role in UNESCO's overall planning. Its aim is to make nations aware of the need to protect their cultural diversity and to help them develop projects to protect, preserve, and develop this heritage.

As defined by UNESCO in its 2003 Seoul Convention, "intangible cultural heritage" refers to "the practices, representations and expressions, knowledge and skills that communities and groups, and in some cases, individuals, recognized as an integral part of their cultural heritage. This intangible cultural heritage, transmitted from generation to generation, is constantly recreated by communities and groups according to their environment, their interaction with nature, and their history, and provides them with a sense of identity and continuity, thus helping to promote respect for cultural diversity and human creativity."[6]

Festivals are original creations, each different from the next in terms of size, venue, and program. But they're all driven by a spirit of celebration and conviviality, which encourages the emergence of new audiences who are sometimes put off by the formalities of winter seasons. Teams are made up of both professionals and volunteers. There is no single festival model. According to another definition by Luc Benito, "A festival is a unique form of celebration, a public celebration of an artistic genre in a reduced time-space at annual intervals". It's difficult to give an absolute definition of what a festival is. The constant evolution of festivals makes this a complex test.

There are many spiritual heritage festivals in Morocco, such as the Fès Sacred Music Festival, the Gnaoua Festival and the Tanjazz Festival...etc.

In terms of tourism, events such as festivals attract a large number of visitors, both regular and occasional, and liven up the life of a town or region. They place the region at the center of attention at a given moment. What's more, a region's tourist appeal has a decisive influence on the image and reputation of the city hosting a successful festival and also attracts the interest of businesses and other investors. What's more, this dynamism and added value help to retain local residents, prevent desertification, and attract new ones.

Intangible cultural heritage in a sustainable context

The tourism and leisure industry are the world's leading industry in terms of sales. This sector therefore has every interest in preserving its "goodwill": the natural environment, landscapes,

[5] VERNIERES Michel, (2011) patrimoine et développement, Etude pluridisciplinaires, Édition Karthala, , p8

[6] BOUGEON-RENAULT Dominique, (2009) Marketing de l'Art et de la Culture, Dunod, Paris, , p 176.

and natural, historical, and cultural heritage through responsible, integrated, and shared management. Cultural heritage plays a central role in cultural tourism. Ecotourism is a form of sustainable tourism that aims to minimize impacts. It's a product that reconciles the economy and the environment with a view to sustainable development.

Each community has its own intangible cultural heritage, as well as its own ways of transmitting this heritage, knowledge and know-how. As a general rule, this transmission takes place orally rather than in writing, which means that the people capable of transmitting intangible cultural heritage are essential to its transmission. This is why the safeguarding of intangible cultural heritage must be carried out in collaboration with local populations, taking into account their expectations, their modes of transmission, the changes their culture has undergone, and so on. Without the involvement of locals in communities, safeguarding intangible cultural heritage is meaningless.

Cultural tourism is an asset for local areas, enabling them to develop economically, socially, and culturally. What's more, it makes up for the seasonal nature of tourism by offering cultural activities all year round. Heritage is an essential element of cultural tourism, and it is therefore essential to safeguard and enhance it, particularly with a view to developing a tourism offering. The promotion of heritage tourism is therefore often the driving force behind its preservation.

2. Content marketing and the promotion of cultural heritage

In marketing, brand image can be defined as the set of associations and impressions that consumers have about a brand (Keller, 1993; Aaker, 1991).

Content marketing plays a crucial role in promoting cultural heritage and shaping the brand image of a destination. Brand image refers to the overall perception and associations that consumers have with a particular brand. In the context of tourism, different types of brand images are recognized - organic image, induced image, and complex image. The organic image is inherent and natural, while the induced image is created through marketing efforts. The complex image, on the other hand, is formed by tourists after their travel experience**.**

Through content marketing, destinations can highlight their unique heritage and attract tourists who are interested in experiencing and learning about different cultures

In this sense, brand image is considered to be a decisive factor in the choice of destination (Baloglu and McCleary, 1999). Also, the choice upstream of the purchasing process is based on the ability to generate a positive image (Gartner, 1989) through relevant content.

- *The decision to consume a live show*

Three theoretical currents have influenced the analysis of live performance consumption behavior: economic theory, sociological theory, and marketing research into purchasing decisions and the consumption experience. In this context, we study the concept of decision-making in the consumption of a live performance.

Holbrook and Hirschman (1982) were the first authors to discuss the explanatory model of consumption behavior in the cultural domain. Whereas models of purchase decision-making took into account the cognitive processes involved by the purchaser, namely the search for and processing of information, the experience model considers a theoretical approach in which the decision-maker is not limited to a need for functional utility but needs a gratifying experience.

One of the foundations of this analysis lies in the opposition analyzed by Nelson (1970) between information products, whose characteristics can be accurately assessed before purchase, and experience products, whose characteristics can only be assessed when the good or service is used. While research into consumer behavior was mainly devoted to information products, Holbrook and Hirschman reminded us of the importance of experience products in general, and not just in the cultural sphere. This reminder is crucial because it makes it clear that cultural products can include an informational component, even if this is generally smaller than the experiential component.

This is to say that the consumer experience is an important factor in the decision to buy a live show.

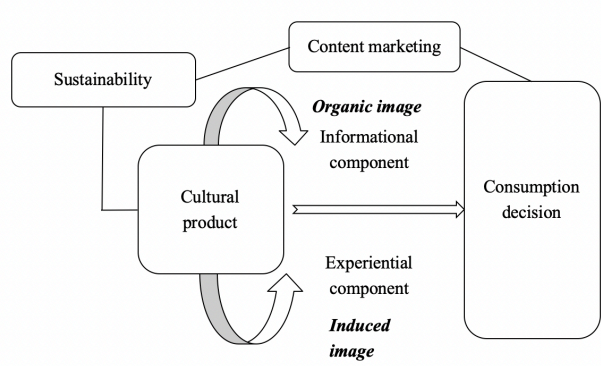


Figure a *Concept mapping*

III. METHOD

In our methodological approach, we opted in the first instance for a study of cultural heritage, the content marketing strategy, and the weight of the latter in the conservation of heritage and its promotion. Secondly, we have chosen to carry out a quantitative study, the aim of which is to evaluate and measure the variables influencing the relationship between a living festival (taking the example of the Gnaoua festival in Essaouira, which is part of the cultural heritage) and content marketing associated with sustainability. The aim is to explain better and understand the factors influencing the Moroccan tourist's choice and acceptance of the content strategy used by public and private tourism stakeholders to enhance and promote Gnawa culture in Morocco.

IV. RESULTS AND DISCUSSION -CASE OF THE ESSAOUIRA GNAOUA FESTIVAL (MOROCCO)

This section deals with the presentation of our research object: the Gnaoua festival, through an analysis of a few socio-economic indicators that will enable us to situate ourselves well and to better refer to ourselves.
The Gnaoua and World Music Festival is a Moroccan music festival created in 1997 to promote the Gnaoua style.

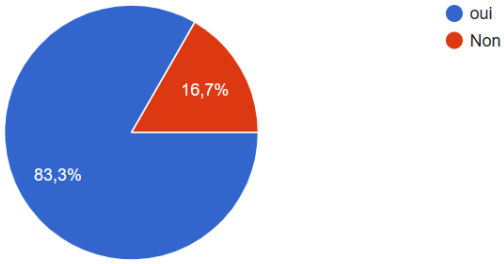
1. General assessment

According to the results we received, the Essaouira Gnaoua Festival stands out as one of the most visited in Morocco due to its originality and the identity of this festival.

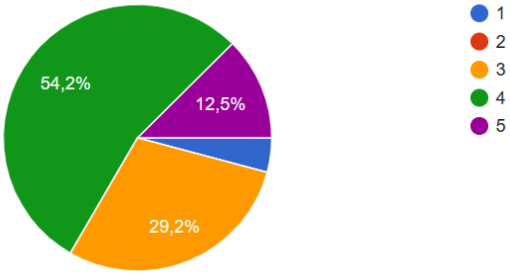
The responses we received defined the cultural and artistic aspect as the festival's distinguishing feature, in addition to the atmosphere devoted to the celebratory festivities. Promotion, communication on social networks, and testimonials also remain crucial in the decision to attend the festival.

65% of respondents said they wanted to return to Essaouira to attend the festival, promoting the city's cultural heritage.

2. Communication and promotion: key factors in the choice of cultural destination

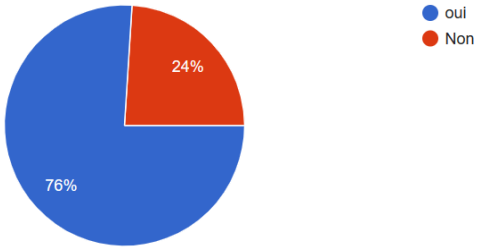


83,3% of respondents stated that they follow the communication campaigns of the Gnaoua festival through the official website and shares and testimonials on social networks. The majority of respondents preferred videos and photos as the type of content used to promote and communicate about the festival.

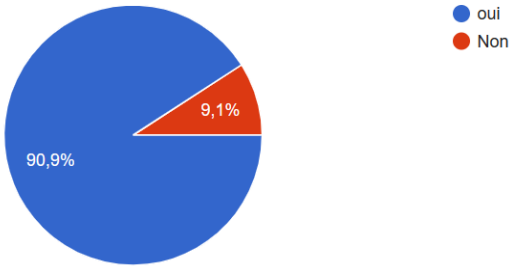


54,2% of respondents rated the promotion and communication of the festival as good on a **scale of 4**. This does not rule out the recommendation that much more effort be put into communicating the festival's activities and program. That said, promotion, communication on social networks, and testimonials also remain crucial in the decision to attend the festival.

3. Sustainability and content marketing of the festival's promotional material



76% of respondents were interested in a festival highlighting aspects of the intangible heritage of Essaouira city.



The majority of respondents confirmed the importance of content marketing and the sustainable aspect of the destination and products marketed in the promotion of festivals celebrating cultural heritage. The responses give the importance of internet content in marketing cultural heritage, an element of differentiation and decision-making. It partly affects their purchasing and recommendation behavior. Sustainable development is associated with cultural heritage, which is always conveyed through communication about the Gnaoua festival, highlighting the sustainable aspect, a specific feature of the destination, and an element of preservation of the city's intangible heritage.

IV. CONCLUSION

This study aims to highlight the importance of editorial content in promoting Morocco's intangible heritage. The main expected results are the actions taken in this direction and the identification of the impact perceived by Moroccan tourists on content marketing applied to the promotion and enhancement of Gnawa culture. This is without forgetting to integrate sustainability as an element of differentiation of this Moroccan cultural heritage.

