Strategic Product Targeting for Industrial Transformation in Egypt:

A Composite Index Methodology

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Abstract

Export diversification is essential for Egypt's efforts to achieve sustainable growth and structural transformation. This study develops a Trade and Investment Composite Index (TICI) to identify high-potential export products by integrating five dimensions: export competitiveness, export dynamics, investment attractiveness, product complexity, and green complexity. The framework is applied to 1,058 products classified at the HS four-digit level under two alternative weighting scenarios. The proposed framework provides a practical tool for aligning export diversification with Egypt's long-term industrial transformation objectives.

The results show that the highest-ranked opportunities are concentrated in machinery, electrical equipment, advanced materials, and precision instruments—particularly products linked to electric grids, batteries, electric vehicles, renewable energy technologies, and green hydrogen value chains. The findings suggest that future export competitiveness will increasingly depend on technological capabilities and integration into green industries.

ملخص

يُعد تنويع الصادرات ركيزة أساسية لتحقيق النمو المستدام والتحول الهيكلي للاقتصاد المصري. تطوّر هذه الدراسة مؤشرا مركبا للتجارة والاستثمار لتحديد الفرص التصديرية الواعدة، من خلال دمج خمسة أبعاد رئيسية هي: القدرة التنافسية للصادرات، والأداء الديناميكي للصادرات، والجاذبية الاستثمارية، وتعقيد المنتجات، والتعقيد الأخضر. وقد تم تطبيق هذا الإطار على 1,058 منتجا على مستوى النظام المنسق ذي الأربعة أرقام، في ظل سيناريوهين بديلين للأوزان النسبية. ويوفر المؤشر المقترح أداة عملية لمواءمة استراتيجيات تنويع الصادرات مع أهداف مصر طويلة الأجل للتحول الصناعي.

وتشير النتائج إلى أن أعلى الفرص التصديرية ترتيبا تتركز في الآلات والمعدات، والمعدات الكهربائية، والمواد المتقدمة، وأجهزة القياس والتحكم الدقيقة. وتشمل هذه الفرص منتجات مرتبطة بشبكات الكهرباء، والبطاريات، والمركبات الكهربائية، وتقنيات الطاقة المتجددة، وسلاسل قيمة الهيدروجين الأخضر. كما تشير النتائج إلى أن التنافسية التصديرية المستقبلية ستعتمد بدرجة متزايدة على القدرات التكنولوجية والاندماج في الصناعات الخضراء.

1. Introduction

Egypt's economic transformation agenda places a strong emphasis on export growth, industrial upgrading, and private investment mobilization as key drivers of sustainable development. However, limited resources and increasing global uncertainty make it essential to prioritize sectors and products with the highest economic returns and future potential.

Traditional sector selection approaches often focus solely on current performance, overlooking dynamic competitiveness, technological sophistication, and alignment with emerging global trends such as the green transition. This creates a risk of directing investment toward sectors with limited long-term impact on productivity, diversification, and resilience.

Smart targeting is the essential starting point for designing a successful industrial policy. Identifying the strategic sectors is a classic dilemma in industrial policy. Deciding which business activities are strategic is perhaps the most difficult and contested topic in industrial policy. There is a widespread view that scientific targeting of industries is rarely feasible, leading governments to often rely on heuristics or ad hoc choices. Egypt is no exception, for a number of reasons:

- Industrial policy and sectoral support have often been shaped by political priorities, strategic considerations (like food security or energy), and short-term economic pressures rather than purely data-driven calculations.
- For example, large investments in sectors such as construction, real estate, and energy have been prioritized because they deliver visible growth and employment, even if their long-term spillovers are limited.
- At the same time, promising sectors like information technology, renewable energy, and high-value manufacturing have sometimes received less consistent support, reflecting the challenge of systematic targeting.
- Fiscal constraints also mean that misallocation of resources can be costly, reinforcing the risk of "wasting scarce fiscal resources" on strategies that do not yield sustainable development.

While ad hoc support has historically dominated, recent industrial strategies show a move toward the scientific targeting of industries with measurable potential.

Despite the growing body of empirical research on economic diversification in Egypt, existing studies (e.g., Aboud, 2025; National Planning Institute, 2023; Zaki, 2022; Information and Decision Support Center [IDSC], 2021) have primarily focused on sector-specific assessments or relied on a limited set of indicators to identify export diversification opportunities. Moreover, these studies have generally examined export performance, industrial development, or investment promotion strategies in isolation. The implications of the ongoing energy transition for Egypt's diversification prospects have received little attention in the literature. To the best of our knowledge, no previous study has systematically evaluated Egyptian products through a multidimensional framework that simultaneously integrates export competitiveness, export dynamics, investment attractiveness, product complexity, and green complexity at the HS four-digit level. Consequently, an important gap remains in understanding how Egypt can identify and prioritize products that support both economic diversification and the transition toward a greener and more sustainable production structure.

