# African Industrial Hubs and Industrialisation: Diversity, Unevenness, and Strategic Approach

**Arkebe Oqubay**

SARChI Industrial Development Working Paper Series

WP 2022-10

June 2022

science & innovation
Department:
Science and Innovation
REPUBLIC OF SOUTH AFRICA

National Research Foundation

SARChI
SARChI Chair:
Industrial Development

UNIVERSITY OF JOHANNESBURG

# African Industrial Hubs and Industrialisation: Diversity, Unevenness, and Strategic Approach

DSI/NRF SOUTH AFRICAN RESEARCH CHAIR IN INDUSTRIAL DEVELOPMENT

**Arkebe Oqubay**

SARChI Industrial Development Working Paper Series

WP 2022-10

ISBN 978-0-6398362-1-8

June 2022

## About the South African Research Chair in Industrial Development (SARChI-ID)

The DSI/NRF South African Research Chair in Industrial Development conducts research, builds capacity and undertakes public and policy engagement in the field of industrial development. Activities focus on research projects; training and supervision of graduate students; hosting postdoctoral fellows and research visitors; and various projects, often in conjunction with partners, such as conferences, workshops, seminars, training courses, and public and policy engagements. SARChI Industrial Development is hosted at the University of Johannesburg, where it operates as a centre located in the College of Business and Economics.

## Funding acknowledgement

The South African Research Chairs Initiative (SARChI) was established in 2006 by the then Department of Science and Technology (DST), now known as the Department of Science and Innovation (DSI), and the National Research Foundation (NRF). The Chairs are designed to attract and retain excellence in research and innovation at South African public universities. The funding support of the DSI and the NRF through Grant Number 98627 and Grant Number 110691 for the South African Research Chair in Industrial Development has made this working paper series possible.

## Recommended citation

Oqubay, A. (2022). African Industrial Hubs and Industrialisation: Diversity, Unevenness, and Strategic Approach. SARChI Industrial Development Working Paper Series WP 2022-10. SARChI Industrial Development, University of Johannesburg.

## Disclaimer

The Working Paper series is intended to stimulate policy debate. Working papers express the views of their respective authors and not necessarily those of the South African Research Chair in Industrial Development (SARChI-ID), the University of Johannesburg (UJ), the Department of Science and Innovation (DSI) or the National Research Foundation (NRF).

Working Papers can be downloaded from https://www.uj.ac.za/faculties/college-of-business-and-economics/schools/school-of-management/south-african-research-chair-in-industrial-development/working-paper-series/ in PDF (Adobe Acrobat) format.

## Abstract

Economic agglomeration and industrial clusters have always been part of industrialisation and economic development. Since the 1960s, industrial hubs have proliferated in Asia, driven by policies to foster economic catch-up and structural transformation. Industrial hubs are relatively new to Africa, but continue to attract attention from policymakers and researchers. However, empirical studies on African industrial hubs have been inadequate and, to date, have had only a limited influence on policymaking. Contrary to the accepted wisdom, underperforming African industrial hubs offer an opportunity for policy learning from successes and failures. This paper aims to fill the existing knowledge gap from a policymaking perspective, and has three objectives. First, to demonstrate the diversity, the uneven and mixed outcomes, and the evolving nature of African industrial hubs. Second, to provide insights and policymaking lessons through a comparative analysis of four diverse cases, namely Mauritius, the China–Africa economic and trade cooperation zones, Morocco's Tanger Med Complex, and Ethiopia's recent experiment with industrial hubs. Third, it shows that synergising industrialisation requires a strategic approach, integrating the state's productive role and executive excellence with the broader industrial policy framework.

**Keywords**: Industrial hubs, industrial policy, economic transformation, industrialisation, industrial ecosystem, export-processing zones, special economic zones, industrial parks, the state, private sector.

**JEL codes**: O14, O25, O29, O38, O55, F68

## About the Author

**Professor Arkebe Oqubay** is a Senior Minister, a Professor of Practice at SOAS University of London and at the University of Johannesburg, and an ODI Distinguished Fellow. He has been at the centre of policymaking in Ethiopia for over 30 years. He was also the sole African candidate for the post of UNIDO Director General in 2021. His publications with the Oxford University Press include *Made in Africa* (2015); *How Nations Learn* (2019, with Ohno); *African Economic Development* (2020, with Cramer and Sender); *The Oxford Handbook of Industrial Policy* (2020, with Cramer, Chang and Kozul-Wright); *The Oxford Handbook of Industrial Hubs and Economic Development* (2020, with Lin); and *The Oxford Handbook of the South African Economy* (2021, with Tregenna and Valodia).

## Acknowledgements

The author is grateful to Christopher Cramer, Prof Ramola Ramtohul, Dr Tesfachew Taferre, Dr Karim El Aynoui and the Policy Centre for the New South, Dr James Zhan (Editor-in-Chief) and the Deputy Editors of the TNC journal for their constructive comments. The author thanks Professor Fiona Tregenna and her team, Dr Nicola King and Ms Koketso Manyane-

Dlangamandla, for supporting this paper. The author thanks Nigisty Gebrechristos, and Samuel and Binyam Arkebe, for their input and continued support.

Support for this research was received under the project, 'Community of Practice in Industrialisation and Innovation' (grant number 110691), hosted by the DSI/NRF South African Research Chair in Industrial Development (grant number 98627), University of Johannesburg.

## Table of Contents



## List of Tables

## 1. Introduction

Economic transformation and industrialisation have attracted the focus of African policymakers in recent years. The popularity of industrial hubs or special economic zones has increased, but with inflated expectations based on inadequate knowledge of what hubs can deliver. Existing literature on African industrial hubs is inadequate. What does exist invalidates the mixed outcomes of Africa's experiences with industrial hubs and is highly dominated by standard prescriptions and uniform treatment. A productive approach would focus on policy learning to extract positive and negative lessons and assist Africa's industrialisation. Experiences elsewhere, such as newly industrialising East Asian economies, show that there is no shortcut to building successful industrial hubs, and the process requires a complex policy design and execution.[1]

Research on African industrial hubs has been inadequate and lacks empirical evidence to show their diversity and dynamics. This paper aims to fill the gap in empirical evidence and emphasise policymaking perspectives and learning. The paper has three objectives. First, to demonstrate the diversity, the uneven and mixed outcomes, and the evolving nature of African industrial hubs. Second, to provide insights and policymaking lessons through a comparative analysis based on four diverse cases: Mauritius, the China–Africa economic and trade cooperation zones, Morocco and Ethiopia. Third, it shows that synergising industrialisation requires a strategic approach, integrating the state's productive role and executive excellence with the broader industrial policy framework.

This paper aims to provide an empirical perspective on African industrial hubs to provide policy learning and lessons to policymakers and policy researchers.[2] The development of industrial hubs has attracted increasing interest among policymakers. Two broad perspectives dominate the view on industrial hubs: the conventional view, which sees the benefits of industrial hubs generated by economic liberalisation and openness to the global economy; and a perspective that views the fundamental roles of industrial hubs as development incubators to harness structural transformation and economic catch-up, integrated with the broader industrial policy framework.[3] In many instances, the value of industrial hubs focuses on immediate, direct benefits, namely the attraction of foreign direct investment, jobs, and

[1] The new industrial hubs are a post-WWII phenomenon that evolved in the 1960s. In 2019, there were about 6 000 industrial hubs worldwide, concentrated in Asia (UNCTAD 2019; UNESCO 2018).

[2] The paper uses 'industrial hubs' as a generic concept to embrace various types and notions that are context specific and linked to national settings, while flexibly using the other context-specific terms, such as export-processing zones and special economic zones.

[3] Industrial policy underpins structural transformation and catch-up. Its prime focus is on productive transformation and technological capabilities in sectors and activities that maximise dynamic efficiency and build new competitive advantages (Amsden 1989; Ocampo 2020). Best (2018) highlights that industrial policy is production-centric and based on the 'capability triad', comprising production systems, business governance and skill formation, and their connectedness.

export earnings. The widespread expectation that industrial hubs are a 'magic bullet', the sole driver of economic catch-up and structural transformation of the late industrialising economies, is a misconception.

The methodologies applied in this paper are the following. First, the study will draw primarily from the author's primary research on the experiences of industrial hubs in Africa (Mauritius, Nigeria, Morocco and Ethiopia) and East Asia (including Singapore, China and Vietnam) from 2014 to 2021. Second, the paper will rely on the author's direct policymaking experience in designing and implementing industrial policy and spearheading the strategic approach to industrial hubs in Ethiopia. This opportunity offers a first-hand understanding of African policymakers' fundamental challenges. Third, the author will take perspectives from the global research on industrial hubs that led to *The Oxford Handbook of Industrial Hubs and Economic Development* (Oqubay and Lin 2020), presenting theoretical and empirical perspectives on regions worldwide.

The author uses a comparative case study based on four carefully selected experiences that allow comparative perspectives and policy learning, representing diverse contexts and exhibiting unevenness and mixed outcomes over the period 1970 to 2020:

- Mauritius, which pioneered export-processing zones in 1970 and has implemented a variety of industrial hubs over 50 years;
- Special economic zones were initiated within the China–Africa cooperation framework under the FOCAC platform in the 2000s and 2010s, and popularised based on the Chinese experience of industrial hubs;
- Morocco's industrial hubs, specifically the Tanger Med Industrial Complex, were developed in the 2000s and 2010s and exhibit a novel approach to industrial hubs, the enormous scale of which has been unique in its strategic significance; and
- Ethiopia, a newcomer to industrial hubs, introduced a policy in the mid-2010s and relied on the learning and experiments of a new generation of industrial parks to support industrialisation.

This paper consists of seven sections. Following the introduction, the second section presents conceptual insights and the global context of African industrial hubs. The third section reviews the five decades-long experience of the most effective Mauritian export-processing zone and other industrial hubs, and their synergy with the country's economic diversification and export-led industrialisation strategy. The fourth section discusses the mixed outcomes of the Chinese economic and trade cooperation zones introduced in multiple African countries post-2000, where the inadequate industrial development strategy and lack of political commitment became a significant impediment. The fifth section focuses on Morocco's strategic approach to industrial hubs, which exemplify the continent's most significant scale and scope. The sixth section discusses Ethiopia's journey in engaging with industrial hubs and policy learning to develop a new generation of industrial hubs. The final, concluding section

presents a synthesis of policy lessons and insights drawn from the comparative analysis of these diverse experiences.

## 2. Empirical and Conceptual Foundations of Industrial Hubs

### 2.1 Conceptual foundations of industrial hubs

The conceptual foundations of industrial hubs and external economies can be traced to the late 19th century and Alfred Marshall's pioneering work, *Principles of Economics* (1890), reflecting his observations of industrial districts during the industrial revolution in England. Prior to this was Adam Smith's ground-breaking notion that *specialisation* and the *division of labour* are central to firms' internal economies of scale and productivity.[4] External economies of scale comprising Marshallian *localisation economies* relate to the specific industry, driven by the pool of skilled labour, intermediate inputs and services, and technological knowledge spillovers.

Ohlin (1933) focused on *urbanisation economies* involving multiple industries and facilitating innovation and creativity. Jacobs (1969) further enriched the concept of "productive cities" as critical drivers of innovation and new ideas, and manufacturing as the engine of economic growth, showing the nexus and interconnectedness between industrialisation and urbanisation. The study by Porter (1990) enriched the empirical evidence of variations in industrial clusters and drivers of nations' competitive advantage through advancing cooperation and competition among firms and the comparative advantages of nations. Recent literature has emphasised collective efficiency, support and knowledge networks, and openness as critical to industrial clusters (Breschi and Malerba 2005, among others). Best (2001, 2020) highlights those cluster growth dynamics that comprise the specialisation and speciation dynamics of industrial hubs, the internal dynamics of entrepreneurial firms, the open-systems dynamics of inter-firm networks, and the technological diversification of new firms.[5]

Industrial hubs represent the co-location of firms on a related sectoral or geographic basis, evolving organically or actively induced by policy interventions. According to Oqubay and Lin (2020: 6), the notion of industrial hubs is "a generic expression of economic agglomeration and industrial clusters of economic activities that have evolved since the industrial revolution resulting in shrinking transaction costs, the external economy of scale, learning and innovation, and linkages in the development of industrialisation and capitalism". Oqubay and Lin (2020: 30) offer a functional definition to capture the various contexts and typologies of industrial clusters: "Firms' industrial and spatial agglomeration in the same or related

[4] See Smith ([1776] 1976: 47).
[5] See also Saxenian (1996, 2020) on Silicon Valley's pioneering innovation and high-tech hubs. See Garofoli (2020) on industrial districts and Kuchiki (2020) on the flow-chart approach to industrial hubs.

industries, where various support institutions and stakeholders (firms, institutions, and government) interact, cooperate and compete for mutual gains in productivity, linkage effects, and innovation, and develop their competitive positioning."

A structural transformation perspective focuses on "permanent and irreversible" shifts. It values manufacturing as the engine of growth and structural change, and the strategic role of exports as a driver of international learning and sustainable response to balance-of-payments constraints (Kaldor 1967; Pasinetti 1981; Thirlwall 2013). Ocampo (2020: 63) highlights that "structural change is at the heart of a dynamic process of economic development, and that active industrial (production-sector development) policies are at the heart of an appropriate development strategy", making the dynamics of production structure (such as innovations and linkages and complementarities) cardinal.

A structural transformation perspective regards manufacturing as the engine of structural change, coupled with a perspective that exports are critical to international learning and increasing returns to scale (Cramer and Tregenna 2020; Ocampo 2020; Young 1928). Hence, the purpose of industrial hubs is, first and foremost, to synergise industrialisation and incubate technological capability. At the deepest level, industrial hubs are institutional innovations that enable building on latecomer advantages to catch up, and stimulate inducements and tensions activated by unbalanced growth, as was evident in the newly industrialising East Asian economies in the post-1960 era.[6]

Ensuring industrial hubs as development incubators would necessitate integrating them into the broader industrial policy framework to generate long-term and strategic benefits.[7] This would align with targeted strategic sectors and the most productive activities, integrating all policy instruments to build productive capacity and industrial transformation, and thus generating dynamic comparative advantages. Furthermore, building a dynamic industrial clustering and maximising positive spillovers means that industrial hubs synergise urban systems and urbanisation, national infrastructure development, education and research institutions, and environmental sustainability. Constant adaptation to evolving external environments, national contexts and industrial hubs' life cycles is essential. Stimulating cooperation and competition is central to invigorating economic agglomeration and go hand in hand with stimulating linkage effects and the learning ecosystem.

[6] See Gerschenkron (1962) on institutional innovations and latecomer advantages, and Hirschman (1958) on the strategy of inducing development through linkage effects and unbalanced growth.
[7] See Amsden (1989, 2007) and Best (2018).

## 2.2 Industrial Hubs in a Global Context

The new types of industrial hubs were a phenomenon that arose in the 1960s and became dominant as policy institutions after the 1980s.[8] According to FIAS (2008), there were 3 500 industrial hubs in 2008, which had doubled to 6 000 worldwide by 2019. Approximately 534 of these were science and technology parks, which are highly concentrated in Asia (UNCTAD 2019; UNESCO 2018). The highest concentration of industrial hubs is in Asia, accounting for over 65 per cent of exports and employment. In contrast, there were 216 industrial hubs in Africa, making a modest contribution to employment and exports (UNCTAD 2020). While it is noteworthy that empirical data on industrial hubs is limited in both coverage and consistency, some insights into the genealogy of industrial hubs over the last six decades can still be gleaned.

