

# Exploring Supply chain resilience between china-Morocco trade within the BRI

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**Abstract:** This paper examines the resilience of supply chains between China and Morocco with Morocco's participation in the Belt and Road Initiative (BRI). requiring a comprehensive understanding of resilience strategies. Focusing on the bilateral trade relationship between China and Morocco, this research delves into the key determinants and challenges influencing supply chain resilience in the context of diverse industries and market conditions, including infrastructure development, transportation networks, trade policies, and risk management strategies. It also analyzes the challenges and opportunities arising from Morocco's participation in the BRI, such as increased foreign direct investment and access to new markets. This study provides valuable insights for policymakers, businesses, and stakeholders involved in cross-border trade and investment. The findings contribute to the existing export and import chain relationships between China and Morocco.

**Keywords:** supply chain resilience, China, Morocco, trade, Belt and Road Initiative (BRI), risk management strategies, export, import.

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## 1. INTRODUCTION

Supply chain resilience has become a critical aspect of global trade and economic cooperation, especially in the context of the dynamic and interconnected business environment. As supply chains face various challenges and disruptions, organizations and countries are increasingly recognizing the importance of building resilient supply chains to ensure continuity and minimize the impact of disruptions. This is particularly relevant in the context of trade relations between China and Morocco where the Belt and Road Initiative (BRI) has further deepened economic ties.

### a. Research Significance:

The significance of examining supply chain resilience between China and Morocco lies in the potential benefits and challenges arising from their trade relationship under the BRI. Understanding and improving supply chain resilience between these two countries can contribute to the following:

- ❖ **Economic Growth:** Strengthening supply chain resilience can foster more robust trade relationships and facilitate the flow of goods and services between China and Morocco, leading to greater economic growth and prosperity.
- ❖ **Risk Mitigation:** By Identifying and addressing supply chain vulnerabilities enables companies to better manage and mitigate risks associated with disruptions such as natural disasters, political instability, or logistical difficulties.
- ❖ **Policy Formulation:** The findings of this research can provide valuable insights for policymakers in both China and Morocco, aiding in the formulation of effective policies and strategies to enhance supply chain resilience and promote sustainable economic cooperation.

**b. Problem Statement:**

The China-Morocco trade relationship faces challenges in maintaining supply chain resilience due to geopolitical uncertainties, transportation complexities, and unforeseen disruptions like pandemics. Understanding the vulnerabilities and strengths of the supply chain is crucial for both nations to navigate these challenges effectively and sustain a robust trade partnership. This study addresses the need for a comprehensive analysis of the factors influencing supply chain resilience in the context of China-Morocco trade, aiming to identify key issues and propose strategies to enhance the adaptive capacities of the supply chain in the face of dynamic global conditions.

**c. Research Objectives:**

The primary objectives of this research are as follows:

- ❖ Assess the current state of supply chain resilience in the China-Morocco trade relationship, considering factors such as geopolitical influences, transportation infrastructure, and regulatory framework.
- ❖ To identify the challenges and opportunities associated with China and Morocco trade, particularly in relation to supply chain resilience (export and import).
- ❖ To evaluate the impact of the BRI on supply chain dynamics, connectivity, and trade relationships.
- ❖ To propose strategies and recommendations to enhance the resilience of supply chains and promote a balanced and mutually beneficial trade relationship between China and Morocco.

By addressing these research objectives, this study aims to contribute to the knowledge and understanding of supply chain resilience in the China-Morocco context and provide practical insights that can inform policymakers, industry practitioners, and academics involved in China-Morocco trade within the BRI framework. Ultimately, the research seeks to support the development of robust supply chain strategies, effective risk management practices, and sustainable economic cooperation between China and Morocco.

## 2. LITERATURE REVIEW

**a. study area: China-Morocco Relations.**

China has greatly increased its presence in North Africa in terms of trade and investment over the past two decades. One of the countries with which it has developed relations in North Africa is Morocco, which has an important point in terms of geostrategic location. Pragmatism may be the best word to describe China-Moroccan relations. Because both parties are aware of each other's importance and therefore try to use these beneficial aspects. Although China knows that Morocco is a state close to the West, it continues its intention to establish good relations with Morocco due to its geostrategic position. Morocco's ties with the Gulf countries, its membership in the African Union, its diplomatic closeness with Sub-Saharan Africa is welcomed by China, but it also increases the attractiveness of Morocco.

