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Dubai's Economic Transformation Lessons for Some African Countries

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Dubai's Economic Transformation Lessons for Some African Countries

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Abstract

In this paper, we review Dubai's unique economic transformation model, which has been driven by bold government interventions in globally competitive markets. We highlight diversification strategies and policies that Dubai implemented throughout its transformation. We discuss the respective roles of leadership, governance structure, the public sector, and the business environment and regulations, which were instrumental in rapidly transforming the economy. Finally, with some caveats, we provide some policy lessons for African countries.

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1. Introduction

Many African economies have made considerable strides over the past two decades. Driven primarily by the boom in global commodity prices and favorable macroeconomic conditions, Africa's economy has grown at an annual average rate of more than 4.7% between 2000 and 2019 (AfDB, 2019). This period of robust growth has been markedly different from the previous two decades, during which Africa grew at an annual average rate of 3.5% between 1981 and 1999. In addition to sluggish economic performance, in the 1980s and 1990s, Africa was characterized by a gloomy socio-political landscape mired by conflicts and civil wars. The relatively strong economic performance since the dawn of the millennium, however, has been overshadowed by the lack of enough jobs in high-productivity sectors, persistently high rates of poverty, and high inequality. Development economists associate these lackluster outcomes in terms of the quantity and quality of jobs created and poverty levels to the slow pace of structural transformation. Traditionally, when countries grow at a higher speed and for a sustained period, structural transformation follows, which is a long-term development process, reallocating economic activities—capital, labor, and other factors of production—away from the least productive sectors of the economy toward high-productivity activities (Rodan, 1943; Hirschman, 1958; Lewis, 1954; Ranis and Fei, 1961). The speed at which the poverty level is reduced, and jobs in high-productivity sectors are created is correlated with the rate at which countries transform their economies (McMillan et al., 2014).

Despite the robust growth over a sustained period, Africa's structural transformation has been slow or nonexistent. This pattern of slow structural transformation amid sustained growth has sparked some speculation on whether the continent could realize economic transformation any time soon, which is concerning. As globalization continues to bring new opportunities and challenges, and populations continue to grow, particularly the youth, the lack of enough employment opportunities could disrupt the status quo. In addition to the lack of jobs and high rates of poverty, terms of trade deterioration, export instability, and macroeconomic volatility continue to be features of African economies—which are not well-diversified and depend heavily on primary activities. These economic challenges as well are correlated with the lack of structural transformation in general and a lack of economic diversification in particular (Prebisch, 1962; Singer, 1950; Sachs and Warner, 1995; de Ferranti et al., 2002; Hesse, 2008). Given that it is only through the process of structural transformation that economies become more diversified and more sophisticated (Kuznets, 1973; Chenery, 1961; Dutt, Mihov, and Van Zandt 2008; Lin, 2012), there is a renewed call for effective industrial strategies and policies to ensure a speedy structural transformation to tackle these challenges.¹

Since independence, African economies have been dosed with various policy prescriptions of diversification, state-led import substitution, structural adjustment programs, etcetera. Most of these policy experiments ended with no success, and some with a growth tragedy (Easterly and Levine, 1997). Therefore, there is some level of wariness among policymakers toward an elaborate structural transformation strategy that could make a positive difference.

Moreover, the business of crafting, implementing, and following through on effective transformation strategies and policies requires considerable political will and capable technocrats who can see beyond the short term. In much of contemporary Africa, these have been lacking. However, history provides many cases of successful and failed economic transformation from which crucial lessons can be drawn. A recent case in point is the economic miracles of the “Asian Tigers”—namely, Hong Kong, Singapore, South Korea, and Taiwan—which transformed their economies in few decades into manufacturing, high-tech, and financial hubs in the world.

In this study, we systematically review Dubai's unique economic transformation. Its economic transformation from an oil-dependent economy to one of the most successfully diversified city-economies in the world took about two decades. We review its leadership, governance, institutional structure, effective private-public partnerships (PPPs), and business-friendly environment, all of which contributed to its success. Although it is distinct, Dubai's economic transformation and economic diversification strategies could be relevant for some African countries, particularly resource-rich economies.

Before we delve into the experiences of Dubai's economic transformation, we discuss a few points on industrial policies. Industrial policy is “any selective intervention or government policy that attempts to alter the structure of production towards sectors that are expected to offer better prospects for economic growth than would occur in the absence of such intervention” (Pack and Saggi, 2006). Industrial policies can be classified into two broad categories: vertical and horizontal. Horizontal policies are generally neutral, impacting all economic sectors equally. Policies implemented to consolidate macroeconomic fundamentals, maintain competitive exchange rates, enhance human capital, or improve the business environment are considered horizontal policies. Vertical policies target a specific sector, in which the government intervenes to develop a specific industry through subsidies, various forms of protection, and tax incentives.

Nonetheless, Stiglitz, Lin, and Monga (2013) discuss in full detail that the distinction between vertical and horizontal in-

1 Achieving speedy structural transformation in the continent has been policymakers' priority and a primary concern for international organizations (IMF, 2014; UNIDO, 2013) as well as development economists (Hidalgo et al., 2007; Lin, 2012; McMillan, Rodrik, and Verduzco-Gallo 2014).

dustrial policies is “blurry.” The argument is that anything that the government does or does not do would always favor or penalize specific sectors, industries, groups of people, or regions. The authors argue that most government economic policies and interventions—exchange rate policies, education, infrastructure investment, and so forth—which seem “neutral” or “broad-based” indeed involve political judgment about priorities and hence are industrial policies. The consensus is therefore not on the distinction between horizontal, neutral, or vertical industrial policies, but on how the government does it right (Stiglitz, Lin, and Monga, 2013; Stiglitz et al., 2013).

Two differing views dominate the debate surrounding industrial policies. The first group of scholars are often referred to as the “early structuralists” (see, for instance, Lin and Monga, 2010, 2017; and Lin, 2011). They argue that government intervention is necessary to trigger structural change and bring socially desirable outcomes (Chenery, 1961). They argue that market failures and weak capacity in developing countries warrant active government intervention to promote new industries and kick-start the transformation process rather than waiting for the market to lead this long-term process. This interventionist school of thought prevailed in developing countries from the 1950s to the 1970s. The second strand of the literature, which dominated narratives in the 1980s and 1990s, was a mainstream economics view that tilted to a more liberal approach to industrial policies. The argument was that well-functioning markets and productive specialization in sectors with higher comparative advantage would naturally lead to an optimal trajectory of structural change. Even during this period of a market-driven approach to industrial policy, the orthodoxy was questioned, resulting in the revival of the interventionist view. The revival was due to the robust empirical findings on a robust and positive correlation between the sustained growth and output diversification of the East Asian economies, which were the results of active industrial policies (Stiglitz et al., 2013; Amsden, 1989; Wade, 1990; World Bank, 1993; Ranis, 1995). There is, therefore, a strong consensus on the existence and prevalence of market failures in the private and public sectors (EIB, 2015; Stiglitz et al., 2013). The debate is instead on the appropriate industrial policy to implement.

There are two strands of literature on the types of industrial policies that are appropriate for transforming contemporary economic systems. The first strand is led by Dani Rodrik and calls for industrial policies that aim at more coordination between the private and public sectors to circumvent widespread market failures. Rodrik argues that an effective industrial policy should be a “strategic collaboration between the private sector and the government to uncover where the most significant obstacles to restructuring lie and what type of interventions are most likely to remove them” (Rodrik, 2004). In addition to the standard technological externality that necessitates industrial policies, Rodrik argues that “information externalities that entailed in discovering the cost structure of economies and coordination externalities in the presence of scale economies”

are essential (Rodrik, 2004). Coupled with rampant market failures, this requires a well-crafted industrial policy with public-private coordination at the core.

The second strand of the industrial policy literature is led by Justin Yifu Lin and calls for industrial policies with more active government intervention to promote industries along with a country’s comparative advantages. This school of thought is often referred to as the New Structural Economics. It favors active industrial policies that aim at promoting the emergence of new sectors and, more broadly, productive transformation according to countries’ comparative advantages (Lin and Monga, 2010). In this process of moving the private sector in a direction that is consistent with the economy’s comparative advantage, Lin (2009, 2012) strongly advocates for active participation of the government. Lin identifies two possible strategies for promoting structural change: Comparative Advantage Defying (CAD) and Comparative Advantage Following (CAF). The CAD approach consists of supporting budding industries, defying the country’s comparative advantage. An important consequence of the CAD approach is that the economy may become inefficient due to the misallocation of resources imposed by government intervention. In the CAF approach, the role of the government—Lin refers to it as a facilitating state—consists of supporting the exploitation of the private sector’s effective or latent comparative advantage through appropriate market incentives.

Related literature focuses on aligning domestic industrial policies with global value chains. This literature argues that since domestic investment and savings are often lacking to support any meaningful industrialization/structural transformation processes, industrial policies should focus on taking advantage of the globalized world by attracting foreign investment and being part of global value chains (Gereffi and Fernandez-Stark, 2011). As such, structural transformation could be eased by global integration and international trade that facilitates the process.

Dubai’s economic model has traces of all these contemporary industrial policy approaches. It can broadly be described as a hybrid economic transformation model that combines a state-led development regime with a market-friendly approach. Dubai’s economic model lends some support to Lin (2012), who argues that a state-led development regime and competitive market or liberal approaches are compatible. Despite some empirical evidence that the discovery of natural resources is often associated with a rent-seeking state, Dubai invested its oil revenue in productive activities, triggering a virtuous circle of economic transformation. It diversified its economy away from hydrocarbons to a broader product base, with the share of oil in the GDP declining from 45% in the 1980s to only 1.5% in 2011 (Al Faris and Soto, 2016). This is a significant accomplishment of economic transformation that merits a systematic review.

At a time when most African countries are struggling to transform their primary commodity-dependent economies, and many do not even have a comprehensive industrial policy, Dubai's successful economic transformation could provide some insight and lessons, especially for resource-rich economies.

2. Dubai's Economic Governance Model

Dubai discovered oil in 1966.² The emirate established several heavy industries, such as Dubai Aluminum,³ Dubai Natural Gas Company, and Dubai Cabling Company. Until the late 1980s, the oil bonanza was the primary source of revenue for the emirates. However, the monarchs recognized that relying on oil alone would not sustain the economy's development nor finance its public expenditures. They needed to find alternative and sustainable revenue sources (Shayah, 2015). Sheikh Saeed Al-Maktoum, the ruler of Dubai, clearly understood that oil resources were finite, and, in the absence of structural change, Dubai could become a poor economy again.⁴ His cautious sentiment toward the newfound oil wealth was reflected in the ruler's famous quote:

“My grandfather rode a camel, my father rode a camel, I drive a Mercedes, my son drives a Land Rover, his son will drive a Land Rover, but his son will ride a camel.”