First, industrial hubs experienced massive growth after the 1980s, showing a phenomenal expansion from being found in a mere 29 countries, to 147 countries in 2019. Between 2008 and 2019, industrial hubs doubled from about 3 500 to 6 000 (FIAS 2008; UNCTAD 2019). According to UNCTAD, industrial hubs increased from 79 (in 29 countries) to 176 (in 47 countries) from 1975 to 1986. However, the number surged to 845 in 1997 and 3 500 in 2008, a twenty-fold growth within two decades. In 2018, the total reached 6 000 industrial hubs, while 474 were under development and a further 507 new industrial hubs were being planned. Developing countries have propelled the growth in industrial hubs, accounting for over 89 per cent of those being planned.

The second feature is the uneven distribution of industrial hubs and their developmental outcomes globally. In regional terms, Asia has been the prime driver, accounting for over 4 000 industrial hubs, or 75 per cent of the total. Given its demographic magnitude and number of countries, Africa has been a marginal player, accounting for only four per cent of the total number.

Third, industrial hubs and their economic performance differ considerably, with the significant dynamic contribution from Asia and limited synergy in Africa. For instance, a third of all industrial hubs in Asia are specialised industrial and innovation hubs, while these account for only 10 per cent of African hubs (see Table 1). This variation is magnified when

[8] The various terms used for industrial hubs are policy specific and have legal interpretation; using them as generic terms adds to the confusion around the notion. *Industrial districts* and *industrial estates* have been widely used to describe industrial clusters in England, and post-Fordist flexible production systems and industrial clusters of small and medium firms in Italy in the 1980s and 1990s (Garofoli 2020). Other examples include the *export-processing zones* (EPZs) in Taiwan (China) and Malaysia; the *special economic zones* (SEZs) in China; the *industrial complexes* in South Korea; *industrial parks* in Singapore; and *industrial zones* or *economic zones* in Vietnam and the Philippines. *Special economic zones*, used by some international organisations such as the World Bank and UNCTAD, is not a generic term; its origin can be traced to China's 'Opening Up and Reform', and it was used to refer to China's specific context after 1979 (FIAS 2008; Oqubay and Lin 2020; UNCTAD 2019). More specific terms (such as *technology* or *innovation parks*) refer to specific types of industrial hubs.

employment performance, exports, productive capacity, productivity gains and dynamic technological capability are considered. For instance, Africa's industrial hubs have generated about one million jobs, compared to over 50 million in Asia. This evidence suggests the significant potential of industrial hubs and the corresponding immense challenges of promoting industrialisation in Africa.

**Table 1: Industrial Hubs in a Global Context – Factsheet (1970 to 2020)**

| (1) Historical evolution of industrial hubs (1975–2019) | | | | | | |
|---|---|---|---|---|---|---|
| | 1975 | 1986 | 1997 | 2006 | 2014 | 2018 |
| Industrial hubs – Global | 79 | 176 | 845 | 3 500 | 4 300 | 5 400 |
| Countries | 29 | 47 | 93 | 130 | NA | 147 |
| (2) Global distribution of industrial hubs (2019) | | | | | | |
| | Total * | Under development | Share (%) | Planned hubs | | |
| Global | 5 383 | 474 | 100 | 507 | | |
| Developed economies | 374 | 5 | 7 | - | | |
| Developing economies | 4 772 | 451 | 89 | 502 | | |
| Transition economies | 237 | 18 | 4 | 5 | | |
| Asia | 4 046 | 371 | 75 | 419 | | |
| Latin America and the Caribbean | 486 | 28 | 9 | 24 | | |
| Africa | 237 | 51 | 4 | 53 | | |
| LDCs | 173 | 54 | 3 | 140 | | |
| (3) Typologies of industrial hubs (2019) | | | | | | |
| | Multi-activity (%) | Specialised (%) | Logistics (%) | Innovation (%) | | |
| Global | 62 | 24 | 8 | 5 | | |
| Africa | 89 | 10 | 1 | 0 | | |
| Asia | 65 | 26 | 2 | 7 | | |

Source: UNCTAD (2019); Zhan et al. (2020: 493–494). * The total number includes industrial hubs under development in 2018, but not those being planned.

## 3. African Industrialisation and Industrial Hubs

### 3.1 A Genesis of African Industrialisation: An Overview

Africa's aspiration to achieve industrialisation and associated policy experiences comprised three broad development stages. The early stage, in the 1960s and 1970s, represented the continent's journey of initial economic growth in the aftermath of colonial rule. Many African governments believed that political independence was incomplete without economic independence, and that industrialisation (including heavy industry) was essential for economic development. African leaders emphasised self-reliance and state-led development, and the broader use of development plans was essential. The economic development paradigm in the 1950s and 1960s was favourable for such a development perspective. While sustained industrialisation was unattainable, many African countries recorded modest economic growth. However, the reality was much more complex and uneven across countries.

Some African countries implemented import substitution industrialisation (ISI) inadequately because of politics and were not able to accumulate institutional capacity fast enough to successfully implement the state-led industrial development strategy, which resulted in enormous external debt. The pressures of international financial institutions (IFIs) led to dictated structural adjustment programmes. Naturally, the oil crisis in the late 1970s aggravated the crisis. The industrialisation programme implemented by the newly independent countries relied heavily on imposing massive protective tariffs and establishing heavily protected import-substituting industries. Nonetheless, the structural adjustment did not generate growth or rapid development.

The second stage, covering the 1980s and 1990s, was a period of sluggish growth; the industrialisation path was not sustained and fell short of delivering on expectations. The neoliberal paradigm gained momentum with the rising ideological and policy influence of the Washington Consensus, which dismantled industrial policy and state apparatus and privatised public enterprises in most African countries. Not surprisingly, the liberalisation wave did not deliver on its promises and it was evident that this path was a dead end, resulting in a search for alternatives to bring high growth and economic transformation.

In the third stage, from the 2000s to the 2010s, the rapid growth in the 2000s was unsustainable, with the collapse of commodity prices and a significant drop in demand for commodities worldwide, including from China and other emerging economies. However, Africa's relatively faster growth rate was inadequate compared to that of Asia, and the growth episode was too short. During the Covid-19 crisis, it became evident that economic diversification was essential and that industrial capacity and industrial policy matter.

During these stages, and across these different 'periods' and dominant policy environments, African governments introduced and expanded industrial hubs, with mixed outcomes. For instance, export-processing zones were popularised in the early 1970s. Mauritius introduced the first export-processing zones in 1970, similarly to those in Senegal and Liberia, which were unsuccessful. In the 1980s and 1990s, more African countries built export-processing zones and free zones (such as Nigeria, Kenya and Uganda), although these were isolated initiatives that failed to stimulate industrialisation and achieve economic diversification. The building of EPZs was often associated as a vehicle for economic liberalisation of African countries. In the 2000s and 2010s, many governments expanded special economic zones, but lacked a deep commitment to the industrialisation path and did not pursue active industrial policies to drive structural change. Given the multiple factors and contexts, the experience at these various industrial hubs has been diverse, with mixed outcomes.

Many African governments have acknowledged the value of economic diversification and the significance of industrialisation, despite the slow progress and lack of breakthroughs. The conversation on Africa's industrialisation and economic transformation has been gaining traction in recent years, and the importance of the industrial policy debate is gradually being

acknowledged. Influenced by the Asian experience, particularly China's industrialisation, many African policymakers have visited Chinese special economic zones since 2000.[9]

Nevertheless, there are highly exaggerated expectations of the roles of special economic zones in industrialisation, often viewed in isolation from the industrial policy framework and lacking adequate knowledge of industrial hubs. The lack of clarity on industrial hubs begins with the inconsistent application of the term – from export-processing zones and free zones to special economic zones and industrial parks. Furthermore, there are significant variations in the interpretations of industrial hubs, and the current literature on industrial hubs has considerable gaps, particularly in terms of empirical evidence for African industrial hubs.

## 3.2 The Genealogy of African Industrial Hubs

Despite their potential contributions to accelerating industrialisation, upgrading technological capability and synergising catch-up, industrial hubs in Africa have played limited roles. The government policies of various African countries lack a comprehensive and strategic perspective on the topic. Policy experiences and outcomes have been diverse and uneven. Despite the paucity of existing research on Africa's industrial hubs and their synergy with industrialisation, it is possible to draw broad conclusions and policy lessons.

Mauritius built Africa's first export-processing zone to promote export-led industrialisation in 1970, followed by Senegal and Liberia in the 1970s, increasing the total to 20 industrial hubs by the 1990s. The significant growth occurred after the 2000s, reaching 180 industrial hubs by 2008.[10] By 2019, the total number had reached 237 industrial hubs on the entire continent, including those under development, with 50 newly planned industrial hubs. The data on these African industrial hubs is incomplete, with inadequate evidence of their dynamics and performance, and few standard features are evident. The review of industrial hubs is likely to have significant limitations, given the lack of consistent and reliable evidence and an inadequate systematic database of international or regional institutions.[11]

First, there is significant disparity in terms of geographic coverage. Four countries (Kenya, Nigeria, Egypt and Ethiopia) account for the bulk of industrial hubs on the continent, followed by some 25 countries that have developed a limited number of industrial hubs (UNCTAD, 2019). In terms of ownership, public and private industrial hubs account for 43 and 41 per cent, respectively.

[9] Various visits to Shenzhen and other special economic zones have been undertaken by delegations from Ethiopia, Nigeria, Egypt and South Africa.
[10] See Oxford Business Group and Africa Economic Zones Organization ([AEZO] 2021); Farole (2011); FIAS (2008); Stein (2012); Zeng (2020); Zhan, Casella and Bolwijn (2020).
[11] UNCTAD (2019, 2021b, 2021c, 2021d) has conducted extensive research on industrial hubs.

Second, the economic performance of industrial hubs diverges depending on the size, scale and sector. The number of industrial hubs, taken in isolation, does not convey much meaning about their size, market orientation and performance. What ultimately matters is not the number of industrial hubs, but their scale and performance level and their role in the broader economy. For instance, Morocco's Tanger Med Complex, though a single industrial hub, accounts for the bulk of Morocco's exports (US$6 billion in 2019) and has generated over 80 000 jobs; the contributions of many industrial hubs, in contrast, remain too small. Hawassa Industrial Park in Ethiopia, which became operational in 2017, had generated 35 000 manufacturing jobs by 2019.

Third, Africa's industrial hubs show a low level of industrial specialisation and economy of scale. Close to 90 per cent of African industrial hubs are generic, hosting various industries and allowing minor specialisation, sectoral learning, and production linkage effects. Only 10 per cent are sector-specific and specialised industrial hubs, as exemplified by the Tanger Med Complex, which has specialised in various sectors, and Ethiopia has followed a similar path.

In addition, various governments use different names based on the definition stipulated in their respective legislation. Export-processing zones (EPZs) account for over 30 per cent of industrial hubs; free zones and free-trade zones for 25 per cent of industrial hubs; special economic zones for close to 20 per cent; and industrial parks and industrial zones for more than 20 per cent. However, the names make little sense because of the divergent definitions stipulated in the national legal frameworks, the lack of in-depth comprehension, and the inconsistent application of common concepts.

Fourth, industrial hubs in many African countries remain fragmented and do not complement their respective governments' industrial policies, with weak synergy with industrialisation. Because of weak industrial policy and strategic orientation, most industrial hubs have been of the 'enclave' type, not promoting productive capacity, deepening domestic linkages or harnessing technological capabilities (Whitfield and Staritz 2020). Most industrial hubs have a low level of capacity utilisation and occupancy – two-thirds of all industrial hubs operate at under 50 per cent of their capacity (UNCTAD 2021d). The primary orientation of policy instruments has been limited to applying financial and particular customs regimes, with limited support for investment and trade facilitation and insignificant support for skills development, technological capability and domestic linkages. This evidence contradicts the Asian experience, where industrial hubs evolved into development incubators, allowing industrial upgrading, innovation and improved technological capabilities.

# 4. Mauritius: Industrialisation and Pioneering Export-processing Zone

## 4.1 The Genesis and Context

Mauritius was Africa's pioneer, effectively developing the first export-processing zone in 1970 (at the same time as Malaysia). Mauritius has been recognised for its high economic performance and pursuit of export-led industrialisation for over five decades (1970 to 2020). Mauritian success resulted from the country's pro-growth development strategy and the practical adaptation of its industrial policies to changes in the external environment and domestic situation. The conventional explanation for the Mauritian economic success, regarded by many as an 'economic miracle', has been the country's openness to the international economy and pursuit of neoliberal economic policies.

Mauritius's pursuit of industrialisation was a pragmatic choice by the government, shared unanimously by the elite of the various political parties. Social tension put pressure on the Mauritian government to prioritise the high unemployment that placed Mauritius's cohesion and survival in jeopardy. After a brief period of following an import-substitution strategy, two significant factors – the necessity for employment creation and the enormous balance-of-payment constraints – led Mauritius to pursue an export-led industrialisation strategy.[12] This was to diversify from a mono-crop economy to a more diversified economy, thereby reducing the economy's vulnerability and volatility. Hence, the strategy pursued an industrial policy that focused on export orientation, the attraction of foreign direct investment, and light manufacturing, especially the apparel and textile sector, with the dual benefits of creating jobs and promoting exports. The targeting of the apparel and textile sector matched Mauritius's comparative advantage of low-wage labour and the preferential duty-free access to the European market offered by the Multi-Fibre Arrangement (Ramtohul, 2020).

## 4.2 The Mauritian Export-processing Zone

Achieving economic diversification through export-led industrialisation was a complex goal that necessitated the practical and coherent application of various policy instruments and purposeful learning in a new, competitive landscape. First, the strategy required apparel firms with production and export experience to be attracted, among others targeting those originating in Hong Kong and Taiwan. For this, the Mauritian government relied on the extensive social networks of the Mauritian private sector in Asia and Europe. Second, the government stipulated various incentives, including fiscal (the provision of zero corporate tax for five to ten years, followed by a flat corporate tax of 15 per cent), the introduction of duty-

[12] See Baissac (2011); Brautigam (2005); Ramtohul and Eriksen (2018); Rodrik (2012); Whitfield and Staritz (2020).

free import of capital equipment and inputs, and the application of protective tariffs and non-tariff restrictions to protect the Mauritian domestic market.[13]

Third, policy instruments were utilised harmoniously within the comprehensive export-processing zone (EPZ) regime, providing the industrial ecosystem and the required legislative and policy framework. Seeking to emulate the EPZ model practised in mid-1960s' Taiwan (China) and Singapore, the government dispatched a delegation to study the experiences and propose recommendations.[14] However, the emerging model was not an exact imitation or 'copy and paste', but rather an innovative approach that stipulated the whole island (2 400 $km^2$) as EPZ – the first of its kind. Fourth, the industrial policy instruments and the EPZ model were constantly modified and adapted to fit the new requirements of the external environment and to tap new opportunities.

## 4.3 Development of Industrial Hubs

During Mauritius's early industrialisation phase, the initial industrial hubs were export-processing zones (EPZs) established across the island without special production facilities. The second wave of the EPZ model comprised the development of industrial estates (covered buildings built on serviced land with the necessary utilities). These industrial estates comprised multi-floor standard production buildings (mainly two, three or four floors) ready for apparel firms to commence production. The expansion of industrial estate locations followed a pattern of cheaper land space for building factory premises and significant labour pools to allow low labour costs.

As labour wages increased, firms were increasingly employing low-wage women workers who lived close to their neighbourhood. Over 39 industrial estates were developed through this scheme by both public enterprises and the private sector; the sugar plantocracy played a critical role – given the land and money they could invest in industrial estates. The Development Bank of Mauritius (DBM) and the Mauritius Export Development and Investment Authority (MEDIA), an agency for export promotion and regulation of the EPZ, were the crucial lead agencies ensuring the success of this programme. The DBM extended credit to targeted manufacturing firms and financed the development of industrial estates. Mauritius effectively monitored the incentives supported by collaboration with the private sector.