This study responds to this challenge by developing a Trade and Investment Composite Index (TICI) that integrates indicators of competitiveness with measures of investment attractiveness, product complexity, and green capability. Rather than identifying broad sectors, the analysis ranks products according to their potential contribution to structural transformation, thereby providing a more comprehensive and forward-looking framework for identifying products capable of supporting Egypt's structural transformation.

The rationale of this study is therefore to move beyond static analysis and adopt a data-driven, multidimensional framework that captures not only where Egypt performs well today, but also where it can build future competitive advantage. By integrating trade performance, investment attractiveness, export dynamics, complexity, and green potential into one composite index, the approach ensures a more strategic and forward-looking basis for investment decision-making.

This study makes three contributions to the literature. First, it develops a comprehensive Trade and Investment Composite Index (TICI) that integrates export competitiveness, export dynamics, investment attractiveness, economic complexity, and green complexity within a unified framework. Second, it operationalizes the transition from sector-based to product-based industrial targeting by evaluating 1,058 products at the HS four-digit level, which enables more precise policy interventions and improves the operational relevance of industrial strategy. Third, it introduces sustainability considerations into strategic product selection by incorporating Greenplexity measures, thereby aligning industrial policy priorities with the global energy transition and green value chains

The Composite Trade and Investment Opportunity Index identifies a list of top 50 priority products at the HS four-digit level that can serve as the foundation for Egypt's structural transformation toward a more diversified, technology-intensive, and export-oriented economy. These products were selected based on their potential to generate higher value-added, create skilled employment opportunities, attract domestic and foreign investment, and strengthen Egypt's integration into rapidly expanding global value chains. They also align closely with growing domestic demand and accelerating international demand driven by the global energy transition, decarbonization agenda, and the expansion of clean technology industries.

The remainder of the paper is structured as follows. Section 2 provides a review of the related literature. Section 3 describes the data and methodological framework. Section 4 presents and discusses the empirical findings and their policy implications. Section 5 concludes with a summary of the main findings.

2. Literature Review

The role of the state in achieving structural change through an active industrial policy has been one of the central debates in development economics. Initially, the debate focused on whether industrial policy was necessary at all, reflecting the different views of schools of economic thought regarding the relative importance of market failures versus government failures. From the 1990s onward, however, a degree of consensus emerged regarding the need for industrial policy, and the debate shifted toward its nature and scope. In particular, the key question became whether industrial policy should be selective, targeting specific industries, or general and functional, with government intervention limited to improving the overall market environment.

During this period, the neoclassical approach, represented particularly by the World Bank, emphasized “core policies” aimed at creating a market-friendly environment. These included investment in basic education, human capital development, trade liberalization and the promotion of foreign direct investment, and macroeconomic stability. While the neoclassical approach acknowledged certain theoretical justifications for government intervention, it remained opposed to selective industrial intervention. The World Bank recognized that East Asian economies had adopted selective industrial policies but questioned their effectiveness and argued that developing countries could not replicate these experiences because of differences in institutional capacities and the international environment (Chang, 1999).

This position was challenged by the Capability Approach, which emphasized that industrial development depends on firms' ability to build productive and technological capabilities through access to inputs, machinery, skills, finance, technology, and infrastructure. Since these markets are themselves subject to different forms of market failure, general market-oriented policies cannot necessarily address all the constraints facing industrial development. Lall (1995) therefore argued that industrial policy may need to address market failures affecting capability building, while Lall (1996) further noted that differences in technological characteristics and economies across activities imply that market failures may vary between industries, providing a rationale for selective intervention.

More recent literature has moved beyond the traditional debate over whether industrial policy should be selective or general toward the question of how industrial policy can be effectively designed and targeted. The World Bank's Industrial Policy for Development: Approaches in the 21st Century reflects this shift by recognizing industrial policy as a legitimate instrument for development, while emphasizing that its design should take account of government capacity, market size, and fiscal space. Rather than advocating indiscriminate “picking winners,” the report proposes a framework for identifying strategic business activities based on three dimensions: benefits, opportunity, and feasibility. Benefits capture potential positive spillovers and external impacts, including learning-by-doing, diversification, employment, and resilience. Opportunity considers market potential, including the size and growth of global or domestic demand and the degree of international competition. Feasibility assesses the risks associated with a country's evolving comparative advantage, distinguishing between low-risk activities where comparative advantage is already revealed, medium-risk activities that build on technologically adjacent capabilities, and high-risk activities that lack both existing comparative advantage and technological proximity (World Bank, 2026).