At the end of this research, which responds to the problem of the contribution of intangible cultural heritage to the tourism promotion of a festival, we have attempted to highlight some aspects of the phenomenon of cultural tourism, which has experienced strong growth in recent years, particularly by interacting with its essential element, which is heritage. While at first, certain places remained anonymous to tourists, today, thanks to the promotion of their heritage, these places are becoming known and, of course, visited**.**

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A bibliometric analysis on the territorial governance of innovation: Scopus database (2018-2023)

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Abstract:

This article suggests a contribution to the literature on territorial governance through the study of a local partnership or collaborative mode of action to support innovation, an innovation policy. Our fundamental question can therefore be formulated as follows: How can territorial governance contribute to fostering the dynamics of innovation?

The methodology used for the theoretical analysis was descriptive, the research work was carried out on the Scopus platform database, obtaining specific information from 39 scientific productions, a more or less significant number for the subject addressed, which was subjected to a bibliometric study that allowed us to note that the growth in publications from 2018 to 2023 has had a significant increase, which allows us to deduce that this subject is becoming increasingly important and attractive to those concerned because of its importance in territorial development. In fact, we found that France leads the ranking with 6 scientific productions, and the scientific field that stands out most in the publications is that of management sciences and commerce.

In the same perspective, visualization via figures and sectors was mobilized in order to obtain the study cartography of the theme of the territorial governance of innovation. Based on the in-depth theoretical analysis, the theories relating to the paradigms of this theme were analyzed, which enabled us to better understand that collaborative actions at the level of territorial governance (regions, industrial districts, etc.) favour innovation. According to this bibliometric analysis, we find that appropriate governance based on collaboration and partnership improves the dynamics of innovation activities, whereas private hierarchical governance generates conflicts between participants, which has a negative impact on the dynamics of innovation.

Key words: Territorial governance, Innovation, territorial governance, local partnership and bibliometric study.

Introduction

Since the 1990s, in order to take note of the changes in local and regional action at its various levels, the concepts of governance, such as multi-level governance, urban, territorial or even metropolitan governance, have been commonly used. Speaking of governance rather than government refers to a change in the role of the state, which now intervenes in a less direct and hierarchical way and plays more of a regulatory role. The notion of territorial governance highlights the increased reference to territorial boundaries other than national, in this case regional and urban, in the exercise of political steering of collective action, as well as the increased capacity of cities to free themselves from the orientations and resources of the State. The literature on territorial governance is generally concerned to analyze contemporary forms of local public action without overestimating the weight of horizontal coordination logics (the agency of actors at local level) compared with vertical coordination logics (the structuring effect of state institutions and instruments).

The aim of this article is to contribute to the study of territorial governance and its role in improving and stimulating innovation, by providing a new theoretical perspective and a specific analysis grid via a bibliometric analysis. Our fundamental question can therefore be formulated as follows: **How can territorial governance contribute to fostering the dynamics of innovation?** Theoretically, the aim is to focus on local governance based on a collaborative and shared vision, and that of innovation and more particularly on a partnership type of intervention. According to modern literature, cooperative actions at governance level have a considerable effect on the dynamics of innovation activity at territorial level (regions, local authorities, entrepreneurial ecosystems, etc.). They aim to develop the comparative advantage of territories by forming local groups of players who are the bearers of innovations that can be exploited on the market. The various levels of government are called upon to pool their efforts around common, shared strategies for local competitiveness, and to encourage scientific and industrial players to step up their exchanges of knowledge and tacit know-how.

The article is divided into three sections. The first section focuses on the institutional approach to innovation. In this section, we will look at the regional and national innovation system on the one hand, and the territorial governance of innovation on the other. In the second section, we will present the research methodology and in the final section, we will analyze and discuss the results obtained.

I. The institutionalist approach to innovation

This is a theoretical approach to innovation based on institutions, highlighting the interactive nature of the innovation process. Contemporary institutionalists wanted to obtain a more accurate understanding of the phenomena associated with the networking of companies and the collaboration between the various institutional players in the creation of new knowledge. For institutionalists, there is no doubt that the production of innovations takes place within an interactive system constructed by all the players belonging to the institutional spheres (Therrien, 2005). Hall and Taylor (1997) divided institutionalism into three main strands: historical institutionalism, rational choice institutionalism and sociological institutionalism. It is sociological institutionalism, with organization theory and cognitivism as the basis of individual choice, which inspires analyses of innovation systems (Bruno, 2003).

The innovation system approach is part of evolutionary economics. Nelson and Winter's (2009) An Evolutionary Theory of Economic Change (1982) can be seen as the founding work of this school of thought. The aim of the evolutionary school is to explain the changes affecting companies and the mechanisms of innovation. Each company contains a set of rules called routines which determine its performance according to the type of activity and guide its technological trajectory. For the most part, these routines are specific to each company and relatively informal (tacit), and their evolution explains the trajectories followed by companies. The decisions taken by managers and the knowledge held by employees may be adapted to market developments or, on the contrary, may be inappropriate. With each new cycle of innovation, some companies disappear and others are created: there is a form of selection of routines by the market. The two principles of internal routines and market selection make it possible to consider the overall economic dynamic. Evolutionary economists also put forward the concept of path dependence, which expresses the idea that the performance and trajectories of firms are largely a function of their particular history and the routines they have accumulated. Thus, a choice made at time t (for example, the adoption of a certain technological standard) will condition the future development of a certain number of organizational routines and therefore the company's future strategic choices.

With the institutionalist approach, the study of technological innovations changes paradigm, moving from a linear approach to an interactive one in which institutions acquire predominant importance: it is then possible to speak of innovation systems (Therrien, 2005). In this logic, innovation is conceived as the result of a social process, involving the interaction of players belonging to various environments or institutions (universities, private or public research centers, financial institutions, companies, governments and the labor market).

The system is therefore gradually built up by the players themselves. The innovation process can be described as the successful construction of a system of interactions, referred to as an ecosystem. It is a system of players with multiple interactions that creates value for each of its members and for its environment (Assielou, N., and others, 2008). According to the authors, « the bearer of an innovative idea needs to establish positive relationships with providers of complementary skills, advisers, financiers and other players capable of helping him to develop, finalize and implement his idea, make it known, reach potential customers and convince them. Once the innovation is on the market, its resistance to competitors' counter-attacks will largely depend on the ecosystem that has been built up around it ».

One approach belonging to the institutionalist perspective is that of the «innovation system». Lundvall distinguishes between two different conceptions of innovation systems (Bengt-Åke, 2010):
- The narrow fundamentalist conception is limited to the fields of science, research, technology and in some cases education. The narrow conception takes as its object of study only the scientific system of technology, and explicitly considers the determinants and consequences of innovation to be outside its scope. The advantage of this restriction is a gain in precision in the analysis (detailed study of the institutional and organizational architecture of innovation systems).
- The broad conception of the innovation system extends to all the economic and institutional structures that affect the production system. In this case, there is a more or less extensive interpretation of the system, including culture, customs, national traditions, legislation, etc.

Innovation systems perform the following functions in the economic and social development of regions, and all these functions influence each other (Marko, 2007):
- The development of knowledge, the raw material for individual and collective innovation processes.
- The dissemination of knowledge through the market and networks of players.
- The ability to mobilize human and financial resources.
- Development of the relationship between the innovation process and the market (economic valorization of knowledge).
- Improving the ability of governance to provide overall direction.

The concept of innovation system is mainly used to study national innovation systems, but there are also special approaches to innovation systems (Nelson, 1993): regional innovation systems (Saxenian, 1996), which are the application of NIS to a smaller area, and sectoral innovation systems, which will be discussed in the following

1.1. The national innovation system

The term was introduced into the literature by the author Freeman (1989) at the end of the 1980s, when he published his study of innovation in Japan. Innovation was first and foremost a matter for companies, but companies did not innovate in a vacuum. They would interact with other companies, universities, government bodies, suppliers, customers and so on. It would therefore be all these players and their interactions that would constitute the national innovation system (CCST, 1998). This system would comprise three levels, i.e. three spheres of involvement, within which the players differ from one level to the next. There is the level of the innovative company, the level of the immediate environment (alliances, collaborations and networks) and finally the level of the global environment (framework conditions, OCDE, 1997), which, combined, form an innovation system taking root at the level of the Nation-State.

The national innovation system has been defined in several ways in the literature. However, the definition proposed by Lundvall himself is the best known. He defines the national innovation system as: « The elements and relationships that are mutually involved in the production, dissemination and use of new and economically useful knowledge [...] and that are located within a nation state » (Bengt-Ãke, 2010). A country's capacity for innovation depends to a large extent on the way in which players are linked together as part of a collective knowledge creation system. These actors are mainly private companies, universities and public research institutes and the people within them.

Links can take the form of joint research, staff exchanges, cross-patents, equipment purchases and a variety of other channels. There is no single accepted definition of a national innovation system (OECD, 1997). Following Bengt-Ãke's (2010) work on the national innovation system, a number of similar studies of the innovation process have been carried out since the 1990s, in disciplines as varied as geography, sociology and economics. New conceptual models derived from the NIS have gradually emerged in parallel to capture the interactive nature of innovation, but by adjusting the angle of analysis towards other levels of the economy. Thus the literature on the local innovation system, the theoretical equivalent of the NIS at the regional level, grew rapidly during the 1990s, encouraging a renewed focus on regional development (Malmberg and Maskell, 1997).

1.2. The regional innovation system

A regional innovation system is a set of players and resources that interact effectively to encourage innovation in the region. Such a system makes it possible, among other things, to optimise the transfer of skills and collaboration between the various players involved in regional development. The main innovation players in the region are (Prager, 2008):

- **Knowledge producers**: the « producers » of knowledge are the university laboratories, public research bodies and private R&D centers located in the region. To assess the dynamics of innovation, we need to look at:
  - ✓ The assessment made by the heads of the centers on the indicative size of the percentage of researchers maintaining close links with SMEs.
  - ✓ Links with foreign countries, as the international opening up of innovation systems is an asset and it is useful to encourage knowledge producers to have a policy of extra-regional influence.
  - ✓ The policy followed by the organization to develop its relations with SMEs, its methods, its quantitative targets if applicable, and the resources planned to achieve this.
  - ✓ The organization's international ranking according to the criterion of publication referenced by discipline.

- **Knowledge transfer and dissemination bodies**: The transfer and dissemination of knowledge is varied in nature and purpose; a distinction is made between technology transfer bodies in the strict sense (public or private technology transfer centers, incubators, science park management teams, etc.) and the information or consultancy bodies required for innovation (patent consultants, technology consultants, strategic consultants, technology watch, etc.). It should be emphasized that there is a distinction between transfer and dissemination depending on the maturity of the technology (and more generally the knowledge) involved: a research laboratory transfers technology, whereas a dissemination organization provides a company with access to and use of a proven technology.