All the policies encompassed relevant and transparently executed legislation, simplifying access in the Mauritian context (see Table 1). The Mauritius Export Processing Zone Act was endorsed in December 1970, while the Industrial Estate Act was stipulated in 1986, although implementation had started earlier. The new solutions were pragmatic responses to new

[13] See also Brautigam and Diolle (2009); Subramanian (2009); UNCTAD (2021a); UNDP Mauritius (2021).
[14] See Oqubay (2020a, 2020b) and Yeo et al. (2020) on Singapore's experience in industrial hubs.

challenges. All laws and directives specified how incentives would integrate performance through 'reciprocal control mechanisms', which included the strict exclusion of those not qualifying in terms of performance, for example export performance.[15] The private sector and related industrial associations played an active role in designing and executing the policies, which improved the quality of the policy directives and allowed incremental improvements during implementation. While strengthening productive collaboration, they also improved information exchange and collective learning.

**Table 1: Legislative Framework of Mauritian EPZ Model**

| | **Content and provisions** |
|---|---|
| The Export Processing Zones Act 1970 (Act no. 51 of 1970, proclaimed on 8 December) | The Act provides for the setting up of export-processing zones, the issuing of certificates to export enterprises and the operation of such enterprises, and various incentives and exemptions to be granted, including the exemption of income tax for ten years, the exemption of import duty and use of a bonded factory, and employment and labour provisions. |
| The Finance Act 1980 (Act no. 13 of 1980) | Amendments related to income tax and dividends. |
| The Finance Act 1985 (Act no. 52 of 1985) | Income tax at the rate of 15 per cent and exemption of dividends from income tax (within ten years). |
| The Industrial Building Incentives Act 1986 (Act no. 24 of 1986, 28 July) | To provide fiscal incentives for industrial buildings applicable to floor space above 1 000 $m^2$ for the exclusive use of manufacturing enterprises. The Act specifies that these provisions apply exclusively to manufacturers and exporters, but not to sugar milling. |

## 4.4 Towards a New Diversification of Industrial Hubs

In terms of employment, the apparel and textile sector in Mauritius reached its peak in 1990, when the number of workers reached 90 000, and export earnings peaked at US$1 billion by early 2000 (see Table 2). Between 1971 and 1980, the sector had jumped from below 1 000 to over 20 000 manufacturing jobs. The apparel sector became the primary export sector by 2000, and superseded the sugar cane industry as the top exporter. Nonetheless, the apparel and textile sector's growth slowed down as labour costs increased, and the preferential market access came to an end with the winding up of the Multi-Fibre Arrangement in 2005. Combining these two factors eroded the sector's international competitiveness, and the sector had to build on new drivers.

The contribution of the apparel sector to GDP gradually flattened below 12 per cent, giving rise to a call for new drivers. The EPZ Act became obsolete, and the apparel and textile sector continued with restructuring and technological and industrial upgrading. The effect was to

[15] Amsden (2007: 94) highlights: "The guiding principle of the best bureaucracies – politics permitting – was to give nothing away for free. Reciprocity was ideal … The reciprocity principle in Korea operated in almost every industry … Reciprocity helped governments."

reduce employment to under 50 per cent, and export earnings shrank. The incentives that applied specifically to the apparel sector ended, and the flat 15 per cent corporate tax rate applied across all businesses. The support for the textile sector moved towards qualitative support, such as upgrading skills, technologies and production linkages.

The tourism sector's contribution as a significant employer and generator of export income increased gradually, and Mauritius focused on the high-income tourism segment, benefiting better incomes and preventing negative social impacts. The sugarcane industry focused on upgrading to produce high-quality sugar and high-value products. After the mid-2000s, the government's priority sectors diversified into the ICT sector, especially business-processing outsourcing, the offshore international financial services platform, and the development of logistics hubs to strengthen the trade corridor and Mauritius's strategic positioning as a gateway to Africa.

Three distinct categories of industrial hubs emerged after the 2000s to support the new diversification strategy and industrial policy. First, the Cyber City was launched in collaboration with the Indian government to develop an ICT industry as a strategic priority sector; a second expansion phase followed the successful completion of the first phase. A financial hub was developed in the cyber hub as the synergies became evident, and the shared platform could be promoted as an international business hub. The logistics hubs expanded, with free ports comprising warehouses, specialised services and unique customs services.

**Table 2: Mauritius – Industrial Policy Framework and Coherence with Industrial Hubs**

| Period | Phase | Critical industrial policy and hub features |
|---|---|---|
| The early 1970s to late 1980s | Early industrialisation phase | • Economic diversification from mono-crop to manufacturing and tourist sectors<br>• Sectoral focus on the apparel and textile sector<br>• Export-processing zone as the critical strategic approach |
| The late 1980s to mid-2000s | Growth stage and diversification | • Expansion of industrial estates as a second-phase export-processing zone to support the apparel sector's expansion peaking in terms of employment and exports<br>• Higher wages and the end of MFA and preferential access to the European market in 2005<br>• The gradual slowdown of the apparel sector and the need for new drivers of economic diversification |
| From the mid-2000s to the late 2010s | Diversification of the services sector | • Diversification to new service sectors – ICT, international financial services and logistics<br>• Cyber City Hub as a platform for ICT and international financial hub<br>• Free ports and logistics hubs<br>• Industrial complex Jen Fei |

It is noteworthy that the Mauritian diversification drive has implications for policy lessons and places the industrialisation experience of Mauritius along with the successful East Asian

experiences (UNCTAD, 2021b). The connections are evident in the upgrading of skills and sectoral shifts. Furthermore, growth drivers did not happen simply as a reaction to wage increases and the end of preferential markets, but due to deliberate, 'anticipatory' and forward-looking policy planning process. The Mauritius government recognised that wages would go up as the economy developed and income rose. It was also cognisant of the dangers of relying on preferential market access granted by foreign governments. Mauritius benefited from the 'quota' system offered by the EU for sugar, but their planning process shows that the government was looking for the manufacturing sector to diversify well before the MFA stopped in 2005.

At the height of growth driven by apparel exports, the Government of Mauritius was proactively exploring other higher-value sectors to develop and encourage investment – hence the shift towards high-quality tourism well before the apparel and textile sector started to decline as the primary source of production and export. In short, although Mauritius benefited (or took advantage) of opportunities for market access (including the quota scheme for sugar export granted to low-income economies), but the government never believed these external advantages to be sustainable. This policy approach resembles that of Korea and Taiwan. In short, the policy lesson here is that, if countries are comfortable with low-wage and labour-intensive production systems and export structures, they will eventually get caught, as wages inevitably increase and competitiveness becomes difficult.

## 4.5 The Government and Private-sector Institutional Framework

Government coordination, including inter-agency coordination and a reasonably professional civil service, was conducive to industry. The agencies responsible for industrialisation, export promotion, the attraction of investment and the improvement of the investment climate and industrial hubs had gone through various restructuring efforts, exemplifying the industrial policy approach of trial and error and constant improvements to serve the strategy to meet the industries' requirements. In the 2000s, Mauritius established Enterprise Mauritius to spearhead and coordinate export activities, and the Board of Investment (BOI) to spearhead the attraction of investment.

More recently, in 2018, Mauritius established an economic development institution by merging existing institutions to serve as a lead agency for coordinating the development and execution of strategies. The Economic Development Board (EDB) promotes outward and inward foreign direct investment, promotes exports, supports the international financial centre, and brands Mauritius as a thriving destination. Various ministries, including trade and industry, finance, foreign relations and international cooperation, as well as other agencies, play direct and complementary roles in achieving the strategy. The institutional settings resemble the East Asian experience, particularly that of Singapore.

The apparel and textile exporters founded the Mauritius Export Association (MEXA) in 1976, and its representation was broadened in 2007 with the aim "to promote and defend the interests of the export community of Mauritius at national, regional and international levels" (MEXA, 2022). MEXA has been a prime player in the export sector and coordinates closely with the government. It is a platform for information sharing, training programmes, lobbying and facilitation, and the strengthening of networking.[16]

The private sector was organised into various industry associations, contributing to a vibrant private sector and an umbrella coordination platform in the Joint Economic Council (JEC), facilitating policymaking access and forging a productive partnership. The diverse origins of the Mauritian private sector and its various links and networks contributed to the attraction of foreign direct investment and joint ventures. It facilitated learning related to industrial experiences, mainly from East Asia (such as Hong Kong, Taiwan and Singapore), India and Europe (France and the UK). The government consistently made us of a government–private sector dialogue forum on regular and ad hoc platforms to pursue industrialisation (Brautigam and Diolle 2009).

## 4.6 Policy Innovation and Learning in Mauritian Industrial Hubs

Mauritius's strategic approach to the development of industrial hubs highlights essential lessons. First, developing industrial hubs served the country's economic transformation and development strategy, namely export-led industrialisation. The industrial hubs approach blended with the industrial policy framework, which was constantly upgraded to reflect the sectoral focus and changes in the external environment. The Mauritian experience underscores that developing an industrial ecosystem makes a vital strategic contribution to synergising industrialisation, and is a complex policy demanding multifaceted policy interventions and learning. An essential lesson is that the industrial hub is not an end per se or a 'magic bullet' – a reality many African governments fail to comprehend.

Second, the industrial hubs were successful, and the various typologies reflected specific industries' requirements: the Mauritian approach bore no trace of the standard prescriptive or 'copy-and-paste' approach. The government's policies on industrial hubs were pragmatic, and the government and industry leaders were involved in targeted learning from relevant international experiences. Coherent legislative, regulatory and policy frameworks augmented the industrial hubs approach.

Third, the Mauritian experience demonstrates the strategic and developmental role of the state – in charting strategy and policies and building productive partnerships with the private

[16] According to MEXA, the number of export-oriented firms decreased by one-third, from 412 to 280, between 2008 and 2017. Half of these were apparel and textile firms, and the remaining half were non-textile firms. Similarly, employment declined by 16 per cent in the same period, from 62 276 to 52 172 workers, while the number of expatriates increased by about 30 per cent.

sector and the broader population. The government continued to contribute to social cohesion and political settlement among the various political and interest groups.

Fourth, despite Mauritius's significant progress and policy outcomes, the evidence does not suggest a firmly coordinated approach and synergies with other policies – particularly urban development, infrastructure and technological capability infrastructure.

Finally, Mauritius has shown that a resource-poor, remotely located small island can thrive on export-led industrialisation and emerge as a middle-income economy, even in an increasingly competitive international environment. In contrast to the Mauritian experience, many of the export-processing zones in other African countries were unsuccessful and could not synergise industrialisation and economic transformation. African countries could learn from the Mauritian development path and pioneering experience with industrial hubs.

## 5. The China–Africa Economic and Trade Cooperation Zones

### 5.1 The Genesis of the Economic and Trade Cooperation Zones

The Chinese economic and trade cooperation development zones (ETCDZs) were industrial hubs with unique features of China–Africa economic ties that aimed to leverage China's expertise and long experience in developing special economic zones that synergise industrialisation. While contributing positively to industrialisation in many African countries, these industrial hubs have shown significant unevenness depending on the host country's context – development strategy, comparative advantage, and the Chinese institutions and firms involved. China was the second mover in developing industrial hubs after 1978 as part of its government's 'Opening Up and Reform' strategy. Being a newcomer to industrial hubs in the early phase, China learned from other countries' experiences through study tours by top leadership and experts, notably in Singapore, combined with an experimental approach and phased implementation that benefited from intense learning. The world-class hub, the Suzhou Industrial Park, was a joint flagship project between Singapore and China that aimed at systematic learning to facilitate the transfer of know-how and experience – in both the development and management of industrial hubs – closely led by the top leadership of both countries.

China successfully introduced new types and generations of industrial hubs. During the initial stage, policy innovation in special economic zones (1978 to 1984) focused on attracting FDI and promoting exports. In the second wave (from the 1980s to 1990s), the government focused on economic and technological development zones, a new type of industrial hub focused explicitly on industrialisation and manufacturing industries. The third wave (the 1990s and 2000s) focused on upgrading and developing technological capabilities and expanding high-tech firms (Lin et al. 2020).

Since the 2000s, the focus and priorities have shifted to large-scale innovation hubs (such as the Shenzhen and Beijing Science and Technology Parks), building the most complex knowledge-based economy and new urban clusters, and rebalancing the economy. Through a pragmatic approach, a sound catch-up strategy and a mastery of sophisticated policies in an increasingly globalising world economy, China has emerged as the world manufacturing and export powerhouse and a significant competitor at the technological frontier.[17]

In the late 1990s, China's aspirations to expand its internationally competitive position accelerated, even more so after joining the World Trade Organization in 2000. China's pursuit of its 'Go Global' internationalisation strategy included acquiring and merging with world-class leading firms and developing special economic zones as a critical platform to expand outward foreign direct investment. This strategy coincided with the rise and strengthening of China–Africa ties, which gradually shifted from a political focus to deeper economic cooperation. The momentum of the China–Africa economic ties accelerated after the Forum on China–Africa Cooperation (FOCAC) in 2000 gradually gained traction in industrialisation, trade and infrastructure development.[18]

The oldest special economic zone was Egypt's Suez Economic and Trade Cooperation Zone, the forerunner initiated in the late 1990s at the request of the Egyptian government. Other special economic zones evolved following the decision at FOCAC III in 2006: "China is ready to encourage, in the next three years, well-established Chinese companies to set up three to five overseas economic and trade cooperation zones in African countries where conditions permit" (Embassy of the People's Republic of China in the Republic of South Africa, 2006). The Ministry of Commerce (MOFCOM) was mandated to coordinate this cooperation programme with African governments and agencies on the Chinese side, including with provincial governments, policy banks and other institutions. In 2006 and 2007, MOFCOM conducted two rounds of bids and selected 19 projects from 120 presented, seven of which were in Africa (Xiaoyang 2020).

In 2009, the FOCAC V summit reviewed progress and underscored its primacy and urgency: "Construction is underway for the *six Chinese overseas economic and trade cooperation zones in countries including Zambia, Mauritius, Nigeria, Egypt, and Ethiopia*. Some zones have witnessed progress in attracting investment, with businesses moving in and production projects getting started" (Embassy of the People's Republic of China in the Republic of South Africa, 2009; emphasis added). Given the strategic role of special economic zones in China, the expectations of the Chinese leadership were much higher than the reality. This joint programme aimed to support Africa's industrialisation and promote outward Chinese

[17] China emerged as the world's second largest economy, accounting for 17 per cent of global GDP, in 2021. On Chinese industrial hubs and 'Opening Up and Reform', see Kou and Zhang (2020), Lin et al. (2020) and Zheng and Aggarwal (2020).

[18] Between 2000 and 2020, FOCAC emerged as the largest South–South cooperation forum. For an extensive review of China–Africa ties, see *China–Africa and an Economic Transformation* (Oqubay and Lin 2019).

investment as part of the broader 'Go Global' strategy, with policy learning on the development of special economic zones (Brautigam and Xiaoyang 2011). Nonetheless, the readiness of African governments to tap into this unique opportunity to develop productive capacity and learn from experience in industrialisation policy was lagging.

## 5.2 Mixed Outcomes and Unevenness

By 2019, the seven industrial hubs had attracted 271 firms with an investment outlay of over US$3.1 billion, generating over 40 000 jobs and contributing to the promotion of exports. The developers had invested about US$1 billion in the six industrial hubs on almost 3 000 hectares of land (see Table 3). The performance of these industrial hubs was uneven and their outcomes mixed. Ethiopia's Eastern Industrial Zone (EIZ) faced considerable obstacles, notably securing the land and a sufficient electricity supply, which delayed the project and forced the private developer to invest in an electricity substation. Nonetheless, the EIZ recorded an impressive performance in employment creation, accounting for about 50 per cent of the total employment. The Jen Fei generated little economic impact, and the performance was far below the expectation of the Mauritian government. Leki Free Zone's performance in Nigeria was inadequate, and the project faced delays due to the diverse nature of the ownership and lack of government political commitment, which resulted in a long delay in the provision of infrastructure for gas energy. The investors included public and private enterprises and, in most cases, joint ownership was established in the projects mentioned above, further complicating the ownership structure and joint decisions.