Thus, the contemporary literature represents an evolution from the earlier functional-versus-selective debate toward a more pragmatic question of which activities should be targeted, why they should be targeted, and under what conditions intervention is feasible.

In this context, the following section proposes a composite index for identifying and targeting strategic sectors, drawing on the recent literature on industrial policy and the criteria of benefits, opportunity, and feasibility.

3. Methodology & Data

This study develops a multidimensional empirical framework to identify products with the highest potential to contribute to Egypt's export diversification, industrial upgrading, and investment attraction. The empirical analysis is conducted at the HS four-digit product level, covering 1,058 products.

This section presents the methodological framework developed to identify sectors with high potential for investment. The approach is based on constructing a composite index designed to capture the multidimensional factors that influence sectoral investment attractiveness. The index incorporates five key dimensions, each representing a different aspect of sectoral performance and potential. These dimensions are operationalized through a set of selected variables that serve as measurable proxies. The selection of the dimensions and their corresponding variables is guided by theoretical considerations and empirical evidence from the relevant literature.

The following subsections therefore outline the rationale for including each dimension and describe the variables used to represent them within the index.

The rationale behind each dimension considered in the index is as follows:

1. The current status of the Egyptian exports (starting point): The current status of a product is included in the index to capture its existing level of development and competitiveness in the international market. Incorporating the status dimension therefore ensures that the selection of sectors with investment potential is grounded not only in future prospects but also in their present economic contribution and readiness for investment.

2. Attractiveness to investment: Investment plays a central role in industrial transformation by facilitating capital accumulation, technology adoption, and productivity growth. Theories of endogenous growth emphasize that investment contributes not only to physical capital formation but also to knowledge diffusion and innovation.

The *World Investment Report* highlights an increasing concentration of global investment flows in technology-intensive, green, and knowledge-based industries. Consequently, aligning industrial policy priorities with investment trends can enhance the effectiveness of resource allocation and improve competitiveness.

Nevertheless, relatively few industrial targeting frameworks explicitly incorporate investment indicators within product-selection methodologies. Most export diversification studies focus on trade performance while underestimating the critical role of investment dynamics. This limitation provides a strong justification for integrating investment attractiveness into multidimensional targeting frameworks.

This dimension is included in the index to capture sectors that offer profitable opportunities, stable demand, and supportive market conditions for investors. In addition to domestic investment potential, the index also considers the direction of global foreign direct investment (FDI), which reflects international trends in sectoral investment. Sectors attracting a larger share of global FDI are often associated with stronger growth prospects, innovation, and expanding demand. Incorporating both of them in the index helps ensure that the selected sectors are aligned not only with domestic investment opportunities but also with broader global investment dynamics.

3. The dynamics of the Egyptian exports: incorporating this dimension reflects how competitive the Egyptian exports are, and their positioning relative to world demand, in addition to the change in Egypt's comparative advantage.

4. Complexity of the product: The Economic-Complexity framework developed by Hidalgo and Hausmann (2009) represents one of the most influential contributions to contemporary development economics. Economic complexity refers to the productive knowledge embedded within an economy and reflected in the diversity and sophistication of its exports.

Empirical studies consistently demonstrate that countries exporting more complex products experience faster economic growth, greater resilience to external shocks, and stronger diversification outcomes. Product Complexity Indices (PCI) have therefore become widely used indicators for identifying strategic products capable of contributing to long-term economic transformation.

The policy relevance of economic complexity lies in its forward-looking nature. While traditional competitiveness indicators focus on current performance, complexity indicators reveal future opportunities for industrial upgrading and capability accumulation. For developing economies such as Egypt, targeting products with high complexity scores can facilitate movement toward higher-value segments of global production networks.

Accordingly, incorporating product complexity into investment and export targeting frameworks provides a mechanism for aligning short-term competitiveness objectives with long-term structural transformation goals.

5. Greenplexity: The growing importance of climate change mitigation and sustainability transitions has generated renewed interest in green industrial policy. As economies move toward low-carbon development pathways, participation in green value chains is becoming a critical determinant of future competitiveness.

Traditional industrial-policy frameworks rarely consider environmental opportunities when identifying strategic sectors. However, recent studies suggest that green technologies are becoming major sources of innovation, investment, and export growth. Products associated with renewable energy systems, energy efficiency, recycling technologies, battery storage, and green hydrogen are increasingly attracting global investment and policy support.