This statement underscores the vision and political willingness of the leadership to implement bold economic initiatives that could rapidly transform Dubai into a well-diversified city-economy.

Dubai adopted a comprehensive set of policies aimed at promoting the non-oil sector, with several “mega” state-led development initiatives. Indeed, scholars argue that Dubai's economic model has been more of a “developmental state” or “government-led development” (Hvidt, 2009). The government believed that these state-led initiatives were required during the initial stage of the economic transformation. What makes Dubai's economic transformation unique is that its

transformation path did not follow the traditional route that most industrialized countries followed. Instead, it skipped the industrialization stage, successfully transitioning into a service economy. In the following subsection, we discuss the diversification strategies and critical factors—governance structure, efficient public sector, and attractive business environment and regulations—of its successful transformation.

2.1 Governance Structure and Efficient Public Sector

The governance structure consists of local authorities and several specific departments, including the Dubai Chamber of Commerce, Dubai Municipality, and Dubai Police Department (see Figure A.1, in the appendix, for a detailed description of Dubai's governance structure). This governance structure is dynamic, evolving to meet new economic challenges, and respond to the needs of new projects and initiatives.⁵ The government also sets development objectives in the “Dubai Strategic Plan” as well as a roadmap that coordinates the operations of different entities within which decisions can be made quickly (Government of Dubai, 2008; Hvidt, 2009). This centralized and unified framework has been a critical part of the governance structure, providing not only an easily accessible one-stop-shop service platform for investors but also one that can adapt to new challenges and seize new opportunities.

At the heart of Dubai's efficient public institutions has been its evaluation system. Each department's performance is evaluated and scored, spurring competition among different public entities to improve and innovate. To this end, the Dubai Government Excellence Program Awards system was created in 1997 to encourage the public sector to improve its performance and efficiency. The goal of the awards system was to instill a spirit of excellence, innovation, quality, the best management, and professional practice in the public sector. It also encourages competitiveness among employees and departments by rewarding winners. Performance indicators are explicitly defined with clear numerical targets to assess each institution's performance and efficiency (see Figure 1). The public sector operates more like a private corporation. This modus operandi echoes Rodrik's institutional architecture in which the performance of bureaucrats is systematically monitored by a high-level official (Rodrik, 2004). He further suggests setting clear criteria for success and failure, which has been implemented by Dubai.

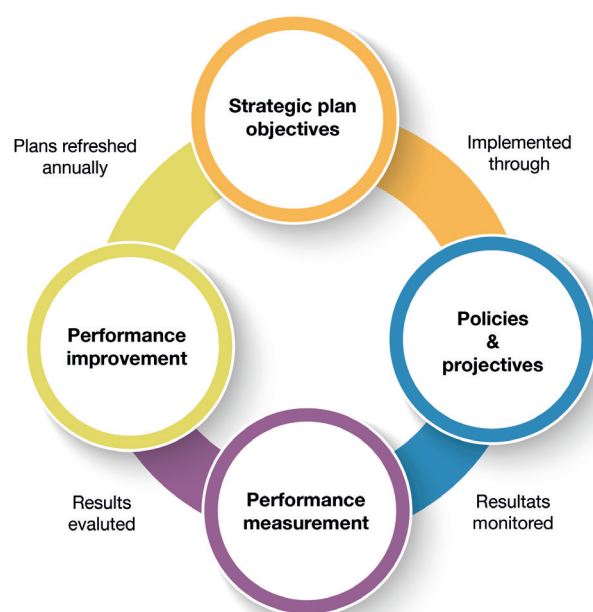
2 In 1969, the first shipment of 180,000 barrels was exported. Fueled by significant investments and offshore drilling development, oil production grew steadily over the next decades.

3 Dubai Aluminum was especially useful, as it accounted at one point for over 60% of Dubai's non-oil exports (Davidson, 2008).

4 The current ruler is Sheikh Mohammed bin Rashid al Maktoum. He is also the Vice President and Prime Minister of the United Arab Emirates.

5 For example, although Dubai's trade balance is negative, the export promotion has become a new challenge for which Dubai Export was created. Likewise, the Dubai Multi Commodity Center was established in 2002 with the purpose to drive Dubai as a critical platform for commodity trade. In the same vein, the Knowledge and Human Development Authority was created in 2006 to promote the quality of private education.

Figure 1 The processes of strategic planning, policy-making, and performance management



Source: Government of Dubai, 2008.

2.2 Dubai's Diversification Strategy

Since the 1980s, Dubai has targeted specific sectors that have proved to have comparative advantages or latent comparative advantages that are deemed to be important for development in the future. As such, its diversification strategy has been more in line with Lin's CAF model in that the government implemented a vertical industrial policy by targeting specific sectors and spearheading the implementation of mega-projects in these sectors, with the premise that other sectors would follow. Accordingly, five sectors—infrastructure, trade, finance, real estate, and tourism—have been identified and developed under the management of three state holdings: Dubai Holding, Dubai World, and Dubai Investment Corporation.⁶ These holding companies, which are government-related entities (GREs), have played major roles in the realization of the ruler's vision and structural change in the economy (Al Shama, 2014). The holdings directly participated in the development of selected sectors (see Box A.1, in the appendix, for instance, for the

case of Emirate Airways).

Cognizant of the size of investment needed, the level of risk, and the strategic importance of targeted sectors, the government spearheads the initial stages of mega-projects in various sectors that are not yet attractive enough for private sector investment. Once the projects reach a certain level of maturity and risks are minimized, the government gradually withdraws its support. A key condition for the sustainability of these businesses is that they must face domestic and international competition and further invest and improve their productivity and competitiveness. Dubai has also maintained strong PPPs, whereby businesspeople can participate in councils and departments, playing key roles in the formulation of economic and political policies and decision-making processes. Moreover, the government has ensured that this state-led development of strategic sectors was nondistortionary, preserving competition and allowing market forces to prevail. This is in line with Rodrik's version industrial policy in that the government plays a coordinating role to meet the private sector's expectations and minimize key market failures from information externalities and coordination externalities.

2.3 Attractive Business Environment and Regulation

2.3.1 Business Environment

Dubai's economic model builds on liberal economic policies that promote and attract foreign investment, albeit its developmental state approach targets specific sectors. Its investment environment is attractive enough, putting it on par with advanced economies. According to the Corruption Perceptions Index, for instance, the United Arab Emirates ranked 24th of 176 least corrupt countries in 2016.⁷ Dubai encourages good corporate governance and promotes a climate of transparency and anti-money laundering, offers high-quality infrastructure that reinforces its comparative advantages in the strategically targeted sectors, and ensures that industries have access to low-cost energy (Tarbuck and Lester, 2009).

The average lending interest rates are significantly lower in Dubai than in other Arab countries, buttressing its attractiveness to investors. For instance, compared with Dubai, the borrowing rates are twice higher in Egypt and almost four times higher in Turkey. Moreover, Dubai provides attractive tax incen-

6 Dubai Holding includes, inter alia, Dubai International Capital, Dubai Insurance Group, Dubai Banking Group, and Dubai Healthcare City. Dubai World manages a portfolio of various companies. For instance, DP World is a maritime industry listed on the Dubai Stock Exchange and owned by the government at 80%. Nakheel is the company that built Palm Island. The third company is the Investment Corporation of Dubai, which includes various businesses. For instance, Emirates Airlines is fully owned by the government and part of the Investment Corporation of Dubai. This is also the case of Emaar, a real estate company of which 31% of the capital is owned by the government.

7 The Corruption Perceptions Index is published by Transparency International. It ranks countries by the perceived levels of corruption, as determined by expert assessments and opinion surveys (Transparency International, 2011). Transparency International defines corruption as "the misuse of public power for private benefit."

tives,⁸ favorable regulations, and less red tape to facilitate the establishment of new businesses...^{9,10,11}

2.3.2 Labor Market and Regulation

Another unique feature is Dubai's open immigration and labor market policies, which allow foreign workers to work in the country. Many argue that this open-border labor policy has significantly contributed to Dubai's economic growth and filled the gap in labor shortage exactly when it was needed most. With an unlimited supply of foreign workers, mainly from developing countries, Dubai has enjoyed a perfectly elastic labor supply, circumventing shortages of low-skilled labor that has been needed for the construction of mega-infrastructure projects and construction in the real estate sector.

The foreign workers' sponsorship system ("kafala") and the "Emiratization" process were instrumental in attracting a massive number of foreign workers. The kafala system is "the channel through which expatriates obtain legal entry as guest workers in the UAE," allowing an Emirati national or firm to sponsor migrant workers (Dubai Economic Council, 2011). This rule has facilitated an easy inflow of low-skilled workers, because it is more profitable for companies to hire foreigners than locals (Soto and Rashid, 2016). The kafala system has been criticized on the basis that the foreign worker's legal status is attached to his or her sponsor, in that the latter enjoys market power and collects a sizable amount of economic rents (Al Faris and Soto, 2016). And some argue that the kafala system may have led to human rights violations of workers and erosion of labor standards (ILO, 2012).

"Emiratization" has a set of rules to protect Emirati employees from the competition of foreign labor. For instance, on the mainland, companies that have more than 50 employees must employ a minimum percentage of nationals. These measures were optimal during the take-off stage when Dubai was facing a labor shortage. However, as Dubai's growth passed the take-off stage of developmental, some argued for the need to refocus the rule to the skilled labor force, to move toward more sophisticated production processes.

Labor regulation is highly flexible in the free zones, to attract international companies while maintaining a business-friendly environment and allowing firms to have unlimited access to the skilled (and unskilled) labor force at internationally competitive wages. Firms also enjoy the ease of hiring and firing workers in Dubai, compared with countries that have more stringent labor regulations. This was reflected in the demand for high-skilled expatriates, and the average level of education of expatriates has risen. In 1997, 11% of Gulf Cooperation Council, 54% of MENA Arabs, and 66% of Westerners were university graduates, which respectively increased to 65%, 63%, and 88% in 2009 (Soto and Rashid, 2016). Moreover, in 2009, 41% of the workforce had a college degree, which is a similar level to that of Japan or the United States (Soto and Rashid, 2016). This shows that Dubai has managed to attract a new population of increasingly skilled workers.