In November 2016, Morocco announced it is currently planning to develop a new economic hub in the north of the country, with the assistance of development organisations and Chinese multinationals, including the international aeronautics firm Haite Group, Morocco-China International and BMCE Bank of Africa. The project is projected to cost \$US11 billion.

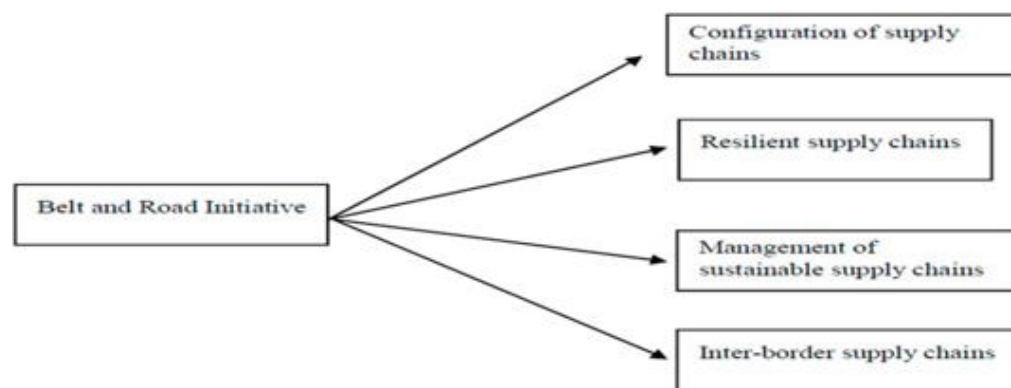
Trade exchanges increased considerably during the years and China became the 4th commercial partner of the country in 2018, representing 6,6% of Moroccan exchanges. This new dynamic regarding economic relations between the countries was illustrated by the visit in 2016 of His Majesty King Mohamed VI in Beijing and the signature of numerous agreements in multiple sectors, including energy, mining, infrastructures, industry and investment.

In January 2022, Morocco and China have enhanced their cooperation as they signed the joint Belt and Road implementation plan, Morocco became the first country in North Africa to sign comprehensive cooperation with China. Chinese nationals are exempt from visa for Morocco, for a maximum stay of 90 days, Morocco becomes a popular destination for more and more Chinese tourists.

### b. Impacts of Belt and Road Initiative on Supply Chain Management between china-morocco.

Morocco is the first North African nation to commit to China's Belt and Road Initiative (BRI) implementation plan. As China continues to spread its reach further west, Morocco will become an increasingly important strategic gateway to the Mediterranean. However, Chinese investment in Morocco predates this BRI agreement. Chinese technology and digital infrastructure is utilized throughout the country, across multiple industries. While much has been written about the efficacy of physical BRI projects in North Africa, Chinese dominance in Morocco's digital sector has been largely overlooked, despite its considerable economic, geopolitical, and security implications.

The Belt and Road Initiative is Chinese President Xi Jinping's signature project, and the world's largest infrastructure program. Chinese investment in Africa— an estimated \$153 billion between 2000 and 2019—has provided key economic stimulus, and has filled a void in capital investment, hard infrastructure, and technology development that western partners have failed to fill. The Chinese government introduced the Digital Silk Road (DSR) in 2015 as a component of its Belt and Road Initiative. It is essentially a rebranding of the technology dimension of the BRI and encompasses “the development of the digital service sector, such as cross-border e-commerce, smart cities, telemedicine, and internet finance.” It intends to accelerate “technological progress including computing, big data, Internet of Things, artificial intelligence (AI), block chain, and quantum computing.” Using the DSR, China aims to pave the way for Chinese companies to become the standard for communication technologies around the world; increase China's influence over technology, cybersecurity, and surveillance norms.



**Figure 1. Conceptual framework of the implications of the Belt and Road Initiative (BRI) on supply chain management.**

### c. supply chain risk management:

The hazards that supply chains must contend with are growing. In a world where product lifecycles are shorter, supply networks are integrated, manufacturing processes are updated often, and there is a greater drive to increase efficiency<sup>1</sup>. Consequently, in order to preserve their sustainability and reduce supply chain susceptibility, businesses need to manage supply chain risks.

#### ❖ SCRM

SCRM is described by Ho et al. as a multi-combined effort that uses quantitative and qualitative risk management techniques to handle unforeseen events that can have a detrimental effect on the supply chain.