To capture these opportunities, Mealy and Teytelboym (2022) introduced the concept of Greenplexity. Building upon the economic-complexity theory, Greenplexity measures a country's capability to diversify into products relevant to the global green transition.

The Greenplexity framework argues that countries possess different levels of readiness to participate in emerging green value chains depending on their existing productive capabilities. Thus, countries can identify green products that are both technologically feasible and economically attractive.

For developing economies, Greenplexity offers an important bridge between industrial development and sustainability objectives. By incorporating green capabilities into industrial targeting strategies, governments can simultaneously promote economic growth, export diversification, and environmental sustainability. In that context, it was important to include the green-complexity dimension as well.

To construct the index, the following steps were followed. First, decide upon which variables to represent each dimension and its data source. This is followed by a decision upon the appropriate product classification to use from the acknowledged international classification systems. After calculating each variable and normalizing the results to allow for aggregation, the overall trade-and-investment composite index for each product was calculated. This is followed by developing scenarios to identify potential products for investment, and finally, short-listing the products to determine their investment potential. In what follows is a detailed explanation of each step.

First: Choice of representative indicators for each dimension and identification of their data source

The following table represents the chosen indicators and the sources of data for each one:

Table 1. Indicators and Sources of the Data

DIMENSION	VARIABLES	DATA SOURCE
CURRENT STATUS OF EGYPTIAN EXPORTS	▪ Revealed comparative advantage ▪ Intra-industry trade value and trade balance ▪ Volatility of Egyptian exports measured by the standard deviation	▪ Trade map using 2024 data
DYNAMICS OF EGYPTIAN EXPORTS	▪ Competitiveness analysis ▪ Change in revealed comparative advantage (RCA)	▪ Trade map using 2020-2024 data
ATTRACTIVENESS TO INVESTMENT	▪ Sector's share in total investment for Egypt compared to its share in global investment ▪ Growth of market share in total global investment	▪ CAPMAS Economic Census for the year 2017/2018 (latest available) ▪ World Investment Report for the year 2024

DIMENSION	VARIABLES	DATA SOURCE
COMPLEXITY OF PRODUCT	▪ Complexity product opportunity:	▪ Growth lab, Harvard Atlas of Economic Complexity
GREENPLEXITY	▪ Greenplexity of the product Products are classified into two categories: 1- Products with potential in the green value chains powering the energy transition, given local capabilities; 2- Products without opportunity in the green value chains.	▪ Growth lab, Harvard Atlas of Greenplexity database

Source: Prepared by the authors.

Second: Decide upon the appropriate product classification to use from the acknowledged international classification

There are two main international product classifications that are widely used:

1. The Harmonized Commodity Description and Coding Systems (HS), which is the international classification of traded goods for customs purposes.

2. The International Standard Industrial Classification (ISIC, Revision 4), which is the international reference classification of productive activities and gross capital formation (investment).

Since the approach adopted for drawing the investment map is based on a deep analysis of the value chains of specific products that have export potential, and/or contribute to enhancing the value added and complexity of the local industry, the starting point is to combine the two product classifications so to allow for a comprehensive analysis from both the trade and production sides.

Third: Calculation of different indicators and normalize the results

To standardize the analysis, all indicator results have been recoded as binary data based on the predefined criteria outlined in the table below.

Table 2. Indicators, Score Range and Interpretation

DIMENSION	INDICATOR	VALUE	SCORE RANGE AND INTERPRETATION
CURRENT STATUS OF EGYPTIAN EXPORTS	Revealed comparative advantage (RCA)	1 0	The product has an RCA 1+ Otherwise
	Volatility (standard deviation [SD])	1 0	Standard deviation is lower than the average standard deviation (less volatile) Otherwise
	Trade Indicator	1 0	▪ High potential import substitution and/or export promotion, (IIT<0.5 & Trade Balance (TB) –ve), (IIT>0.55 & TB –ve), (IIT>0.55 & TB +ve) ▪ Otherwise
DYNAMICS OF EGYPTIAN EXPORTS	Competitiveness analysis	1 0	▪ High growth of world demand with increasing Egypt's share ("Rising Star") or low Egypt's share ("missed opportunity") ▪ Otherwise
	Change in revealed comparative advantage (RCA)	1 0	▪ The product demonstrates a positive change in RCA (2015- 2019) ▪ Otherwise
ATTRATIVNESS TO INVESTMET	Sectoral share in total investment for Egypt compared to its share in global investment	1 0	▪ If the share of the sector in total investment in Egypt is greater than its share in global investment ▪ Otherwise
	Growth of market share in total global investment	1 0	▪ If the share of the sector in global investment shows positive growth between 2018-2023 ▪ Otherwise
COMPLEXITY	Complexity opportunity for a product	1 0	▪ The product represents a growth opportunity for diversification and sophistication of the productive know-how (threshold >0.5) ▪ Otherwise
GREENPLEXITY	Greenplexity of the products	1	▪ Products with potential in the green value chains powering the energy transition, given local capabilities

DIMENSION	INDICATOR	VALUE	SCORE RANGE AND INTERPRETATION
		0	▪ Otherwise

Source: Prepared by the authors.