**Table 3: Summary Profile of China–Africa Economic and Trade Cooperation Zones (2000 to 2019), in Millions of US$**

| | Zone | Year | Ownership | Invested M$ | | Phase 1 (land ha.) | Operational firms | | Employment | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Planned | Actual | | No. | Investment (M $) | Expats | Local |
| 1 | Egypt Suez | 2000 | Joint China–Egypt | 280 | 149 | 334 | 70 | 1 000 | 1 600 | 3 500 |
| 2 | Zambia: Lusaka/ Chambishi | 2004 | Joint China–Zambia | 410 | 197 | 1 719 | 36 | 1 500 | 1 372 | 7 973 |
| 3 | Nigeria Lekki FZ | 2007 | Joint China–Nigeria | 392 | 205 | 109 | 51 | 150 | 300 | 1 000 |
| 4 | Nigeria Ogun–Guangdong | 2009 | Joint China–Nigeria | 220 | 180 | 250 | 30 | n/a | 200 | 5 000 |
| 5 | Mauritius Jin Fei | 2009 | Chinese | 60 | 50 | 211 | 28 | n/a | n/a | 2 500 |
| 6 | Ethiopia Eastern Industrial Zone | 2010 | Chinese private | 101 | 180 | 233 | 56 | 450 | 1 000 | 21 143 |
| | **Total** | | | | **961** | **2 856** | **271** | **3 100** | **4 472** | **41 116** |

Sources: Oqubay and Kefale (2020: 908–909); Xiaoyang (2020: 953–966)

## 5.3 Productive Spillovers and Constraints

The development of the Chinese economic and trade cooperation zones has generated multiple positive results. First and foremost, the development of these industrial hubs induced Chinese and other foreign firms to consider investing in developing industrial hubs, and induced government and other public-private joint firms to consider the prospect. Furthermore, establishing these industrial hubs motivated Chinese investors to invest in manufacturing, which would not have been possible through other mechanisms. The Chinese developers coordinated their efforts with the respective provincial governments, industrial associations and social networks to attract investors. The most significant outcome was encouraging manufacturing investment of (but not limited to) Chinese origin, which would not have been possible without the ETCDZs. After the 2010s, Chinese investors targeted Southeast Asia, as it is close to their home base, and information on Africa was inadequate. The erosion of international competitiveness in the labour-intensive and light manufacturing sector caused by higher labour costs in China boosted interest in many African countries.

Furthermore, the ETCDZs induced new developers to invest in industrial hubs. For instance, the Hua Jian Group, the world's largest shoe manufacturer, initiated a new industrial hub in Ethiopia, located in the suburbs of Addis Ababa. George Shoe, a private investor from Guangdong province, built an industrial park in Mojo town, followed by other Chinese industrial parks in Arerti and Dire Dawa. Following the investment in the new Djibouti–Addis Ababa railway infrastructure, a new initiative was discussed to develop an economic corridor with industrial hubs concentrated along the corridor, bringing a new synergy and positive spillover.[19] However, the travel restrictions imposed by the Covid-19 pandemic and the recent political instability in the country slowed the momentum of investment.

Second, the outcomes highlight the divergence of the genesis and experience of developing these industrial hubs and their performance. These industrial hubs, such as the Suez ETCDZ in Egypt and the Eastern Industrial Zone in Ethiopia, have contributed to both countries' industrialisation processes.[20] The EIZ is among the two largest industrial hubs and has led to investment amounting to approximately US$900 million by many Asian and European investors, and has created employment and generated foreign exchange from exports and import-substitution manufacturing activities. In contrast, the Jen Fei ETCDZ in Mauritius has demonstrated ineffective performance, not meeting the expected economic transformation and industrialisation outcomes. The Lekki Free Trade Zone and the Ogun-Quandong ETCDZ in Nigeria are examples whose implementation was full of obstacles and delays, and the outcomes were inadequate.

[19] The project for the Hunan-Adama Machinery Industrial Park was another project that was endorsed by the Ethiopian government and financed by Exim Bank of China in 2019.
[20] See Giannecchini and Taylor (2018).

It is worth noting that performance was uneven for multiple reasons. First and foremost, the primary reason for the failure was the lack of a strategic approach, and many of the host governments lacked the necessary political commitment to put industrialisation and economic diversification at the heart of their development strategy. The host governments were not proactive in providing the required direction and were not responsive enough to address the enormous challenges effectively. Industrial development is pursuing a new development path and requires heightened political commitment.

Third, most host governments lacked an *industrial policy framework* to ensure synergy and complete alignment with the targeted strategic sectors and firms, even those that had shown readiness to attract investment. The host governments' industrial development strategies have been deficient in prioritising the manufacturing and export sectors, which has been a significant factor that has resulted in poor outcomes and slowed the industrialisation process. This is evident in Nigeria and at various levels in the other countries. Inadequate comprehension of the industrialisation process and the vitality of industrial hubs as incubators of industrialisation have compounded the lack of political commitment and active industrial policy. In addition to the lack of an industrial policy framework, the weak synergy with infrastructure development has aggravated the difficulty. The governments did not put the various required legislative and regulatory frameworks in place to enable smooth implementation and transparency.

Fourth, the *lack of government institutional coordination* was a significant failure that undermined the development of industrial hubs and related initiatives. Industrial development projects would require coordination among the various regulatory and support agencies of the central government, and among central, provincial and local governments. The lack of government coordination further aggravated the difficulties of ensuring the success of the new policy initiatives. In most cases, the host governments failed to provide the required infrastructure, such as energy and water, which are prerogatives.

Fifth, the ownership structure of the new industrial hubs was too complicated and contributed to project delays and standstills, as evident on the side of firms, host governments and common platforms. In the Mauritius Jen Fei ETCDZ and Nigeria's Ogun projects, the developers experienced internal crises that necessitated changes in ownership, delaying the projects and adding uncertainties. Some firms were new to the host country and lacked the required international experience or work in Africa, where more obstacles are likely. The ownership structure of the Eastern Industrial Zone, owned by an investor from Jiangsu province, and some experience of working in the host country helped prevent delays and risks. In most cases, joint ownership between Chinese and host governments caused further delays and confusion of responsibilities, complicated by government changes in some instances. The Lekki Free Zone is an example where the consortium comprised Chinese investors (CCECC as lead partner) and the Nigerian and Lagos states as co-investors.

Expectations and interests diverged, working relations were uneasy, and when projects faced challenges, investors had to cope with them alone.

## 5.4 Implications for Policy Learning

A key lesson was that development paths and industrialisation are specific and are neither uniform nor standard prescriptions. Similarly, the legislative or policy aspects of the Chinese experience cannot be replicated without adapting to local conditions, which can only be achieved through intense learning approaches and experiments. The host governments' readiness to learn from Chinese experience and experienced Chinese firms was inadequate. The Chinese Association of Development Zones (CADZ), a leading consultant, was commissioned to conduct a survey of the national network in Ethiopia's context. However, the outcome fell short of expectations as there was a significant gap in adapting to the particular Ethiopian context (Xiaoyang 2020: 964).

A significant benefit has been the inspiration for intensive policy learning to pursue industrialisation and explore better ways of developing industrial hubs to synergise industrialisation. The scope of policy learning differed among African governments. For instance, the Ethiopian government's learning combined the search for international experience in six countries, representing failures and successes, with learning by piloting and a phased approach to deepen the practice. Industrial hubs did not succeed before the 2000s, except for the Mauritian export-processing zones.

Nonetheless, some African countries have benefitted from various study tours and training programmes organised by MOFCOM, and many governments have hired specialist firms and experts to engage in the development of industrial parks. On the diverse nature of the legislative framework in many countries, Kidane and Fikre (2020: 981) make a similar observation: "These countries' experiences confirm that hubs are indeed unique creations of localised rules […] as the Chinese experience demonstrates. The development of industrial hubs is a long and evolutionary process of infrastructure development, policy formation and reformation, urban-industry links, and the integration of hubs within the surrounding city planning [which] has transformed the economic and social fabrics of China in a way that is unique to that country and is unlikely to be replicated elsewhere on the scale, and subtility observed there."[21]

[21] Kidane and Fikre (2020: 982) further highlight that "[i]ndustrial hubs are created and operationalized by law. Industrial hub law is thus a convenient conglomeration of rules modifying existing domestic and international rules on trade, investment, corporation, tax, labour, environment, intellectual property, and related areas of law".

## 6. Morocco's Strategy on Industrial Hubs: The Tanger Med Complex

*We are launching one of the largest economic projects in the history of our country. This is the new Tangier-Med port that we consider as the core of a large port, logistics, industrial, commercial and touristic complex.*
*(King Mohammed VI, February 2003)*

Morocco's journey of developing industrial hubs is another striking example of the state's development role in promoting industrialisation, pursuing an industrial policy, and using a unique approach to developing industrial hubs. The above quotation, from the launch of the Tangier Med Complex Hub in 2003, symbolises the vision that powered the development. The Tanger Med Complex was one of the most significant economic policies that positioned Morocco to emerge as one of Africa's leading industrial hubs and promote its export sector. In 2019, Tanger Med won a Global Free Zones of the Year 2020 award from the *Financial Times*: "This is the first time an African zone ranks that high in the ranking, which is a testament to the tremendous rise of the network of zones developed by operator Tangier Med around Tangier Med port of the Gibraltar Strait, one of Africa's busiest" (Dettoni 2020).

Morocco is a low-middle-income country currently facing challenges of youth unemployment and economic diversification, and the need to move uphill from the 'middle-income trap' in the medium and long term (Agénor and El Aynaoui 2015; El Mokri 2016). Morocco's industrial policy pre-2000 followed an import-substitution industrialisation strategy in the 1960s and 1970s, and privatisation and trade liberalisation in the 1980s and 1990s (Hahn and Auktor 2018). Since 2000, Morocco has pursued a more proactive industrial policy that focuses on export orientation, economic diversification and employment creation, implemented through five- and ten-year industrial development strategies, namely the Plan Emergence (2005 to 2009), the National Pact for Industrial Development (2009 to 2014), and the Plan for Industrial Acceleration (2014 to 2020). The depth and quality of industrial policy have constantly improved and adapted to evolving external and domestic environments.

The most significant accomplishment behind this story was the pursuit of Morocco's industrial drive, spearheaded by the government's grand vision and industrial policy. The Tangier Med Complex, of which construction started in 2003 and was completed in 2009, is the leading contributor to Morocco's export and industrial capacity. In 2019, Morocco's automotive industry alone exported US$10.5 billion, accounting for a quarter of total exports and overtaking the country's phosphate revenue, and also leading Morocco to overtake South Africa as the largest automaker in Africa (Hatim 2020). Morocco's exports diversified into

strategic industrial sectors and have generated a significant number of productive jobs (Auktor 2022; Vedie 2020).[22]

## 6.1 The Pursuit of Industrial Policy Directing Export-led Industrialisation

The pursuit of the vision and development of the Tangier Med Complex and Morocco's industrial policy exhibit multiple features. From the outset, the Moroccan government's commitment to industrialisation and the development of the export-led manufacturing sector was evident.

First, Morocco's industrial policy built on its comparative advantages – its proximity to Europe as a primary market for its industries, given the 14 km distance from Spain's coast. Lower wages than in Europe were a significant attraction and a comparative advantage for manufacturing foreign investment from Europe, Asia and the USA.[23]

Second, Morocco developed an export sector strategically driven to build international competitiveness by expanding industrial sectors and building world-class logistics and port services, thereby offering a short transit time. Again, the Tanger Med Complex was built on the unique advantage of lying at an intersection of the Atlantic Ocean, Europe and the Mediterranean Sea and extending far beyond the Indian Ocean. Morocco's pursuit of the export sector involved proactive export-promotion policies, concluding free trade agreements with European countries, the USA, Turkey, the United Arab Emirates, and others.

Third, Morocco targeted strategic priority sectors and industries: the automotive, aeronautics, electronics, pharmaceutical, food and agribusiness, leather and textile industries (El Mokri 2016; Hahn and Auktor 2018). These six sectors enabled Morocco to benefit from employment creation, export generation, and the development of domestic linkages and domestic capabilities. The government has attracted leading manufacturers and service providers into the Tangier Med Complex, including leading automotive manufacturers, pioneered by Renault-Nissan in Tangier (Melloussa) and then by PSA (Stellantis) at Kenitra.[24] Similarly, the leading manufacturers and suppliers in the aeronautics industry invested in specialised industrial hubs (Auktor 2022; Jaidi and Msadfa 2017; Valladao 2020). Unlike labour-intensive textile and leather industries, these sectors were new and driven by foreign direct investment.

The Tangier Med Complex has an industrial hub that focuses on the targeted industrial sectors, comprising six industrial parks built over 2 000 hectares of land. Morocco's industrial

[22] Tanger-Med Key Figures 2021. https://www.tangermedport.com/fr/media-room/telechargements/ Accessed on 18 December 2021; also see Business Focus Magazine (2020).
[23] Every year, more than 100 000 ships transit through the Strait of Gibraltar, one of the world's leading trade routes.
[24] Renault became a majority shareholder in SOMACA, an automotive assembly plant founded by the Moroccan government in 1959; See Auktor (2022), Hahn and Auktor (2017) and Vedie (2020) for an in-depth discussion.

policy targeted specific industries and focused on building an industrial ecosystem for each, hosting over 1 100 firms participating in various levels of the supply chain and integrating tiers 1, 2 and 3 (sub-suppliers and sub-sub-suppliers). This enabled Morocco to strengthen local content and, in some industries, up to 60 per cent domestically. The head of the Moroccan Investment Development Agency (Agence Marocaine de Développement des Investissements (AMDI) highlights: "Being competitive in the auto sector is not just about the cost of labour … It is about having a network of suppliers around, who can support the first-tier auto-part suppliers and car manufacturers" (Norbrook, 2020). Building an industrial ecosystem favourable for fostering domestic linkages and upgrading local content remains the biggest challenge for Morocco.

Fourth, the development of Tangier Med as a logistics hub has been a critical strategy to improve export competitiveness and develop the manufacturing capability of Morocco. The logistics parks have attracted international logistics and trading firms (DHL, Adidas, Decathlon and others) to establish a global and regional distribution hub in the dedicated logistics park of one million square metres of warehouses. The ongoing expansion of rail transport and connectivity in Morocco's hinterland will improve the supply chain's competitiveness. The port hub was expanded to support industrial manufacturers and sea vessels in two phases. It has three ports built on 1 000 hectares, catering for transhipment services to over 180 ports and making it Africa's and the Mediterranean's largest port facility.[25]

Morocco's Tangier Med Industrial Hub (Tangier-Med Zones) is regarded as a world-class industrial hub due to its unique features, scale and performance. It is the government's flagship project, with complex and distinctively African characteristics. The project, championed and led by King Mohammed VI, has been a critical player in Morocco's emergence as the continent's manufacturing powerhouse and port complex.

## 6.2 Complementary Roles for the State and Private Sector

The development of the Tangier Med Complex illustrates the developmental role of a state with a grand vision and strategy. The state initiated an ambitious grand vision and mobilised the private sector around this vision. The vision was not limited to economic policies but had socio-economic and political aims to transform the Northern Morocco region. Tangier Med I was implemented in phases from 2003 to 2008, and Tangier Med II was launched in 2009.

The government used an innovative financial scheme, leveraging its own seed money, private-sector financial sources and concessional finance from the European Investment Bank. The government allocated US$3.9 billion, added to the private sector's US$6.4 billion (Tanger Med 2021).

[25] In 2019, of the nine million container capacity, Europe and Africa accounted for 35 per cent each, while Asia and transatlantic countries accounted for 18 and 11 per cent respectively.

A public institution, the Tangier Med Special Authority (TMSA), was founded by the government in February 2003 to implement and coordinate this vast and complex project. It was led by a supervisory board and an executive board with a membership of various ministries. King Mohammed VI championed the grand vision and enabled timely decisions to address the binding constraints and coordination drawbacks inherent in such projects.