The majority of research has indicated that SCRM consists of four primary phases: risk monitoring, identification, assessment, and mitigation. These phases are comparable to the ISO 31000 risk management procedure. They enable the decision-maker to assess the risk and implement the necessary countermeasures. The risk needs to be watched over even if it is deemed acceptable. Risk mitigation is necessary if not risk mitigation is required.



Fig 2: Risk management according to ISO 31000



Fig 3: Supply Chain Risk Management Market Growth, Size, Analysis, Outlook by 2023.

### 3. METHODOLOGY OF THE STUDY

This study employs a descriptive and analytical research design to scrutinize the supply chain resilience in China-Morocco trade from 2021 to 2023. Focusing on Morocco's imports and exports with China during this period, the analysis examines key product categories, growth rates, and trade trends. The goal is to draw meaningful conclusions about the dynamics and trends, shedding light on the supply chain resilience between the two countries. Through a comparative analysis, the research aims to identify shifts in the economic relationship, providing insights into potential implications. The study's findings contribute to a nuanced understanding of the evolving trade dynamics in this timeframe.

#### a. China-Morocco In 2021.

China exported \$6.43B to Morocco. The main products that China exported to Morocco are Vaccines, blood, antisera, toxins and cultures (\$577M), Broadcasting Equipment (\$424M), and Tea (\$214M). During the last 26 years the exports of China to Morocco have increased at an annualized rate of 15.3%, from \$159M in 1995 to \$6.43B in 2021.

Morocco-China In 2021, Morocco exported \$523M to China. The main products that Morocco exported to China were Copper Ore (\$69.7M), Refined Copper (\$53.5M), and Zinc Ore (\$51.6M). During the last 26 years the exports of Morocco to China have increased at an annualized rate of 8.66%, from \$60.3M in 1995 to \$523M in 2021.

Comparison In 2021, China ranked 25 in the Economic Complexity Index (ECI 1.07), and 1 in total exports (\$3.34T). That same year, Morocco ranked 78 in the Economic Complexity Index (ECI -0.28), and 61 in total exports (\$41.9B).

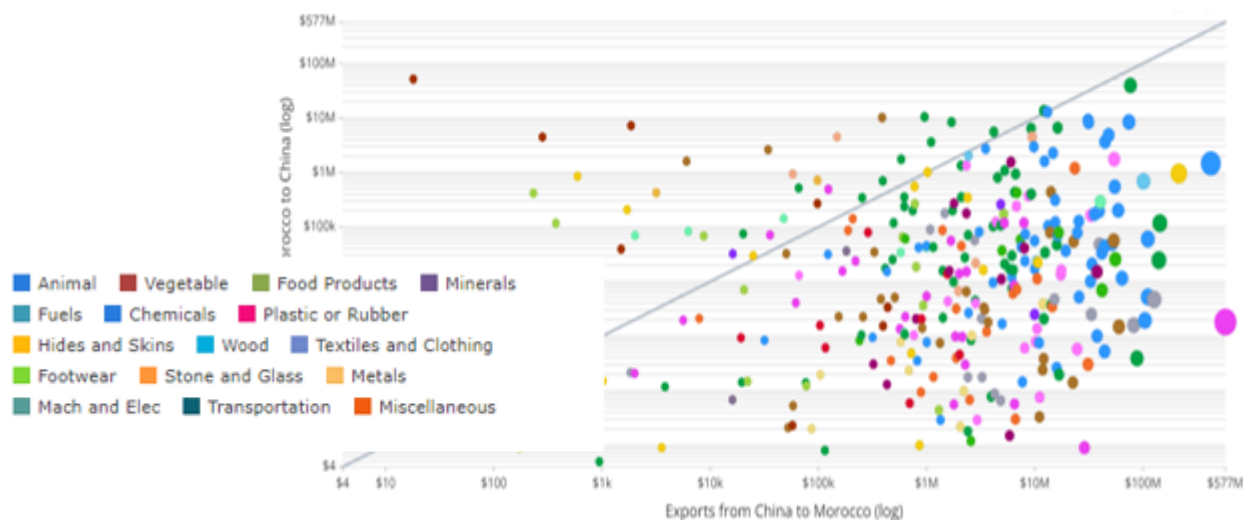


Fig 4: Source:oec.world/Export from Morocco to china and china to Morocco .

