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A study of Tunisia's leather and date sectors

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The International Food Policy Research Institute (IFPRI), established in 1975, provides research-based policy solutions to sustainably reduce poverty and end hunger and malnutrition. IFPRI's strategic research aims to foster a climate-resilient and sustainable food supply; promote healthy diets and nutrition for all; build inclusive and efficient markets, trade systems, and food industries; transform agricultural and rural economies; and strengthen institutions and governance. Gender is integrated in all the Institute's work. Partnerships, communications, capacity strengthening, and data and knowledge management are essential components to translate IFPRI's research from action to impact. The Institute's regional and country programs play a critical role in responding to demand for food policy research and in delivering holistic support for country-led development. IFPRI collaborates with partners around the world.

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ABSTRACT

Based on field visits, structured interviews, and reviews of the literature and secondary data, we examine major challenges facing the leather and date clusters in Tunisia. The challenges vary greatly between the clusters. The leather and footwear industry faces a decline in external demand. After the global economic crisis in the late 2000s and the Arab Spring in the early 2010s, the sector lost international competitiveness. To revitalize the sector, policies should be designed to expand markets for leather and footwear. Exploring trade agreement with the US, leveling the tariff rate for intermediate goods and shoes, attracting foreign direct investment, and improving leather quality are among potential policy options. Implementing these policies will require coordination among different government agencies and private sector stakeholders. Besides demand challenges, lack of water treatment also is a major challenge facing tanneries across Tunisia.

The international demand for Tunisian dates has been very strong. Most of the major challenges are on the supply side, such as value chain coordination, inadequate water supply, labor shortages, diseases, lack of new varieties, and limited value addition. The supply-side policy options include diversifying varieties and expanding into date derivative and palm waste products, promoting labor-saving mechanization and water-saving irrigation technologies, and improving coordination along the value chain.

1 INTRODUCTION

Clusters – the geographic concentration of a larger number of specialized firms that are working in similar or related activities– have played an important role in the rural economic transformation of many countries, including in Europe, the Americas, and Asia (Sonobe and Otsuka 2006; Yoshiko 2011). A large part of these successes can be explained by the ability of clusters to build on existing strengths of local communities, such as social capital and abundant labor, to overcome limiting factors, such as weak financial markets and institutions.

Cluster-based development also has large potential for revitalizing rural areas and spurring industrial development in the Near East and North Africa region (Abdelaziz et al. 2018). This is especially the case in countries with a history of clustering agricultural and other economic activities. Realizing the transformative potential of the cluster-based development model, the Egyptian Government has made cluster-based industrialization a key pillar of Egypt's sustainable development strategy to 2030. The timing for a cluster-based industrial development model for Egypt seems favorable as macroeconomic reforms in recent years have made Egypt's economy more competitive. Moreover, the country's young labor force provides a comparative advantage for labor-intensive sectors. Similarly, Tunisia under the leadership of the Ministry of Industry started encouraging cluster formation in its 2008 strategy and has made the cluster model a key driver for growth in rural and urban areas, with an initial focus on textiles and on the agro-food sector (ECCP 2019).

Despite this recent attention, most clusters in Egypt and Tunisia remain relatively small and have not (yet) experienced the recently rapid growth seen in clusters in Asian countries. IFPRI's research on various types of clusters in China, Ethiopia, Myanmar, and other countries, including Egypt, show that it is often very sector- and location-specific bottlenecks that hinder the expansion of a cluster. Overcoming these bottlenecks can unleash cluster growth and create urgently needed jobs for people to escape poverty and prosper. For example, preliminary findings from IFPRI's research suggest that key constraining factors for medicinal and aromatic plant clusters in the Beni Suef and Fayoum governorates in Egypt are related to the high cost of quality testing and to difficulties in licensing businesses (Abdelaziz et al. 2018). Supporting affordable lab testing and easing the process of formalizing processing plants are policy solutions that have been communicated to the Egyptian Government and, if implemented, are likely to lead to rapid growth in the value of production and exports of medicinal and aromatic plants. Such cluster-specific diagnostics can also help identify and unleash untapped and underutilized potentials in clusters for other products.

In order to further investigate the constraints and opportunities for cluster-based rural transformation, FAO and IFPRI have worked together on the project "Cluster-based development to revitalize rural areas in the Near East and North Africa: International evidence and cluster-specific diagnostics for Egypt and Tunisia". Two of the major outputs under this project are comprehensive analytical reports on case studies in Egypt and in Tunisia for selected clusters. This document reports on the case study in Tunisia, which focused on the leather and footwear cluster and on the date cluster.

Specifically, the objectives of the project are to (1) identify a set of promising "organic" rural clusters in Egypt and Tunisia to help investors and policymakers focus on high potential clusters that can generate rural employment and benefit small-scale farmers and producers; and (2) to provide specific recommendations on how to overcome key bottlenecks constraining the economic performance of those clusters.

This report, focusing on Tunisia, is structured as follows. The next section will discuss the theoretical framework of the full report providing an overview of the available literature on how clusters respond to shocks. Section 3 described the methods used in conducting the cluster case studies in Tunisia. Section 5 presents the major findings on the first cluster case-study on the leather and footwear sector, while section 5 is devoted to the date sector. Section 6 concludes.

2 THEORETICAL FRAMEWORK

The importance of firm clusters in industrial organization has been noted by many scholars, going back to Marshall (1920).The standard definition refers to spatial agglomeration of firms in a common industry to realize inter-firm spillovers in sharing of technology, inputs, and customers (Porter 1990). Clusters in developing countries share a few distinctive characteristics from those in developed countries: small firm size, low capital intensity, a high degree of vertical disintegration and specialization in different stages of production, strong buyer-seller networks across stages of production, prevalence of trade credit, and sharing of tools and information (Ruan and Zhang 2009; Kali 1999; Kranton 1996; McMillan and Woodruff 1999a, 1999b; Banerjee and Munshi 2004; Macchiavello and Morjaria 2015, 2019; Dai et al. 2018). Inter-firm exchanges within the cluster are governed by informal relational contracts rather than through legally enforceable contracts. Entrepreneurs often belong to a common social network or community defined by ethnicity or birthplace, allowing informal agreements to be enforced via community norms. Essentially, clusters enable entrepreneurs in developing countries to overcome the constraints faced by more formal institutions by using their existing strengths, such as abundant labor and strong social trust embedded in local communities.

Most clusters are organically formed. Cluster development undergoes two phases – quantitative expansion and qualitive improvement (Sonobe and Otsuka 2006). During the process, clusters continuously run into various bottlenecks, many of which are beyond the control of individual firms (Zhang and Hu 2014). There are both demand-side and supply-side challenges.

Cluster development is limited by the extent of the market. When diagnosing the growth potential of a cluster, one key indicator is the extent of the market for the key product produced. Rising domestic income or external demand drives market expansion. For example, after the success of rural reforms in the 1980s in China, rural income doubled, generating huge demand for labor-intensive manufacturing goods (Xu and Zhang 2009), which was a key factor behind China's rapid cluster-based industrialization. On the other hand, an unexpected demand shock may have a devasting effect on clusters. For example, the recent COVID-19 pandemic ground international travel to a halt. Consequently, handcraft clusters in many developing countries tailoring to international tourists have suffered greatly.

Market infrastructure is also essential for cluster development. In most clusters, there are marketplaces and logistics centers. Thanks to their proximity to customers, individual producers in clusters can save purchasing, inventory, and marketing costs, e.g., the Zhili children's garment cluster (Fleisher et al. 2010), or the Puyuan cashmere sweater cluster (Ruan and Zhang 2009), both in China.

On the supply side, clusters also face various challenges during the course of their development, ranging from lack of skilled workers, shortage in key production factors, to electricity outages. The transition from the first phase of quantitative expansion to the second phase of qualitative improvement is full of challenges. If the quality of intermediate goods supplied to the cluster is inferior, then it would be impossible for a firm to product superior quality final products by itself. Lack of quality inspection and product certification is a common problem in developing

countries. Knowing that buyers often cannot tell quality differences, firms naturally choose to produce products using lower quality inputs obtained at low cost to gain price advantage. Solving these and related problems that constrain quality improvement within the cluster requires collective action.

Such bottlenecks tend to be context and cluster specific and to vary over time. At times the bottlenecks will be on the demand side, while at other times, the binding constraints are on the supply side. After one bottleneck is addressed, another one emerges. Consequently, it is hard for a planner to prescribe a one-size-fits-all prescription to the challenges facing clusters. Continuous tinkering with how clusters operate at the local level is required. Local governments or business communities play an important role in organizing collective action among stakeholders in the cluster and providing necessary public goods to overcoming the bottlenecks.

In this report we use a bottom-up diagnostic approach to identify the major challenges facing the leather and footwear cluster and the date cluster in Tunisia. This report highlights how these clusters can address the bottlenecks constraining their businesses and how they can capitalize on their untapped potentials. For the leather and footwear industry in Tunisia, we find that decline in international demand is the major challenge. For the date cluster, bottlenecks are primarily on the supply side and include inadequate water supply, labor shortages, diseases, and a lack of new varieties.

3 METHODOLOGY

As explained, bottlenecks that hinder the expansion of clusters are often sector- and location-specific. Thus, it becomes necessary to start diagnostics at the local level so as to come up with the most effective context-specific solutions to overcome the existing bottlenecks.

Accordingly, the research team developed a four-step bottom-up diagnostic methodology.

a. Stock taking of available studies and resources on clusters in Tunisia;
b. Initial scoping mission to help identify a set of promising “organic” rural clusters in Tunisia for further study;
c. Field visits to conduct rapid field assessments of the clusters identified; and
d. Workshop to present preliminary field findings and to obtain expert advice to validate and enrich the case study findings.

In addition, a workshop will be organized following the publication of this report to provide for a dialogue with government agencies and cluster stakeholders. In the workshop, the case study findings will be shared and recommended policies to revitalize rural areas through cluster-based development will be proposed and discussed.

3.1 Stocktaking to identify promising organic rural clusters in Tunisia

The first step in the analysis involved reviewing closely all available published and unpublished data and studies on a range of possible clusters in Tunisia to guide our choice of clusters for our case studies. We also relied on expert opinions and findings obtained from structured field interviews with cluster actors.

3.2 Initial scoping mission to select case study clusters

The IFPRI-Egypt team and the FAO-Tunisia team then jointly planned and conducted an initial study mission, which took place from 3 to 11 October 2019. Meetings and structured interviews

were held with actors in several potential clusters, including industry experts and government representatives, as well as with researchers who either have knowledge or are currently conducting similar research on industrial clusters in Tunisia. (See Appendix 1.) The aim was to obtain informed guidance to guide our choice of a few representative clusters as case studies in order to narrow down our research focus.

Structured interviews were held with representatives from agribusinesses, including olives, dates, medicinal and aromatic plants, and dairy, and from the leather and handicrafts sectors. Valuable insights on clusters that have significant potential to develop in these respective sectors were highlighted during the interviews, which were 13 in total.

Our key criterion for identifying the clusters to serve as case studies for this research was that they be “promising”. Based on findings from the structured interviews and the literature, we identified a cluster as “promising” if it produced a good or other commodity that has significant market demand. Ideally, the cluster would be export-oriented or demonstrates significant potential for supplying export markets.

Observing bottlenecks within the cluster under study was taken as indicative of unseized opportunities. Such a situation further increases the potential of a cluster diagnostic to help unleash its untapped and underutilized potentials. Based on analysis of the insights gained though expert interviews, literature review, and the industrial development priorities of the Government of Tunisia, the two clusters selected were the leather and footwear cluster and the date cluster. Sfax, Sousse, Nabuel, and Monastir were identified as being key locations for examining leather and footwear clusters and Tozeur and Kebili for dates. It was clear from our initial investigations that these clusters have transformative potential for the further development of Tunisia’s industrial capacity and for creating job opportunities along their value chains.

3.3 Rapid field assessments of selected clusters

After selecting the two sectors that have potential for cluster-based industrialization for our case studies, using information obtained through the structured interviews conducted during the initial scoping mission, we sought local partners to help us organize field visit to the sites where clusters of production for leather and footwear and dates are agglomerated. The Ministry of Industry directed us to the National Centre for Leather as our designated partner for the leather and footwear cluster field visits, while the Ministry of Agriculture identified the Groupement Interprofessionnel des Dattes as our designated partner for the date cluster field visits. Partnering with both of these cluster-based institutes provided significant and useful local and sector specific informational advantages.

In preparation for focus group discussions and interviews during the field visits, we identified an expert in each sector to accompany us. This helped the research team adapt to changes and to develop trust with interviewees. These individuals helped develop more open relationships with interviewees and was crucial to ensuring the success of our field research. Through our open engagement with the interviewees, we were able to clarify any information provided as well as conduct follow-up questions. In this way, we were able to constructively brainstorm and analyze how the different context-specific constraints evolve in clusters in the two sectors.