As highlighted in the *Financial Times*, European manufacturers who invested in the Tanger Med Complex concur that the government's strong support has been a critical factor in its success, as underlined by an automotive manufacturing executive: "The state is extremely demanding but extremely supportive" (Pilling, 2021).

The key feature of the Tangier Med Complex is that it integrates multiple aims into a single, complex project to maximise synergy and complementarities, including developing an industrial complex of six industrial parks targeted at six export-oriented strategic sectors; world-class port hubs situated on the Strait of Gibraltar, thus connecting Europe, Africa and the Atlantic Ocean; and building an international commercial and logistics hub complementing the port's hubs and industrial hubs. The city of Tangier, located 40 km from the port complex, has applied urban development policies that assisted it in emerging as a renowned metropolitan urban hub. The urban development plans have been integrated with inland infrastructure development to maximise the positive spillovers.[26] The implementation of this development, on a mega-scale and supported by a plan with a comprehensive and long-term perspective, is among the rare success stories on the continent.

Nonetheless, Morocco has focused on building dynamic comparative advantages or competitive advantages by exploiting maximum linkages, leveraging returns to scale, careful selection of industries that will allow it to build industrial capacity and upgrade constantly, and building a world-class industrial ecosystem. The industrial cities have been developed in a compact space in the Tangier-Casablanca-Rabat corridor, facilitating agglomeration economies and logistics. The integration of active industrial policy with urban policy and other economic policies has enabled sustained growth and economic transformation. The city of Tangier expanded while adhering to its city plans and housing development programmes, contributing to the 'Cities without Slums' programme. Defining a grand vision and successfully implementing it provides both policy capability and the learning to initiate similar development projects.

The government expanded technical schools and technological universities, which are essential for industrial upgrading in collaboration with the private sector. A symbolic milestone critical for the next phase was establishing the King Mohammed VI Polytechnic University, which focuses on technology and engineering and has research capabilities based on the MIT and Stanford models. If this approach is pursued consistently and linked with

[26] See Arbouch et al. (2021) on the Moroccan approach to infrastructure.

building innovation hubs as part of the national innovation system (NIS), Morocco could deepen its productive capacity and technological catch-up in a rapidly changing and competitive environment. Nonetheless, it will have to stand the test of time, especially as the middle-income trap will become Morocco's primary challenge in the coming decade, and few have addressed this puzzle.

In conclusion, Morocco's industrial policy pursued a systematic and targeted approach in the 2010s by targeting the export-oriented and dynamic sectors (notably automotive and aeronautics), enabling productive capacity building while supporting the food, textile and leather sectors to create jobs and upgrading. Investment attraction targeted lead firms and OEMs, offering much broader values beyond labour cost advantage, primarily through building a skilled workforce, developing industrial ecosystems, increasingly embedding local suppliers, and introducing world-class logistics. The fusion and synergy between industrial hubs and the broader industrial policy instruments are evident (Ali and Msadfa 2016). The industrial hubs offer industrial ecosystems through integrated industrial platforms and specialised industrial parks, which have facilitated the micro-targeting of specialised sub-sectors offering the required infrastructure and one-stop service, and enabling greater embeddedness through expanding tier 2 and tier 3 suppliers. The lead role of the state and the cooperation with the private sector (sector-specific industrial association) have deepened productive partnerships. Between 2000 and 2019, Morocco became the leading manufacturing hub in the African region. Its output increased from 17 000 vehicles in 2000 to 500 000 vehicles in 2019, with significant local value addition. These vehicles were primarily for the export market.

## 7. Ethiopia's Experiment with Industrial Hubs

Unlike many African countries with industrial hubs for a more extended period, [27] Ethiopia is a newcomer to hub development but, due to multiple factors, pursued an unusual approach to developing industrial hubs in 2013. First, despite its comprehensiveness, Ethiopia's industrial development strategy of 2003 failed to explicitly underline its policy approach to industrial hubs, and there was a clear void in the strategy. Oqubay (2015: 283–284) highlights that "industrial clustering and industrial parks have played an insignificant role till now but could play a much more significant future role in overall industrial development strategy. However, there are still some issues which the government will need to address, such as the tension between industrial clustering and agglomeration and the political commitment to spreading resources and opportunities across federal regions". Given the government's focus on attracting massive manufacturing investment, the industrial hubs agenda became a

[27] Examples are Mauritius, Senegal and Liberia in the 1970s, and Nigeria, Uganda, Kenya and Tanzania in the 1980s and 1990s.

prominent policy concern, and the government conducted a comprehensive study in 2013 and 2014. Notably, industrial hubs are still a work in progress in Ethiopia.[28]

The new approach clearly defined that these industrial parks would be primarily *specialised* or *sector-focused*; *eco-industrial parks* would adhere strictly to environmental sustainability, incorporate international practices, *ensure execution excellence*, and *provide one-stop government services* within them. In April 2015, the House of Representatives endorsed the Industrial Park Proclamation (No. 886/2015), which clearly defines the rationale and objectives for establishing industrial hubs in Ethiopia and the legislative requirements related to their development and operation, along with related regulations. Institutional changes included the reestablishment of the Ethiopian Investment Commission (EIC) and the establishment of a new Ethiopian Investment Board (EIB), chaired by the Prime Minister and composed of key ministries, to provide policy decisions related to investment and industrial parks. A new parastatal organisation, the Industrial Parks Development Corporation (IPDC), was established to design the national industrial parks network plan, develop government industrial parks, be a custodian of the industrial land bank, and provide support to private developers, including the provision of land and off-site infrastructure.[29]

Special incentives were granted to motivate developers and firms to locate industrial parks outside Addis Ababa. Given the requirements of manufacturing exporters, the labour law was revised based on the consideration of the requirements of the export sector. The Ethiopian government decided to use Hawassa Industrial Park (HIP) – a specialised apparel and textile hub – as a pilot to test the new approach of building a new generation of industrial hubs and maximise learning from practice – which was essential, given the new policy's complexity. Reviews to extract and document lessons enabled lessons to be learnt. A phased approach to execution was pursued, despite the temptation to do otherwise, and this facilitated learning and the quality of execution (see Table 4 for details). In the pilot Hawassa Industrial Park, the dialogue between government agencies and investors proved the most effective contribution, while the newly established HIP Investor Association facilitated dialogue. The government used multiple sources of financing to develop industrial hubs.[30] The government's key strategy included the provision of private developers to build the industrial park by providing up to 15-year zero income tax and duty-free privileges, transferring land at

[28] The government's approach combined targeted learning from Singapore, South Korea, Vietnam, China, Mauritius and Nigeria. Various consultations and discussions with international consultants were conducted in 2014, including with the Chinese Association of Development Zones (CADZ), the World Bank and other specialists.

[29] See FDRE (2011, 2014, 2015).

[30] These included the treasury, which funded industrial hubs such as the Semera, Bahirdar and Jima Industrial Parks. The government used the Eurobond for approximately US$700 million to develop sizeable export-oriented industrial parks, such as Hawassa, Adama, Dire Dawa, Combolcha and Mekelle. Concessional loans from the World Bank, amounting to US$350 million, were used to develop Bole Lemi II Textile Hub and Kilinto Pharmaceutical Hub. Concessional loans were secured from China Exim Bank to build the Hunan–Adama Equipment Hub, which is under construction.

a modest cost, and supporting off-site infrastructure. Private developers have shown significant interest, and seven industrial parks currently are under development.[31]

Ethiopia has pursued active industrial policies to accelerate industrialisation, particularly after 2002, and the apparel and textile sector has been one of the strategic priorities (FDRE 2002; Oqubay 2015, 2019a, 2019b).[32] Ethiopia's experience with industrial hubs has been over a shorter period and is a work in progress. It is too early to conclude the outcomes in terms of accelerating industrial transformation (Lin et al. 2019). However, within a short period (2015 to 2021), Ethiopia has built over 20 industrial parks covering two million square metres of factory buildings, creating over 100 000 direct manufacturing jobs and more than 150 000 indirect jobs, and generating US$1 billion since 2016.[33] The biggest reward has been accumulating experience and management skills, and building institutions. The development of industrial parks takes a short time – mostly one to two years – and investors have shown interest in investing in them.

## 7.1 Summary Insights

From a policy learning perspective, however, Ethiopia's experience provides implications for policymaking. First, the country's motivation came from the conviction that there was a gap in its industrial development strategy, which did not provide the policy directives to direct industrial hubs. As the evidence shows, the development of industrial hubs was guided by the pursuit of their becoming an integral element of the broader industrial policy framework. Hence, the pursuit of developing specialised industrial parks ensured a commitment to environmental sustainability, and building executive excellence became the strategic thrust. The strategic approach ensured that industrial hubs attracted targeted productive investment and provided a thriving industrial ecosystem. However, efforts to ensure the synergy of industrial hubs with the country's infrastructure, urban development and university and technical education systems were inadequate.

Second, the approach comprised institutionalisation through relevant legislation, regulatory regimes, policy instruments, and changes in institutional structure – maximising coherence and coordination and efforts to reduce fragmentation and rigidity. While the laws have been comprehensive and fit for purpose, the coordination among inter-governmental agencies is a critical challenge, given that there are approximately 50 government agencies involved. The

[31] These are the Eastern Industrial Zone in Dukem, George Shoe City in Modjo, Hua Jian City in Addis Ababa, the Building Materials Hub in Arerti, CCECC Dire Dawa Industrial Park in Diredawa, and DBL Industrial Park and Velocity Industrial Park in Mekelle.
[32] See Staritz et al. (2016), Staritz and Whitfield (2019) and Whitfield and Zalk (2020).
[33] Twenty-four industrial parks were either operational or under construction, comprising 13 industrial parks by the federal government, four by regional governments, and seven by private developers. Table 4 does not include planned projects.

operations and management of industrial parks remain a significant challenge, with evident capability constraints.

Third, the Ethiopian experience shows that learning from international experience was targeted and intense, and combined a diverse array of experiences. While emulating others is vital, learning by doing is even more crucial. Learning was promoted through experiments, piloting and phased development approaches, and the systematic learning of lessons from practical Ethiopian experiences (Oqubay and Kefale 2020; UNCTAD 2021b). A significant disruption that slowed momentum and deterred investors was the political instability from 2016 to 2021, and the civil war in northern Ethiopia from 2019 to 2021.

Fourth, the strategic approach necessitated pragmatic and systematic decisions in response to the complex process and new obstacles. During the Covid-19 crisis, industrial parks focused on repurposing production capacity to manufacture PPE and introducing prevention and protection measures to support the developing industrial workforce and enhance productive capacity. Fifth, the state's role and a consistently high level of political commitment are crucial to the success of industrial hubs. The outcomes would have been different if government commitment had been inadequate. In a nutshell, the development of industrial hubs is neither a short-term fix nor a magic bullet. It requires much thinking and debate, adherence to the development strategy, the pursuit of an industrial policy framework, synergy with other key policies, and durable coordination within government bodies, and between government and the private sector and education institutions.

### Table 4: Ethiopia's National Industrial Parks Network

| | Name of the industrial park | Location | Developer | Year | Land, ha. | Status of park |
|---|---|---|---|---|---|---|
| | FEDERAL GOVERNMENT | | | | | |
| 1 | Bole Lemi I Industrial Park | Addis Ababa | Federal Gov. | 2014 | 172 | Operational |
| 2 | Hawassa Industrial Park | SNNP | Federal Gov. | 2015 | 300 | Operational |
| 3 | Mekele Industrial Park | Tigray | Federal Gov. | 2016 | 1000 | Operational |
| 4 | Kombolcha Industrial Park | Amhara | Federal Gov. | 2017 | 700 | Operational |
| 5 | Dire Dawa Industrial Park | Eastern | Federal Gov. | 2017 | 4118 | Construction completed |
| 6 | Adama Industrial Park | Oromia | Federal Gov. | 2017 | 365 | Operational |
| 7 | Bole Lemi II Industrial Park | Addis Ababa | Federal Gov. | 2017 | 181 | Construction completed |
| 8 | Kilinto Pharma Hub | Addis Ababa | Federal Gov. | 2017 | 279 | Construction completed |
| 9 | Jimma Industrial Park | Oromia | Federal Gov. | 2017 | 1000 | Construction completed |
| 10 | Bahir Dar Industrial Park | Amhara | Federal Gov. | 2017 | 2000 | Under construction |
| 11 | Debre Birhan IP | Amhara | Federal Gov. | 2017 | 1100 | Construction completed |
| 12 | Semera Industrial Park | Afar | Federal Gov. | 2019 | 400 | Under Construction |
| 13 | ICT Park | Addis Ababa | Federal Gov. | 2016 | 100 | Operational |
| | REGIONAL GOVERNMENTS | | | | | |
| 14 | Bure Agro-Park | Amhara | Regional Gov. | 2017 | 155 | Under construction |
| 15 | Yirgalem Agro-Park | SNNP | Regional Gov. | 2017 | 109 | Under construction |
| 16 | Baeker Agro-Park | Tigray | Regional Gov. | 2017 | 151 | Under construction |
| 17 | Bulbula Agro-Park | Oromia | Regional Gov. | 2017 | 263 | Under construction |
| | PRIVATE DEVELOPERS | | | | | |
| 18 | Eastern Industrial Zone | Oromia | Private | 2008 | 1167 | Operational |
| 19 | George Shoe City | Oromia | Private | 2016 | 76 | Operational |
| 20 | Huajian Industrial City | Oromia | Private | 2016 | 138 | Operational |
| 21 | CCCC Arerti IP | Amhara | Private | 2016 | 1000 | Construction completed |
| 22 | CCECC Dire Dawa IP | Eastern | Private | 2015 | | Construction completed |
| 23 | Vogue/Velocity IP | Tigray | Private | 2017 | 177 | Operational |
| 24 | DBL IP | Tigray | Private | 2017 | 78 | Operational |

Source: IPDC-EIC (2019)

## 8. Lessons for Africa and a Comparative Perspective of Industrial Hubs

The existing literature on African industrial hubs focuses on various constraints and weaknesses, such as the lack of legal and regulatory frameworks, the lack of government commitment, wrong location decisions, and infrastructure constraints. Even those few reviews that refer to the lack of strategic fit with industrialisation ignore the cardinal driver – broader industrial policy perspectives.[34]

[34] See, for instance, Farole (2011), FIAS (2008) and Zeng (2020).

The four industrial hub cases provide essential lessons for industrialisation and approaches to industrial hubs. First and foremost, the empirical evidence demonstrates the diversity of experiences with industrial hubs, reflecting specific domestic contexts such as development strategy and policies, evolving political economy contexts, and the changing international context. The mixed outcomes exhibit significant variation and unevenness, and the review shows that the typical 'standard prescriptive' approach does not fit the diverse national contexts. Industrial hubs are not 'magic bullets' for industrialisation, and policymaking is immensely complex, involving strategic perspectives and a pragmatic trial-and-error approach to industrial policies.

## 8.1 Industrial Hubs as Development Incubators

Depending on how they synergise industrialisation and economic transformation, the various views on and approaches to industrial hubs can be located on a continuum of two broad, diverging perspectives: the 'static enclave' model; and industrial hubs as development incubators. Industrial hubs, particularly export-processing zones and free zones, became popular after the 1960s, following the surge of globalisation featuring the expansion of global value chains and global production networks, coupled with the rapid growth in foreign direct investment and exports by many developing countries. From this perspective, industrial hubs are nodes of globalisation in which global firms shape global production and trade as an appendage of the global value chain of the specific industry. In labour-intensive industries, such as apparel and electronics, the driving motives for location selection are cheaper labour cost and flexible labour regimes, operating outside the host country's customs regime, ease of doing business and tax burdens – as an export orientation driven by economic liberalisation and global value chains.