Fourth: Calculation of the overall trade and investment composite index for each product

The overall Trade-and-Investment score represents a multi-dimensional composite index constructed from the five dimensions. It is calculated by utilizing a weighted arithmetic average of standardized variables, namely:

$$CI_i = {}_1\sum^5 w_d Z_{id}$$

where:

- CI_i = composite index for product i
- Z_{id} = standardized score of dimension d for product i
- w_d = weight assigned to dimension d
- $\sum_{d=1}^{5} w_d = 1$

Each dimension is generated from a set of standardized indicators and subsequently aggregated into a composite measure. The model produces a final score within a 0–1 distribution. A score of 1 serves as the benchmark for peak performance, indicating that a product has met every criterion across the measured indicators. Finally, a rank is given to each product according to its score.

Fifth: Developing different scenarios

Two scenarios were developed by assigning different weights to each dimension as follows:

- Baseline scenario: Equal weight is given to all pillars.
- Alternative scenario: Greater weight is given to Dynamics, Complexity, and Greenplexity pillars.

The weights assigned are presented in the following table.

Table 3. Weights for the Two Scenarios

Area of Focus (pillars)	Basic scenario	Alternative Scenario
Attractiveness to investment	20% of total score	12.5% of total score
Greenplexity	20% of total score	25% of total score
Complexity	20% of total score	25% of total score
Dynamics of Egyptian exports	20% of total score	25% of total score
Current status of Egyptian exports	20% of total score	12.5% of total score

Source: Prepared by the authors.

Sixth: Short-listing the products

Prepare a shortlist of potential products for investment and export growth for Egypt. This will be undertaken in two steps:

Step (1): Initial list of sectors, subsectors, and products

Ranking all the products (1058 HS 4 digit) according to the average score for both baseline and alternative scenario

Step (2): Shortlist of sectors, subsectors, and products

Selecting a short list of top 50 products at HS four-digit level, using a threshold average score greater than 0.7, which includes products that achieve highest scores in both scenarios. They are grouped into 14 sectors (HS two-digit level).

4. Empirical Results

The Trade-and-Investment Composite Index (TICI) was calculated for 1,058 products classified at the HS four-digit level. The results of TICI in each scenario reveal substantial heterogeneity in strategic potential across products, confirming that not all export activities contribute equally to Egypt's long-term development objectives.

Table (4) represents the final list of the top 50 products constituting Egypt's strategic product portfolio under both scenarios.