The field trip to the leather and footwear and to the date clusters took place between 19 and 25 February 2020. (See Appendix 2.) During the trip, the research team held focus group discussions and interviews with various actors along the value chain. (See Appendix 6 for list of interviewees.) We visited different actors along the leather and footwear value chain in northern governorates of Tunisia (Tunis, Monastir, Moknin, and Sfax), conducting over four days 14 structured interviews. Structured interviews were held with leather goods manufacturing and exporting companies. In

addition, two focus group discussions were held – one with the Tunisian Union of Industry, Trade and Handicrafts (UTICA) in Tunis and one with the Tunisian Union of Industry, Trade and Handicrafts (UTICA) in Sfax. The focus groups at each included two representatives each from leather collectors, managers of Technical and Vocational Education and Training (TVET) centers, tanneries, workshop owners, workers in factories, traders of inputs, and exporters. We also toured several small and medium shoemaking workshops in old markets, TVET centers, a large tannery in Moknin, traditional tanneries, and leather collection facilities, in addition to other related industries, such as a wool processing factory and a shoe sole factory.

Similarly, we visited actors in the date sectors in Tozeur and Kebili, two southern governorates of Tunisia. Over four days in the region, we held 13 meetings with individual and group actors during which we conducted semi-structured interviews and toured farms and facilities. See Appendix 6 for a list of the stakeholders interviewed.[1] Focus group discussions and interviews were held with farmers; date collectors; small, medium, and large date exporters; GDAs (farmers groups); and with staff members of the Groupement Interprofessionnel des Dattes and of the Dates Research Center Tozeur, among others. Interviews with farmers were conducted in both traditional and new oases. We also ensured that we spoke to farmers with varying perspectives and experiences with collectors, exporters, and GDAs. We spoke to a collector in Tozeur and collector in Kebili, as well as representatives of various exporting companies across the region.

Despite gathering information about a significant portion of the date value chain in a short time, we stress that these findings are based on limited sample. There is a need for further studies of date derivate products and the palm waste value chains, as well as the date value chain serving local markets from the traditional oases.

3.4 Workshop to discuss and validate preliminary field findings and to obtain expert advice

A one-day workshop was held at the end of the field research in Tunis on 26 February 2020. (See Appendix 3 for detailed event agenda.) Workshop participants included representatives from government agencies, local partners and contacts, industry stakeholders, and study interviewees. More than 120 persons were in attendance.

During the workshop, key stakeholders from the Ministry of Agriculture, Ministry of Industry, Groupement Interprofessionnel des Dattes, and FAO provided short presentations on opportunities and challenges for upscaling Tunisia's promising clusters, with an emphasis on leather and dates. Then the research team provided a 20-minute presentation of the preliminary findings from the fieldwork and an initial diagnostic for the dates and the leather clusters visited. The opening session concluded with an open session of discussion and commentary from attendees.

The second session of the workshop was aimed at validating findings on the two sectors from the field cluster visits and addressing unanswered or unexamined areas. The workshop attendees were invited, with the help of the National Center for Leather and the Groupement Interprofessionnel des Dattes, to form two roundtables, one for each sector. Under the direction of a moderator, each roundtable considered a set of questions (Appendix 4). These provided a structured framework to ensure that all stakeholders would share their insights and further validate or confirm field findings. The questions also encouraged the attention of all roundtable members to the discussion. Including stakeholders from both the private and the public sectors increased the opportunity for a direct policy dialogue.

While our four-step diagnostic methodology has the advantage of being flexible and easily adaptable, the results obtained are heavily dependent on context. Consequently, findings using

[1] This appendix contains interview IDs which will be referenced throughout this report.

this methodology may look very different from one cluster or sector to another and from one context to another. The key is to avoid strong top-down views beforehand and listening carefully to what happen on the ground. Given that constraints on cluster operations are highly location-, industry-, and context-specific, we cannot prescribe one-size-fits all solutions out of the results of such diagnostics.

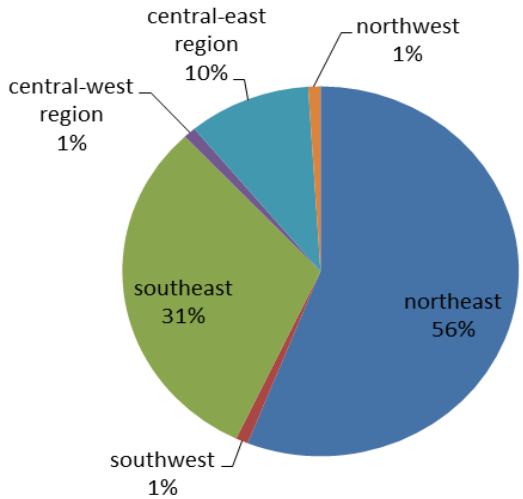
Indeed, as a result of our four-step approach, we identified differences between information obtained through our desk studies and that obtained from our field work. Field work can reveal information that secondary data hides. Furthermore, we discovered a considerable amount of relevant activities that had not been reported elsewhere. This again highlights the importance of an approach to sector and cluster diagnostics that involves discussing with stakeholders along the value chain, including with local government bodies. This approach not only ensures a well-informed understanding of the cluster under study for determining key bottlenecks and opportunities, but also improves the degree of ownership of the findings by local partners and, therefore, the results are more likely to contribute to cluster development.

4 LEATHER AND FOOTWEAR SECTOR

4.1 Sector background and overview

Tunisia's leather sector dates to the early 1940s. It was among the sectors that benefited greatly from the export promotion strategies instituted in the 1970s with the aim of strengthening light industry beyond traditional food processing activities (Ayadi and Matoussi 2014). Figure 4.1 shows the geographic distribution of companies in Tunisia's leather and footwear sector by region, which confirms the predominance of the Northeast (mainly the Grand Tunis area), which generally has the most modern and mechanized factories, and the coastal areas if Monastir, Sfax, Sousse, and Nabeul, where other leather production activities are agglomerated.

Figure 4.1: Distribution of companies within Tunisia's leather and footwear sector, by region, 2019



Source: Centre National du Cuir et de la Chaussure (CNSS), 2019

Monastir is home of the oldest and biggest tannery, while Sfax, which alone represents nearly 28 percent of companies in the sector, is home to the oldest market and is where shoemaking workshops have been for at least 40 years (CNCC 2019). Sfax is a major leather and footwear cluster in Tunisia. By comparison, western areas of Tunisia house only 4 percent of leather and

footwear production activities. This is attributed to a lack of logistical hubs and markets, poor infrastructure, and a scarcity of skilled labor, making it challenging to set up businesses there.

Tunisia's leather sector has many competitive advantages that present opportunities for growth and prosperity. Historically, leather is very much a family-based industry in Tunisia whereby skills and capital have moved from one generation to the other. Tunisia has a skilled labor force in the sector that enable it to create high quality and differentiated products.

The sector is very labor intensive and based on craftsmanship. The leather and footwear industry was estimated to have around 25,000 employees in 2019. Most companies (86 percent) in operation in the leather industry are small, having less than six employees per facility (CNCC 2019). The sector attracts workers from different social classes and can offer employment opportunities to those with disabilities. The sector also employs a significant number of women, as many small workshops and factories report that they have outsourced part of their production to women at homes. These tasks include cutting, stitching, and gluing accessories on handbags and footwear to giving other finishing touches and packaging. While these home-workers may be invisible to the state, during focus group discussions, small-workshop respondents reported that, before the 2011 revolution, they could outsource orders to up to 20 women each, suggesting that such outsourced work could employ between 20,000 and 30,000 workers nationally (UTICA, Focus Group A, 19 February).

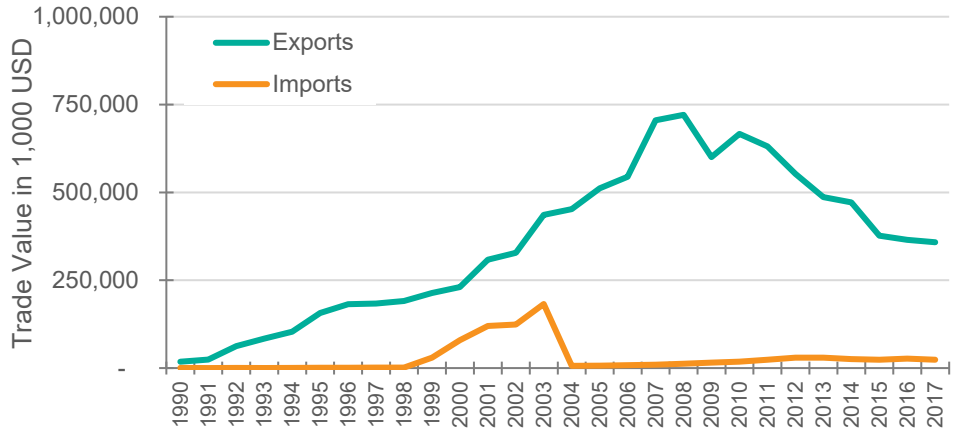
In addition to the abundance of cheap skilled labor, which furthers the competitiveness of this sector, reliance on locally produced inputs presents another clear opportunity. Many shoe manufacturing factories source their inputs from nearby villages and workshops that produce thread, soles, heels, and accessories for the footwear manufacturing industry.

There are unseized local market opportunities. According to one respondent, "There are approximately 12 million people in Tunisia and each person consumes approximately four pairs of shoes per year, so that 48 million shoes are consumed domestically." However, the question is how to seize such market opportunity. Most respondents in Sfax, home for domestic shoe production, reported that there is unfair competition from smuggled shoes since the 2011 revolution, and poor law enforcement makes them struggle to increase their market share in the local market.

As for the export market, Tunisia's leather industry has a prominent international market share. Export destinations are limited to a handful of EU countries, including France, Germany and Italy, where they face strong competition from Asian exporters, particularly China and India, and from Eastern European countries that have higher productive capacity. According to the CNCC's National Center for Leather report (2019), the sector's trade balance is in surplus with a ratio of exports to imports at 132 percent in 2017. In 2016, almost 2,700 companies worked in the leather and footwear sector, 22 percent of which are were focused on production for export.

This exported finished leather goods industry is largely dominated by manufacturers of footwear and uppers, making up about 86 percent of total finished leather goods exports in 2017 (WITS 2020). Tunisia remains a net exporter of leather footwear. However, it is evident that, while footwear export values increased from 1990 to 2008, amid the global financial crisis and later the 2011 revolution, the sector has been in decline since. Nonetheless, to date, Tunisia remains a net exporter of leather footwear (Figure 4.2).

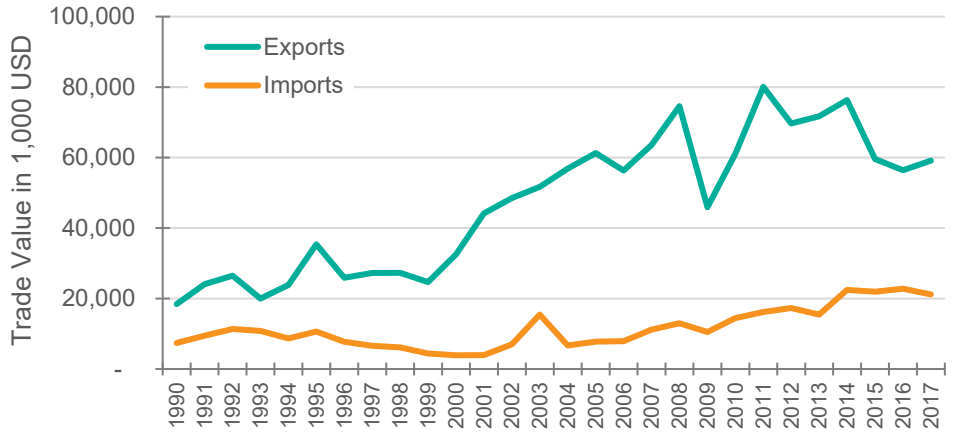
Figure 4.2: Leather footwear, annual export and import value for Tunisia, 1990 to 2017



Source: World Integrated Trade Solution (WITS), 2020

Tunisia also remains a net exporter of leather clothing and accessories. However, again export performance was hit badly during the financial crisis in 2008, decreasing the ratio of exports to imports. As shown in Figure 4.3, while exports started recovering back again after the 2011 revolution, thereafter the sector's performance fell.