As a result, foreign direct investment became footloose, moving to the next spot of cheap labour. The production activities were associated with processing and assembly, resulting in little value addition and relying on internationally sourced intermediate inputs and raw materials. Such industrialisation restricts outcomes to short-term static benefits such as employment, exports and FDI attraction, rather than promoting the production linkages, domestic capabilities and technological learning vital for structural change and catch-up. Promoted by dominant neoliberal champions and multinational corporations (MNCs), this path is viewed by many policymakers in developing countries as a shortcut to industrialisation. From within this perspective, governments will develop industrial hubs that provide a conducive business climate and attractive incentive regimes, with the false hope that the expansion of industrial hubs will fix the problem or act like a 'miracle cure'. Industrial hubs, seen as 'hard' or 'complex' infrastructure rather than industrial policy institutions, do not aim to drive structural change and synergise industrialisation.

Another inseparable viewpoint is that of seeing the contribution of industrial hubs as being the 'fixing' of market failures (such as infrastructure and other constraints) and a focus limited

to only direct benefits – jobs, exports, investment, in line with the country's comparative advantage. The state's role is regarded as facilitation or 'nudging', rather than an active role geared toward strategic or developing production capabilities. However, industrial hubs play a fundamental role as development incubators whose aim is to advance structural transformation and industrialisation within the broader industrial policy framework. Industrial hubs and industrial policy constantly adapt to the changing requirements of the external environment and emerging challenges.

Ensuring the vital role of industrial hubs as development incubators would require a strategic approach to ensure complete coherence with industrial policy by defining strategic sectors and productive activities, inducing productive investment, and stimulating production linkages. A strategic approach would ensure that the development of hubs builds maximum synergy with urban systems or urban development, infrastructure development, and education and learning institutions. Developing industrial clusters is a dynamic process and evolves with the life cycle of industrial hubs, industrial upgrading, and the requirements of the domestic context. The hubs provide an industrial ecosystem for manufacturing industries, develop productive capacity, harness industrial transformation, and build entrepreneurship and technological capabilities. The aim of industrial hubs is not to be limited to static comparative advantage, but rather should complement industrial policies to achieve higher productivity and higher-value and technology-intensive activities that generate linkages and utilise dynamic comparative advantages. The state plays a vital role in the strategic approach to industrial hubs that is not limited to facilitation, but also comprises a developmental role in the productive transformation and development of technological capability.

## 8.2 Comparative Perspectives on African Industrial Hubs

The comparative review of industrial hubs illustrates that their outcomes are not automatic, and synergising industrialisation and achieving structural transformation depend on pursuing multiple fundamental directions. The successful Mauritian economic diversification underscores that industrial hubs are knitted together within the industrial policy framework and require strong government political commitment and a robust private-sector partnership. Capitalising on learning from international experience and a pragmatic approach were essential for successful industrialisation. Nonetheless, the Mauritian experience shows inadequate focus on technological learning and synergy with urban systems and infrastructure development (see Table 6).

Despite the newness of industrialisation, the approach to export-processing zones was successful because of the targeted learning from East Asian benchmarks. Unlike in Mauritius, the engagement in export-processing zones by Senegal and Liberia in the 1970s, and dozens of other African countries from the 1980s to 2000s, failed to achieve industrialisation and economic diversification. These industrial hubs were isolated projects with no strategic

pursuit of industrialisation or integration with the industrial policy framework.[35] The divergent experiences imply synergy between industrial hubs and the broader industrial policy framework, with the following considerations to assist this approach.

## 8.3 A Strategic Approach to Developing Industrial Ecosystems

Industrial hubs follow strategic priority sectors defined in the industrial policy. A generic industrial hub may contribute to the attraction of FDI, generating a limited amount of jobs and exports. However, it is unlikely to generate strong linkage effects and deepen industrial upgrading and technological intensity. Mauritian export-processing zones targeted export dynamism and the apparel and textile sector from 1970 to 2005, progressing to specialised hubs for new economic sectors, such as the Cyber City for the ICT business-processing outsourcing industry, the International Business Hub for international financial services, and logistics hubs from 1990 until the 2010s. Similarly, the Tanger Med Industrial Complex targeted manufacturing industries that met strategic priorities, such as the automotive, electronic, and textile industries catered for by specialised industrial hubs (Table 5).

This is the opposite of the 'static and enclave' model and may be referred to as the 'dynamic' or long-term approach to the development of industrial hubs. The ultimate test of industrial hubs' contributions to sustainable economic development is whether they contribute to local development through linkages and local technological upgrading. As stated in this paper, most industrial hubs in Africa have short-term (static) objectives – attract FDI, create low-wage jobs, and generate export income. In the short term, these are acceptable objectives. However, the dynamic approach contributes to lasting development in the long term. The available evidence suggests that the successful East Asian economies built industrial hubs with long-term objectives in mind from the early days. In these economies, encouraging linkages was the foundation of the model and legislation establishing industrial hubs.

As witnessed in the successful industrial transformation in East Asia and the case studies in Africa, multiple factors support the strong rationale for specialised industrial parks to develop a thriving industrial ecosystem, promote domestic linkages and local capability, and stimulate technological spillovers. These case studies suggest that specialised or sector-based industrial hubs offer significant benefits. However, despite the vitality of specialised industrial hubs, close to 90 per cent are generic ones (UNCTAD 2020). Specialised industrial hubs target strategic priority sectors and the industrial upgrading of industries, and select locations based on productive criteria critical to the sector's growth. Specialised industrial hubs enable the stimulation of production linkage effects – backward, forward, and all other forms of linkages.

Moreover, specialised industrial hubs could facilitate a targeted promotion of productive investment in terms of sectors, countries of origin and firms, aligning with the specific

[35] See also Stein (2012).

requirement of the global value chain and coordinating with targeted 'anchor' firms. It also allows for the design and execution coherence of policy instruments, constantly making improvements in line with changes in the sector, building productive partnerships with the private sector and industry, and providing critical support for higher education institutions. Specialised industrial hubs provide an ideal setting for harnessing inter-firm learning and facilitating skills development and the development of the industrial workforce. The requirements and constraints of industrial hubs are aligned with their distinct stages – initiation, expansion, growth and maturity. Specialised industrial hubs allow the development of targeted sector-dedicated infrastructure and related services to stimulate the sector and effectively fulfil international compliance requirements.

The East Asian experience shows that synergy between industries, research and higher education institutions is essential for industrial transformation. Tanger Med provides typical evidence of how industrial hubs can facilitate urbanisation and develop productive urban hubs, as is evident in the growth of Tanger city. The development of infrastructure networks is designed to support industrialisation and spill over to the hinterland. The initiative to build a new, world-class university of technology in Morocco was the right move and was critical to the development of technological capability. Similar efforts in Mauritius were inadequate, limiting the spillover effect to the entire island. Ethiopia's approach was to develop industrial hubs in which better infrastructure (expressways and airports) is present and to expand labour-intensive industrial hubs in secondary cities with abundant labour and where more prominent universities and technical schools are concentrated. Expanding universities and education reform towards the technology and engineering disciplines has complemented industrial hubs.

**Table 5. A Summary of Strategic and Policy Lessons from African Industrial Hubs**

| Description | Weaknesses and challenges | Lessons and recommendations |
|---|---|---|
| Strategic approaches | • Industrialisation is not at the core of the country's development strategy.<br>• Lack of coherent industrial policy: targeted sectors, instruments.<br>• Lack of specific policies on industrial hubs.<br>• Lack of government political commitment.<br>• Limited to static comparative advantage rather than long-term industrial and technological upgrading. | • Industrialisation and economic diversification are at the centre of development strategy.<br>• Industrial hubs are within the industrial policy framework.<br>• Industrial hubs are primarily sector-focused or specialised in ensuring linkages and industrial upgrading.<br>• Unlike the conventional view, industrial transformation aims to develop dynamic advantages. |
| Sectoral level | • No targeted sectoral or specialised industrial hubs.<br>• A weak focus on domestic linkages and local capabilities.<br>• No targeted industrial ecosystem.<br>• No focus on industrial upgrading. | • Sectoral targeting and building an industrial ecosystem aim at meeting specific requirements.<br>• Industrial hubs focus on technological intensity, integrated local firms, and domestic linkages.<br>• Building scale to meet international competitiveness. |

| Description | Weaknesses and challenges | Lessons and recommendations |
|---|---|---|
| National and sub-national levels | • No clear strategy for the national network of industrial hubs.<br>• Weak delivery of infrastructure (energy, roads, etc.).<br>• Environmental sustainability is ignored.<br>• There is weak synergy of industrial hubs with the urban setting and urban amenities.<br>• Weak government coordination at national, sub-national and local levels. | • A national master plan of industrial hubs is necessary.<br>• The synergy between infrastructure development (energy, transport, communication) and industrial hubs.<br>• Environmental consideration is an essential requirement at strategic, sectoral and national levels.<br>• Legislative, regulatory and institutional frameworks fit the development strategy and industrial policy framework. |
| Design and execution at the hub level | • Selection of location based on political factors.<br>• Poor selection of location.<br>• Lack of land supply.<br>• Weak economic and financial feasibility.<br>• Lack of diversified and innovative financing.<br>• Weak implementation of the development of industrial hubs (excessively long construction period, over budget, etc.)<br>• Weak operations and management of industrial hubs. | • The selection of location is based primarily on productive rather than political criteria.<br>• A supportive political economy ensuring land supply and utilisation serves productive transformation.<br>• Sustained finance requires a mix of government finance, private sector finance, concessional loans, and private-public partnership models.<br>• Operations and management require a stronger focus than building hubs. |
| Perspectives | • Assume industrial hubs are a miracle bullet solution.<br>• Assume a one-size-fits-all approach and rely on prescription.<br>• Neglect evolving trends in hub policies.<br>• Industrial hubs are viewed as rigid phenomena. | • Hubs are diverse and reflect specific contexts.<br>• Synergy and sustainability are at the core.<br>• Continuous adaptation and learning.<br>• Building excellence and scale as guiding principles. |

Source: Author's analysis (UNCTAD 2021b; UN-ESCAP 2019).[36]

## 8.4 Adaptation of Industrial Hubs

Industrial hubs are organic entities that evolve through different life-cycle stages that necessitate adaptation. The challenges in the initial phase are different than during the growth or maturity phases.[37] Industrial hubs are continuously affected by changes in the external environment, both fundamentally and incrementally. One of the three emerging drivers that affect industrial hubs in the contemporary world is the global threat of climate change, which necessitates a commitment to environmental sustainability. The pursuit of

[36] See also Oqubay and Lin (2020), Oqubay and Ohno (2019), and Oqubay et al. (2020).

[37] Kuchiki (2020: 345) highlights that industrial agglomeration is the clustering of "firms in a single industry or multiple industries within a region". Kuchiki further proposes the "flowchart approach to industrial hubs", comprising the key factors that shape the patterns of industrial agglomeration: location, efficient sequencing of segments (physical infrastructure, institution building, human resource development, and living amenities), and organisational management.

carbon-neutral industrialisation is essential for African countries, and industrial hubs could be the catalyst for green transformation. Hence, it is vital to incorporate environmental sustainability as a critical feature for developing a new generation of industrial hubs (Table 6). Learning from pioneering practices will be critical, given the novelty of sustainable or eco-industrial hubs.[38]

The second driver is the volatility of the global economy and shifts in global value chains (GVCs), which are imposing more barriers to upgrading the governance structure, and a well-calibrated approach based on changes in the respective sectors is critical.[39] The specialised industrial hubs approach is an instrument to advance this objective. Because of the Covid-19 crisis, building resilience has become the critical feature of GVCs in all industries, pushing towards leaner and more responsive solutions.[40] The emergence of regional value chains, for example through the AfCFTA, offers unique opportunities and challenges for developing countries.

Third, technological advancements are accelerating and fusing to bring new dynamism and challenges, shaping every industry and how communities learn, live and work. While the tendency to present an exaggerated and gloomy picture is prevalent, it is also essential to recognise that this shift requires a new response. Industrial hubs can focus increasingly on skills development and learning, productivity improvement, and the introduction of new production management systems. Digital transformation presents an opportunity to develop intelligent industrial hubs and smart cities. In addition, introducing the Covid-19 lessons to the industrial hubs and policy framework is critical. It calls for an open system in which the exchange of information and knowledge goes unhindered, and networks can thrive. These evolving changes imply that policymakers and business leaders undertake continuous research to better grasp the development of dynamic industrial ecosystems that can support industries while evolving.

**Table 6: Key Emerging Issues and Policy Implications for African Industrial Hubs**

| Emerging trends | Effects | Implications for industrial hubs policies |
|---|---|---|
| Covid-19 crisis | • Rapidly shrinking productive FDI (greenfield) – Africa's FDI – is the same as the level in 2005.<br>• Massive losses of jobs and bankruptcy of firms.<br>• Disruption of global value chains.<br>• Increased uncertainty. | • Job creation has to be central.<br>• Health and wellness are critical in workforce development in industrial hubs.<br>• The pharmaceutical industry and health sector have a more significant opportunity.<br>• Economic diversification and diversified clusters become vital.<br>• Targeted productive investment and innovative instruments are necessary. |

[38] On green transformation and green industrial policy, see Mathews (2015, 2020).
[39] See also Gereffi (2018), Gereffi and Wu (2020) and UNCTAD (2013).
[40] World Bank (2020).

| Emerging trends | Effects | Implications for industrial hubs policies |
|---|---|---|
| Global production networks | • Sluggish growth of GVCs after the 2009 financial crisis.<br>• Disruption of the global value chain and weak resilience exposed by Covid-19. | • Building a resilient value chain is becoming critical.<br>• Regional diversification of supply chains.<br>• Domestic linkages and local productive capacity become more critical. |
| Digitisation | • Key technologies (such as automation and robotisation) and their applications are expanding.<br>• Digitisation of the supply chain, production, logistics and commerce.<br>• Wider use of AI and big data. | • Workforce development, skills upgrading and lifetime learning are vital.<br>• Smart industrial hubs and infrastructure, inter-firm production linkages, commerce, finance.<br>• Technology and innovation parks gain more importance. |
| Climate crisis | • SDGs are at the centre of development policies.<br>• New technologies (infrastructure and production) are emerging and becoming economically feasible.<br>• Consumer pressure for carbon neutrality.<br>• Innovative green financing is evolving. | • Carbon-neutral industrialisation is the sole pathway.<br>• Expanded use of new, clean energy sources (such as solar).<br>• Building eco-industrial hubs in development, operations and management.<br>• Green sectors as new opportunities. |
| AfCFTA | • AfCFTA can become a catalyst for industrialisation.<br>• Opportunity for diversified regional value chains.<br>• Opportunities for continental and sub-regional markets.<br>• Agreement on the origin of goods, harmonising and reforming regulatory requirements. | • Provides an opportunity for larger-scale and specialised industrial clusters.<br>• Industrial hubs will continue to be primarily national.<br>• Infrastructure constraints, especially connectivity and energy, are critical.<br>• The ultimate aim is to improve the international competitiveness of African industries, exports and job creation with broader strategic significance. |
| Pathways to the future | • Sustainable industrial hubs are critical.<br>• Specialised or sector-focused industrial hubs become feasible for building production linkages, inserting and upgrading within the global value chain, and aligning with digital opportunities.<br>• Technological intensity and innovation have become increasingly vital. Industrial clusters for services and technological activities become necessary.<br>• The development of the industrial workforce is critical for governance upgrading and competitiveness.<br>• AfCFTA is a pivotal opportunity to boost exports and build specialised clusters (such as the automotive and pharmaceutical industries).<br>• Research is necessary to study the key trends and understand the implications for various sectors and geographical settings. | |

Source: Author's compilation and analysis, UNCTAD (2020, 2021a, 2021b, 2021d), UNIDO (2020, 2022).