#### b. Moroccan exports to China reached an all-time high in 2022.

With global trade on the rise, shipping from China to Morocco has become a vital part of economic activity. According to the data, total imports from China to Morocco amounted to about \$534.9 million in December 2022, indicating the important role played by China in the Moroccan market.

However, shipping from China to Morocco can be challenging due to the 8,456 nautical miles. However, thanks to modern technology and improvements in logistics, it is now possible to ship goods efficiently and cost-effectively.

It shows the key export categories, their values, and their contribution to the total trade between Morocco and China.

The Excel table summarizes Morocco's 2022 exports to China, showcasing key categories and their impact. Electrical Equipment and Accessories lead with \$526.17 million, comprising 75.85% of the total exports. Mineral and Metal Products follow at \$245.12 million (26.95%), while Textile, Accessories, and Leather contribute \$76.28 million (15.54%). Agricultural Exports amount to \$32.19 million (3.88%). The table offers a concise view of trade dynamics, revealing the dominance of electrical equipment and the diversification of Morocco's exports. The total export value stands at \$909.51 million, emphasizing China's significance as a trading partner for Moroccan products.

Table 1. data source Total Exports: \$909.51 million

Category	Value (USD)	% of Total Exports
Electrical Equipment and Accessories	\$526.17 million	75.85%
Mineral and Metal Products	\$245.12 million	26.95%
Textile, Accessories, and Leather	\$76.28 million	15.54%
Agricultural Exports	\$32.19 million	3.88%

#### c. Total export and import in 2023 between china and morocco.

In October 2023, China exported \$480M and imported \$74.6M from Morocco, resulting in a positive trade balance of \$406M. Between October 2022 and October 2023 the exports of China have increased by \$25.7M (5.66%) from \$455M to \$480M, while imports increased by \$11.7M (18.6%) from \$62.9M to \$74.6M.

Trade In October 2023, the top exports of China to Morocco were Telephones (\$33.1M), Tea (\$29.4M), Synthetic Filament Yarn Woven Fabric (\$25.9M), Light Fixtures (\$19.7M), and Video Displays (\$11.5M). In October 2023 the top imports of

China from Morocco were Integrated Circuits (\$20.2M), Semiconductor Devices (\$11.6M), Zinc Ore (\$6.88M), Non-Knit Women's Suits (\$3.74M), and Refined Copper (\$2.7M).

Origins In October 2023 the exports of China were mainly from Zhejiang Province (\$165M), Guangdong Province (\$84.8M), Shandong Province (\$44.9M), Jiangsu Province (\$44.6M), and Fujian Province (\$16.9M), while imports destinations were mainly Shanghai Province (\$25.3M), Guangdong Province (\$19.8M), Jiangsu Province (\$5.25M), Fujian Province (\$4.74M), and Zhejiang Province (\$4.65M).

Growth In October 2023, the increase in China's year-by-year exports to Morocco was explained primarily by an increase in product exports in Tea (\$18.4M or 166%), Synthetic Filament Yarn Woven Fabric (\$14.5M or 127%), and Sulfuric Acid (\$11.1M or 370k%). In October 2023, the increase in China's year-by-year imports from Morocco was explained primarily by an increase in product imports in Semiconductor Devices (\$10.2M or 731%), Zinc Ore (\$6.28M or 1.05k%), and Integrated Circuits (\$5.25M or 35.2%).

**Table 2. data source**

Year	Direction	Top export	Value (USD)	Growth(YOY)
2023	China to Morocco	Telephones, Tea, Yarn Fabric	\$33.1M	166%
2023	China from Morocco	Integrated Circuits, Zinc Ore	\$20.2M	731%
2023	Exports by Province	Zhejiang, Guangdong, Shandong	-	-
2023	Imports by Province	Shanghai, Guangdong, Jiangsu	-	-
2023	Growth Exports Expl.	Tea, Yarn Fabric, Sulfuric Acid	-	-
2023	Growth Imports Expl.	Semiconductors, Zinc Ore, Circuits	-	-

The table for China-Morocco trade in 2023 encapsulates pivotal aspects of their economic exchange. In the exports from China to Morocco, telephones, tea, and synthetic filament yarn woven fabric stand out, amounting to \$33.1 million in total. Notably, tea exports have experienced a remarkable 166% growth year-on-year. Conversely, China's imports from Morocco include integrated circuits and zinc ore, totaling \$20.2 million, with semiconductor devices witnessing an extraordinary 731% growth.