Figure 4.3: Leather clothing and accessories, annual export and import value for Tunisia, 1990 to 2017



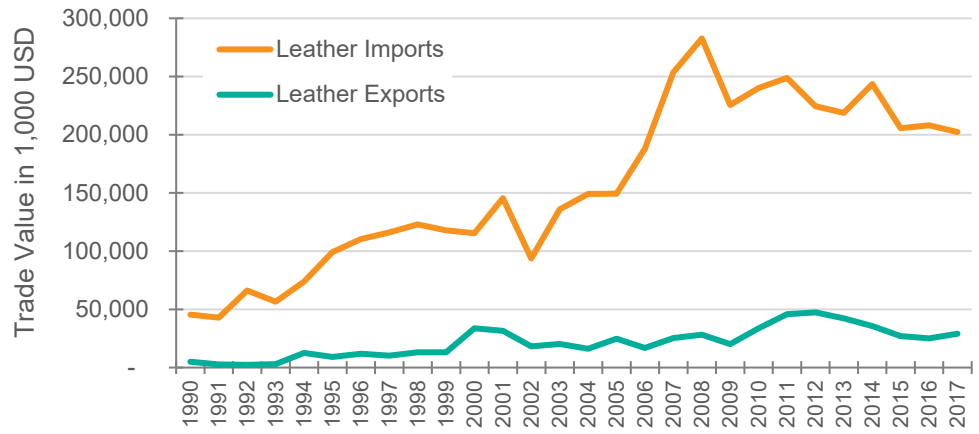
Source: World Integrated Trade Solution (WITS), 2020

Despite Tunisia's status as a net exporter of leather goods, several respondents pointed out that the divergence between the positive official statistics and the negative outlook from people in the sector is worth a closer look. Some argued that the official numbers do not take into account the magnitude of the informal economy and the adverse effects of illegal importation of leather and synthetic leather goods. Such imports pose huge threats to the sector, creating major problems for local manufacturers. Informants report that these large quantities of imports are smuggled illegally and, thus, are untaxed, lowering the competitiveness of locally produced leather items.

Others stated that the office numbers on the sector are missing nuance and are not representative of the entire sector's performance across Tunisia. While in Nabeul and in the Grand Tunis area, many companies are involved in intensive production, most of this production is mainly directed to European markets. Many European brands outsource their production to factories in Tunisia providing all necessary inputs and designs, mostly making use of cheap skilled labor. These companies end up reselling these products in the international market under their own brand names. When receiving orders from larger European brands, Tunisian leather and footwear

firms often import tanned leather and accessories. This is part of why Tunisia imports much more leather than it exports, as shown in Figure 4.4.

Figure 4.4: Leather hides, annual export and import value for Tunisia, 1990 to 2017

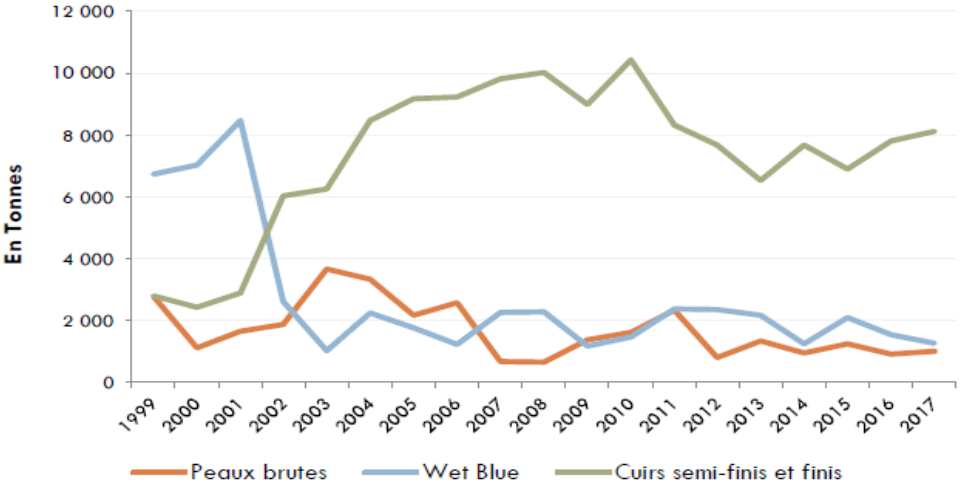


Source: World Integrated Trade Solution (WITS), 2020

Looking more closely at the imports of leather over the period 1990 to 2017, the quantity of tanned leather imported grew by approximately one percent per year on average (WITS 2020); with an increasing trend until the global financial crisis and later slowed further down subsequent to the 2011 revolution. On the other hand, the value of tanned leather imported grew by 10 percent per year on average (WITS 2020). That this growth in value has outpaced growth in quantity is mainly attributed to the continuous depreciation of the Tunisian Dinar.

Figure 4.5 disaggregates leather imports by type (raw hides, wet-blue, and semi-finished or finished leathers), and shows that for the semi-finished and finished leather types, import volumes significantly increased since the early 2000s, jumping from less than 3,000 tons annually to around 10,000 tons over the period 2007 to 2010. This rise in the quantity imported can be explained by the growth of the leather and the footwear manufacturing sector, but also by a decline in production of the local tanneries sector. Despite several large tanneries in Tunisia, the local supply of leathers remains limited in terms of quantity, quality, trends, and colors. In 2017, almost 87 percent (in value) of imported skins and hides came from Europe, with 62 percent sourced from Italy alone (CNCC 2019).

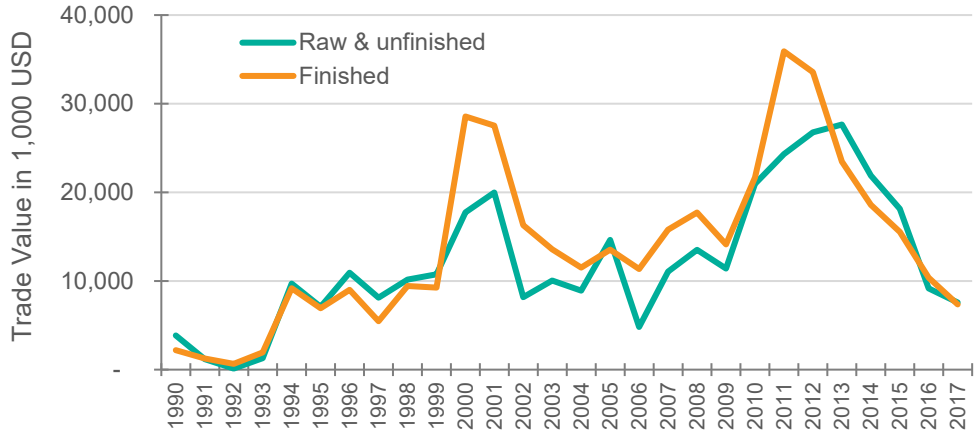
Figure 4.5: Tunisia's annual leather import quantities, by type, 1999 to 2017



Source: CNCC, 2019

Exports of leather increased in value from about 5 million USD in 1990 to approximately 46 million USD in 2011, an increase of around 820 percent. After the 2011 revolution, the sector saw a huge decline, with export values declining almost 45 percent from 2012 to 2016. Figure 4.6 looks at the exports of raw and unfinished leather versus finished leather. Tunisia exports approximately the same value of raw and unfinished leather as it does finished leather, highlighting unexploited potential in Tunisia's leather production and finishing and limited capacity to export fully finished tanned leather with higher value addition.

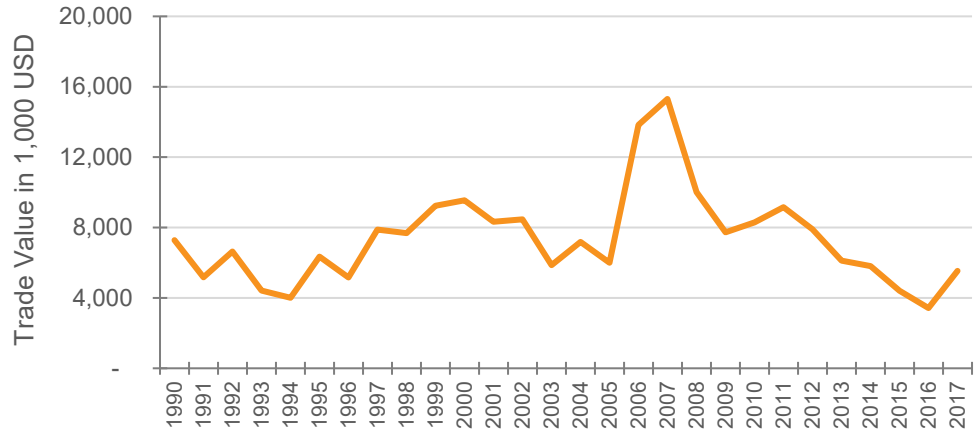
Figure 4.6: Tunisia's annual exports of raw and unfinished versus finished leather hides, 1990 to 2017



Source: World Integrated Trade Solution (WITS), 2020

Overall, the evidence suggests that the leather and footwear sector reported steady growth rates up to the early 2000s. Later as globalization pressures kicked in, the sector began to face more international competition. By 2011, amidst the revolution, tourism went down, and the leather handicrafts sector was negatively impacted, while the manufacturing leather sector was struggling to operate in a volatile economy. Illegal imports increased due to the lack of security, which harmed traders and producers. These negative trends can be further seen when we look at capital investment in the sector. Overall, capital investment is going down. As Figure 4.7 shows, from 2011 to 2016 imports of capital investment and machinery in the leather and footwear sector have gone down in value.

Figure 4.7: Tunisia's annual imports of leather machinery and equipment, by value, 1990 to 2017



Source: World Integrated Trade Solution (WITS), 2020

Tunisia's leather industry is now shrinking. Pre-revolution, there were 6,000 workshops nationwide, while in 2017 there were only 2,500. In 2010, there were 520 big factories, while by 2017 the number was down to 202. Workers in the sector reported that they used to work at least 10 months per year, but now due to depressed demand, they only work 3 or 4 months per year, which eventually leads many skilled workers to move to other jobs outside the sector. Global depressed demand, tough international competition, high energy costs, increasing pressure for environmental certifications from international markets, and policy challenges all limit growth and hinders the sector's competitiveness. Meanwhile, growth in domestic consumption has compensated for some of the decline in foreign demand, especially during the global recession. Local demand remains one of the main drivers of growth, occupying a central place in Tunisia's development strategy. Yet the size of domestic market is too limited to reverse the sector's growth trajectory.

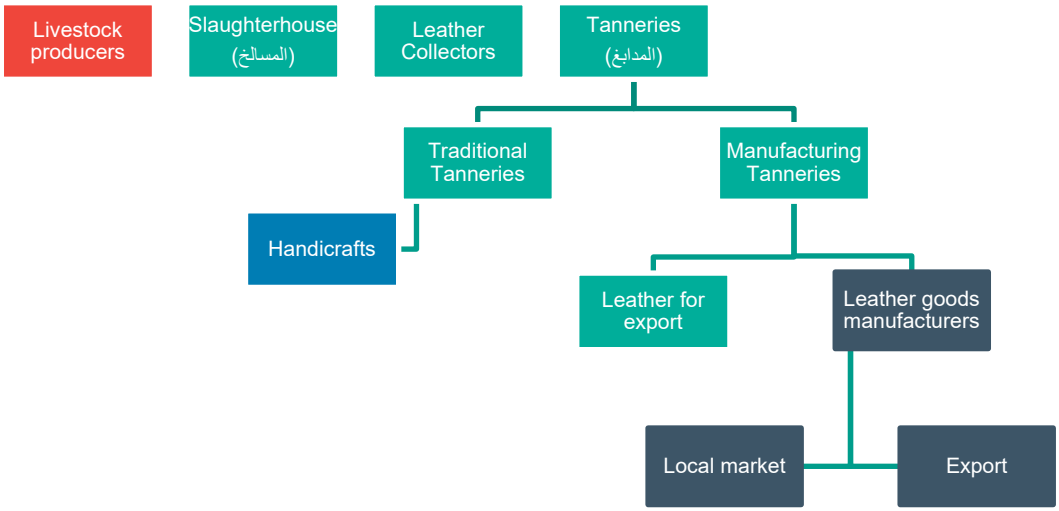
Nonetheless, with strong social capital embedded within the local community, there is room to remove existing bottlenecks and untap the sector potential to expand and to generate more jobs along the value chain. Workers in the sector are aware of Tunisia's leather cluster competitiveness. The abundant skilled labor has on average 20 years of experience. During times of slowdown in the sector, these workers are unlikely to be laid off by factory owners. Moreover, the best shoe factories in Italy hire Tunisians, and sometimes Europeans come to Tunisia to learn from local artisans.

Participants all along the value chain consistently reported that they would not give up on the sector and will support each other. Community trust was clear – members of leather and footwear clusters provide loans to each other, accept late payments, and allow each other extended periods for debt repayments when the market is doing badly. Meanwhile, employers are likely to communicate and agree with workers to accept lower pay rather than laying them off during times of crisis.

4.2 Value chain description

It is important to make the distinction between two sectors that lie within the leather industry in Tunisia: the leather handicrafts sector and the leather manufacturing sector (Figure 4.8). While both sectors utilize leather or raw hides as a key input for their production, their manufacturing processes and market exposure are quite distinct. They should be distinguished from each other in identifying key bottlenecks and solutions.

Figure 4.8: Tunisia's leather cluster value chain



Source: Authors' own illustration

Three different cluster types are associated with the leather and footwear value chain in Tunisia: livestock (red meat) clusters, which operate under the Ministry of Agriculture; handicrafts clusters, which operate under the Ministry of Tourism; and leather goods manufacturing clusters, which operate under the Ministry of Environment and Ministry of Industry. The focus of this study is on the leather goods manufacturing clusters.

