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Jordan Industrial Competitiveness Report 2022

JICR 2022

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List of abbreviations

ACI	Amman Chamber of Industry
CAGR	Compound Annual Growth Rate
CIP	Competitive Industrial Performance
DFZC	Development and Free Zones Commission
EMDI	Export Market Diversification Index
EPD	Economic Policy Directorate
EQuIP	Enhancing Qualities of Industrial Policy
EMDI	Export Market Diversification Index
EMV	Economic Modernization Vision
EU	European Union
FBT	Food, Beverage, and Tobacco
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
HS	Harmonized Commodity Description and Coding System
HT	High Technology
IDD	Industrial Development Directorate
IMD	International Institute for Management Development
IP	Industrial Policy
ISIC	International Standard Industrial Classification of All Economic Activities
JCI	Jordan Chamber of Industry
JD	Jordanian Dinar
JEDCO	Jordan Enterprise Development Corporation
JICR	Jordan Industrial Competitiveness Report
LAC	Latin America and the Caribbean
LFPR	Labour Force Participation Rate
LT	Low Technology
M&E	Monitoring and Evaluation
MENA	Middle East and North Africa
MHT	Medium- and High-Technology
MITS	Ministry of Industry Trade & Supply
MPDI	Manufactured Product Diversification Index
MT	Medium Technology
MVA	Manufacturing Value Added
R&D	Research and Development
RB	Resource Base
RCA	Revealed Comparative Advantage
SDG	Sustainable Development Goals
SITC	Standard International Trade Classification
SITC	Standard International Trade Classification
SME	Small and Medium Enterprise
UAE	United Arab Emirates
UNCOMTRADE	United Nations International Trade Statistics Database
UNCTAD	United Nations Conference on Trade and Development
UNIDO	United Nations Industrial Development Organization
UNIDO INDSTAT	UNIDO Industrial Statistics Database
USD	United States Dollar
WDI	World Development Indicators
WEF	World Economic Forum
WITS	World Integrated Trade Solution



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Executive Summary

The Jordan Industrial Competitiveness Report 2022 (JICR 2022) serves two purposes. First, it provides a comprehensive assessment of the competitiveness of Jordan's manufacturing sector benchmarked against selected comparator countries. In particular, the report assesses Jordan's manufacturing sector with respect to its production and export performance. Second, the JICR also documents the conceptual and analytical knowledge the technical team and authors of this report under the supervision of the Ministry of Industry, Trade, and Supply and the Chamber of Industry have acquired. This conceptual and technical knowledge is key and lays the foundation for a future process of designing a new industrial policy in Jordan.

Section A introduces the relevance of the industrial sector for the overall economic development of a country and provides the rationale for this report. It further discusses various approaches to industrial competitiveness and how this can be measured. On the basis of UNIDO's approach to industrial competitiveness, it develops the guiding principles but also the scope and limitation of this report. Section A also provides a first overview about the manufacturing sector in Jordan and discusses the results from previous industrial performance reports on the country.

Subsequent to a thorough selection of benchmark countries, **section B** presents the results of the assessment. It reveals two distinct periods of manufacturing development in Jordan. The first involved an extraordinary growth rate of 10.2% per year between 2000 and 2008. This was followed by a strong deceleration of manufacturing growth between 2009 and 2019, with an annual growth rate of only 1.8%. During the first period, the industrial sector was the driving force of economic development, which led to a structural transformation of the economy by growing the share of manufacturing value added (MVA) in gross domestic product (GDP) from 13.5% in 2000 to 21.2% in 2008. In the following period this share declined again to reach 17.7% in 2019.

The report also reveals a declining manufacturing volume (MVA per capita) meaning that the manufacturing sector has not been keeping up with the dynamic population growth and has been decreasingly able to accommodate the country with demanded manufactured goods. This dynamic is also reflected in Jordan's growing trade deficit in manufactured goods.

Jordan's production structure is concentrated, with food, beverages and tobacco as well as chemicals accounting for about half of MVA. The manufacturing sector is dominated by low and medium-low technology sectors. Jordan's production structure, both with respect to the composition of sub-sectors as well as technology sectors, did not significantly change between 2010 and 2018.

The analysis reveals that 44% of Jordan's total exports in 2019 were enjoying growth in the world market share in dynamically growing industries. This places Jordan 2nd in the ranking among the studied countries. However, Jordan's main area of benefit was from growing global demand in low-technology sectors. At the same time, the country also increased market shares in shrinking global markets that are mostly primary and resource-based industries. In high-tech industries, that are globally booming, Jordan has been losing market shares.

For a country with a relatively small domestic market, tapping into export demand is a way to gain from economies of scale and to foster productivity growth. Despite Jordan's progress in increasing exports of manufacturing goods between 2000 and 2008, the country still shows low manufacturing exports and has not yet fully utilized the advantages of a deeper global market integration.

In fact, the only sector that significantly expanded its share in Jordan's exports is the low-technology textile products sector. Due to the increased share of textile products in exports, the share of medium and high technology products in 2019 (36%) is even lower than the one from 2000 (44%), placing Jordan third last among benchmark countries.

Exports from Jordan are highly concentrated. The analysis reveals an even lower degree of diversification of exports compared to production, as it focusses almost entirely on garments and chemicals/pharmaceuticals. Jordan's export markets are also very concentrated, with two-thirds of Jordan's manufactured exports going to two markets: the Middle East and North Africa and the United States. Despite some improvements in the export market diversification, Jordan, compared to its benchmark countries, exhibits a high economic vulnerability deriving both from high concentration in export markets and products.

Section C is dedicated to providing a framework for developing the future JICR recommendations and, a new policy in Jordan. It documents the preliminary results of the workshop on policy development.

The section reflects on previous experiences of industrial policy in Jordan. It also discusses the high expectations that rest on the industrial sector in Jordan's Economic Modernization Vision 2033, the recently released national development strategy. In doing so, it provides the opportunity to put the targets of the EMV in perspective, both, against the historic performance of Jordan's manufacturing sector as well as against international trends.

The identification and prioritization of policy objectives in this report has been informed by two sources: first, by the preliminary strategic orientation of the policy and its linkages to the EMV, and second, by the findings of the data analysis that was carried out during the production of Part B of this report

Four policy implications elaborated upon in this report. These implications are: (1) Increase the share of manufacturing in the economy, (2) Diversify the range of manufactured goods, (3) Promote medium and high-tech industries and (4) Expand export markets.

This section makes recommendations for future additions to the Jordan Industrial Competitiveness Report (JICR) and discusses the types of assessments that can be included.



1 Introduction

The significant role industrial development can play for growing and transforming economies and, in doing so, increasing the well-being of a society is widely accepted. The decision of the Royal Government of Jordan to investigate and improve the performance of the manufacturing sector sits well with a renewed global appreciation of industrial development as an effective tool for low- and middle-income economies to catch up with developed countries. Industrial policy is also regaining prominence in the industrialized world to facilitate the transition toward a green and digital economy, as well as to strengthen the development of countries' strategically important industries. The global resurgence of industrial policy is grounded in the understanding that any desired structural transformation requires significant and well-tailored government interventions, centred on a close collaborative relationship with the private sector. The importance of inclusive and sustainable industrial development is internationally recognized and is reflected in the dedicated Sustainable Development Goal (SDG) 9 in the UN Agenda 2030.

This report is intended to provide a stepping stone in the process of designing a new industrial policy for Jordan. The report is structured in three sections. Section A presents a conceptual and theoretical background for analysing industrial development and industrial policy. Section B contains an analysis of Jordan's industrial performance. Finally, Section C outlines recommendations for how to proceed with developing Jordan's new industrial policy based on the findings of the analysis.

Section A – "Setting the Scene" – presents an introduction to the challenges countries face in the industrial development process and outlines the relevant concepts, along with the methodology and limitations of this report. It makes the case for industrial development in Jordan and provides an overview of the challenges facing the manufacturing sector.

Section B – "Competitive Industrial Performance" – assesses Jordan's industrial performance against regional and international comparators. This section investigates Jordan's industrial competitiveness, including the vulnerability of the manufacturing sector using the manufactured Product Diversification Index and the Market Diversification Index. Furthermore, it analyses Jordan's ability to change production dynamics and compete in most dynamic global markets.

Section C – provides a structured overview of previous industrial policy experiences in Jordan. This section also discusses the potential role of the industrial sector in the overall development of Jordan in the context of Jordan's 2022 *Economic Modernization Vision (EMV)*. Based on the findings of the report and additional evidence, key issues to consider during the development of a new policy and industrial competitiveness report for Jordan are discussed.



A. Setting the Scene

2. Why industrialisation matters for development

The existence of a strong causal relationship between manufacturing growth and gross domestic product (GDP) growth is well documented in development and growth literature (Pacheco-López and Thirlwall, 2013). Szirmai and Verspagen (2015) analysed the correlation between manufacturing value added (MVA) and GDP for 92 countries, and found that the manufacturing sector is the main engine of growth in low and in several middle-income countries if an adequate labour force is available. Additionally, Al Zoubi (2014) assesses the impact of different sectors on Jordan's economy using input-output multiplier analysis and found that manufacturing had a high output multiplier effect, which reached 5.23 in 2009. That is, if final demand for manufactured products increased by 1 Jordanian Dinar (JD), it generated an increase in total production (including labour services produced by the household sector) in all sectors, which amounted to 5.23 JDs.¹

The understanding of the significant role of manufacturing for the overall development of a country is based, both, on theoretical arguments and strong evidence from countries which prioritized industrial development. Although differences exist regarding the appropriate approach to promoting industrial development as well as the role of the state in the industrialization process, manufacturing is considered the main engine of economic prosperity. Arguably more than other sectors, manufacturing can achieve significant gains in productivity and value addition by absorbing new technologies and innovation. Manufacturing creates jobs across a wide range of skill levels and, hence, offers income opportunities to the broader population. Industrial development may also have multiple positive development implications beyond the manufacturing sector. Due to various linkages to other sectors of the economy, industrial development can stimulate growth and employment in related sectors such as agriculture and mining as well as, in particular, service industries.

Manufacturing can become a key driver for economic recovery in a post-pandemic world, leading to more innovation, higher productivity, more and better jobs, more exports, and higher living standards. Manufacturing companies in Jordan have the potential to take multiple actions to support industrial development. Producers can diversify and upgrade exports, and participate in global value chains. Companies can also innovate and move up the quality ladder. Innovation can involve producing and exporting more technologically advanced or differentiated products. It can also involve marketing through branding and geographic indications.

Furthermore, industrialization can also help to drive social and environmental development. These elements of sustainable development can be supported through growth that is managed well. While the analysis in this report focuses on competitiveness (see Sections 3 and 4), industrial policy can also benefit from considering social and environmental elements. This can involve setting targets that include economic, social, and environmental components.

3. Conceptual framework of industrial competitiveness

For a country to benefit from a developing manufacturing sector, it has to ensure that the industrial sector becomes or remains competitive. Industrial competitiveness is key to inclusive and sustainable industrial development. It shapes sectoral specialization and consequent structural change. It thus also determines the contribution of industry to overall prosperity and long-run sustainable growth.

In this report, industrial competitiveness is understood as “the capacity of countries to increase their industrial presence in domestic and international markets while developing industrial structures in sectors and activities with higher value added and technological content” (UNIDO 2016). Competitiveness has become one of the key issues on national policy agendas. In recent years, numerous countries, including in the Middle East and North Africa (MENA) region, have established competitiveness councils, productivity commissions, or high-level advisory groups with the distinct aim to enhance national growth, productivity and competitiveness (see Table 1).

National reports that undertake systematic analyses to identify national strengths and weaknesses of their manufacturing sectors have been prepared in a broad range of countries (see Table 2), including the chosen benchmark countries of this report (see Section 5.1). Reports on productivity and competitiveness have also been conducted by think tanks and non-governmental organizations, including the World Economic Forum (WEF), which publishes the *Global Competitiveness Report*.

¹ Al Zoubi (2014) concludes that the manufacturing sector had the greatest output multiplier in 2009 compared with 4.04 JDs in 2000.

Table 1. Competitiveness councils in the MENA region and selected countries

Councils	
Egypt	Egyptian National Competitiveness Council (ENCC) www.encc.org.eg ENCC is a non-profit policy advocacy group established by Egyptian businessmen committed to improving Egypt's productivity and competitiveness
Saudi Arabia	National Competitiveness Center (NCC) www.ncc.gov.sa/en
Tunisia	Tunisian Institute of Competitiveness and Quantitative Studies (ITEQ) www.itceq.tn ITCEQ is a public non-administrative institution under supervision of the Ministry of Development Investment and International Cooperation
UAE	Federal Competitiveness and Statistics Authority (FCSA) https://fcsa.gov.ae

Table 2. Selected benchmarking reports on productivity and competitiveness

Country	Report
Australia	Department of Industry, Science and Resources, Measuring the Knowledge-based Economy: How Does Australia Compare? June 1999.
Finland	Ministry of Finance, Benchmarking Finland: An Evaluation of Finland's Competitive Strengths and Weaknesses, May 1998.
Ireland	The National Competitiveness Council, Annual Competitiveness Report 2012.
United Kingdom	Department of Trade and Industry (DTI), Our Competitive Future: UK Competitiveness Indicators 1999.
United States	Council on Competitiveness, The New Challenge to America's Prosperity: Findings from the Innovation Index.
Others	World Economic Forum, Global Competitiveness Report. IMD, Institute for Management Development (IMD).

3.1 What are relevant pillars on competitiveness?

To identify the most relevant pillars, indicators and data sources for this report, existing reports have been examined. Table 6 in section 4.2 shows relevant reports that consider Jordan's comparative performance relative to the proposed benchmark countries (see Section 5.1). Of particular interest is to identify indicators that have been used by these studies.

3.1.1 Competitiveness pillars used in other studies

The majority of reports take a broad perspective and examine a set of drivers, including attitudes of society and policies towards rewarding creativity, risk-taking, and entrepreneurship; infrastructure; functioning of markets; innovation; and institutions, regulations (e.g., tax policies), the business environment, and macroeconomic environment. The reports differ in their choice of the drivers and how they organize them in their respective models. Some examine overall competitiveness (i.e., WEF, International Institute for Management Development [IMD]) while more specialized reports examine specific drivers (i.e., business environment, innovation). Each driver is examined through a wide range of cross-country (and country-specific) indicators, including compilations of quantitative data as well as drawing information from surveys (e.g., of business executives) (see Table 3).

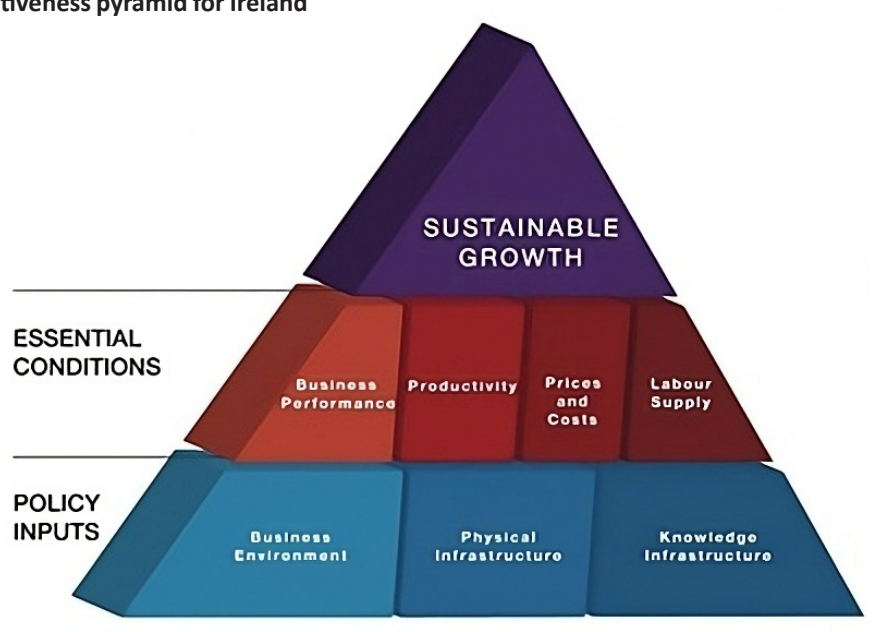
The WEF *Global Competitiveness Report 2017-2018*, for example, groups' indicators into 12 "pillars" (see Table 3). Ireland has used a Competitiveness Score (see Table 3) and has also used a "competitiveness pyramid" (see Figure 1)). At the top of the pyramid is sustainable growth in living standards. Below this are the essential conditions for achieving competitiveness, including business performance (such as trade, investment, and business sophistication), productivity, prices and costs and labor supply. These can be seen as the metrics of current competitiveness. Lastly, there are the policy inputs covering three pillars of future competitiveness, namely the business environment (taxation, regulation, finance and social capital), physical infrastructure and knowledge infrastructure.

Table 3. Examples of pillars / areas / bundles / drivers of competitiveness and growth

Global Competitiveness Report	Ireland's Competitiveness Scorecard
Basic requirements:	Sustainable Growth
Institutions	Macroeconomic Sustainability
Infrastructure	Quality of Life
Macro-economic environment	Environmental Sustainability
Health and primary education	Essential Conditions
Efficiency enhancers:	Business Performance
Higher education and training	Business Investment
Goods market efficiency	Trade
Labor market efficiency	Productivity and Innovation
Financial market development	Productivity
Technological readiness	Innovation
Market size	Prices and Costs
Innovation and sophistication factors:	Prices
Business sophistication	Pay Costs
Innovation	Non-Pay Costs
	Employment and Labour Supply
	Employment and Unemployment
	Labour Supply Characteristics
	Policy Inputs
	Business Environment
	Taxation
	Finance
	Regulation and Competition
	Physical and Economic Infrastructure
	Investment in Physical Infrastructure
	Transport, Energy and Environmental Infrastructure
	Information and Communication Technology Infrastructure
	Knowledge Infrastructure
	Overview of Education
	Pre-Primary and Primary Education
	Secondary Education
	Tertiary Education
	Life Long Learning
	Research and Development Infrastructure

Sources: WEF 2018; Forfas & NCC 2014

Figure 1. Competitiveness pyramid for Ireland



Source: Forfas & NCC 2014

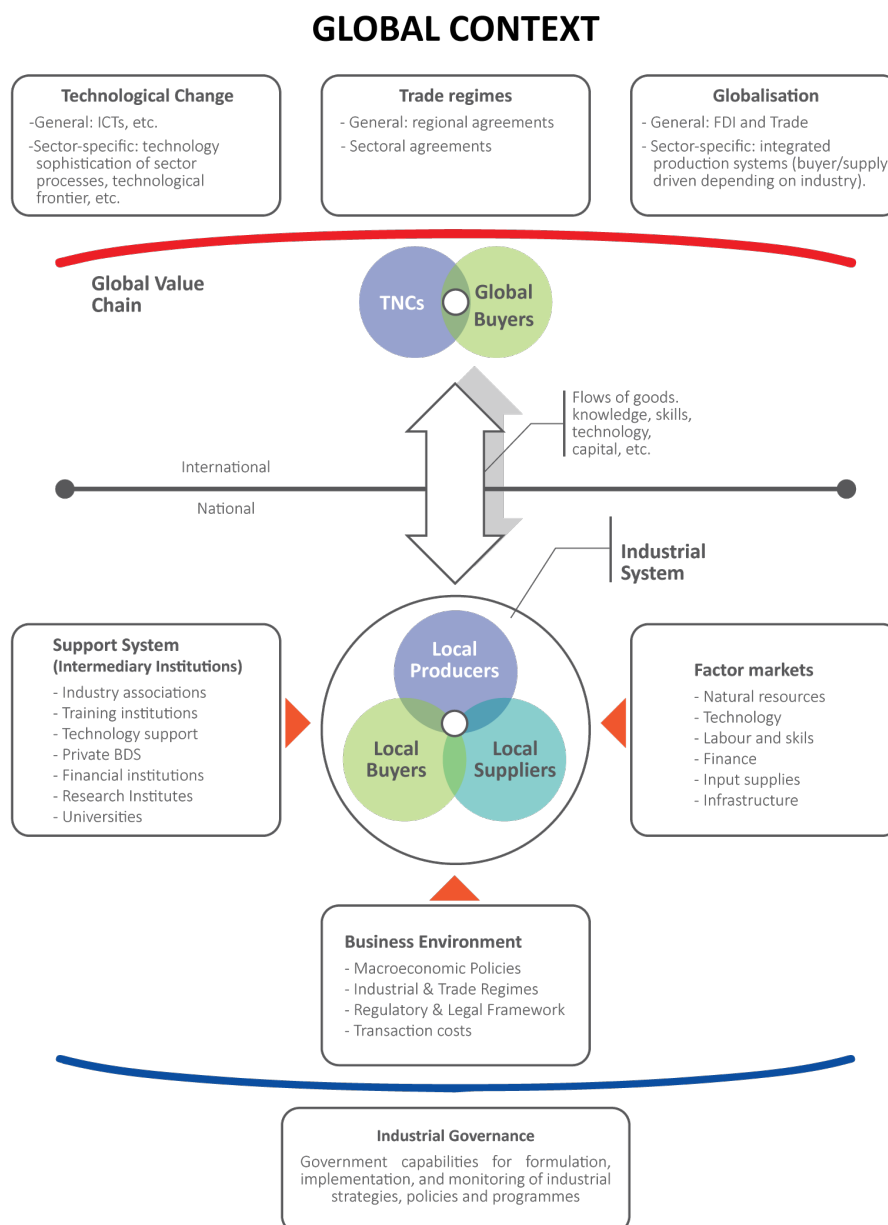
3.1.2 Competitiveness pillars used in this study

This report draws on one of UNIDO's (2020a) framework to identify the 'structural drivers of industrial competitiveness' (Figure 2). The industrial system with its main actors (local producers, suppliers, buyers, institutions, and policymakers) lies at the core of this framework. Industrial systems can be divided into sectors, subsectors and clusters. Actors cooperate and compete with each other, their interactions are conditioned by local rules, regulations, customs, and social capital. The result is a social and economic *milieu* that affects industrial development as well as the national system of innovation and learning in the country. A strong system produces rapid and widespread learning and broad-based competitiveness. A weak one leads to inefficiency, lags and the inability to compete.

The report also makes reference to other methodologies and has benefitted from analytical trainings associated with the "Enhancing the Quality of Industrial Policy" (EQuIP) methodology. The EQuIP approach entails a range of tools to conduct industrial diagnoses and to design effective industrial development strategies. EQuIP focuses on building capacities of public servants, analysts and policy-makers to be able to design industrial policies that are based on informed decisions and thorough empirical evidence.

The industrial development of a country is impacted by various framework conditions and global development trends. The global context is changing dynamically, driven by technological change but also altering global trends of globalization versus nationalization or regionalization, as well as trade liberalization versus protectionism. Within this integrated system of national and international actors, the success of national industries increasingly depends on firms' ability to build technological competence in products and production processes. While a national government cannot fundamentally change dominant international factors, it has, nevertheless, the capacity to use the existing room to manoeuvre to adjust to given framework conditions and utilize global trends to foster national industrial development.

Figure 2. Analytical and conceptual framework for industrial competitiveness



Source: UNIDO 2020a

Industrial development is not only impacted by global but also by domestic factors such as the general business environment (the ‘framework conditions’), the efficiency of factor markets (for labour, skills, technology, finance, inputs, and infrastructure) and the quality of support available from intermediary institutions (for training, technological services, and research and development [R&D]). Government policies have the potential to improve (but also worsen) these structural determinants of industrial development. Hence, governance (the ability to form, implement and monitor policies) assumes considerable significance.

Developing countries are often characterized by the persistence of inefficient markets or market failure. This is partly due to inappropriate or lacking institutions. Governmental interventions are, hence, indispensable (i) for substituting lacking market mechanisms and, in doing so, ensuring an effective allocation of resources in the short term and (ii) for improving the institutional settings that are key for creating functioning markets in the long term.

Identifying where and how government should intervene for achieving an envisioned transformation of the economy is the essence of a sound industrial policy. The process of designing an industrial policy needs to consider the global technological context and trends in global value chains in which national industries operate as well as their position in these chains. Furthermore, the learning prospects, technology levels, spillover benefits, and costs involved need to be understood. As global framework and technological conditions have changed and new challenges have emerged, contemporary industrial policies differ from those that succeeded two or three decades ago. It is thus important to interpret earlier experiences with great care.

One of the key challenges modern industrial policies increasingly factor in is the environmental impact of industrialization. In the past, policies rarely assessed the environmental cost and degradation caused by industrial activities. This has now become a priority in developed countries which are taking serious measures to cut emissions and waste through the use of clean technologies and environmentally sound production practices. The lack of awareness about the impact of activities that create high levels of pollution and other forms of environmental damage, has resulted in a critical deterioration of the environment in most developing countries, including soil erosion, deforestation and desertification. Modern industrial policies have the potential to make a significant contribution to creating a ‘green’ economy through increasingly decoupling industrial production processes from resource extraction and CO₂ emissions.

3.2 Methodological considerations

3.2.1 Guiding principles of the analysis

Given these determining factors of industrial development, some methodological considerations need to be outlined that guide the analyses contained in the present report:

- *The importance of benchmarking.* A comparison of countries with respect to their performance and industrial capacities is intrinsic to this methodology. Benchmarking is indispensable since industrial competitiveness is a relative concept. Comparisons are essential for determining whether a country is more or less competitive relative to other countries. The JICR 2022 benchmarks Jordan against 9 countries based on several criteria, for more details see the section “What are relevant benchmark countries for Jordan” in Section 5.1;
- *The use of UNIDO’s technological classification for manufactured trade and manufacturing value added (MVA).* The JICR 2022 uses UNIDO’s (2023) technological classification to shed light on the evolution of production and export structures in Jordan and its comparators. It distinguishes between resource-based, low-technology, medium-technology, and high-technology products both in manufactured exports and production. The technology classification provides the foundation to investigate potential transformations of Jordan’s productive sector towards more ‘complex’ activities indicating domestic technological deepening and upgrading;
- *Use of established quantitative indicators.* The JICR 2022 does not rely on business perceptions to assess Jordan’s industrial competitiveness. UNIDO’s methodology relies on a number of carefully selected objective, outcome-based indicators based on quantitative data published by international organizations. Although quantitative indicators will never be perfect proxies of what they intend to measure, they provide a solid foundation for cross-country analysis;
- *Use of international data sources and classifications for cross-country comparisons.* When measuring a country’s industrial performance, one can rely on the available national data. However, individual countries report data in different ways and use different nomenclatures and differing product classifications and aggregations, which can lead to serious incomparability issues. To avoid this, when making comparison between Jordan and other countries, the JICR 2022 relies on international data sources and classifications that allow a comparison of all countries that report data to the relevant international organizations;
- *Analysis of levels and trends.* The JICR 2022 assesses Jordan’s past industrial performance as recent trends. Such an analysis is particularly useful for countries experiencing high levels of growth, which have not yet achieved the rates of development typical of industrialized countries.

- *Macro and sectoral analysis.* Macro analysis provides a general overview of a country's industrial competitiveness compared to other countries. The prime example of macro analysis in manufacturing is UNIDO's Competitive Industrial Performance (CIP) index. However, composite indices at the macro level are of limited use when designing policies as they usually overlook sectoral dynamics. Many reports lack sectoral analysis, leading to overly generalized policy recommendations. By using UNIDO's methodology, the JICR 2022 combines macro and sectoral analysis, enabling policymakers to develop realistic and applicable criteria. The depth of sectoral analysis depends on various factors, including data availability and the objective of the study.

3.2.2 Limitations of the report

There are several limitations to this methodology

- *The concept of competitiveness* is not unchallenged. Krugman (1994) asserts that competitiveness may be a “dangerous obsession” because – according to the theory of comparative advantage – a country cannot be competitive in all sectors. Consequently, attempts to measure competitiveness at the national level is an unsound exercise, as it obscures the country's microeconomic (i.e., firm-level) advantages. Despite this criticism, the JICR 2022 is based on the assumption that the assessment of competitiveness is a useful approach to support the creation of industrial policy, to the extent that it uses meaningful quantitative indicators and takes sectoral dynamics into account. For a competitiveness study to be credible, its scope must be reduced. Competitiveness can be such a broad concept that being as specific as possible is key. This report therefore limits the scope of the inquiry to the manufacturing sector;
- *UNIDO's technology classification is based on several assumptions that do not always accurately reflect the technological content of specific activities.* Sophisticated processes can occur in lower-technology sectors, while some activities in high-tech industries can be rather simple. Take the use of computerized-aided design in the clothing industry or the basic assembly operations in the manufacture of semiconductors as an example. UNIDO's methodology aggregates sectors and consequently categorizes industries, disregarding these deviations. Second, the technology classification fails to discern upgrading within sectors – technology upgrading is thus only identified when a country shifts from one industry to another. This is a major limitation that can only be overcome by sector and product-specific analysis. It is important to keep these limitations in mind when providing policy recommendations for Jordan;
- *No quantification of the environmental impact of industrial growth.* This report does not address the question of a possible conflict (or complementarity) between industry and the environment in Jordan. Without the ‘green’ dimension, the report admittedly falls short in providing policy recommendations for sound green industrial policies;
- *Lack of industrial data at the sub-national level for regional analysis.* The analysis is mostly limited to the macro-level of the Kingdom of Jordan. As national competitiveness is determined at the regional (meso) as well as at the firm level (micro), future efforts should aim at a more disaggregated datasets that allow for regional industrial analysis. The shortage of data for many industrial indicators is a crucial issue that policymakers need to take into account. Without more detailed information inputs, industrial policy design, implementation, monitoring and evaluation will not be as effective as could be possible.

3.3 Preparatory activities for this report

The first component of the project “Job creation for youth and women through improvement of business environment and SMEs competitiveness” aimed at strengthening Jordan’s industrial sector information system by establishing an Industrial Observatory (IO), centralizing relevant and available industrial data, and at strengthening industrial intelligence functions at MITS, Chambers of Industry and other relevant stakeholders, through capacity building for producing relevant analysis that can feed into concrete recommendations aimed at industrial policy action.

A series of trainings in UNIDO’s methodology were held on indicators of industry and trade competitiveness for country diagnosis, sectoral studies and value chain analysis. Most of the training workshops were offered in one-week modules. The curriculum was modified to suit the specific interests and requirements of the JICR. Further coaching and on-the-job training were also provided by UNIDO international experts on an as-needed basis for the production of this report.

Table 4. List of Workshops

No.	Title	Time	Content
1.	Industrial & Trade international databases	16th-17th February, 2020	Two pre-trainings were held at the MITS on the use of WITS and IND-STAT platforms, respectively, and with an average attendance of 15 officers. These were on-demand trainings, to allow training participants to focus on interpreting data and discussing policy recommendations, rather than being distracted by time-consuming data retrieving from these platforms.
2.	Indicators of industry and trade competitiveness; Understanding industrial SDG9 indicators	29th June-1st July, 2020	The training introduced participants to main indicators of industry (manufacturing) and trade competitiveness and diversification, contextualizing Jordan’s performance and structural change patterns into the global, historical and national contexts (comparing it to main national targets); an introductory session provided an overview of relevance of manufacturing and contemporary industrial policy.
3.	Revealed Comparative Advantage (RCA), Market and Product Space Analysis	3rd- 6th October, 2021	During the training, the participants examined the sector competitiveness through a trade diversification and sophistication lens, focusing specifically on product and market performance, revealed comparative advantage, market dynamism, threats and growth compared with competitors, as well as economic and product complexity related tools.
4.	Sectoral Dynamics and Drivers of Industrial Competitiveness	10th-13th January, 2022	Participants learned more about the importance of sectoral competitiveness of the manufacturing sector and its importance as a driver for economic growth and prosperity. Particular focus was placed on the analysis and differentiation of development trajectories in the context of domestic and international competition and the identification of particularly promising manufacturing sector and commodity groups. Furthermore, great emphasis was laid on the elaboration of various socio-economic outcomes in relation to sector-specific but also more macroeconomic outcomes, including but not limited to the analysis of productivity, employment patterns as well as educational attainment, and with particular focus on gender-related dynamics. Prior to the training, three value chains were selected as examples for the training purposes. Earlier, in 2021, the ministry had proposed the following value chains to be studied in the training: preserved chicken meat, plastic products, and detergents (soaps). At the training, participants acquired further knowledge on different approaches to value chain analysis (World Bank and UNIDO’s approach) and how to complement the VC analysis. In addition, the participants identified the products that constitute the value chain, the stage of the product (raw, semi-processed, or processed), and the level of upgrading.
5.	Value Chain and Market Analysis	20th-30th March, 2022	Utilising the knowledge from previous trainings, participants analysed the dynamics and importance of the value chain in the global market and identified the stage(s) that offers the best opportunities in terms of growth, global market shares, and unit value. Moreover, participants identified attractive markets to export products of a specific country based on price and market size. As part of the training course, and under the supervision of the international trainers the participants visited number of factories for each selected value chain to validate their findings in the analysis and obtain required information from the field.

6.	Firm-level survey for expedited feedback	17th-19th May, 2022	Participants learned more about the importance of question framing, distribution of questionnaires, sample analysis and interpretation of results. Particular focus was placed on the analysis and differentiation of the impact of COVID-19 on different types of firms (size, sector specific, sales profile). Responses to the survey have been analyzed with regards to their problems faced (such as operational problems, cashflow problems or input shortages), current impact (worker layoffs, investments, adoption of new technologies), and dealing with pandemic (received government support, needed government support). However, while this training focused on the impact of COVID-19, skills acquired will be transferable to other rapid firm level surveys in the future.
7.	Industrial Policy Design & Recommendations	25th-27th October, 2022	Participants were introduced to a systematic methodology for industrial policy review and design which is part of the EQuIP (Enhancing the Quality of Industrial Policy) toolbox. The methodology guides the user through the process of reviewing an existing or designing a new Industrial Policy in 4 steps: 1) Connecting IP to the National Development Goals of the country; 2) Defining the key Industrial Policy Objectives; 3) Prioritizing Intervention Areas for the Industrial Policy & 4) Proposing Industrial Policy Instruments. The methodology has been applied to develop some strategic industrial policy directions for the final chapter of the JICR.

4. Overview of Jordan's industrial competitiveness

This section provides a snapshot of the performance of Jordan's manufacturing sector. It also identifies how Jordan is ranked in respective reports and indices.

4.1 Key features of the manufacturing sector in Jordan

As with all countries, manufacturing in Jordan has specific characteristics. Key features are outlined in Box 1.

Box 1. Jordan's manufacturing sector in a nutshell

The manufacturing sector in Jordan provided employment for more than 200,000 people in 2018, up from about 100,000 in 2000. The most important sectors for manufacturing employment are wearing apparel (68,000), food and beverages (almost 59,000), and engineering industries (42,000).

The 2000s involved **three distinct periods** of Jordan's MVA performance:

- **Rapid manufacturing growth from 2000 to 2008:** Jordan's MVA in volume increased on average by 10.2% per year between 2000 and 2008, clearly outpacing GDP growth of 6.9%. This growth was the highest of all benchmark countries (see Section 5.1), followed by Iran (8.0%), Lebanon (6.1%), the United Arab Emirates (5.8%) and Turkey (5.4%).
- **Strong deceleration of manufacturing growth between 2008 and 2019:** Jordan's MVA continued to grow between 2008 and 2019, but at a much lower rate: 1.8% per year, or eight percentage points less than between 2000 and 2008.
- **Decline of manufacturing between 2019 and 2020.** It is of course too early to assess whether this dip is temporary, in particular due to the COVID-19 pandemic or whether this negative trend may continue because of more fundamental root causes.

MVA as a percentage of GDP indicates the importance of manufacturing for the economy. Jordan's MVA as a percentage of GDP increased strongly during the period of rapid manufacturing growth, from 13.5% in 2000 to 21.2% in 2008, but then declined to 17.7% in 2019. Jordan was ranked seventh when compared to nine benchmark countries (see Section 5.1) in 2000, jumped to the first place in 2008, and was overtaken by Turkey in 2019 to have the second-highest ratio of MVA as a percentage of GDP.

Jordan's manufacturing sector is rather concentrated. Food, beverages and tobacco products as well as chemicals represent about half of Jordan's value added, while potentially important sectors such as machinery and electronics play only a minor role.

Jordan's manufacturing sector is dominated by low and medium-low technology sectors. Medium- and high-technology sectors represent less than 25% of total manufacturing value added in Jordan, which is substantially lower than in Iran (45%), Israel (39%), and the United Arab Emirates (37%).

Jordan's share of manufactured exports in total exports of goods has fluctuated. While the country's share of manufactured exports in total exports was high in 2010, this trend saw a reversal in 2012, and increased again to reach the highest level (82%) in 2019. Despite the fluctuations in this indicator, Jordan's development is close to the average of industrialized countries.