Two types of expatriates can be distinguished in Dubai's labor market. On the one hand, the low-skilled labor force employed under the kafala system earns less than \$820 per month, five times lower than what the typical Emirati earns. The typical sectors in which these workers are employed are manufacturing, construction, and tourism. On the other hand, a growing high-skilled workforce originating principally in industrialized countries occupies high positions in the free zones. These workers are usually not subject to labor regulations. Low-skill workers also participate in the service sector, while high-skill workers create the demand for it. Foreign workers therefore constitute the supply and demand sides of services, which complement each other.

The labor market has evolved into a dual system, with different sets of rules for Emirati and expatriates (Soto and Rashid, 2016). Nationals are primarily employed in the public sector, which offers better working conditions, representing almost 70% of employment in the public sector. Nonetheless, due to the kafala system, the workforce has become more of a tradable commodity, in that Dubai has found a way to circumvent its lack of a key factor of production, labor, and achieve its development objectives (Hvdit, 2009).

8 A customs duty of 5% is imposed on the cost, insurance, and freight value of imports—the rate might vary according to the nature of the product imported.

There are no duties or tariffs on exports. Moreover, imports that are directly re-exported as well as import of inputs like machinery or raw materials benefit from customs duties discounts or exemptions. There are no income or company taxes—only banks and oil companies pay corporate taxes. In addition, there are no withholding taxes or capital taxes. Only municipal taxes are imposed on rented accommodations (5%) and restaurants and hotels (10%). Moreover, registration fees may be levied on the transfer of ownership of land or property. Dubai imposes a rate of 4% on the sales value of property. Finally, a value-added tax of 5% was to be implemented on January 1, 2018. According to the UAE Ministry of Finance, this tax will be used to provide public services, but it will also "help government move towards its vision of reducing dependence on oil and other hydrocarbons as a source of revenue."

9 According to the 1984 UAE Commercial Companies Law, foreign companies establishing in the United Arab Emirates need to have one or more Emirati national partners that hold at least 51% of the company's capital. According to the Trade and Commercial Office, companies involved in the oil and gas industry, in the distribution of water, and those established in free zones are exempted from this partnership rule. The establishment of activity in Dubai (and in the United Arab Emirates) also requires a license and certain sectors, such as financial institutions operating outside free zones, are subject to more rigorous licensing requirements (Tarbuck and Lester, 2009).

10 For instance, the Department of Economic Development introduced an automated service where investors can apply online to set up a business, check the application status online, and estimate the fees involved in obtaining a trade license.

11 It is important to note that Dubai's development policy tools are limited to fiscal and nonmonetary regulations, as monetary and exchange rate policies are designed and set at the federal level (seven emirates) and not by policy makers in Dubai (Al Sadik, 2016).

2.3.3. Free Zones

Free zones are a key tool of Dubai industrial policy. Free zones are special areas that are isolated from domestic economies because they are subject to different sets of rules and regulations from the rest of the economy (Al Iriani, Elbadawi, and Fadhel 2016). Moreover, Dubai uses free zones to implement its vertical industrial policy, targeting specific sectors effectively. The free zones were established outside the Federal Commercial Companies Law, bypassing the sponsorship system, with policy incentives aimed at attracting foreign investment.

Table 1 summarizes the common incentives offered by Dubai's free zones. They have full administrative and recruitment support called one-stop-shop administrative services, facilitating the establishment of new businesses, offering "the necessary administration, engineering, and utility services required by investors" (Davidson, 2008). Businesses in the free zones enjoy cheap energy and efficient transport and distribution facilities.

Table 1 Common set of incentives in Dubai's free zones

- Complete authority—the free zones are free to set rules and regulations and propose specific fees
- No customs duties
- No trade, investment, or labor quotas
- No foreign exchange controls
- No restrictions on capital and profit repatriation
- Long-term corporate and personal tax holidays
- Streamlined labor procedures
- 100% foreign ownership possible
- Simple procedures and minimal legislation, low bureaucracy
- Competitive land rates with long-term renewable leases.

Source: Al Iriani, Elbadawi, and Fadhel 2016.

Established in 1985, the first free zone was the Jebel Ali Free Zone (JAFZA), with the broader aims of attracting foreign investment in non-oil sectors and promoting diversification. Following the success of JAFZA, Dubai established 23 additional free zones (see Table A.1, in the appendix, for a list of the free zones). These free zones played a major role in transforming the economy into a major business hub (Tarbuck and Lester, 2009). Although JAFZA hosts a diverse set of businesses,

many specialized free zones for specific sectors and industries were set up to promote the development of new sectors. According to Al Shama (2014), the Dubai Development and Investment Authority was created in 2002 to study and identify key industries, leading to the creation of a specialized free zone to foster the emergence of these key industries.¹² The specialized free zones offer an industry-focused environment, a more customized regulatory framework that responds to the needs of businesses, and opportunities for businesses to interact with each other.¹³

Although they are autonomous enclaves, free zones promote economic growth and have a catalytic effect, depending on their linkages with the rest of the economy. Whether Dubai's free zones have played such a role is debatable. Al Faris and Soto (2016) argue that Dubai's free zones are often disconnected from the rest of the economy and do not generate positive spillovers or capital accumulation (Al Faris and Soto, 2016). Similarly, Al Iriani, Elbadawi, and Fadhel (2016) find that large investment firms have not generated the desired backward linkages, with trade and manufacturing having little impact on the domestic economy. Moreover, due to the lack of high-skilled workers in science and technology, several industries in the free zone do not invest in research and development (R&D) that would spill over to the rest of the economy or stimulate innovation (Hvidt, 2009; Al Shama, 2014).

However, expatriates in the free zones generate demand for services, which serves as a linkage with domestic activities and provides an indirect source of income for the government (Hvidt, 2009). The free zones have hence been generating some spillovers in service activities, which in turn have stimulated other targeted sectors, triggering a virtuous circle.

3. Successful Structural Transformation

The period 1995–2005 was marked by the adoption and implementation of Dubai's diversification strategy and the implementation of the mega-projects—infrastructure, construction, and free zones. During this period, GDP grew at a higher level and consistently (see Figure 2). This episode of high growth was recorded only during the first five years after the discovery of oil in 1975–80, during which GDP grew at an average annual rate of 25.5%. Although the economy slowed following the global financial crisis in 2008–09, it promptly recovered, growing at the rate of 3% to 5% annually. A steady transformation of the economy followed this growth. Notably, the share of the energy sector in GDP declined from 18% in 1995—pre-reform period—to 1.8% in 2015. The trade sector, which has tradi-

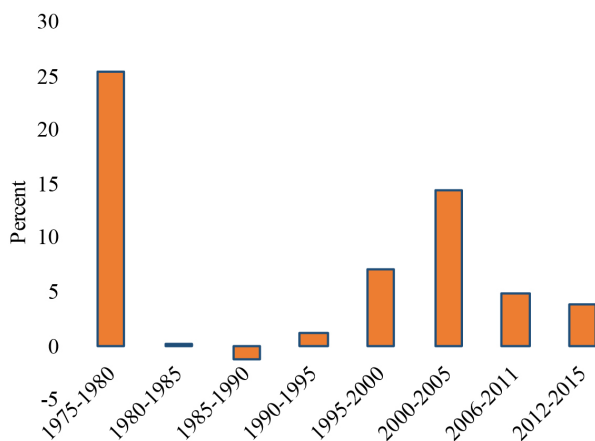
12 For instance, in 1999, Sheik Muhammad bin Rashid Al-Maktoum announced the creation of two new free zones: one for internet companies and the other for media companies. The objective was to position Dubai at the forefront of these industries, which were previously considered as niches in the Arab World (Davidson, 2008).

13 The Dubai International Financial Center offers an interesting illustration of the implementation of the customized business environment in free zones. It is characterized by a dollar-dominated environment and a regulatory framework based on English law (see Box A.2, in the appendix, for more details).

tionally been the comparative advantage of Dubai, expanded from 20% of GDP in 1995 to 30% in 2015.¹⁴

Typical of small, open economies, however, growth has been volatile. For instance, GDP growth fluctuated between 4.6% in 2002 and 44% in 2004, despite the limited dependence on the oil sector. The volatility of growth has been more than twice that of Singapore and Hong Kong—which are often compared with Dubai—and four times the world average (Al Sadik, 2016).

Figure 2 Average annual GDP growth rate over five-year periods, 1975–2015



Sources: Al Sadik 2016; authors' calculations using data from the Dubai Statistics Center.

To support its structural reform agenda, the government heavily invested in the development of its transport systems and public utilities (Elsheshtawy, 2004). Two of the largest human-made ports in the world, Jebel Ali Port in 1953 and Port Rashid in 1972, were constructed. A modest international airport in 1960, Dubai International Airport underwent a series of improvements and expansions and is now the busiest international airport in the world.

To finance these projects, the government mobilized resources through an agreement with merchants in the form of: (i) a 4% customs fee on imported goods; (ii) issuance of the so-called Creek Bonds, so that major users of the Dubai Creek have a stake in the projects; and (iii) a massive loan from the Emir of Kuwait against Dubai's assets. These sources of finance

proved successful, resulting in the growth of trade volume by 20%, which in turn increased tax revenues, thereby allowing the government to repay its debts quickly (Sampler and Eigner, 2003). The success of these initiatives illustrates Dubai's ambitious leadership, foresight, and effective partnerships with the private sector.

Transport infrastructure has consistently been a key component of public investment designed to strengthen the foundation for a growing international trade platform, reinforcing the comparative advantage in the trade sector. The construction sector has also expanded with the same goal to promote the expansion of other targeted strategic sectors, such as tourism. As a result, the transport sector has represented more than 10% of GDP since the 1990s, with a peak in 2006 at 11% (see Figure 3).

The real estate sector was also another strategic sector that Dubai targeted. After substantial regulatory changes in the 2000s, the sector flourished. In 2002, for instance, the government granted GREs the right to sell property to expatriates in designated zones; in 2006, additional reforms were introduced to consolidate the sector and reassure investors.¹⁵ Following the reform, several GREs invested in large construction projects, which changed Dubai's urban landscape (Al Shama, 2014). The construction of the renowned Palm Islands between 2001 and 2009 is one such example.¹⁶ These reforms and investments increased the share of the real estate sector to 6% of GDP in 2015.