The sources for the analysis here are based on primary data from focus group discussions, individual structured interviews (Appendix Table 6.1), and the CNCC (2019) report “Etude Strategique du Secteur des Industries du Cuir et de la Chaussure en Tunisie” (Strategic study of the leather and footwear industries sector in Tunisia).

4.2.1 Livestock

Raised by farmers across Tunisia, livestock are tied to Tunisia’s leather sector. While there is very limited coordination between both value chains, it is necessary to draw the connection for adequate policy interventions. Livestock health impacts leather quality downstream within the leather value chain.

In 2018 in Tunisia, cattle numbered 595,000, sheep numbered 6.5 million, and goats numbered 1.2 million. These numbers have decreased significantly compared to the levels recorded in 2007/08. Livestock numbers fell most significantly in 2017 and 2018, mainly due to the financial difficulties experienced by cattle farmers following the rise in livestock feed prices (CNCC 2019). Livestock disease, the management of which is under the Ministry of Agriculture, poses a great threat to leather quality, calling for more coordination between actors in the two value chains.

4.2.2 Slaughterhouses

Slaughterhouses process livestock for the red meat market. In 2017 there were 158 operational slaughterhouses in Tunisia. Almost all are public and are the property of the municipalities, except the slaughterhouse of the Ellouhoum complex in Tunis, which is jointly owned by the Tunisian Trade Office and the municipality of Tunis. Given that there are 350 municipalities in Tunisia, there is approximately one slaughterhouse for every two municipalities (CNCC 2019).

While the main product of the slaughterhouses is red meat, animal hides are considered a valuable byproduct. However, most slaughterhouses reported that they are not equipped to preprocess or to otherwise appropriately handle hides, providing them to leather collectors. Most of the slaughterhouses in Tunisia are not mechanized and their workers are not skilled in processing hides or aware of proper animal skinning techniques to preserve the value and quality of the hides. The hides must be salted within two hours of being cut, a process that is generally performed manually by slaughterhouses.

The hides of livestock that are slaughtered outside slaughterhouses are more likely to be processed poorly or preserved improperly, leading to considerable losses in value.

4.2.3 Leather collectors

Leather collectors collect hides from slaughterhouses. All leather collectors must have licenses from the Ministry of Industry in order to operate legally. The license is conditional on proof of the capacity to pre-process and store leather adequately. There are around fifty raw skin collectors with a professional card issued by the National Center for Leather and Shoe (CNCC). They are spread over several governorates.

The collector obtains skins at the slaughterhouse and transports them to a workshop, having them salted and stored until being sold and transported to tanneries. Leather collectors are considered as necessary middlemen in the value chain. They serve as the link between the red

meat industry and the leather industry. They engage in some processing activities, including cattle hide dehairing, storing, preserving, sorting, and grading hides before selling them to the tanneries for further processing. During the summer season, their job becomes most challenging, as they need to have proper cold chain transportation links to ensure that the quality of hides is not affected by heat. To reduce the risk of hide quality deterioration, collectors may perform a preliminary salting of the skins inside the slaughterhouses, pending their transport to their storehouses where more salting is carried out.

4.2.4 Traditional tanneries

The oldest tanneries in Tunisia were established in 1938 in Moknine, most of which began as home workshops. Some workers in the Monastir tanneries shared the story that their ancestors during the French mandate broke the walls and spied on the existing French factories and tanneries, trying to learn by observing the leather processing craft. Over time locals started gradually establishing their own leather processing facilities, accumulating the necessary tools to process and tan leather in their homes using large washing drums, water basins, and primitive drainage channels.

The tanneries purchase hides from local leather collectors and divide and price them based on quality and grade. Some have leather storage units attached to their small tanning facilities and have their own leather collection business. There are 12 traditional tanneries in Monastir, which produce the common traditional leather utilized by local craftsmen for Tunisian handicrafts. Traditional tanning is very labor intensive, using much less mechanization than the industrial tanneries. Traditional tanneries follow different steps to process the leather, applying organic materials and less chemicals during the tanning process. Local tanners in Monastir have inherited this skill from their ancestors. As these traditional tanneries are scattered around the city, they do not benefit from water treatment facilities. As a result, the residues and the wastewater of the tanning process contains many toxins. Traditional tanneries do not contribute to the industrial manufacturing sector and generally are not directly linked to the export market, but rather are more connected to the traditional handicrafts sector in Tunisia, which is a vocation for many.

The traditional tanneries sell the processed leather to the tourist-focused and local markets. By tradition, local tanners in Tunisia are the main suppliers of leather as an input for the handicrafts sector. This artisanal group, which is under the Ministry of Tourism, has received much less attention in terms of industrial and enterprise development from the Ministry of Industry.

4.2.5 Industrial tanneries

Most factory-scale tanneries are located in Tunis, the capital. The biggest tannery in Africa is in Tunis, accounting for most of Tunisia’s hides exports. Similar to traditional tanneries, they rely on leather collectors and some have leather storage facilities attached to their factories. Unlike traditional tanneries, these plants are capital intensive, follow a more sophisticated mechanized process, and rely on chemicals to tan the leather. Salaries for tannery workers are as low as 30 Tunisian dinars (about 10 USD) per day. As soon as leather is taken from the leather collectors, moisturizers are added to treat and soften it for further processing, then chemicals and color are later added whereby the leather becomes semi-finished, commonly called “wet blue”. The majority of the production of finished hides from the industrial tanneries is directed to the export market, primarily in the semi-finished “wet blue” stage. If processed, the leather is primarily directed to the local footwear manufacturing industry.

Tanneries in Tunisia reported several challenges. There have been times when 75 percent of their hides are infected by livestock diseases. At collection, tannery workers cannot determine by sight the quality of leather they are purchasing as it is difficult to detect skin diseases before

processing. The efficacy of slaughterhouses and leather collectors in washing hides is limited to elimination of visible contamination or dirt. There is no mechanism to identify hide quality issues before sorting, thus tanneries end up bearing the full risk and cost of defective hides.

Lack of wastewater treatment as an environmental concern is found to be another key challenge for the tanning business in Tunisia, for both the traditional and the manufacturing tanneries. Due to lack of coordination between the Ministry of Environment and the Ministry of Industry, most treatment facilities are idle and tanneries in Monastir continue to report that they do not have the capacity to operate their own water treatment plants, requesting the intervention of the Ministry of Environment. In other areas, the fact there is only one operating tannery would sometimes pose a limitation in itself, as there would not be enough drainage water to operate a full water treatment plant.

4.2.6 Shoe manufacturers

Shoe manufacturing comes at the end of the value chain. The governorate of Sfax in southeast Tunisia has 28 percent of companies in the sector. These manufacturers mainly target the domestic market, while most large shoe manufacturers in the Northeast, mainly in the Grand Tunis and coastal areas, predominantly direct their production to export markets.

Most small and medium workshops owners in Sfax have been in the shoe manufacturing business for years, having inherited them from their parents. Factory owners have three licenses, one from the Ministry of Industry, one from the Ministry of Trade, and one from the Ministry of Finance. In Sfax, women's shoes are made from synthetic leather, 90 percent of which is imported, while genuine leather is used for men's shoes. Most workshops purchase production inputs from traders. Taking Sfax as an example, there are nearby factories that provide soles, heels, imported synthetic leather, and shoe accessories for shoe production.

Besides input traders, there are also shoe traders, who are not necessarily involved in the shoe making industry, but, rather, connect the shoe manufacturers to the market. While some workshops rely on wholesale traders to sell and distribute their products to shops across Tunisia, other workshops have their own showrooms, and some try to sell online. Traders who collect shoes from workshops usually do not pay immediately, but, rather, give the workshops a bank check that can only be cashed at a later date. This usually creates a liquidity issue for workshop owners. Some reported that it can take from 9 months to a year to obtain their money. Meanwhile, they require funds to prepare for the next season's production.

While Sfax was once called the shoe capital of Tunisia and is home to the most skilled labor in the sector, amidst the global financial crisis in 2008 and later the 2011 revolution, the area has witnessed a noticeable decline in the sector that has impacted both workers and owners of small and medium workshops. On the one hand, increasing competition from globalization has in some ways made exporting more difficult. On the other hand, the lack of security that intensified during the revolution have not only disrupted business activity in the local market, but also gave way for illegal imports that created an environment of unfair competition for local producers. As reported by UTICA in the focus group discussion, pre-revolution, there were 6,000 workshops nationwide, each employing a minimum of 5 workers. However, by 2017, there were only 2,500 left. In 2010, Tunisia had 520 big factories in operation, each of which would employ between 30 and 50 workers. By 2017, only 202 remained (UTICA, focus Group A, 19 February).

4.3 Key bottlenecks

There was a considerable degree of consensus among stakeholders regarding the most important bottlenecks facing the leather and footwear sector. In the upstream stages of the value chain, i.e., slaughterhouses and tanneries, most problems are related to the quality of inputs and access to

them, to technology, and to negative environmental factors. These problems often seem to be exacerbated by a lack of coordination among the government institutions responsible for various stages of the value chain. At downstream stages of the value chain, i.e., leather goods manufacturers and shoemakers, the key issues were related to demand and market factors.

The sources of the analysis below are based on primary data from focus group discussions and individual structured interviews (Appendix Table 6.1).

4.3.1 Factors negatively influencing the quality of hides and skins

Livestock health. Animal skin diseases pose crucial constraints on leather quality by impacting hide quality, which reduces the market value of hides and ultimately of the refined leather. The damage may be due to skin parasites; fungal, bacterial, or viral infections; or scratching, bruising, or dirt contamination that can happen during husbandry practices on the farm or in the transport of the live animal. Limited awareness by dairy and livestock farmers of the impact of these skin issues on the quality of animal hides and minimal coordination between the Ministry of Agriculture and Ministry of Industry on livestock disease prevention were observed by several respondents along the value chain as key constraints to improving hide quality.

Slaughterhouses: poor handling and not well equipped to deal with hides. The quality of the hide is to a large extent related to the amount of damage that is visible. Even if livestock was clear of any skin diseases, poor handling during slaughter or improper methods for removing the hide may also cause damage and reduce the quality of the leather produced. Many slaughterhouses are old and poorly designed with insufficient facilities to handle animals before and after slaughter. Several leather collectors and workers at local tanneries reported that “workers at the slaughterhouses do not have the skill or capacity to handle hides, they are focused on meat production, hides are dealt with as waste of the meat production industry” (Leather collectors, Focus group E, 20 February). Enhancing slaughtering and skinning techniques to minimize unnecessary knife cuts or holes or scratches in the hide can help preserve the market value of the leather produced. If effectively done, this can be beneficial to the actors downstream in the value chain, while also being of interest to slaughterhouse owners who can claim higher prices for their hides based on their improved quality.

Leather collectors: lack of equipped transportation links. Hides must be salted within two hours of being cut. Inappropriate handling or inadequate preservation will adversely impact the quality of hides. While leather collectors are licensed, they are not well-organized, causing problems in busy seasons for slaughtering, such as during Eid, when there is increased production of hides. In addition, most collectors do not have cold chain equipped transportation mechanisms that are necessary in the summertime to ensure that hide quality is not affected.

4.3.2 Tanneries

Tanneries reported that there are no mechanisms in place to identify leather quality or to detect defects before sorting and buying leather from leather collectors. Damages on the animal hides are only visible once they are dehaired and further processed. Tanneries to bear most of the commercial risk associated with sub-standard hides.

Two of the three tanneries visited highlighted that there is yet room for value addition to export fully finished versus semi-finished leather. However, even if they can afford to buy more modern machinery, a shortage in skilled labor in some areas were reported as challenges to undertaking further processing of leather in order to export fully finished tanned leathers in various forms and colors. It is costly to build modern facilities and to train skilled workers. One tannery in Moknine reported that they export leather wet-blue (semi-finished) to Italy as they do not have the

necessary inputs or machinery to undergo further processing and final high-end finishing (tannery, leather interview F).

4.3.3 Shoe manufacturers

Lack of access to good quality leather is a key bottleneck to the production of shoes. The availability of finished leather in a variety of forms, designs, and colors is necessary to enhance product differentiation and competitiveness in the international market. Most footwear workshops visited in Sfax city reported to have had to resort to imported synthetic leather. Some large firms reported that they had to import leather from Italy to be able to export their finished leather goods, due to a shortage of domestically high-quality fully tanned and finished leather.

4.3.4 Other overarching bottlenecks

Weak or lack of coordination among value chain actors. The disconnect between the leather value chain and the livestock and red meat value chain clearly sets coordination challenges for both. While both utilize livestock, the institutional set up disaggregates them in to two totally separate entities. The livestock sector is under the auspices of the Ministry of Agriculture and the leather manufacturing sector is under the auspices of the Ministry of Industry. The National Center for Leather (CNCC) and the Interprofessional Group of Red Meats and Milk (GIVLait) are public-private partnerships established to oversee the sectors at the cluster and local value chain level. Indeed, this institutional set up provides a clear opportunity for more efficiency and targeted policy. However, diffusion of responsibility and cross-cutting and duplication in roles have been quite evident. Taking the livestock health and animal skin diseases as an example, the bottleneck requires the coordination between the Ministry of Agriculture and the Ministry of industry to tackle the issue at the farm level.