4.2 Jordan's performance according to selected competitiveness reports

Table 5 shows Jordan's overall ranking in a selection of reports as well as its ranking among the selected benchmark countries (see Section 5.1). Jordan is better positioned in the Global Entrepreneurship Index, the Corruption Perception Index, and the Global Talent Competitiveness Index, thus indices that focus more on the general framework conditions in a country. Jordan is rather low rank in the Competitive Industrial Performance Index and the Global Innovation Index that focus more on the performance of the economy or industrial sector. The next section will take a closer look at Jordan's performance in the UNIDO CIP Index.

Table 5. Jordan's ranking in benchmark reports

Report	Number of indicators	Jordan's rank in the world	Jordan's rank among benchmarks
Regularly reported on by Economic Policy Directorate (EPD) team			
Global Entrepreneurship Monitor, Global Entrepreneurship Index (2019)	31	11 / 50	2 / 6
Legatum Institute, Legatum Prosperity Index (2020)	294	86 / 167	3 / 9
WEF, Global Competitiveness Report (2019)	103	70 / 141	4 / 9
IMD, World Competitiveness Rankings (2020)	337	58 / 63	4 / 4
World Bank, Doing Business Report (2020)	41	75 / 190	5 / 9
Heritage Foundation, Index of Economic Freedom (2021)	55	86 / 178	5 / 9
FM Global, Global Resilience Index (2020)	20	85 / 130	6 / 9
Cornell University, INSEAD, and WIPO, Global Innovation Index (2020)	80	81 / 131	7 / 9
Other reports			
Transparency International, Corruptions Perception Index (2020)	..	60 / 180	3 / 9
INSEAD, Global Talent Competitiveness Report (2020)	70	61 / 132	3 / 8
World Bank, Human Capital Index (2020)	6	90 / 174	5 / 9
DHL, Global Connectedness Index (2020)	..	61 / 169	5 / 9
UNCTAD, Productive Capacities Index (2020)	46	110 / 193	6 / 9
UNDP, Human Development Index (2020)	4	102 / 189	7 / 9
World Bank, Logistics Performance Index (2018)	..	84 / 160	7 / 9
UNIDO, Competitive Industrial Performance (2020b)	8	76 / 152	8 / 9

Source: Listed reports; Authors calculations

4.3 Jordan in the Competitive Industrial Performance Index (CIP)

One-way UNIDO assesses and benchmarks industrial competitiveness is through the CIP Index. This index measures how much a country's manufacturing sector contributes to development—how well industries produce goods, sell them on domestic and foreign markets and thus contribute to structural change (UNIDO 2020b). The CIP Index covers three main dimensions.

- *The ability of a country to produce and export manufactured goods. This dimension provides a comparable measure of a country's manufacturing production for either local or foreign consumption. It is assessed by (1) MVA per capita and (2) manufacturing exports per capita.*
- *Technological deepening and upgrading.* This dimension assesses the types of goods a country's manufacturing sector produces. Because technology-intensive goods create technological spillovers and reduce vulnerability to price shocks, producing them and, further, exporting them is rated as having higher expected benefits than producing lower-tech goods. This dimension is taken into account by (1) industrialization intensity, which captures the role and technological complexity of a country's production and (2) export quality, which captures the technological complexity of the export bundle.
- *World impact.* The more a country participates in global markets, the higher its ability to benefit from agglomeration and scope and scale effects, perhaps attracting shared infrastructure investments and expanding trade agreement negotiating power. The world impact dimension is measured by the country's impact on (1) world MVA and (2) world manufacturing exports.

Each indicator provides a useful description of one aspect of industrial competitiveness. Most of these indicators are analysed individually in the following sections of this report. In the CIP Index, these measures are weighted and condensed into a single aggregated score.

Table 6 presents the country rankings in the CIP index for the years 2005, 2010, and 2019 published in UNIDO's CIP database. The table shows that most of the comparator countries have managed to enhance their ranking during the last decades (except Tunisia, Jordan, and Lebanon). It is notable that from 2005 to 2019 Jordan lost three positions in the index comparing to the world despite their MVA growth. The following analysis of the individual dimensions of industrial competitiveness will shed more light on Jordan's score. A key factor has been the impact of the rapid growth of the population during the last decades with the high inflows of refugees. The disaggregated analysis of the various industry and trade indicators will present a more nuanced picture of Jordan's industrial competitiveness.

Table 6. CIP ranking for Jordan and the Comparator Countries

Country	2005	2010	2019	Difference (2005-2019)
Thailand	26	25	25	1
Turkey	30	30	28	2
United Arab Emirates	43	50	30	13
Bulgaria	61	59	53	8
Morocco	68	70	61	7
Oman	84	69	62	22
Egypt	70	62	64	6
Tunisia	64	65	68	-4
Jordan	72	72	75	-3
Lebanon	85	79	96	-11

B. Competitive Industrial Performance

5. Analysis of Jordan's industrial competitiveness

This chapter analyses key manufacturing indicators related to Jordan's industrial competitiveness compared to selected benchmark countries. It focusses on indicators for tracking manufacturing production and trade performance, and structural change at the macro, technological and sectoral level, in line with SDG 9 ("Building resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation").

5.1 Selecting benchmark countries

In this report, Jordan is benchmarked against the following nine countries: Tunisia, Morocco, Turkey, Egypt, Lebanon, the United Arab Emirates, Oman, Bulgaria, and Thailand. The following section examines which comparator countries have been used in previous studies, discusses possible criteria to choose comparator countries, identifies which countries are most similar to Jordan with respect to the selected indicators, and provides the argument for selecting the proposed benchmark countries.

Which countries have been used by other studies to compare Jordan's performance?

Most studies that compare Jordan's economic performance or competitiveness use Egypt, Lebanon, Tunisia, Morocco, and Turkey as benchmark countries. It is striking though that in the studies presented in Table, many countries are examined only in a single report. For example, the Government of Jordan's (2015) *National Vision and Strategy for 2025* examined in total eleven countries, but ten of them are not used in any of the other studies shown here, ranging from countries as diverse as Singapore and Switzerland to Uruguay. Likewise, the *Jordan Competitiveness Report 2007* by the Jordan National Competitiveness Team of the Ministry of Planning and International Cooperation (2007) examined four countries that are not used by the other studies: Israel, Kuwait, Syria, and Yemen.

Typically, comparator countries are being selected that are perceived to be 'comparable' to Jordan, though many reports lack the transparency and justification of the applied selection criteria. Hausmann et al. (2019) chose "other middle-income countries of the Middle East and North African (MENA) region, excluding Syria, Iraq, Yemen, Libya, and Palestine" —the latter being most probably excluded because of insufficient data availability.

Table 7. Countries used to compare Jordan's economic performance in selected reports

	Count	Jordan National Competitiveness Team (2007), Jordan's Competitiveness Report 2007	ITC (2008), Trade Competitiveness Assessment: Jordan	Government of Jordan (2015), Jordan 2025: A National Vision and Strategy	Jordan Investment Commission (2017), Sector Profile: Industry	Hausmann et al. (2019), Jordan: The Elements of a Growth Strategy	EBRD (2020), Jordan Diagnostic	UNIDO (2020), Country and Industry Profile: Jordan
Egypt	6	X	X		X	X	X	X
Lebanon	6	X	X		X	X	X	X
Tunisia	5		X	X		X	X	X
Morocco	4		X			X	X	X
Turkey	4	X	X		X			X
Saudi Arabia	2	X			X			
UAE	2	X	X					
Israel	1	X						
Kuwait	1	X						
Syria	1	X						
Yemen	1	X						
Bulgaria	1			X				
Croatia	1			X				
Finland	1			X				
Georgia	1			X				
Hungary	1			X				
Ireland	1			X				
Lithuania	1			X				
Singapore	1			X				
Switzerland	1			X				
Uruguay	1			X				
Cyprus	1				X			
Algeria	1					X		
Iran	1					X		

What are possible criteria to choose comparator countries?

Jordan's competitiveness can be benchmarked against any number of countries, but many countries are not relevant for Jordan, as they are too different or not really competitors. Comparator countries for Jordan may be selected using various criteria, such as:

- Proximity in terms of geography (e.g., neighbouring countries or those in the MENA region), religion (predominantly Muslim countries), culture (e.g., Arabic-speaking) or political affiliations (e.g., Arab League).
- Similarity in absolute terms ('size'): e.g., population, GDP.
- Similarity in relative terms ('economic development'): e.g., GDP/capita, exports/capita.
- Similarity in terms of production or export structure: e.g., countries that produce or export similar goods and services, and are thus potential competitors.
- Similar role of industry (e.g., manufacturing value added as % of GDP) and technology content (e.g., share of medium- and high-technology industries in manufacturing value added).
- Role model for Jordan (even if some characteristics are rather different).

Which countries are most similar to Jordan according to the selected indicators?

To identify which countries worldwide and in the MENA region are most similar to Jordan, Table 8 converts selected indicators into a 'similarity index'. This index divides the smaller value of Jordan and each country by the larger value of the two, and thus expresses how large the smaller country is in percent of the larger one. An index of 100% means that Jordan and the country have identical values; an index of 50% means that Jordan is either two times larger or two times smaller than the country.

With a **population** of about 10 million, Jordan is in an intermediate position in the MENA region, whose population ranges from Djibouti (970,000) to Egypt (100 million). The United Arab Emirates (9.8 million, similarity index of 97%), Israel (9.1 million) and Tunisia (11.7 million) are the MENA countries most similar to Jordan. In contrast, the similarity index is only about 10% for Egypt (which is ten times larger than Jordan) and Djibouti (which is ten times smaller).

Jordan's **GDP per capita** at purchasing power parities (PPP) is about 10,500 international dollars. This is a better measure for international comparisons than GDP per capita at market exchange rates, as it adjusts GDP for differences in the level of prices —and thus purchasing power— across countries. The MENA countries most similar to Jordan are Tunisia (11,200 dollars, index of 94%), Iraq (11,400 dollars), Algeria (12,000 dollars), Egypt (12,300 dollars) and Iran (12,900 dollars).

Manufacturing value added represents 17.7% of GDP in Jordan. Bahrain (17.9%), Turkey (18.3%), Egypt (15.9%), Morocco (14.9%), Iran (14.8%) and Tunisia (14.8%) are the MENA countries most similar to Jordan.

Medium and high-technology industries represent 23.7% of MVA in Jordan. Bahrain (24.6%), Syria (21.5%), Egypt (20.9%), Oman (20.6%) and Tunisia (27.6%) are the MENA countries most similar to Jordan

Exports of goods and services as a percentage of GDP stand at 36.4% in Jordan. The closest countries in the MENA region are Saudi Arabia (36.0%), Lebanon (35.4%), Iraq (38.1%) and Morocco (39.1%).

Finally, in terms of the **export competition index** (overlap of exports as a % of Jordan's exports, see **Box 2**), Turkey and the United Arab Emirates are by far Jordan's most important competitors in the MENA region: of the 5,000 products examined at the 6-digit level of the Harmonized System (HS), almost half of Jordan's exports are matched by Turkey (48.8%) and the UAE (47.5%). Other important competitors for Jordan are Israel (33%), Egypt (30%), Morocco (30%), Saudi Arabia (22%) and Tunisia (21%). In contrast, with an export competition index of 0.7%, Djibouti exports mostly different products than Jordan and is thus not a direct competitor. The index is not symmetric: while Turkey is an important competitor for Jordan (the overlap represents 49% of Jordan's exports), the opposite is not true (this overlap represents only 2.4% of Turkey's exports). Seen from the partners' perspective, Jordan is an important competitor for Syria (33%), Djibouti (32%), Lebanon (31%) and Palestine (30%).

Table 8. Countries in the MENA region and worldwide that are most similar to Jordan for selected indicators

A. Population, 2019			B. GDP per capita, PPP (current international \$), 2019			C. Manufacturing, value added (% of GDP), 2019		
Country	Value	Index	Country	Value	Index	Country	Value	Index
Jordan	10,101,694	100.0	Jordan	10,517	100.0	Jordan	17.7	100.0
Azerbaijan	10,023,318	99.2	Jamaica	10,193	96.9	Hungary	17.7	99.9
Portugal	10,269,417	98.4	Namibia	10,064	95.7	Bahrain	17.9	98.8
Sweden	10,285,453	98.2	Tunisia	11,232	93.6	Romania	17.5	98.6
UAE	9,770,529	96.7	Iraq	11,363	92.6	Mexico	17.3	97.9
Hungary	9,769,949	96.7	Kosovo	11,871	88.6	Slovak Rep.	18.1	97.6
Honduras	9,746,117	96.5	Ecuador	11,879	88.5	Turkey	18.3	96.8
Israel	9,053,300	89.6	Philippines	9,302	88.5	Paraguay	18.3	96.7
Tunisia	11,694,719	86.4	Algeria	12,020	87.5	Egypt	15.9	89.9
Lebanon	6,855,713	67.9	Egypt	12,284	85.6	Morocco	14.9	84.3
Libya	6,777,452	67.1	Iran	12,937	81.3	Iran	14.8	83.5
Syria	17,070,135	59.2	Morocco	7,826	74.4	Tunisia	14.8	83.3
Oman	4,974,986	49.2	Lebanon	15,196	69.2	Algeria	23.8	74.3
Palestine	4,685,306	46.4	Libya	15,846	66.4	Saudi Arabia	12.5	70.8
Kuwait	4,207,083	41.6	Palestine	6,495	61.8	Israel	12.0	67.6
Yemen	29,161,922	34.6	Djibouti	5,780	55.0	Palestine	11.5	65.2
Saudi Arabia	34,268,528	29.5	Turkey	28,134	37.4	Oman	10.5	59.1
Qatar	2,832,067	28.0	Oman	28,507	36.9	UAE	8.7	49.3
Morocco	36,471,769	27.7	Israel	42,146	25.0	Qatar	7.8	44.0
Iraq	39,309,783	25.7	Bahrain	47,003	22.4	Kuwait	6.9	39.0
Algeria	43,053,054	23.5	Saudi Arabia	49,040	21.4	Lebanon	5.6	31.8
Bahrain	1,641,172	16.2	Kuwait	52,060	20.2	Djibouti	2.8	15.6
Iran	82,913,906	12.2	UAE	70,089	15.0	Iraq	2.1	11.6
Turkey	83,429,615	12.1	Qatar	94,029	11.2	Libya	..	..
Egypt	100,388,073	10.1	Syria	..	..	Syria	..	..
Djibouti	973,560	9.6	Yemen	..	..	Yemen	..	..

D. Medium and high-tech industry (% manufacturing value added), 2018			E. Exports of goods and services (% of GDP), 2019			F. Export competition (export overlap as a % of total exports), 2019		
Country	Value	Index	Country	Value	Index	Country	Index (Jordan)	For information: Index (Country)
Jordan	23.7	100.0	Jordan	36.4	100.0	Jordan	100.0	100.0
Latvia	23.4	99.0	Kazakhstan	36.2	99.7	Italy	61.2	1.0
Colombia	23.3	98.3	South Sudan	36.7	99.2	United States	60.7	0.3
South Africa	24.4	96.9	Saudi Arabia	36.0	99.2	China	60.1	0.2
Pakistan	24.6	96.1	Ghana	36.0	99.0	France	57.5	0.9
Bahrain	24.6	96.1	Chad	36.7	98.9	Germany	56.4	0.3
Guatemala	22.4	94.7	Namibia	35.8	98.5	Turkey	48.8	2.4
Syria	21.5	90.9	Lebanon	35.4	97.3	UAE	47.5	1.2
Egypt	20.9	88.5	Iraq	38.1	95.5	Israel	32.9	4.7
Oman	20.6	87.2	Morocco	39.1	93.0	Egypt	29.9	8.1
Tunisia	27.6	85.8	Turkey	32.7	90.1	Morocco	29.7	8.4
Turkey	32.2	73.6	Israel	29.3	80.6	Saudi Arabia	22.4	0.7
Morocco	34.2	69.3	Tunisia	49.3	73.7	Tunisia	21.5	12.0
Saudi Arabia	35.4	66.9	Iran	25.3	69.5	Lebanon	13.8	30.7
Lebanon	15.6	65.8	Qatar	52.3	69.5	Iran	13.7	3.7
UAE	36.6	64.6	Kuwait	56.7	64.1	Oman	13.7	3.7
Kuwait	38.5	61.4	Algeria	22.8	62.7	Bahrain	11.6	6.8
Israel	39.3	60.2	Oman	60.5	60.1	Kuwait	11.4	1.5
Iran	44.7	52.9	Libya	64.4	56.5	Libya	5.7	1.6
Qatar	47.9	49.4	Egypt	17.5	48.1	Algeria	5.7	1.3
Iraq	10.3	43.5	Bahrain	79.6	45.7	Iraq	5.7	0.5
Palestine	7.0	29.6	Palestine	15.5	42.8	Palestine	4.0	30.2
Algeria	2.7	11.4	UAE	92.5	39.3	Syria	2.8	33.1
Yemen	2.1	8.7	Djibouti	149.2	24.4	Yemen	2.0	10.3
Libya	..	..	Syria	..	..	Qatar	1.1	0.1
Djibouti	..	..	Yemen	..	..	Djibouti	0.7	32.1

Note: The table only shows countries from the MENA region and the five countries with the highest similarity index in the world (only G20 countries for the indicator of export competition).
Source: World Bank 2023a, World Development Indicators (WDI).

Table 9 shows similarity indices for individual indicators. In order to have a consolidated similarity measurement that contains two or more selected criteria, a **composite index** needs to be calculated which means calculating a weighted average of the corresponding similarity indices.

In terms of **population and GDP per capita**, Tunisia is by far the country in the MENA region that is most similar to Jordan (similarity index of 90%), followed by Lebanon (68.5%) and Libya (66.7%). In contrast, Bahrain and Qatar are very different from Jordan (index less than 20%), as they are much less populated and much richer.

Table 9. Similarity index based on two indicators: Population and GDP per capita

	Similarity index	Population, 2019		GDP per capita, PPP (current international \$), 2019	
		Value	Index	Value	Index
Jordan	100.0	10,101,694	100.0	10,517	100.0
Tunisia	90.0	11,694,719	86.4	11,232	93.6
Lebanon	68.5	6,855,713	67.9	15,196	69.2
Libya	66.7	6,777,452	67.1	15,846	66.4
Iraq	59.1	39,309,783	25.7	11,363	92.6
Israel	57.3	9,053,300	89.6	42,146	25.0
UAE	55.9	9,770,529	96.7	70,089	15.0
Algeria	55.5	43,053,054	23.5	12,020	87.5
Palestine	54.1	4,685,306	46.4	6,495	61.8
Morocco	51.1	36,471,769	27.7	7,826	74.4
Egypt	47.8	100,388,073	10.1	12,284	85.6
Iran	46.7	82,913,906	12.2	12,937	81.3
Oman	43.1	4,974,986	49.2	28,507	36.9
Djibouti	32.3	973,560	9.6	5,780	55.0
Kuwait	30.9	4,207,083	41.6	52,060	20.2
Saudi Arabia	25.5	34,268,528	29.5	49,040	21.4
Turkey	24.7	83,429,615	12.1	28,134	37.4
Qatar	19.6	2,832,067	28.0	94,029	11.2
Bahrain	19.3	1,641,172	16.2	47,003	22.4
Syria	[59.2]	17,070,135	59.2	..	..
Yemen	[34.6]	29,161,922	34.6	..	..

Source: World Bank 2023a, WDI

In terms of **share and technology-content of manufacturing**, Bahrain is by far the country in the MENA region that is most similar to Jordan (similarity index of 97.4%, with almost identical shares of manufacturing in GDP and of medium and high technology industry in MVA), followed by Egypt (89.2%), Turkey (85.2%) and Tunisia (84.6%) (see Table 10).

Table 10. Similarity index based on two indicators: Share and technology-content of manufacturing

	Similarity index	Manufacturing, value added (% of GDP), 2019		Medium and high-tech industry (% manufact. value added), 2018	
		Value	Index	Value	Index
Jordan	100.0	17.7	100.0	23.7	100.0
Bahrain	97.4	17.9	98.8	24.6	96.1
Egypt	89.2	15.9	89.9	20.9	88.5
Turkey	85.2	18.3	96.8	32.2	73.6
Tunisia	84.6	14.8	83.3	27.6	85.8
Morocco	76.8	14.9	84.3	34.2	69.3
Oman	73.2	10.5	59.1	20.6	87.2
Saudi Arabia	68.9	12.5	70.8	35.4	66.9
Iran	68.2	14.8	83.5	44.7	52.9
Israel	63.9	12.0	67.6	39.3	60.2
UAE	56.9	8.7	49.3	36.6	64.6
Kuwait	50.2	6.9	39.0	38.5	61.4
Lebanon	48.8	5.6	31.8	15.6	65.8
Palestine	47.4	11.5	65.2	7.0	29.6
Qatar	46.7	7.8	44.0	47.9	49.4
Algeria	42.8	23.8	74.3	2.7	11.4
Iraq	27.6	2.1	11.6	10.3	43.5
Syria	[90.9]	..	..	21.5	90.9
Djibouti	[15.6]	2.8	15.6	..	..
Yemen	[8.7]	..	..	2.1	8.7
Libya	..	..	..	..	..

Source: World Bank 2023a, WDI

In terms of the **share and the similarity of export basket with Jordan** (which shows the potential competition of the country with Jordan, see Box 2), Turkey is most similar to Jordan (similarity index of 69.4%), followed by Morocco (61.4%), Saudi Arabia (60.8%), Israel (56.8%) and Lebanon (55.5%) (see Table 11).

Table 11. Similarity index based on two indicators: Importance and similarity of exports

	Similarity index	Exports of goods and services (% of GDP), 2019		Export competition (export overlap as a % of Jordan's exports), 2019
		Value	Index	Index
Jordan	100.0	36.4	100.0	100.0
Turkey	69.4	32.7	90.1	48.8
Morocco	61.4	39.1	93.0	29.7
Saudi Arabia	60.8	36.0	99.2	22.4
Israel	56.8	29.3	80.6	32.9
Lebanon	55.5	35.4	97.3	13.8
Iraq	50.6	38.1	95.5	5.7
Tunisia	47.6	49.3	73.7	21.5
UAE	43.4	92.5	39.3	47.5
Iran	41.6	25.3	69.5	13.7
Egypt	39.0	17.5	48.1	29.9
Kuwait	37.8	56.7	64.1	11.4
Oman	36.9	60.5	60.1	13.7
Qatar	35.3	52.3	69.5	1.1
Algeria	31.4	22.8	62.7	5.7
Libya	31.1	64.4	56.5	5.7
Bahrain	28.6	79.6	45.7	11.6
Palestine	23.4	15.5	42.8	4.0
Djibouti	12.5	149.2	24.4	0.7
Syria	[2.8]	..	..	2.8
Yemen	[2.0]	..	..	2.0

Source: World Bank 2023a, WDI; International Trade Centre (ITC) 2023, TradeMap.

Finally, a consolidated index based on five indicators for GDP/capita, share and technology-content of manufacturing, and share and similarity of exports is highest for Tunisia (71.6%), Morocco (70.1%), Turkey (69.3%) and Egypt (68.4%), followed by Iran (60.2%), Saudi Arabia (56.1%), Lebanon (55.6%), Bahrain (54.9%) and Israel (53.2%) (see Table 12). Adding population as a sixth indicator (would suggest the following ranking: Tunisia (74%), Morocco (63%), Turkey (60%), Israel (59%), Egypt (59%) and Lebanon (58%). These examples illustrate how sensitive the results are to the choice —and possible weights— of the underlying indicators.

Table 12. MENA countries most similar to Jordan: Similarity index based on five indicators

	Similarity index	GDP per capita, PPP (current international \$), 2019		Manufacturing, value added (% of GDP), 2019		Medium and high technology industry (% manufacturing value added), 2018		Exports of goods and services (% of GDP), 2019		Export competition (export overlap as a % of Jordan's exports), 2019
		Value	Index	Value	Index	Value	Index	Value	Index	Index
Jordan	100.0	10,517	100.0	17.7	100.0	23.7	100.0	36.4	100.0	100.0
Tunisia	71.6	11,232	93.6	14.8	83.3	27.6	85.8	49.3	73.7	21.5
Morocco	70.1	7,826	74.4	14.9	84.3	34.2	69.3	39.1	93.0	29.7
Turkey	69.3	28,134	37.4	18.3	96.8	32.2	73.6	32.7	90.1	48.8
Egypt	68.4	12,284	85.6	15.9	89.9	20.9	88.5	17.5	48.1	29.9
Iran	60.2	12,937	81.3	14.8	83.5	44.7	52.9	25.3	69.5	13.7
Saudi Arabia	56.1	49,040	21.4	12.5	70.8	35.4	66.9	36.0	99.2	22.4
Lebanon	55.6	15,196	69.2	5.6	31.8	15.6	65.8	35.4	97.3	13.8
Bahrain	54.9	47,003	22.4	17.9	98.8	24.6	96.1	79.6	45.7	11.6
Israel	53.2	42,146	25.0	12.0	67.6	39.3	60.2	29.3	80.6	32.9
Oman	51.4	28,507	36.9	10.5	59.1	20.6	87.2	60.5	60.1	13.7
Iraq	49.8	11,363	92.6	2.1	11.6	10.3	43.5	38.1	95.5	5.7
Algeria	48.3	12,020	87.5	23.8	74.3	2.7	11.4	22.8	62.7	5.7
UAE	43.1	70,089	15.0	8.7	49.3	36.6	64.6	92.5	39.3	47.5
Palestine	40.7	6,495	61.8	11.5	65.2	7.0	29.6	15.5	42.8	4.0
Kuwait	39.2	52,060	20.2	6.9	39.0	38.5	61.4	56.7	64.1	11.4
Qatar	35.0	94,029	11.2	7.8	44.0	47.9	49.4	52.3	69.5	1.1
Djibouti	..	5,780	55.0	2.8	15.6	..	..	149.2	24.4	0.7
Libya	..	15,846	66.4	..	..	..	..	64.4	56.5	5.7
Syria	..	..	..	..	..	21.5	90.9	..	..	2.8
Yemen	..	..	..	..	..	2.1	8.7	..	..	2.0

Source: World Bank 2023a, WDI; International Trade Centre (ITC) 2023, TradeMap.

Box 2. Export similarity index

The export similarity index indicates the similarity of two countries' exports. There are basically two different approaches.

(1) The "relative' export similarity index" (Finger and Kreinin, 1979) is based on the *share* of products in two countries' exports. It calculates the export share of each product in two countries (A and B), identifies for each product the smaller of the two export shares ('overlap'), and aggregates the overlap for all products. Formally, this is:

$$\text{Relative Export Similarity Index}^{AB} = \sum_p \min \left(\frac{X_p^A}{\sum_p X_p^A}, \frac{X_p^B}{\sum_p X_p^B} \right) = \sum_p \min \left(\begin{array}{l} \text{Share of} \\ \text{product } p \\ \text{in exports} \\ \text{of country A} \end{array}, \begin{array}{l} \text{Share of} \\ \text{product } p \\ \text{in exports} \\ \text{of country B} \end{array} \right)$$

The index varies between 0% (complete dissimilarity, i.e., when one country exports a product, the other one does not) and 100% (complete similarity, i.e., both countries export each product in the same proportions). The index is symmetric and yields the same result for countries A and B, no matter their respective sizes. It is often used in the literature, but not in this report.

(2) The "absolute export similarity index" or "export competition index" examines the overlap of two countries' exports at the product level in *absolute* (dollar) terms. It adds up the overlap of exports for each product and expresses 'matched' exports as a percentage of total exports of country A (or alternatively country B). A major advantage is that the index is not symmetric: it can thus reveal that country A may be an important competitor for B, whereas the opposite may not be the case.

$$\text{Relative Export Similarity Index}^{AB} = \sum_p \min \left(\frac{X_p^A}{\sum_p X_p^A}, \frac{X_p^B}{\sum_p X_p^B} \right) = \sum_p \min \left(\begin{array}{l} \text{Share of} \\ \text{product } p \\ \text{in exports} \\ \text{of country A} \end{array}, \begin{array}{l} \text{Share of} \\ \text{product } p \\ \text{in exports} \\ \text{of country B} \end{array} \right)$$

Both measures are subject to aggregation bias: the more detailed the product breakdown, the lower is the likelihood that two countries compete for the same products, and the lower the index tends to be. It is calculated here at the 6-digit HS codes, which corresponds to some 5,000 products.

What are the benchmark countries selected for the report?

We propose to benchmark Jordan against the following nine countries: Tunisia, Morocco, Turkey, Egypt, Lebanon, the United Arab Emirates, Oman, Bulgaria, and Thailand. The following provides the main reasons of why they are selected.

Tunisia is the country in the MENA region that is most similar to Jordan, with a similarity index of 72% (see Table 12). Tunisia is slightly more populated than Jordan (11.7 million compared to 10.1 million for Jordan) and has a marginally higher GDP in purchasing power parities per capita (11,200 compared to 10,500 dollars). Manufacturing represents a somewhat lower share in GDP in Tunisia than in Jordan (14.8% compared to 17.7%) but is more oriented towards medium and high technology sectors (27.6% compared to 23.7%). Exports of goods and services represent a significantly higher share of GDP in Tunisia than in Jordan (49% compared to 36%) and, with an overlap of exports in goods of almost 22%, Tunisia is one of Jordan's main competitors in the MENA region. Jordan could also learn from Tunisia's successful path towards economic diversification.

Morocco has a substantially higher population (36.5 million) than Jordan and has the second highest similarity index (70%). While GDP PPP per capita (7,800 dollars) and the share of manufacturing in GDP (15%) are lower than in Jordan, manufacturing is more oriented towards medium and high technology sectors (34% compared to 23.7% in Jordan) and exports of goods and services represent a higher share of GDP (39% compared to 36%). With an overlap of export in goods of 30%, Morocco is one of Jordan's main competitors in the MENA region.

Turkey is one of the most populated countries in the MENA region (83 million) and has the third highest similarity index based on five criteria (69%). GDP PPP per capita (28,000 dollars) is substantially higher than in Jordan. Manufacturing represents a slightly higher share in GDP in Turkey than in Jordan (18.3% compared to 17.7%) and is more oriented towards medium and high technology sectors (32.2% compared to 23.7%). Turkey is Jordan's main competitor in the MENA region, as the overlap of exports in goods represent 49% of Jordan's exports (see also Table 13). Turkey could be seen as a role model, as it has achieved remarkable economic growth since the 1990s, it has succeeded in diversifying its industrial base and has become a regional manufacturing hub.

Egypt is the most populated country in the MENA region (100 million) and ten times larger than Jordan, and it has the fourth highest similarity index (68%). Egypt's GDP PPP per capita (12,300 dollars) is slightly higher than in Jordan. However, manufacturing represents a lower share of GDP (16%) and is less oriented towards medium and high technology sectors (21% compared to 23.7% in Jordan). Exports of goods and services represent a substantially lower share of GDP (17.5% compared to 36% in Jordan). With an overlap of exports in goods of 30%, Egypt is one of Jordan's main competitors in the MENA region.

Lebanon shares a similar geography, history and culture with Jordan, and has a similarity index of 55.6%. While Lebanon's population (6.9 million) is smaller than Jordan's, its GDP PPP per capita (15,200 dollars) is almost 50% higher. Manufacturing is almost three times less important for Lebanon than for Jordan (less than 6% of GDP compared to almost 18% in Jordan) and is less oriented towards medium and high technology sectors (15.6% compared to 23.7% in Jordan). The share of exports of goods and services in GDP is roughly comparable between the two countries (35.4% compared to 36.4%). Lebanon does not appear as a major competitor for Jordan, as the overlap of exports in goods represents less than 14% of Jordan's exports.

The **United Arab Emirates** (UAE) have a population (9.8 million) that is almost identical to Jordan's, but the similarity index is among the lowest in the MENA region (43%). This is because GDP PPP per capita (70,100 dollars) is almost seven times higher than Jordan's; manufacturing is much less important than for Jordan (8.7% of GDP compared to almost 18% in Jordan); manufacturing is more oriented towards medium and high technology sectors (36.6% compared to 23.7% in Jordan); and the share of exports of goods and services in GDP is also substantially higher in the UAE than in Jordan (92.5% compared to 36.4%). A major reason why the UAE are included as a benchmark country is that they are —together with Turkey— Jordan's largest competitor in the region: the overlap of exports represents almost half of Jordan's total exports of goods (48%).

While **Oman** has about half the population (4.9 million) of Jordan, Oman's GDP PPP per capita (28,507 dollars) is almost three times higher than Jordan's. Though manufacturing is less important for Oman than for Jordan (10.5% of GDP compared to almost 18% in Jordan), the shares of medium and high technology sectors in manufacturing value added in Oman (20.6%) and Jordan (23.7%) are very similar. However, the share of exports of goods and services in GDP is substantially higher in Oman (60.5%) than in Jordan (36.4%), and Oman does not appear as a major competitor for Jordan (the overlap of exports in goods is less than 14%).

Bulgaria is one of the two non-MENA countries (along with Thailand) to be proposed as a benchmark country. It is meant to serve as role model in this sample. This country has seen rapid development since the turn of the millennia, not least due to its accession to the European Union and thereby the common market in 2007. Bulgaria's population of 6.9 million is smaller than that of Jordan, and has in fact been shrinking in recent years, mainly due to emigration. Its GDP PPP per capita however, which was lower than Jordan's 2019 one in the year 2000 (6,421 dollars compared to 10,500 dollars), stood significantly higher in 2019 at 24,523 dollars. Bulgaria's share of medium- and high technology in MVA has remained largely unchanged over the same period, but was still higher than that of Jordan in 2019 (32.4%). In contrast, the share of exports in GDP has seen a stark increase in Bulgaria between 2000 and 2019, from 36.2% to 63.9%. This renders the exports of goods and services much more prominent in Bulgaria compared to Jordan, which had almost the exact same share in 2019 that Bulgaria had in 2000 (36.4%).

Thailand is, besides Bulgaria, the other non-MENA country in the proposed group of comparators. Its purpose is, similarly to Bulgaria, to function as a "champion" of successful development in the benchmark analysis. In many ways, Jordan faces a similar situation today that these countries were in about 20 years ago. Thailand's population, at 69.6 million, is almost 7 times larger than Jordan's, and behind Egypt and Turkey the third largest of the group. The GDP PPP per capita of Thailand in 2000 (7,302 dollars) was lower than that of Jordan in 2019 (10,500 dollars) but rose to be almost twice of Jordan's in 2019 (19,233 dollars). At the same time, Thailand's share of MVA in GDP decreased slightly from 28.3% in 2000 to 25.5% in 2019, rendering it lower than Jordan's (32.4% in 2019). In the year 2000, Thailand had a similar share of medium and high technology sectors in MVA than Jordan had in 2019 (37.9% compared to 32.4%). By 2019, this had increased to 41.3% in Thailand. Regarding the role of exports in GDP, it has been much more prominent, though declining, in Thailand (from 64.8% in 2000 to 59.4%) compared to Jordan (36.4% in 2019).