The provincial breakdown reveals Zhejiang and Guangdong as significant contributors to China's exports, while Shanghai and Guangdong are primary destinations for imports. The growth explanations shed light on the driving factors behind the expansion in trade. For exports, the surge is attributed to notable increases in tea, yarn fabric, and sulfuric acid. On the import side, semiconductor devices, zinc ore, and integrated circuits witnessed substantial growth.

This concise table serves as a comprehensive snapshot of the dynamic trade relationship between China and Morocco in 2023, offering insights into key product categories, regional contributions, and the notable factors driving trade expansion.

#### **d. Economic growth studies morocco**

Morocco faced multiple interrelated challenges in 2022, primarily driven by an impactful drought, accounting for nearly half of the economic slowdown that year. Concurrently, global economic deceleration and escalating international commodity prices, spurred by Russia's invasion of Ukraine, added to the difficulties. Consequently, the real GDP growth plummeted from 8% in 2021 to 1.3% in 2022. However, as the repercussions of these adversities diminish, 2023 showcases a resurgence in growth. This revival is propelled by the partial recovery of agricultural output, a rebound in the tourism sector, and the favorable contribution of net exports. Notably, real GDP annual growth rebounded to 3% in the first half of 2023, reflecting positive signs of economic recovery.

#### **e. China GDP growth rate.**

China GDP growth rate for 2022 was 2.99%, a 5.46% decline from 2021. China gdp growth rate for 2021 was 8.45%, a 6.21% increase from 2020. China gdp growth rate for 2020 was 2.24%, a 3.71% decline from 2019.

China's National Bureau of Statistics (NBS) has released the economic data for September and the first three quarters of 2023. The data shows strong recovery in the third quarter of the year, with GDP growth beating forecasts and services and consumption rebounding.

Earlier in October, the General Administration of Customs (GAC) also released China's foreign trade data for the first nine months of the year, showing that the ongoing contraction in imports and exports has narrowed.

The positive economic figures offer an optimistic view of the country's growth trajectory going into the fourth quarter, and place it in good standing to hit its annual growth target.

#### 4. CONCLUSIONS AND RECOMMENDATION

The study highlights the paramount importance of supply chain resilience in the dynamic trade relations between China and Morocco. The research underscores the significance of building resilient supply chains to foster economic growth, mitigate risks, and inform policy formulation. Challenges such as geographical distance, cultural disparities, and potential imbalances in BRI projects necessitate attention for a balanced and mutually beneficial trade relationship.

Methodologically, the research employs a descriptive and analytical approach, examining trends in supply chain resilience between 2021 and 2023. Trade dynamics, export-import values, and key product categories provide insights into the evolving relationship between the two nations. Economic growth studies reveal challenges faced by Morocco in 2022, with a notable resurgence in 2023, while China's robust recovery sets a positive trajectory.

Looking ahead, proposed strategies should focus on overcoming challenges, enhancing risk management, and fostering sustained collaboration. The continuous adaptation of policies to changing dynamics is crucial for building a resilient and mutually beneficial trade relationship. Ultimately, the findings contribute significantly to the literature on supply chain relationships and offer practical insights for policymakers, industry practitioners, and academics involved in China-Morocco trade within the BRI framework.