- **Demand for innovation and knowledge**: the needs of businesses for innovation support and services are an essential basis for assessing the needs of the innovation system. It will be useful to carry out surveys on the needs of SMEs in the region and on the way in which these needs are met by the existing offer (in the region and outside) both by knowledge "producers" and by various knowledge transfer and consultancy organizations (technological consultancy, technical testing, consultancy on patents, design, organization, quality assurance, marketing services, business intelligence, etc.).

- **Financial organizations**: the ability to finance the creation and development of innovative businesses is one of the determining factors in a region's capacity for development and innovation. Financial intermediaries can play a major role, going beyond their direct role in arranging financing. They can act at different levels, as shown by the analysis of the innovation system in Silicon

Valley, a world benchmark in this field: exerting permanent pressure on researchers to encourage them to exploit their discoveries, supporting business creators in setting up their projects and managing their companies. A varied and dynamic network of financial intermediaries, in strong competition with each other, appears to be one of the determining factors in a region's capacity for development and innovation.

Public support measures are certainly a way of lowering the requirements of capital providers, but it is essential to increase the number of local intermediaries at the same time to reduce information asymmetries between funders and project sponsors. A list of venture capital and innovation financing organizations, an inventory of the human resources they have at their disposal, and a count of their operations, both in terms of volume and the number of companies involved, is a minimum requirement for formulating a comparative assessment of the scale of the existing fabric. The diagnosis will benefit from being enriched by additional studies on actual access to equity financing for innovators; this will require additional surveys of the companies concerned, particularly those that have failed in their start-up and development projects.

In the light of the literature on the regional innovation system, we have attempted to draw up a diagram which:
- Identifies the main innovation players in the system
- Explains the links and nature of the flows between the players
- Explains how innovation works, and the major elements in the system's dynamics.

Each region has its own particular strengths, which need to be focused on as a priority in order to build a strong economic identity, which is necessary in the face of international competition, and to avoid dispersing resources at the cost of fruitless public action. Regional authorities therefore need to prioritize the actions to be taken, focusing on the region's strengths and major weaknesses. Regional leaders are faced with the challenge of mobilizing their resources to ensure the region's economic prosperity and to ensure that its assets are recognized as scarce resources in global competition (Prager, 2008).

Regional differentiation strategies benefit from being based on clusters of activity and on the region's key scientific or technological skills. The aim is to focus on the clusters or scientific niches that will generate the most business for the region in the long term, and to give these clusters and niches the resources they need to develop effectively in the international context (Prager, 2008). The SRI-SI (Research and Innovation Strategies for Intelligent Specialization) is a process of discovery that should lead the region to economic transformation. This involves meeting 4 conditions (Godin, 2013):

- Making (difficult) choices: selecting a limited number of regional priorities to specialize in a context of globalization.
- Identify the region's comparative/competitive advantages (strengths/weaknesses): mobilize R&D potential (infrastructure, skills) and industrial potential to match market needs and capacities; cooperate with other regions.

- Seeking critical mass: developing links between existing sectors in the region to enable diversification into specialist areas; building on activities anchored in the region to move towards others with higher added value;

- Promoting partnerships: organizing innovation systems with partners from the "quadruple helix": universities and research centers, businesses, the public sector and civil society. Given the heterogeneity of these players, the question arises as to the proper governance of collaborative innovation projects.

1.3. Territorial governance of innovation

The issue of territorial governance is first and foremost linked to that of local development and is situated in the historical context of the growing involvement of local players (private, public, voluntary) in development processes and in their ability to mobilize and take charge of their own affairs (Leloup, 2005). According to Michael Enright, the structure of governance refers to the nature of relations in terms of the distribution of power (Enright, 2000).

Territorial governance is based both on the network and on flows; a network being a configuration of connections between the various players with flows circulating within the network. These flows are information induced by a common strategy due to the existence of an institutional proximity and finally of a clear spatial delimitation, constituted by the exercise of a geographical proximity. What will establish the dimensions of the network based on geographical proximity and institutional proximity are two processes: on the one hand, the identification of a shared problem and the search for a solution through cooperative coordination, and on the other, a process of transforming hidden or even virtual resources into specific assets (Leloup, 2005).

Territorial governance can be defined as a dynamic process of coordination (hierarchy, conflict, consultation) between players with multiple identities and asymmetrical resources in the broadest sense (powers, relationships, knowledge, status, financial capital) around territorial issues aimed at the collective construction of an objective, by implementing multiple mechanisms (arrangement of procedures, measures, knowledge, know-how and diversified information) based on collective learning and participating in institutional and organizational innovations within territories (Rey-Valette, 2010).

For Mendez and Mercier (2006), local or territorial governance is defined as « a process of confrontation and adjustment of both systems of representation and the actions of groups of actors who are geographically close but who may come from different organizational and institutional fields, with a view to implementing a local development project ». Territorial governance is a real challenge for the development of public policies. Good public governance of innovation is the ability of regional leaders to correctly characterize the major challenges to the region's competitiveness and to define the priorities for action that are best suited to making the most of their resources (Prager, 2008).

Public action must reconcile two imperatives (Mendez and Mercier, 2006):
- The ability to determine a limited number of well-targeted priorities in order to be effective.
- The ability to create a consensus around strong visions and these priorities.

We can accept that each region is irrefutably a special case because of the almost infinite combination of variables at play in it, calling for a particular form of governance. Typologies do exist, however, which highlight a relatively small number of models depending on the type of key player who dominates the process. Gilly and Perrat (2003) identify three main theoretical types, depending on the type of player who dominates territorial coordination: private, institutional or public and mixed governance:

Private governance corresponds to the case where an organization (an R&D centre, a business association, a leading firm, etc.) is the key player in the stakeholder coordination process. Institutional or public governance is where one or more institutions (a local authority, the State, a public research center, etc.) play the role of the main coordinator of the players in an area. In reality, these « pure » types are rarely encountered, and more often than not we find a combination of the previous forms, in which case we speak of mixed or partnership governance. « Governance is therefore not a configuration of strictly economic or strictly socio-political coordination: it is a combination of these two dimensions ».

In the institutionalist approach, innovation is seen as an alchemy that "runs through institutions, weaving complicated and unexpected relationships between different spheres of activity, involving personal relationships, the market, the law, science and technology" (Callon, 1999). From this perspective, innovation is not seen as « an individual adventure but (as) collective work (...) synonymous with networking » (Plociniczak, 2002).

II. Research methodology

This research work is carried out in two main stages: the first stage reflects the bibliometric analysis of the concept of territorial governance and its role in stimulating innovation activity, and the second focuses on an in-depth and methodical review of the literature on the phenomenon addressed, discussing the most important results.

In bibliometric analysis, bibliometric indicators are used to provide quantitative information during the evaluation process in order to carry out an objective and concrete evaluation. In fact, these indicators are information of a numerical nature with calculations based on bibliographic characteristics dealt with in the literature that is published in academic and scientific circles, thus making it possible to examine various characteristics of the scientific task, which are associated with both the production and consumption of data. For Palomares and Chesvit (2019), bibliometric is determined by a strict rigour since research has a specific goal, a concrete study tactic that involves the systematic or well-organized identification of data that can be exploited in research.

This type of methodology is being used more and more to analyze the state of the subjects covered, making it possible to detect the categories of study in which researchers dominate, the most prominent authors, the areas of expertise in which they are interested, the countries in which research is fairly well developed, and the types of publication of authors and their institutional affiliations.

To carry out a bibliometric study, a fairly large quantity of bibliographic data is very important. In general, a solid base of bibliographic information is mobilized for this purpose. These information bases are made up of a panoply of records containing bibliographic data such as the title of the contribution, the author concerned, the type of publication and its date, the publisher, etc.), stored and administered by highly advanced computer systems.

In order to assess the state of research on the territorial governance of innovation, it is important to have a vast bibliographical database available for bibliometric examination. Generally speaking, a bibliographic information base is mobilized. A solid, rich database generally consists of a panoply of records containing bibliographic data.

Depending on the approach used for the subject addressed and taking into account the bibliometric mobilization in other research, we considered the Scopus information base, in which the theme of territorial governance and its role in improving innovation activities is analyzed, exploiting the study argument for the survey. The search system used is «Title-Abs-Key», in our case «Governance and Territory», and «Title-Abs-Key», in our case «Innovation», and applied in June 2023.

The search process identified 39 scientific productions, which were downloaded and subjected to a bibliometric examination, taking into account the categories of authors. In fact, the following categories were taken into consideration: by institution, country, author, country, type of publication, years of publication, source, field of application and also in the mapping of the study, highlighting terms such as urban governance, innovation systems, multi-level governance, social innovation, governance of territories, partnership governance, among others, which are associated with the subject addressed.

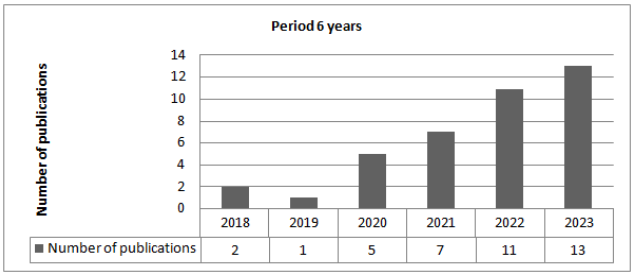
The information gathered was exported in a comma-delimited format, which enabled us to incorporate the data into the Vos-Viewer program, with which the co-occurrence of keywords was studied, as an exploration of the theme related to the territorial governance of innovation.

In the same perspective, we analyzed the statistics generated by the authors, in which only one author appears with two publications, the other authors having only one publication. By country, we noted that in France, there were six publications; in Spain and China, there were five publications; in Brazil, Germany and Colombia, there were three publications; in Italy, the UK and the USA, there were two publications; in Argentina, Sweden, Latvia, Albania, South Korea, Canada, Romania and Greece, there was a single publication. We note that Cities Journal had eight publications, Journal Rural Studies had five publications, Land Use Policy had four publications, Geoforum, Journal of Cleaner Production and Environmental Science and Policy had three publications, while the remaining 15 sources had only one publication. For the most effective analytical processing of scientific documents and information, a reading of the full text was carried out, which made it possible to detect categories such as theoretical models, theoretical approaches to the studied phenomenon, tools and factors for influencing territorial governance applied to innovation.

III. Analysis and discussion of results

Bibliometric analysis, as shown below, has enabled us to identify 39 research studies focusing on territorial innovation governance over the last six years (2018-2023). As shown in Figure 1, publications in this field have grown very significantly, from two publications in 2018 to five publications in 2020, and from five in 2020 to thirteen in 2023, an average increase of 6.5 publications per year over the last six years.