Depressed local demand as a result of shrinking number of tourists. Demand for traditional leather products is central to the well-being of such clusters. Most workshops in the old local markets mentioned that there is not enough commercial tourism, which affects demand for many of the leather products they sell, including handicrafts.

Their limited ability to market their goods and to reach out to new markets was a bottleneck highlighted by many factory and small workshop owners. Seasonality in demand makes it difficult for workers to work full time. Quite a few factory owners reported marketing challenges with limited exposure and access to new markets. The limited markets for their products have adversely exposed the sector during times of crisis, such as during the global recession and Arab spring. “During the good years we used to work at least 10 months per year, but now it is only 3 to 4 months,” one shoe sole factory worker explained, highlighting the impacts of depressed demand. Because of this economic decline, most skilled labor in the leather and footwear sector have moved to other jobs. This has resulted in a negative spiral effect as the poor reputation of the sector results in youth being hesitant to pursue training at the existing leather Technical and Vocational Education and Training (TVET) centers for fear that they will not obtain full-time jobs in the industry. During a focus group discussion at the Tunisian Union of Industry, Trade and Handicrafts (UTICA), members reported that the number of youth wanting to be trained on leather related jobs have decreased over the last three years, which led to the closing of one of the existing training centers (UTICA, focus Group A, 19 February).

Unfair competition exacerbated by poor enforcement of trade policies and illegal smuggling. In a focus group discussion with shoe workshop owners held at the Tunisian Union of Industry, Trade and Handicrafts (UTICA) in Sfax, there was a consensus between group members that the key challenge they face is unfair competition. One member noted, “there is enough

demand. If the competition were fairer, I do not think we would have a problem" (UTICA, focus group J, 21 February).

Digging further into the reasons behind the perceived unfair competitive environment, members highlighted a few key points. After the Tunisian revolution in 2011, when security at the borders was low, there was a problem of increased illegal imports of shoes and hides from China and Turkey, which were smuggled through Libya and Algeria. As these imports face no tariffs or VAT, unlike other high-quality imported inputs which are highly taxed, they ended up being sold at cheap prices in the grey market. In addition, most leather and footwear products made in Tunisia have to meet minimum standards and are susceptible to quality checks, while the illegal imports are not.

The low quality of imported goods in return affects the reputation of Tunisian products. One member explained that "most factories here sell their products to retail shops, that sell both locally produced and imported finished goods. Within these shops, the client cannot distinguish between Chinese and Tunisian made shoes". Others added that the low prices of imported goods are hurting local producers of shoes and bags. Tunisian manufacturers could not compete with these smuggled products because they are cheaper and are operating on different market terms, such as not being subject to taxes (UTICA, focus group A, 19 February).

The poor enforcement of trade policies similarly harms exports. While the exportation of raw hides is prohibited by law, many tanneries visited reported that, nonetheless, the quantity of raw hides exported every year from Tunisia is high. "The law exists but is poorly enforced", one tannery manager explained (tannery, leather interview F). Other tanneries export hides at the wet-blue stage, but similarly blamed weak policy enforcement and inefficient policy for not promoting the exportation of high-value finished tanned leather.

Among other variables promoting unfair competition are inefficient tax policies. The current taxation system does not differentiate between imported finished goods and imported inputs for manufacturing. Local shoe manufacturers report that both final goods and inputs are taxed at similar rates, further disincentivizing local production and posing important limitations on the productive capacity of the sector. One member who utilizes imported synthetic leather in his production (shoe workshop, leather interview K), explained, "I pay the same taxes for the imported material, such as synthetic leather, as I would pay if I imported a fully finished shoe item". The tax rate paid is claimed to be very high, reaching 57 percent – 30 percent border taxes, 19 percent taxes on added value, 5 percent pollution taxes, and 3 percent taxes for the benefit of the industrial competitiveness development fund (FODEC).

Due to these factors, local leather and footwear producers report that they are unable to enhance their products because they do not earn enough profits. The reduction in domestic production due to the unfair competitive environment is limiting employment opportunities and thus also undermining leather training programs at TVETs.

Soaring costs of production, including electricity, labor, and highly taxed primary inputs. Costs of production were reported to be very high, limiting the competitiveness of local producers. Tanneries in Monastir and shoemakers in Sfax complained about the soaring taxes and the high costs of electricity and necessary inputs. These costs make them less competitive in the international market.

One factory owner explained (manufacturer, leather interview L) "I pay 55 to 60 percent of the value of the item I import in taxes". Another highlighted that "taxes do not differentiate between imports of inputs and imports of finished goods. The taxes on women shoe accessories are even higher, even though we do not locally produce them here". During the focus group discussion at UTICA in Sfax, members explained that there is a government intervention that allows manufacturers to apply for a tax reduction. However, the process of obtaining the benefit is

tedious, involving a lot of paperwork. Even if they address the tax relief request to the Ministries of Industry, Trade, and Finance, after applying to all of these ministries, there is no guarantee they will secure tax relief.

Lack of access to credit – a chicken and egg situation. The lack of trust in the industry due to its declining performance has led manufacturers to limit their investments in their businesses. However, it also has led banks and other financial service providers to limit credit to members of the leather and footwear sector in Tunisia for fear that its poor performance will lead many to default on their loans. In 2017, the leather and footwear industry representatives had a meeting with the Ministry of Industry to voice this concern. In response, the Ministry passed 23 decisions to support the leather and footwear industry, including some which forgave debts or deferred them for up to six years. The Ministry of Finance also prepared a fund to support small and medium-sized enterprises (SME). However, this was reported inactive by focus group members (UTICA, focus group J, 21 February).

"The intentions are good, but the Ministry of Finance is not coordinating with the Ministry of Industry. They haven't been able to implement the agreed upon laws and initiatives", the UTICA leader explained. During factory visits, a shoe sole factory manager explained, "banks have a negative perception of the sector, so it is hard to get loans now. Pre-revolution it was much easier, but today the sector is viewed as too volatile." Another factory owner in Sfax, who reported that that he borrows from the bank frequently, explained "I used to be able to borrow large amounts in the past, but now banks allow me to take less. In addition, the interest rate grew 5 percent over the last five years. Now it is around 11.75 percent." A member from the National Center for Leather further noted that "the government has increasingly been borrowing from banks, and now banks prefer to lend to the state."

Negative externalities – environmental concerns and water pollution. As one of the oldest and most important industrial sectors in Tunisia, the leather sectors' industrial process and production utilize high quantities of water and toxic chemicals. It is one of the most polluting industrial sectors. Working the tradeoff between decreasing pollution and strengthening the competitiveness of the leather production sector by increasing its productive capacity to create jobs is a clear challenge.

Owner of the oldest tannery in Moknin (tannery, leather interview D) explained that in the late 1980s and 1990s, the government shut down many tanneries in Tunisia for fear of water pollution and other environmental concerns. This harmed the sector's productive capacity, he explained. Today the problem persists. While many tanneries strive to operate, the lack of coordination between the Ministry of Environment and the Ministry of Industry in operating existing wastewater treatment facilities is not resolving the tradeoff between environmental protection and competitiveness. By law, a tannery must have a license to operate. To obtain a license, they need to have a wastewater treatment facility installed near their plant. However, for a majority of the tanneries in the coastal areas these treatment facilities are idle as they do not have the labor capacity or skill to operate them. Tanneries have requested the Ministry of Environment for help in operating the wastewater treatment facilities. A majority of the tanneries visited highlighted their willingness to pay for such a service.

4.4 Key opportunities and policy recommendations

4.4.1 Enhance Tunisian leather quality and competitiveness

The low quality of hides forces the leather industry to import high-quality leather. In the short run, a few measures can be taken to improve the quality of raw hide.

- Promote the Ministry of Agriculture's role to monitor and raise awareness of livestock health.

- Farmer campaigns to raise awareness of measures to prevent skin diseases.
- Equip existing extension services to provide information, guidance, and support to farmers that own livestock.

- Enhance coordination efforts between the Ministry of Industry and the Ministry of Environment to operate the existing wastewater treatment facilities, as most tanneries in clusters do not have the individual technical capacity or labor to do so.
- Eliminate illegal sheep exports to preserve the herd.

In the long run more interventions are needed:

- Enhance the technical capacity and increase the resources of the National Center for Leather. Encourage officials to join exchange learning programs to learn from the experiences of other countries.
    - Promote collective action among tanneries in clusters to coordinate and make progress on the existing non-individual binding constraints, such as the wastewater management bottleneck.
    - Run frequent training programs for tannery workers to learn new techniques and follow up-to-date technologies.
- Promote joint ventures to help Tunisian producers meet international market standards and gain access to the US and other inaccessible markets. Joint ventures can help attract modern technologies, promoting technology transfers and steep learning for the local manufacturers. In doing this the leather sector can follow the olive oil industry success story. However, in contrast to the olive oil sector, the leather sector is primarily made up of small to medium-sized firms, so does not yet have the organizational capacity for such an approach to succeed immediately.
- Install one-stop shops, establishments where the provision of many different services and governmental procedures and paperwork that a businessman or a client might require are available in one place. Doing so will attract foreign direct investment and decrease the level of red tape facing the sector.

4.4.2 Promote access to new international markets:

Lack of demand, smuggling, and an unfair tax system between intermediate and final goods are the three key limiting factors. A few short-run measures are recommended for quick wins.

- Seek more trade agreements. There are existing trade agreements between Tunisia and the EU, and other countries, such as Brazil, but not with the United States of America. A trade agreement with the US would help expand Tunisia’s leather markets. With changes in the political system in the US, revisiting bilateral agreements may hold opportunities in the short run.
- Generic promotion efforts. Government should sponsor traders and workshop and tannery managers to visit international exhibitions and fairs to promote their products. This will further open international markets for the Tunisian leather and footwear industry.
- Review existing tax policies to differentiate between final finished goods and inputs for production. Higher tariff should be charged for imported finished goods and lower tariffs (or no tariff at all) for the import of accessories or other necessary manufacturing inputs.

In the long run, the following interventions are recommended.

- Protect borders and enforce the rule of law to prevent smuggling.

- Fight corruption of customs officers.
- Establish quality standards and promote labeling of Tunisian-made products in retail markets. Doing so would help buyers distinguish between cheap and low quality imported products and locally produced genuine products.

4.4.3 Promote technological advancement and mechanization for value addition

Through private-public partnerships, invest in leather and footwear value chains to introduce mechanization and to train workers. Donors may consider this as one avenue to support the leather sector in Tunisia.

- Slaughterhouses.
  - Enhance the skill set of slaughterhouse workers to handle hides properly so that they can be used in high-quality leather production. Training workers on slaughtering and skinning techniques can help preserve the market value of leather after further processing.
  - Enhance the infrastructure and hygiene of slaughterhouses.
- Leather collectors.
  - Enhance transportation links and equip them with cold chains and storage facilities to ensure that the quality of hides is not affected by heat during the summer.
- Tanneries.
  - Increase mechanization and introduce more intensive technologies, especially for the second stage of processing.
  - Enhance the skill sets of workers in industrialized tanneries.
- Develop wastewater treatment techniques to minimize costs and to reduce the impact of used water on environment. This could be done through public-private partnership arrangements.

5 DATE SECTOR

5.1 Sector background and overview

Oases represent the most important source of employment and income in the south of Tunisia by offering the possibility of producing high market value agricultural products, particularly dates. At the national level, the date sector is one of the main drivers of Tunisian agriculture and evidence suggests its importance is increasing. The value of dates production made up 6.3 percent of the total value of Tunisia's agricultural production in 2016, having risen from 3.8 percent in 2000 (FAOSTAT).[2] Dates are especially important as an export product, making up around 20 percent of the total value of Tunisia's agricultural exports in 2018, having more than doubled since 2000 (FAOSTAT).