Table 13. Turkey's competition with Jordan at the product level

Rank in Jordan's exports, HS 6-digit code and product label	Jordan's exports (1,000 USD)	Turkey's exports (1,000 USD)	Overlap (1,000 USD)	Overlap (% of Jordan's exports)	Overlap (% of Turkey's exports)
Total (5,206 products)	8,312,919	171,098,388	4,055,132	48.8	2.4
Both Jordan and Turkey export (2,178 products)	6,852,551	140,117,874	4,055,132	59.2	2.9
4. 300490 Medicaments consisting of mixed or unmixed products for therapeutic or prophylactic purposes, ...	421,643	670,134	421,643	100.0	62.9
6. 880330 Parts of aeroplanes or helicopters, n.e.s. (excluding those for gliders)	244,264	656,651	244,264	100.0	37.2
7. 710812 Gold, incl. gold plated with platinum, unwrought, for non-monetary purposes (excluding gold ...)	206,968	1,995,597	206,968	100.0	10.4
12. 271019 Medium oils and preparations, of petroleum or bituminous minerals, not containing biodiesel, ...	163,463	3,977,317	163,463	100.0	4.1
14. 070200 Tomatoes, fresh or chilled	120,289	303,071	120,289	100.0	39.7
19. 210690 Food preparations, n.e.s.	68,353	359,048	68,353	100.0	19.0
20. 610610 Women's or girls' blouses, shirts and shirt-blouses of cotton, knitted or crocheted (excluding ...)	64,535	130,256	64,535	100.0	49.5
21. 610910 T-shirts, singlets and other vests of cotton, knitted or crocheted	61,843	1,753,526	61,843	100.0	3.5
22. 340220 Surface-active preparations, washing preparations, auxiliary washing preparations and cleaning ...	60,541	303,562	60,541	100.0	19.9
23. 252329 Portland cement (excluding white, whether or not artificially coloured)	57,466	377,768	57,466	100.0	15.2
(...)					
1. 611420 Special garments for professional, sporting or other purposes, n.e.s., of cotton, knitted or ...	1,114,658	38,882	38,882	3.5	100.0
3. 611490 Special garments for professional, sporting or other purposes, n.e.s., of textile materials, ...	573,383	1,790	1,790	0.3	100.0
Only Jordan exports (68 products)	1,460,368	0	0	0.0	..
2. 310490 Carnallite, sylvite and other crude natural potassium salts, potassium magnesium sulphate and ...	590,919	0	0	0.0	..
5. 251010 Natural calcium phosphates and natural aluminium calcium phosphates, natural and phosphatic ...	373,261	0	0	0.0	..
8. 310290 Mineral or chemical nitrogen fertilisers (excluding urea; ammonium sulphate; ammonium nitrate; ...)	192,391	0	0	0.0	..
10. 280920 Phosphoric acid; polyphosphoric acids, whether or not chemically defined	191,423	0	0	0.0	..
37. 310390 Mineral or chemical phosphatic fertilisers (excluding superphosphates, those in pellet or similar ...)	32,967	0	0	0.0	..
43. 281520 Potassium hydroxide „caustic potash“	27,241	0	0	0.0	..
97. 240290 Cigars, cheroots, cigarillos and cigarettes consisting wholly of tobacco substitutes	10,093	0	0	0.0	..
102. 310420 Potassium chloride for use as fertiliser (excluding that in tablets or similar forms, or in ...)	9,565	0	0	0.0	..
121. 220830 Whiskies	7,972	0	0	0.0	..
125. 200570 Olives, prepared or preserved otherwise than by vinegar or acetic acid (excluding frozen)	7,602	0	0	0.0	..
Only Turkey exports (2,797 products)	0	30,980,514	0	..	0.0
870331 Motor cars and other motor vehicles principally designed for the transport of persons, incl. ...	0	1,354,108	0	..	0.0
620342 Men's or boys' trousers, bib and brace overalls, breeches and shorts, of cotton (excluding ...)	0	957,654	0	..	0.0
720839 Flat-rolled products of iron or non-alloy steel, of a width of >= 600 mm, in coils, simply ...	0	689,182	0	..	0.0
611595 Full-length or knee-length stockings, socks and other hosiery, incl. footwear without applied ...	0	667,110	0	..	0.0
721391 Bars and rods, hot-rolled, in irregularly wound coils, of iron or non-alloy steel, of circular ...	0	575,146	0	..	0.0
720711 Semi-finished products of iron or non-alloy steel containing, by weight, < 0,25% of carbon, ...	0	459,094	0	..	0.0
845121 Drying machines, of a dry linen capacity <= 10 kg (excluding centrifugal driers)	0	417,998	0	..	0.0
720838 Flat-rolled products of iron or non-alloy steel, of a width of >= 600 mm, in coils, simply ...	0	364,422	0	..	0.0
Neither country exports (551 products)	0	0	0	..	..

Source: ITC 2023, TradeMap

5.2 Manufacturing value added (MVA) performance

MVA, which is the value generated in the manufacturing sector and calculated as the sum of manufacturing output *minus* sum of intermediate inputs, is a key indicator of manufacturing performance. Jordan's manufacturing sector should be assessed in a first step by looking at total MVA over time as well as its share in the economy and manufacturing labour productivity (see Table 14). The performance for technology groups (5.3 Structural change) and industrial sectors (5.4 Sectoral competitiveness) is analysed in subsequent sections.

Table 14. Manufacturing value added (MVA) performance for benchmark countries

	MVA in constant 2015 USD					Share of MVA			Manufacturing productivity		
	MVA (in Mio USD)			MVA growth (%/year)		MVA/GDP (%)			MVA/employee (current USD)		
	2000	2008	2019	2000-2008	2008-2019	2000	2008	2019	2000	2008	2019
UAE	18,835	28,007	36,418	5.1%	2.4%	9.1	8.6	8.8	50,778	85,362	49,030
Bulgaria	-	-	-	-	-	-	-	-	2,910	10,288	17,297
Egypt, Arab Rep.	34,353	45,803	60,907	3.7%	2.6%	18.0	15.5	15.9	6,797	15,138	25,077
Jordan	2,848	6,095	7,447	10.0%	1.8%	13.5	21.2	17.7	13,445	25,071	35,900
Lebanon	2,433	3,919	3,109	6.1%	-2.1%	11.4	8.3	7.4	-	-	-
Morocco	10,319	13,504	17,818	3.4%	2.6%	18.5	15.1	14.9	10,786	19,944	16,427
Oman	2,012	5,644	7,887	13.8%	3.1%	5.7	10.5	8.0	29,569	102,590	193,059
Thailand	60,973	96,915	118,757	6.0%	1.9%	28.4	30.6	25.6	8,272	14,313	23,443
Tunisia	4,506	5,984	6,547	3.6%	0.8%	16.3	18.1	14.1	10,214	27,383	9,948
Turkey	62,935	96,213	162,036	5.4%	4.9%	18.7	16.3	18.3	35,768	28,394	24,498

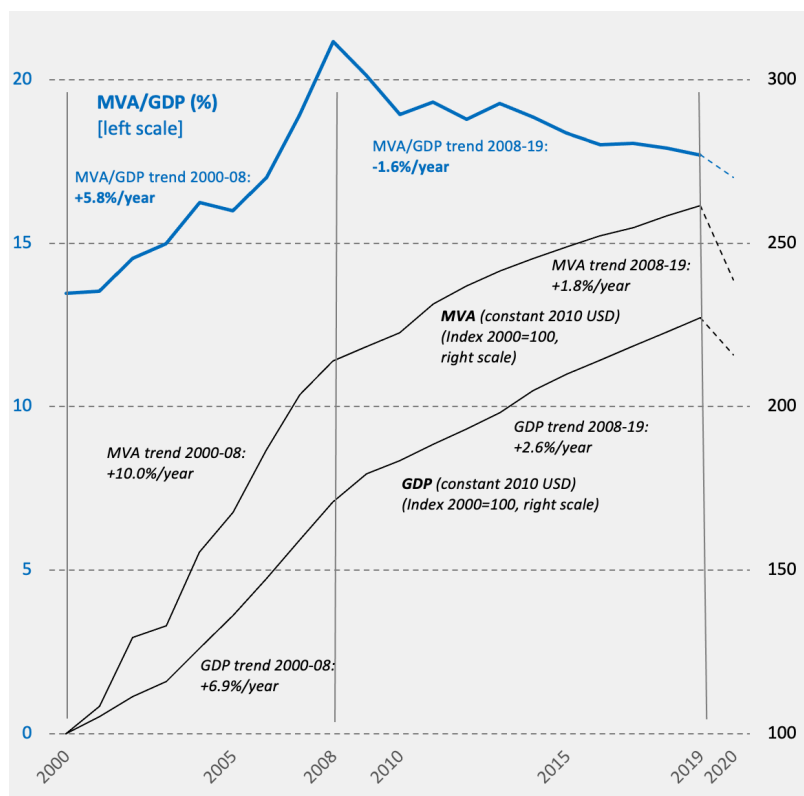
Source: World Bank 2023a, WDI; UNIDO 2023, INDSTAT2 2020 (ISIC Rev. 3).

5.2.1 Growth of MVA

Jordan's MVA increased substantially during the 2000s, from USD 2.8 billion in 2000 to USD 6.1 billion in 2008 to USD 7.4 billion in 2019 (see Table 14)). However, Figure 3 suggests **three distinct periods during the 2000s** of Jordan's MVA performance (also see Box 1).

- **Rapid manufacturing growth from 2000 to 2008:** Jordan's manufacturing value added in volume increased on average by 10.2% per year between 2000 and 2008, clearly outpacing GDP growth (6.9%). As a result, Jordan's MVA as a percentage of GDP (in value terms) increased strongly, from 13.5% in 2000 to 21.2% in 2008, which translates to an average increase of 5.8% of the ratio MVA/GDP. In this period, Jordan's MVA growth was only outpaced by Oman (13.8%), and followed by Lebanon (6.1%), Thailand (6%), Turkey (5.4%), and the United Arab Emirates (5.1%).
- **Strong deceleration of manufacturing growth between 2008 and 2019:** Following the financial crisis of 2008, MVA growth decreased severely in Jordan. A growth rate of 1.8% between 2008 and 2019 put Jordan in an intermediate position, well below Turkey (4.9%), Egypt, and Morocco (2.6% each), but higher than Lebanon (-2.1%) and Tunisia (0.8%). While MVA growth declined in all countries between the two periods, this decline was most pronounced for Oman (-10.7%), followed by Jordan and Lebanon (-8.2% each). In relative terms, the decrease in Jordan's growth rate exceeded 80%, which was much higher than the global average decline of 35% for the same periods (World Bank 2023a).
- **Decline of manufacturing (and GDP) between 2019 and 2020:** The UNIDO (2023) MVA 2021 database suggests that Jordan's MVA (in constant 2015 USD) declined by 8.7% between 2019 and 2020 — which is the first decline in real terms since 1996— and its GDP (in constant 2015 USD) declined by 5%. Considering these declines in relation to 2019 GDP (in constant 2010 USD) (World Bank 2023a) gives an approximate idea of Jordan's position in 2020. As a result, Jordan's MVA in 2020 as a percentage of GDP has further declined to 17%. It is of course too early to assess whether this dip is temporary (especially due to the COVID-019 pandemic) or whether this negative trend may continue because of more fundamental root causes.

Figure 3. Jordan’s manufacturing value added trends, 2000-2020



Source: World Bank 2023a, WDI. UNIDO 2021, MVA 2021 database.

Even when considering the relative global slowdown, Jordan’s MVA growth rate between 2010 and 2019 should have been 6.5% when aligned with the average global MVA growth rate for the same period. The higher decrease may have happened due to several reasons, such as the prosperous period that the Jordanian industry went through in the period 2000-2008, in addition to the geopolitical tensions that occurred in the region, which led to the closure of many strategic markets for Jordanian exports such as Iraq, Syria, and Turkey (indirectly through the closure of Syria’s borders), in addition to the impact of the crisis on cash liquidity and investor confidence.

The slump was so significant and long-lasting—compared even to other selected countries—that the reasons for this must be investigated more in-depth, beyond the financial crisis of 2008. It might in fact point to structural weaknesses in the development of Jordan’s manufacturing system.

This report is a start for such an investigation. One of the theories from the economic and industrial literature that informs this investigation describes the risk of getting stuck in the so-called middle-income trap (Felipe et al. 2012; Agénor 2017; Pruchnik & Zowczak 2017). Middle-income countries might stumble into different types of traps; this policy brief serves as a stepping stone for future research in this direction. The middle-income trap more generally refers to the challenges middle-income countries face in climbing the technology ladder towards more sophisticated, high-tech products, and/or in terms of adopting more productive systems of production, such as Industry 4.0, to increase productivity.

The econometric results of a World Bank research paper, Arezki et al. (2019), suggest that the Middle East and North Africa have experienced a relatively slow pace of technology adoption in general purpose technologies, and that a slower technology adoption rate is associated with lower levels of economic growth. The paper moreover concludes that obstacles to the adoption of general-purpose technologies due to the lack of contestability in key industries could be an important channel of transmission for the middle-income trap. Section 5.4, which examines Jordan’s production structure, highlights that the distribution of industries has remained unchanged for a decade.

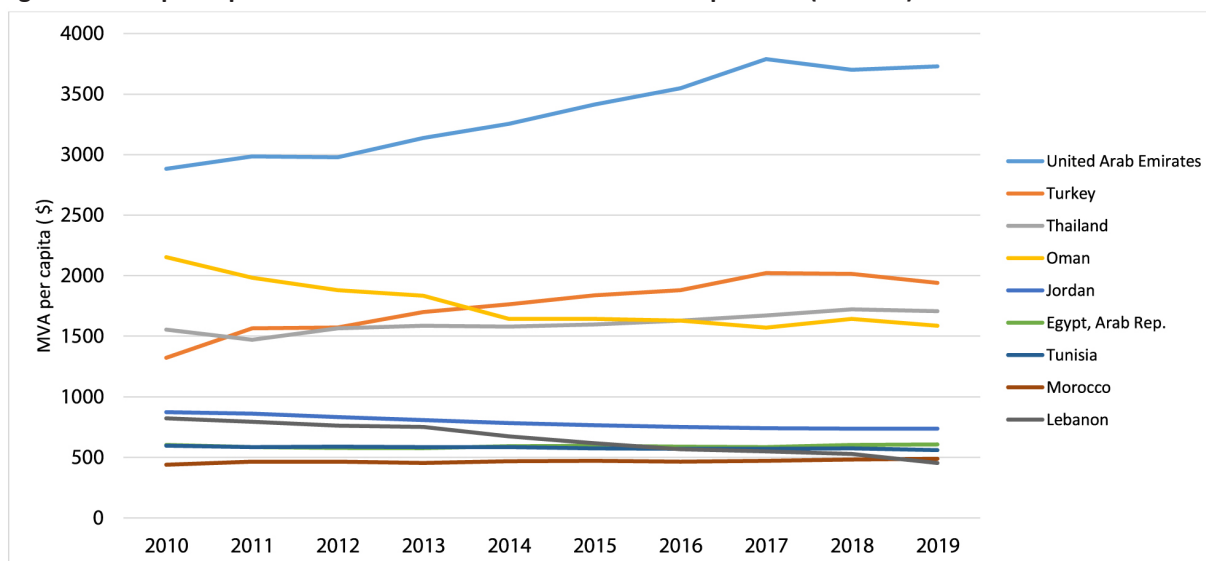
Contingent, not systemic, factors might include the effect of rising energy costs on production² as a consequence of the decline in gas supply from Egypt (accounting for around 80% of electricity generated in Jordan), with a consequent shift to more expensive oil, which was further exacerbated by the rise in global oil prices between 2008 and the first half of 2014.

The observed trend should represent the starting point of any subsequent analysis, and its reversal—despite the COVID-19 crisis—should lie at the core of Jordan’s future industrial policy.

To paint a full picture of Jordan’s MVA performance in relative terms, we must take the country’s size into account, using MVA per capita as an indicator (see Figure 4). This approach is also adopted under SDG-9.2.

² As stated in the introduction of the Jordan Industrial Policy (2017-2021) https://www.mit.gov.jo/ebv4.0/root_storage/ar/eb_list_page/%D8%A7%D9%84%D8%B3%D9%8A%D8%A7%D8%B3%D8%A9_%D8%A7%D9%84%D8%B5%D9%86%D8%A7%D8%B9%D9%8A%D8%A9_2017-2021.pdf

Figure 4. MVA per capita for Jordan and for similar and best comparators (2010-19)



Source: World Bank 2023a, WDI, constant USD 2015

The comparators have been divided into two categories: “similar” (Egypt, Tunisia, Morocco, Lebanon) and “best comparators” (UAE, Turkey, Thailand, Oman and Bulgaria) in accordance with their MVA levels, to more adequately present Jordan’s relative performance. Over the past decade, Jordan’s population growth rate was higher than its MVA (as indicated in Table 15), causing the decline of MVA/capita in Jordan and in competing countries, such as Tunisia and Lebanon. The best comparators (UAE, Turkey, Thailand, Oman and Bulgaria), except for Oman, experienced positive trends in MVA. This was despite population growths in both Turkey and the UAE, with the latter leading the group in MVA per capita. Oman experienced a significant growth in population at 5.6%, which may have contributed to its decline in MVA per capita.

Table 15. MVA per capita growth

Country	CAGR (2010-2019)	
	MVA per capita	Population
UAE	2.9%	1.5%
Egypt	0.1%	2.2%
Jordan	-1.9%	3.7%
Lebanon	-6.4%	3.7%
Morocco	1.2%	1.3%
Oman	-3.3%	5.6%
Thailand	1.0%	0.4%
Tunisia	-0.7%	1.1%
Turkey	4.4%	1.6%

Source: World Bank 2023a, WDI, constant USD 2015

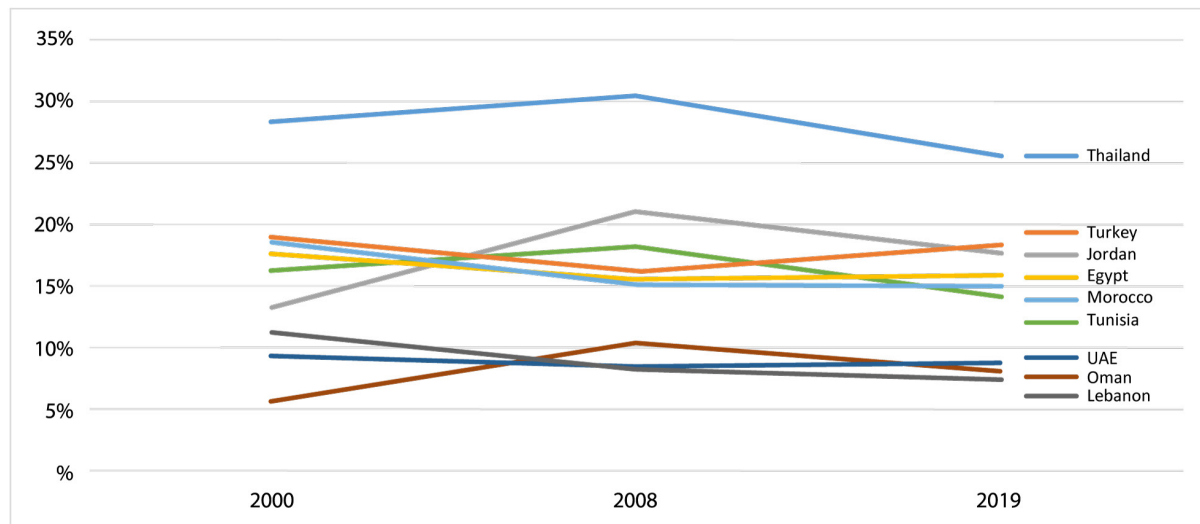
5.2.2 MVA as a percentage of GDP

To determine a country’s level of industrialization, and the importance of manufacturing for the economy, we must look at its share of MVA in domestic GDP (see Figure 5). MVA is not to be confused with the industrial value added, as the industrial sector includes not only manufacturing, but also mining, construction and public utilities.

Table 14 shows that Jordan was ranked seventh of the ten countries in 2000 (13.5% of GDP) but jumped to the second place in 2008 (21.2%), only outranked by Thailand (30.6%). In this phase, the manufacturing sector was the driving force of Jordan’s overall economy. The financial crisis of 2008 impacted the overall economy, slowing down the growth of GDP in Jordan to 2.6%, but impacted the manufacturing sector even more. As a result, the share of Jordan’s manufacturing in GDP declined to 17.7% in 2019. Services are now the driving sector for GDP growth, although it has not reached the growth level that the manufacturing sector used to achieve. The fact that Jordan’s MVA/GDP ratio is higher than

most of its comparators', except Thailand and Turkey, indicates that Jordan has achieved a significant level of industrialization relative to its overall economy. As the analysis shows manufacturing used to be a driver of economic growth in the past but has weakened in recent years. Examining the reasons behind the uptake during 2000-2008 against the general declining trend of the benchmark countries, is equally important as understanding what prevented Jordan from recovering after the 2008 crisis.

Figure 5. Manufacturing value added as a % of GDP for Jordan and selected benchmarks

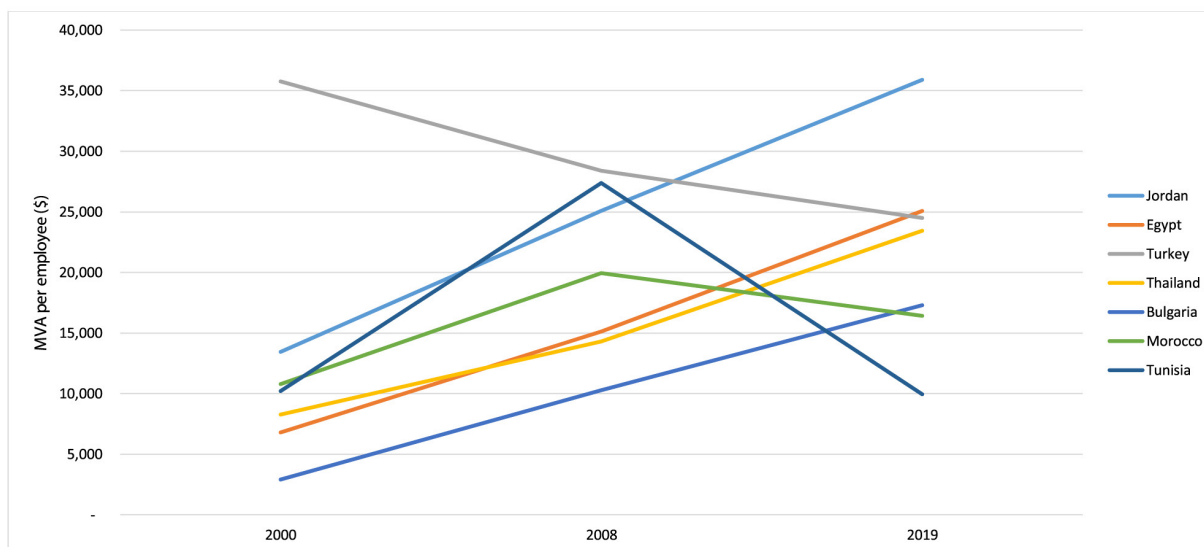


Source: World Bank 2023a, WDI.

Manufacturing Labour Productivity

The level of MVA generated per employee indicates the labour productivity in the manufacturing sector. Figure 6 depicts the development of this measure in the benchmark countries between 2000 and 2019. The oil-based industries of Oman and the UAE have been left out of the graph, to illustrate the differences in the development of MVA per employee for the benchmark countries with more similarly structured manufacturing sectors.

Figure 6. Labour productivity in manufacturing (in current USD)



Source: World Bank 2023a, WDI

Jordan's MVA per employee increased substantially during the 2000s, from about USD 13,000 in 2000, to USD 25,000 in 2008, to almost USD 36,000 in 2019 (see Table 14). Jordan had the third-highest labour productivity in 2019 — behind Oman (USD 193,000) and the United Arab Emirates (about USD 46,000), both of which are oil-based economies — up from fourth place in 2000. Differences in total manufacturing labour productivity across countries can be partly explained by differences in labour productivity of individual industries that exists in a country. Jordan's manufacturing labour productivity (almost USD 36,000) is more than three times higher than Tunisia's (USD 11,000). Jordan is relatively more specialised in capital-intensive industries (such as chemicals and coke and refined petroleum products), which tend to have high labour productivity, while Tunisia is relatively more specialised in labour-intensive

industries (such as textile products and leather products), which tend to have a lower labour productivity. This may in part explain the significant decrease of Tunisia’s manufacturing labour productivity after 2008, falling by more than 50% by 2019. The only other benchmark country to experience any decrease in manufacturing labour productivity was Turkey, which lost its dominant position from 2000 and only ranked third in 2019, behind Jordan and Egypt.

5.3 Structural change

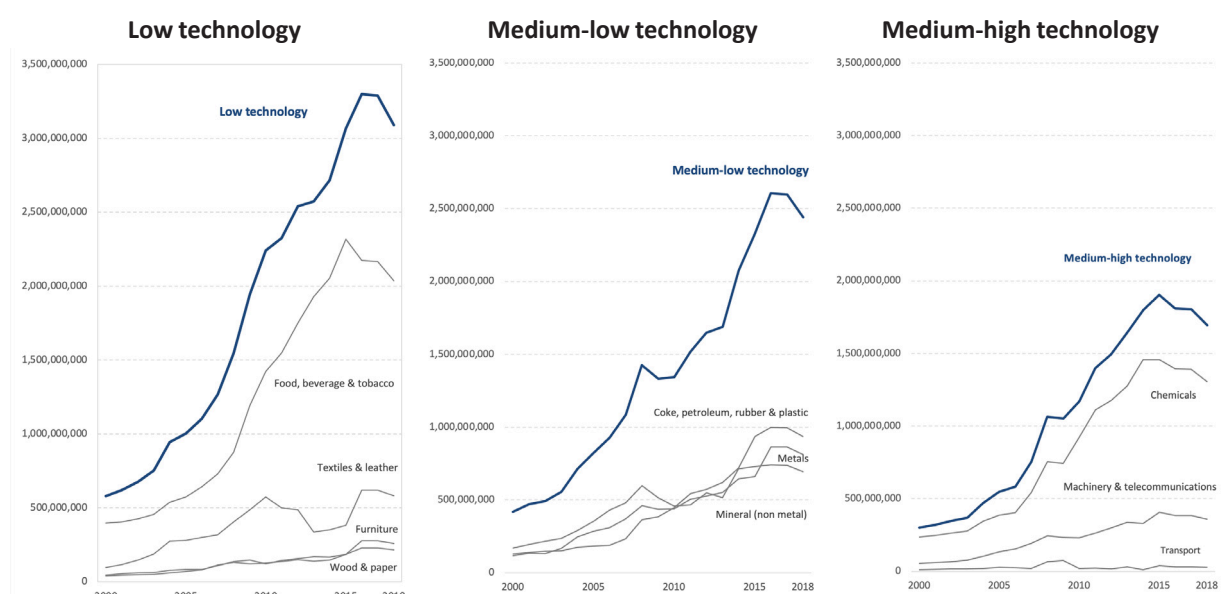
Jordan’s manufacturing value added by sector and technology intensity

Figure 7 depicts the sectoral composition of Jordan’s production structure. It highlights major issues related to the “quality” of Jordan’s manufacturing sector, i.e., its sectoral and technological composition:

Limited sectoral diversification: Jordan’s production structure is rather concentrated, with food, beverages and tobacco as well as chemicals representing about half of MVA (for more detail see Table A.1 in the annex).

Limited role of medium- and high-technology sectors: Jordan’s manufacturing sector is dominated by low and medium-low technology sectors. Low technology sectors (in particular food, beverages & tobacco) account for the lion’s share of Jordan’s MVA, followed by medium-low technology (coke, petroleum, rubber & plastics, metals and minerals), while medium- and high-technology sectors are the least important (mainly composed of chemicals, with machinery and telecommunication playing only a minor role, and a negligible contribution from the transport industry). Medium- and high-technology sectors represented less than 25% of total MVA in Jordan in 2018 (see Table 16), which is substantially lower than in Oman (45.0%), Thailand (41.4%), the UAE (36.6%). Even Morocco, with a much lower production volume and labour productivity in manufacturing, has a much higher share of medium- and high-technology (34.2%).

Figure 7. Jordan’s manufacturing value added by technology intensity and sector



Source: UNIDO INDSTAT2 2020 (ISIC Rev. 3).

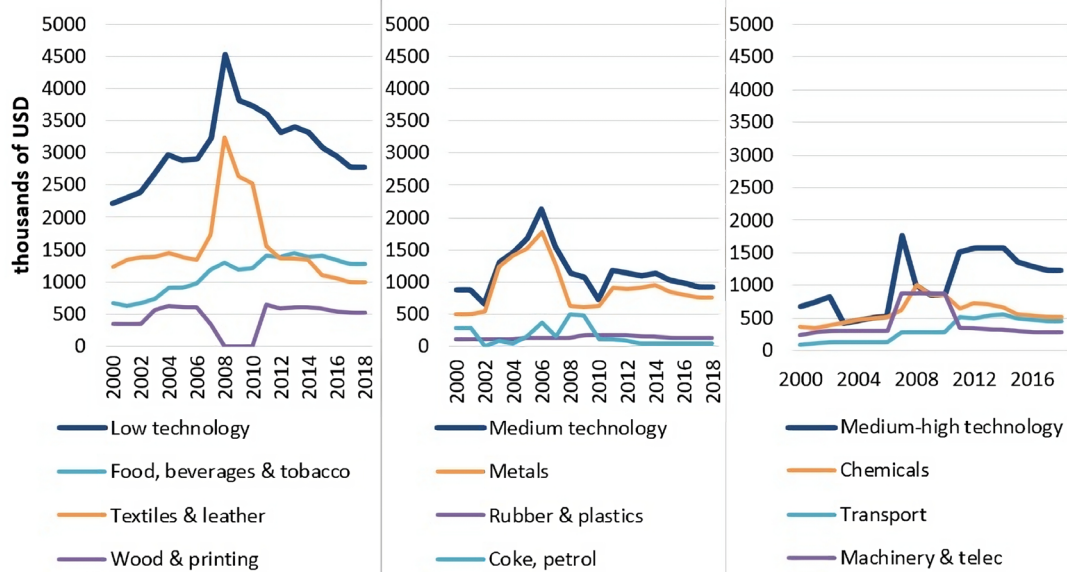
Table 16. The share of medium- and high-technology sectors in total manufacturing in Jordan and the benchmark countries

Economy	Medium- and high-technology sectors (% of total manufacturing)		
	2000	2008	2019
Oman	9.3	14.2	45.0
Thailand	37.9	46.3	41.4
United Arab Emirates	0.0	0.0	36.6
Morocco	19.7	28.9	34.2
Bulgaria	29.1	27.1	32.4
Turkey	27.9	31.3	32.2
Jordan	22.4	25.5	22.6
Tunisia	19.6	7.2	21.7
Egypt	36.2	25.7	20.9
Lebanon	0.0	0.0	0.0

Source: UNIDO 2023, INDSTAT2 2020 (ISIC Rev. 3)

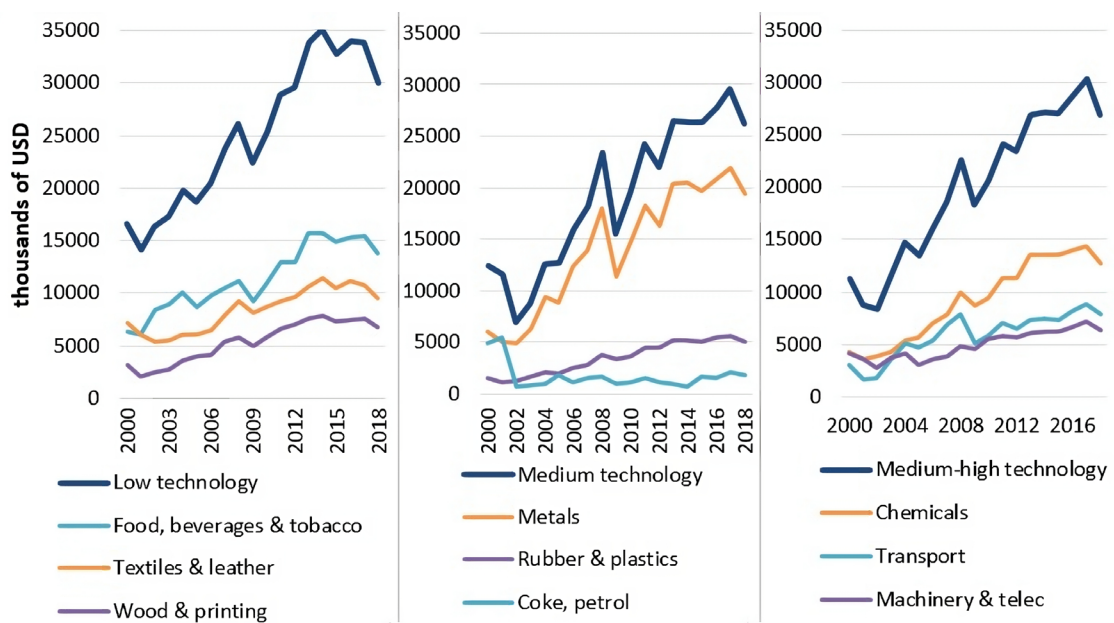
Comparing the production structure of Tunisia and Turkey with Jordan promises fruitful insights. Despite their strong food-processing and garment industries, both countries demonstrate a higher degree of diversification within manufacturing and, in the case of Turkey, also a higher share in MHT, as showed by figures 8 & 9.

Figure 8. Tunisia’s production structure: MHT (2000-18)



Source: UNIDO 2023, INDSTAT2 2020 (ISIC Rev. 3)

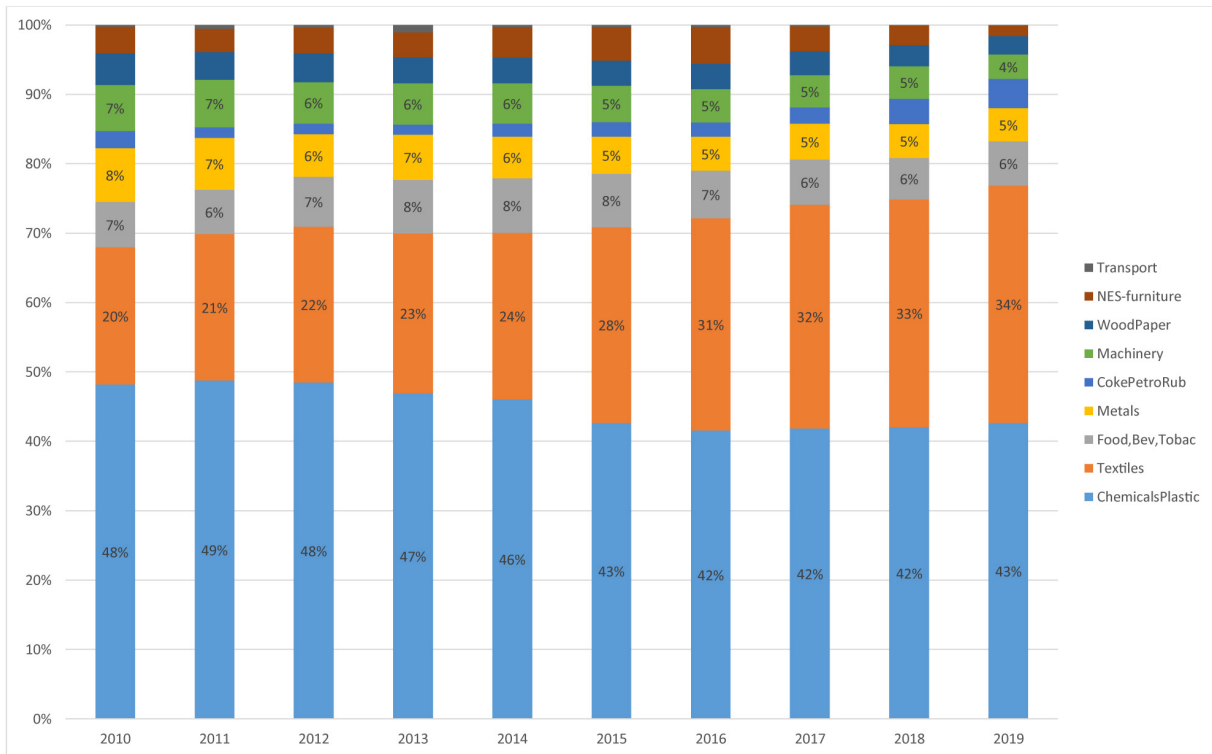
Figure 9. Turkey’s production structure: MHT (2000-18)



Source: UNIDO 2023, INDSTAT2 2020 (ISIC Rev. 3)

Replicating this analysis with respect to exports, Figure 10 does not present a more promising picture for Jordan. It reveals an even lower degree of diversification in export compared to production, as it focusses almost entirely on garments and chemicals/pharmaceuticals. The metals and machinery sectors, which contributed reasonable shares to Jordan’s exports (8% and 7% respectively) in 2010, have lost importance and fell to 5% and 4% respectively in 2019. In fact, the only sector that significantly expanded its share in Jordan’s exports is the low-technology textile product sector.

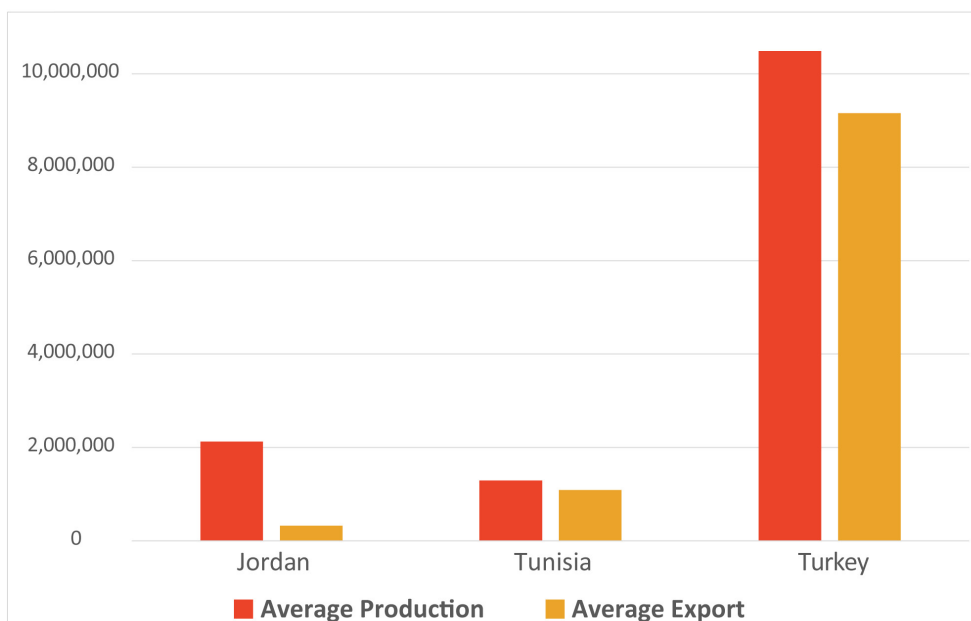
Figure 10. Jordan's export structure



Source: World Bank 2023b, WITS; UN Statistics 2023, UNCOMTRADE

Comparing Jordan's production structure to its export structure, the importance of food and beverages exports relative to production drops significantly. This does not necessarily come as a surprise, as this industry generally tends to focus on the domestic market. The case of Jordan is striking, however, and Figure 11 showcases the differences between production- and export performance in the food and beverages industry in 2016-2018 for Jordan, Tunisia and Turkey. The difference between the two comparators' production volume and exports is much less significant than Jordan's, indicating that the export and, hence, production potential of Jordan's food and beverages industry is untapped.