Tourism was another strategic sector that the government targeted as part of its transformation plan. Since the 1990s, Dubai has actively sought to foster its tourism sector to make the emirate the main tourist destination for leisure, shopping, festivals, and sporting events (Al Shama, 2014). The sector was virtually nonexistent before the 1960s. Owing largely to the quality of its infrastructure and massive real estate investments, Dubai became the region's top tourist destination in just a decade or so. Dubai is now one of the top tourist spots in the world, and it consistently ranks as the fourth most visited city in the world after Bangkok, London, and Paris.

Moreover, the Department of Tourism and Commerce Marketing was launched in 1997 and has played a considerable role in fostering tourism and positioning Dubai as a world-class tourism hub. It reinforced the private sector through strict enforcement of contractual engagements, high standards for the

14 Dubai's geographic proximity to India's west coast and its history of being a merchant city have boosted trade activities. Output was typically shipped from Mumbai to Dubai and then re-exported to neighboring countries, particularly to Iran. In a sense, Dubai became an international entrepôt. This activity kept on growing, as electronics and electrical appliances transited through Dubai, from Asia to Europe, while gold followed the opposite path, from Europe to India. As such, Dubai transformed into a major commercial hub between Europe, the Middle East, and Asia (Davidson, 2008).

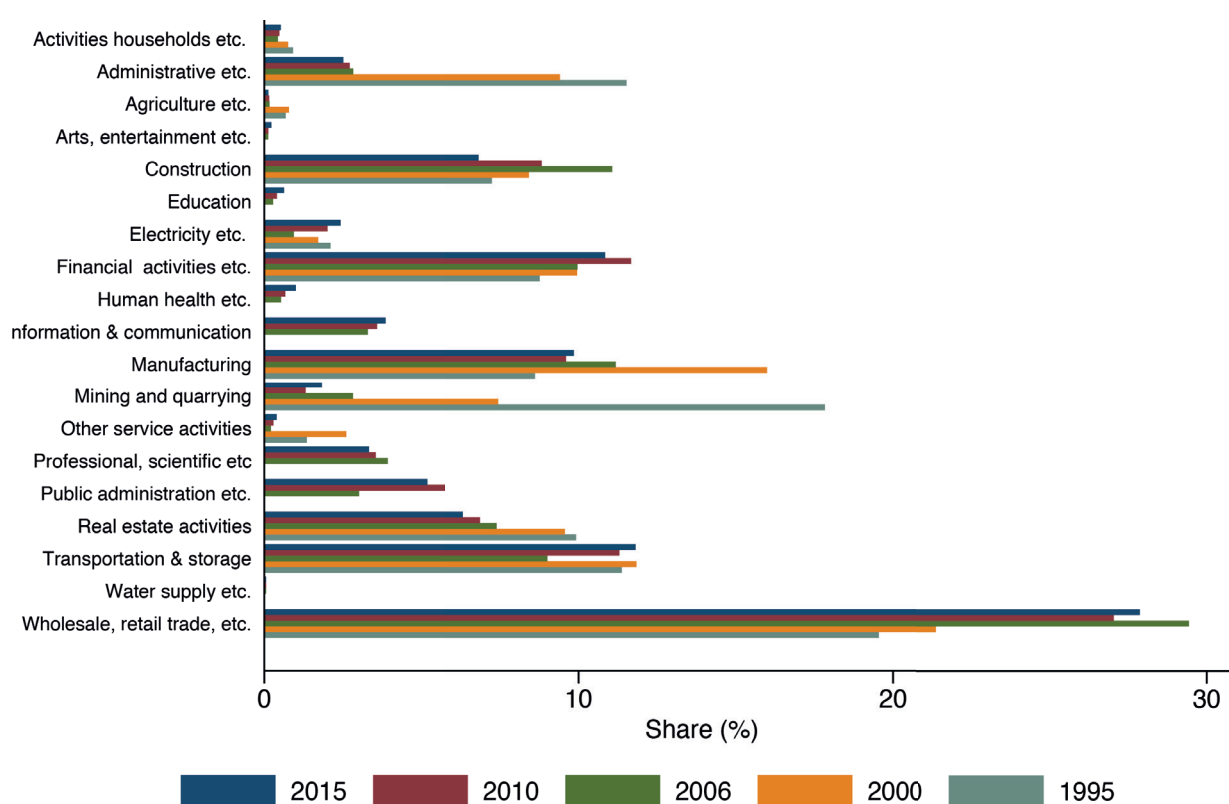
15 A substantial legislative change, the Dubai Property Law, was introduced. In short, this law allows nonnationals to own property in certain parts of Dubai that are designated by the rule. Moreover, potential buyers are granted residency visas, on the condition that they can provide proof of employment.

16 Chief among them was Emaar Properties, which developed a lavish residential complex, Emirate Hills; it then created several other renowned landmarks, such as the Dubai Mall, one of the largest commercial malls in the world, and the Burj Khalifa, the world's highest tower at the time of its construction in 2010. Moreover, in 2010, Dubai Properties completed the massive 40-tower Jumeirah Beach Residence, which can accommodate 15,000 people. Nakheel launched the development of Palm Islands, a magnificent complex built on a collection of three reclaimed islands, which features upmarket hotels, housing, beaches, restaurants, and many retail outlets.

classification of hotels, seasonal rental accommodations, shops, transport, and first-contact points for visitors (Christie et al., 2014).¹⁷ Although the development of the tourism sector was a high-risk-high-reward strategy for Dubai, a set of reforms ultimately generated remarkable results for the sector.

The financial sector has also grown during the past two decades. Its size more than tripled within 20 years, from 3% of GDP in 1995 to more than 10% in 2015. The government needed to develop the industry to satisfy the financial needs of the private sector and make the sector another growth engine. The financial sector was organized around four main activities: banking, capital markets, Islamic finance, and insurance. Accordingly, the Dubai International Financial Center (DIFC), a free zone, was established in 2004 to stimulate the growth of the financial industry (see Box A.2, in the appendix). To attract foreign talent and foreign investment for the sector, Dubai offered attractive living conditions, state-of-the-art architecture, a modern and cosmopolitan lifestyle, international exhibitions and conferences, and first-class hotels and accommodations, making the city a place of choice to live and work.

Figure 3 Sectoral composition, Dubai, 1995–2015 (% of GDP)



Source: Authors' computations using data from the Dubai Statistics Center.

Note: The Dubai Statistics Center was created in 2006. Data before 2006 may have some quality issues.

¹⁷ In addition, shopping became a growing component of the industry. Massive modern malls, including the Dubai Mall, one of the largest in the world, specialize in luxury goods or prestigious stores at the international airport, attracting opulent visitors from the Gulf and beyond. To strengthen Dubai's reputation as a world-class destination, the government initiated a wide range of events and activities in many fields, including retail, technology, film, music, sports, and other specialized events. These efforts stimulated tourist activity and positioned Dubai as a first-rate shopping and entertainment destination. The government also provides facilities through the Dubai World Trade Centre to host a wide range of exhibitions and conferences, with the clear objective of making Dubai a year-round destination.

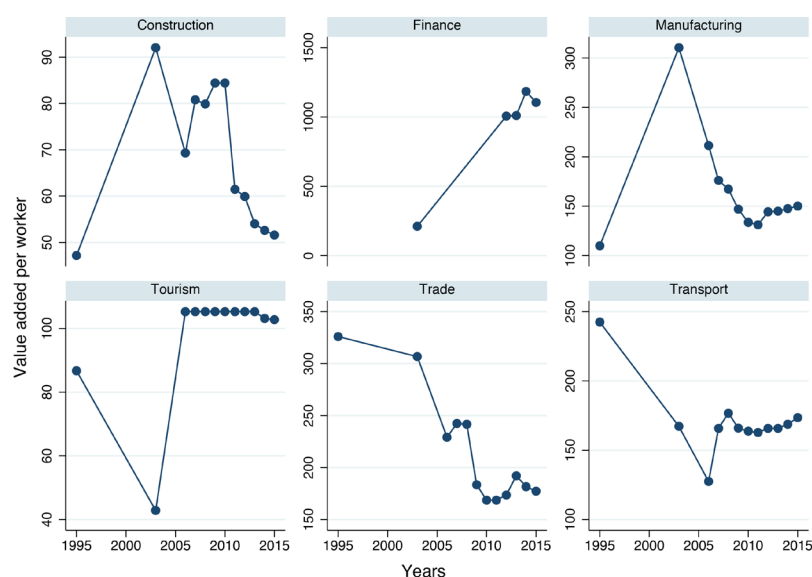
In sum, Dubai's structural transformation is unique in the sense that it jumped from being predominantly a primary extractive sector to an advanced services-oriented economy. Unlike most advanced countries, which went through the traditional industrialization process, Dubai transformed into a service-oriented economy, with manufacturing representing only 10% of its GDP in 2015 (Al Sadik, 2016). Some doubt the sustainability of a service-based development approach (Cadot et al., 2016). Others argue that the service sector is as formidable as the manufacturing sector (Anand, Mishra, and Spatafora 2012). Although the transport and construction sectors are ranked lower in sophistication, with low technology intensity, financial activities are considered highly sophisticated.¹⁸ In this sense, Dubai's service sector covers a wider array of services, ranging from primary service activities to the most sophisticated financial industry.

4. Caveats and Challenges: A Critical Review

4.1 Slow Labor Productivity Growth

Dubai's economic model is not without caveats and challenges. Although structural transformation is about the movement of labor from the least productive sectors of the economy to high-productivity sectors, labor productivity in Dubai has been stagnant since 1995, even in sectors that the government deemed to be strategically important for the economy (Elbadawi and Soto, 2011). In labor-intensive sectors, such as construction, transport, trade, and manufacturing, productivity has been declining since 2005. Productivity in a few relatively sophisticated sectors, such as finance, has been growing, although these sectors employ only 2% of the total workforce (see Figure 4). As such, Dubai's robust economic performance stems from an influx of production factors into the economy, not from an equal increase in factor productivity (Elbadawi and Soto, 2011). Dubai's productivity is lower than that of other comparable city-economies, like Hong Kong and Singapore (Dubai Economic Council, 2011).

Figure 4 Productivity trends, by sector, Dubai, 1995–2015



Source: Authors' computations using data from the Dubai Statistics Center.