Figure 1: The evolution of the number of publications over the last 6 years



Source: elaborated by the authors

In the same vein, Table 1 shows publications by institution. In fact, two publications were published respectively in 2022 and 2023 by the Federal University of São Carlos in the international journal of Rural Studies, and the remaining 37 publications were published by each university (i.e. each institution published a single publication), as shown below:

Table 1: Publications by establishment

University/Establishments	Number of publications	University/Establishments	Number of publications
Federal University of São Carlos	2	University of Córdoba	1
University of Santiago de Compostela	1	School of Social Sciences	1
Doctoral School of Geography of Paris	1	INRAE UR France	1
Clersé-University of Lille	1	University of Santander	1
Jorge Tadeo Lozano University	1	University of Valencia	1
Institute of Geography	1	Science and Technology of Paraíba	1
University of Deusto	1	Heidelberg University	1
Beder University College	1	Zhengzhou University School of Management Engineering	1
Virginia Tech	1	School of Economics and Management China	1
The University of Manchester	1	Harvard Law School	1
University of Turin)	1	University of Exeter	1
Seoul National University	1	National Council for Scientific and Technical Research	1
Tongji University Shanghai	1	University of Bonn	1
Luiss University Rome	1	Baltic Studies Centre	1
Alexandru Ioan Cuza University of Iasi	1	Polytechnic University of Valencia	1
Laval University Quebec City	1	Swedish Geotechnical Institute	1
Federal University of Toulouse Midi-Pyrénées	1	University of, Colombia	1
Chinese Academy of Sciences Beijing	1	Dalian University of Technology	1
Paul Valéry University Saint Charles 2	1	University of Montpellier	1

Source: elaborated by the authors

The results of the second table below present the authors who have studied the territorial governance of innovation, we note that all the authors have published only one article:

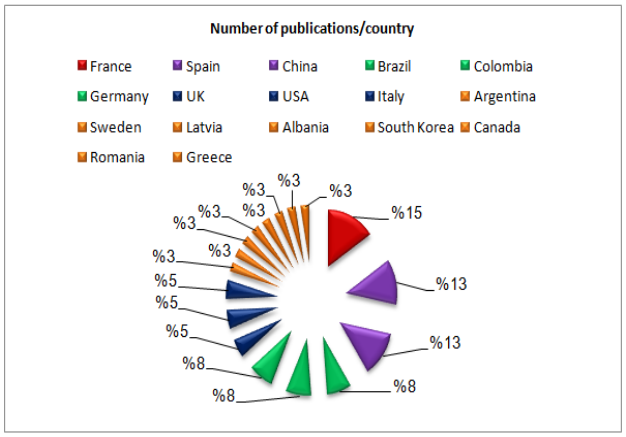
Table 2: Publications by author

Main authors	Number of publications	Main authors	Number of publications
Akimowicz, M…	1	Philippe Lavigne Delville…	1
Piñeiro-Anteloa, M…	1	Sarah Audouin…	1
Solène Rey-Coquais…	1	Liliana Reina-Usuga…	1
Céline Merlin-Brogniart…	1	Chatzichristos Georgios…	1
Camilo Torres…	1	R. Fèche…	1
Carola Wilhelm…	1	Claudia Jazmin Galeano-Barrera…	1
Edume Magro…	1	Jesús Peiró-Palomino…	1
Kriselda Sulcaj Gura…	1	Mirella Motta e Costa…	1
Damien Geffroy…	1	Denise Gutiérrez…	1
Bing Sun…	1	Elvis Kwame Ofori…	1
Chiara Certomà…	1	Tao Ge…	1
Charles Audouin…	1	Guanchi Zhang…	1
Hao Zhang…	1	M. Fortnam…	1
Luca Tricarico…	1	Pamela E. Degele…	1
Ema Corodescu-Rosca…	1	Asad Asadzadeh…	1
Hyppolite Dossa Dansou…	1	Talis Tisenkopfs…	1
Andréa Oliveira da Silva…	1	Edgar Lorenzo-Saez…	1
Yansui Liu…	1	Lisa Van Well…	1
Ivan Damasco Menzori…	1	Juan D. Suárez-Gómez…	1
Kai Song…	1		

Source: elaborated by the authors

In order to establish the place of origin (country) of research studies relating to the approach. As shown in Figure 2, France tops the list with six scientific publications (15%), followed by Spain and China with five (13 each), Brazil, Colombia and Germany with three (8% each), the UK, USA and Italy with two (5% each), and Argentina, Sweden, Latvia, Albania, South Korea, Canada, Romania and Greece with one publication each (3% each).

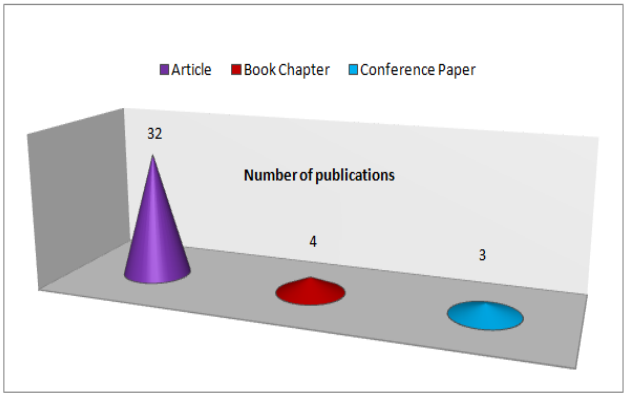
Figure *2: Number of surveys per country*



Source: elaborated by the authors

Figure 3 below shows us that scientific studies relating to the territorial governance of innovation have a publication ranking of 32 Scopus-indexed scientific articles, followed by 4 book chapters and 3 documents linked to international conferences, while the production of books remains elusive. In the following we will look at the types of publications indexed by Scopus.

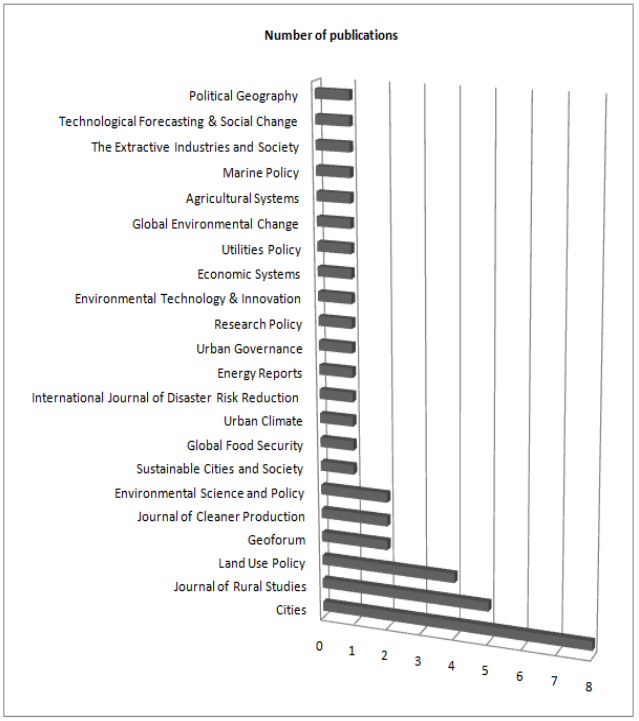
Figure 3: The main types of publications



Source: elaborated by the authors

The results received have enabled us to highlight the fact that the studies were only carried out in the form of scientific articles, which can be attributed to a limited approach to the research subject. Figure 4 shows the scientific output by source, with the journal Cities contributing 8 publications, followed by the Journal of Rural Studies with 5 publications, then Land Use Policy with 4 publications, Geoforum, Journal of Cleaner Production and Environmental Science and Policy with 2 publications each, and finally the other journals with just one publication each.

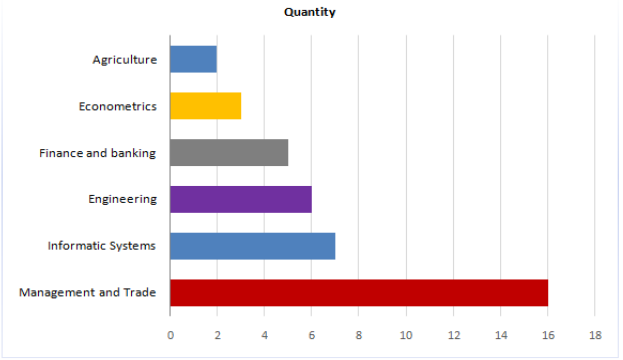
Figure 4: Main sources according to the Scopus database



Source: elaborated by the authors

With regard to the field of application in which the scientific publications were developed, Figure 5 shows that the field of Management and Trade stands out with 16 scientific publications, followed by Informatics Systems with 7 publications, Engineering with 6 publications, Finance and Banking with 5 scientific publications, Econometrics with 3 publications and finally Agriculture with 2 scientific publications.

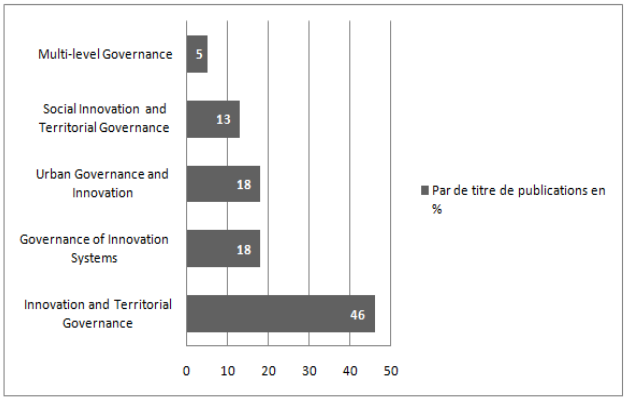
Figure 5: Main sources according to the Scopus database



Source: elaborated by the authors

The literature review obtained can be grouped into five sections, in which it emerges that innovation and territorial governance is at the top of the ranking with a percentage of 46% (18 scientific productions), followed simultaneously by Governance of Innovation Systems and Urban Governance and Innovation with a percentage of 18% for each (7 scientific productions for each), Social Innovation and Territorial Governance with a percentage of 13% (5 scientific productions), and finally, we find Multi-level Governance with a percentage of 5% (2 scientific productions). This shows that the key words of our research study are addressed in a fairly significant way to a lesser extent.

Figure 6: Breakdown of research keywords among the 39 scientific publications



Source: elaborated by the authors

The theoretical analysis is essentially based on the study of the relationship between territorial governance and innovation. In fact, the bibliometric study is considered as an important tool that is used to better understand and deepen the research concepts, and also to organise and structure the information obtained in a relevant way in order to allow us to develop the topic addressed. On the other hand, although innovation and governance at territorial level have not evolved significantly in the past, over the last six years there has nevertheless been an improvement and coordination between the aspects selected in the analysis, which allows us to deepen and develop our knowledge in this sense and for which it is essential to examine the corresponding literature.