The date palms sector is undoubtedly one of the most important agricultural sectors in Tunisia and plays a particularly large role in the socioeconomics of the south, especially in the Tozeur and Kebili regions where it is the main activity around which the regional economy is based. Dates contribute to the incomes of more than of 60,000 families and create about 2 million working days each year (GID 2019). The date sector generates jobs for around two-thirds of the active

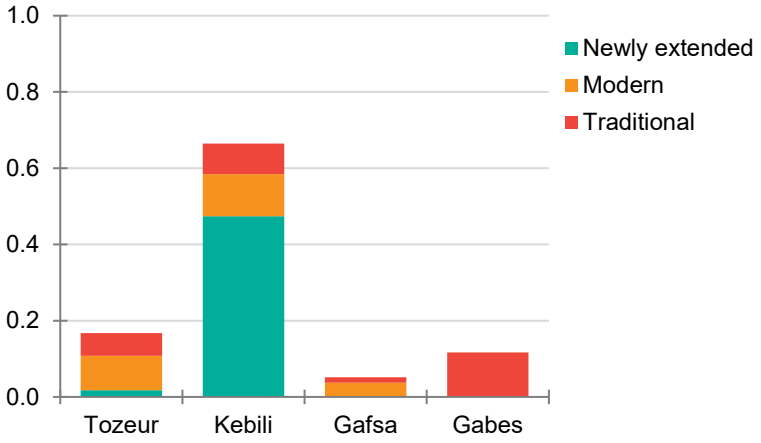
[2]The percentages are calculated using values with 2004-2006 fixed prices.

population in date producing regions and further contributes to the development of various complementary activities, including agri-food industries, trade, tourism, and handicrafts (GID 2019).

Tunisian oases cover approximately 57,000 hectares mainly in the southwest regions of the country (MoA 2020). Most of the dates production is concentrated in four governorates—Gabes, Gafsa, Kebili, and Tozeur—which together are home to around 10 percent of the Tunisian population. Oases in these governorates can be generally broken down into three systems related to productivity, age, and crops produced: 1) old or traditional oases, 2) modern oases, and 3) newly extended oases. The old or traditional oases follow a three-stage production model, meaning that they generally have plants besides dates, such as fruit trees or vegetables, and tend to be less productive. This is partially because they are old plantations with irregular spaces between trees. Modern oases, by contrast, only produces dates, and they are more productive. Finally, the new extended oases, which exist primarily in Kebili, are also solely focused on date production.

Figure 5.1 shows the breakdown of land area among the four governorates and the three types of oases in 2020. Traditional oases make up about 24 percent of the total land area, while modern oases cover 27 percent and new extension oases cover 49 percent. Kebili is home to more than two-thirds of the total land area under dates, more than half of which comes from the newly extended oases. Tozeur, home to about 17 percent of total land area under dates, has significantly fewer newly extended oases and instead is dominated by modern oases. Date production in Gabes, on the other hand, almost entirely comes from traditional oases. These significant differences between the governorates imply that management and policy should be done on a local level, as the same solutions for Kebili are likely not optimal for Gabes, for example.

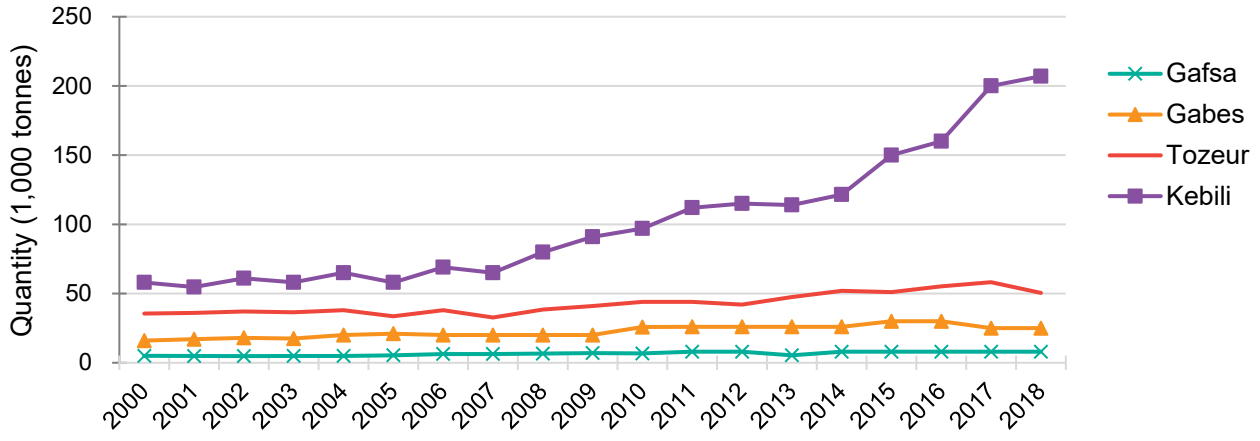
Figure 5.1: Share of land area under dates in Tunisia, by governorate and oasis type, 2020



Source: MoA, 2020

The land area covered by Tunisian oases has undergone considerable extension since 2010, following significant private initiatives. This is quite distinct from an earlier period of expansion from 1970 to 1990, which was prompted by significant public investments. Figure 5.2 plots the trends in the total quantity of dates produced annually by governorate, from 2000 to 2018. As the trend shows, production in Kebili began to increase following 2007/08, with further acceleration following the 2011 revolution. This largely came in the form of new private oases. By comparison, the production level in other three governorates have been rather constant.

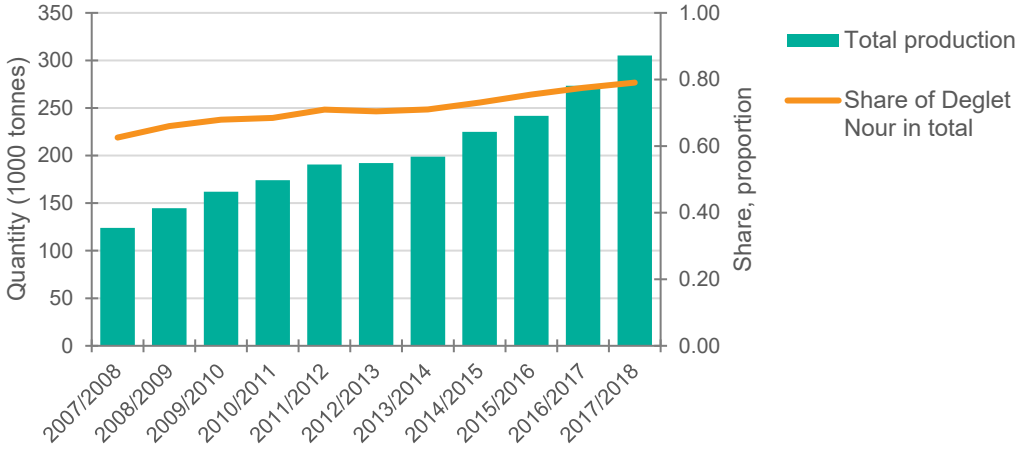
Figure 5.2: Annual quantity of date production in Tunisia, by governorate, 2000 to 2018



Source: MoA, 2020

Tunisia produces more than 200 varieties of dates, but its national production is nonetheless dominated by the variety Deglet Nour, which comprises about 80 percent of annual production. As shown in Figure 5.3, national production has grown consistently over the last decade, at an annual rate of approximately 8.3 percent each year. Thirty to 40 percent of total national production is consumed by the domestic market, with the remainder exported to the international market. Over that period, the share of Deglet Nour in total production has also grown, from 63 percent in 2008 to almost 80 percent in 2018. This trend suggests increasing specialization in the Deglet Nour variety among Tunisian date farmers.

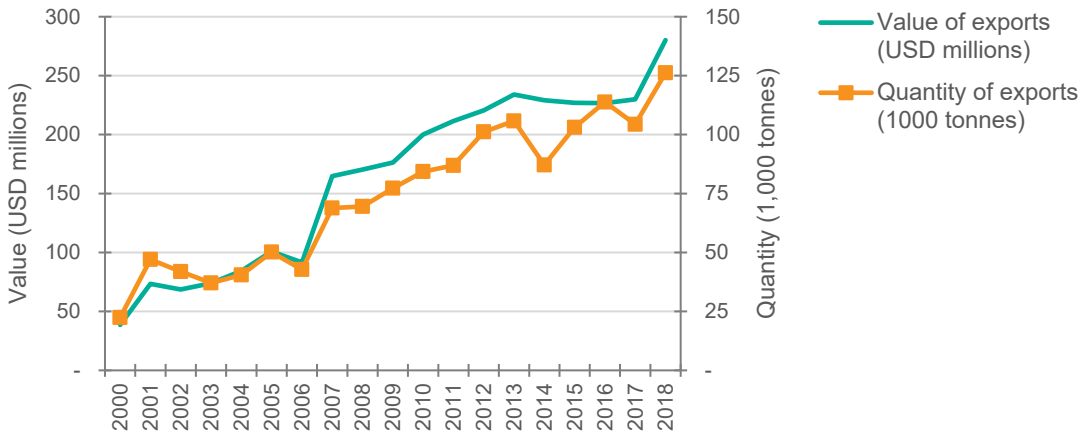
Figure 5.3: Total annual date production in Tunisia and share of Deglet Nour variety, 2008 to 2018



Notes: The values for 2016/17 were missing, so are linearly interpolated.
Source: GID, 2019

Deglet Nour is highly demanded in the international market and so its production within Tunisia is mainly intended for export. Tunisia's exports of dates made up 16 percent of the total value of dates exported global in 2017/2018 (FAOSTAT), but just 9 percent of the total global quantity. This points to Tunisia' quality advantage. From 2000 to 2018, Tunisia has consistently increased both the value and quantity of dates it exports, as shown in Figure 5.4. Furthermore, it is expected that the production of dates in Tunisia will exceed 400,000 tons in five years with the entry into production of newly extended private oases (MoA, 2020).

Figure 5.4: Tunisia's dates, annual value and quantity of exports, 2000 to 2018

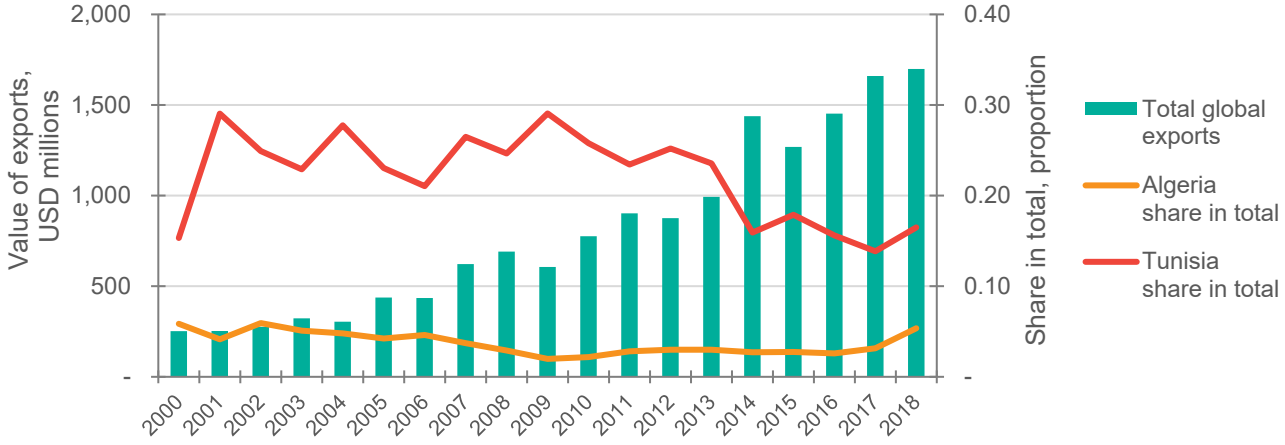


Source: FAOSTAT, 2020

The quality premium for dates produced by Tunisia is mainly due to specialization in the high-value Deglet Nour and a focus on quality assessment over the entire date value chain. For example, Tunisia has significantly upgraded its agri-food industry to comply with latest international food quality and safety standards. The sector also has further specialized in market niches, such as in producing organic and fair-trade dates (CEPI-API 2017, pg. 22).

Despite the growth in the date sector, Tunisia is not without its competitors. The main competitor in Deglet Nour production is neighboring Algeria, though Tunisia also faces considerable competition from countries producing other varieties. This is evidenced by Figure 5.5, which shows that Tunisia has lost a considerable amount of its global market share in the last decade—in 2008 Tunisia's exports accounted for 25 percent of the total global value, but by 2018 it was down to 16 percent. Meanwhile, Algeria has managed to sustain its market share over the last decade. This suggests that Tunisia's exporters are being affected by new competition from other countries. It is likely that expansion into new international markets, further diversification among date varieties, or increased value addition, i.e., expansion of date derivative products, is needed for Tunisia to maintain its position as a global leader.

Figure 5.5: Global date exports; respective shares for Tunisia and Algeria, 2000 to 2018



Source: FAOSTAT, 2020

5.2 Value chain description

In the dates value chain, there are three primary actors: farmers, collectors, and exporters. Dates are harvested on an annual basis in November and December, so the value chain follows an

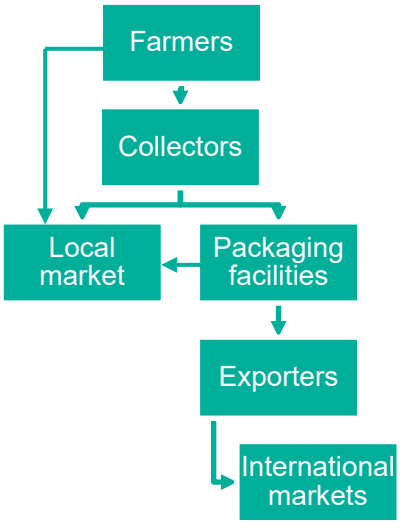
annual cycle. Figure 5.6 depicts the basic value chain. This section describes the primary actors in the export-oriented[3] date value chain as well as their organization and linkages.