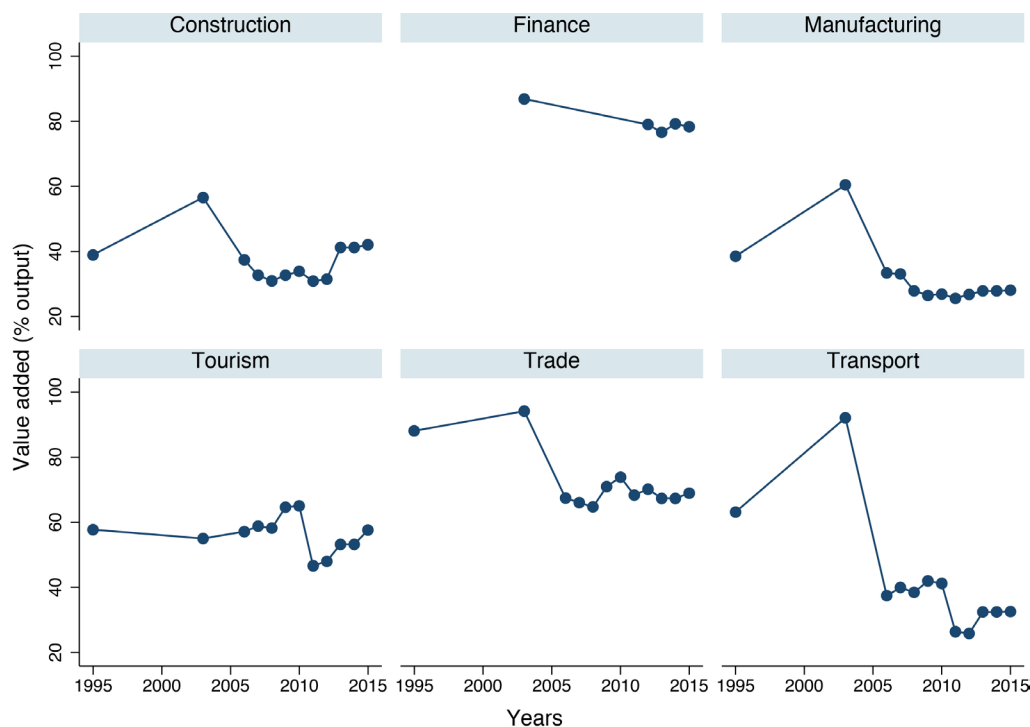
Note: Data are not available between 1995 and 2003.

The low productivity growth has been attributed to the abundant supply of a relatively low-cost foreign labor, which reduced the incentive to invest in new technologies in favor of labor-intensive processes (Soto and Rashid, 2016). Although the financial sector accounts for the highest value added, at 80% of total output, it employs a small fraction of the labor force and has a limited effect on Dubai's overall productivity (see Figure 5). However, the trade sector is intensive in value added, accounting for 70% of

18 Anand, Mishra, and Spatafora (2012) measure the level of sophistication of service activities with the methodology introduced by Hausmann, Hwang, and Rodrik (2007). Their indicator is equivalent to the PRODY for service activities. The PRODY is computed by taking the weighted average of per capita GDP of countries exporting the considered product. The weighting reflects countries' revealed comparative advantage for that product. See Table A.2, in the appendix, for an aggregate classification.

total output, which is unexpected, since Dubai's re-exports are a substantial part of its trade activities. Entrepôt activities tend not to generate much value added, because imports are re-exported to another destination with no major transformation. The least performing sector in terms of productivity is manufacturing, with value added of only 30% of total output.

Figure 5 Value added, by sector, Dubai, 1995–2015 (% of output)



Source: Authors' computations using data from the Dubai Statistics Center.

4.2 Sustainable Transformation Path?

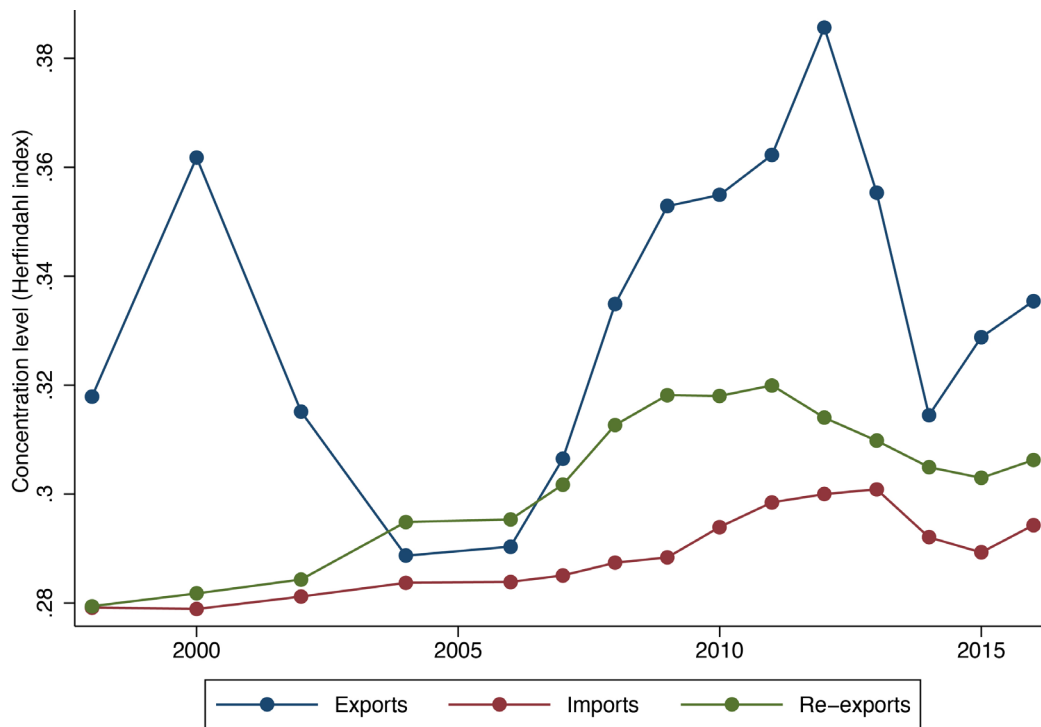
In the literature, the diversification and sophistication of the export basket are generally used to characterize the transformation of an economy (IMF, 2014; UNIDO, 2013; Rodrik, 2007)¹⁹. We follow this literature to assess the sustainability of Dubai's economic transformation by looking at the structure of its exports using the Harmonized System (HS) at the two-digit level (21 sections).²⁰

4.2.1 Export Diversification

To gauge the concentration levels of exports, imports, and re-exports, we compute the Herfindahl Index of trade structure for 1998–2016 using Imbs and Wacziarg's (2003) methodology. The Herfindahl Index ranges from 0 to 1. The more the trade structure is diversified, the lower the Herfindahl Index is, and vice versa. As shown in Figure 6, Dubai's exports are more concentrated than its imports and re-exports. This is because only 10 export commodities contribute between 65% and 80% of total exports. Of these commodities, pearls and precious stones constitute a major share (see figure A.2). For instance, just pearls, precious stones, and metals contributed 55% of total exports in 2016. This level of concentration, particularly by primary commodities, is considered less diversified and susceptible to price volatility. Indeed, the global gold and precious stones markets are highly volatile and prone to speculation. Further, these commodities are neither sophisticated nor well-linked with other industries (Al Faris and Soto, 2016).

19 Output diversification non-linearly increases with economic development. Developing economies start up by diversifying their productive structure before re-concentrating it after higher income level has been reached (Imbs and Wacziarg, 2003; Cadot et al., 2011). Hausmann, Hwang and Rodrik (2007) studied exports and developed an indicator of export sophistication making it possible to show empirically that the sophistication of exports is consubstantial with economic development.

20 The HS is an international nomenclature for the classification of products. At the two-digit level, 21 sections are reported.

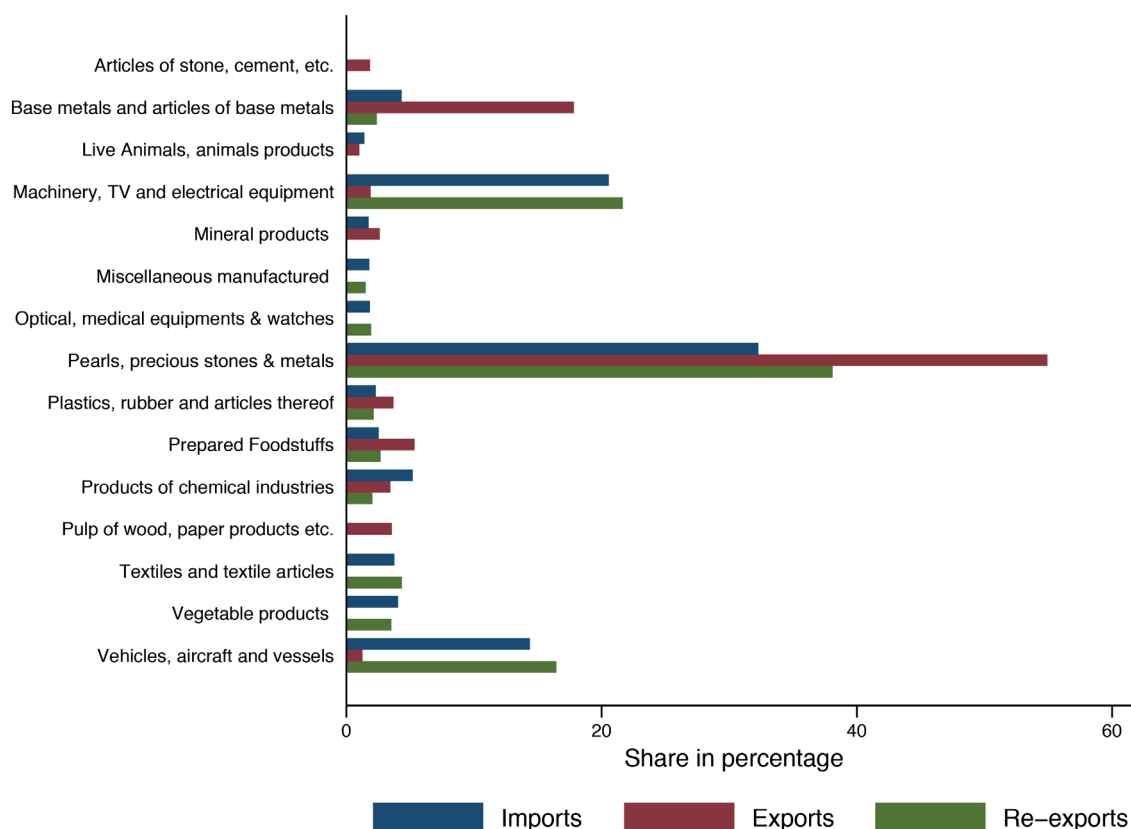
Figure 6 Export, import, and re-export concentration level, Dubai, 1998–2016

Source: Authors' calculations using data from the Dubai Statistics Center.