With regard to the implementation of innovation governance within territories (as in the case of regions, clusters or others), states that good governance in innovation territories must guarantee that the partnership or collaborative aspect can achieve the targeted objectives in terms of improving innovation. To achieve this, it is useful to include provisions that make territorial governance effective and an advantage with a dynamic and efficient innovation process. Good governance based on cooperation and partnership includes shared objectives, ethical values, innovative projects and clearly defined strategies.

In this respect, we would like to point out that innovation-oriented regions or local authorities should engage in profound and dynamic change and in new configurations of integrity and partnership or mixed institutional governance, which require territorial change based on the spirit of innovation. This change must enable an effective and efficient innovation system to be put in place in terms of the creation of patents and value-added projects, and it must also be endorsed by those responsible for cooperative and partnership governance in order to stimulate innovation and create wealth and value.

Although the implementation of a territorial governance mode applied to innovation is mandatory, due to the legal provisions that govern innovation activities, there are two governance modes (private and according to the institutional hierarchy) that can contribute to slow down the dynamics and the improvement of territorial innovation. On the other hand, we can state that adequate governance based on collaboration and decentralisation remains important since it is considered to be a component that unifies innovation activities and the tasks of those in charge, guaranteeing that the territory's objectives are achieved. On the importance of governance in improving innovation, Callon (1990) also refers to the environment that fosters this improvement: the internal environment (the players in the territory) and the external environment (the territory's partners in innovation) are two key elements for the implementation of partnership governance and consist of a set of processes, standards, but also structures that form the basis for setting up an innovation dynamic throughout the territory (regions, industrial districts, territorial or local authorities, etc.).

CONCLUSION

Finally, the approach in terms of territorial governance of innovation complements the existing literature on territorial economic policies. Indeed, local policies do not only act as economic incentives and do not only generate gains in economic performance and competitiveness: the political legitimacy conferred on innovation environments and the social, cognitive and symbolic dynamics that it can support in turn encourage the various administrative, multi-level and multi-sectoral segments to act in a more coordinated manner. An in-depth study of the literature on a territory at the level of governance geared towards creation and innovation, using the concept of coordination/cooperation, makes it possible to monitor how incentives of political origin can be exploited and have effects in terms of local regulation.

From this point of view, this study sheds original light on the debates on the theme of differentiation between existing modes of governance at the level of territories in general.

Existing works insist on stimulating the aspect of coordination and equal sharing of roles between the different participants involved in territorial innovation. On the other hand, the logic of institutional rivalry (private governance based on the intervention and decisions of a single player, referred to as a key player) is generally presented as having a neutralizing effect on possible coordination between the State, the City and the Region in terms of innovation, governance and also economic action. Our article, on the other hand, highlights a phenomenon of alignment of interventions, around a common governance strategy that brings together local authorities (State, cities, regions) and private players (parks, clusters, industrial districts, innovation circles, etc.) in their decisions regarding innovation activities, in order to better develop and create wealth at territorial level.

Our aim is to support the thesis of a standardization of the territory based on rational and collaborative governance geared towards the dynamics of innovation, and a reduction in the power conflicts between the various participants involved by virtue of an alignment with neo-liberal competitiveness policies. The same applies to support for innovation and entrepreneurship. Instead, bibliometric analysis invites a detailed analysis of the forms taken by institutional rivalry between the different levels of government involved in territorial management. Studies that focus on the temporal dimension, centered on partnership policies, have the advantage of producing analyses that take into account both the State's ability to impose its agenda and its means (financial, normative, symbolic), and the strategies deployed by local and private players to create margins of autonomy for themselves by experimenting with new ways of coordinating their innovation initiatives. According to this bibliometric analysis, we find that appropriate governance based on collaboration and partnership improves the dynamics of innovation activities, whereas private hierarchical governance generates conflicts between participants, which has a negative impact on the dynamics of innovation.

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Trade openness and Moroccan economic growth: econometric modeling

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Abstract:

Openness to international trade is often conducive to long-term economic development. Indeed, thanks to trade instruments based on an effective and selective policy of openness, and to human capital that is both qualified and specialised, trade liberalisation is a key determinant of healthy and progressive economic growth. The aim of this article is to study the nature and direction of causal relationships in a dynamic framework, between the variable to be explained (trade openness) measured by the volume of exports and imports as well as by human capital, and the variable to be explained (economic growth) measured by GDP at the level of Morocco. In this respect, we will attempt to examine this causal relationship in the Moroccan context. From this perspective, our question, which remains important, can be formulated as follows: To what extent does trade openness promote economic growth in Morocco? In order to find more relevant answers to our question, we carried out a mixed analysis (both theoretical and empirical) based on mortgage-deductive reasoning derived from a purely positivist posture, on the one hand, and, on the other, we applied econometric modeling to the case of Morocco, based on the ARDL approach. The data collected is annual and covers a period from 1985 to 2020. It was gathered from the HCP and World Bank databases. To do this, we used the ARDL method. The results received by the econometric modeling and the tests that verify the relationship and the direction of causality indicate that trade openness have a positive influence on Moroccan economic growth.

Key words: Trade openness, economic growth, trade, human capital and GDP.

Introduction

Some countries, especially those on the right track of development, have managed to achieve an economic boost with the help of a more appropriate policy of openness. Their performance has encouraged new emerging countries to adopt this policy since the 1980s, with regional agreements, structural adjustment programmes and World Trade Organisation agreements. However, they have not reaped the expected rewards. The link between trade openness and economic growth therefore seems more complicated than the apostles of the liberal paradigm would have us believe. Generally speaking, on the basis of the research studies of (Rivera-Batiz and Romer 1991a; Lucas, 1998), according to these authors, potential effects on economic growth have been demonstrated; foreign trade policy, qualified human capital, R&D activities, the actions of public authorities and the macroeconomic framework.

If we accept that dynamic gains are specifically associated with economies of scale and the sharing of technical progress stimulated by international openness, emerging countries such as Morocco can compensate for their development lag by taking advantage of existing new technologies. Consequently, as many authors have pointed out (Romer, 1986; Barro and Sala-I-Martin, 1997), emerging and open countries show a great capacity to absorb technologies created by developed countries. In the same perspective, other authors such as (Young, 1991; Rodriguez and Rodrick, 2000) emphasise that trade openness can generate specialisation for the countries concerned by this openness (such as Morocco), which appears to be beneficial for their economic growth. The objective of this article is to attempt, on the one hand, to develop a conceptual framework studying the importance of trade openness and, on the other hand, to identify the causal relationship between the explanatory variables (X, M and K) and the variable to be explained (GDP). Based on the above, our main question can be posed as follows: ***To what extent does trade openness promote Moroccan economic growth?*** In order to find more relevant answers to the aforementioned question, we carried out a mixed analysis research (both theoretical and empirical) based on a mortgage-deductive reasoning stemming from a purely positivist posture. This methodology will enable us to identify the causal relationship between the variables analysed, to formulate our study hypotheses, to present the conceptual framework that explains the causal link and its direction between the variables, on the one hand, and on the other, we applied econometric modelling of the case of Morocco, based on the ARDL method, over a period from 1985 to 2020. We then attempted an econometric examination of the panel data collected and discussed the results obtained.

The remainder of this article is structured as follows. In the first section, we present a summary of theoretical and empirical studies on the relationship between trade openness and economic growth. In the second section, we will present the development and structure of Moroccan trade via graphical analyses (1985-2020), in the third section, we will present the conceptual framework of the article, the fourth section will be devoted to the methodology adopted, in this section, we will present the methodological approach and

specify our econometric equation of economic growth to be estimated, in the last section, we will present the results obtained with their interpretations.

I. Literature review on trade openness and economic growth

1. Theoretical literature

If the benefits resulting from trade openness identified as part of the theorisation of international trade, the so-called Heckscher-Ohlin-Samuelson theorem (Perroux, 1971), were static, then dynamic benefits emerged with the birth of the endogenous growth approach. Indeed, the research studies of (Lucas, 1988) and (Rivera-Batiz and Romer, 1991) are at the origin of this school of thought. These authors sought to refine Solow's (1995) model to make it more appropriate to economic reality in two ways. Firstly, they question the notion of diminishing returns, which allows for sustainable growth. Secondly, they endogenise scientific and technical progress (technological advances) by explaining it in terms of factors intrinsic to the economy, such as investment and the accumulation of human capital. Hence, it is conceivable that the dynamic benefits of trade openness are linked in particular to economies of scale (postulate of increasing returns) and to the spin-offs of technical progress (Abdouni. 2003). In this context, certain authors such as (Feenstra and Lewis, 1989; Grossman and Helpman, 1994; Rivera-Batiz and Romer, 1991), consider the notion of innovation as the main source of growth and stimulate a policy of trade openness. In fact, they explain that the full integration of a country into this policy increases its growth rate compared with a country living in autarky. However, customs duties have such a negative impact on economic growth that all they do is stimulate imitation.

Imitation represents a part of human capital, which must be allocated to research and development, thus reducing the rate of growth. If a country only trades goods, Rivera-Batiz and Romer (1994) find that the growth rate remains unchanged and self-sufficient. However, Grossman and Helpman (1994) highlight the presence of two contradictory effects. On the one hand, the increase in market size due to openness encourages companies to innovate and invest more (positive impact). On the other hand, with this increase in size, the rate of change of competitors also increases, which can reduce the incentives to innovate (negative impact). When the two states are similar, these two impacts cancel each other out: an increase in the size of the market is certainly offset by an increase in the number and evolution of competitors. In this situation, openness has no influence on economic growth. If, for example, two states are not similar, Barro and Sala-I-Martin (1997) show that the rate of economic growth in the developing state depends on the costs of the imitation of innovation activity in the developed state. In fact, if the costs of this imitation are lower than the costs of the innovation activity, then the developing state will record a higher rate of economic growth than the developed state, and we will therefore see a phenomenon of convergence.

In a similar analytical framework, Askenzy (1997) explains that trade openness has a positive influence on the economic growth of the developed state because it leads to a shift in the country's qualified and specialised human resources towards the field of scientific research and development, which generates innovations (a fundamental source of growth). For his part, Aubin (1994) considers that market integration is not enough to achieve optimal growth but must be accompanied by effective coordination of industrial and economic policies. Contrary to these studies, various authors such as Krugman (1990); Young (1991); Acemoglu and Zilibotti (2001) assume that trade openness is not often conducive to economic growth. It can encourage the countries concerned (especially developing countries) to specialise in low-productivity areas, with an overall negative impact on growth.