## 8.5 Execution Excellence and Learning

Learning from own practices offers a much richer learning opportunity and experiments with policy innovation. There is too little research on Africa's policy design, implementation and outcomes. The experience of Mauritius reveals the critical contribution of learning to the

success of industrial hubs in synergising industrialisation and industrial policies. Ethiopia's recent initiative hints at the importance of learning, although it is still a work in progress and too early to come to conclusions.

The African case studies illustrate the state's central role in industrialisation and economic transformation, as is evident in the strategic approach to industrial hubs. The political commitment of Morocco's leaders in championing Tanger Med shows the developmental role of the state. The productive dialogue in Mauritius's state-private sector exemplifies the state's indispensable role in mobilising society towards economic transformation. The learning approach and commitment of the Ethiopian government was essential to improve execution and outcomes. Nonetheless, the state's role is not static and varies across sectors or different stages of industrialisation, and has to be selective and focus on sectors with strategic implications. Furthermore, the ultimate aim is to build a productive collaboration with the private sector and knowledge institutions. The government's weak strategic approach and policies are the causes of most problems with industrial hubs, as seen in the mixed outcome of the China–Africa special economic zones.

Despite the state's vital role, as evident in the African cases and the successful East Asian experience, the dominant conventional view that is hammered home undermines the role of government and extols the role of the private sector.

## 8.6 Discussion and Conclusion

Despite the growing interest in industrial hubs and industrialisation in Africa in recent years, the literature on African industrial hubs has been inadequate, with limited policy perspectives. This paper has reviewed the different experiences of African industrial hubs over five decades (1970 to 2020), and the critical insights from each case study were presented in separate sections. The paper has focused on three objectives and relied on a methodology combining the existing literature and primary research. The evidence shows the diversity of African experiences and the uneven and mixed outcomes of policies as critical conduits of policy learning, and highlights that a strategic approach within industrial policy frameworks is essential for synergising industrialisation.[41] Table 7 presents a comprehensive summary of comparative case studies.

The cases illustrate that diversity and heterogeneity are essential features of African industrial hubs, varied in their distinct contexts and policy focus, and the sectors' industrial structure and global value chains (Gereffi 2018; Gereffi and Wu 2020; UNCTAD 2013, 2020). Diversity has critical implications for both research and policymaking, showing the importance of understanding the domestic situation, the dynamics of specific sectors, the political economies and international environments. This has further immense implications for research and policymaking, underscoring that local context and the specific environment

[41] See Amsden (1989) and Oqubay (2020a, 2020b).

matter, and that a prescriptive 'one-size-fits-all' approach is unlikely to work. It shows the significant gap in research on the country and specific industrial hubs, and the importance of extensive research to fill gaps in the empirical evidence.

The empirical evidence shows that industrial hubs are dynamic and shaped continuously by policy dynamics and domestic and external environments. It also shows that mixed and uneven policy outcomes are a critical opportunity for policy learning and valuable research outputs. Failures are also prevalent among successful experiences, and positive lessons can be drawn from mistakes and failed outcomes. The case studies show the most frequent weaknesses and failures of and positive lessons and possible recommendations from African industrial hubs at the strategic, sectoral and national levels, and from the design and execution of industrial hubs. UNCTAD's extensive research from 2018 to 2021 (UNCTAD 2019, 2021a, 2021b, 2021d), and the global research output in *The Oxford Handbook of Industrial Hubs and Economic Development* (Oqubay and Lin 2020), provide extensive insights.

Unlike the standard portrayal of Africa's industrial hubs as failures, this paper shows the central features of unevenness and mixed outcomes. Unevenness and mixed outcomes are evident in different stages of development and in different sectors. Governments have had to find new solutions to complex challenges and test policies in practice, highlighting the importance of policy learning. The cases show that governments have made an effort to learn from successful experiences elsewhere and have introduced projects and policies to experiment with. They also have made a variety of efforts to build partnership with the private sector to allow for collective learning. Weaknesses and gaps are evident at the strategic and implementation levels, and both dimensions are rooted in government policies and policymaking.

The cases demonstrate that industrial hubs are not an end in themselves. However, they could energise industrialisation and promote industrial transformation, which require a strategic approach aligned with industrial policy frameworks. This necessitates that the state play a developmental role and engage in productive dialogue with the private sector. The dedication of the political leadership to industrialisation and policies on industrial hubs is a critical factor for success.

The critical weaknesses and challenges are that industrialisation is not at the core of many African countries' development strategies, coupled with weak political commitment by their governments. There is a lack of coherent industrial policies (in terms of sectoral focus and support instruments), a lack of comprehensive policy or strategy on industrial hubs, an inadequate focus on specialised (sector) hubs and domestic linkages, and an inadequate understanding of the industrial ecosystem and industrial upgrading. At the implementation level, there is the incorrect selection of locations based on political rather than productive criteria, political economy obstacles to land supply, inadequate provision of infrastructure, a lack of diversified and innovative financing, and weak operations and management of industrial hubs (UNCTAD 2021b). Environmental sustainability and carbon-neutral

industrialisation continue to be marginal. Assuming industrial hubs to be miracle bullets and following a one-size-fits-all approach are widely influential among policymakers.

The focus in the existing literature on the strategic approach to industrial hubs and the positioning within the industrial policy framework has been inadequate. However, this paper highlights that industrial hubs should foster structural transformation and technological catch-up, which would necessitate an active industrial policy framework and a developmental role of the state (Lee 2019; Lee, Keun 2020; Oqubay and Ohno 2019). A strategic approach should synergise industrialisation, while continuously adapting to emerging trends, such as shifts in global value chains, environmental sustainability and climate collapse, the Covid-19 crisis and its aftermath and recovery, and technological advancements and digital technologies.[42]

Industrial hubs need to adapt continuously to emerging trends, domestic reality, and their life cycle. The Covid-19 crisis, global value chains and digitisation (and IR4) have significant implications for industrial hub policies (UNCTAD 2013, 2020). Climate change and environmental sustainability shape the strategic approach to industrial hubs. However, the effect of these emerging trends is not uniform, and they have diverse policy implications.

The African Continental Free Trade Area (AfCFTA) offers a significant opportunity for larger economies of scale and the specialisation of African industrial hubs, along with significant implications for Africa's industrialisation and more significant market opportunities (UNCTAD 2021a, 2021b, 2021d). Africa's industrialisation requires an industrial ecosystem that displays a call for developing a new generation of industrial hubs, which comprise specialised sectors or productive activities, are sustainable, and are built on excellent execution. Industrial hubs developed within national boundaries will be dominant, although locations will adapt to economic corridors and connectivity through cross-border infrastructure. Investment flows and cross-border labour mobility will increase. More importantly, AfCFTA can attract massive productive investment in Africa and play a catalyst role in economic diversification and industrialisation.

Finally, this paper has presented empirical evidence and contributed to filling the gap in the literature and shown prospects for future research in three areas. Research is required to understand the dynamics and underlying drivers of industrial hubs, the synergy between industrial policy frameworks, and the development of industrial ecosystems in diverse sectors and high-productivity activities. Research is also required on emerging trends and how they affect and interact with industrial hubs. Finally, a systematic database needs to be compiled on industrial hubs, along with the extraction of comprehensive lessons and policy learning.

[42] See Mathews (2015, 2020) on green transformation.

## Table 7. The Comparative Perspective of African Industrial Hubs (1970 to 2020)

| | Mauritius | ETCZs | Tanger Med Complex | Ethiopia |
|---|---|---|---|---|
| **Policy area** | **1970–2020** | **2001–2020** | **2001–2020** | **2011–2020** |
| (1) Industrial policy<br>(a) Strategy<br>(b) Policy incentives/ reciprocity<br>(c) Government coordination | a) Active industrial policy: Export-led industrialisation<br>b) Fiscal, customs, exports<br>c) One-stop, high coordination | a) Diverse experience and weak strategic approach<br>b) Inconsistent incentives<br>c) Weak coordination | a) Active industrial policy: Export-led industrialisation<br>b) Fiscal and export supports<br>c) Effective coordination | a) Active industrial policy: Export-led manufacturing<br>b) Fiscal and export supports<br>c) Modest coordination |
| (2) Economic diversification/ industrial upgrading | a) Successful diversification<br>b) From mono-crop to light manufacturing – textiles<br>c) To services (ICT, international finance, logistics) | a) Inadequate diversification<br>b) Mixed outcomes – moderate to inadequate | a) Effective diversification<br>b) Diverse light and medium manufacturing<br>c) Service hub – port, logistics | a) Inadequate diversification<br>b) Light manufacturing<br>c) Agriculture linkage |
| (3) Drivers of comparative advantage | a) Labour<br>b) Preferential market access<br>c) Government support | a) Varies among countries<br>b) Labour, market access, natural resources | a) Proximity to the EU market<br>b) Labour cost and skill<br>c) Gibraltar Strait location<br>d) Government commitment | a) Labour and energy cost<br>b) Preferential market access<br>c) Government support |
| (4) Industrial ecosystem<br>a) Specialised versus generic<br>b) Scale and scope<br>c) Location and spatial aspects<br>d) Finance/ development | a) Specialised hubs EPZ/Cybercity/finance/ logistics<br>b) Moderate scale<br>c) Entire island, high density<br>d) Government and private | a) Generic<br>b) Large scale<br>c) Diverse locations – thin, weak infrastructure provision<br>d) Government–private | a) Specialised hubs<br>b) Enormous scale<br>c) Northern Morocco/coastal<br>d) Government–private | a) Specialised hubs<br>b) Medium to large scale<br>c) Diverse locations<br>d) Government–private |
| (5) Performance<br>a) Manufacturing capacity<br>b) Exports<br>c) Technological capacity and linkages | a) Manufacturing – high<br>b) Exports – high<br>c) Inadequate technology and linkages | a) Inadequate – moderate<br>b) Inadequate<br>c) Inadequate | Excellent outcomes<br>a) High manufacturing<br>b) High exports<br>c) Moderate | Work in progress<br>a) Modest manufacturing<br>b) Limited exports<br>c) Inadequate |
| (6) Policy learning | Effective learning | Diverse and mixed | Effective learning | Systematic learning |

| | Mauritius | ETCZs | Tanger Med Complex | Ethiopia |
|---|---|---|---|---|
| **Policy area** | **1970–2020** | **2001–2020** | **2001–2020** | **2011–2020** |
| a) Learning from international experience<br>b) Experimental and phased approach | a) Intense and targeted learning<br>b) Phased approach | a) Inadequate and passive<br>b) No systematic approach | a) Moderate – private<br>b) Phased approach | a) Targeted and intense learning<br>b) Piloting and phased |
| (7) Role of state<br>a) Political commitment<br>b) Strategic role<br>c) Government-industry dialogue | a) Strong political commitment<br>b) Effective strategic role<br>c) Exemplary dialogue | Variations<br>a) Low political commitment<br>b) Ineffective strategic role<br>c) Weak dialogue | a) Strong political commitment<br>b) Effective strategic role<br>c) Effective dialogue | a) Strong political commitment<br>b) Effective strategic role<br>c) Effective dialogue |

Source: Author's compilation and analysis.

## References

Agénor, P.-R. & El Aynaoui, K. (2015). Morocco: Growth strategy for 2025 in an evolving international environment. Policy Brief No. 2. Rabat: Policy Center for the New South.

Ali, A. A. & Msadfa, Y. (2016). Industrial policy, structural change and global value chains participation: A case study of Morocco, Tunisia and Egypt. Policy Brief PP-16.04. Rabat: Policy Center for the New South.

Amsden, A. (1989). *Asia's next giant: South Korea and late industrialization*. Oxford: Oxford University Press.

Amsden, A. (2007). *Escape from Empire: The developing world's journey through heaven and hell*. Cambridge MA: MIT Press.

Arbouch, M., Canuto, O., Della Croce, R., El Aynaoui, K., El Jai, Y. & Vazquez, M. (2021). Infrastructure investment and financing: Risk mitigation tools to crowd in private investment in green technologies. G20 Insights. Task Force 7: Infrastructure Investment and Financing. Policy Brief, September. Available from: https://www.g20-insights.org/wp-content/uploads/2021/09/TF7_RISK_MITIGATION_TOOLS_TO_CROWD_IN_PRIVATE_INVESTMENT_IN_GREEN_TECHNOLOGIES.pdf

Auktor, G. V. (2022). The opportunities and challenges of Industry 4.0 for industrial development: A case study of Morocco's automotive and garment sectors. Discussion Paper 2/2022. Bonn: German Development Institute (DIE).

Baissac, C. (2011). Planned obsolescence? Export processing zones and structural reform in Mauritius. In: T. Farole & G. Akinci (eds), *Special economic zones: Progress, emerging challenges, and future directions* (pp. 227-244). Washington, DC: World Bank.

Best, H. M. (2001). *The new competition*. Cambridge, MA: Harvard University Press.

Best, H. M. (2018). *How growth happens: The making of economic miracles through production, governance, and skills*. Princeton, NJ: Princeton University Press.

Best, H. M. (2020). The economics of innovation behind cluster dynamic processes. In: A. Oqubay & J. Y. Lin (eds), *The Oxford handbook of industrial hubs and economic development* (pp. 64-76). Oxford: Oxford University Press.

Brautigam, D. (2005). Strategic engagement: Markets, transnational networks, and globalization in Mauritius. *Yale Journal on International Affairs*, 1: 63-78.

Brautigam, D. & Diolle, T. (2009). Coalitions, capitalists and credibility: Overcoming the crisis of confidence at independence in Mauritius. Developmental Leadership Program, Research Paper 04. Available from: https://res.cloudinary.com/dlprog/image/upload/ucuWdOkawhjuHiFoHjClYWhz5waxKraQ7cxrlaVG.pdf

Brautigam, Deborah and Tang Xiaoyang (2011) 'China's Investment in African Special Economic Zones: Overview and Initial Lessons' in Thomas Farole and Gokhan Akinci (eds) Special Economic Zones: Progress, Emerging Challenges, and Future Directions. Washington, DC: World Bank, pp. 69–100.

Breschi, S. & Malerba, F. (2005). *Clusters, networks, and innovation*. Oxford: Oxford University Press.

Business Focus Magazine. (2020, October 19). Tanger Med Industrial Platform ranks second special economic zone in the world. Available from: https://www.businessfocusmagazine.com/2020/10/19/tanger-med-industrial-platform-ranks-2nd-special-economic-zone-in-the-world/

Cramer, C. & Tregenna, F. (2020). Heterodox approaches to industrial policy and the implications for industrial hubs. In: A. Oqubay & J. Y. Lin (eds), *The Oxford handbook of industrial hubs and economic development* (pp. 40-63). Oxford: Oxford University Press.

Cramer, C., Sender, J. & Oqubay, A. (2020). *African economic development: Evidence, theory, policy*. Oxford: Oxford University Press.

Dettoni, J. (2020, October 15). FDI's global free ones of the year 2020 – The winners. *FDI Intelligence*. Available from: https://www.fdiintelligence.com/article/78955

El Mokri, K. (2016). Morocco's 2014-2020 industrial strategy and its potential implications for the structural transformation process. Policy Brief PB-16/27. Rabat: Policy Centre for the New South.

Embassy of the People's Republic of China in the Republic of South Africa. (2006). *Forum on China-Africa Cooperation Beijing Action Plan (2007–2009)*. Available from: http://za.china-embassy.org/eng/zt/summit/200611/t20061116_7639248.htm

Embassy of the People's Republic of China in the Republic of South Africa. (2009). *Implementation of the follow-up actions of the Beijing Summit of the Forum on China-Africa Cooperation*. Available from: http://www.focac.org/eng/zywx_1/zywj/200911/t20091117_8079757.htm

Farole, T. (2011). *Special economic zones in Africa: Comparing performance and learning from global experience*. Washington, DC: World Bank.

FDRE. (2002). *The Industrial Development Strategy of Ethiopia*. Addis Ababa: Information Ministry, Federal Democratic Republic of Ethiopia.