Figure 11. Average production and export of food and beverages (2016-2018)



Source: World Bank 2023b, WITS; UN Statistics 2023, UNCOMTRADE; UNIDO 2023, INDSTAT2 2020 (ISIC Rev. 3)

In terms of the MHT ratio in total manufacturing exports, Table 17 shows that Jordan experienced a decrease from 48% in 2008 to 36% in 2019, due to the massively growing share of textile products in exports as observed in Figure 10. This share is even lower than the one from 2000 (44%), placing Jordan third to last in this ranking, with only Egypt (32%) and the UAE (11%) performing worse. The latter was to be expected, as the UAE's exports are largely oil related. Thailand's lead with 61% does not come as a surprise either. However, the fact that Morocco (59%) and Tunisia (52%) so clearly outperform Jordan should raise some concerns.

When narrowing down the analysis to high-technology exports only, the picture shifts quite significantly. Here, despite a decrease from the share of 16% in the year 2000, Jordan is performing comparatively well at 11% in 2019. Only the non-MENA countries Thailand (19%) and Bulgaria (12%) did better in 2019, while Tunisia recorded 11% of high-tech in exports as well. This observation demonstrates that a considerable share of Jordan's medium- and high-technology exports are in fact medium-technology exports. On the low end of the spectrum, the oil-based economies Oman and UAE only had a ratio of 1% high-technology in exports, while Egypt's was 2%.

Table 17. Jordan's export structure

	MHT exports (% manufactured exports)			High-technology exports (% of manufactured exports)			High-technology exports (current Million US\$)		
	2000	2008	2019	2000	2008	2019	2000	2008	2019
UAE	4%	7%	11%	0%	0%	1%	7	86	1,042
Bulgaria	27%	32%	46%	5%	8%	12%	182	1,267	2,972
Egypt	19%	24%	32%	2%	2%	2%	58	275	331
Jordan	44%	48%	36%	16%	10%	11%	160	507	624
Lebanon	27%	38%	39%	7%	8%	9%	36	240	206
Morocco	23%	32%	59%	10%	6%	9%	573	903	2,089
Oman	51%	29%	43%	5%	0%	1%	78	9	178
Thailand	60%	60%	61%	32%	23%	19%	19,048	33,822	39,000
Tunisia	25%	39%	52%	3%	5%	11%	153	781	1,420
Turkey	32%	42%	44%	5%	2%	4%	1,233	2,812	6,383

Source: World Bank 2023b, WITS; UN Statistics 2023, UNCOMTRADE

5.4 Sectoral competitiveness

5.4.1 Sector-level value added

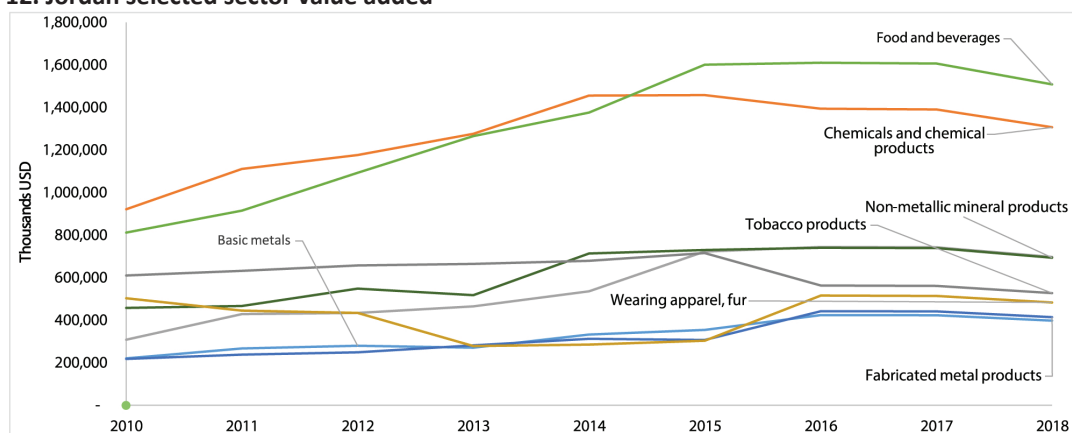
Table 18 and Figures 12, 13, and 14 show the sector value added developments of Jordan, Tunisia and Turkey for the period 2010-2018. The food and beverages sector, which was the sector with the highest manufacturing value added in all three countries, experienced a rise in value generation in Jordan while remaining almost stable in Tunisia and Turkey. Compared to Tunisia, Jordan has achieved more positive value-added growth in a number of sub-sectors. For food and beverages and chemicals, the two most prominent sectors in Jordan, a stagnation starting in 2015 can be observed in Figure 12. At the same time, the most prominent sectors in Tunisia have all experienced a steady decline over the entire sample period in Figure 13. Nonetheless, Tunisia has achieved more value-added growth compared to Jordan in several sub-sectors: apparel, other transport equipment and machinery. Upon closer inspection (see Table A.1 in the Annex), it becomes clear that Jordan displayed zero value added in a number of sub-sectors: radio, television and communication equipment, medical, precision and optical instruments, and other transport equipment. While the manufacturing value added baseline level of Turkey as a mature economy is much higher than that of the other two countries in any case, some of its sub-sectors have recently experienced significant further growth, such as apparel and particularly basic metals. The latter even managed to catch up with the dominant food and beverages sector in 2018.

Table 18. Jordan sector value added

Years	2010	2018	CAGR
Basic metals	220 300	397 010	7.6
Chemicals and chemical products	921 417	1 306 203	4.5
Coke, refined petroleum products, nuclear fuel	308 108	696 973	10.7
Electrical machinery and apparatus	109 075	147 414	3.8
Fabricated metal products	217 713	414 109	8.4
Food and beverages	811 714	1 508 817	8.1
Furniture; manufacturing n.e.c.	125 159	259 209	9.5
Leather, leather products and footwear	16 603	27 172	6.4
Machinery and equipment n.e.c.	121 821	181 523	5.1
Motor vehicles, trailers, semi-trailers	18 220	28 388	5.7
Non-metallic mineral products	457 561	693 645	5.3
Office, accounting and computing machinery	43 841 ³	31 708	-4.5 ⁴
Paper and paper products	90 004	181 478	9.2
Printing and publishing	139 370	193 541	4.2
Rubber and plastics products	139 823	239 072	6.9
Textiles	52 945	70 503	3.6
Tobacco products	609 608	527 202	-1.8
Wearing apparel, fur	502 824	483 169	-0.5
Wood products (excl. Furniture)	31 615	33 331	0.7
Total	4 893 880	7 420 469	5.3

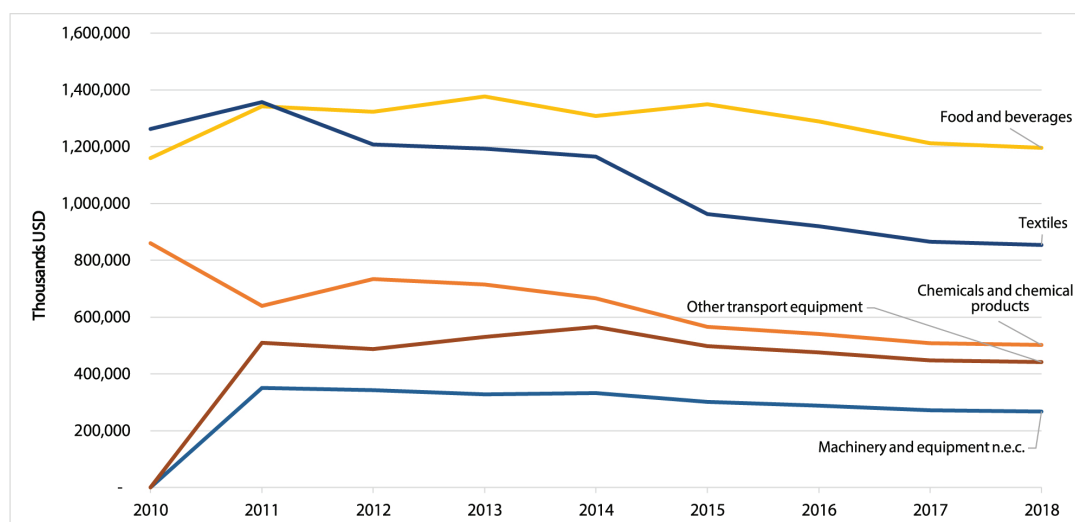
Source: UNIDO 2023, INDSTAT, constant USD 2010

Figure 12. Jordan selected sector value added



Source: UNIDO 2023, INDSTAT, constant USD 2010

Figure 13. Tunisia selected sector value added

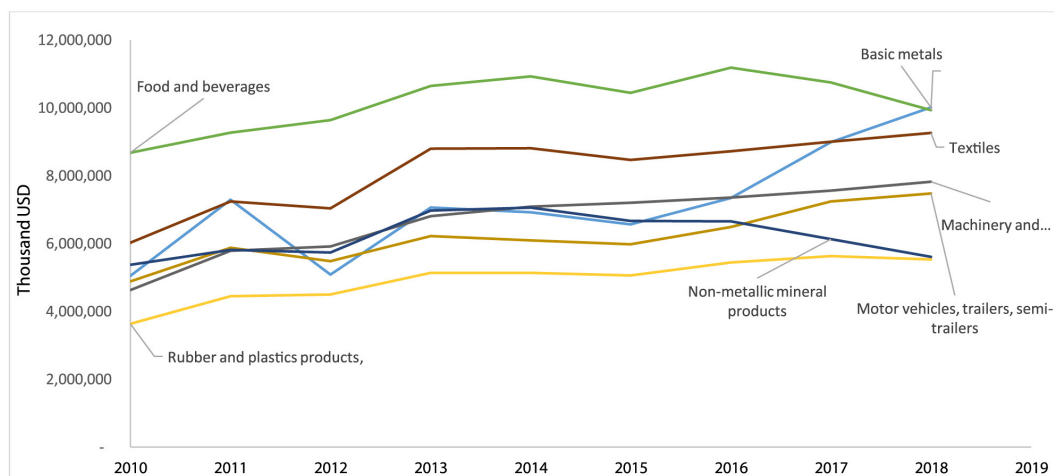


Source: UNIDO 2023, INDSTAT, constant USD 2010

³ This value is for 2011 as a 2010 value was not available.

⁴ This value is CAGR from 2011 to 2018.

Figure 14. Turkey selected sector value added per capita



Source: UNIDO 2023, INDSTAT, constant USD 2010

Share of value added in total manufacturing value added (MVA)

Table 19 illustrates the evolution of the sector shares of value added in total MVA over time in Jordan, Tunisia and Turkey. The year 2010 will not be used as a reference year in this report, due to the few sectors that were recorded in Tunisia in this year.

Between the years 2011 and 2018, Jordan's food and beverage food sector share of value added in total MVA increased by 3%, while it decreased for Tunisia and Turkey by 4% and 3% respectively in the same period. Jordan and Turkey both recorded shares in total MVA for non-metallic products over the period 2011-2018, unlike Tunisia, where no such share can be found. The ratio of this sub-sector decreased by 2% in Turkey and has remained almost stable in Jordan. The chemicals sub-sector, which accounts for the largest, yet declining, share in Jordan's exports, has evidently also experienced a decrease in its share of value added in total MVA of 3% (from 20.7% to 17.6%) between 2011 and 2018. Nonetheless, this ratio was still higher than in the benchmark countries Turkey (between 7-8%) and Tunisia (between 11-12%). Tunisia's wearing apparel sector share of value added in total MVA dropped by 4% throughout the period considered. Yet, Tunisia (between 24-20%) still managed to achieve the highest share range compared to Jordan (1% and Turkey (between 9-10%).

Table 19. Share of sector value added in total manufacturing value added (MVA) for Jordan, Tunisia and Turkey

Sectors	Jordan			Tunisia			Turkey		
	2010	2011	2018	2010	2011	2018	2010	2011	2018
Food and beverages	17%	17%	20%	34%	24%	28%	13%	12%	10%
Chemicals and chemical products	19%	21%	18%	25%	11%	12%	8%	7%	8%
Coke, refined petroleum products, nuclear fuel	6%	8%	9%	3%	2%	1%	2%	2%	2%
Non-metallic mineral products	9%	9%	9%	-	-	-	8%	8%	6%
Tobacco products	12%	12%	7%	1%	1%	1%	0%	0%	1%
Wearing apparel, fur	10%	8%	7%	-	-	-	6%	6%	6%
Fabricated metal products	4%	4%	6%	-	-	-	7%	7%	7%
Basic metals	5%	5%	5%	0%	5%	4%	8%	9%	10%
Furniture; manufacturing n.e.c.	3%	3%	3%	0%	5%	5%	4%	4%	3%
Rubber and plastics products	3%	2%	3%	0%	3%	3%	6%	6%	6%
Printing and publishing	3%	3%	3%	-	-	-	1%	1%	1%
Machinery and equipment n.e.c.	2%	2%	2%	0%	6%	6%	7%	7%	8%
Paper and paper products	2%	2%	2%	0%	3%	3%	2%	2%	3%
Electrical machinery and apparatus	2%	2%	2%	-	-	-	6%	6%	5%
Textiles	1%	1%	1%	37%	24%	20%	9%	9%	10%
Wood products (excl. furniture)	1%	0%	0%	0%	4%	3%	2%	2%	1%
Office, accounting and computing machinery	0%	1%	0%	-	-	-	2%	2%	2%
Motor vehicles, trailers, semi-trailers	0%	0%	0%	-	-	-	7%	8%	8%
Leather, leather products and footwear	0%	0%	0%	0%	3%	3%	1%	1%	1%

Source: UNIDO 2023, INDSTAT, constant USD 2010

5.4.2 Sector-level productivity analysis

The MVA growth rates that are used in this section, are calculated based on constant prices in order to take inflation effects into account (for more details of the calculations see Annex B).

Growth Regime

Table 20 and Figure 15 present the growth regime for Jordan and Turkey for the period 2010-2018, and the growth regime for Tunisia for the period 2011-2018.⁵

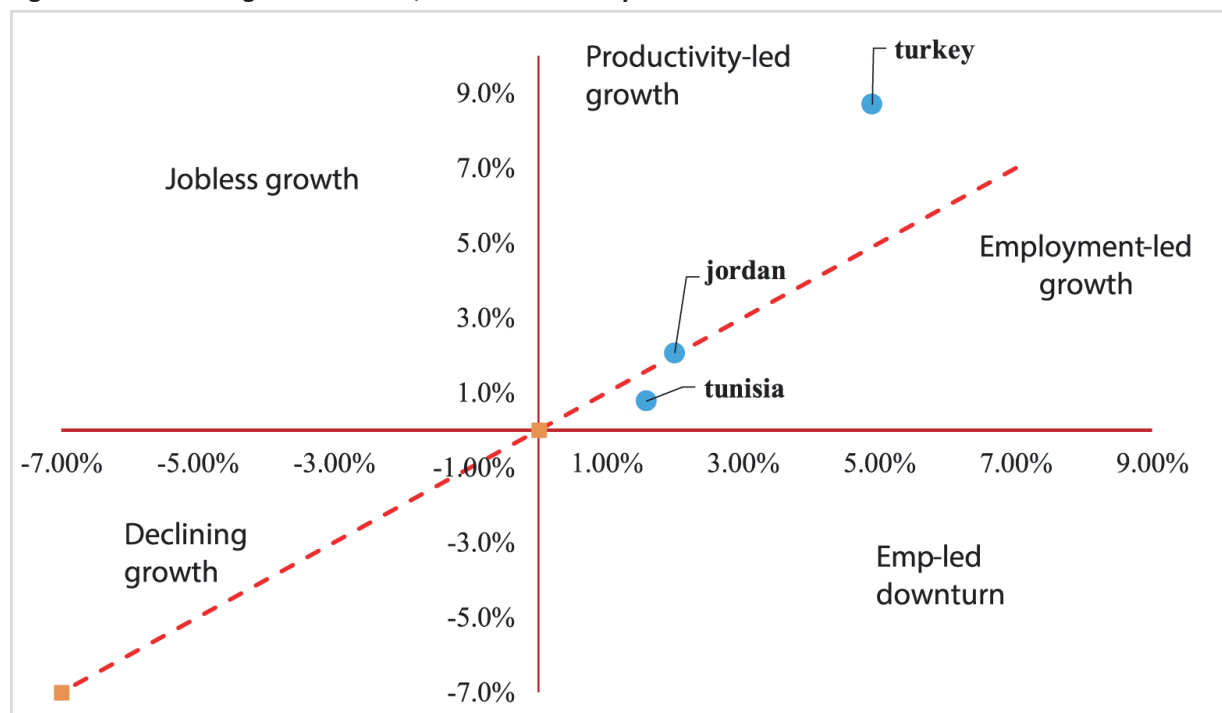
- Jordan and Tunisia both display an employment-led growth regime, but Jordan is performing better than Tunisia in terms of faster growing employment and MVA as well as slightly increasing productivity.
- Turkey has a productivity-led growth regime, which means that the manufacturing sector generated a higher real MVA growth compared to the employment growth over the period 2010-2018. Productivity increases when real MVA growth is exceeding employment growth. However, Turkey managed to grow its manufacturing very dynamically and in a very balanced manner, achieving both high growth in employment and labour productivity.

Table 20. Growth Regime for Jordan, Tunisia and Turkey

Indicator	Jordan	Tunisia	Turkey
Real MVA Growth	2.1%	0.8%	9%
Employment Growth	2.0%	1.6%	5%
Productivity Growth	0.1%	-0.8%	4%
Employment elasticity	0.97%	2.04%	0.56%
Growth regime	employment-led growth	employment-led growth	Productivity-led growth

Source: UNIDO 2023, INDSTAT

Figure 15. Growth Regime for Jordan, Tunisia and Turkey



Source: INDSTAT, constant USD 2010

Sector level productivity analysis

In this section, the same analytical tools are applied for a sector-level analysis of manufacturing, to see which sub-sectors dominate in terms of size and dynamics. As described in Annex B, we deflate the nominal sector value added with the manufacturing wide deflator for calculating the real growth rates. The corresponding inflation rates for Jordan, Tunisia and Turkey are 3.23%, -4.2% and -3.88% respectively (for more details refer to Annex B to see the calculations).

⁵ The table and figure use employment numbers that include both jobs and self-employment.

Figures 16, 17 and 18 examine the interaction between employment growth and value-added growth in Jordan, Tunisia and Turkey for the years 2010-2018 for Jordan and Turkey and for the years 2011-2018 for Tunisia, respectively.

In terms of employment growth:

The top sub-sectors in Jordan for the period 2010-2018 were:

1. Machinery & equipment, which recorded 5.2% employment growth (GAGR) from 4,600 employees to 6,896 employees.
2. Chemicals and chemical products, where employment grew by 4% per annum from 15,432 employees to 21,120
3. Both of these sectors are classified as medium-high and high technology. Even though the growth rate is the greatest, the number of opportunities it created remains small, which is a challenge to creating 1 million jobs by 2033.

The top sectors in Tunisia for the period 2011-2018 were:

1. Chemical & chemical products, with an employment growth of 9%
2. Other transport equipment, with an employment growth of 6%
3. Paper & paper products, with an employment growth of 4%

The first two sub-sectors are classified as medium-high and high technology, while the third one is classified as a low technology sub-sector.

- In Turkey, almost all sub-sectors recorded higher real value-added growth compared to employment growth. Also, these sub-sectors displayed the highest productivity compared to Tunisia and Jordan.

In terms of real value-added growth:

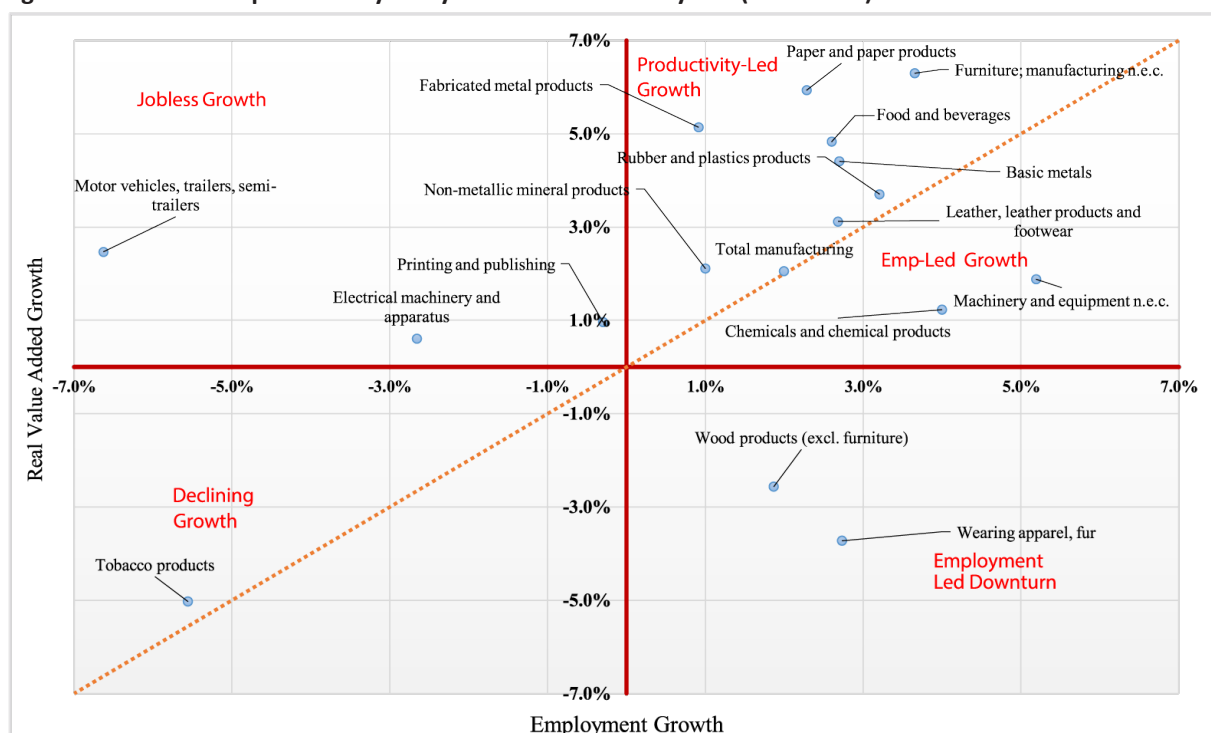
The top sub-sectors in Jordan for the period 2010-2018 were:

- 3.1 Coke & refined petroleum products, where the real value-added growth was 7.5%
- 3.2 Furniture, with a real value-added growth of 6.3%
- 3.3 Paper & paper products, where real value-added growth was 5.9%
- 3.4 Fabricated metal products, with a real value-added growth of 5.1%
- 3.5 Food & beverages, where real value-added growth was 4.8%

These sub-sectors are classified as using low or low-medium technology.

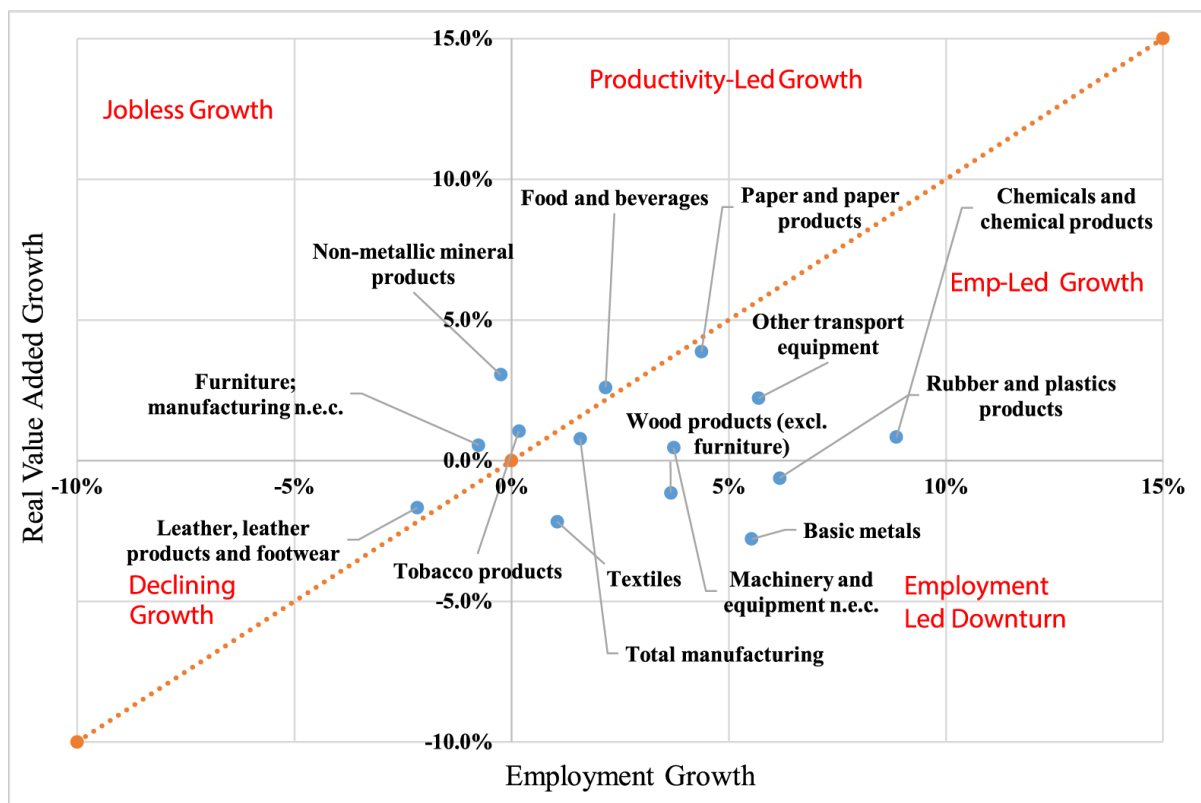
In the years 2011 to 2018, only two sectors recorded high productivity in Tunisia in terms of real value-added growth. These sectors were food & beverages and tobacco, who's real value-added growth were 2.6% and 1%, respectively. These sub-sectors are classified as using low technology.

Figure 16. Sector level productivity analysis of Jordan for the years (2010-2018)



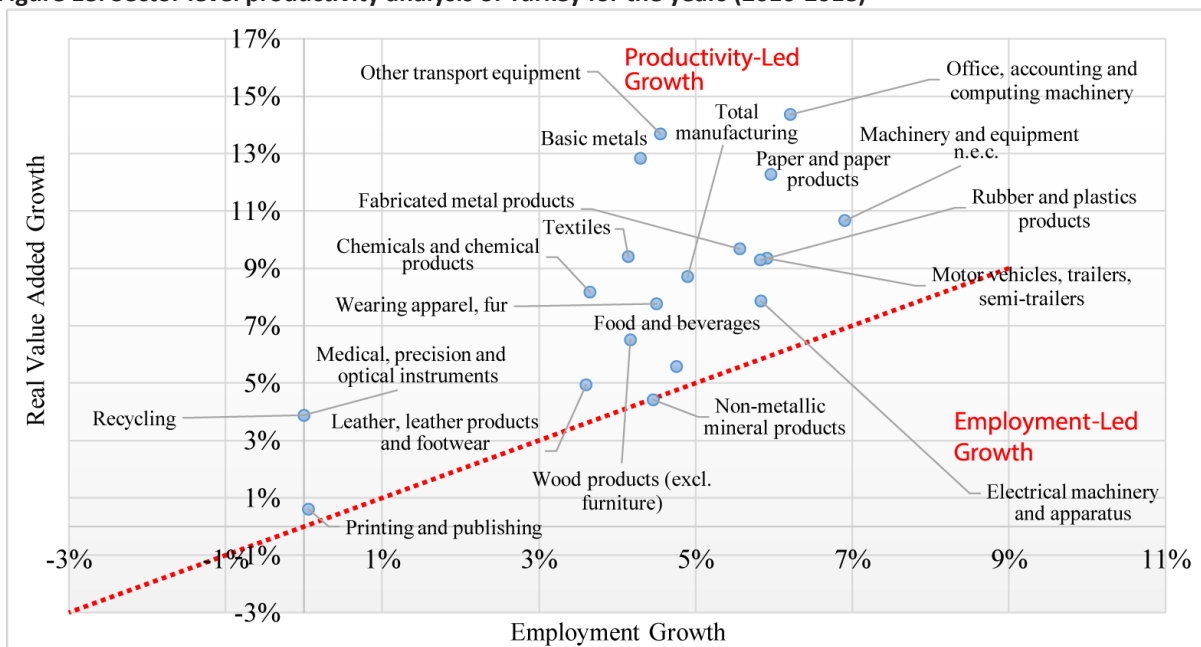
Source: UNIDO 2023, INDSTAT, constant USD 2010

Figure 17. Sector level productivity analysis of Tunisia for the years (2011-2018)



Source: UNIDO 2023, INDSTAT, constant USD 2010

Figure 18. Sector level productivity analysis of Turkey for the years (2010-2018)



Source: UNIDO 2023, INDSTAT, constant USD 2010

Table 21 below summarizes the classifications of sub-sectors based on the relation between real value growth and employment growth for Jordan and Tunisia for the period 2010-2018 and 2011-2018, respectively.

High productivity growth results from high real value-added coinciding with low employment growth. This has been the case in nine sub-sectors in Jordan, while only taking place in two sub-sectors in Tunisia. The sub-sectors motor vehicles, trailers, semi-trailers; electrical machinery & apparatus as well as printing & publishing are experiencing “jobless growth” in Jordan. This means that a notable shed of employment has corresponded with an increase in manufacturing value added. In Tunisia, on the other hand, no sub-sector faced “jobless growth”. Please take into consideration that we deflated the real value-added growth series using a general manufacturing-wide deflator. This matters since lower inflation may shift some “declining sectors” upward, potentially moving into the “jobless growth” category.

Table 21. Classifications of sectors based on the relation between real value growth and employment growth for Jordan and Tunisia

Sub-Sector	Jordan	Tunisia
Basic metals	Productivity-led Growth	Employment led downturn
Chemicals and chemical products	Employment-led growth	Employment-led growth
Coke, refined petroleum products, nuclear fuel	Jobless Growth	employment led downturn
Electrical machinery and apparatus	Jobless Growth	-
Fabricated metal products	Productivity-led Growth	-
Food and beverages	Productivity-led Growth	Productivity-led Growth
Furniture; manufacturing	Productivity-led Growth	Jobless Growth
Leather, leather products and footwear	Productivity-led Growth	declining
Machinery and equipment	Employment-led growth	Employment-led growth
Motor vehicles, trailers, semi-trailers	Jobless Growth	-
Non-metallic mineral products	Productivity-led Growth	Jobless Growth
Paper and paper products	Productivity-led Growth	Employment-led growth
Printing and publishing	Jobless Growth	-
Rubber and plastics products	Productivity-led Growth	employment led downturn
Textiles/ Wearing apparel	Jobless Growth	Employment led downturn
Tobacco products	Declining growth	Productivity-led Growth
Total manufacturing	Productivity-led Growth	Employment-led growth
Wearing apparel, fur	employment led downturn	-
Wood products (excl. furniture)	employment led downturn	employment led downturn

Source: Figures 28 and 29

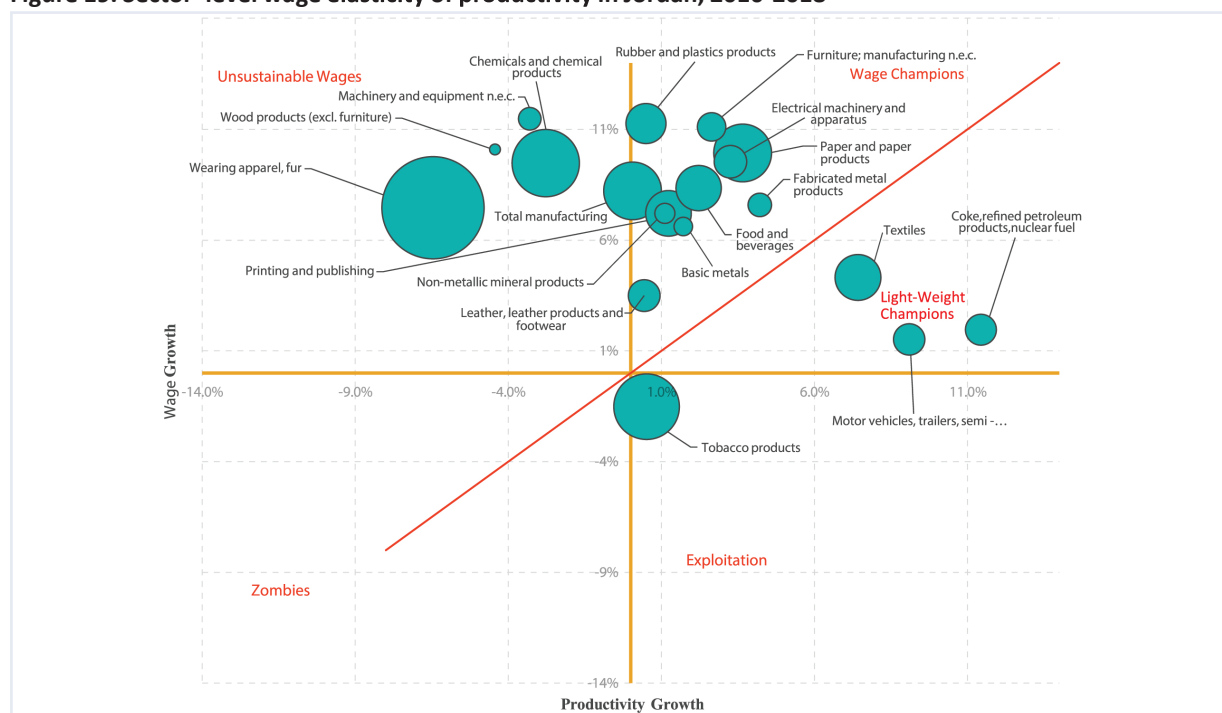
Sector level wage elasticity of productivity

The following analysis provides an insight in the link between wages and productivity. The guiding question is to what extent productivity gains achieved in particular subsectors translate into higher wages (wage elasticity) for workers in the period 2010-2018.

Figure 19 depicts the sector-level wage elasticity of Jordan between 2010 and 2018, classifying sub-sectors based on their position in the scatter diagram. The x-axis represents productivity growth rates while the y-axis depicts wage growth rates. One important issue to consider is gendered difference in wages. Bubble size represents the share of female wages in total wages of Jordan in the year 2016, and, as shown in the figure above, the highest share is recorded in the wearing apparel sub-sector, where wages increase corresponding with negative productivity trends, which means that those wage increases are likely to be unsustainable and, therefore, should not be counted on for future livelihood generation unless productivity is boosted.

There are numerous “wage champion” sub-sectors such as rubber and plastics products, furniture manufacturing, food and beverages and electrical machinery, which are characterized by very high returns to labour from productivity gains. Wage increases can also be observed in the “light-weight champions” motor vehicles, coke and refined petroleum products, and nuclear fuel sub-sectors, but to a moderate extent. For the period 2010 to 2018, there were no sub-sectors classified as “zombies” in Jordan. More importantly, there are some sectors such as machinery and equipment but also chemicals that, in fact, exhibit a decline in labour productivity but significantly increased wages, which is also in the long-term not sustainable development.

Figure 19. Sector-level wage elasticity of productivity in Jordan, 2010-2018⁶



Source: UNIDO 2023, INDSTAT, constant USD 2010

5.5 Manufacturing export performance

The global economy has changed considerably in the last decades, with increased trade liberalization and deeper integration of national economies as the main features of global trade. These are now being challenged by the effects of the COVID-19 pandemic, increasing protectionism, and near and reshoring of production capacities. All of which impact global value chains and trade relations.

Manufacturing trade has grown faster than MVA in recent years due to the specialization, fragmentation and internationalization of industrial activities. While MVA is the key indicator of industrial performance, manufacturing exports are another important indicator that is used to assess a country's industrial competitiveness in global markets (see Table 22).