The countries' initial resources, the exploitation of learning by doing as a primordial element for growth, the need for financial development and the constraints linked to the mobility of production factors are the main explanations for these results. In this context, openness can plunge a small economy into backwardness or underdevelopment. We note that the results of theoretical studies are not uniform. Whether trade openness has a positive or negative influence on economic growth depends on the composition of each model, the level of qualification of the human resources (human capital) of the States and the sources of growth. As for empirical studies, they are a long way from producing uniform results. This is all the more obvious as they are subject to a number of restrictions. We will highlight these in the next paragraph.

2. Empirical literature

The 1990s saw a great deal of empirical work on the link between trade openness and a country's economic growth. The most influential empirical work on this subject is that of Sachs and Warner (1995). Indeed. Their empirical results stated that open developing countries achieved an economic growth rate of 4.49% per annum, while closed developing countries recorded a rate of 0.69%. Similarly, within the group of open economies, developing countries are growing faster than developed countries (4.49% compared with 2.8% each year). This positive association between trade openness and economic growth is borne out by previous empirical studies (Feder, 1983; Balassa, 1985) and has been confirmed by recent studies, notably by Harisson (1996) and Alcalà and Ciccone (2004). Other authors have sought to identify indirect relationships between trade openness and a country's economic growth. They see that economic growth is generated by investment and created by trade openness (Borensztein et al, 1995; Baldwin and Seghezza, 1996) or

that economic growth is generated by new technologies and created by trade openness (Coe et al, 1995; Brecher et al, 1996).

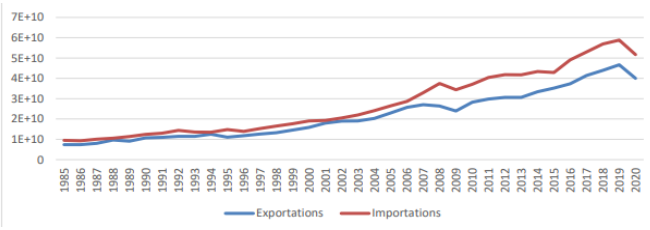
However, some studies call into question the studies advocating a positive association between trade openness and a country's economic growth. Harrison (1996) used various measures of trade openness to examine the causal link between openness and economic growth. This indicates that the significance index varies according to the indicator mobilised, and although the correlation between indicators is generally positive, its significance also varies according to the indicator. These results have been supported by empirical studies by a number of authors (Miller and Upadhyay, 2000; Greenaway et al, 2002; Yanikkaya, 2003). Baldwin and Seghezza (1996) have noted that trade liberalisation policies are not applied in isolation, therefore we cannot attempt to capture the impact of trade liberalisation alone on economic growth, rather the aim will be to measure the effect of the macroeconomic policy agenda, including trade liberalisation. In the same vein, Winters (2004) argues that, to have a sustained impact on economic growth, free trade policies need to be linked to other policies such as those that promote human capital accumulation and stimulate investment.

The empirical research we have just outlined supports the view that the trade openness indices mobilised do not exhaustively represent the trade liberalisation policy of a particular country. In order to overcome this limitation, we mobilise in what follows a specification in which several trade openness indices are mobilised simultaneously in the economic growth equation. In order to overcome this limitation, we mobilise in what follows a specification in which several trade openness indices are simultaneously mobilised in the economic growth equation.

II. Development and structure of Moroccan trade

Like many developing countries, Morocco has long been committed to a strategy of open trade. Indeed, Morocco's trade openness rate increased by 31% between 1985 and 2020, rising from 45% in 1985 to 76% in 2020. This level of openness achieved, especially over the last 20 years, is reflected in Morocco's commitment to and signature of several bilateral and multilateral trade liberalisation agreements within the framework of international trade with the outside world, especially the Marrakech Agreement signed in 1995 within the framework of the World Trade Organisation containing 164 member countries, the trade agreement signed in 1996 with the European Union containing 28 countries, as well as the bilateral trade agreement signed with Turkey on the one hand, and on the other hand with the United States in 2004. Analysis of the graph below shows increasing growth in both Morocco's imports and exports between 1985 and 2020. In fact, these two economic variables will grow at an average annual rate of 4.9% and 4.9% respectively between 1985 and 2020.

Figure 1: Development of Moroccan foreign trade over the period 1985-2020 (in constant $)



Source: World Development Indicators (WDI) 2021[1]

From the 1980s onwards, trade in goods and services with the outside world grew at high rates from year to year, but this growth saw a few periods of recession, particularly between 1995 and 1997, which was marked by the emergence of new competitors on European markets, the period of the global financial crisis in 2008 and also the period of the coronavirus-19 health crisis in 2020. Moreover, Morocco's trade balance has been negative throughout the period under review, with an opening rate of 76% in 1985 and 72% in 2020.

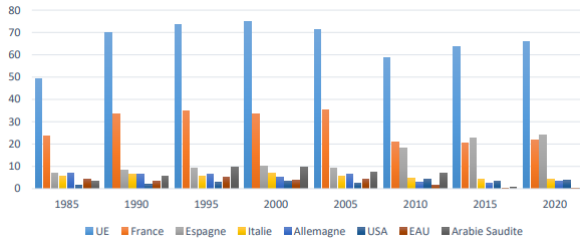
The fall in the trade coverage rate during this period is partly due to the large number of bilateral and multilateral trade agreements signed and entered into by Morocco. The graph shows that the gap between the two variables (i.e. exports and imports) increased significantly between 2000 and 2020, when most of the trade liberalisation agreements signed by Morocco came into force. In fact, this observation highlights the competitiveness of Moroccan firms, particularly exporters, on the international market. This competitiveness must be supported in order to promote and increase exports (made in Morocco) to countries with which Morocco has signed trade agreements.

Nevertheless, even though the Moroccan economy recorded a trade deficit, the negative impact of this deficit on the balance of payments was largely offset by the inflow of foreign direct investment, tourism receipts and transfers from Moroccans living abroad. The tourism sector recorded 36 Million Dirham's in 2020, compared with 11 Million Dirham's in 1995. Remittances from Moroccans living abroad will reach 68 Million Dirham's by 2020, compared with 16 Million Dirham's in 1995, setting an all-time record. Net FDI inflows amounted to 13.5 Million Dirham's in 2020. With regard to the spatial structure of Morocco's trade, statistical data show the predominance of the EU over the analysis period 1985-2020. Figure 2 shows that exports to the European Union accounted for an average of 66% of total export sales over the period 1985-2020. The European Union's position in Morocco's international trade

[1] The World Bank. (2022): www.banquemondiale.org. Accessed on 26/11/2022

is largely explained by the value of trade with France, Morocco's leading partner.

Figure 2: Spatial structure of Morocco's exports by main partner between 1985 and 2020 (as % of total)



Source: Office of change 2021[2]

Moroccan exports to the European Union rose steadily between 1985 and 2000. Between 200 and 2010, however, there was a significant drop of 15%, followed by a deeper decline due to the global financial crisis (2008), which had a negative impact on economic activity in Europe. From 2012 onwards, the year in which the global economy began to recover from the adverse effects of the 2008 economic crisis, Moroccan exports to the Í European Union showed a steady increase until 2020. As for exports to other member countries, these remain modest, and their development after this crisis has been marked by ups and downs. Generally speaking, the analysis of transactions recorded with the outside world between the periods 1985 and 2020 has enabled us to draw the following conclusions:

- For Morocco, the EU remains the main destination for its exports and also the main source of its imports.
- Throughout this period, France is Morocco's main trading partner, with an average share of over 40% of trade with the European Union, which clearly reflects the weight of the European Union in Morocco's total foreign trade.
- Trade with Arab countries does not reflect the true importance of the common interests and historical links between Morocco and these countries.
- Although Morocco has entered into and signed a large number of bilateral and multilateral free trade agreements with several partners, the figures recorded after the entry into force of the majority of these trade agreements do not reflect the expected goals. On the contrary, the figures recorded under these agreements have had a negative impact on Morocco's trade balance.

On the one hand, the breakdown of the country's trade by product groups shows a development with fluctuations in imports, thus achieving a predominance of equipment and finished goods from 1990 to 2020, with an average exceeding 44% of total Moroccan imports. Finished consumer goods have seen a gradual increase since 1985, with the exception of the period between 2000 and 2005, which saw a significant drop in the share of these goods in total imported goods. On the other hand, analysis of the evolution of the share of energy goods shows that it fell significantly between the periods 1985 and 2020, from 29% to 13%. In the same vein, the share of raw goods fell over this period, from 15% in 1985 to 4% in 2020. With regard to exports, an examination by goods grouping shows that the share of energy goods is still low compared with other goods groupings (2.3% on average over the period 1985-2020). Finished consumer goods accounted for an average of 33% between 1985 and 2020. The proportion of raw goods has evolved with ups and downs over the analysis period, with two peaks recorded in 1985 and 2005, followed by periods of recession (between 1986 and 2003 and between 2006 and 2020).

We have seen a significant increase in the share of finished capital goods over the last ten years, with an expansionary growth rate between 2005 and 2010, ranging from 2% to 15%. In terms of comparing Moroccan imports and exports on the basis of groups of goods, we note that there is partly a gap in terms of value between these two commercial quantities between Morocco and the rest of the world. The preponderance of semi-finished goods, energy and capital goods in total imports highlights the value of imports compared with exports, which are often distinguished by the predominance of semi-finished goods, foodstuffs and finished consumer goods.

III. Outline of the conceptual framework

1. Definition of model variables

Examination of both the theoretical and empirical literature has provided us with a fairly rich base of information for highlighting the different variables making up our conceptual framework. In what follows, we will define the variables concerned.

- The endogenous variable: Gross Domestic Product (GDP)

We use Morocco's gross domestic product as a variable to be explained. This variable will measure the country's economic growth and will be evaluated on the basis of three exogenous variables characterising trade openness, namely:

- The exogenous variable I: Exports
- The exogenous variable Ii: Imports
- The exogenous variable III: Human capital

International trade leads to a better distribution of resources while allowing the reallocation of productive factors from less productive to more productive areas of activity.

[2] Office of Change (2021), https://www.oc.gov.ma/fr/etudes-et-statistiques/series-statistiques

This redeployment of resources results in an increase in economic growth (Dowrick and Gemmel, 1991). It can also have an impact on this growth by increasing the quantity of intermediate products available (Rivera-Batiz and Romer, 1991) and by stimulating the transfer of knowledge and technological know-how (Dasgupta et al, 2002).