There are also several critical stakeholders that offer support and services to the dates cluster in Tunisia. The Office of the Commissioner for Agricultural Development (CRDA), which is under the Ministry of Agriculture, is largely responsible for the implementation of government policy related to dates, which includes extension services for farmers, managing disease and plant health, and providing technical assistance related to issues with irrigation or distribution of water sources. The Ministry of Agriculture and CRDA largely follow a bottom-up approach to the dates cluster, with a small branch in each region that gathers information in local circumstances (CRDA, dates interview G).

The Interprofessional Date Group (GID) is a public-private partnership (PPP) with the Ministry of Agriculture that is primarily responsible for providing protective nets to farmers and signing export invoices (GID, dates interview C). Pole Djerid, another organization operating under a PPP model with the Ministry of Agriculture, has established a Date Palm Cluster group in 2015, comprising various types of value chain actors including exporters and farmer organizations. This group and Pole Djerid aims to support members through both vertical and horizontal coordination, including accessing new markets, improving quality, and supporting contractual farming (Pole Djerid, dates interview J).

These government and other supporting stakeholders can play a critical role in solving bottlenecks facing cluster members that require collective action to solve. A more detailed description of supporting organizations and service providers, including government actors, cluster-focused organizations, and educational and training programs and research centers, is provided in Appendix Table 5.2.

Figure 5.6: Tunisia's date cluster value chain



Source: Authors' own illustration

5.2.1 Farmers

The number of farmers engaged in dates production in Tunisia is around 60,000. The majority are small farmers with palm groves whose area is between 0.5 and 3.0 hectares (GIZ IDEE, 2016). Farmers do the work of caring for the date palms over the year, such as pollination, disease

[3] Currently, we are only describing the export-oriented value chain. There is a domestic-oriented segment of the market, but this project does not have sufficient evidence to describe those activities in great detail. Furthermore, 60-70 percent of total dates production in Tunisia is exported to global markets, supporting our focus on the export-oriented value chain (MoA, 2020, slide 10).

prevention, and harvesting. Dates are harvested in November and December. Because the palms only produce once per year, surplus dates that cannot be sold immediately are stored. For example, one of the processing and exporting companies visited during the field work for this study prices the dates when they are still ripening in June and July and normally gives farmers a 50 percent advance in cash at that time (exporter, dates interview A). This advance is used by the farmers to buy the nets and other tools to protect the dates from insects and disease.

Table 5.1: Date farmer organizations

Governorate	SMSA	Water-only GDAs	Active GDAs	Women's GDAs	Total
Gabes	24	103	18	4	149
Gafsa	12	9	--	1	22
Kebili	24	133	7	7	171
Tozeur	6	84	--	--	90
Total	66	329	25	12	432

Source: MoA, 2020
SMSA = Sociétés Mutuelles de Services Agricoles (agricultural cooperative); GDA = Groupement de Développement Agricole (local agricultural producer or water management association)

Farmers are organized into water user associations, also known as 'Groupement de Développement Agricole' (GDAs). Historically, these GDAs were formed to link local farmers within a certain irrigated area as a natural route through which cluster activities and collaboration can take place. Table 5.1 shows that there are estimated to be 432 date farmer organizations in Tunisia, about 76 percent of which follow the GDA model.

However, not all GDAs are the same, as some provide very few services to their members. According to the Ministry of Agriculture, just 4 percent of farmers are involved in active GDAs (MoA 2020, slide 12). In cases where GDAs are active, meaning that they provide advisory and technical services to the farmers, GDA membership can lead to long-term contractual relationships between farmers and collection centers or exporters. In some cases GDAs provide members with necessary agricultural inputs, such as seeds, fertilizers, and nets. These inputs are generally imported but may also be purchased locally or from the GID (CRDA, dates interview G), which offers nets at a subsidized price (GID, dates interview C). In cases where farmers work directly with an exporter, they may transport the dates directly to the processing center (exporter, dates interview E). Otherwise, the dates harvested by farmers are transferred to collectors.

5.2.2 Collectors

There are estimated to be around 400 collectors operating, some of which are informal (CEPI-API, 2017, collector, dates interview B). They play the role of intermediaries between date producers, traders, and packaging industries, buying dates from farmers and selling them to other value chain actors. They also manage the storage of dates and, in some cases, the harvesting. Some collectors work with individual farmers, while others establish relationships with GDAs and purchase in bulk from farmer members of those GDAs.

Collectors will sometimes take on the role of disease prevention (putting up protective nets, for example) and harvesting in the final stages of the season, most often when they have purchased a farmer's dates before harvest. They then become responsible for the well-being of the product up until the point of harvest. In other cases, such as that of farmers without contractual agreements with collectors (farmer, dates interview I) or farmers working directly with an exporter and its associated GDA (farmer, dates interview D), harvesting will be the responsibility of the farmer.

One collector explained that disease prevention and harvesting is the biggest source of risk in his business and that the costs of nets and seasonal labor for harvesting are very high (collector interview B 22 February). Seasonal workers, who are primarily men, will be hired for this work.

After harvesting, the dates are then moved to collectors' sites where they are sorted. Women are primarily hired for doing the sorting work (collector, dates interview B).

Collectors are a central link in the supply chain, as about 70 percent of date production passes through their hands (MoA 2020). They mainly work to consolidate and purchase the dates from production areas and sell them to wholesalers, semi-wholesalers, and retailers serving the domestic market and to packaging and processing stations targeting the export market. Most collectors invest in refrigerated storage facilities.

Collectors range in size. Larger collectors were reported to often work together with several small-scale collectors. However, beyond these types of relationships, there does not seem to be much formal organization among collectors. In general, collectors seem to be the least organized segment of the date value chain (GID, dates interview C).

Collector relationships to other members of the value chain are also quite varied. Some collectors have contracts with exporters. The collectors interviewed reported working primarily with one large exporter (collector, dates interview B, collector, dates interview O). These collectors who have relationships with exporting companies may receive advances from them to help cover costs associated with harvesting and insect protection (collector, dates interview B). There are also individual, smaller-scale collectors operating in either an informal or a contractual way with packaging stations; most of them deal in volumes ranging from 50 to 300 tons annually (CEPI-API 2017).

5.2.3 Exporters

The current number of packaging units for dates is 80, distributed equally between the north and south of the country – Tozeur: 22 units, Kebili: 13, Nabeul: 15, and Grand Tunis: 16 (GIF 2018). The total capacity of the packaging units is estimated at 59,000 tons annually with an exploitation rate not exceeding 50 percent (CEPI-API, 2017). Most companies have modern units that enable continuous flow of product and respect hygiene standards in the food industry, such as ISO 22000 for food safety management. Between 100 and 200 employees on average are employed by each unit. The labor force is predominantly made up of women doing sorting and packaging of dates (exporter, dates interview E). At the exporting plants, the dates are first weighed. They are then put through a fumigation process after which they are frozen.

There are more than 150 exporting organizations, exporting product to 85 foreign markets (MoA 2020). Most exporters work with collectors to source their dates, but in some cases, exporting companies have contractual agreements with farmers in which case they pay the farmers directly and forgo any collection services. For example, one exporter explained how they visit their farmers when the dates are still ripening and price the product (exporter, dates interview A). They then give farmers a pre-harvest cash advance, normally of 50 percent.

5.2.4 Organic production

The volume of organic dates produced in Tunisia has continued to increase, exceeding 10,000 tons in the 2017/2018 season. Date areas such Hezoua in Tozeur and Blidette and Nouiel in Kebili have specialized in this niche by organizing themselves around organic GDAs. The organically certified dates are mainly for export. According to GID (2019), the share of organic dates in the total value of date exports increased from 8 percent to 10 percent between 2014 and 2018.

Organic date production is distinct from conventional production in many ways. There are additional requirements for organic production, which can be quite stringent. For example, farmers producing organic dates must ensure that their neighbors are not using any inorganic pesticides (exporter, dates interview A). Because of these factors, organic date production is best done in

clusters and through contract farming between farmers and exporters, such that exporters can give relevant information on organic production to farmers. During our field work we visited an exporting company that sold about 50 percent of its product as organic. That exporter discussed how they provide training and monitoring for farmers to help ensure they are meeting organic production standards (exporter, dates interview A).

5.2.5 Other segments of the value chain

There are other segments of the date value chain as well. Most notable are date derivative products and palm waste production. The manufacture of date derivative products involves a variety of transformations done both by export-oriented producers and local market-oriented artisans. During our field visit, we met with one entity that produced date syrup and similar products. However, this company operated on a small scale and highlighted that the date derivative product market remains underdeveloped.

The palm waste segment of the value chain is quite distinct, as it makes use of palm waste (wood, trunk, greens, fronds) to product products such as compost, crafts (palm braiding), and carpentry both on a handicraft and semi-industrial basis. During our field visit, we met with one entity that produced organic fertilizer and compost from palm waste for date production. This suggests a symbiotic relationship between date production and palm waste utilization in the cluster. As the cluster develops further, it is likely more businesses will emerge to capitalize on the palm waste resource.

5.3 Key bottlenecks

Our interviews with stakeholders along the date value chain allowed us to identify the most critical bottlenecks restricting growth in the sector. These can be organized into the following broad categories: i) external environmental and ecological threats; ii) issues related to inputs, such as water and labor; iii) financial factors; and iv) institutional and organizational barriers, including at the value chain-level. Many of these issues are interrelated.

5.3.1 External environmental and ecological threats

One of the primary issues referenced by both farmers and collectors relates to insects and protecting dates from disease. While this is primarily an issue that farmers deal with, it also directly affects collectors in instances where they are responsible for providing farmers with nets or plastic covers to protect the harvests. There is evidence that protection is increasing, as the number of fruit bunches covered by mosquito nets and plastic to protect the dates from worms and rain increased by 1.2 million from 2019 to 2020 (MoA 2019). However, this can be very costly for both farmers and collectors.

Climate change is also increasingly becoming a threat for the date sector in Tunisia, and it is becoming harder for farmers to predict seasonal changes. Higher temperatures during the harvesting season can negatively affect date quality and size. For example, a government official working in agricultural extension explained how dry conditions in September had reduced the quality and quantity of dates harvested (CRDA, dates interview G). Collectors also referenced climate change as being a major concern, as they regularly provide advances to farmers before the actual harvest. One issue is that the insurance available for collectors does not cover all climate risks (collector, dates interview B).

5.3.2 Inputs and technologies: challenges in water access, soil quality, and labor

There are several key problems related to the production process. The cost of inputs, such as electricity and water, has been growing, and water quality is also becoming an issue. Salinity in the

groundwater is rising, which affects soil quality and overall yields. Water access can also be a problem. One farmer we met with referenced a time when the public well shut down for over a month (farmer, dates interview D)—infrastructure failures like this can seriously impact any farmers without access to private wells.

Labor shortages were also reported by most value chain stakeholders as an issue, as employment in the date sector is often seasonal. Farmers note challenges in finding labor during the harvesting season. Exporters also reported labor shortages as a major bottleneck in their operations. In response to labor shortages, more automation is likely to be called for.

A lack of skilled workers has also been reported as an issue, and there is minimal youth interest in the date sector. We met the head of ISET Tozeur, the Higher Institute of Technological Studies of Tozeur, which is a Technical and Vocational Education and Training (TVET) center. He highlighted that they are struggling to fill their youth programs and the training program has not recently been providing sufficient numbers of skilled young workers for the date sector (TVET, dates interview M). However, he noted that ISET Tozeur receives considerable interest from individuals interested in their certificate programs, often because those individuals are trying to learn skills for their own businesses.

Packaging facilities of exporting companies mentioned issues with storage capacity. Although they want to work with more farmers, they do not have space to store the additional dates obtained from them. They need to invest in more storage. A farmer in the traditional oasis also highlighted the lack of storage facilities as an issue. Collectors in Kebili said that there is a significant shortage of cold storage chambers. A major reason for this is that the seasonality of date harvesting means that cold storage is not profitable for much of the year.

5.3.3 Financial factors

Access to finance is also limited. This is exacerbated by the land tenure issue, as land cannot be used as collateral. Because the majority of farms are small in size and some are not officially owned or registered, it can be difficult to have sufficient collateral for loans.

These issues with financing are not limited to farmers access to credit. They are also closely tied to payment schedules. For collectors, they often require financing to purchase the nets required for protecting crops. One collector explained that, while he receives advance payments from exporters, he also relies on bank loans and his own cash reserves to meet business expenses (collector, dates interview B). Similarly, exporters buy all of their product at once, but often have to wait a long time for payments, either because of long payment schedules or because of reliance on sales associated with events, such as Ramadan. A possible solution could be to adjust bank loan schedules to better match the seasonality of the date market.