Table 4. Top Fifty Products According to TICI

HS Chapter (2-digit)	Chapter Description	HS code (4	Description	Green Value Chain	Basline	alternative
90	Optical, photographic, cinen	'9026	Instruments and apparatus for measuring or checking	Fuel Cells And Green Hydr	0.8	0.9
	Optical, photographic, cinen	'9027	Instruments and apparatus for physical or chemical a	Electric Vehicles	0.8	0.7
	Optical, photographic, cinen	'9031	Measuring or checking instruments, appliances and n	Electric Vehicles	0.8	0.7
	Optical, photographic, cinen	'9032	Regulating or controlling instruments and apparatus	Fuel Cells And Green Hydr	0.8	0.7
85	Electrical machinery and eq	'8504	Electrical transformers, static converters, e.g. rectifie	Electric Grid	0.9	0.9
	Electrical machinery and eq	'8537	Boards, panels, consoles, desks, cabinets and other b	Electric Grid	0.9	0.9
	Electrical machinery and eq	'8538	Parts suitable for use solely or principally with the ap	Electric Grid	0.9	0.9
	Electrical machinery and eq	'8543	Electrical machines and apparatus, having individual	Electric Vehicles	0.9	0.9
	Electrical machinery and eq	'8503	Parts suitable for use solely or principally with electr	Wind Power	0.8	0.9
	Electrical machinery and eq	'8507	Electric accumulators, incl. separators therefor, whet	Fuel Cells And Green Hydr	0.8	0.9
	Electrical machinery and eq	'8535	Electrical apparatus for switching or protecting electr	Electric Grid	0.8	0.9
	Electrical machinery and eq	'8544	Insulated "incl. enamelled or anodised" wire, cable "	Wind Power	0.8	0.8
	Electrical machinery and eq	'8505	Electromagnets (excl. magnets for medical use); perr	Critical Metals and Minera	0.8	0.7
	Electrical machinery and eq	'8506	Primary cells and primary batteries, electrical; parts t	Batteries	0.8	0.7
	Electrical machinery and eq	'8517	Telephone sets, incl. smartphones and other telepho	Electric Vehicles	0.8	0.7
	Electrical machinery and eq	'8536	Electrical apparatus for switching or protecting electr	Electric Vehicles	0.8	0.7
	Electrical machinery and eq	'8541	Semiconductor devices "e.g. diodes, transistors, sem	Electric Vehicles	0.8	0.7
	Electrical machinery and eq	'8546	Electrical insulators of any material (excl. insulating f	Electric Vehicles	0.8	0.7
	Electrical machinery and eq	'8547	Insulating fittings for electrical machines, appliances	Electric Grid	0.8	0.7
84	Nuclear reactors, boilers, m	'8415	Air conditioning machines comprising a motor-driver	Electric Grid	0.9	0.9
	Nuclear reactors, boilers, m	'8417	Industrial or laboratory furnaces and ovens, non-elec	Critical Metals and Minera	0.9	0.9
	Nuclear reactors, boilers, m	'8421	Centrifuges, incl. centrifugal dryers (excl. those for is	Nuclear Power	0.9	0.9
	Nuclear reactors, boilers, m	'8428	Lifting, handling, loading or unloading machinery, e.	Nuclear Power	0.9	0.9
	Nuclear reactors, boilers, m	'8419	Machinery, plant or laboratory equipment whether o	Nuclear Power	0.8	0.9
	Nuclear reactors, boilers, m	'8418	Refrigerators, freezers and other refrigerating or free	Heat Pumps	0.9	0.8
	Nuclear reactors, boilers, m	'8424	Mechanical appliances, whether or not hand-operate	Nuclear Power	0.8	0.7
	Nuclear reactors, boilers, m	'8471	Automatic data-processing machines and units there	Critical Metals and Minera	0.8	0.7
	Nuclear reactors, boilers, m	'8481	Taps, cocks, valves and similar appliances for pipes, b	Electric Vehicles	0.8	0.7
	Nuclear reactors, boilers, m	'8482	Ball or roller bearings (excl. steel balls of heading 73	Heat Pumps	0.8	0.7
76	Aluminium and articles ther	'7616	Articles of aluminium, n.e.s.	Electric Vehicles	0.8	0.9
	Aluminium and articles ther	'7601	Unwrought aluminium	Solar Power	0.7	0.8
	Aluminium and articles ther	'7604	Bars, rods and profiles, of aluminium, n.e.s.	Electric Vehicles	0.7	0.8
74	Copper and articles thereof	'7408	Copper wire (excl. surgical sutures, stranded wire, ca	Electric Grid	0.8	0.8
	Copper and articles thereof	'7412	Copper tube or pipe fittings "e.g., couplings, elbows	Heat Pumps	0.8	0.7
73	Articles of iron or steel	'7318	Screws, bolts, nuts, coach screws, screw hooks, rivet	Fuel Cells And Green Hydr	0.8	0.9
	Articles of iron or steel	'7308	Structures and parts of structures "e.g., bridges and b	Nuclear Power	0.8	0.8
	Articles of iron or steel	'7307	Tube or pipe fittings "e.g. couplings, elbows, sleeves	Nuclear Power	0.8	0.7
	Articles of iron or steel	'7320	Springs and leaves for springs, of iron or steel (excl. (	Electric Vehicles	0.8	0.7
	Articles of iron or steel	'7325	Articles of iron or steel, cast, n.e.s.	Electric Vehicles	0.8	0.7
72	Iron and steel	'7218	Stainless steel in ingots or other primary forms (excl	Fuel Cells And Green Hydr	0.8	0.9
	Iron and steel	'7208	Flat-rolled products of iron or non-alloy steel, of a w	Electric Grid	0.8	0.8
	Iron and steel	'7220	Flat-rolled products of stainless steel, of a width of <	Fuel Cells And Green Hydr	0.8	0.7
70	Glass and glassware	'7019	Glass fibres, incl. glass wool, and articles thereof (ex	Electric Grid	0.8	0.8
69	Ceramic products	'6909	Ceramic wares for laboratory, chemical or other tech	Electric Vehicles	0.8	0.7
68	Articles of stone, plaster, ce	'6815	Articles of stone or of other mineral substances, incl	Wind Power	0.8	0.7
54	Man-made filaments; strip a	'5407	Woven fabrics of synthetic filament yarn, incl. mono	Electric Vehicles	0.8	0.8
40	Rubber and articles thereof	'4005	Compounded rubber, unvulcanised, in primary form	Fuel Cells And Green Hydr	0.8	0.7
	Rubber and articles thereof	'4009	Tubes, pipes and hoses, of vulcanised rubber other t	Electric Vehicles	0.8	0.7
39	Plastics and articles thereof	'3921	Plates, sheets, film, foil and strip, of plastics, reinfor	Electric Vehicles	0.9	0.8
38	Miscellaneous chemical pro	'3801	Artificial graphite; colloidal or semi-colloidal graphit	Batteries	0.8	0.9
	Miscellaneous chemical pro	'3816	Refractory cements, mortars, concretes and similar c	Wind Power	0.8	0.7