What's more, a country's commercial openness is not limited to its international trade. It is also distinguished by the qualification of its resources, which should be qualified and specialised, we are talking here about the human capital factor. On the theoretical level, various authors have clearly detected the positive influence of human capital on economic growth (Azariadis and Drazen, 1990; Autume and Michel, 1993). However, at the experimental level, the results are rather contradictory. A number of authors have noted a positive and considerable effect of the human capital factor on economic growth (Mankiw et al, 1992) while other authors have shown that such an influence is absent (Benhabib and Spiegel, 1994). For Coe, et, (1995), they specified that a highly qualified and specialised human capital acts in a direct way on the economic growth, while optimising the productivity of the workers and in an indirect way by releasing the investments and consequently, by allowing the countries to acquire the new technologies of information and communication of their partners.

Following this line of reasoning, we will integrate human capital into our econometric equation for economic growth. We will therefore measure human capital by the gross academic qualification rate (or school enrolment rate), referring to studies by (Mankiw et al, 1992; Coe et al, 1995).

2. Conceptual framework of the research

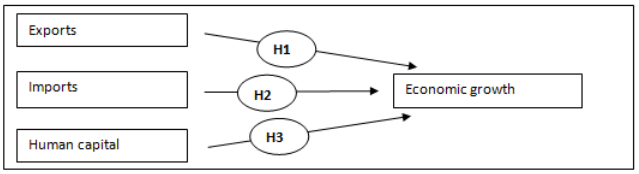
As a result, three main hypotheses from our study can be formulated by discussing the various relationships arising from them.

H1: Export dynamics have a positive impact on the country's economic growth.
H2: The evolution of imports has a negative impact on the country's economic growth.
H3: Human capital has a positive impact on the country's economic growth.

Our study hypotheses should be either rejected or confirmed on the basis of a comparison of the facts studied over time. These hypotheses are only accepted insofar as the information gathered does not invalidate them. Stating the links between the different variables in our study hypotheses indicates the existence of endogenous variables (effects) and exogenous variables (causes).

Examination of the above has, on the one hand, provided us with the necessary data to focus on the causal links between the variables analysed, and on the other hand, has presented our conceptual framework, which will be discussed in what follows (Figure 3 below).

Figure 3: Conceptual framework of the research



Source: prepared by the authors

IV. Research methodology

The aim of our research is to test the impact of trade openness via its indicators (exports, imports and human capital) and to see whether it helps to achieve the goal of economic growth. To this end, we will mobilise time series data from 1985 to 2020 for Morocco. We will begin by outlining our epistemo-methodological paradigm. We will then present the econometric method, which will be carried out in four phases: (1) unit root tests; (2) estimation and validation of the Auto-Regressive Distributed Lag model; (3) estimation of long-term relationships; and finally (4) Granger causality tests.

1. Research field and data

Our research focuses on the impact of trade openness on economic growth in Morocco. Our econometric modelling is based on the Auto-Regressive Distributed Lag (ARDL) method. Firstly, ARDL was selected mainly because of the three advantages it offers over other estimation techniques. Firstly, the ARDL method provides estimates of long-run coefficients and does not require the variables used to be of order I (0) or stationary in first difference I (1). Secondly, Harris (2003) considers that this method often gives unbiased long-run model appreciation data and valid t-statistics even when some of the regressors are dependent. In the same vein, Inder (1993) and Pesaran (1997) have explained that the endogeneity problem can be overcome by introducing a dynamic factor. Thirdly, ARDL modelling has good properties for small samples. The data collected in this research work come essentially from the HCP (2022) and the World Bank (2022) and cover the period from 1985 to 2020 (i.e. 36 observations).

2. Study model and data processing

Our empirical research is based on a model written in the following form: GDP = f (X, M, K). This econometric equation, which approximates the country's economic growth, will provide the framework for our econometric study.

The variables of interest are then four (4) and include the variable to be explained (GDP), taken in this case as being an index of the country's economic growth, and also the three independent variables which are: exports, imports and human capital. In the rest of our study, the set of original series were converted into logarithms in order to avoid the problem of heteroscedasticity. We chose to use ARDL modelling to test the degree of dependence of the current value of the variable to be explained (Y) on the weighted sum of the past and current values of the explanatory variables (X1, X2, X3) as long as the error term is taken into account. This modelling offers advantages that favour its use in this research study, since it presents unbiased coefficients of the exogenous variables with valid t-statistics. It is also less demanding in terms of the order of integration, as the variables can be stationary either in levels or in first difference. In order to process the data collected econometrically, we will use Eviews 12 software.

V. Results and discussion

1. Analysis of descriptive statistics and unit root tests

The two tables below allow us to observe the behaviour of the variables in our model over the study period (1985-2020).

Table 1: Statistical analysis of study variables

Eléments	EX	GDP	IM	HC
Mean	689754.6	612564.3	5.034568	27563.8
Median	635421.8	586487.2	4.976541	26548.1
Maximum	158531.3	107893.4	3.129786	22645.6
Minimum	140645.8	289645.1	0.086431	19876.5
Std. Dev.	468311.6	353635.2	1153.4	13564.8
Skewness	0.389754	0.689742	1.458810	0.456879
Kurtosis	2.568974	1.853147	4.697520	2.050125
Jarque-Bera	1.89654	3.69874	12.04359	2.68452
Probability	0.289764	0.389752	0.002365	0.256479

Source: prepared by the authors

The descriptive analysis set out in Table 1 shows us that the exports variable (EX) is the most volatile and the imports variable (IM) is the least volatile in terms of standard deviation values. This analysis also shows that the variables GDP, exports and human capital (HC) are normally distributed with Jarque-Bera probabilities greater than 0.05, while the variable imports does not follow a normal distribution. For its part, the Kurtosis coefficient (imports) shows us that the distributions are pointed, as this coefficient is well above 3, on the contrary, the other three variables are flatter than the normal distribution. For a more in-depth descriptive analysis, we calculated the correlation matrix.

Table 2: Correlation matrix

Eléments	GDP	EX	IM	HC
GDP	1			
EX	0.920	1		
IM	-0.810	0.536	1	
HC	0.753	0.615	0.640	1

Source: prepared by the authors

The correlation matrix in the table above tells us that GDP is perfectly correlated with the three exogenous variables, particularly with the variables that express trade (exports and imports). After this description, the next phase consists of examining the individual stochastic properties of the set of variables, and more specifically, the stationarity tests.

- *Unit root tests*

To examine the stationarity of the variables exploited, we used unit root tests to detect the existence or absence of unit roots in a series. In this respect, we chose to use the ADF (Augmented Dickey-Fuller) and PP (Phillips-Perron) tests. The objective is to estimate the augmented Dickey-Fuller and Phillips-Perron equations while specifying the optimal delay that guarantees the whiteness of the residuals. In this respect, the null hypothesis characterising non-stationarity will be rejected when the calculated statistic is well below the critical value at a given threshold. This phase is very useful, since the ARDL modelling specification requires the time series to be stationary in level or first difference (I (1)). Performing the augmented Dickey-Fuller and Phillips-Perron non-stationarity tests on the set of level series gave the results shown in the table below.

Table 3: Results of the augmented Dickey-Fuller and Phillips-Perron tests on level series

Variables	Test ADF			Test PP		
	Retard	Stat-ADFT stat	Conclusion	Retard	Stat-PP	Conclusion
Lgdp	1	-1.75	I (1)[3]	4	-2.23	I (1)
Lex	0	-3.57	I (0)	7	-3.78	I (0)
Lim	0	4.28	I (1)	4	4.86	I (1)
Lhc	1	2.66	I (1)	3	2.13	I (1)

Source: prepared by the authors

We note from the table above that all the series are declared as non-stationary in level (except the export variable). I (1)[3] means that the series is considered non-stationary and it is integrated of order 1, which means that it contains only one unit root. From there, we proceeded to set up the same tests on the differentiated series of the first order (1). As a result, all the variables become stationary just after their first differentiation according to the augmented Dickey-Fuller and Phillips-Perron tests, as shown in the table below.

Table 4: Results of the augmented Dickey-Fuller and Phillips-Perron first difference tests

Variables	Test ADF			Test PP		
	Retard	Stat-ADF	Conclusion	Retard	Stat-PP	Conclusion
Dlgdp	1	-6.73	I (0)[4]	2	-6.44	I (0)
Dlex	0	-8.16	I (0)	5	-11.32	I (0)
Dlim	0	-9.77	I (0)	3	-10.64	I (0)
Dlhc	0	-14.31	I (0)	3	-16.93	I (0)

Source: prepared by the authors

Given that all the variables are considered to be stationary in first difference, the conditions are met for using the ARDL

model. I $(0)^4$ means that the series has become stationary.

2. Results obtained by the ARDL model and discussion

Estimation of the Auto-Regressive Distributed Lag model in the short term gave the results shown in the table below:

Table 5: Estimation of the short-term Auto-Regressive Distributed Lag model

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
DLGDP(-1)	-0.663478	0.552341	0.726456	0.0091
DLGDP(-2)	0.136872	0.683140	-1.823797	0.4862
DLPIB(-3)	**0.734581**	**0.416385**	**1.726353**	**0.0368**
DLIM	-0.289410	0.248975	-3.389741	0.0252
DLIM(-1)	0.796413	0.287461	0.448203	0.5871
DLIM(-2)	**-0.801238**	**0.334791**	**-0.341952**	**0.0283**
DLEX	0.427080	1.048781	0.569787	0.7101
DLEX(-1)	1.739172	0.789474	2.234562	0.0483
DLEX(-2)	-0.438179	0.617896	-0.714069	0.5201
DLEX(-3)	-0.038271	0.612214	-0.032104	0.8931
DLEX(-4)	**1.146987**	**0.514287**	**2.789162**	**0.0173**
DLHC	0.536782	0.589741	0.627216	0.0537
DLHC(-1)	1.847653	1.021321	3.012453	0.0566
DLHC(-2)	-0.025811	0.517427	-0.054028	0.6120
DLHC(-3)	**1.157863**	**0.489215**	**2. 927141**	**0.0389**
C	0.075008	1.103564	2.314789	0.0062

R-squared	0.834267	Mean dependent var	0.042874
Adjusted R-squared	0.693178	S.D. dependent var	0.048971
S.E. of regression	0.038710	Akaike info criterion	-4.298113
Sum squared resid	0.004897	Schwarz criterion	-3.624101
Log likelihood	84.85741	Hannan-Quinn criter.	-4.081458
F-statistic	3.710188	Durbin-Watson stat	1.845123
Prob (F-statistic)	0.017321		

Source: authors' estimates using Eviews 12 software

An intermediate phase is used to detect the order of integration of all the variables studied:

Table 6: Number of delays for each study variable

Model number	Number of delays used		Number of optimum delay P.Q1.Q2.Q3.Q4
	Qi	Pi	A.I.C
I	Q=4	P=4	(3.2.4.3)

Source: prepared by the authors

Table 5 above shows that the predictive capacity of the modelling is very high, since the coefficient of determination is 83%, i.e. a correlation coefficient equal to 92.6%.