Note: Concentration levels are calculated with the Herfindahl Index.

Modern exports, such as chemical products, vehicles, machinery, and optical products, which are considered more sophisticated, constitute only a fraction of the total exports. However, as shown in Figure 7, most of these products are not manufactured domestically and primarily transit through Dubai as a form of re-reporting. For instance, vehicles represent almost 18% of Dubai's imports and 19% of its re-exports, and yet they represent only 1% of exports. The same holds true for machinery—there is no, or very little local value added.

In addition to the concentration of the export structure, Dubai's exports have shown an increasing level of concentration with export partner countries. For instance, India and Switzerland accounted for half of Dubai's exports in 2011, with 36% of exports directed to Indian markets (see Figure 8). The historically strong economic and cultural relationship and geographic proximity between India and Dubai are some of the factors for such level of export concentration with India (Dubai Economic Council, 2012).

Figure 7 Dubai's trade structure in 2016

Source: Authors' computations using data from the Dubai Statistics Center.

4.2.2 Export Sophistication

To assess export sophistication, we use information from the Dubai Trade Profile 2006-2011, which highlights the 10 largest direct exports at the HS four-digit level.²¹ Given that the 10 top exports contributed between 65% and 80% of total exports between 2007 and 2011, we compute the sophistication of a basket of just the top 10 export items. The sophistication of this basket could provide a representative picture of Dubai's export sophistication level. We compute the average level of sophistication using the Product Complexity Index (PCI), which was introduced by Hausmann et al. (2011). The PCI is available at the HS four-digit level in the Atlas of Economic Complexity (Hausmann et al., 2014). The PCI ranks products by the degree of capability or know-how needed to manufacture them, that is, complexity.

The product complexity of good i is measured by its ubiquity level and by the level of diversity of the export baskets of countries exporting that good. Then the average PCI for country i is calculated, where the weight is the percentage of the value of product i in the country's total exports (x_{ik}/X_i). We set 2000 as the base year. Once the weighted average PCI is computed, the export sophistication level of a country is computed using the method of Hausmann, Hwang, and Rodrik (2007) as:

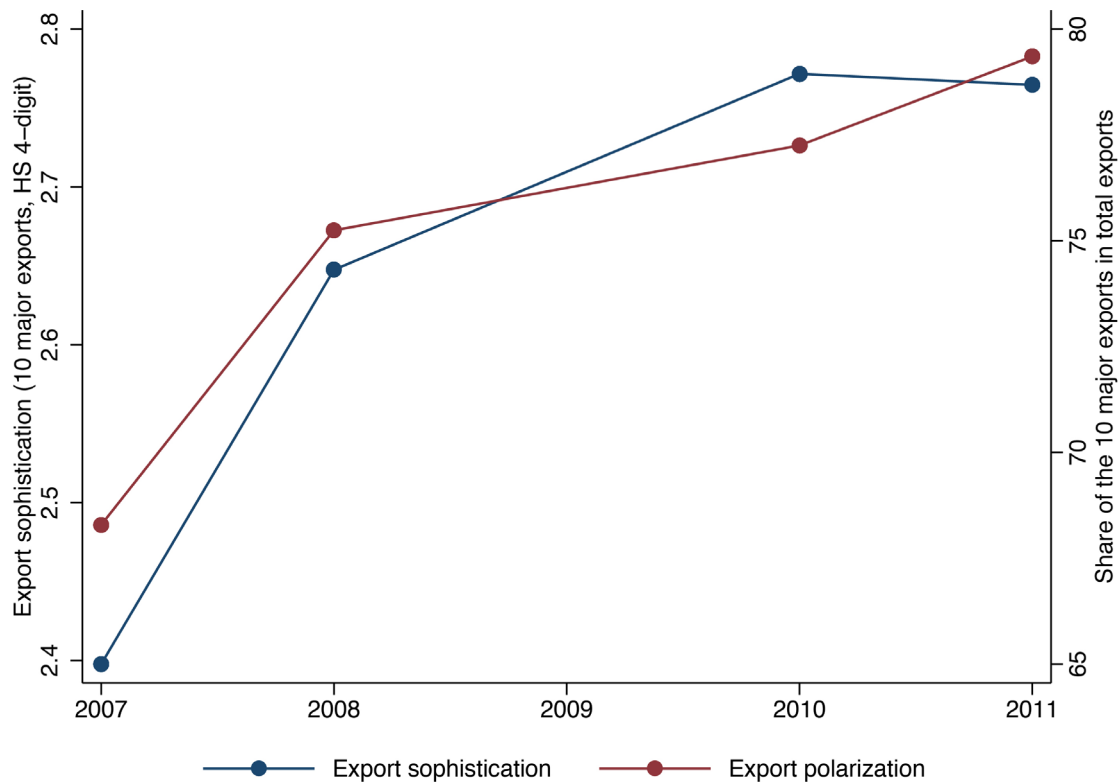
$$Sophistication_i = \sum_k \frac{x_{ik}}{X_i} \times PCI_k.$$

We also show the export polarization level, by calculating the share of the top 10 exports in total exports using the same classification (HS four-digit level).

21 At the HS four-digit level, approximately 1,200 products are reported in the classification.

The levels of export sophistication and diversification are positively correlated, indicating the accumulation of the required productive capabilities for further sophistication in the economy (UNIDO, 2013; Rodrik, 2007). Figure 8 shows that export concentration and sophistication have increased in Dubai. Moreover, the level of export polarization has been increasing progressively, with the top 10 exports contributing to nearly 80% of total exports in 2011.

Figure 8 Export sophistication and export polarization, Dubai, 2007–11



Source: Authors' computations using data from Dubai Exports 2012.

To assess the degree of Dubai's export diversification relative to other economies, we computed the sophistication and polarization of exports of selected developing and advanced economies. Table 2 shows the results. Dubai's export sophistication index of 2.7 is very low and comparable to the levels in developing countries in Africa. By contrast, Singapore's export sophistication index of 6, the same level as China, is much higher. Similarly, our computations show that Dubai's exports are highly polarized, with the top 10 of its export items accounting for nearly 80% of total exports. This is a much higher level of polarization compared with other economies, such as 57% in Singapore, 27% in the United States, and 28% in China.

Table 2 Export sophistication and polarization, selected economies

Country	Export sophistication (index)	Export polarization (%)
Côte d'Ivoire	2.08	80
Ethiopia	2.3	84
Dubai	2.7	79
Ghana	2.7	86
India	4.6	46
Malaysia	5.1	52
Singapore	6	57
China	6	28
United States	6.3	27

Source: Authors' calculations based on Dubai Exports 2012; UN-COMTRADE; Hausmann et al. 2014.

Therefore, although Dubai has successfully diversified its economy away from oil activities, its productive base is highly concentrated in a few exports, with a few trading partners, making the economy prone to global shocks (see figure A.3). Considering the traditional structural transformation process, which is accompanied by export sophistication as well as export diversification, Dubai's transformation is different, with a low level of export diversification.

4.3 Low Human Capital Accumulation

In countries that have transformed their economies successfully, we observe a shift from low-skill activities toward skill- and R&D-intensive activities. This shift is supported by a strong education system and higher R&D spending. However, this has not been the case in Dubai, due to its weak education system and R&D activities (Klein, 2016; Dubai Economic Council, 2012; Al Sadik, 2016; Al Awad and Chartouni, 2008).

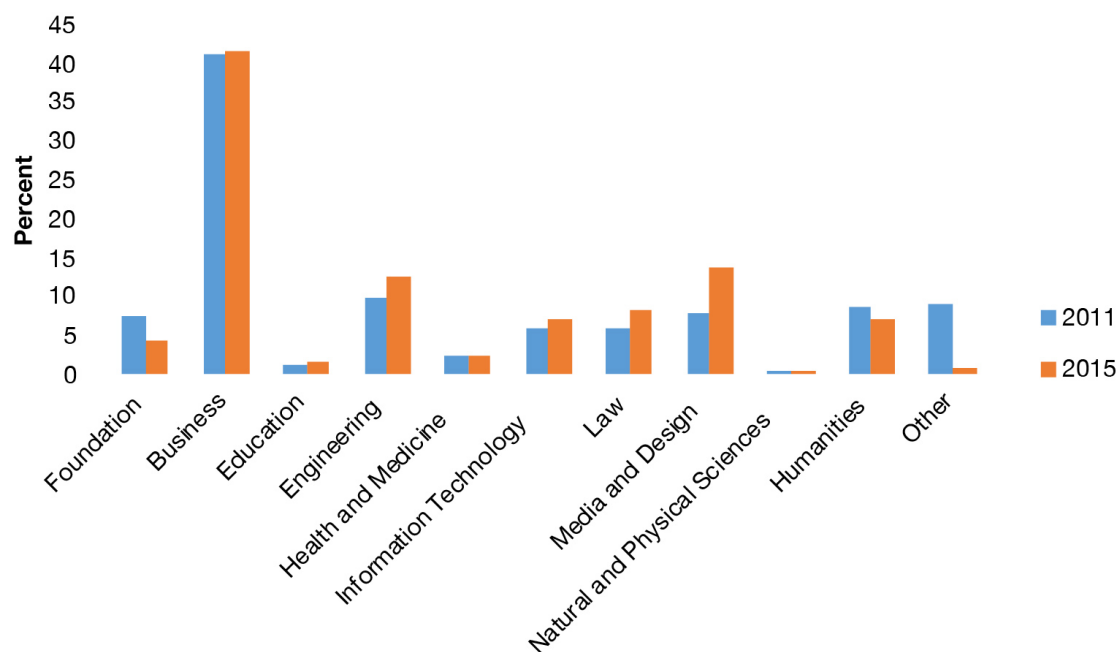
Although the level of education has been growing steadily since the 1990s, more than 60% of the labor force does not have a college degree (see Figure 9). In 2015, for instance, only 26% of the labor force had a university degree (Soto, 2016). The quality of secondary-level education has been questionable, as it fails to prepare students with the skill level needed by the private sector or the minimum requirements to enter university. There is also a disparity in the quality of education offered by the public school system and private schools. The latter outperform the former.