Table 22. Manufacturing Exports per capita development of Jordan and its comparators

	Manufactured exports per capita (in current USD)		
	2000	2008	2019
UAE	1,824	4,340	11,155
Bulgaria	451	2,178	3,593
Egypt	51	202	209
Jordan	199	763	573
Lebanon	140	593	324
Morocco	196	482	656
Oman	650	2,221	3,004
Thailand	933	2,241	2,917
Tunisia	514	1,520	1,155
Turkey	385	1,679	1,923

Source: World Bank 2023b WITS; UN Statistics 2023, UNCOMTRAD

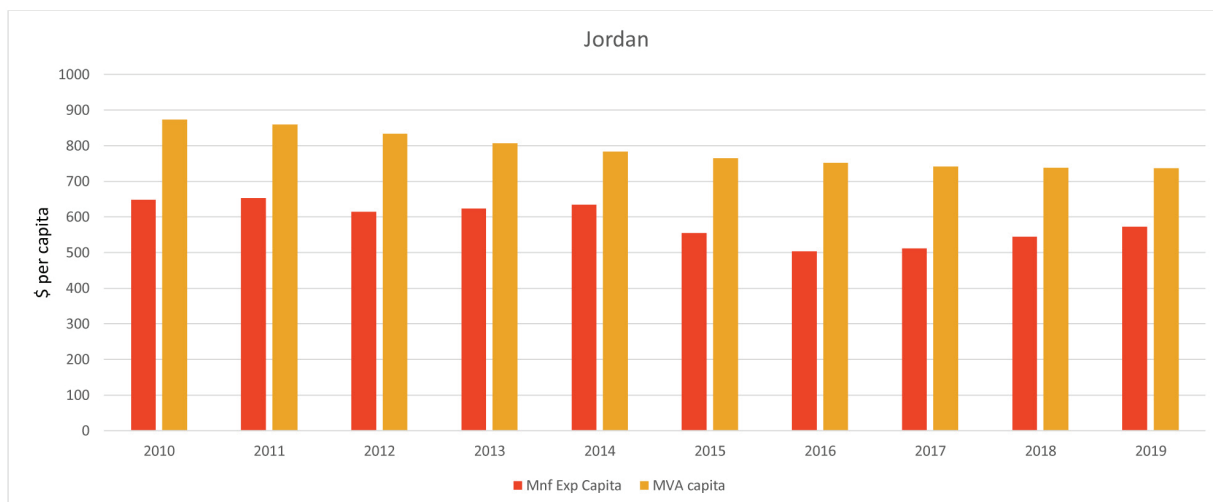
Figure 20 compares Jordan's production volume with its manufacturing exports per capita between 2010 and 2019. It exemplifies the difference between the country's capacity to produce manufactured goods and its capacity to export them. Production volume is measured by considering MVA/capita and manufacturing export is measured by manufacturing exports/capita. Both indicators allow to compare countries with different population sizes.

Jordan's MVA per capita exceeds its manufacturing exports per capita. A favourable interpretation would be that the country's industry is engaged in activities that generate a high level of value addition domestically, but have not yet been fully exploited for trade. A more likely explanation, however, is that Jordan is facing significant challenges in penetrating international markets. This could be due to a lack of international competitiveness or because of trade barriers. A related explanation might be that the degree of integration in cross-border (i.e., regional or global) value chains is low, with weakly developed forward linkages to foreign buyers so that if any value addition is achieved, it mostly occurs domestically.

⁶ Real value added used to calculate the productivity growth for the period 2010-2018.

For a relatively small country (in terms of population size), tapping into export demand is indispensable for industry to gain from economies of scale and to promote productivity growth. Some key industries in Jordan already have.

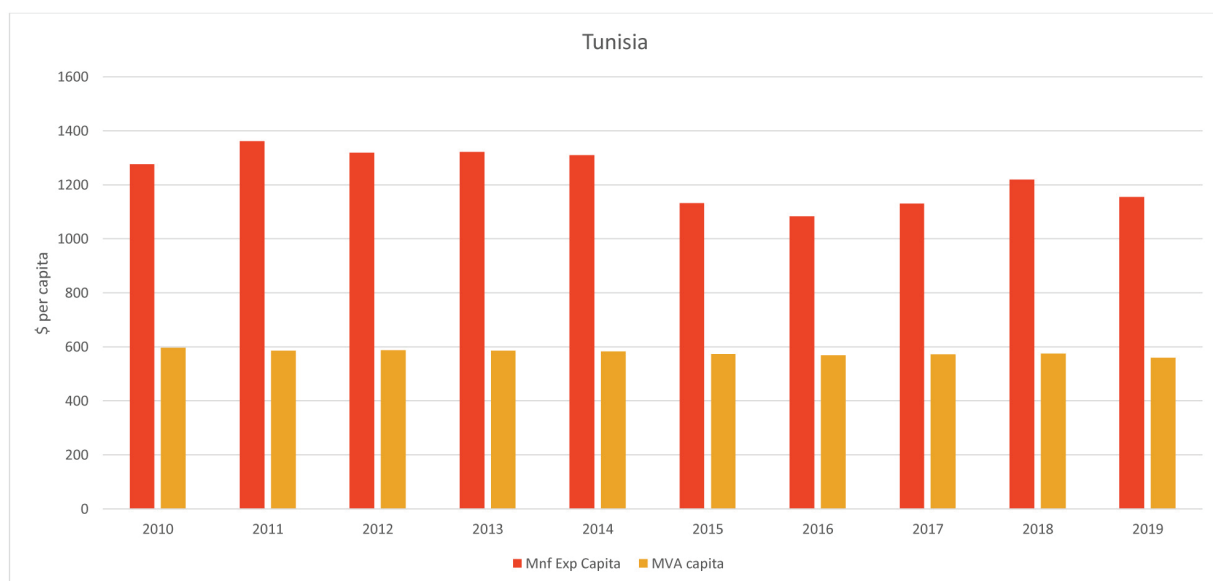
Figure 20. Jordan’s production volume and exports (2010-19)



Source: World Bank 2023b, WITS; UN Statistics 2023, UNCOMTRADE; World Bank 2023a, WDI, constant USD 2015

To better understand Jordan’s production volume and manufacturing exports per capita, Tunisia serves as a useful benchmark, since the two countries have a similar MVA per capita. Tunisia’s manufacturing exports are nearly double its production volume, i.e., the picture presented in Figure 8 is the reverse of that presented for Jordan. Over the past 10 years, Tunisia’s economy has become more complex and export-driven, indicating that the country is taking advantage of regional trade agreements, particularly with the European Union, its main export destination and main supplier⁷.

Figure 21. Tunisia’s production volume and exports (2010-19)

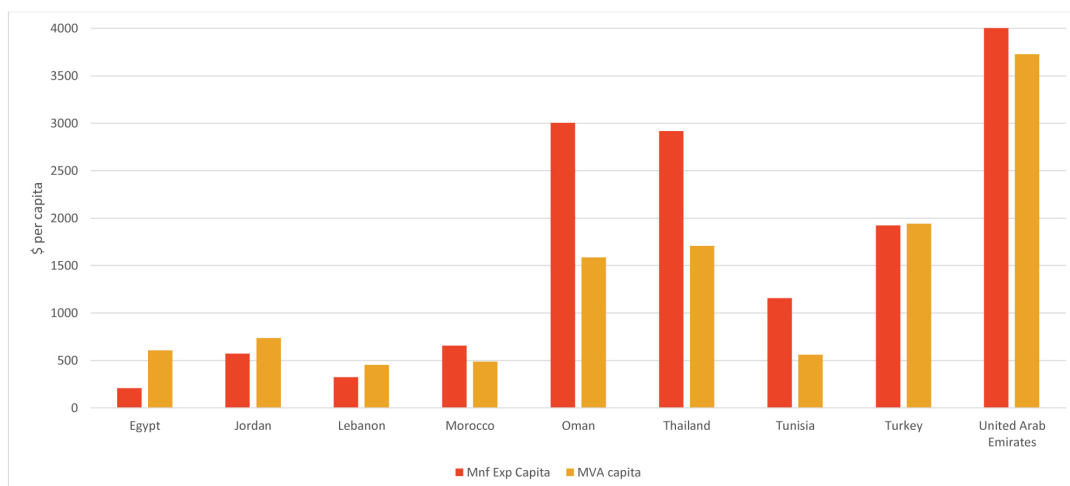


Source: WITS, UNCOMTRADE & WDI, constant USD 2015

Expanding the analysis to include all comparators (see Figure 22) reveals that the production volume in countries such as Turkey and Egypt exceed their exports, while the exports of Tunisia are more than double its production volume. This is also owed to its direct access to wealthy western European markets. Manufacturing exports from the United Arab Emirates, Tunisia and Morocco were exceeding the respective MVA per capita. Jordan’s production volume (MVA/capita) compared to its role-model countries is still limited. Jordan’s lower manufacturing export per capita indicates a limited global market integration and a manufacturing sector that has not yet fully utilized the advantages of a deeper global integration. However, as the example of Tunisia highlights, more exports do not automatically translate into more value addition. Any export promotion strategy should hence be careful to make sure that the country will benefit from increased manufacturing exports.

⁷ Tunisia has signed an Association Agreement with the European Union, which has led to a number of initiatives including the establishment of a free trade area since January 2008; preferential trade agreements with MENA countries; bilateral agreements on a free trade zone with Turkey, Egypt, Morocco, Jordan, Iraq and Libya; and the Agadir free trade agreement between Jordan, Egypt, Morocco and Tunisia (Whiteshield Partners 2013).

Figure 22. The production volume and exports of Jordan and its comparators (2019)



Source: World Bank 2023b, WITS; UN Statistics 2023, UNCOMTRADE; World Bank 2023a, WDI, constant USD 2015

Jordan's share of manufacturing exports in total exports of goods, which reflects the extent to which exports consist of processed or primary goods⁸, has fluctuated (see Table 23). While the country's share of manufacturing exports in total exports was high in 2010, this trend saw a reversal in 2012, then increased again to reach the highest level (82%) in 2019. Despite the fluctuations in this indicator, Jordan's development is similar to the average of industrialized countries. Tunisia's manufacturing exports over total exports was quite high, exceeding 90%.

Table 23. Manufacturing exports/total exports for Jordan and its comparators

Economy	2010	2012	2016	2019
Bulgaria	71%	72%	72%	75%
Egypt, Arab Rep.	62%	62%	63%	68%
Jordan	79%	74%	78%	82%
Lebanon	72%	61%	65%	59%
Morocco	78%	79%	81%	81%
Oman	16%	20%	24%	35%
Thailand	84%	86%	87%	87%
Tunisia	83%	84%	90%	90%
Turkey	88%	82%	84%	89%
United Arab Emirates	10%	11%	24%	41%

Source: World Bank 2023b, WITS; UN Statistics 2023, UNCOMTRADE.

5.6 Revealed Comparative Advantage (RCA)

The RCA index was first introduced by Béla Balassa in 1965 (see Box 3). It provides valuable information on both the relative advantages and disadvantages of a country (or region) in a category of goods or services. The RCA index indicates that a given country has a comparative advantage or disadvantage for the corresponding sectors or technology group when it is higher or lower than 1, respectively (Balassa, 1965).

Box 3. Revealed Comparative Advantage (RCA)

The RCA is an index used in international economics for calculating the relative advantage or disadvantage of a certain country in a certain class of goods or services as evidenced by trade flows.

The original RCA index, formulated by Balassa (1965), can be expressed as:

$$RCA_{Ai} = \frac{\frac{X_{Ai}}{\sum_{j \in P} X_{Aj}}}{\frac{X_{wi}}{\sum_{j \in P} X_{wj}}}$$

Where:

P is the set of all products (with $i \in P$),

X_{Ai} is the country A's exports of product i,

X_{wi} is the world's exports of product i,

$\sum_{j \in P} X_{Aj}$ is the country A's total exports (of all products j in P), and

$\sum_{j \in P} X_{wj}$ is the world's total exports (of all products j in P).

- Hence, when $RCA > 1$, a country j has a revealed comparative advantage on commodity k.

When $RCA < 1$, it means that country j has a revealed comparative disadvantage on commodity k.

In this section, RCA analysis has been undertaken at both the technology-intensity and product group level. To this end, indices have been calculated for Jordan in the SITC rev.3 classification for the years 2010 and 2019 (UNIDO 2023).

Table 24 below comprises the RCA index values for Jordan's exports in 2010 and 2019, based on technology classification. It shows that despite the limited growth of Jordan's primary sector, it has gained a comparative advantage during the last decade. This apparent rise in the value of RCA despite low growth of Jordan's exports is due to the fact that the world's exports of this sector have decreased and thus its proportion of the world's total exports has increased.

Table 24. Sub-sector performance in manufacturing exports

Sectors	JOR 2010 in 1000 USD	RCA 2010	JOR 2019 in 1000 USD	RCA 2019	CAGR 2010-2019	Diff 2010-2019
Primary	1,078,090	0.99	1,105,937	1.17	0.3%	0.17
Manufacturing	4,703,880	0.99	5,784,828	0.98	2.3%	-0.01
Low tech	1,592,113	1.92	2,458,201	2.36	4.9%	0.44
Medium tech	1,609,753	0.88	1,430,236	0.64	-1.3%	-0.25
High tech	615,069	0.61	623,553	0.44	0.2%	-0.16
Resource based	886,945	0.82	1,272,838	1.06	4.1%	0.24
Other transactions	153,872	1.48	138,722	0.75	-1.1%	-0.73

Source: World Bank 2023b, WITS; UN Statistics 2023, UNCOMTRADE

Despite the decline in Jordan's total manufacturing exports in the RCA values from 0.99 to 0.98 in the years 2010 and 2019, respectively, some technology sub-sectors recorded a comparative advantage. Namely, in low technology, while resource-based industries continue to increase in terms of RCA values. On the other hand, Jordan is recording a comparative disadvantage in the medium and high-tech sub-sectors. Its RCA values in those sub-sectors are still declining due to the drop in export volume for medium tech as well as modest growth of high tech, accompanied by a remarkably strong global growth of these sub-sectors in terms of export volume. Jordan also had a disadvantage in "other transactions" in 2019, but this group will be not considered in this analysis.

When comparing the RCA values in the table with Jordan's total exports structure in 2019, it can be said that 68.8% of these exports exerted a comparative advantage at the sectoral level. These can be divided into 15.7% primary, 35% low tech, and 18.1% resource based.

To understand the competitiveness of the manufacturing sector in more detail, Table 25. It shows that there are four sub-sectors (textiles, wearing apparel and leather products; chemical and plastic products; food, beverages and tobacco; and, wood and paper products) which have a significant RCA and preserve their comparative advantage between 2010 and 2019, indicating that Jordan holds comparative advantage in these sub-sectors in the world market. As a percentage of total manufacturing exports, these sub-sectors represented 86% in 2019 (in the context that Jordan's manufacturing exports equal 82.3% of total exports).

Table 25. RCA index values of Jordanian exports (2010 & 2019)

Product Description	Tech Class	JOR 2010 in 1000 USD	RCA 2010	JOR 2019 in 1000 USD	RCA 2019	CAGR 2010-2019	Diff 2010-2019
Textiles, wearing apparel and leather products	RB	930,132	2.82	1,977,761	5.06	8.7%	2.24
Chemical and plastic products	MHT	2,266,502	2.90	2,469,145	2.53	1.0%	-0.37
Food, Beverages and Tobacco	RB	308,047	1.50	369,202	1.40	2.0%	-0.10
Wood and Paper products	RB	214,894	1.56	152,392	1.05	-3.7%	-0.51
Metal products	LT	364,731	0.78	274,409	0.55	-3.1%	-0.23
Coke, refined petroleum, non-metallic mineral products and rubber	LT	115,103	0.24	245,058	0.48	8.8%	0.24
Machinery, equipment and telecommunications	MHT	314,269	0.17	204,372	0.09	-4.7%	-0.08
Transport equipment	MHT	12,291	0.02	8,235	0.01	-4.4%	-0.01

Source: World Bank 2023b, WITS; UN Statistic 2023, UNCOMTRADE

On the other hand, the RCA analysis reveals that Jordan has a comparative disadvantage in four sectors as well (metals; coke refined petroleum, non-metallic mineral products and rubber; transport equipment; and machinery, equipment and telecommunications) in 2010 and 2019. However, those sub-sectors represented just 13% of Jordan's manufacturing exports in 2019.

Considering the technological intensity of the above sub-sectors, the conclusion of the sectoral level analysis (from Table 25) is that all resource-based industries have a comparative advantage and represent 43% of Jordan's manufacturing exports in 2019; while the remaining 43% out of 86% of the sub-sectors with a revealed comparative advantage comes from the chemical and plastic sector (MHT). This implies that half of the export values of the sub-sectors which enjoy comparative advantage are concentrated in resource-based industries. Those sub-sectors with a comparative disadvantage, however, appear to be composed of low technological and medium-high technology industries.

The analysis further indicates that the ranking of the four sectors with comparative advantage (textiles, wearing apparel and leather products; chemical and plastic products; food, beverages and tobacco; and, wood and paper products) has rapidly changed during the last decade. While the chemicals and plastic sector ranked as the top RCA (2.9) in 2010, it dropped to the second position (2.53) in 2019, in favour of the textiles, wearing apparel and leather products sector (5.06). Comparing the change in RCA values of the four sectors between 2010 and 2019 reveals that Jordan is losing its global competitive advantage in all of them, except for textiles, wearing apparel and leather products, where it has gained 2.24 points throughout the decade with an export growth rate of 8.7%. The export values indicate that despite the modest growth of the chemicals and plastics (1%), and food, beverage, and tobacco (2%) sectors, they have lost their global competitive advantage by 0.37 and 0.10 points respectively.

For the four subsectors which have a comparative disadvantage (metals; coke refined petroleum, non-metallic mineral products and rubber; transport equipment; and machinery, equipment and telecommunications), the analysis shows that despite them having lower RCA, Jordan records a decline in export growth and in its RCA values as well in the last decade. The only exception is the coke and refined petroleum sub-sector, the RCA value of which has doubled in the recent years (from 0.24 to 0.48).

The above analysis proves that even if most manufacturing exports have a comparative advantage in certain sectors, they have still witnessed a decline in their RCA values in the last decade due to the modest growth rates of their exports. This analysis also reveals that Jordan is witnessing a slowdown in the volume of its exports in sectors that have a comparative disadvantage.

Most of Jordan's export growth is taking place in sectors that already have a comparative advantage. This could mean that Jordan is supporting such sectors rather than trying to create new competitive advantages in other sectors. Reasons for that may relate to the cost of technology localization and the difficulty of attracting investments, especially since those sectors that do not have a competitive advantage are among the sectors with medium and high technology.

Following the RCA analysis at the sectoral and sub-sectoral level, we now analyse the comparative advantage or disadvantage at the product group level. Table 26 shows the export and RCA values of Jordan's exports in 2010 and 2019 based on SITC rev.3 classification at the two digits level (UNIDO 2023) accompanied by the growth rate (CAGR) and the RCA differences in the last decade. The green cells indicate the RCA values above unity, the blue cells mean that Jordan is gaining RCA values while the orange cells represent the opposite. The analysis can be summarized as follows:

Table 26. Product groups RCA performance in Jordan

SITC	Product Description	JOR2010 in 1000 USD	RCA2010	JOR2019 in 1000 USD	RCA2019	CAGR19-10	RCA Diff2019-2010 ↓
0	Live animals except fish	37,175	5.01	159,464	18.16	17.6%	13.16
52	Inorganic chemicals	286,470	7.73	523,910	12.78	6.9%	5.06
84	Apparel/clothing/access	877,017	6.23	1,920,214	10.77	9.1%	4.53
55	Perfume/cosmetic/cleanser	65,832	1.32	180,666	2.42	11.9%	1.10
7	Coffee/tea/cocoa/spices	14,303	0.44	57,078	1.40	16.6%	0.96
6	Sugar/sugar prep/honey	7,408	0.40	21,669	1.32	12.7%	0.92
66	Non-metal mineral manuf.	56,472	0.59	113,347	1.04	8.0%	0.45
53	Dyeing/tanning/color mat	41,241	1.54	58,067	1.96	3.9%	0.42
12	Tobacco/manufactures	41,677	2.99	54,189	3.31	3.0%	0.32
1	Meat & preparations	60,001	1.31	79,100	1.29	3.1%	-0.02
2	Dairy products & eggs	53,886	1.83	60,243	1.70	1.2%	-0.13
58	Plastics non-primary form	50,271	1.14	39,542	0.72	-2.6%	-0.42
69	Metal manufactures nes	171,886	1.41	151,991	0.94	-1.4%	-0.47
89	Misc manufactures nes	233,405	1.24	155,880	0.61	-4.4%	-0.63
11	Beverages	46,073	1.41	25,378	0.58	-6.4%	-0.83
54	Pharmaceutical products	595,966	3.49	613,668	2.55	0.3%	-0.94
97	Gold non-monetary ex ore	125,321	2.01	119,811	1.00	-0.5%	-1.01
64	Paper/paperboard/article	202,300	3.03	140,462	2.02	-4.0%	-1.02
43	Animal/veg oils processed	4,695	1.15	380	0.07	-24.4%	-1.08
27	Crude fertilizer/mineral	382,392	30.15	397,656	28.95	0.4%	-1.20
9	Misc food products	94,069	4.00	81,661	2.12	-1.6%	-1.89
5	Vegetables and fruit	552,046	7.64	410,740	4.01	-3.2%	-3.63

Source: World Bank 2023b, WITS; UN Statistics 2023, UNCOMTRADE

Jordan held a comparative advantage in 20 product groups in 2010 (out of the 60 product groups where Jordan had exports) which represents 84.3% of Jordan's total exports. The five product groups with the highest RCA values were manufacturing fertilizers, crude fertilizer/mineral, inorganic chemicals, vegetables and fruit, and apparel/clothing/accessories; together comprising more than half of Jordan's exports (53%).

By 2019, the number of product groups with comparative advantage in Jordan had declined to 18 (out of the 66 product groups where Jordan had exports), with the share of total exports (83.3%) also declining. While inorganic chemicals and crude fertilizer/mineral maintained their position as having among the highest RCA values, the remaining three products out of the top five changed during the last decade. In 2019 top performers also included live animals except fish, inorganic chemicals, and apparel/clothing/accessories. A dramatic development occurred for live animals, recording triple its RCA value in 2019 compared to 2010.

Calculating the difference of the RCA values between years 2010 and 2019 reveals that Jordan is enhancing its comparative advantage in 9 product groups (blue cells) representing 44% of Jordan's total exports in 2019. The highest RCA growth took place for live animals except fish, inorganic chemicals, and apparel/clothing/access. From the same perspective, it is clear that Jordan has evolved and acquired a comparative advantage in three product groups in which 2010 RCA values were below one (coffee/tea/cocoa/spices, sugar/honey, and non-metal mineral manufacturing).

Jordan has also experienced a decline in its RCA values for 14 product groups (orange cells), with the biggest drop recorded for manufacturing fertilizers, vegetables and fruit, and miscellaneous food products. Moreover, the analysis reveals that Jordan has lost its comparative advantage in 5 product groups (animal/veg oils processed, beverages, miscellaneous manufactures, metal manufactures, and plastics non-primary form).

Despite the modest growth in some product groups, their RCA values were declining, as such growth was insufficient to enhance the RCA. This is the case in meat and preparations, dairy products and eggs, crude fertilizer, and pharmaceutical products.

5.7 The world's most dynamic manufacturing exports

The desired structural change in the productive sector of a country is not only related to its technological transformations. It is also important to identify those products and industries that are witnessing a growing global demand to inform policymakers, in particular, for designing effective industrial export strategies of the country. Investments should ideally be directed to sectors that are experiencing global growth, taking into account that the process of producing new products requires capital and technological capabilities in addition to specialized skilled labour.

In this section, twenty manufacturing products which witnessed the highest global growth in demand within the past decade (2010-2019) will be analysed. The analysis gives an overview of the comparator countries' performances with regards to exports of these products.

The most globally demanded manufacturing products are concentrated in resource-based industries, mainly driven by China's and India's increasing demand for such products. However, there are also products which are considered medium and high-tech. Therefore, exporting resource-based products present a particular opportunity for well-endowed countries that can take advantage of this growing demand by building capacity to process resources. In the past, countries such as Oman, Kuwait, Norway and the Southern USA have managed to benefit from exporting these resource-based manufacturing goods.

Comparing Jordan's manufacturing export basket with the 20 most demanded products (see Table 27) reveals that Jordan does not export 13 products out of 20 (or exports products of a value less than one million USD). Since most of the demanded products are mainly either from resource-based industries or medium-tech products, this may be due to the absence of these kind of products in Jordan's manufacturing structure.

Nonetheless, Jordan is exporting 7 highly demanded products and benefits from a positive growth rate in 5 products (preserved fruits, valves/transistors, pharmaceuticals, medical instruments, and cosmetics). Despite those positive growth developments, there are some drawbacks stemming from the fact that the highest export values for Jordan in these 20 products are experiencing declines in their export growth (edible products, and jewellery).

Table 27. Growth rate and value of Jordan's and world manufacturing exports

Technology classification	Code	Product	World exports		Jordan Exports	
			2019 value (US\$ thousands)	Annual Growth rate 2010-2019 (%)	2019 value (US\$ thousands)	Annual growth rate 2010-2019 (%)
RB	345	Coal gas/water gas/etc	136,367	13.7%	0	
RB	322	Briquettes/lignite/peat	7,179,294	10.7%	4	7.6%
RB	289	Precious metal ore/conc.	25,741,527	9.8%	630	14.8%
RB	265	Veg text fibre ex cot/ju	1,686,528	9.0%	0	
MT	714	Engines non-electric nes	184,510,477	8.5%	0	
HT	541	Pharmaceut exc medicamnt	243,054,386	7.4%	13,159	7.6%
RB	37	Fish/shellfish,prep/pres	35,803,157	7.2%	535	
RB	431	Animal/veg oils procesd	16,336,783	7.2%	380	-24.4%
MT	553	Perfume/toilet/cosmetics	113,820,966	6.5%	21,048	3.6%
RB	58	Fruit presvd/fruit preps	26,283,224	6.5%	12,787	61.0%
MT	786	Trailers/caravans/etc	30,832,942	6.0%	434	-13.1%
RB	98	Edible products n.e.s.	90,549,234	5.9%	80,880	-1.7%
MT	783	Road motor vehicles nes	50,093,166	5.9%	498	-26.5%
HT	759	Office equip parts/accs.	339,264,102	5.9%	130	-17.8%
RB	285	Aluminium ores/concs/etc	22,640,951	5.9%	0	
MT	873	Meters and counters nes	16,574,530	5.8%	0	
MT	872	Medical/etc instruments	128,228,927	5.5%	1,483	5.9%
LT	897	Jewellery	98,103,295	5.5%	43,837	-10.7%
HT	776	Valves/transistors/etc	972,133,393	5.3%	9,588	14.9%
LT	831	Trunks and cases	68,386,471	5.3%	858	26.7%

Source: World Bank 2023b, WITS; UN Statistics 2023, UNCOMTRADE

To assess Jordan's performance in relation with its comparator countries, we have grouped the 20 most demanded products into one group of products (see Table 28). Identifying the share of the most dynamic products in the world markets shows that Jordan has the lowest share of the sample in 2010 and 2019 as well, while Thailand and Turkey have recorded the highest share in 2019 followed by UAE, Bulgaria, and Morocco. Moreover, the analysis reveals that the export basket of most comparator countries is on track to match the global demand, as the table below shows the growth in the shares during the last decade. The absolute export values show that all comparator countries have had an incremental increase in their exports, except for Lebanon and Jordan. This discrepancy could be an indicator for policy makers to consider entering into these industries. Knowing that these 20 most demanded products are strongly linked to resource-based industries, it should be treated as a call for the industrial policy makers to invest in diversifying Jordan's export basket in line with globally demanded products.

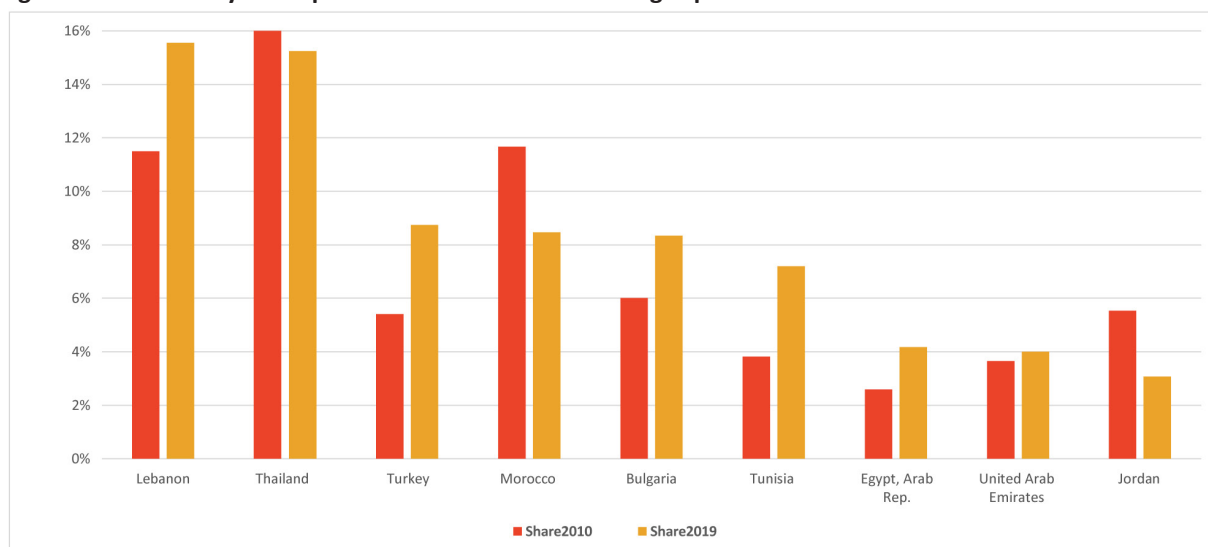
Table 28. Manufacturing dynamic products performance

Country	Manufactured Dynamic Products			
	2010		2019	
	Export Value (US\$ thousands)	Share in world Markets (%)	Export Value (US\$ thousands)	Share in world Markets (%)
Thailand	26,370,717	1.808%	30,823,167	1.247%
Turkey	5,371,958	0.368%	14,139,443	0.572%
United Arab Emirates	547,732	0.038%	4,458,482	0.180%
Bulgaria	896,296	0.061%	2,103,778	0.085%
Morocco	1,619,520	0.111%	2,032,427	0.082%
Tunisia	518,596	0.036%	977,357	0.040%
Egypt, Arab Rep.	428,604	0.029%	873,623	0.035%
Lebanon	356,858	0.024%	349,274	0.014%
Jordan	256,130	0.018%	184,606	0.007%

Source: World Bank 2023b, WITS; UN Statistics 2023, UNCOMTRADE

Calculating the share of the 20 most demanded products in the total manufacturing exports of a country reflects relatively to what extent the country is exporting demanded products. Figure 23 shows that Jordan's share unfortunately declined between 2010 and 2019, most recently recording the lowest share among the comparator countries. This result confirms the previous policy recommendation that Jordan should pay attention and act sensitively to global market dynamics.

Figure 23. Share of dynamic products in total manufacturing exports



Source: World Bank 2023b, WITS; UN Statistics 2023, UNCOMTRADE

After analysing the most dynamically growing products and comparing them with a country's overall manufacturing exports, in the next section the country's exports of particular industries are compared to the global demand trends. In order to assess the competitive potential of a sub-sector, two indicators will be combined, first is the growth rate of world demand for products of a particular sub-sector and second, the change in world market share of a country for these products. Drawing a horizontal line of world average annual growth rates for all manufacturing products allow us to classify sub-sectors into four quadrants:

Champions: Sub-sectors where world demand has been growing at above average rates and where the country is succeeding in gaining world market shares.

Underachievers: Sub-sectors where world demand has been growing at above average rates, but where the country has had a decrease in world market share throughout the years.

Overachievers: Sub-sectors where the country has been gaining world market share, but where the world demand has been growing slower than average.

Declining: Sub-sectors where the global demand has been growing slower than average and the country has been losing world market share.

Our analysis is based on SITC rev3 at the 3-digit level (UNIDO 2023), and covers a period of 9 years, from 2010 to 2019. We first calculate the compound annual growth rate (CAGR) of global exports as a whole. From this benchmark, industries that are growing faster than the average growth of exports of the world are considered to be dynamic, while those that grow slower than the average are considered static.

The share of a country's exports is then calculated for the period 2010 to 2019 to measure the country's impact on world demand for products of that particular industry. This share indicates a country's competitive position relative to others in international markets. Gains in world market share reflect improved competitiveness, while losses denote a deterioration of the country's competitive position.

Table 24 shows the 2019 export values for the industries of Jordan and certain comparator countries based on UNIDO's methodology classification mentioned earlier. Furthermore, the table presents the share of every classification in the total export of each country.

Despite Jordan's modest performance in the 20 most dynamic products with respect to the comparator countries, Table 29 reveals that 44% of Jordan's total exports in 2019 were enjoying growth in the world market share for the dynamic industries (Champions). This places Jordan 2nd in the ranking among the studied countries, behind Morocco. Continuing the assessment of Jordan's export structure against the globally dynamic industries reveals that 24% of the total exports are recording a decline in the world market share (Underachievers). Such industries are considered 'lost opportunities' as the country is failing to compete in fast growing demand for their products. When comparing the performance of Jordan with the other countries, it appears that Jordan places close to the average for all quadrants of its manufacturing exports.

When comparing countries' export structure against static industries, those that grow below the world exports' average, the analysis reveals that 15% of Jordan's total exports are gaining world market share in this realm (Overachievers). This tends to be a common feature of many resource-rich developing countries, as exemplified by Jordan and Morocco recording the same percentage due to mainly phosphate minerals, while the UAE records the highest percentage due to oil resources. Moreover, Jordan is losing world market share in 17% of its total exports from static industries (Declining), indicating that policymakers should pay close attention to the developments entailed by this relatively high percentage.

Table 29. Manufacturing export performance by quadrants

	Jordan		Tunisia		Morocco		Egypt		UAE	
	Export 2019	Share of total export 2019	Export 2019	Share of total export 2019	Export 2019	Share of total export 2019	Export 2019	Share of total export 2019	Export 2019	Share of total export 2019
Champions	3,163,928	44%	5,672,163	38%	17,758,607	60%	8,298,481	27%	28,710,297	11%
Underachievers	1,685,661	24%	6,211,793	42%	4,708,161	16%	7,795,978	25%	19,316,644	7%
Overachievers	1,086,325	15%	527,821	4%	4,506,841	15%	9,036,873	30%	191,477,889	72%
Declining	1,210,724	17%	2,532,311	17%	2,608,765	9%	5,501,142	18%	671,364	0.3%

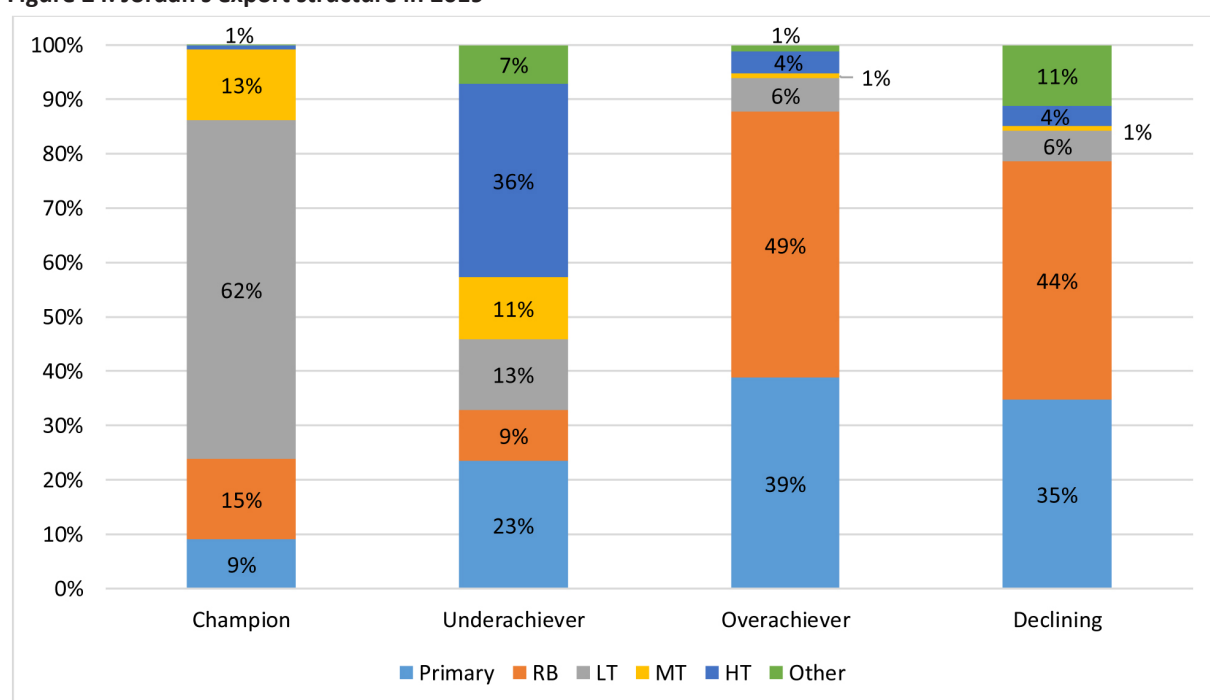
Source: World Bank 2023b, WITS

After classifying Jordan's manufacturing export according to the four categories (champions, underachievers, overachievers, and declining sectors), these groups of industries are now disaggregated by their level of technology intensity in a next step.