The estimation results show that the human capital factor (HC) has a significant positive effect on real activity, with a probability of less than 0.05 (0.0389), in other words, an increase of 1% leads to an increase of 115. 7% increase in gross domestic product (GDP), while the imports variable (IM) has a positive effect on gross domestic product (GDP) with a probability of less than 0.05 (0.0283), i.e. a 1% decrease in the volume of imports results in an 80% increase in gross domestic product (GDP). For its part, the exports variable (EX) has a considerable positive effect with a probability of less than 0.05 (0.0173), i.e. when the volume of exports increases by 1%, gross domestic product (GDP) increases by 146.9% in the short term. According to this analysis, we observe that in the short term all the variables have a significant positive effect on the endogenous variable (GDP), however in terms of openness and trade policies, the two tools of trade are exports and imports, without forgetting the major importance of the human capital factor on economic growth (GDP), the priority is offered according to the strength of the coefficient. We can therefore say that the human capital factor is a priority.

The next phase consists of estimating the causal link in the long term (LT) and testing the limits via the bounds test. This step will identify the accessibility of the LT model and also the importance of the exogenous variables and their effect on the endogenous variable.

Table 7: Estimated long-term causal link

Conditional Error Correction Regression				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C	0.075008	1.103564	2.314789	0.0062
DLGDP(-1)*	2.567812	0.681142	4.612986	0.0025
DLIM(-1)	0.435213	0.661254	1.533615	0.0375
DLEX(-1)	3.847102	3.215874	2.043143	0.0021
DLHC(-1)	2.135069	0.726145	4.365211	0.0049
D(DLGDP(-1))	2.845329	0.817901	4.770321	0.0007
D(DLGDP(-2))	2.941526	0.416385	1.726353	0.0368
D(DLIM)	-0.289410	0.248975	-3.389741	0.0252
D(DLIM(-1))	0.801238	0.334791	0.341952	0.0283
D(DLEX)	0.427080	1.048781	0.569787	0.7101
D(DLEX(-1))	-0.945267	1.065395	-0.881942	0.0015
D(DLEX(-2))	-1.134571	0.741532	-1.416712	0.0053
D(DLEX(-3))	1.146987	0.514287	2.789162	0.0173
D(DLHC)	0.536782	0.589741	0.627216	0.0537
D(DLHC(-1))	-0.925561	1.124982	-0.845423	0.0049
D(DLHC(-2))	1.157863	0.489215	2.927141	0.0389
Levels Equation Case 3: Unrestricted Constant and No Trend				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
DLX	1.234785	0.842364	2.735215	0.0177
DLK	0.754385	0.780031	2.456987	0.0234
DLM	-0.632044	0.059174	-0.894164	0.0032

Source: authors' estimates using Eviews 12 software

According to the model, there is an equilibrium relationship on the LT between all the variables of the model, so this relationship can take the following mathematical equation (a LT relationship):

DLGDP = 1.2347*DLEX + 0.7543*DLHC - 0.6320*DLIM

According to the results obtained in the table above (from LT's ARDL modelling), we observe that the human capital factor (HC) has a positive effect with a significance of less than 0.05 on gross domestic product (GDP). The variable exports (EX) contains a large coefficient (1.1247) with a significance of less than 0.05, which indicates that the volume of exports has a positive effect on gross domestic product (GDP), in other words, when the volume of exports increases by 1%, gross domestic product increases by 123.4%.

As for the human capital variable (HC), the results show us the presence of a positive causal link with strong significance (0.0234), i.e. when the school enrolment rate increases by 1%, gross domestic product increases by 75.43%. For the third variable, imports (IM), the data in the table show that this variable contains a strong negative coefficient with considerable significance. This shows that the volume of imports when they are low has a positive impact on the trade balance, and consequently on gross domestic product (GDP), i.e. if the volume of imports falls by 1%, GDP increases by 63.2%. From these results, we can deduce that the three exogenous variables (EX, IM and HC) have a positive and significant impact on economic growth, which in our study is expressed by GDP.

In order to confirm that there really is a causal link between all the variables analysed and that the model used is statistically acceptable, we decided to use the Bounds test. Taking into consideration the criteria of Pesaran et al, (2001). We can say that a LT relationship exists when the F test is highly significant (i.e. it must be higher than the 2.5% probability).

Table 8: Boundary testing

F-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	Value	Signif.	I(0)	I(1)
		Asymptotic:	n=1000	
F-statistic	**6.436189**	10%	3.68	3.84
k	3	5%	4.16	4.68
		2.5%	4.83	4.93
		1%	5.24	5.78

Source: authors' estimates using Eviews 12 software

The results obtained from the F-tests prove the presence of a LT causal relationship, because the results are quite significant and well above all bounds. In fact, the model used successfully overcame all the stability and diagnostic tests as shown in the table below, making it a robust and valid model.

Table 9: Results of diagnostic and stability tests

TEST	F statistic	Probability
Ramsey reset test	3.256131	0.1306
Correlationserial	3.560178	0.0863
Effect ARCH LM(2)	0.0049	0.9275
Heteroscedasticity	1.3352	0.3416
Normality: jarque-bera 0.1342 ; Probability 0.9213		
Stability test CUSUM et CUSUM-CARRÉ : stable		

Source: authors' estimates using Eviews 12 software

3. Study of causality between research variables

Causality analysis is very interesting for studying the importance of trade openness. In the table below, we will analyse the causal link between economic growth and the two trade variables (X and M) on the one hand, and between human capital and economic growth on the other. According to the Granger test, we find that:

- There is a strong causal relationship between gross domestic product (GDP) and the volume of exports (EX).
- There is a significant causal relationship (a relationship that varies in an opposite direction) between gross domestic product (GDP) and the volume of imports (IM).
- There is a strong causal relationship between gross domestic product (GDP) and HC (human resources education rate).
- There is a causal link in at least one direction between the three explanatory variables (EX, IM and HC) and the variable to be explained (GDP).

Table 10: Causality test using the Granger test

Null Hypothesis:	Obs	F-Statistic	Prob.
DLEX does not Granger Cause DLGDP	35	**8.31175**	**0.0035**
DLGDP does not Granger Cause DLEX		0.29441	0.6289
DLGDP does not Granger Cause DLIM	35	1.52317	0.4619
DLIM does not Granger Cause DLGDP		**0.67332**	**0.0328**
DLHC does not Granger Cause DLGDP	36	**7.83251**	**0.0298**
DLGDP does not Granger Cause DLHC		1.75009	0.7698
DLEX does not Granger Cause DLIM	36	1.02603	0.1921
DLIM does not Granger Cause DLEX		0.56871	0.9510
DLEX does not Granger Cause DLHC	36	0.04992	0.7433
DLHC does not Granger Cause DLEX		0.38710	0.6391
DLIM does not Granger Cause DLHC	36	1.33201	0.3196
DLHC does not Granger Cause DLIM		1.90365	0.1483

Source: authors' estimates using Eviews 12 software

In this research analysis we have focused on examining the importance of trade liberalisation in achieving economic growth in a country. Between the periods 1985 and 2020, the econometric model presented and the causality test indicated that a dynamic at the level of trade (an increase in exports with a rationalisation of imports) considerably causes economic growth, and more particularly, GDP. Thus, well-specialised, skilled and educated human capital generates an increase in real output. Furthermore, the causality between these three exogenous variables and economic growth has a critical probability of less than 0.05 (i.e. 0.0009), meaning that an increase in the volume of exports and human capital, together with a rationalisation of imports, generate an improvement in gross domestic product. In this respect, the results of our research work highlight the relevance and importance of trade, on the one hand, and the efficiency and qualification of human capital, on the other, have a decisive role in the dynamics and improvement of Morocco's economic growth.

CONCLUSION

The present research re-examines the place and role of skilled human capital and trade liberalisation in the development and improvement of Moroccan economic growth. Empirically, we have noted the ambiguity that underlies theoretical developments insofar as some research studies find a positive causal link between trade openness and economic growth (Feder, 1983; Sachs and Warner, 1995), while other researchers have remained sceptical about the presence of such a causal link (Rodriguez and Rodrick, 2000; Greenaway et al, 2002). This scepticism is explained in particular by a number of limitations encountered in these studies. Indeed, the most important for our knowledge are the limitations relating to conceptual and econometric issues. In fact, from a conceptual point of view, the indicators used in this work do not make it possible to detect, in a more exhaustive way, an appropriate policy of international openness for a particular economy. Econometrically, the techniques used do not allow us to ignore all the biases associated with unobserved individual variety.

It is mainly for these two reasons that we have assessed, on a panel analysing the case of Morocco between 1985 and 2020, our mathematical equation for Moroccan economic growth by including various indices simultaneously in this equation. In addition, we specified a single panel econometrics model based on the ARD method. Finally, we used F-tests to test the stability and diagnosticity of the variables, on the one hand, and the Granger test to measure the causal relationship and its direction between the analysed variables, on the other hand. In order to overcome the limitations of the empirical work on this subject, namely the non-exhaustiveness of the indices measuring trade openness and the existence of biases associated with unobserved individual variety, we have included in a single econometric equation for economic growth three indices measuring trade openness simultaneously (exports, imports and human capital). In addition, we estimated the panel econometrics model, namely the ARDL model.

All the tests processed indicate that the estimators of the ARDL model are unbiased, normal and convergent. Indeed, the results obtained from this estimation detect a significant positive impact of trade openness (EX and IM) on economic growth. We thus deduce that in order to benefit greatly from the advantages of trade openness, Morocco must accompany it with a specialised industrial policy that enables it to advance its trade, whether bilateral or multilateral, and to be the leader on the African continent. This confirms the principles of (Fontagné and Guérin, 1997), according to which free trade cannot play its major role in terms of economic development unless a certain number of conditions, intrinsic to the country, are taken into consideration, such as the tangible and intangible environment, the actions of the public authorities and the general macroeconomic framework.

From this, we can conclude that in order to be the leader and dominate the African market and conquer more world markets, Morocco must carry out a stable, gradual and well-adapted policy of openness, enabling it to promote its economic growth. The public authorities are therefore advised to pay more attention to actions that will generate added value and growth. In this respect, we can cite the encouragement and stimulation of human capital via the development and dissemination of NICTs, and also flexibility regarding access to financing for highly productive activities. The conclusions of our research work are far from decisive due to the limited number of exogenous variables. Consequently, the analytical perspectives remain open to exploit a fairly broad model that takes into account a fairly broad period as well as other exogenous variables such as FDI, the rate of bank penetration and exchange rates.

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