#### REFERENCES

- [1] Yahia Zoubir, "Expanding Sino-Maghreb Relations", Chatham House, Middle East and North Africa Programme, February 2020, s. 12.
- [2] "Morocco Plans to Partner With China to Construct a New Industrial City". *Railwaysafrica.com*. Retrieved 17 April 2018.
- [3] "Morocco belt and road deal could give China gateway to Mediterranean, experts say". *www.scmp.com*. Retrieved 8 January 2022.
- [4] "List of countries whose citizens are exempted from entry visa into Morocco". Ministry of Foreign Affairs and International Cooperation.
- [5] "An outlook on Tourist Attractions in Morocco: the Booming of Chinese Arrivals" (PDF). The Center for West African Studies of University of Electronic Science and Technology of China (CWAS of UESTC).
- [6] Zhao, Ben, Morocco belt and road deal could give China gateway to Mediterranean, experts say, *South China Morning Post* (Jan. 8, 2022), <https://www.scmp.com/news/china/diplomacy/article/3162587/morocco-belt-and-road-deal-could-give-china-gateway>.
- [7] Malik, Ammar A., et al., Banking on the Belt and Road: Insights from a new global dataset of 13,427 Chinese development projects, *AidData* (Sept. 2021) at 3, <https://www.aiddata.org/publications/banking-on-the-belt-and-road>.
- [8] Brautigam, Deborah, Huang Yufan, & Acker, Kevin, Risky Business: New Data on Chinese Loans and Africa's Debt Problem, *China Africa Research Initiative* (2020). No.32. <https://static1.squarespace.com/static/5652847de4b033f56d2bdc29/t/6033fadb7ba591794b0a9dff/1614019291794/BP+3+--+Brautigam%2C+Huang%2C+Acker+--+Chinese+Loans+African+Debt.pdf>. In 2014, a year after the peak of Chinese lending commitments in Africa, the International Monetary Fund predicted that sub-Saharan Africa would continue to grow at a rate of 5.5%. COVID-19, among other factors, have slowed this growth. However, Chinese investment has still been key in building essential infrastructure such as roads, electrical grids, and airports, across the continent, boosting the economy in pivotal industries.
- [9] Chinese Loans to Africa Database, *China Africa Research Initiative*, <http://www.sais-cari.org/data>; China's Belt and Road Implications for the United States, Council on Foreign Relations, Independent Task Force Report No. 79 (Mar. 23, 2021), at 36, 87, 97, <https://www.cfr.org/belt-and-road-initiative>.

- [10] Yong, Huang, Construction of Digital Silk Road lights up BRI cooperation, People's Daily (April 24, 2019), <http://en.people.cn/n3/2019/0424/c90000-9571418.html>.
- [11] Id.
- [12] Motolani Agbebi, China's Digital Silk Road and Africa's Technological Future, Council on Foreign Relations (Feb. 1, 2022), <https://www.cfr.org/blog/chinas-digital-silk-road-and-africas-technological-future>.
- [13] TANG O., & MUSA S. N. Identifying risk issues and research advancements in supply chain risk management. *International Journal of Production Economics*, 2011,133(1): 25-34. <https://doi.org/10.1016/j.ijpe.2010.06.013>.
- [14] HO W., ZHENG T., YILDIZ H., and TALLURIS. Supply chain risk management: a literature review. *International Journal of Production Research*, 2015, 53(16): 5031-5069.
- [15] CIGOLINI R., & ROSSI T. Managing operational risks along the oil supply chain. *Production Planning & Control*, 2010, 21(5): 452-467. <https://doi.org/10.1080/09537280903453695>
- [16] INTERNATIONAL ORGANIZATION FOR STANDARDIZATION. ISO 31000: Risk management, 2018. <https://www.iso.org/iso-31000-risk-management.html>.
- [17] ADHITYA A., SRINIVASAN R., and KARIMI I. A. Supply Chain Risk Management through HAZOP and Dynamic Simulation. *Computer Aided Chemical Engineering*, 2008, 25: 37-42. [https://doi.org/10.1016/S1570-7946\(08\)80011-9](https://doi.org/10.1016/S1570-7946(08)80011-9).
- [18] 国际标准化组织。国际标准化组织 31000：风险管理，2018年。 <https://www.iso.org/iso-31000-risk-management.html>.
- [19] <https://oec.world/en/profile/bilateralcountry/chn/partner/mar?dynamicBilateralTradeSelector=year2020>.
- [20] . The author of this article is the presidents of the Africa - china cooperation association for development Tuesday 21 February 2023 - 11:00 HESPRESS English – Morocco News -Economy.
- [21] The author of this article is the presidents of the Africa - china cooperation association for development Tuesday 21 February 2023 - 11:00 HESPRESS English – Morocco News -Economy.
- [22] <https://oec.world/en/profile/bilateral-country/chn/partner/mar?dynamicBilateralTradeSelector=year2020>
- [23] <https://www.worldbank.org/en/country/morocco/overview#2>.
- [24] Data Source: World Bank<[a href='https://www.macrotrends.net/countries/CHN/china/gdp-growth-rate'](https://www.macrotrends.net/countries/CHN/china/gdp-growth-rate)>China GDP Growth Rate 1961-2024</a>. [www.macrotrends.net](http://www.macrotrends.net). Retrieved 2024-01-06. <https://www.worldbank.org/en/country/china/overview>.