Figure 24 below distinguishes the technological aspects of the four export performance categories for Jordan in 2019. It is obvious that the overachievers and declining industries are mostly primary and resource-based industries, they constitute a natural starting point for the government to upgrade certain primary value chains towards dynamic industries, whereby these percentages will be shifted to other categories. The figure also illustrates that most of the underachiever industries produce high-technology products for which Jordan is losing its world market share, while most of Jordan's champion industries are classified as low technology products followed by resource-based industries.

Based on this analysis, Jordan's options in primary and resource-based industries are to enhance its share of the global market in the champion and underachiever categories to attract the needed capital to invest in industries that have a higher technology content and a higher added value to promote the champion industries.

Figure 24. Jordan's export structure in 2019

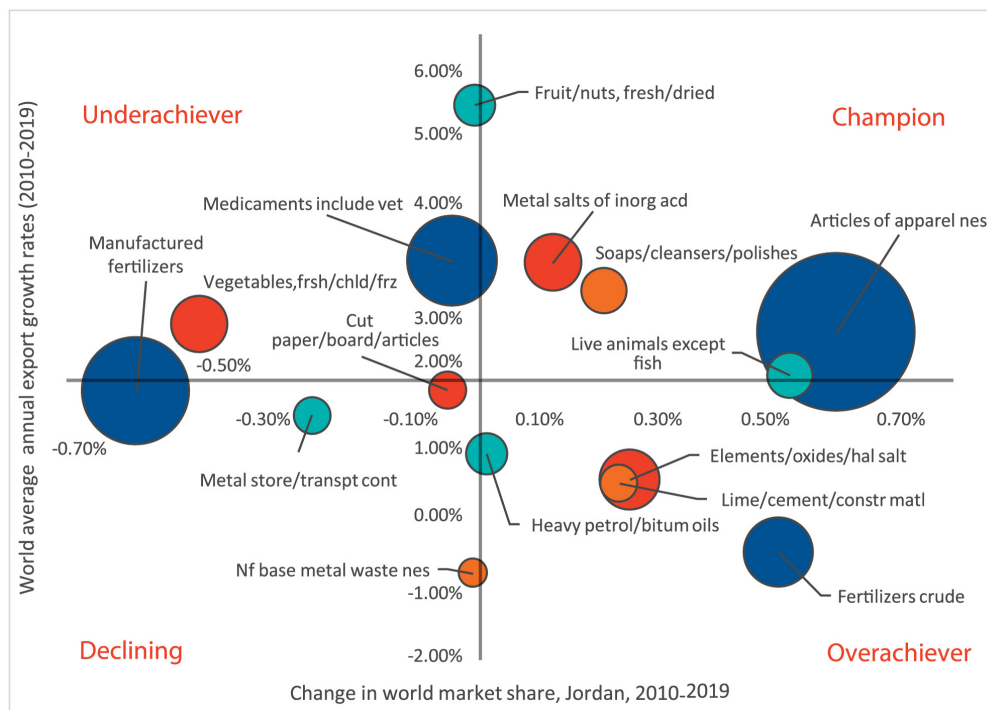


Source: World Bank 2023b, WITS

Figure 25 classifies Jordan's exports at sub-sectors level (SITC.Rev3 III-digits, UNIDO 2023) into four quadrants, the size of the bubbles represents the export value of the industries in 2019. Due to the constraints of the number of industries to be included in the graph, only the respective four strongest industries in terms of export value in 2019 are included.

The graph shows that Jordan's champion industries are concentrated in apparel, metallic salts, live animals, and cleaners, while medicaments, vegetables, and fruits are recorded as underachievers. Cut paper and board as well as metal transport containers appear to be declining sub-sectors. Crude fertilizers, construction materials, oxides and heavy petrol are located in the overachiever quadrant. The few large bubbles hint at the previously established low degree of diversification in Jordan's exports. It is no surprise that the low technology textile product sub-sector, which has significantly increased its share in Jordanian exports in recent years (see Figure 10), is a clear champion. The medium and high technology chemical industry sub-sectors are, however, astonishingly scattered. As such, crude fertilizers are a clear overachiever while manufacturing fertilizers are on the verge of underachiever and declining. Medicaments are certainly underachieving, yet not located far off the champion quadrant.

Figure 25. Jordan's export performance by sub-sector (2010-2019)



Source: World Bank 2023b, WITS

5.8 Product and market diversification

5.8.1 Product diversification

Diversification of products refers to a country's ability to export a broad range of different goods. Diversification is not necessarily the most recommended course of action for every country, depending, inter alia, on the endowment structure and economic specialization that often comes with deeper global market integration. To conduct an appropriate analysis of product diversification, it is necessary to examine not only the country's export basket but to relate this to the overall global export structure and, hence, global demand for particular goods. The underlying assumption is that, among other factors, the more a country's export structure resembles the overall global export structure, the more a country is able to benefit from international trade.

The manufacturing product diversification index (MPDI), our measure of export diversification, takes up on this rationale, and provides a more comprehensive indicator than the measures presented so far (see Box 4).

As can be seen in Table 30, Jordan was placed eighth among the ten comparator countries in terms of its product diversification ranking, which presents a slight improvement from 2010 in this country sample. Despite this improvement, Jordan experienced an 8% decline in the diversification value, the second highest decline behind the UAE over the last decade. At the same time, other comparator countries (Morocco, Tunisia, Turkey, and Bulgaria) have been continuing to diversify their product portfolios and to adapt to global demand patterns.

Also in absolute terms, by looking at the index's value, it becomes obvious that Jordan continues to lag far behind its counterparts in the region. Turkey, Tunisia, and Morocco have a far more diverse manufacturing export pattern that corresponds more closely to global demand than Jordan does. When designing an industrial strategy for Jordan, it may be beneficial to compare products that have global demand to the products Jordan produces or has the ability to produce and export.

Table 30. Product diversification rankings

Ranking		Country	Index Value		Percentage of Index Change
2010	2019		2010	2019	
1	1	Thailand	0.670	0.663	-1.1%
2	2	Bulgaria	0.565	0.602	6.6%
3	3	Turkey	0.543	0.583	7.3%
4	4	Tunisia	0.419	0.460	9.8%
5	5	Lebanon	0.415	0.403	-3.0%
7	6	Morocco	0.303	0.354	16.9%
6	7	Egypt	0.370	0.353	-4.7%
9	8	Jordan	0.263	0.241	-8.3%
8	9	UAE	0.293	0.233	-20.4%
10	10	Oman	0.251	--	--

Source: WITS, UN COMTRADE

Box 4. Methodology for the Manufactured Product Diversification Index (MPDI)

This methodology was developed by UNCTAD to create a Product Diversification Index (UNCTAD, 2022). However, there is one major difference between UNCTAD's version and the one used in this report. The present index only considers diversification of manufacturing exports, excluding primary exports and other transactions (it is thus a manufactured product diversification index).

The MPDI shows the extent to which a country depends on particular products relative to world exports. In other words, it compares a country's export structure with the world's export structure.

The formula used is the following:

$$MPDI_j = 1 - \frac{\sum(|h_{i,j} - h_i|)}{2}$$

Where $MPDI_j$ is the manufactured product diversification index value of country j ; Σ is the sum of all values in brackets; $h_{i,j}$ is the share of product i in total manufacturing exports of country j ; h_i is the share of product i in total world manufacturing exports; and $|h_{i,j} - h_i|$ is the absolute value of the difference between $h_{i,j}$ and h_i .

5.8.2 Export market diversification

Geographical location, the existing infrastructure, trade agreements and policies, the character of foreign enterprises operating in a country, the country's history and political circumstances and, not least, the particular demand structures of foreign markets can all determine trade relations of a country. All of these aspects must be taken into account when designing and implementing an effective trade strategy in order to secure long-term economic advantages.

A country's reliance on one or more specific market groupings is captured by the Export Market Diversification Index (EMDI) (see Table 31 and Box 5), which measures the significance of each market grouping in terms of global demand for manufactured goods. Similar to the Product Diversification Index, this EMDI measures the proximity of a country's manufacturing exports markets to the world demand.

Despite Jordan's low index value, the results of the EMDI for the comparator countries reveal that only Jordan and Thailand have diversified their export markets in line with the global market's demand. Furthermore, Jordan experienced the highest improvement in the value of the EMDI, while also improving its ranking among the comparison countries by two ranks over the past decade.

We can also observe from the table that, when comparing all the MENA countries, North African countries have higher scores in the EMDI. This leads us to speculate whether the differences are due to the economies of these countries' ability to manufacture and export products that meet global demand, or whether the differences are due to their ability to access markets that are experiencing global growth, or whether the differences are due to both.

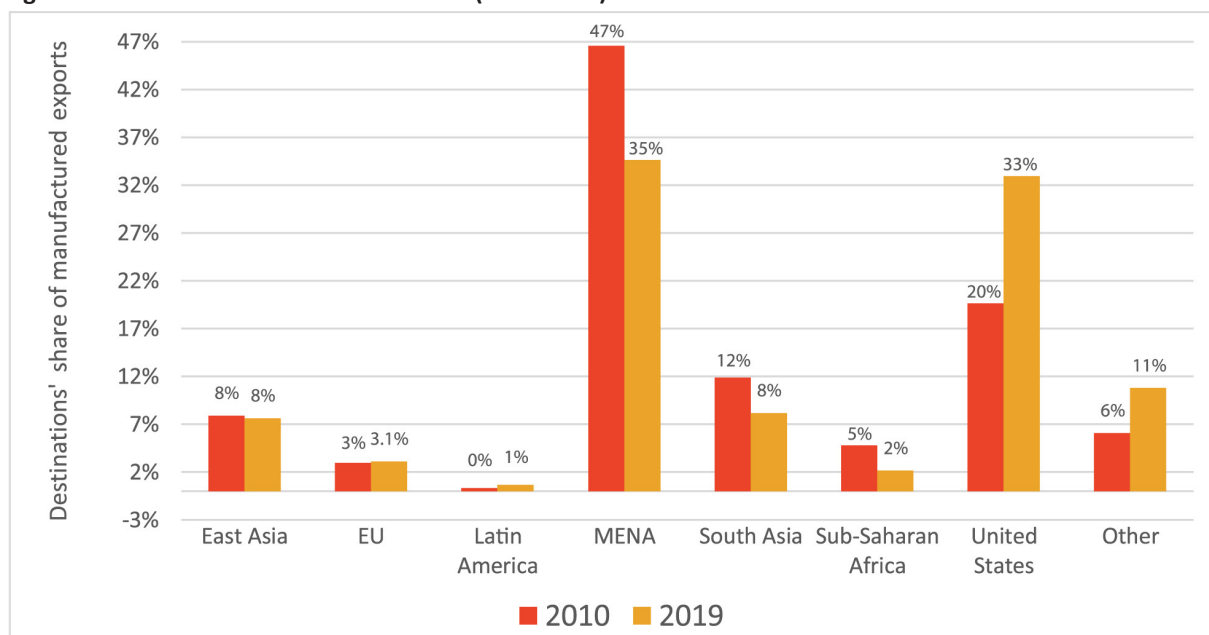
Table 31. Export market diversification index rankings

Ranking		Country	Index Value		Percentage of Index Change
2010	2019		2010	2019	
2	1	Thailand	0.650	0.669	3%
1	2	Egypt	0.678	0.631	-7%
3	3	Turkey	0.639	0.621	-3%
4	4	Morocco	0.635	0.584	-8%
5	5	Bulgaria	0.596	0.559	-6%
6	6	Tunisia	0.540	0.523	-3%
9	7	Jordan	0.392	0.456	16%
7	8	Lebanon	0.483	0.383	-21%
8	9	UAE	0.412	0.304	-26%

Source: World Bank 2023b, WITS; UN Statistics 2023, UN COMTRADE

In 2010, 66% of Jordan’s manufacturing exports were concentrated in two markets (see Figure 26): MENA (47%) and the United States (20%). In the last decade, little has changed in terms of the destination structure of Jordan’s manufacturing exports; the MENA region and the United States remain the country’s two most important markets, but the concentration of manufacturing exports in MENA has decreased significantly while exports to United States gained in significance (33%). Moreover, during the previous decade, the share of East Asia and the EU as market destinations has remained stable, while the share of South Asia and Sub-Saharan Africa as destinations has decreased significantly.

Figure 26. Market concentration of Jordan (2010-2019)



Source: World Bank 2023b, WITS; UN Statistics 2023, UN COMTRADE

Box 5. Methodology of the Export Market Diversification Index (EMDI)

The methodology of the EMDI follows the logic of the MPDI explained above. It shows the extent to which a country depends on particular markets for its manufacturing exports relative to how important those markets are in world manufacturing imports.

For this exercise, we consider eight markets: East Asia Pacific, South Asia, European Union, MENA, United States of America (USA), sub-Saharan Africa (excluding the EAC), Latin America and the Caribbean (LAC) and the ‘rest of the world’; we only take the manufactured export category in its aggregated form as if it were a single product.

The formula used is the following:

$$EMDI_j = 1 - \frac{\sum(|h_{i,j} - h_i|)}{2}$$

where EMDI_j is the Market Diversification Index value of country j, Σ is the sum of all values in brackets, h_{i,j} is the share of country j’s manufacturing exports to market i in country j’s total manufacturing exports to the world, h_i is the share of market i in total world manufacturing imports, and is the absolute value of the difference between h_{i,j} and h_i, i.e. a measure of the difference between the country’s export market portfolio and the world’s.

5.8.3 Market diversification & vulnerability matrix

Vulnerability is the risk that a country faces when it possesses high concentrations or relies heavily on a small number of export markets or goods. Using the manufacturing product and market diversification indices, the vulnerability matrix ranks the countries in relation to their comparator countries based on how well they are diversified with respect to markets and products.

In Figures 27 and 28, the index value averages of the country sample are used to establish four vulnerability quadrants, which are then divided into four categories. The underlying assumption is that the higher the levels of diversification of goods and markets, the less these countries are exposed to market fluctuations. In order to reduce risk, it is more advisable to trade with a wide number of markets with a broad number of goods, rather than concentrating on a relatively limited product spectrum in a small number of targeted market destinations.

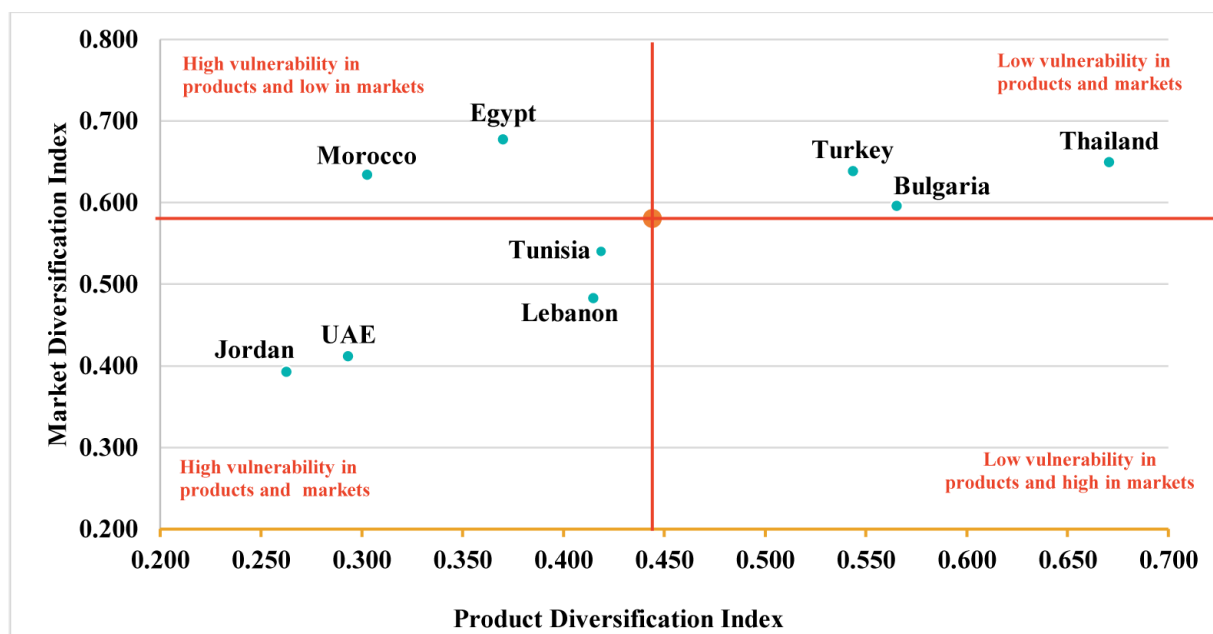
Jordan has a high degree of vulnerability both in terms of markets and goods. In order to increase resilience, Jordan must reduce its reliance on a small number of products (particularly textile products) and increase the production and export of other manufacturing products with a high level of domestic value addition. To achieve this aim, it is necessary to encourage new industrial activities, as well as to attract investment and expertise to these industries. The absence of a more diverse export market portfolio shows that Jordanian manufacturers are not actively engaging in various international markets but are intensifying trade with the United States.

Furthermore, a comparison of the two matrixes for the years 2010 and 2019 demonstrates that Jordan has succeeded in slightly diversifying its export markets but failed to diversify manufacturing production in order to export new products and broaden the export basket.

Tunisia’s performance is particularly fascinating, with its product diversification growing over the previous decade, indicating that the country has a far more diverse manufacturing base. Jordan may surely benefit from that experience and should look at the policies adopted by the Tunisian government in order to achieve this balance of factors.

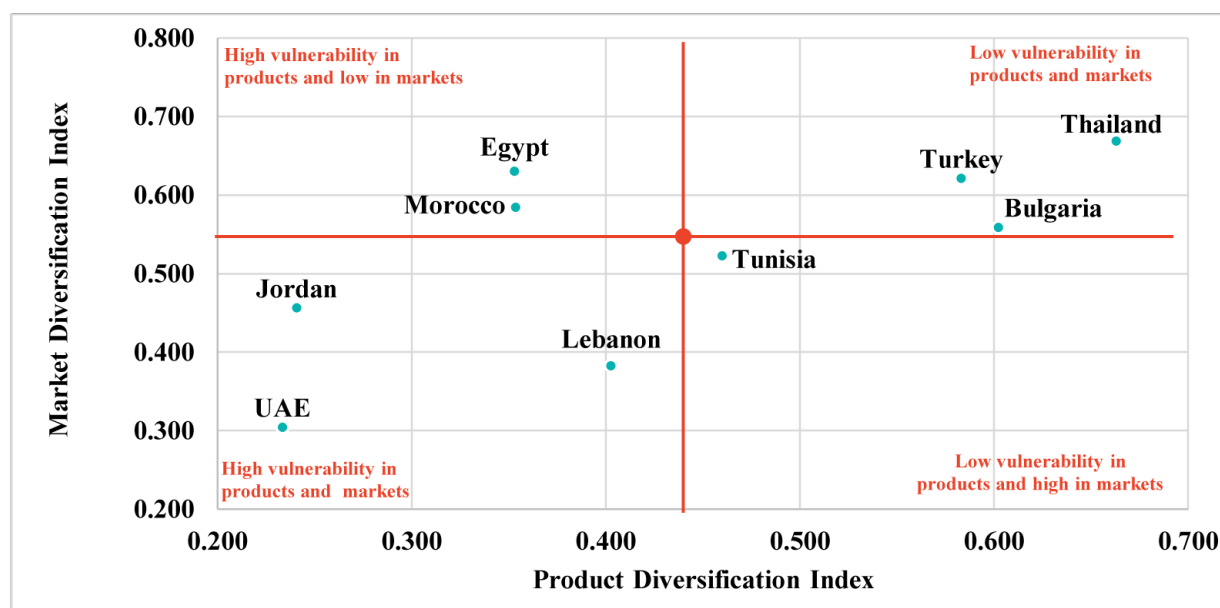
It should come as no surprise that the more mature economies in the country sample – Turkey, Bulgaria, and Thailand – are distinguished by a high degree of diversification, both in terms of products and markets, as well as a low degree of vulnerability to changes in demand, price fluctuations, and competition from third-country suppliers. In the long run, Jordanian industry should strive towards a similarly well-balanced structure that decreases its vulnerability to a significant extent.

Figure 27. Vulnerability Matrix, 2010



Source: World Bank 2023b, WITS: UN Statistics 2023, UN COMTRADE

Figure 28. Vulnerability matrix, 2019



Source: World Bank 2023b, WITS; UN Statistics 2023, UN COMTRADE

6. Key findings of Jordan’s industrial competitiveness analysis

Section B analysed Jordan’s industrial competitiveness compared to selected benchmark countries. It focused on the key manufacturing production and trade performance indicators in line with SDG 9 of “Building resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation”.

Jordan’s industrial development could be distinguished into two different growth periods. The analysis revealed that Jordan exhibited extraordinary growth in the manufacturing sector, with an average growth rate of 10.2% per year between 2000 and 2008. However, this period was followed by a strong deceleration of manufacturing growth between 2009 and 2019, with an annual growth rate of 1.8%. The slump was significant and long-lasting, compared to other selected countries. This points to reasons going beyond the financial crisis of 2008. Regional conflicts and the consequential loss of trade partners, rising energy prices, and a lack of investment in technology might be additional factors. It is beyond the scope of this report to thoroughly investigate the underlying reasons for this performance decline.

The rapid manufacturing growth between 2000 and 2008 led to a significant structural transformation of Jordan’s economy. The share of manufacturing in the overall economy (MVA in GDP) grew from 13.5% (2000) to 21.2% (2008), a level of industrialization that was, among the benchmark countries, only outranked by Thailand (30.6%). In this phase, the manufacturing sector was the driving force of Jordan’s economic development. In the following period, between 2008 and 2019, as the growth rate of the manufacturing sector was significantly below that of other sectors of the economy, the share of Jordan’s manufacturing in GDP declined to 17.7%. While manufacturing used to be a driver of economic growth in the past, its role had weakened in recent years. The fact that Jordan’s share of MVA in GDP was higher than most of its comparators’, except Thailand and Turkey, indicates that Jordan had achieved a certain level of industrialization relative to the regional average.

Another perspective on the level of industrialization considered the manufacturing volume (MVA per capita), measuring the size of manufacturing relative to the size of the population. The analysis revealed strong population growth between 2010 and 2019 at 3.7% annually in conjunction with the very modest growth of the manufacturing sector in this period, with the manufacturing volume (MVA per capita) decreasing annually by 1.7%. Consequently, the manufacturing sector was not keeping up with the dynamic population growth and was decreasingly able to accommodate the country’s demand for manufactured goods, which was also reflected in a growing manufacturing trade deficit.

Jordan’s production structure is rather concentrated, with food, beverages and tobacco as well as chemicals representing about half of MVA. The manufacturing sector is dominated by low and medium-low technology sectors. Low technology sectors (in particular food, beverages and tobacco) account for the lion’s share of Jordan’s MVA, followed by medium-low technology (coke, petroleum, rubber and plastics, metals and minerals), while medium- and high-technology sectors are the least important (mainly composed of chemicals, while machinery and telecommunication play only a minor role, and the transport industry is negligible). Medium- and high-technology sectors represented less than 25% of total manufacturing value added in Jordan in 2018. Jordan’s production structure both with respect to the composition of sub-sectors as well as technology sectors had not significantly changed between 2010 and 2018.

Jordan's manufacturing sector grew by 2.1% (at constant prices) on average between 2010 and 2018. At the same time, manufacturing employment also grew by 2.0%, which means that Jordan's growth regime was employment-led growth. Such a growth regime is positive from the perspective of employment generation. However, in the long run, it puts the competitiveness of the manufacturing sector at risk as labour productivity is only very slightly improving (0.1%). In the same period, Turkey had not only achieved higher growth rates of MVA (9%) and manufacturing employment (5%) but also increased labour productivity by 4% annually, which presents a very balanced and sustainable growth regime. The decomposition of Jordan's manufacturing sector, however, revealed that particular industries such as food and beverages and also furniture and leather industries had increased both employment and productivity during the period observed.

For a country with a relatively small domestic market, tapping into export demand is indispensable for industry to gain economies of scale and foster productivity growth. Jordan made significant progress in exporting manufacturing goods between 2000 and 2008. However, both compared to the benchmark countries and also relative to its manufacturing volume, Jordan still shows a low manufacturing export. This indicates limited global market integration and a manufacturing sector that has not yet fully utilized the advantages of deeper global integration. The comparison with Tunisia, which had a similar level of GDP, highlighted that a significantly higher exports does not automatically translate into more value addition.

Exports from Jordan are highly concentrated. The analysis revealed an even lower degree of diversification in exports compared to production, as it focused almost entirely on garments and chemicals/pharmaceuticals. The metals and machinery sectors, which contributed reasonably to Jordan's exports with 8% and 7%, respectively, in 2010, had lost importance and fell to 5% and 4%, respectively, in 2019. In fact, the only sector that significantly expanded its share of Jordan's exports was the low-technology textile products sector.

In terms of the MHT ratio in total manufacturing exports, Jordan experienced a decrease from 48% in 2008 to 36% in 2019, due to the massively growing share of textile products in exports. This share of MHT was even lower than the one from 2000 (44%), placing Jordan third to last in this ranking, with only Egypt (32%) and the UAE (11%) performing worse.

Jordan's export markets are also very concentrated. In 2010, 66% of Jordan's manufacturing exports went to two markets: MENA (47%) and the United States (20%). In the last decade, the combined share of these two export markets had not changed, but the concentration of manufacturing exports in the MENA had decreased significantly while exports to the United States gained in significance (33%). Despite some improvements in export market diversification, Jordan, compared to its benchmark countries, still exhibits a high economic vulnerability deriving both from its high concentration in the export market and its products.

Despite Jordan's modest performance in participating in exports of the 20 globally most dynamic products, the analysis revealed that 44% of Jordan's total exports in 2019 (measured on a 3-digit product group level) were enjoying growth in the world market share in dynamically growing industries (Champions). This placed Jordan second in the ranking among the studied countries, behind Morocco. Continued the assessment of Jordan's export structure against the globally dynamic industries revealed that 24% of the total exports recorded a decline in their world market share (Underachievers). Such industries were considered 'lost opportunities' as the country failed to compete in fast-growing demand for their products. When comparing the performance of Jordan with that of the other countries, it appeared that Jordan placed close to the average for all quadrants of its manufacturing exports. When comparing the technological content of these export categories it became obvious that Jordan was mainly competing and benefiting from growing global demand in low-technology sectors. At the same time, it also increased market shares for some products in shrinking global markets (Overachievers) that were mostly primary and resource-based industries. In high-tech industries, that were globally booming, Jordan was losing market share (Underachievers). This finding was also backed by the analysis of Jordan's revealed comparative advantages.

The analysis looked also briefly at drivers of industrial development: the industrial capabilities of a country. These capabilities play a crucial role in determining industrial production as well as the technological and structural change of the industrial sector. These drivers encompass production capacities (equipment, machinery), production capabilities (skills, management and operation experience) as well as technology and innovation capabilities and availability of appropriate infrastructure. The analysis contained in this section marks only a starting point for a future comprehensive assessment of Jordan's industrial capabilities.

Section B examined key indicators to analyse Jordan's industrial competitiveness with respect to production and export. In order to develop a new industrial policy along a process outlined in section C, a broader assessment of Jordan's industrial performance that also includes the social and environmental dimension, additional sub-sectoral analyses as well as a comprehensive assessment of the industrial capabilities are required.



C. Recommendations for Determining a New Industrial Policy

It should be noted that “in themselves, the results of a benchmark survey are not directly translatable into a policy agenda. They are more likely to prompt a critical self-examination from which a policy agenda may emerge” (Netherlands Ministry of Economic Affairs, 1997).

7. Industrial Policy in Jordan – Previous Experiences

Industrial development is considered fundamental for Jordan’s overall development and, hence, occupies a key role in national development strategies (Jordan 2025, Jordan’s Economic Modernization Vision 2033) as well as in governmental programs such as the Indicative Executive Program (2021-2024). Specifically, Jordan’s manufacturing sector is considered a cornerstone for the national economy. Accordingly, the Royal government of Jordan has been supporting industrial development by designing and implementing various industrial policies.

Industrial policies are important documents that provide strategic guidance for governmental interventions as well as communicate policy objectives to the general public. Jordan’s Ministry of Industry, Trade and Supply has implemented two overarching industrial policies over the past decade. The first was the National Industrial Policy- Industry Support Program (2010-2014) and the second was the Industrial policy (2017-2021).

Additionally, a number of other government agencies have established policies and other mechanisms which have contributed to Jordan’s industrial policy environment. These include the National Innovation Strategy (2013-2017), the Jordan Economic Growth Plan 2018-2022, the Green Growth National Action Plan (2021-2025), and the National Employment Strategy (2011-2020). Further key ministries and other organisations are also involved in initiatives related to industrial policy in Jordan. These include Level UP, Jordan Strategy Forum, Jordan Enterprise Development Corporation (JEDCO), Jordan National Competitiveness Team (JNCT), the Higher Council for Science and Technology (including the Department of Incubators and Scientific Innovation, iPARK, the National Center for Innovation, and the Industrial Development Unit), the National Fund for Enterprise Support (NAFES), the Industrial Scientific Research and Development Fund, National Consortium for Technology and Incubation of Businesses (NACTIB), Ministry of Planning and International Cooperation (including the Productivity Enhancement Programme), Faculty For Factory Program, Sustainable Achievement of Business Expansion and Quality (SABEQ), Jordan Innovation Centers Network, Support to Research & Technological Development Program, and EDAMA.

Jordan has been a member of WTO since 11 April 2000, and has signed multiple bilateral and multilateral FTAs with its major trading partners (see Table 32). These agreements can help to facilitate market access for exports and ease the process of importing inputs from countries involved.

Table 32. Overview of Jordan's Regional and Bilateral Trade Agreements

Agreement	Coverage	Parties
The Greater-Arab Free Trade Area Agreement (GAFTA)	Goods	Bahrain, Egypt, Iraq, Kuwait, Lebanon, Libyan Arab Jamahiriya, Morocco, Oman, Qatar, Saudi Arabia, Sudan, Syrian Arab Republic, Tunisia, United Arab Emirates, Yemen, the State of Palestine, Algeria, Jordan
Jordan–Canada Free Trade Agreement	Goods	Canada, Jordan
Jordan-EFTA Free Trade Agreement	Goods	Iceland, Liechtenstein, Norway, Switzerland, Jordan
Jordan-EU Association Agreement	Goods	Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Jordan
Jordan-Singapore Free Trade Agreement	Goods and services	Singapore, Jordan
Agadir Agreement		Morocco, Egypt, Jordan, Tunisia
Jordan–US Free Trade Agreement	Goods and services	Jordan, the United States
United Kingdom-Jordan Association	Goods	Jordan, UK
Trade Preferential System among the Member States of the OIC (TPS-OIC)	Goods	People's Republic of Bangladesh, Republic of Cameroon, Arab Republic of Egypt, Republic of Guinea, Islamic Republic of Iran, Hashemite Kingdom of Jordan, Republic of Lebanon, The Great Socialist People's Libyan Arab Jamahiriya, Malaysia, Islamic Republic of Pakistan, Republic of Senegal, Syrian Arab Republic, Republic of Tunisia, Republic of Turkey, Republic of Uganda, State of the United Arab Emirates.

7.1 Industrial Policy from 2010 to 2015

Following the economic crisis in 2007/ 2008 and its large impact on Jordan, a series of industrial policies were developed to support the manufacturing sector. The Ministry of Industry and Trade's National Industrial Policy – Industry Support Program (2010–2014) was the main industrial policy in this period. However, additional ministries had overlapping mandates connected to industrial policy and developed initiatives using a variety of approaches (World Bank 2012). Additional policy initiatives intended to support industrial development were enacted that include the Jordan Investment Board's efforts to improve the business environment and provide tax incentives to investors; the Development and Free Zones Commission (DFZC) strategy promoting specific industries in designated development zones, including tax exemptions; the Central Bank of Jordan's credit support program for small and medium enterprise (SMEs); the Council of Ministers provision of tax incentives for selected firms and industries, and, emerging initiatives to support innovation (e.g., incubation programs such as the Business Development Centre Jordan and El Hassan Science City).

In order for the industrial sector to successfully cope with increasing economic openness and to take advantage of available opportunities, the Ministry of Industry and Trade prepared the National Industrial Policy (2010–2014) in collaboration with various public and private sector authorities. A large part of this strategy focused on SMEs with JEDCO playing a key role in implementation (World Bank 2012). The main objectives of the policy were to develop the industrial sector, increase the volume of exports, increase job opportunities in the industrial sector, and increase the total volume of industrial investment.

Over five years, the policy prioritized 6 axes: (1) export growth, (2) investment promotion, (3) the environment (4) industrial standards, (5) government policy, legislation, and procedures, and (6) firm support (technical and financial). Several initiatives were implemented as a result of this policy, which were funded by the government's industrial policy allocation of 1,590,000 JD along with budget allocations of the relevant organizations. In partnership with the Chamber of Industry, funding was provided to several initiatives, including the National center for Packaging (JOPACK), the "Doctor's Project for Every Factory" project, and the "Made in Jordan" program. Notably, through the National Industrial Policy (2010–2014) 16 industrial companies were supported to increase their competitiveness and administrative capabilities through financial and technical support in the fields of design, system development, product development, training, management, and marketing. Additionally, key private sector support programs were run by JEDCO. These included the Support to Enterprise and Export Development Program SEEDP/ Jordan's Upgrading and Modernization Program II (JUMP II) focused on providing financial and technical support to SMEs and the Jordan Export Promotion Activities (JEPA) focused on trade fair participation.

While creating positive impacts, the National Industrial Policy (2010–2014) has been found to have a number of areas that could be improved. Deficiencies included a lack of clearly defined conditions for SMEs to receive government support, specific targeting for firms that could have the largest potential gains from technology transfers, appropriate monitoring and evaluation systems or benchmarking of firms, sufficient funding, and coordination with other initiatives, such as the DFZC (World Bank 2012). Furthermore, innovation policy, which is highly connected to industrial strategy was also found to be limited at this time, without a coherent strategy. Notably, the country had a dearth of innovation funding opportunities for private sector companies and limited provision of relevant infrastructure services (e.g., research labs for biotechnology or quality standards licensing for garments) (World Bank 2012).

7.2 Industrial Policy from 2015 to present

In 2015, the instability in the region and the increase in production costs due to rising energy prices were creating significant impact on the performance of the industrial sector. In particular, the closure of borders with both Syria and Iraq resulted in a drop of exports to both countries by approximately 40% in 2015 (Industrial Policy 2017-2021). In addition, the energy sector experienced significant changes due to the conflicts in neighbouring countries. The decline in gas supply from Egypt led to a shift towards oil-based electricity production. Consequentially, the rise in global oil prices between 2008 and the first half of 2014 translated into increasing production as well as transportation costs. The surge in transportation costs drove up the cost of both exported and imported goods. These changes made Jordanian manufacturing less competitive on global markets. During this period, Jordan developed and implemented new elements of industrial policy.

The new industrial policy (2017-2022) that was drafted by the Ministry of Industry, Trade, and Supply in consultation with relevant public and private sector authorities was dedicated to address these particular challenges (see Table 33). The new policy continued the overall directions of the previous industrial policy (2010-2014) through five key axes of development of Jordanian products, creativity and innovation; Investment promotion; standards and metrology; the environment; and legislation and laws. It also included the additional axes of education, training, and employment; empowering women; and energy and transportation. This policy was developed and implemented in conjunction with two key overarching national plans, Jordan 2025 – A National Vision and Strategy and the Jordan Economic Growth Plan (2018- 2022), and policy responses to the COVID pandemic crisis, including the Government’s Indicative Executive Program (2021-2024) and the Government’s Economic Priorities Program (2021-2023).