At the tertiary level, enrollments in the science, technology, engineering, and mathematics fields are very low. For instance, in 2015, 40% of students were enrolled in business, while only 12% and 7%, respectively, were enrolled in engineering and information and technology. These shares have marginally increased since 2011 (see Figure 10). There are practically no students enrolled in the natural and physical sciences. Rather, there has been a rise in enrollments in the arts and creative fields, with increasing enrollments in media and design majors.²² As a result, the domestic labor force continues to lack the specializations and skills required, particularly in sciences (Al Sadik, 2016; Hvidt, 2009).

22 For instance, the Dubai Design District was created in 2013 to provide a creative ecosystem that exceeds the expectations of a typical creative neighborhood.

Figure 9 Educational status of the employed labor force, Dubai, 1993–2015

Source: Authors' computations using data from the Dubai Statistics Center.

Figure 10 Distribution of students enrolled in tertiary education, by field of study

Source: Authors' computations using data from the Dubai Statistics Center.

In summary, although it has been successful in attracting a large amount of foreign capital through economic openness, Dubai's economy is vulnerable to global economic shocks. Its economy continues to be susceptible to global financial market volatility, and its exports are dominated by a limited number of products and a few trading partners. Moreover, labor productivity has been stagnant since the 1990s, and the level of education of its labor force is abnormally low to drive the sophistication of Dubai's exports. The mostly primary products in the exports base also makes the economy vulnerable to international price fluctuations, casting some doubt on whether its transformation strategy succeeded in diversifying exports. Therefore, the transformation process has not resulted in sophistication and diversification of its export basket and has not been driven by the accumulation of productive capacities, casting doubt on the sustainability of its transformation (Lectard, 2019). These concerns are echoed by the authorities, who have acknowledged the necessity to accumulate new capabilities, to transform the economic structure toward skilled and capital-intensive activities, as reflected in the Dubai Strategic Plan 2021.

5. Renewed Interest in Industrialization

The Dubai Strategic Plan 2021 highlights the sustainability of the underlying transformation model. It stresses the need to diversify toward more complex activities that foster technological change, productivity gains, and human capital accumulation (Hausmann, Hwang, and Rodrik, 2007; Dubai Economic Council, 2012). The new Industrial Strategy 2030 aims at creating “an international hub for knowledge-based, innovation and sustainable industrial activities [...] through enhancing industrial coherence and integration with other economic sectors, particularly strategic ones, [...] develop and improve existing targeted industries and attract new ones with competitive capabilities.” These strategies seem to be paying off. In recent years, the industry sector has become an important contributor to Dubai's GDP, accounting for 10% of GDP in 2016. The sector also showed greater resilience during the financial crisis, further rationalizing a renewed interest in this sector's expansion.

The Industrialization Strategic Plan 2030 targets six new industries— aerospace, maritime, pharmaceuticals and medical equipment, aluminum and fabricated metals, fast-moving consumables and goods, and machinery and equipment. These strategically selected manufacturing sectors are connected to Dubai's current specializations. The targeting of the aerospace and maritime sectors is aligned with the emirate's comparative advantages in air and maritime transport. Moreover, Dubai is one of the leading producers of fabricated metals, particularly aluminum, in the world.

However, Dubai's manufacturing is specialized in primary products or upstream activities that are not intensive in value

added, with output not sufficiently transformed before being exported. Therefore, the goal is to develop new comparative advantages in downstream finished products, moving the production chain up and exporting products that are more intensive in value added. Moreover, the industrial strategy stipulates that the machinery and equipment sector is significant, and its competitiveness must be maintained.

The strategic plan identifies two new sectors in which Dubai does not appear to have a comparative advantage— pharmaceuticals and medical equipment, which are knowledge intensive. These sectors are targeted because many multinational corporations seek to relocate parts of their plants and research units abroad. The strategy foresees that Dubai can benefit from this growing industry and be a prime location for pharmaceutical companies looking for low business costs. By targeting the fast-moving consumable goods industry, Dubai plans to position itself at the forefront of the halal food industry, which represented only 3% of total exports in 2016.

The low value added in the manufacturing sector of only 25% of total output implies that Dubai should move toward industries that are more intensive in value added or moving up along the value chain. Achieving these goals and hence increasing labor productivity requires improving domestic capabilities and promoting innovation. Moreover, the strategic plan emphasizes diversification through the emergence of new sectors that were deemed to have a competitive advantage and are resilient to shocks. Indeed, Dubai's economy is especially vulnerable to internal and external shocks, and diversification of the economy toward high value-added activities would improve the emirate's economic resilience.

6. Concluding Remarks

Within two decades, Dubai has successfully transformed its economy away from being heavily oil dependent into a well-diversified economy with oil accounting for less than 2% of its GDP in 2016. Dubai's successful diversification was a result of ambitious leadership, efficient public institutions, strong PPPs, and a robust stream of foreign investment. Its transformation was a successful mix of the developmental state and a market-friendly environment.

Dubai benefited from a clear vision and ambitious leadership and an efficient public sector that constantly evolves to deliver modern public services. The performance was ensured through coordinated objective-setting, monitoring, and evaluation mechanisms, with quantifiable targets and indicators on which each public department is assessed. This is in line with Rodrik's (2004) industrial policy approach. It also helps mitigate the rent-seeking behavior and corruption that are typical of developing countries' institutions. This highly coordinated and efficient institutional structure has proven to

be a central part of Dubai's successful transformation, from which other countries could learn.

Dubai targeted five strategic sectors—real estate, tourism, finance, trade, and infrastructure—which are complementary, and provided the necessary finances and ensured the right regulatory and policy environment for their emergence and growth. The infrastructure and construction sectors have played major roles in the expansion of the trade sector and emergence of the tourism and financial sectors. What is more appealing is that Dubai did not use the traditional policy tools, such as subsidies and protection, to spur the emergence and growth of new strategic sectors, even for public companies, which are often subsidized in other countries. Rather, Dubai adopted a CAF strategy, with key sectors following the growth of sectors with established comparative advantages.

To foster the existing comparative advantages and create new ones, mega-projects, which operate on a commercial basis subject to global competition, were established and managed independently and operated autonomously. If there was any government support, it was only to compensate the risks taken, not to provide protection for an extended period, as suggested by Hausmann and Rodrik (2003). Hvidt (2009) describes the projects as “state-initiated firms,” with the state having spearheaded their emergence but gradually exiting and focusing on removing bottlenecks and investing in hard and soft infrastructure, as suggested by Lin (2009, 2012).

Moreover, GREs are at the center of Dubai's economic development strategy, which is the engine of diversification. One of the concerns about this strategy is that institutional and economic control of GREs tends to be concentrated in the hands of a few, potentially exacerbating unequal distribution of wealth and power. However, Dubai's strong social contract

system of income redistribution appears to address some of the concerns about the distribution of wealth. As to whether such wealth distribution mechanisms could be adopted elsewhere in developing countries, it is doubtful, and the distributional consequences of implementing a Dubai-type GRE development strategy with poor institutions need to be carefully studied.

Dubai heavily relies on foreign investment through the implementation of horizontal policies to promote an optimal business environment in the form of tax incentives, which has significantly reduced its tax revenue. Nonetheless, Dubai managed to make up for the lost tax revenues through fees for services and sales revenues generated by GREs. Although such well-thought-out complementarity in different domestic resource mobilization instruments worked well for Dubai, its feasibility in other countries, especially in countries with a low tax base, is difficult to generalize.

The creation of free zones was also a major part of Dubai's strategy, as it attracted a considerable amount of foreign investment. The free zones were alternative ways to establish a business-friendly environment and effective tools to target specific industries. Although some of the free zones, such as Jebel Ali Free—the oldest and biggest free zone in Dubai—host diverse economic activities, most free zones are specialized in a specific sector. They are thus part of a deliberate strategy to promote targeted sectors.

Finally, although there is a growing body of literature that casts some doubt on the sustainability of development patterns built on the service sector (Cadot et al., 2015), Dubai's nontraditional transformation process of progressively moving from unsophisticated services toward more complex activities could provide a model for an alternative path for some low-income countries in Africa.

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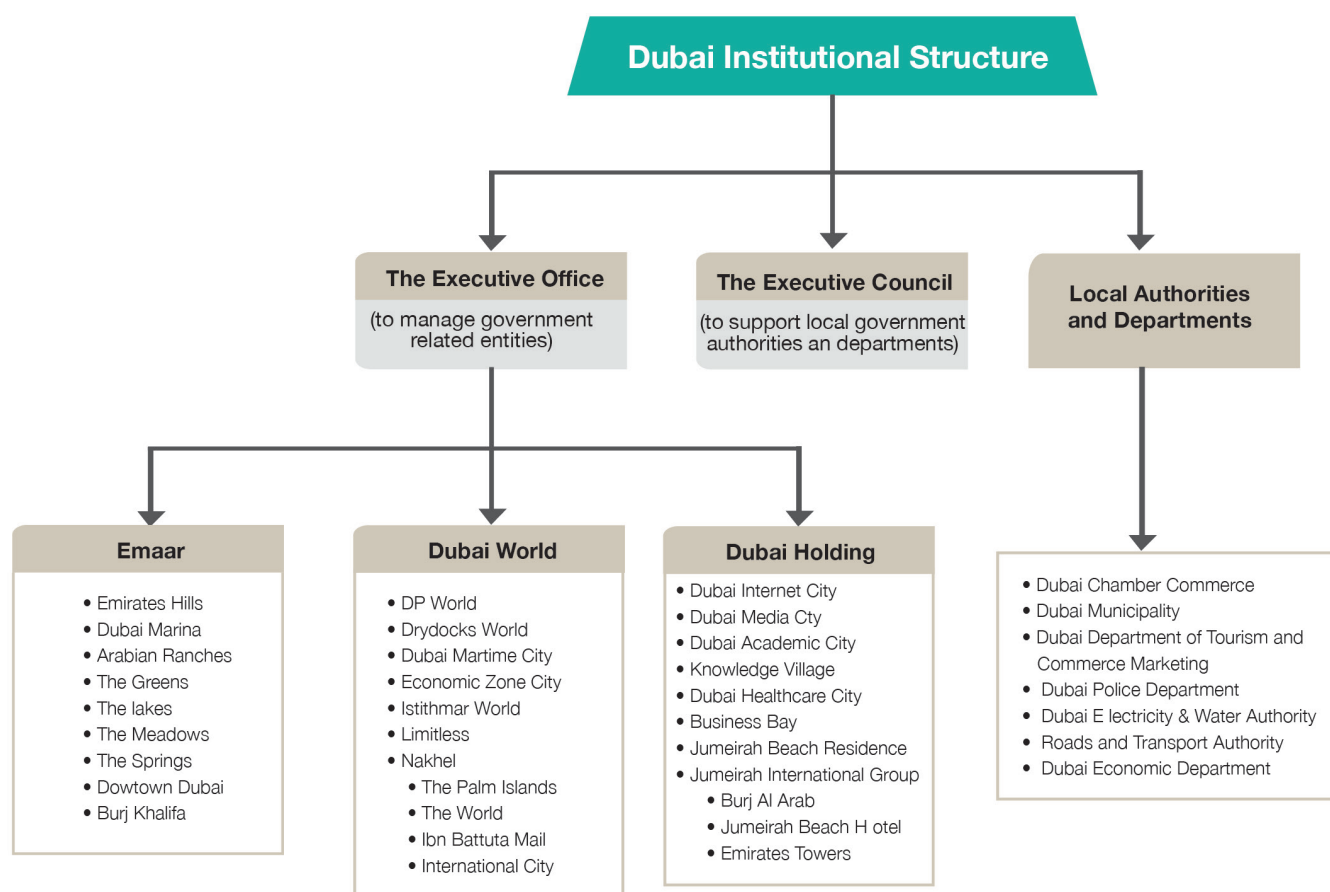
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Appendix: Additional Tables and Figures