FDRE. (2011). *The climate resilient green economy: Green economy strategy (CRGE)*. Addis Ababa: Federal Democratic Republic of Ethiopia.

FDRE. (2014). *Industrial parks and industrialization in Ethiopia*. White Paper. Addis Ababa: Office of the Prime Minister.

FDRE. (2015). *A Proclamation on Industrial Parks. Proclamation No. 886/2015*. Federal Negarit Gazette of the Democratic Republic of Ethiopia No. 39, pp. 8205-34. Addis Ababa: Federal Democratic Republic of Ethiopia.

FIAS. (2008). *Special economic zones: Performance, lessons learned, and implications for zone development*. Washington, DC: World Bank.

Garofoli, G. (2020). Industrial districts in Europe: Lessons for industrial hubs. In: A. Oqubay & J. Y. Lin (eds), *The Oxford handbook of industrial hubs and economic development* (pp. 162-189). Oxford: Oxford University Press.

Gereffi, G. (2018). *Global value chains and development*. Cambridge: Cambridge University Press.

Gereffi, G. & Wu, X. (2020). Global value chains, industrial hubs, and economic development in the twenty-first century. In: A. Oqubay & J. Y. Lin (eds), *The Oxford handbook of industrial hubs and economic development* (pp. 1049-1068). Oxford: Oxford University Press.

Gerschenkron, A. (1962). *Economic backwardness in historical perspective*. Cambridge, MA: Harvard University Press.

Giannecchini, P. & Taylor, I. (2018). The Eastern industrial zone in Ethiopia: Catalyst for development? *Geoforum*, 88: 28-35.

Hahn, T. & Auktor, G. V. (2017). The effectiveness of Morocco's industrial policy in promoting a national automotive industry. Discussion Paper 27/2017. Bonn: German Development Institute (DIE).

Hahn, T. & Auktor, G. V. (2018). Industrial policy in Morocco and its potential contribution to a new social contract. Discussion Paper 31/2018. Bonn: German Development Institute (DIE).

Hatim, Y. (2020, November 10). Morocco's automotive exports exceed revenue of phosphate exports. *Morocco World News*. Available from: https://www.moroccoworldnews.com/2020/11/325388/moroccos-automotive-exports-exceed-revenue-of-phosphate-exports

Hirschman, A. (1958). *The strategy of economic development*. New Haven, CT: Yale University Press.

IPDC-EIC. (2018). *Institutionalisation of learning on industrial parks: Volume I, II, III, IV*. Addis Ababa.

Jacobs, J. (1969). *The economy of cities*. New York: Vintage Books.

Jaidi, L. & Msadfa, Y. (2017) The complexity of the rise of global value chains: The case of the automotive and aeronautics industries in Morocco and Tunisia. Policy Brief PP-17/08 (in French). Rabat: Policy Centre for the New South.

Kaldor, N. (1967). *Strategic factors in economic development*. Ithaca, NY: Cornell University Press.

Kidane, W. & Fikre, B. M. (2020). Legal framework for industrial hubs: A critical review and lessons for Africa. In: A. Oqubay & J. Y. Lin (eds), *The Oxford handbook of industrial hubs and economic development* (pp. 967-984). Oxford: Oxford University Press.

Kou, Z. & Zhang, J. (2020). Industrial hubs in 'Sphinx' China. In: A. Oqubay & J. Y. Lin (eds), *The Oxford handbook of industrial hubs and economic development* (pp. 574-591). Oxford: Oxford University Press.

Kuchiki, A. (2020). A flowchart approach to industrial hubs. In: A. Oqubay & J. Y. Lin (eds), *The Oxford handbook of industrial hubs and economic development* (pp. 345-380). Oxford: Oxford University Press.

Lee, K. (2019). *The art of catch-up: Barriers, detours and leapfrogging in innovation systems*. Cambridge: Cambridge University Press.

Lee, Keun (2020) 'Diverse Tools of Industrial Policy in Korea: A Schumpeterian and Capability-based View', in Arkebe Oqubay, Christopher Cramer, Ha-Joon Chang and Richard Kozul-Wright (eds) The Oxford Handbook of Industrial Policy. Oxford: Oxford University Press, pp. 661–980.

Lin, J. Y., Xu, J. & Xia, J. (2020). Explaining reform and special economic zones in China. In: A. Oqubay & J. Y. Lin (eds), *The Oxford handbook of industrial hubs and economic development* (pp. 559-573). Oxford: Oxford University Press.

Lin, J. Y., Xu, J. & Hager, S. (2019). Special economic zones and structural transformation in Ethiopia: A new structural economics perspective. In: F. Cheru, C. Cramer & A. Oqubay (eds), *The Oxford handbook of the Ethiopian economy* (pp. 807-823). Oxford: Oxford University Press.

Marshall, A. ([1890] 1920). *Principles of economics*. London: Macmillan.

Mathews, J. (2015). *Greening capitalism: How Asia is driving the next great transformation*. Stanford, CA: Stanford University Press.

Mathews, J. (2020). Greening industrial policy. In: A. Oqubay, C. Cramer, H.-J. Chang & R. Kozul-Wright (eds), *The Oxford handbook of industrial policy* (pp. 266-283). Oxford: Oxford University Press.

MEXA. (2022). *Meet MEXA*. Available from: https://www.mexamauritius.org/who-is-mexa

Norbrook, N. (2020, updated April 21). Morocco: Yes, we plan. *The Africa Report*. Available from: https://www.theafricareport.com/5507/morocco-yes-we-plan/

Ocampo, J. A. (2020). Industrial policy, macroeconomics, and structural change. In: A. Oqubay, C. Cramer, H.-J. Chang & R. Kozul-Wright (eds), *The Oxford handbook of industrial policy* (pp. 266-283). Oxford: Oxford University Press.

Ohlin, B. (1933). *Interregional and international trade*. Cambridge, MA: Harvard University Press.

Oqubay, A. (2015). *Made in Africa: Industrial policy in Ethiopia*. Oxford: Oxford University Press.

Oqubay, A. (2019a). Industrial policy and late industrialization in Ethiopia. In: F. Cheru, C. Cramer & A. Oqubay (eds), *The Oxford handbook of the Ethiopian economy* (pp. 605-629). Oxford: Oxford University Press.

Oqubay, A. (2019b). The structure and performance of the Ethiopian manufacturing sector. In: F. Cheru, C. Cramer & A. Oqubay (eds), *The Oxford handbook of the Ethiopian economy* (pp. 630-650). Oxford: Oxford University Press.

Oqubay, A. (2020a). Industrial hubs and economic development: A literature review. In: A. Oqubay & J. Y. Lin (eds), *The Oxford handbook of industrial hubs and economic development* (pp. 15-39). Oxford: Oxford University Press.

Oqubay, A. (2020b). Industrial hubs as development incubators: Asian pioneers. In: A. Oqubay & J. Y. Lin (eds), *The Oxford handbook of industrial hubs and economic development* (pp. 523-558). Oxford: Oxford University Press.

Oqubay, A. & Kefale, D. (2020). A strategic approach to industrial hubs: Learnings in Ethiopia. In: A. Oqubay & J. Y. Lin (eds), *The Oxford handbook of industrial hubs and economic development* (pp. 877-913). Oxford: Oxford University Press.

Oqubay, A. & Lin, J. Y. (eds). (2019). *China–Africa and an economic transformation*. Oxford: Oxford University Press.

Oqubay, A. & Lin, J. Y. (eds). (2020). *The Oxford handbook of industrial hubs and economic development*. Oxford: Oxford University Press.

Oqubay, A. & Ohno, K. (eds). (2019). *How nations learn: Technological learning, industrial policy, and catch-up*. Oxford: Oxford University Press.

Oqubay, A., Cramer, C., Chang, H.-J. & Kozul-Wright, r. (eds). (2020). *The Oxford handbook of industrial policy*. Oxford: Oxford University Press.

Oxford Business Group and Africa Economic Zones Organization (AEZO). (2021). *Economic zones in Africa: Focus report*. Available from: https://cfcwpstorageaccount.blob.core.windows.net/cfcwpcontainer/2021/11/AEZO_Focus_Report.pdf

Pasinetti, L. (1981). *Structural change and economic growth: A theoretical essay on the dynamics of the wealth of nations*. Cambridge: Cambridge University Press.

Pilling, D. (2021, October 12). How Morocco transformed itself into a carmaking hub. *Financial Times*. Available from: https://www.ft.com/content/7a8498e5-3fc9-4e90-8dfc-e72d492a8c57

Porter, M. (1990). *The competitive advantage of nations*. New York: Free Press.

Ramtohul, Ramola (2020) 'Hubs Development and Industrial Upgrading in Mauritius,' in Arkebe Oqubay and Justin Yifu Lin (eds) The Oxford Handbook of Industrial Hubs and Economic Development. Oxford: Oxford University Press, pp. 914–930.

Ramtohul, R. & Eriksen, T. H. (eds). (2018). *The Mauritian paradox: Fifty years of development, diversity and democracy*. Reduit: University of Mauritius.

Rodrik, D. (2012). *The globalization paradox: Why global markets, states, and democracy can't exist*. Oxford: Oxford University Press.

Saxenian, A. (1996). *Regional advantage: Culture and competition in Silicon Valley and Route 128*. Cambridge, MA: Harvard University Press.

Saxenian, A. (2020). Cluster dynamics and regional networks: New argonauts, Silicon Valley, and Route 128. In A. Oqubay & J. Y. Lin (eds), *The Oxford handbook of industrial hubs and economic development* (pp. 227-242). Oxford: Oxford University Press.

Smith, A. ([1776] 1976). *An inquiry into the nature and causes of the wealth of nations*. Volumes I and II. London: W. Strahan and T. Cadell.

Staritz, C. & Whitfield, L. (2019). Light manufacturing in Ethiopia: The apparel export industry. In: F. Cheru, C. Carmer & A. Oqubay (eds), *The Oxford handbook of the Ethiopian economy* (pp. 704-720). Oxford: Oxford University Press.

Staritz, C., Plank, L. Morris, M. (2016). *Global value chains, industrial policy, and sustainable development: Ethiopia's apparel export sector. Country case study*. Geneva: International Centre for Trade and Sustainable Development (ICTSD). Available from:

https://www.ictsd.org/sites/defualt/files/research/global_value_chains_industrial_policy_and_sustainable_development.pdf

Stein, H. (2012). Africa, industrial policy, and export processing zones: Lessons from Asia. In: A. Noman, K. Botchwey, H. Stein & J. E. Stiglitz (eds), *Good growth and governance in Africa: Rethinking development strategies* (pp. 322-344). Oxford: Oxford University Press.

Subramanian, A. (2009). The Mauritian success story and its lessons. UNU/WIDER Research Paper No. 2009/36. Helsinki: UNU/WIDER.

TANGER-MED (2021) Annual Report 2020. Available from: https://www.tangermed.ma/wp-content/uploads/2021/04/Rapport_Annuel_Tangermed_VF-2020-WEB-3.pdf

Thirlwall, A. (2013). *Economic growth in an open developing economy: The role of structure and demand*. Cheltenham: Edward Elgar.

UNCTAD. (2013). *Global value chains: Investment and trade for development. World Investment Report 2013*. Geneva: United Nations.

UNCTAD. (2019). *World Investment Report (WIR 2019), Chapter IV special economic zones*. Geneva: UNCTAD.

UNCTAD. (2020). *World Investment Report 2020. International production beyond the pandemic*. Geneva: UNCTAD.

UNCTAD. (2021a). *Economic Development in Africa Report 2021. Reaping the potential benefits of the African Continental Free Trade Area: For inclusive growth*. Geneva: UNCTAD.

UNCTAD. (2021b). *Handbook on special economic zones in Africa: Towards economic diversification across the continent*. Geneva: UNCTAD.

UNCTAD. (2021c). *Industrial policy and strategic plan for Mauritius, 2020-2025: Revitalising Mauritius' economic growth*. Geneva and Port Luis, Mauritius: UNCTAD and Ministry of Industrial Development, SMEs and Cooperation.

UNCTAD. (2021d). *Special economic zones and African Continental Free Trade Agreement: Results from a continent-wide survey*. Geneva: UNCTAD.

UNDP Mauritius. (2021). Strategic options for the Mauritius textile and apparel industry. Discussion Paper. Port Louis: UNDP Mauritius, ECA and AfDB.

UN-ESCAP. (2019). *Establishing science and technology parks: A reference guidebook for policymakers in Asia and the Pacific*. ST/ESCAP/2862. New York: United Nations Economic and Social Commission for Asia and the Pacific.

UNESCO. (2018). *Science and technology park governance: Concept and definition*. Paris: United Nations Educational, Scientific and Cultural Organization. Available from: http://www.unesco.org/new/en/natural-sciences/science-technology/university-industry-partnerships/science-and-technology-park-governance/concept-and-definition/

UNIDO. (2020). *Industrial Development Report 2020. Industrialising in the digital age*. Vienna: UNIDO.

UNIDO. (2022). *Industrial Development Report 2022. The future of industrialisation in a post-pandemic world*. Vienna: UNIDO.

Valladao, A. G. A. (2020). Aeronautics in Morocco: History of the unexpected success. Policy Brief PP-20/22. Rabat: Policy Center for the New South.

Vedie, H.-L. (2020). Automotive: A Moroccan strategic sector, the leader in Africa. Policy Brief PP-22/34 (in French). Rabat: Policy Center for the New South.

Whitfield, L. & Staritz, C. (2020). Industrial hubs and technology transfer in Africa's apparel export sector. In: A. Oqubay & J. Y. Lin (eds), *The Oxford handbook of industrial hubs and economic development* (pp. 931-949). Oxford: Oxford University Press.

Whitfield, L. & Zalk, N. (2020). Phases and uneven experiences in African industrial policy. In: A. Oqubay, C. Cramer, H.-J. Chang & R. Kozul-Wright (eds), *The Oxford handbook of industrial Policy* (pp. 842-866). Oxford: Oxford University Press.

World Bank (2020) Trading for Development in the Age of Global Value Chains. World Development Report 2020. Washington DC: The World Bank Group.

Xiaoyang, T. (2020). Chinese economic and trade cooperation zones in Africa. In: A. Oqubay & J. Y. Lin (eds), *The Oxford handbook of industrial hubs and economic development* (pp. 950-966). Oxford: Oxford University Press.

Yeo, G., Giap, T. K., Yam, T. K. & Loo, W. (2020). An evidence-based analysis of industrial hubs: The Singapore narrative. In: A. Oqubay & J. Y. Lin (eds), *The Oxford handbook of industrial hubs and economic development* (pp. 673-722). Oxford: Oxford University Press.

Young, A. (1928). Increasing returns and economic progress. *The Economic Journal*, 38: 527-542.

Zeng, D. Z. (2020). Special economic zones in sub-Saharan Africa: What drives their mixed performance. In: A. Oqubay & J. Y. Lin (eds), *The Oxford handbook of industrial hubs and economic development* (pp. 1008-1026). Oxford: Oxford University Press.

Zhan, X. J., Casella. B. & Bolwijn, R. (2020). Towards a new generation of special economic zones: Sustainable and competitive. In: A. Oqubay & J. Y. Lin (eds), *The Oxford handbook of industrial hubs and economic development* (pp. 491-522). Oxford: Oxford University Press.

Zheng, Y. & Aggarwal, A. (2020). Special economic zones in China and India: A comparative analysis. In: A. Oqubay & J. Y. Lin (eds), *The Oxford handbook of industrial hubs and economic development* (pp. 607-622). Oxford: Oxford University Press.

DSI/NRF South African Research Chair in
Industrial Development (SARChI-ID)
31 Henley Road, Auckland Park,
Johannesburg, South Africa

General enquiries:
Koketso Manyane-Dlangamandla
Email: koketsom@uj.ac.za
Tel: +27 011 559 7454