Table 33. Overview of Industrial Policy (2017-2021)

Aims	Axes	Objectives
1. Developing industrial sector 2. Increasing the volume of exports 3. Increasing available Jordanian job opportunities in the industrial sector 4. Increasing the volume of total / industrial investment	1. The development of Jordanian industrial products, creativity and innovation	i)Enhancing the technological component and increase the added value of industrial products ii)Modernizing Jordanian products through design and quality control services iii)Enhancing SMEs’ competitiveness and enabling them to grow iv)Providing financing programs to support the development of industrial projects v)Enhancing the principle of industrial clusters and achieving industrial interconnections
	2. Encouraging investment	i)Enhancing and developing the investment climate in the Kingdom and developing legislation regulating the business and investment environment to enhance investor confidence ii)Promoting investment in a way that contributes to attracting countries and investments with high added value and generating opportunities iii)Creating investment opportunities and distributing these opportunities to the governorates of the Kingdom. iv)Preparing a strategic plan to develop and promote exports
	3. Specifications and standards	i)Raising the quality of Jordanian products in the international markets
	4. The environment	i)Adopting environmentally friendly policies and practices that enhance Jordanian products’ entry into international markets ii)Narrowing the gap between the outputs of education and vocational training and the needs of the labor market and integration with the education strategy and the national employment strategy
	5. Education, training, and employment	ii)Providing the necessary support in order to raise the efficiency of workers in the industrial sector, in coordination with the concerned authorities
	6. Empowering women	i)Enhancing the role of women in participating in industrial projects and enabling them to establish industrial projects for them through the formation of an advisory committee for this purpose in coordination with the concerned authorities and associations, as this committee is concerned with developing executive plans and following them up to achieve the goal. ii)Joining the One Million Women Initiative of the International Trade Center (an initiative that aims to increase women’s economic contribution) iii)Providing a supportive environment for working women iv)Increasing women’s participation in the labor market v)Increasing the number of female participants in the various vocational training programmes vi)Developing training for females in new programs and specializations at the Vocational Training Corporation that are commensurate with the needs of the labor market
	7. Energy and transportation	i)Reducing operational costs for the Jordanian industrial sector through rationalizing the use of energy by the local industry and motivating it to use alternative energy sources systems ii)Providing technical and financial support to industrial companies to help with rationalizing the use of energy by the local industry and motivating it to use alternative energy source systems iii)Developing the infrastructure and regulatory procedures for the transport sector in all sectors
	8. Government policies, legislation, and procedures	i) Developing economic legislation governing the business and investment environment related to the industrial sector, through the formation of work teams from the public and private sectors with the aim of reviewing and amending regulations, laws and legislations related to industry with the aim of developing the industrial sector in line with changes and developments in this field ii) Forming the executive committee for industrial policy co-chaired by the Director of the Directorate of Industrial Development and the Director of the Jordan Chamber of Industry and the membership of the concerned authorities to supervise the implementation of the axes emanating from the policy within a specific timetable iii) Establishing an industrial observatory in the Ministry of Industry, Trade and Supply Preparing the necessary studies and data on the industrial sector by completing the provision of financial support for the establishment of the industrial observatory and starting the implementation of the stages of establishing the industrial observatory and providing a comprehensive industrial database that is fed through the electronic connection of the databases.

Source: Jordan’s Industrial Policy (2017-2021)

8. Industrial Policy in the context of Jordan’s Economic Modernization Vision 2033

Jordan’s most recent national development strategy was launched in 2022. The “Economic Modernisation Vision – Unleashing potential to build the future” (EMV) provides the overall strategic directions and targets for Jordan’s national development until 2033. The EMV is based on two strategic pillars: (1) economic growth and (2) quality of life. These pillars are identified as having the cornerstone of (3) sustainability.

The vision is the outcome of the 2022 National Economic Workshop sessions, held at the Royal Hashemite Court upon Royal directives. These sessions involved the participation of over 500 specialists, stakeholders, and experts, as well as representatives of the public and private sectors, parliament, and civil society organizations, over several months.

The vision is a roadmap for establishing a diversified, resilient economy. Goals include a 3% annual increase in per capita income and over one million new jobs by 2033. It is estimated that 41 billion JD (roughly US\$57 billion) will be required to achieve the vision’s goals. Obtaining funding will require attracting investments and implementing public-private partnerships (PPPs) as most (72%) of this funding is expected to come from the private sector.

The vision, which will be implemented in three phases over 10 years, includes 366 initiatives in various sectors, as part of eight national economic growth drivers that focus on unleashing Jordan’s full potential to achieve comprehensive sustainable growth and generate job opportunities, according to a Royal Court statement. The vision outlines eight strategic objectives of the economic growth drive (see Table 34). The industrial sector is related to several of these objectives, with particular links to the first objective, high value industries.

Table 34. Growth Drivers to Implement the EMV

Objective	Description
1. High value industries	Develop Jordan into a regional industrial hub through high growth exports with high quality and value products
2. Future services	Achieve excellence in services sectors to enhance national development and increase exports of services on regional and global levels
3. Destination Jordan	Position Jordan as a prime tourism and film production destination
4. Smart Jordan	Develop and prepare local talents to meet the needs of future skills, required resources and institutions to accelerate economic growth and enhance quality of life
5. Sustainable resources	Optimise the use of natural resources to ensure sustainability, unleash inclusive sectoral growth and enhance quality of life
6. Invest Jordan	Stimulate domestic and foreign investments through an attractive and efficient investment and doing business ecosystem
7. Green Jordan	Support sustainable practices as a pillar of Jordan’s future economic growth and enhance quality of life
8. Vibrant Jordan	Improve quality of life for Jordanians through developing and adopting higher life standards that revolve around the citizen and the environment

Source: The Hashemite Kingdom of Jordan 2022

The High-Value Industries objective includes 15 initiatives focused on general manufacturing and 54 initiatives targeting five manufacturing sub-sectors (food products, pharmaceuticals, textile products, chemical products, engineering industries products, mining, agriculture, and logistics).⁹ This objective involves seeking to make Jordan a manufacturing and exporting hub. The vision supports building integrated value chains, stimulating productivity and innovation, and achieving synergies across the national industrial portfolio by seamlessly linking sectors in terms of supply, knowledge, and market flows.

A set of eight strategic objectives are also presented. These are grouped into the two pillars of quality of life and economic growth and the cornerstone of sustainability (see Table 35). The manufacturing sector is particularly tied to the economic strategic objectives. Nonetheless, as will be discussed below, manufacturing can also contribute to those related to quality of life and sustainability.

⁹ Details of these initiatives are outlined in Annex C.

Table 35. Strategic Objectives of the EMV

Economic growth	<ul style="list-style-type: none"> • Accommodating more than a million young females and males in labor market • Increasing income per capita by an average of 3% per year • Improving Jordan’s ranking in the Global Competitiveness index to be in the top 30%
Quality of life	<ul style="list-style-type: none"> • Doubling the percentage of Jordanians satisfied with their quality of life to reach 80% • Having one Jordanian city ranked among the top 100 cities in the world • Improving Jordan’s ranking in the Legatum Prosperity Index to be in the top 30%
Sustainability	<ul style="list-style-type: none"> • Improving Jordan’s ranking in the Global Sustainability Competitiveness Index to be in the top 40% • Improving Jordan’s ranking in the Global Environmental Performance Index to be in the top 20%

Source: The Hashemite Kingdom of Jordan 2022

The vision specifically outlines a series of targets related to manufacturing.¹⁰Table 36 provides a summary of the EMV targets expressed in annual growth rates in its last column. Manufacturing (MVA) is expected to grow annually between 2021 and 2033 by 7%, while in particular pharmaceuticals and textile products should grow by 10% every year. Also, manufacturing employment is supposed to grow by 6.8%, which is equivalent to the creation of about 260 thousand new manufacturing jobs, which represents about one quarter of all new jobs foreseen in the vision. The number of jobs in pharmaceuticals and textile products are expected to more than triple until 2033, two sectors employment of which is expected to grow by 9.5% annually. The vision also describes that growth will be export-driven, with manufacturing exports expected to grow annually by 12.5%. It also notes an increase of output going to exports from 35% in 2021 to 65% by 2033.

Table 36 puts some of these growth targets into perspective by comparing them with two previous growth periods in Jordan. One before the global crisis (2000-2008) and the other after the crisis and before the Covid-19 pandemic (2010-2019).¹¹The table clearly shows that across all target indicators, Jordan experienced very dynamic growth of manufacturing leading up to 2008. This development significantly slowed down in the period between 2010-2019. This is also consistent with the analytical findings of the JICR in the previous chapters that demonstrated that in constant 2015 USD that controls for inflation effects the difference in the real growth rates of the manufacturing sector between these two periods were even more significant. As the EMV targets are in JD, the table is based on current prices, showing the nominal growth rates of the sector and sub-sectors.

Comparing these earlier time periods to the EMV’s targets reveals that the expectations that the EMV puts on the growth of the manufacturing sector in terms of value addition remain significantly below the first growth period and are slightly higher than during the second period. However, to sustain real growth rates of 10% over a longer period as for the pharmaceutical sector is very ambitious. At the contrast, the target for the food sector is below the previous growth rates and, given the relevance of this sector for Jordan’ self-sufficiency (see Section 8.2.4), Jordan may strive to achieve a higher growth. The target of 10% for the textile product (wearing apparel) sector given the previous growth rate of less than 1% is very challenging. The employment targets are also ambitious and will be more in detail discussed under the policy objective of creating productive employment (See Section 8.2.5). As the table also reveals, Jordan was improving its export performance significantly between 2000-2008, however, experienced very low and even negative export growth rates in the period after. Among the high value sectors, only textiles exhibit a growth of 9% annually. Against this background, the expectations that rest on the manufacturing sector are very high.

¹⁰ Details of these targets can be found in Annex D.

¹¹ This tables shows nominal growth based on values in JD for contribution to manufacturing and in USD for exports.

Table 36. Historic Growth and EMV Targets

Goal	CAGR 2000-2008 (% p.a.)	CAGR 2010-2019 (% p.a.)	2021 to 2033 EMV Target Growth Rate (% p.a.)
Manufacturing Contribution to GDP (MVA)	15.3%	5.4%	7.0%
Chemical products	15.7%	5.9%	7.0%
Pharmaceuticals	15.3%	8.1% ¹²	10.0%
Food products	13.5%	7.8%	6.0%
Textile products	25.1%	0.8%	10.0%
Engineered products ¹³	--	--	7.0%
Manufacturing Employment	6.6%	2.5%	6.8%
Chemical products	4.0%	3.2%	6.5%
Pharmaceuticals	4.7%	9.1% ¹⁴	9.5%
Food products	6.2%	2.2%	5.5%
Textile products	5.9%	7.0%	9.5%
Engineered products	--	--	6.5%
Manufacturing Exports	--	--	12.5%
Chemical products	22.3%	0.8%	11.4%
Pharmaceuticals	15.8%	-0.8%	20.3%
Food products	21.4%	-0.9%	14.4%
Textile products	31.9%	9.0%	12.0%
Engineered products	--	--	10.3%

Sources: UNIDO 2023, INDSTAT; UN Statistics 2023, UNCOMTRADE; The Hashemite Kingdom of Jordan 2022

It is critical for industrial policymakers to draw on past experiences and lessons when developing the industrial policies and developing the necessary strategies and plans to implement them in order to achieve the goals of the EMV, as shown in the table 37. Table 37 puts Jordan's manufacturing employment growth rates from the two periods into a global context. Two important conclusions can be made from this comparison. First, internationally, Jordan was performing extremely well in the first period. Only few countries managed to create manufacturing jobs more dynamically. Notably, 7% was a very high growth rate, even for that period. Second, not only has Jordan fallen behind (from rank 15 to 31), but also the general global development trend has slowed down. It has become globally more challenging to create large numbers of new manufacturing jobs.

Table 37. Global Manufacturing Employment Growth Rates

2000-2008			2010-2019		
Ranking	Country	CAGR	Ranking	Country	CAGR
1	Afghanistan	74%	1	Niger	41%
2	Peru	20%	2	Malta	16%
3	Bahrain	19%	3	Syrian Arab Republic	14%
4	Paraguay	16%	4	Sri Lanka	10%
5	Qatar	15%	5	Brunei Darussalam	8%
6	Viet Nam	12%	6	Morocco	8%
7	Turkey	11%	7	United Arab Emirates	8%
8	Saudi Arabia	10%	8	Egypt	7%
9	Ghana	10%	9	Albania	7%
10	Lao People's Dem Rep	9%	10	Senegal	6%
11	Lesotho	8%	11	Viet Nam	6%
12	Thailand	8%	12	Bahrain	6%
13	United Arab Emirates	8%	13	Iran (Islamic Republic of)	5%
14	China	8%	14	State of Palestine	5%
15	Mexico	8%	15	Mongolia	4%
16	Jordan	7%	16	Turkey	4%
17	Uruguay	7%	17	Mexico	4%

¹² This value is CAGR 2010 to 2018 as a 2019 figure was not available.

¹³ Historic values for engineered products could not be calculated due to lack of a clear definition.

¹⁴ This value is CAGR 2010 to 2018 as a 2019 figure was not available.

2000-2008			2010-2019		
Ranking	Country	CAGR	Ranking	Country	CAGR
18	Kuwait	6%	18	Indonesia	4%
19	Albania	5%	19	Oman	4%
20	Oman	5%	20	United Republic of Tanzania	3%
			...		
			31	Jordan	2%

Source: UNIDO 2023, INDSTAT

To sum up, industrial development, and hence, industrial policy, is at the core of the EMV. The manufacturing sector in general, and the five high value industries, in particular, are considered drivers of the economic modernization of Jordan. However, past performances of Jordan's industries as well as existing global trends do not always back the high expectations that rest on the industrial sector. An evidence-based industrial policy can help to moderate these expectations and develop a thorough development strategy that can make significant contribution to the overall development of the country.

8. 1 Contribution of Industrial Policy to the overall development of Jordan

The industrial sector can contribute to Jordan's development in multiple ways. This involves economic, social, and environmental dimensions. Notably, it can support not solely the economic pillar of the EMV but can also make significant contributions to the strategic pillar of increasing the quality of life as well as to the vision's cornerstone of sustainability.

In terms of the economic pillar, manufacturing can be a major contributor. A key way is through contributing to GDP. Notably, MVA contributed 17.7% of Jordan's GDP in 2019 (See Table 11). Moreover, the industrial sector contributes to strengthening Jordan's balance of payment and stabilizing the Jordanian dinar exchange rates, by supplementing the Kingdom's official foreign exchange reserves with more than \$10 billion per year in 2021 (Central Bank of Jordan). Manufacturing is particularly important as the majority of traded goods are manufactured goods. Additionally, foreign direct investment in manufacturing also positively impacts the balance of payment.

Arguably more than most sectors, manufacturing has a high potential to create significant productivity and value addition gains by absorbing new technologies and innovation. Industrial development also has multiple positive development implications beyond the manufacturing sector. Due to various linkages to other sectors of the economy, industrial development can stimulate growth and development in sectors such as agriculture and services. A study of Jordan's economy found that the manufacturing industries came at the forefront of the economic sectors, in terms of their interrelationships and the income multiplier. Spending 1 JD in this sector (direct effect) was found to contribute to other sectors by 1.166 JD on average (indirect effect), resulting in the total multiplier for this sector (direct + indirect effect) to be 2.166 (Jordan Strategy Forum 2022).

The EMV includes employment within the economic pillar. In fact, employment is a key driver for social development and poverty reduction as it provides households with income. In 2021, manufacturing created around 217 thousand jobs (The Hashemite Kingdom of Jordan 2022). Industries have the potential to create widespread impacts due to higher productivity to create better jobs with higher salaries, stable contractual relationships, health and social insurances and other benefits. In doing so, manufacturing can significantly contribute to increasing the quality of life in Jordan. Additionally, increased incomes from manufacturing jobs can lead to increased purchasing power and, hence, domestic demand for local businesses such as in retail and personal services. Industrial development can also have positive inclusive effects by providing income to vulnerable groups such as women, refugees, and minorities. On the whole, responsible industrial development can help to promote more inclusive development.

However, industries are usually one of the main polluters and consumers of natural resources. Manufacturing can, thus, significantly impact the sustainability of the eco-system. Energy consumption that is based on fossil resources is responsible for high CO2 emissions causing climate change. The industrial sector is, at the same time, by far the most significant consumer of material inputs, processing them into final goods. Hence, improving the efficiency of material use and developing circular systems that reduce the need for new inputs can reduce industry's environmental impact (often while decreasing production costs). Furthermore, green production can lead to new economic opportunities, such as being able to reach markets with environmentally related demand. Increased circularity and efficiency as well as decoupling industrial production from CO2 emissions are examples of how industrial policy can promote industrial development towards ensuring the sustainability of the eco-system.

As has been shown, industrial policy can clearly contribute to the strategic pillar of economic development. Additionally, industrial policy can also make contributions to social development and the strategic pillar of quality of life that go beyond the creation of jobs. Finally, industrial policy is key when it comes to ensuring the sustainability of the eco-system. The alignment of a future industrial policy with the EMV is critical. This alignment can be aided through the formulation of a clear industrial policy vision that lays out the desired transformation of the manufacturing sector.

Beyond the substantial contribution industrial policy can make to achieve the outcome goals of the EMV, the new industrial policy can also make a contribution to achieving the process goals of the EMV (see Table 38). These process goals can be incorporated into the process of developing and implementing the new industrial policy and industrial policy vision.

Table 38. Process Goals in the EMV

1.	Ensure transparency in providing information related to national goals and priorities.
2.	Determine comparative and competitive advantages that Jordan can capitalize on to stimulate growth and create economic opportunities.
3.	Unify efforts of ministries and public institutions to support the achievement of the national strategic goals within a clear roadmap.
4.	Direct national planning incorporating strategic thinking to ensure the delivery of national goals in a better and more sustainable manner than can be achieved through tactical actions.
5.	Enhance decision-making and policy development to make it data-driven and evidence-based to minimise changes and populist decisions to ensure more strategic decisions.
6.	Strengthen the capacity for accountability and follow-up, and enable necessary interventions to improve the implementation process and performance measurement.
7.	Propose a roadmap for political parties to interact with when developing their programmes or suggest alternatives that are in line with the vision priorities.
8.	Enrich the cooperation agenda with Jordan’s development partners to direct support towards the priorities set by the vision.

Source: The Hashemite Kingdom of Jordan 2022

Overall, developing a thorough, evidence-based industrial policy will (i) clearly align itself with the goals of the EMV. This will involve (ii) developing a detailed intervention logic that will then translate into a comprehensive action plan with the industrial policy promoting strategic thinking including the determination of long-, medium- and short-term goals. Grounding the industrial policy-design process on (iii) extensive data analyses and a participatory decision-making process that takes existing tacit knowledge into account will help to promote evidence-based decision-making in the country. Finally, (iv) the identification of key performance indicators and regular monitoring and evaluation will foster accountability and result-oriented governmental policies.

8.2 JICR Policy Implications

“The identification and prioritization of policy objectives in this document has been informed by two sources: first, by the preliminary strategic orientation of the policy and its linkages to the EMV, and second, by the findings of the data analysis that was carried out during the production of Part B of this report”

This chapter summarizes the industrial policy lessons we can learn from the analysis of Section B. It further discusses potential directions for future editions of the JICR. The findings from Section B underscore the need for strategic policy interventions to address the challenges facing Jordan’s manufacturing sector. Addressing these challenges requires a focus on enhancing the competitiveness of firms in the manufacturing sector. In turn, this is akin to a focus on improving firm productivity because it is near impossible for low-productivity firms to be competitive.

Competitiveness can be discussed from the input side, as well as the output side. On the input side are the determinants of a firm’s competitiveness (e.g., costs, capabilities). On the output side we can see the results of a given level of competitiveness in various performance indicators. The analysis in Section B in this first edition of the JICR focused on the output or performance side (while future editions will look more closely on the input side). Not every result of the analysis is only driven by the level of competitiveness, but some performance indicators (e.g., revealed comparative advantage) are strongly influenced by it.

Firms might find it challenging to compete internationally due to high input costs, needs for innovation, or an inability to reach certain standards. In addition to that, there are factors outside the control of firms, such as regulations and other aspects of the business environment. Serving international markets typically requires higher levels of competitiveness due to more intense competition. This is why export performance indicators are important for assessing the success of firms in this respect.

The four major challenges identified in this section are all at least partially a result of (a lack of) competitiveness. If manufacturing firms were more competitive (particularly relative to comparator countries), we would presumably observe:

- Structural change with an increased share of manufacturing activities in the economy.
- A higher level of aggregate productivity.
- A move towards a larger share of medium and high-tech industries in both production and exports.
- A more diversified (export) product portfolio and more diversified export markets.

Consequently, we find the following four policy implications from the analysis of Section B:

8.2.1 Increase the share of manufacturing in the economy

The first critical implication is to again increase the share of manufacturing in the economy. The analysis shows a significant decline in the growth rate of the manufacturing sector between 2009 and 2019, as well as a drop in MVA in 2019 and 2020, signalling a weakening role of the sector in the Jordanian economy. Emphasizing the importance of manufacturing in contributing to economic growth and resilience is critical, considering its historical role as a driving force during the extraordinary growth period between 2000 and 2008. Strengthening the manufacturing sector can not only reinvigorate economic growth but also contribute to renewed employment generation, which is crucial given Jordan’s growing population.

From a policy perspective, increasing the share of manufacturing boils down to a few things. One is to create sufficient domestic demand for manufacturing goods and services, which hinges on sufficient agricultural productivity. This means that industrial and agricultural policy need to be aligned. Secondly, investing in more and better production factors (e.g., capital assets, technology and human capital) all helps to increase the productivity of firms and thus to increase the share of manufacturing in GDP (relative to other sectors’ firms). Common policies include promotion of both domestic and foreign (direct) investment, provision of vocational training and upgraded educational curricula, and support to innovation such as strengthening of innovation systems, making acquisition of foreign technology and capital assets easier, and protection of ideas through patents, intellectual property rights and licenses. Moreover, governments need to invest in external capabilities such as energy infrastructure to bring down firms’ energy costs and ensure undisturbed supply of the energy, quality transport infrastructure to allow for smooth access to markets, and institutional quality to cater to fair rules of the game, impartial conflict resolution and protected property rights. Thirdly, and maybe somewhat more subtle, the manufacturing share can increase if resources that want to move to manufacturing can do so without friction. This means that regulations and other barriers to labour mobility need to be removed, or at least be reduced. Fourthly, government could make sectoral priorities (i.e. prioritize manufacturing sectors) and device schemes that propel these sectors. A typical policy example would be to provide extensive support to manufacturing firms that reach certain targets, e.g. increase export volume by 25 per cent over two years, or increase labour productivity by 10 per cent in three consecutive years. If these targets are not met, government would remove its support to those firms. This is similar to an accelerated form of Schumpeter’s creative destruction idea, where government helps to weed out winners and losers at an increased pace. This model has been successfully implemented in Asia. These are a few examples of policies that will support manufacturing.

8.2.2 Diversify the range of manufactured goods

The second implication revolves around the need to diversify the product portfolio within the manufacturing sector. The analysis reveals a concentrated production structure, with sectors such as food, beverages, and tobacco as well as chemicals dominating Jordan's MVA. In terms of exports, Jordan's product portfolio is even less diversified, relying largely on garments and chemicals/pharmaceuticals, while sectors such as metals and machinery have lost importance. While it is important for every open economy to specialize in certain products and tasks, eventually, the economy should not only be specialized on low-tech products or activities. Encouraging policies that promote diversification, especially towards higher value-added products, is imperative. Such diversification enhances the resilience of the manufacturing sector, reducing dependence on a limited range of products and mitigating risks associated with demand or price fluctuations in individual industries. Moreover, a diversified product portfolio might better align with global market trends and positions Jordan's manufacturing sector to take advantage of emerging opportunities in different industries.

Smart diversification to some extent depends on what could be the most related product to the existing product basket. For example, if a country produces beans, a related product could be canned beans, or beans mixed with some other product. Another example is oranges, which could be extended to orange juice. Such diversification is relatively easy because the products are "close" or related. They require similar capabilities in their production. Going from beans and oranges to the production of space crafts appears to be less viable, as those products are (vastly) unrelated.

Therefore, taking a snapshot approach, policymakers should connect the product basket with the set of current capabilities and examine what the "next" product (or service) could be. One could also make the argument that policymakers should consider products as unrelated (i.e. advanced and thus with higher value added) as possible but still within range. Doing so might involve a certain degree of leapfrogging.

Assuming a more dynamic approach, policymakers should identify what to produce in the next, say, 10-20 years. Based on that assumption, necessary investment in capabilities that deliver on that goal should be identified. That would most likely involve investment in equipment and machinery, the workforce and in technology, as well as in supporting capabilities such as relevant innovation systems, business environment, regulations, and infrastructure. Diversification and upgrading, thus, are closely related concepts.

8.2.3 Promote medium and high-tech industries

Relatedly, the third policy implication concerns the importance of promoting medium and high-tech industries, which represent less than a quarter of Jordan's MVA. Despite the observed growth in the manufacturing sector between 2010 and 2018, Jordan's production structure continues to be dominated by low technology sectors. In terms of exports, the analysis also shows that Jordan has benefited mainly from high global demand in sectors such as apparel, while the share of medium and high technology industries in total manufacturing exports has declined. In order to increase the share of medium and high-tech industries, appropriate strategies should aim to enhance the technological capabilities and competitiveness of Jordanian manufacturing firms operating in these sectors. Ensuring that Jordan's manufacturing sector remains at the forefront of technological advancements is essential for sustained and balanced industrial development.

An active innovation policy would go a long way to promote medium- and high-tech industry. Essentially, it would have two parts. One set of policy measures should promote domestic innovation. We have already mentioned protection of ideas, but a more elaborate policy would involve the establishment and strengthening of linkages between actors of the innovation systems, and the establishment of innovation grant and training schemes in the context of the formation of an innovation agency. It is also useful to set up research and innovation councils to ensure proper support to especially SMEs as well as the alignment of sectoral innovation policies. Another set of policies could look into the acquisition of foreign technology, which could come embodied in relatively advanced equipment and machinery or be transferred through exchange and presence of consultants and expert, or purchase of for example licenses. Accompanying innovation policy should be policies that increase the absorptive capacity of firms. Government could provide targeted training programmes directly to firms or through meso-level institutions such as technology centres. Financial support over and above that provided through innovation agencies might be needed for broad-based technology upgrading to take place. It is mainly SMEs that should be targeted and supported, while large firms tend to follow their own trajectories and be less dependent on direct support like that described above.

8.2.4 Expand export markets

The fourth and final implication is to broaden Jordan's export markets beyond the current concentration on the MENA region and the United States. Despite some improvements in export market diversification, Jordan continues to face economic vulnerability owing to the high concentration in both export markets and products. Implementing measures to explore opportunities in other regions (e.g., by refocusing on South Asia or sub-Saharan Africa, which have declined in importance) can reduce reliance on a limited number of trading partners. This would contribute to a more resilient and globally integrated manufacturing sector. Diversifying export markets not only mitigates risks associated with geopolitical and economic fluctuations in specific regions but also opens up avenues for accessing a new customer base, thereby strengthening Jordan's manufacturing exports on a global scale. This approach is in line with the broader objective of taking full advantage of deeper global integration to ensure sustainable growth and stability in Jordan's industrial landscape.

In terms of policy, government could support participation in trade fairs and similar events, both domestically and abroad, where non-traditional trade partners appear. What is often difficult when it comes to expansion into new markets, are trade barriers of different kinds. For example, to penetrate the European food market, Jordanian firms face a host of non-tariff barriers, many of which relate to quality, health and sanitary aspects. A policy response could be to establish standards and metrology centres that can help firms meet quality standards. Training programs designed according to targeted export markets (e.g., Japan and India are likely to have different types of barriers) could be offered directly to firms. Diversification of production tends to automatically increase the number of export markets (for diversification policy, see above).

Concrete policy interventions that achieve the above stated goals in part depend on the specific reasons that explain the status of competitiveness. Future editions of the JICR will put a focus on these determining factors.

There are additional policy discussions that mostly follow from consultations with stakeholders but not necessarily from the analysis of Section B. They can be found in the Annex E of the report.

9. Future editions of the JICR

At the end of this report, we want to look into the future. We want to discuss how the JICR can be improved and which types of analysis can be included in the future.

First, future editions can have a thematic focus that highlights a certain topic of importance. This focus comes in addition to competitiveness analysis that is now done in part B. It allows both to shed more light onto a subject that is timely and of interest to the ministry, as well as showing how it relates to Jordan's competitiveness. Potential themes could for example be derived from global or regional developments. Figure 2 already provides ideas for such potential themes.

Given the availability of new data, future editions can also expand the type of analysis that is now carried out in part B. For example, the OECD has recently added Jordan to the Trade in Value Added (TiVA) database. This data allows to understand Jordan's position in global and regional value chains at the subsector level. It also shows which share of value is added in Jordan and which share of inputs are imported and where they are imported from. This is an analysis that is not possible with standard trade data.

Related to standard trade data, there are types of analyses (e.g., UNIDO's DIVE tool) that allow to study in more detail how other countries have diversified over time. This is one way to infer diversification potential of Jordan's industries.

While the first edition of the JICR looked at many outcome indicators such as labour productivity that are essential for determining Jordan's competitiveness, many other factors play a similarly important role. A next edition would pay particular attention to measures of capabilities, sometimes also called "industrial drivers" (see discussion in Section 3.1.2). Capabilities range from production capabilities and innovation capabilities of firms, to measures of the business environment and many more. Understanding these capabilities is an important step in assessing where some of the weaknesses of the manufacturing sector come from. Very often, industrial policies try to target the underlying conditions, capabilities or capacities that all determine Jordan's competitiveness.

Since there is a wide range of capabilities needed to propel industrial development and competitiveness, future JICRs can focus on them on a sequential basis. For example, one JICR could be on innovation capabilities and competitiveness, next one on institutional quality and competitiveness, and so on. Common for all the JICRs is of course a standard set of competitiveness indicators, which will be updated on a regular basis. Similarly, each JICR should have a strong policy section based on the empirical analysis, which could possibly feed into a dynamic development of an overall industrial policy.

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Annex A: Jordan's MVA, Employment, and Value Added Per Employee

Table A.1. Jordan's manufacturing value added, employment and labour productivity, by technology intensity and industry

	Value added (millions USD)			Employees (number)			Value added/employee (USD)		
	2000	2008	2018	2000	2008	2018	2000	2008	2018
Low technology	623	1,688	3,284	54,230	91,206	124,584	11,497	18,508	26,363
15 Food and beverages	214	587	1,509	20,631	33,280	44,658	10,367	17,625	33,786
16 Tobacco products	184	287	527	930	1,417	998	197,681	202,710	528,259
18 Wearing apparel, fur	57	343	483	14,216	22,410	41,783	4,028	15,311	11,564
36 Furniture; manufacturing n.e.c.	40	132	259	7,392	14,278	17,947	5,430	9,238	14,443
22 Printing and publishing	45	143	194	3,398	6,817	6,456	13,379	20,908	29,979
21 Paper and paper products	38	107	181	2,660	3,765	4,384	14,372	28,461	41,396
17 Textiles	28	46	71	2,321	3,723	2,122	11,852	12,243	33,225
20 Wood products (excl. furniture)	6	29	33	1,019	4,275	4,784	5,718	6,668	6,967
19 Leather, leather products and footwear	11	15	27	1,663	1,241	1,452	6,806	12,454	18,714
Medium technology	418	1,425	2,441	28,984	47,060	49,403	14,409	30,280	49,406
23 Coke, refined petroleum products	90	256	697	3,418	3,346	2,546	26,209	76,440	273,752
26 Non-metallic mineral products	170	599	694	11,544	19,383	17,045	14,701	30,894	40,695
28 Fabricated metal products	55	201	414	7,009	15,259	17,199	7,783	13,198	24,077
27 Basic metals	63	260	397	2,627	3,859	4,685	24,134	67,333	84,741
25 Rubber and plastics products	40	109	239	4,386	5,213	7,928	9,207	20,939	30,155
Medium-high technology	301	1,063	1,695	16,583	28,297	33,470	18,130	37,564	50,649
24 Chemicals and chemical products	236	755	1,306	10,830	14,765	21,120	21,786	51,122	61,847
29 Machinery and equipment n.e.c.	26	106	182	2,957	4,501	6,896	8,683	23,656	26,323
31 Electrical machinery and apparatus	25	124	147	1,168	4,359	3,387	21,216	28,510	43,524
30 Office, accounting and computing machinery	..	..	32	0	0	824	..	..	38,481
34 Motor vehicles, trailers, semi-trailers	10	18	28	934	2,159	1,243	10,782	8,547	22,838
32 Radio, television and communication equipment	0	0	..	0	0	..	..	..	..
33 Medical, precision and optical instruments	4	12	..	688	1,302	..	5,951	9,525	..
35 Other transport equipment	0	47	..	6	1,211	..	16,455	38,427	..
Total manufacturing (D)	1,342	4,176	7,500	99,797	166,563	208,911	13,445	25,071	35,900

Source: UNIDO INDSTAT2 2020 (ISIC Rev. 3).

Industries with values of zero do not necessarily have no value added or employment but were reported in other industries.

N.e.c.: not elsewhere classified.

Annex B: Calculations

Real Manufacturing Value Added and Growth

Based on equation (A) below, we found the inflation (deflation rate), for Jordan, Tunisia and Turkey.

$$\text{inflation} = \frac{\text{current dollar}}{\text{constant dollar}} \dots\dots\dots(A)$$

Assumptions:

- We use the manufacturing inflator (deflator) instead of sector specific inflators.
- The constant manufacturing value added is the estimate of future MVA flows for the year 2015.

Jordan

Table B.1. MVA inflation of Jordan for years 2010-2018.

Years	Current MVA	Constant MVA	Inflation (deflation)
2010	5,134,892,193	6,339,363,991	0.81
2018	7,683,098,592	7,357,637,878	1.04
CAGR	5.2%	1.9%	3.23%

Tunisia

Table B.2. MVA inflation of Tunisia for years 2011-2018.

Years	Current MVA	Constant MVA	Inflation (deflation)
2011	7,605,928,943	6,297,722,377	1.21
2018	6,057,449,059	6,788,996,872	0.89
CAGR	-3.2%	1.1%	-4.23%

Turkey

Table B.3. MVA inflation of Turkey for years 2010-2018.

Years	Current MVA	Constant MVA	Inflation (deflation)
2010	117,000,000,000	95,631,511,989	1.22
2018	148,000,000,000	166,000,000,000	0.89
CAGR	3.0%	7.1%	-3.88%

Annex C: Manufacturing-Related Initiatives in the EMV

Table C.1. Manufacturing Initiatives in the EMV

Sector / Subsector	Initiatives
Manufacturing	<ul style="list-style-type: none"> • Support domestic products promotion programmes. • Attract new investments in the existing manufacturing sub-sector and new sub-sectors. • Reduce energy costs through lowering electricity tariff and deliver natural gas to industrial zones. • Support SMEs in enhancing productivity and cost optimization. • Enhance linkage between academia R&D and industry. • Create manufacturing sector data centre/database. • Launch 'careers-in-manufacturing' attractiveness campaign. • Promote entrepreneurship in manufacturing sector. • Provide industry with trained workforce with improved attitude and better specialized and general skills. • Launch 'women-in-manufacturing' careers initiative. • Improve ease of doing business in regards to relations with public sector entities by streamlining laws, regulations, and processes. • Promote public private partnerships (PPPs). • Streamline laws, regulations, and processes. • Develop detailed plans for the rollout of strategy manufacturing, including national manufacturing strategy.
Manufacturing Food Products	<ul style="list-style-type: none"> • Implement Food Security Strategy with regards to food processing industry. • Allocate part of local produce to food processing industry (vertical integration). • Attract new investments in the sector. • Support enterprises with environmental compliance. • Expedite elimination of food processing shadow market. • Launch domestic product marketing and promotion campaigns. • Enhance sector's productivity and increase cost competitiveness. • Establish food exhibition areas. • Develop specialized skills for the food processing industry. • Simplify development of food factories, and streamline governmental processes. • launch a plan to strengthen and grow the sector. • Establish a unified control body for the sector. • Develop detailed plan for the sector.
Manufacturing Pharmaceuticals	<ul style="list-style-type: none"> • Simplify governmental processes for the registration of new drugs to expedite the registration in new markets. • Make IP databases searchable, accessible, and easily available. • Develop R&D to support the launch of new products. • Develop regulations for biological drugs/biotechnological drugs and biosimilars. • Launch a domestic product promotion policy. • Attract new investments in the sector. • Enhance the sector's productivity and improve cost competitiveness. • Rollout of upskilling programmes for the pharmaceuticals sector. • Relax pricing rules and enable price stability. • Establish pharmaceutical sector-specific unified strategic body. • Develop a detailed plan for the sector.
Manufacturing Textile Products	<ul style="list-style-type: none"> • Develop fabric manufacturing (vertical integration) to fulfil the needs of export markets in one season. • Expand vocational training programme and benefit from sector skills council. • Promote local talent employment in textiles sector and increase Jordanians managerial positions in the textiles sector. • Attract new investments in the sector. • Enhance the sector's productivity and improve cost competitiveness. • Increase integration and collaboration between large and small enterprises to expand the size of small enterprises. • Create sub-sector data centre/database. • Develop a unified governance framework for the sector. • Streamline textiles sector-specific laws and regulations. • Develop a detailed plan for the sector.
Manufacturing Chemical Products	<ul style="list-style-type: none"> • Set up chemicals production manufacturing cluster. • Establish an R&D and innovation centre focused on the potash and phosphate value chain and commercialization opportunities. • Define a detailed downstream manufacturing strategy for potash and phosphate feedstocks. • Launch international marketing campaign for Jordanian chemical products. • Attract international strategic investors. • Launch specialized education programmes in support of chemical sector skills needs. • Launch regional cooperation and integration strategy for chemicals products. • Develop growth strategy and investment roadmap. • Establish a dedicated body to represent the chemical production industry.
Manufacturing Engineering Industries Products	<ul style="list-style-type: none"> • Attract three international champion companies. • Conduct detailed feasibility assessments on entering fast-growth future product categories. • Set up an R&D and innovation centre for high-potential engineered product solutions, their value chains, and commercialization opportunities. • Accelerate roll-out of the fourth Industrial solutions. • Strengthen cross-sectoral collaboration between engineered production, industrial design, ICT and supplier industries. • Launch domestic and international marketing campaigns. • Develop specialized education programme (engineering academies). • Develop national plans and roadmaps for investment in the sector.