Figure A.1 Dubai's institutional structure



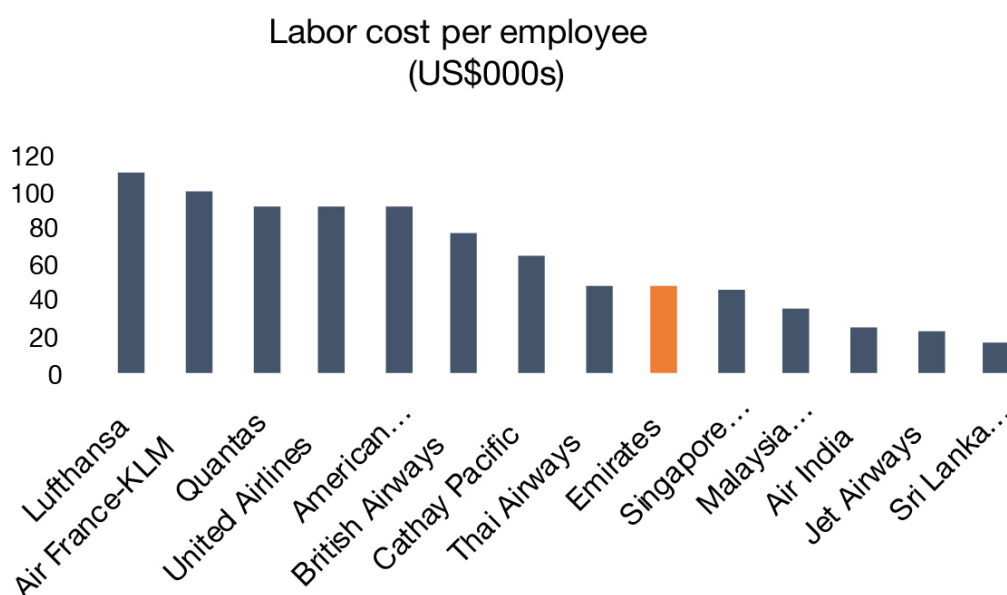
Source: Al Shama 2014.

Box A.1 Emirates Airlines

Emirates Airlines was established in 1985 by the former ruler of Dubai, Sheikh Rashid bin Said al-Maktoum. It is a fully government-owned airline, which was allocated \$10 million to undertake its commercial activity, which began with a fleet of two aircraft. Emirates Airlines runs on a commercial basis and does not receive any public subsidies. It enjoys significant managerial autonomy, including for raising funds. The airline operates under the authorities' unconditional open skies policy subject to global competition.

However, Emirates Airlines benefits from Dubai's business-friendly environment, such as low taxes, cheap foreign labor, and modern infrastructure. In 2011, 97% of its labor force was composed of foreigners, enabling it to lower its operating costs compared with its competitors (Figure B.A.1). Labor costs account for 8% of total expenditures, compared with 30% for most European airlines (Lohmann et al., 2009). Further, Lohmann et al. (2009) suggest that Dubai's proximity to oil producers in the Gulf region reduces the company's fuel expenditures. Emirates Airlines also benefits from other growing economic activities (tourism, trade, and leisure) that stimulate the demand for air services. Synergies are created between other the government-related entities that positively affect Emirates Airlines' revenue as much as Emirates Airlines contributes to Dubai's economy (OECD, 2013).

Figure B.A.1 Emirates Airlines' labor cost per employee, 2010



Sources: Authors' calculations using data from Emirates 2012; OECD 2013; Lohmann et al. 2009.

Table A.1 Dubai's free zones

Zone	Date established	Owner
Jebel Ali Free Zone (JAFZA)	1985	Dubai World
Multi-Commodities Center DMCC	2002	Dubai World
Outsource Zone (DOZ)	2004	Dubai Holding
Car and Automotive Zone (DUCAMZ)	2000	Dubai World
The Gold & Diamond Park (DGDP)	2001	EMAAR
Flower Center (DFC)	2004	Dubai Holding
Textile City (DTC)	2007	Dubai World
Internet City (DIC)	2000	Dubai Holding
Media City (DMC)	2001	Dubai Holding
Studio City (DSC)	2005	Dubai Holding
International Media Production Zone (IMPZ)	2003	Dubai Holding
Silicon Oasis (DSO)	2004	Emirates Group
Health Gare City (DHCC)	2002	Dubai Holding
Knowledge Village (DKV)	2003	Dubai Holding
International Academic City (DIAC)	2007	Dubai Holding
International Financial Center (DIFC)	2004	Gov. of Dubai
Biotechnology & Research Park (DuBiotech)	2005	Dubai Holding
Energy Park (DENPARK)	2006	Dubai Holding
International Humanitarian City (DHI C)	2007	Gov. of Dubai
Airport Free Zone [DAFZA]	1996	Emirates Group
Dubai World Central (DWC)	2007	Emirates Group
Logistics City (DLC)	2007	Emirates Group
Maritime City (DMC)	2007	Dubai World

Source: Al Iriani, Elbadawi, and Fadhel 2016.

Box A.2 Dubai International Financial Center

As part of Dubai's strategic vision to diversify its resources and attract investment in the region, the Dubai International Financial Centre (DIFC) was launched in 2004. DIFC provides a means to absorb the surplus liquidity generated by oil exploitation. It is a financial free zone, as defined in Federal Law No. 8 of 2004. By law, DIFC is empowered to create its own legal and regulatory framework for all civil and commercial matters. For instance, Federal Law No. 8 of 2004, or the Financial Free Zone Law, allows the creation of a financial free zone in any of the emirates of the United Arab Emirates and exempts financial free zones and financial activities from all federal civil and commercial laws. Thus, DIFC operates within a unique legal and regulatory framework, thereby creating an optimal environment for financial services and related industries and services. DIFC has its own civil and commercial legal framework. This includes financial services regulation and a court system model that meets the international standards and principles of common law, and that is tailored to the region's unique needs. This legislation was established to fit the day-to-day requirements and operational constraints of the various actors within DIFC.

DIFC is composed of three independent bodies. The DIFC Authority is the central entity that oversees the strategic development, operational management, and administration of DIFC. The Dubai Financial Services Authority is the central independent regulator that grants licenses and supervises the activities of all the financial and non-financial institutions in DIFC. The Dispute Resolution Authority is responsible for the independent administration and justice enforcement in DIFC.

DIFC's comprehensive and familiar set of rules and regulations are instrumental in attracting international financial institutions and businesses. Currently, DIFC hosts hundreds of financial institutions in diverse areas, such as banking, insurance, wealth and asset management, and brokerage. It also hosts NASDAQ Dubai, an international stock exchange market. DIFC is one of the most advanced and sophisticated free zones in Dubai.

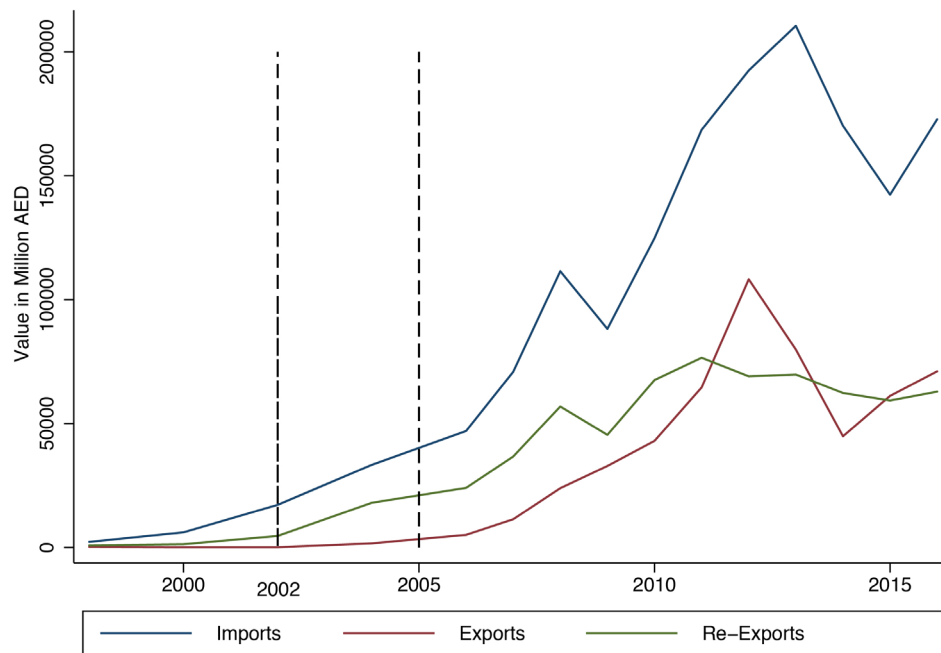
Sources: Tarbuck and Lester (2009); Dubai International Financial Center.

Table A.2 PRODY for various categories of goods and services

	Category	Average PRODY
GOODS	Primary products	10.4
	Resource based	14.8
	Low tech	11.6
	Medium tech	19
	Transport	11.6
SERVICES	Construction	9.4
	Royalty & license fees	14.5
	Computer & information	18.6
	Financial	24

Source: Anand, Mishra, and Spatafora 2012.

Figure A.2 Exports of pearls, precious stones, and metals, Dubai, 1998–2015



Source: Authors' calculations using data from the Dubai Statistics Center.