Source: Authors' calculations.

The results indicate that Egypt's future industrial opportunities, as identified by the multidimensional framework, are concentrated in industries characterized by higher technological intensity, stronger knowledge requirements, and deeper integration into global green value chains. Rather than being concentrated in traditional labor-intensive or resource-based products, the majority of opportunities are found in machinery (HS 84), electrical equipment (HS 85), fabricated metal products (HS 73), basic metals (HS 72 and HS 76), and precision instruments (HS 90).

A striking feature of the results is that the identified products do not represent isolated opportunities. Instead, they form a coherent industrial ecosystem linked to the global energy transition. The top-ranked products can be grouped into six interconnected value chains: electric grid infrastructure, electric vehicles, batteries and energy storage, green hydrogen and fuel cells, renewable energy equipment, heat pumps and energy-efficient technologies.

This clustering is highly significant because sharing common technologies, skills, suppliers, engineering capabilities, and infrastructure requirements maximizes the benefits of industrial upgrading in one product category and generates positive externalities for several related industries.

For example, capabilities developed in transformers (HS 8504), switchgear (HS 8535), control panels (HS 8537), insulated cables (HS 8544), and electrical fittings (HS 8547) can serve both renewable energy and electric vehicle industries. This technological overlap increases the probability of cumulative capability building and reduces the risks associated with industrial policy targeting. This suggests that capability accumulation remains a critical driver of industrial transformation in Egypt.

Several engineering, pharmaceutical, electrical-equipment, and advanced-manufacturing products achieved high rankings despite currently modest export values. This finding highlights the importance of adopting forward-looking industrial policies that consider future capabilities rather than current export volumes alone.

Another major finding concerns the growing strategic importance of Greenplexity. Products linked to renewable energy technologies, environmental equipment, industrial electrification, machinery, electrical components, and green manufacturing supply chains systematically achieved higher rankings under the future-oriented scenario.

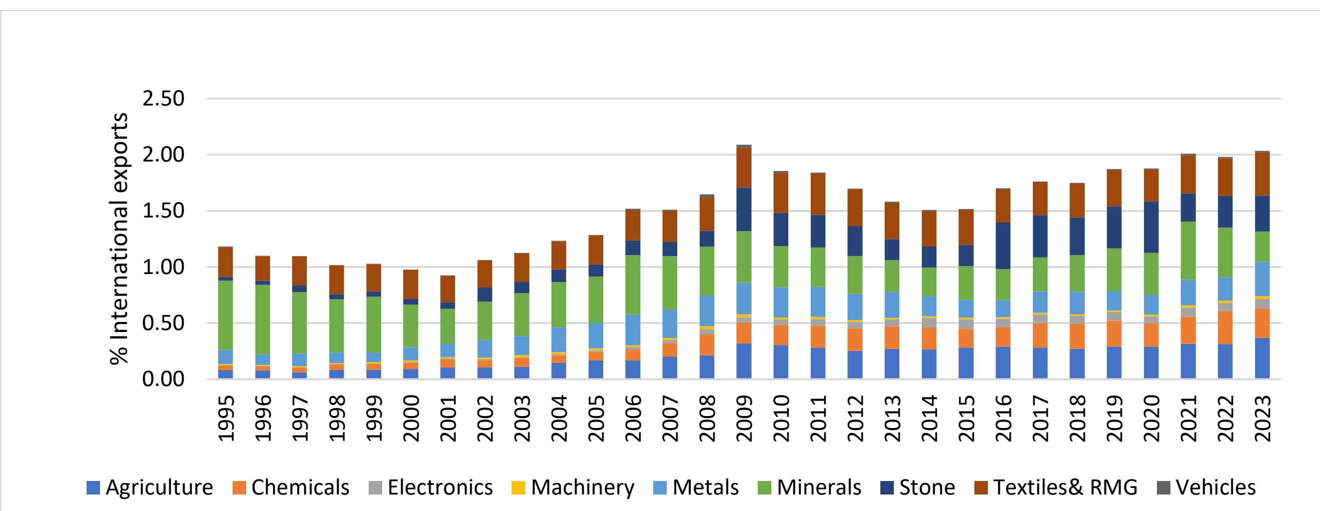
The results suggest that Egypt possesses productive capabilities that could facilitate greater participation in global green value chains.