Source: Hashemite Kingdom of Jordan 2022

Annex D: Manufacturing-Related Targets

Table D.1. Manufacturing-Related Targets in the EMV

Goal	2021 Baseline	2033 Target	Target Growth Rate (% p.a.)
Increase manufacturing contribution to GDP	5.3 bn JD	11.1 bn JD	7.0
Chemical products	0.6 bn JD	1.4 bn JD	7.0
Pharmaceuticals	0.5 bn JD	1.7 bn JD	10.0
Food products	1.5 bn JD	2.9 bn JD	6.0
Textile products	0.4 bn JD	1.3 bn JD	10.0
Engineered products	0.3 bn JD	0.6 bn JD	7.0
Increase manufacturing employment	217.3 k FTE	479.1 k FTE	6.8
Chemical products	21.0 k FTE	44.5 k FTE	6.5
Pharmaceuticals	5.4 k FTE	16.0 k FTE	9.5
Food products	37.7 k FTE	71.5 k FTE	5.5
Textile products	76.0 k FTE	224.7 k FTE	9.5
Engineered products	10.0 k FTE	21.2 k FTE	6.5
Increase manufacturing GDP/employee	24.2 k JD	23.1 k JD	-0.4
Chemical products	29.4 k JD	31.2 k JD	0.5
Pharmaceuticals	99.2 k JD	105.3 k JD	0.5
Food products	38.5 k JD	40.9 k JD	.. ¹⁵
Textile products	5.6 k JD	5.9 k JD	0.5
Engineered products	26.4 k JD	28.0 k JD	0.5
Increase manufacturing exports	4.8 bn JD	19.8 bn JD	12.5
Chemical products	1.5 bn JD	5.4 bn JD	11.4
Pharmaceuticals	0.2 bn JD	2.1 bn JD	20.3
Food products	0.9 bn JD	4.3 bn JD	14.4
Textile products	1.3 bn JD	5.2 bn JD	12.0
Engineered products	0.2 bn JD	0.6 bn JD	10.3

Source: EMV

¹⁵ The value of this goal listed in the EMV appears to be a typo. While it is listed as 6.0%, the CAGR indicated by the target JD value is 0.5%, which is in line with the other sub-sector targets.

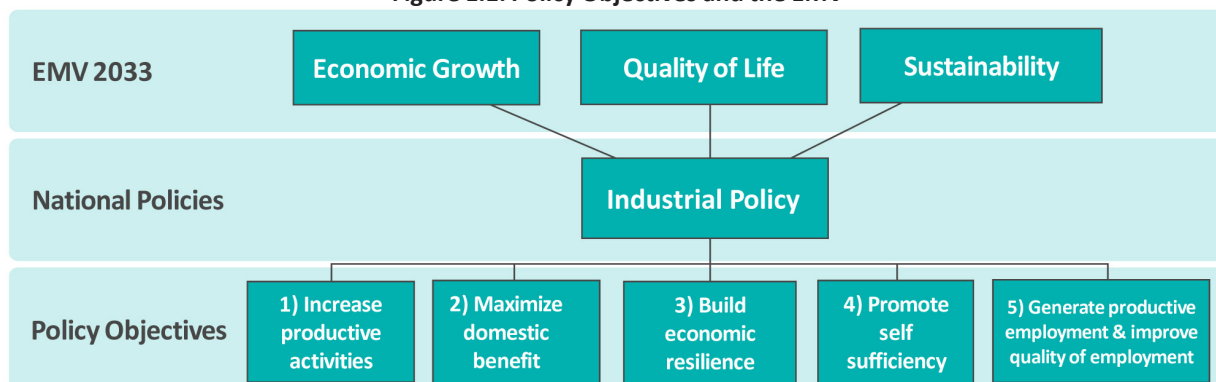
Annex E: Policy Objectives of Jordan’s Industrial Policy 2023-2033

Defining industrial policy objectives is a crucial step in the policy design process as it translates the overall strategic orientation (industrial policy vision) into concrete policy goals. Industrial policy objectives are concrete and measurable goals that will express why Jordan pursues an industrial policy and which exact changes in the manufacturing sector the Royal government strives to achieve. Industrial policy objectives belong to the impact level of the intervention logic. Success and failure of the policy will be measured at this level. Therefore, a clear formulation of the policy objectives and the definition of corresponding indicators and targets are crucial tasks.

The identification and prioritization of policy objectives in this document has been informed by two sources: first, by the preliminary strategic orientation of the policy and its linkages to the EMV, and second, by the findings of the data analysis that was carried out during the production of Part B of this report. Where necessary, additional analyses for particular policy objectives have been conducted and integrated in this section. Prioritizing industrial policy objectives requires a comprehensive decision-making process comprising stakeholders from the government, private sector and civil society. The following identified industrial policy objectives are, hence, only a preliminary selection and have to be validated and complemented in the future policy design process.

The prospective industrial policy will pursue multiple policy objectives. In the selection of the policy objectives, the emphasis has been made on ensuring sustainability and quality of growth vis-à-vis maximizing level of growth of the manufacturing sector. The policy objectives outlined in this document are: (1) increase productive activities, (2) maximize domestic benefit, (3) build economic resilience (4) promote self-sufficiency and (5) generate productive employment and improve quality of employment. These objectives contribute to the main pillars of the EMV (see Figure E.1) .

Figure E.1. Policy Objectives and the EMV



Source: Authors’ construction

The industrial policy objectives discussed in this report present important topics to be discussed by policymakers within a multi-stakeholder consultation process. The policy objectives of Jordan’s new industrial policy will not be limited to the objectives discussed in this report. This section presents a starting point for initiating critical discussion about key issues within the manufacturing sector, which can be addressed by Jordan’s new industrial policy. Multi-stakeholder consultation is needed to identify and select the final objectives that will be the basis of the new industrial policy.

E.1 Increase Productive Activities

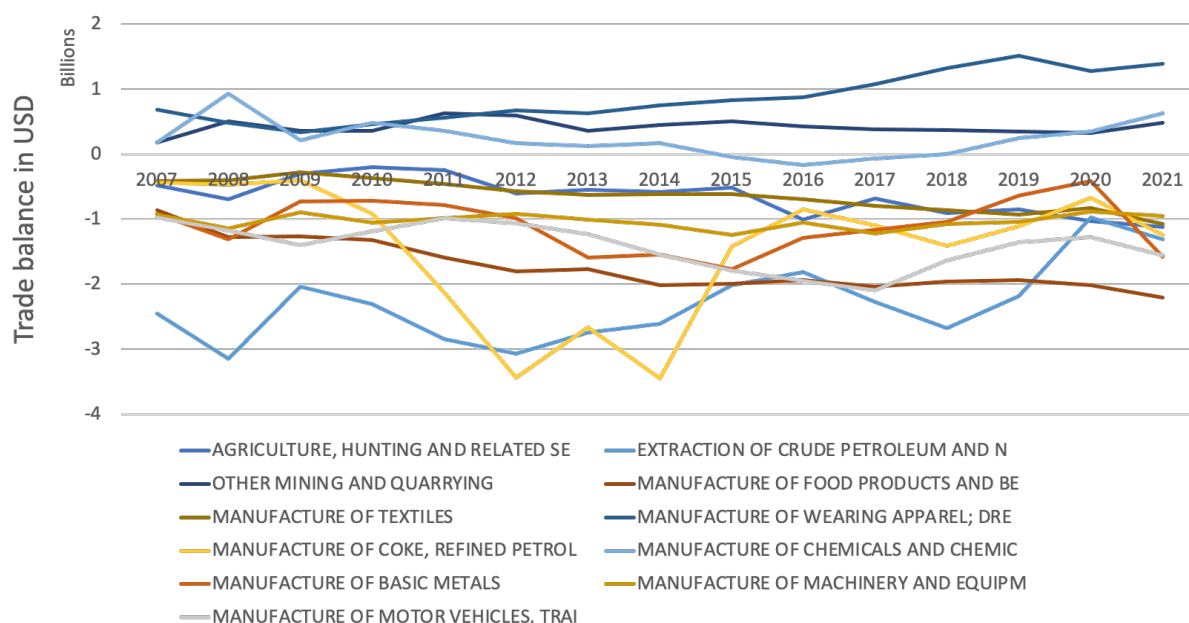
The first policy objective is increasing productive activities. Achieving an increase in productive activities involves creating more economic activity, either through expanding to develop new forms of production (e.g., starting new businesses) or through expanding and upgrading existing activities. Expanding productive activities can help to generate economic growth. The objective of increasing productive activities is closely related to the following objective of maximizing domestic benefit that strives to ensure, inter alia, that growing the productive base of Jordan translates also into increasing domestic value generation in the manufacturing sector and beyond.

Expanding the industrial base of Jordan is important to provide the growing Jordanian population with necessary goods. Jordan has experienced high population growth, which has involved large-scale increases in recent years, in particular, as Jordan has welcomed many refugees. As Part B demonstrated, the current growth of manufacturing is not keeping up with the population growth. This can be seen in the declining manufacturing volume of Jordan measured as MVA per capita (see Figure 4 and Table 15) and in the increased levels of imports, notably for food products (see Figure E. 2).

A second indication that the manufacturing sector is falling behind in its growth dynamic is that the share of the manufacturing in the overall economy is shrinking. This means that other sectors (i.e., services) are growing faster than manufacturing and increasing their share in GDP (see Table 14).

While the EMV relies on manufacturing as an engine of growth, recent national experiences have not had this dynamic. In fact, the service sector has been outperforming manufacturing. However, a concerted effort to increase productive activities related to manufacturing can help to strengthen the sector.

Figure E.2. Jordan's Trade Balance by Sector



Source: UN Statistics 2023, UNCOMTRADE

There are a number of ways that Jordan can seek to increase productive activities. One way is to expand production in existing sectors. This can be particularly important for the food sector (see Section E.4) where Jordan is increasingly importing products. One way to achieve this type of production increase is through supporting the growth of larger businesses that could achieve improvements through economies of scale.

A second way to increase production is to upgrade activities within existing sectors. Such upgrading involves innovation. This can be supported through adopting existing technologies and by seeking to develop new technology. Innovation can be supported through investing in R&D. It can also be supported through strengthening the quality of Jordan's innovation system (Narula 2014). For example, innovation can be stimulated by fostering connections between different types of organizations.

A third way to increase production is through expanding into new higher value sectors. One way to consider which sectors to prioritize for growth is to look at RCA (see Section 5.6). Another way is to explore potential for diversification is to consider which sectors require similar productive capacities to those that Jordan already engages in (Hausmann et al. 2019). Increased productive activities can also be generated by supporting the development of local support services that can supply Jordanian manufacturers.

Across all of these options for increasing productive activity, the products need to be demanded by domestic or global buyers. For the domestic market, Jordan-made products may substitute for products that are currently imported or they can fulfil emerging domestic demands. Ways to increase exports are being considered in Jordan's export strategy that is currently being developed.

Additionally, promoting increased productive activity may require additional funding. Industrial policy can involve shaping how this funding is obtained (see UNCTAD 2018). A key source of funding may be from foreign direct investment (FDI).

E.2 Maximize Domestic Benefit

The second key objective identified for Jordan's industrial policy is to maximize domestic benefit. While the first objective focused on increasing the industrial base in general, the objective of maximizing domestic benefits takes a broader and more qualitative perspective.

The objective of maximizing domestic benefits strives to ensure that Jordan benefits as best as possible from economic activities that happen within its borders. This can involve a number of components. (i) A country benefits from economic activities when they are well-integrated in the host economy through national value chains that make sure that a significant share of the value generation of the production process is captured within the country creating a high MVA. (ii) A country benefits when economic activities create jobs that provide sufficient incomes for the local population to live a decent life. (iii) A country also benefits more from economic activities if they are conducted by locally-owned companies as profits tend to remain in the country. (iv) Finally, a country benefits when production involves goods that are demanded in the local market. In general terms, the objective of maximizing domestic benefit strives to increase the share of domestic MVA of a production process that remains as wages, taxes and profits in the country. Overall, this objective can help to ensure that manufacturing contributes to Jordan's economy and quality of life.

This objective has strong connections with two of the other objectives. Focusing on this objective involves considering the domestic value created by economic activities and is thus connected to the first objective. Additionally, domestic benefits can involve creating jobs, which is related to the fifth objective (generating productive employment and increasing quality of jobs).

The EMV pursues an export-driven development model that rests on the assumption that given the relatively small domestic market, Jordan's manufacturers have an opportunity to benefit from increasing exports and, in doing so, generate more revenues and jobs. The sector that is exemplary for this approach is the textile product (wearing apparel) industry which has increased exports significantly in recent years (see Box E.1). However, experience in this industry highlights risks of focusing on exports without considering how to maximize domestic benefits.

Box E.1. Considering Domestic Benefits of Producing Textile Products for Export

Between 2010 and 2019 the share of textile products (wearing apparel) in Jordan's export basket grew from 20% to 34% (see Figure 10). The EMV puts high expectations on textile products as one of the "high-value industries" that are supposed to be driving economic development in the country. The textile product sector is supposed to achieve an annual growth in exports of 12%, in employment of 9.5% and in value addition of 10% between 2021 and 2033. However, domestic benefit from the textile product sector has been limited, so far.

Various reasons can be identified for the limited benefits Jordan receives from participating in garment value chains. One is that the sector is not well-integrated in domestic value chains, with all major inputs imported from abroad. The activities are basic and add only limited value to the products. These two points have also been highlighted as risks by the EMV. As a result, despite the increase in exports, the value addition that is being generated in the textile product sector is very limited. MVA in the textile product sector has grown only by 0.8% per year from 2010 to 2019 (see Table 36) resulting in a decline of the share of the textile product sector in Jordan's MVA from 10% to 7%. Against this background, two-digit growth rates as envisioned by the EMV will be very challenging to achieve.

A second challenge for the textile product sector is related to its potential for job creation. It has created most of the jobs in manufacturing in the past decade with a growth of 7% per year from 2010 to 2019. Accordingly, expectations are high. However, the majority of these jobs are filled by migrant workers who do not contribute much to Jordan's economy as many send wages back to their home countries as remittances. A contributor to this challenge is that wages are low and not appealing to many Jordanian workers.

Overall, the garment industry functions as an enclave sector. Its main activities take place in special economic zones that have limited connections to the host economy. This includes many employees coming from abroad, inputs come from abroad, the final products are not being sold in Jordan but exported and profits being repatriated to the foreign investors' home countries. Given the vast tax exemptions that this industry enjoys, the share of value added that remains in Jordan is very limited. Having said this, the domestic benefits from producing textile products are very limited for Jordan, at present.

When considering maximizing domestic benefits from industrial activity, a number of options can also be taken. A key aspect is creating linkages between industries but also with other sectors of the economy. One way is, hence, to strengthen national value chains. This can involve both backward and forward linkages. Opportunities for such production models may exist in sectors outside of those prioritized by the EMV.

Another way to maximize domestic benefits is to use policy to ensure that value stays within a country. This can involve promoting domestic ownership as well as stipulations or incentives for hiring local workers or using local suppliers (e.g., local content rules).

A further way to maximize local benefits can be to use industrial policy to promote the creation of products that are needed in the local market. By producing products that are needed by the general population, such as food (see Box E.2), Jordan can benefit from its manufacturing activities.

E.3 Build Economic Resilience

The third objective is building economic resilience. Resilience involves being able to withstand shocks. As the world and region have faced a series of diverse shocks in recent years, being resilient is very important for Jordan. Resilience can be considered at the three levels of: micro (firms, workers), meso (sectors, industries) and macro (national economy and institutions) (Pike et al. 2013). Building resilience is notably linked to poverty reduction as poor people are more vulnerable to shocks.

A number of factors can contribute to resilience. One aspect is having a diversified economy. As described above, concentration in particular products or markets creates vulnerability. A particular concern is that value chains are more vulnerable if product flows are concentrated. Diversification may or may not be connected to growth but is indispensable for creating resilience. Furthermore, diversity can help to promote economic stability, sustainable growth, income generation, and poverty reduction.

A key risk in the coming years that Jordan needs to be prepared for is impacts from climate change. Natural disasters and other related situations (e.g., crop failures) can severely interrupt production. Other notable risks include regional conflict and future global health crises.

Jordan's current economy is highly vulnerable to economic shocks because production is highly concentrated on few products and exports are highly concentrated on few markets (see Figure 28). Jordan has a high degree of susceptibility in terms of both markets and goods. Jordan must reduce its reliance on a small number of products (particularly textile products) and increase the production and export of other manufactured products. It is necessary from a political standpoint to implement proactive policies to encourage new industrial activities, as well as to attract investment and expertise to these industries. The absence of more diverse market coverage shows that Jordanian manufacturers are not actively engaging in various significant international markets. Between 2010 and 2019 (see Figures 27 & 28) Jordan diversified its market slightly but failed to develop its manufacturing sector to export new products and diversify its export basket.

Manufacturing itself can also help with resilience. One element is being self-sufficient (see the following objective). Manufacturing capabilities can help to ensure that countries are not reliant on outside partners, which can be important in a crisis situation. Three key ways that manufacturing can support resilience include by providing essential goods for life and national security, by providing goods in emergency situations, and by contributing to recovery and growth after a crisis (López-Gómez et al. 2021).

Industrial policy can be used to promote resilience in multiple ways. An overarching way that Industrial policy can help to build economic resilience is through promoting diversification. Diversification of products involves developing new domestic industries. One way to make decisions on how to carry out this process, as described above, is to consider existing domestic production capabilities. Using this approach, Hausmann et al. (2019) identify options for expanding Jordan's productive activities.

Diversification of markets involves building new connections. Industrial policy can be used to help build connections between Jordanian businesses and more diverse buyers. In some cases, appealing to new markets can involve making changes to products or the services that are provided with the products.

Industrial policy can also use a number of further approaches to promote resilience. These can be grouped into the categories of prevention, preparedness, response, and recovery (López-Gómez et al. 2021). Prevention related measures include identifying critical industries and mapping vulnerabilities, incentives for building 'sovereign capabilities' focusing on critical goods, and regulations to minimize disaster risk of industrial assets (e.g., safety guidelines and regulations reducing risk that manufacturing activities will contribute to causing future climate-related disasters). Preparedness measures include having emergency plans in place, such as having an emergency taskforce, having stockpiles of critical items, being able to provide advisory services, having incentives for businesses to save, and ensuring availability of insurance. Response and recovery policies can be developed after a crisis situation and maybe based on the nature of the crisis. Response elements can include emergency sourcing and logistics support, incentives and technical advice for critical supply production, direct provision of production and distribution, emergency business support, and government procurement guarantees. Recovery can involve seeking to attract FDI, supporting diversification, supporting innovation, and promoting green industries and products.

E.4 Promoting Self- Sufficiency

The fourth objective is promoting self-sufficiency. In a self-sufficient economy, production relies on the country’s natural resources and labor to produce goods and services that meet the nation’s needs. Being self-sufficient can also be seen as an element of resilience (see above objective). Not being self-sufficient can create risks. One type of risk is being reliant on imports for strategically relevant consumer goods. Risks include national security (e.g., production of military products), food security, and health. Another type of risk can be created by relying on inputs for production, which can minimize domestic linkages and value capture.

Currently Jordan is heavily reliant on imports for strategic and ethical goods (see Figures E.2 & E.3). This dependence undermines sovereignty and the sustainability of development. These outcomes are connected to ensuring national security and independence, as well as protecting cultural heritage.

Figure E.3. Import Dependency in Jordan



Source: UN Statistics 2023, UNCOMTRADE

As can be seen in Figure E.2, food has the biggest trade balance deficit. This deficit has been getting worse in recent years. Such an imbalance creates a risk in terms of food security, which is an issue with many contributing risk factors (see Box E.2).

Another element of self-sufficiency is energy, which helps to enable all forms of manufacturing. For example, Jordan’s previous reliance on Egyptian gas made the country vulnerable when supply declined. Jordan needs to ensure that future energy needs can be met with higher proportions of domestic production.

Box E.2. Food Security Risks

Factors contributing to food security risks include the fact that Jordan is a resource-poor country, with food shortages, limited agricultural land, no oil resources, and scarce water resources. Furthermore, Jordan has experienced a rapid population increase. With over 750,000 registered refugees in July 2021, most of them from Syria (89%), Jordan has the second-highest percentage of refugees per capita in the world (World Food Programme 2023). About 83% of refugees live in cities, while 17% live in Za’atari and Azraq refugee camps (World Food Programme 2023). While Jordan is considered a food-secure country, with a score of 8.8 on the 2020 Global Hunger Index, food security is challenged by various structural issues and socio-economic factors such as high poverty rates, unemployment, slow economic growth, and rising cost of living. The agricultural sector is an important pillar of food security, especially in a water-scarce country like Jordan, and the involvement of the private industrial and commercial sectors is critical for sustainable food supplies.

Jordan has faced multiple crises affecting food security in the more than a hundred years since its founding as a state. A key factor has been regional tensions, which have often led to the forced migration of populations from other countries. In addition, the impact of climate change is another stressor for food production. Furthermore, food supply chains have faced numerous other pressures in recent years. These pressures have included the COVID-19 outbreak and the war of Russia against Ukraine, which severely impacted agricultural productivity, distorted supply chains, raised commodity prices, altered oil prices, and increased transportation costs. Additional ongoing challenges include urbanization, sharp increases and volatility in international food prices, reduced remittances from Jordanians working abroad, and reduced support to United Nations Relief and Works Agency.

Industrial policy can help prevent risks to food security through fostering entrepreneurship related to agriculture. Both rural and urban areas can seize digital opportunities to raise funds for young entrepreneurs in the agri-food sector. The agri-food industry presents business opportunities for many small and medium-sized investors. Because agriculture is less capital-intensive than many other industries, it provides investment opportunities for small and medium-sized entrepreneurs who may not have access to other large, corporate-dominated industries.

In addition to helping to support food security, industrial policy can help promote self-sufficiency through ensuring the domestic production of strategically relevant goods and protecting culturally relevant industries. Notably policy can be used to help support the self-sufficiencies of individual industries, such as wearing apparel, through promoting the growth of domestic production of inputs. Finally, industrial policy can seek to ensure that future production is dependent on locally available energy sources.

E.5 Generate Productive Employment and Improve Quality of Employment

The fifth objective is generating productive employment and improving the quality of employment. The International Labour Organisation (ILO) defines productive employment as “as employment yielding sufficient returns to labour to permit the worker and her/his dependents a level of consumption above the poverty line” (ILO 2012, p. 3). The ILO contrasts productive employment to the categories of the working poor and the unemployed with the working poor defined as “employed persons¹⁷ whose income is insufficient to bring themselves and their dependents out of poverty” (ILO 2012, p.3). Creating productive employment can help to decrease the numbers of people classified as working poor or unemployed. Improving the quality of employment refers to creating jobs that provide workers with decent wages and salaries and may include further positive factors such as work safety, stable contractual relationship, health care, pension schemes, and other benefits.

As mentioned above, the EMV seeks to create one million new jobs by 2033. The manufacturing sector is expected to contribute 261,800 new jobs to help achieve this goal. This national goal is of critical importance given the high level of unemployment in the country (see Table E.1). After reaching 24.1% in 2021, the overall unemployment rate was a bit lower by the end of 2022, measuring 23.1% in the third quarter (Middle East Monitor 2023). This group included 59.3% that had at least completed high school and 46.9% who were youth between 15 to 24 years old.

Table E.1. Unemployment in Jordan

	2016	2017	2018	2019	2020	2021
Labor force (Thousands)	1,660	1,817	1,734	1,702	1,742	1,808
Employed (Thousands)	1,406	1,484	1,411	1,377	1,338	1,372
Unemployed (Thousands)	254	333	323	324	404	436
Unemployment Rate (%)	15.8	18.3	18.6	19.1	23.2	24.1
The Participation Rate (%)	36	39.2	36.2	34.3	34	34
Net Job Creation (Thousands)	50.8	53.9	38.9	42	70.9	-

Source: JCI 2022, Economic indicator bulletin, number 20

It is important to note that the Jordanian labour force includes three main distinct groups, namely Jordanians, migrant workers and Syrian refugees. Manufacturing is a key source of employment in Jordan providing 18.5% of the total public and private sector jobs at the end of 2021 (JCI, 2022). This workforce involves about 65% men and 35% women. The largest sources of employment were in (1) textiles and readymade garments and (2) food and beverages followed with some distance by (3) chemicals and (4) furniture (see Table E.2).

¹⁷ The employed include both those working for wages and those working on their own account or as unpaid family workers. The employed include only those who are of working age, that is who are aged 15 or more. Sometimes national definitions of the working age population include an upper age limit as well, in which case this should be applied.

Table E.2. Employment in manufacturing sub-sectors and growth rates

Sub-Sectors	CAGR 2010-2019	People Employed 2019
Food and beverages	2.2%	44296
Tobacco products	-4.7%	1018
Textiles	-3.6%	2724
Wearing apparel, fur	7.0%	62158
Leather, leather products and footwear	0.4%	1222
Wood products (excl. furniture)	-2.5%	3271
Paper and paper products	2.9%	4714
Printing and publishing	-3.3%	4874
Coke, refined petroleum products, nuclear fuel	-5.6%	2081
Chemicals and chemical products	3.2%	20466
Rubber and plastics products	2.4%	7655
Non-metallic mineral products	-1.0%	14361
Basic metals	2.8%	4865
Fabricated metal products	0.8%	17151
Machinery and equipment n.e.c.	3.4%	6196
Office, accounting and computing machinery	--	633
Electrical machinery and apparatus	-1.9%	3538
Radio, television and communication equipment	--	--
Medical, precision and optical instruments	--	--
Motor vehicles, trailers, semi-trailers	-2.5%	1714
Other transport equipment	--	--
Furniture; manufacturing n.e.c.	4.1%	19382
Recycling	--	--
Total manufacturing	2.5%	222347

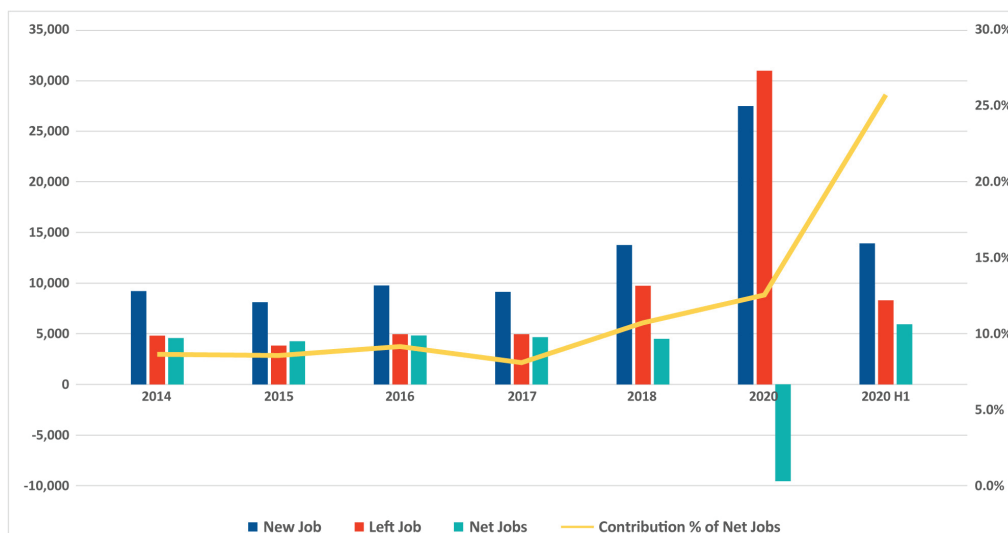
Source: UNIDO 2023, INDSTAT

Table E.2 shows that the manufacturing employment grew only by 2.5% between 2010 and 2019 meaning that manufacturing has not created a vast number of new jobs in that period. The wearing apparel sector not only has the highest number of workers but with 7.0% growth, also grew the fastest. However, in 2020 most garment sectors workers came from Asia, with an estimate of only 25% being Jordanian nationals (Ministry of Labour 2022). Hence, the Jordanian population does not benefit from this employment dynamic. If we exclude wearing apparel and consider all remaining manufacturing subsectors, then the annual growth rate between 2010 and 2019 is only at very low 1.1%, which is close to job-less growth. As stated above, the pharmaceutical sector exhibits high employment growth and is one of the drivers of the chemical sector.¹⁸ There are some sectors that exhibit a higher employment creation dynamic such as furniture or the rubber and plastic sector that may become drivers of employment generation in the future if they sustain their growth dynamic. However, in general, the level of employment growth is not enough to match demand from the high number of new entrants to the job market.

There might be modest indications for a shifting trend. The industrial sector has contributed a much larger share of job creation since the COVID-19 pandemic. The question remains if this is a shifting trend in manufacturing employment or just a catch-up effect after the pandemic.

¹⁸ The pharmaceutical sector is part of the chemical sub-sector according to the ISIC classification.

Figure E.4. Net job opportunities created by the industrial sector and its share of the total

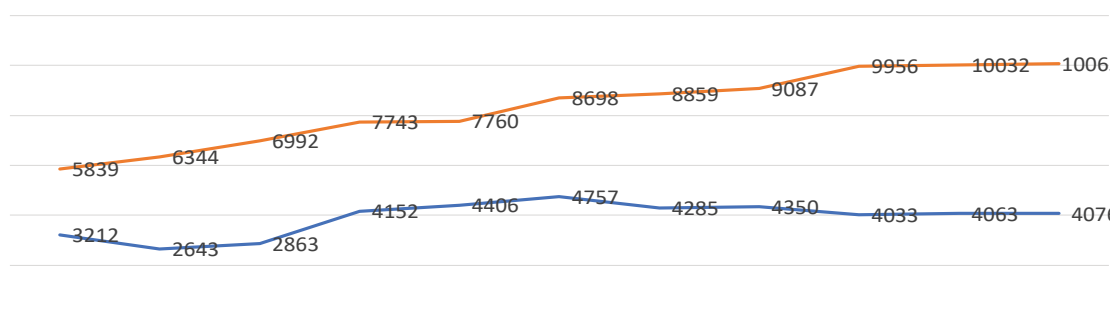


Source: Department of Statistics 2023¹⁹

Industrial policy can focus on factors that may hamper employment creation such as improving job matching or closing the gap between demand and supply of skilled labor forces. There is a lack of consonance between the outputs of Jordan’s education and vocational training with the needs of the job market. A noted problem is that the countries’ vocational and higher education institutions often focus more on theory than on practice (ILO 2018). To some extent, effective industrial policy can unleash existing potentials for job creation.

Industrial policy can create numerous new jobs in particular through promoting labor-intensive industries. Promoting for instance the textile and wearing apparel industry in Jordan is a good example for such an approach. However, there is often a trade-off between numbers of jobs created versus the quality of the jobs. Figure E.5 compares the average wages in the wearing apparel industry with the average wages in other industries. The wages in the textile products industry have stagnated and account for around 40% of the average wages paid in the remaining industries. The textile products industry is thus a major contributor to the numbers of working poor in Jordan. Jordanians are often not interested in filling these jobs due to wages and working conditions (ILO 2018).

Figure E.5. Average Wages in Wearing Apparel vs Other Manufacturing in Jordan



Source: UNIDO 2023, INDSTAT

However, manufacturing also has the chance to create high quality job that offer decent salaries and come with additional benefits. These jobs are created in more technology-intensive industries and economic activities, which usually do not provide high number of new jobs. There is a natural trade-off between number of jobs created versus the quality of the jobs. In the case of Jordan, the strategy to create numerous new jobs in labor-intensive industries has not proven success so far, as Jordanian are often not willing to work under the conditions offered by these industries.

The focus of industrial policy in Jordan may, hence, lay on improving the quality of jobs in manufacturing. As the JICR has shown, the wages structures of some sectors can be considered to be in the category of exploitation as productivity has been growing while wages were decreasing (see Figure 19). The increase of productivity has, hence, not translated into higher salaries. Improving the overall working conditions of manufacturing jobs and making sure that workers receive a fair share through salaries might be a starting point to increase both the attractiveness and quality of jobs but also manufacturing employment.

¹⁹ Note: Data for the year 2019 is not available

Other policy approaches could seek to create a better match between the demand of employers and the labor market supply. One aspect of this is skills development. To help to ensure potential employees have the skills needed by industrial sector employers, industrial policy could seek to make changes to the education system. Another way to create better match between potential workers and jobs available is to encourage entrepreneurship among the unemployed.

In terms of improving the quality of jobs in Jordan, policy interventions can also take a number of approaches. Ratifying additional ILO conventions is one option. Other legal reforms related to labour policy and enforcement of existing policies can also change working conditions. Additionally, supporting freedom of association and creating governance structures supporting dialogue between workers' association and employers can also contribute to improving working conditions in manufacturing.

Annex F: The Role of Priority Sectors for Jordan's Industrial Policy 2023-2033

Industrial policy can take various approaches and forms. Choosing which industries, value-chains or even enterprises should be supported is a key decision to be made by policymakers. This choice depends, inter alia, on the overall policy objectives and how horizontally or vertically industrial policy should intervene.

The EMV puts great hopes on the manufacturing sector as outlined in at the top of this section. With the Manufacturing Sector Vision 2033 and Strategic Roadmap 2022-2033 it determines 5 target industries (chemical products, pharmaceuticals, food products, textile products, and engineered products) that should be supported in particular. The sector vision sets targets to be achieved for each industry and provides proposals for policy instruments (initiatives) to promote the development of the respective industry. The manufacturing sector vision at present can be described as a combination of five separate sector development strategies that are intended to contribute individually to the overall objectives of the EMV.

An industrial policy can benefit from taking a more integrated approach, which comes with particular advantages:

(i) An industrial policy provides a common framework for policy measures that address development challenges of the entire manufacturing sector across industries. For Jordan, a cross-sectoral approach is ideal for achieving multiple elements of the manufacturing vision. Cross-sectoral industrial policy can help to address the key challenges for the manufacturing sector identified in the manufacturing vision such as energy and water costs, logistics costs, insufficient productivity, and lack of export proficiency of manufacturers, limited adoption of Industry 4.0, skill gaps, lack of adequate investment flows, low availability of raw materials, slow and complicated bureaucracy, and high taxes.

(ii) With a more integrated approach, the industrial policy can also focus better on creating synergies and linkages between industries and, in doing so, foster the creation and strengthening of national value chains or elements of circular economy across industries.

(iii) In addition to cross-sectoral policy measures, industrial policy also allows for industry-specific interventions that address one or few (strategic) sectors, value chains or even enterprises. Industrial policy provides the framework to strategically identify and promote particular industries or value chains.

(iv) The EMV has identified strategic sectors presumably according to their current relevance, the development of which should be further supported until 2033. However, the purpose of industrial policy is often not just about expanding and upgrading of existing industries but also about transforming the manufacturing sector towards industries that have not yet developed or those that have had little previous significance in the country. Given the relatively long duration of the EMV, the new industrial policy can consider also supporting sub-sectors that have not been identified as strategic but may become a driving force of manufacturing development in the country.

(v) Evidence-based sector selection is of crucial importance. It is important for estimating realistic contributions of particular industries to achieving the policy objectives and, consequently, for justifying resource allocation to these over other industries. The manufacturing vision lacks an explanation of the underlying rational or methodology for the selection of strategic sectors. A sound industrial policy in Jordan would apply a transparent methodology that is based on past performances of the sub-sectors in the country while also considering comparators to identify current and potentially future drivers of manufacturing in Jordan.

The development of an industrial policy in Jordan can help to address the lack of a strategy for the manufacturing sector as stated in the manufacturing vision. The industrial policy can provide a framework for an integrated policy approach that addresses general development challenges of the manufacturing sector and integrates and harmonizes the proposed sector-specific initiatives from the manufacturing vision. It can formulate a transformative vision for the manufacturing sector that also includes sectors that have not been identified as strategic so far. Finally, an evidence-based industrial policy can identify realistic contributions of particular industries and set corresponding targets.



$$MPDI_j = 1 - \frac{\sum(h_{ij} - h_j)}{2}$$