This finding is particularly significant because global investment flows are increasingly directed toward low-carbon technologies and sustainable industrial systems. Consequently, products connected to renewable energy, energy efficiency, battery systems, industrial automation, recycling technologies, and green infrastructure represent important opportunities for future export expansion and industrial upgrading.

However, the analysis demonstrates that reliance on comparative advantage alone may lead to suboptimal industrial priorities. Several products exhibiting strong RCA scores received relatively lower composite rankings because of limited complexity, or lack of relevance to future green value chains.

The absence of certain sectors from the top-50 list, such as food processing and ready-made garments, should not be interpreted as a reflection of their weak importance. On the contrary, these sectors remain core pillars of Egypt's current export structure (Figure 1), where the country enjoys a strong comparative advantage. Furthermore, they still possess significant potential for expansion and can play a critical role in achieving Egypt's target of USD 100 billion in exports.

Figure 1. Egypt's Current Export Structure (1995- 2023)



Source: Authors' calculations based on The Atlas of Economic Complexity (harvard.edu).

5. Conclusion and Policy Implications

This study develops a novel Trade-and-Investment Composite Index (TICI) to identify strategic products capable of supporting Egypt's long-term industrial transformation, export diversification, and investment attraction. By integrating five dimensions, namely current competitiveness, export dynamics, investment attractiveness, economic complexity, and green complexity, the framework provides a multidimensional approach to industrial targeting that extends beyond conventional methods based solely on comparative advantage. The proposed framework bridges competitiveness analysis, investment promotion, capability accumulation, and sustainability objectives within a single decision-making tool

The empirical results reveal that the products with the greatest developmental potential are not necessarily those with the strongest current export performance. Instead, the most promising opportunities emerge from products that integrate all five dimensions, particularly machinery (HS 84), electrical equipment (HS 85), fabricated metal products (HS 73), basic metals (HS 72 and 76), and precision instruments (HS 90).

The results have important implications for industrial policy design in Egypt. The first implication concerns the unit of industrial targeting. Rather than prioritizing broad sectors such as automotive, pharmaceuticals, or electronics, policymakers should focus on specific products and value-chain segments exhibiting the highest strategic scores. Sector-level policies frequently conceal substantial variation among products. Some products within the same sector may possess significant upgrading potential while others offer limited opportunities for productivity growth. Therefore, future industrial policy should move toward product-based targeting that identifies precise investment opportunities and capability-development pathways.

Secondly, the analysis indicates that products with higher complexity levels generate the strongest long-term benefits. Consequently, industrial policy should prioritize activities capable of enhancing Egypt's productive knowledge base such as advanced manufacturing, engineering industries, industrial machinery, electrical equipment, medical technologies, and knowledge-intensive production systems. These activities create stronger technological spillovers and facilitate movement into increasingly sophisticated production networks.

A third implication relates to sustainability. The results indicate that green value chains represent an important source of future industrial opportunities. Egypt's industrial development strategy should therefore place greater emphasis on solar energy equipment, electric mobility components, power electronics, green hydrogen equipment, water-efficiency technologies, industrial recycling systems, and energy-storage technologies. Supporting these industries would simultaneously advance industrial competitiveness, export diversification, and environmental sustainability objectives.

Finally, the findings also suggest that investment-promotion efforts should become more selective. Rather than adopting broad investment incentives across entire sectors, policymakers should direct incentives toward products satisfying multiple strategic criteria simultaneously. This includes targeted support through industrial clusters, export financing, technology-transfer programs, innovation grants, supplier-development initiatives, and specialized industrial zones. Such an approach would improve the efficiency of public spending and maximize developmental returns on investment.

Accordingly, industrial policy should evolve from a framework centered on sector selection to one focused on identifying high-complexity, high-opportunity products that can accelerate structural transformation.

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