5.3.4 Institutional and organizational constraints, value chain limitations

Another commonly reported issue is that too many of the GDAs are inactive, i.e. they only deal with water-related issues or do not do enough to engage with farmers. According to the Ministry of Agriculture (2020), 96 percent of farmers are not engaged in an active GDA. There were examples of GDAs doing exceptional work, however. For example, one government extension agent told us of a GDA in Nafta that had taken farmers' children on field trips for training (CRDA, dates interview G). Unfortunately, GDA staff are volunteers and do not have sufficient training. How to incentivize GDAs to play a more active role in helping farmers, such as by looking for buyers, buying inputs in bulk, or jointly dealing with diseases, deserves more research.

Organization seems to be the biggest issue at the collector level. Many of the stakeholders we spoke to expressed that the collection process is unorganized and not up to standards. This affects

all stages of the date value chain. There are efforts being undertaken to improve organization within the date clusters in Tozeur and Kebili. For example, the date cluster organization, Pole Djerid, has been working for the last several years to support greater collaboration and coordination in the sector. They have run start-up competitions, set up international exhibitions, and training sessions (Pole Djerid, dates interview J).

Exporters also discussed issues of trust with farmers. Because farmers do not understand all of the costs that go into exporting, they feel taken advantage of. It is important for exporters to be able to establish trusting relationships with farmers**.** One exporter mentioned that their biggest problem is dealing with farmers, because farmers have a very different mentality and do not understand all of the many stages needed for export which affect profits (exporter, dates interview A). Farmers do not really have the same interest in quality, they are just interested in obtaining the maximum payment for what they have produced.

Another important issue is the lack of diversification along the value chain. This affects both the export and domestic-oriented segments of the date value chain. As Tunisia faces increased competition from foreign markets, diversification into other types of date products could be critical for ensuring sustainable growth of the sector.

5.4 Key opportunities and policy recommendations

The key issues within Tunisian date clusters are related to the supply side: water is a major priority along with disease risks, more research and action is needed on varieties and diversification, and there is a need for improved technology, such as cold storages. In many cases in our field work, we observed examples of unique and innovative methods being undertaken to achieve success and learned about other approaches that could be implemented as policy recommendations in the future. In this section we discuss our key recommendations, beginning with those that can be implemented in the short-run.

5.4.1 Short run recommendations

In the short run, we recommend the following policies and programs:

Water and other key inputs – adopt new technologies at farmer-level to improve efficiency of input use and to reduce costs. The use of bubbler irrigation and other water saving technologies, the application of compost and fertilizer, and the use of solar energy can all contribute to reduce costs and increase input efficiency. Bubbler irrigation, for example, significantly improves yields and the quality of dates and would help alleviate many water issues. However, many of these technologies have not been adopted at a large scale because it is cost-prohibitive for most small-scale date farmers. With financial assistance, i.e., loans guaranteed through GDAs or exporting companies, and other forms of incentives, it may be possible to achieve increased use of these technologies. Public-private partnerships should be used to raise the funds needed to invest in irrigation and solar infrastructure.

Mechanization - increase mechanization at all stages of value chain through hiring services. Much of the date sector relies on traditional and labor-intensive practices, including manual pollination, harvesting, sorting, and packaging. With increasingly scarce and costly skilled labor, mechanization may allow value chain actors to increase efficiency and reduce costs in the long-term. At the farmer-level, mechanized processes can increase quality and yields (CRRAO, dates interview L). However, it will be critical to involve collectors in harvesting-related mechanization activities, as they are often responsible for this. Due to the small scale of many value chain actors and short harvest window of the date sector, individual return on investment for these types of mechanization may be too low. Our key recommendations therefore are:

- Encourage the development of a mechanization services market by supporting the private sector to come in and build cooperatives and associations whereby harvesting and pollination machines are available for common use.
- Organize tours to other countries to learn from successful stories in other countries on how to introduce mechanization into the date sector and how to organize mechanization services.

Cold storage. It is important to provide farmers with more storage capacity so they can maximize quality, since delays in the harvesting of dates results in quality decline. The private sector should be encouraged to build common collection centers and storage facilities for smallholders to overcome storage and processing constraints. This should also involve improving infrastructure and services of the collection units, including cold chain infrastructure and storage facilities to minimize wastage. Our key recommendations are:

- Encourage private sector involvement to build common collection centers and storage facilities for smallholders to overcome storage and processing constraints. Pursue public-private partnerships to guarantee returns on investment in high-cost infrastructure, like cold storage.
- Provide farmers with more storage capacity so they can maximize quality.
- Improve infrastructure and services of the collection units, including cold chain infrastructure and storage facilities to minimize wastage.

5.4.2 Long run recommendations

In the long run, more interventions are needed to improve value chain organization and coordination as a cluster, develop new disease resistant varieties, improve quality, and promote diversification along the value chain.

Leverage existing cluster networks such as GDAs to strengthen coordination. Finally, we want to highlight the existing institutional strengths in date clusters, which offer opportunities to increase cluster coordination and benefit date value chain actors. One of the advantages of date clusters is the natural connections between value chain actors. Specific solutions to enhance cluster coordination should come from local community leaders, as they are best situated to develop context-appropriate communication and organization strategies that connect cluster actors.

Tunisia should capitalize on existing GDAs to improve value chain coordination and advise farmers on production and technology. GDAs can serve as an important mechanism for organizing farmers and enhancing farmers' cooperative ability to work on collective action issues during market disruptions. GDAs have the capacity to decide who they sell to, overcoming the drawbacks of being solely price-takers in any commercial transaction. This enables farmers to secure the real value of their production and establishes a stronger foundation for commercial relationships between farmers and collectors or exporters.

However, most farmers are not engaged in active GDAs. Steps should be taken to increase the activities of existing GDAs, learning from successful GDAs. Most GDAs are volunteer run, so it is critical to have staff that are engaged. It is critical that these GDAs should be run by local community members. GDAs can also be leveraged to establish long-term or contractual relationships between farmers and collectors or exporters.

A lack of trust can prevent farmers from wanting to develop contractual relationships with collectors. Collectors should coordinate with GDAs and leverage existing community relationships to develop that trust. For example, one collection center in Kebili was headed by a local man who was also the president of the GDA and a farmer himself. He explained that his role in the

community and especially his potential as a farmer had allowed him to develop relationships with other farmers, as they trusted his intentions (collector, dates interview O).

To maintain trust in long-term relationships between exporters or collectors and farmers, it is especially important to maintain that relationship even in bad years and to be transparent. One exporter described meeting regularly with his growers to hear about any relevant developments (exporter, dates interview N). He uses those meetings to also inform them of what is going on in international date markets.

GDAs could also be used to attract more conventional farmers to become organic-certified. This could be done by offering information or training on the requirements for organic production and by connecting conventional farmers to organic farmers as well as to collectors and exporters working with organic dates.

Develop new date varieties. Tunisia should expand into producing new date varieties that have higher water efficiency, are resilient to climate change, and less prone to disease. Deglet Nour is the dominant variety of date produced in Tunisia, but is not efficient in terms of water use or resilience to climate change. Domestic producers should expand their production to include a greater variety of dates.

Improve quality certifications and help exporters meet international standards. One exporter noted attaining a number of quality certifications and also producing organic dates. This allows him to reach the best markets where he can charge higher prices (exporter, dates interview A). To further promote access to new international markets, government should encourage more small and medium exporters to participate in international exhibitions.

Develop palm waste and date derivative product markets. Developing the palm waste market would enable that farmers to sell their palm waste and to have better access to compost, which can help them address reductions in soil quality. Currently, most farmers just burn their waste. However, there were successful examples of better utilization of waste, including compost and fertilizer production and exports to Switzerland.

The government should also promote more investment in final processing and higher value-added products. Diversification into other types of date products could be critical for ensuring sustainable growth of the sector. There is increased global demand for date derivative products, such as chopped dates, syrup, and paste, but there is very little production of these goods in Tunisia. There is also opportunity for greater value addition in dates through packaging.

A lot of exporters we met highlighted their interest in investing in their facilities for more differentiated and higher value-added production. Diversification into other date products may in turn help create access to new international markets. CRRAO has researched various types of date products, such as making paste, syrup, and sugar from dates. Firms interested in expanding into date derivative products could collaborate with research centers to benefit from their expertise.

6 CONCLUSIONS

Based on field visits, structured interviews, and reviews of the literature and secondary data, we examine the major challenges facing the leather and footwear sector and the date sector in Tunisia, particularly by looking at the role of clusters in the performance of these sectors. Challenges vary greatly between the sectors and between clusters within each sector.

The leather and footwear industry faces a decline in external demand. After the global economic crisis of the late 2000s and the Arab Spring in early 2010s, the sector lost international competitiveness. As a result, it is important to design policies to help expand markets for Tunisian

leather and footwear. Leveling the tariff rate for intermediate goods and final shoes, attracting foreign direct investment, and improving leather quality are among the potential policy options. These policies require coordination among different government agencies. Besides the demand challenges, lack of wastewater treatment is a major challenge facing tanneries in the sector.

The international demand for Tunisian dates has been very strong. The major challenges, such as inadequate water supply, labor shortage, disease, and lack of new varieties, are on the supply side. Consequently, supply-side policy interventions are called for. The major policy options include promoting mechanization, introducing water-saving irrigation technologies, and more government investment in new and disease-resistant varieties.

REFERENCES

Abdelaziz, F.; H. El-Enbaby, X. Zhang, and C. Breisinger. 2018. *Clusters as drivers of local industrial development in Egypt: Which are the promising sectors and locations?* MENA RP Working Paper 10. Washington, DC and Cairo, Egypt: International Food Policy Research Institute (IFPRI).)

Ayadi, M,. and W. Matoussi., 2014. *Scoping of the Tunisian economy*. Learning to Compete Working Paper 17. Washington, DC, Abidjan, and Helsinki: Africa Growth Initiative at Brookings, African Development Bank, and United Nations University World Institute for Development.

Banerjee, A., and K. Munshi. 2004. "How efficiently is capital allocated? Evidence from the knitted garment industry in Tirupur." *The Review of Economic Studies*, 71 (1): 19-42.

CEPI-API. 2017. *Analyse de La Filiere des Dattes.* Agence de Promotion de Industrie et de Innovation and Centre d'Etudes et de Prospective Industrielles.

CNCC, 2019 – Etude Strategique du Secteur des Industries du Cuir et de la Chaussure en Tunisie

Dai, R., D. Mookherjee, K. Munshi, and X. Zhang. 2018. *Community networks and the growth of private enterprise in China*. Cambridge Working Papers in Economics 1850, Cambridge, UK: Faculty of Economics, University of Cambridge.

ECCP (European Cluster Collaboration Platform) 2019. *Cluster Organisations Mapping Tool* [online]. Brussels: European Union. https://www.clustercollaboration.eu/cluster-mapping

FAO (Food and Agriculture Organization of the United Nations). 2012. *FAOSTAT database*. Rome: FAO. http://faostat.fao.org.

Fleisher, B., D. Hu, W. McGuire, and X. Zhang. 2010. "The evolution of an industrial cluster in China." *China Economic Review*, 21 (3): 456-469.

GID (Interprofessional Date Group). 2018. *The Dates Sector in Tunisia*. Presentation to the Tunisian republic

Department of Agriculture, Water Resources and Fisheries Interprofessional Fruit Group.

GIZ IDEE. 2016. "L´analyse de la chaine de valeur du Palmier – Dattier et ses dérivés". Innovation, Développement Economique régional et Emploi (IDEE). September, 2015.

Kali, R. 1999. "Endogenous business networks." *Journal of Law, Economics, and Organization*, 15 (3): 615-636.

Kranton, R.E. 1996. "Reciprocal exchange: A self-sustaining system." *American Economic Review*, 86 (4): 830-851.

Long, C., and X. Zhang. 2011. "Cluster-based industrialization in China: Financing and performance." *Journal of International Economics*, 84 (1): 112-123.

Macchiavello, R., and A. Morjaria. 2015. "The value of relationships: evidence from a supply shock to Kenyan rose exports." *American Economic Review*, 105 (9): 2911-2945.

Macchiavello, R., and A. Morjaria. 2019. "Competition and relational contracts in the Rwanda coffee chain." CEPR Discussion Paper No. DP13607.

Marshall, A. 1920. *Principles of Economics*. London: Macmillan (reprinted by Prometheus Books).

McMillan, J., and C. Woodruff. 1999a. "Dispute prevention without courts in Vietnam." *Journal of Law, Economics, and Organization*, 15 (3): 637-658.

McMillan, J., and C. Woodruff. 1999b. "Interfirm relationships and informal credit in Vietnam." *Quarterly Journal of Economics*, 114 (4): 1285-1320.

MoA (Ministry of Agriculture). 2019. Economic Budget of Agriculture and Fisheries. Hydraulic Resources and Fisheries, General Department of Studies and Agriculture Development.

MoA (Ministry of Agriculture). 2020. *The development of the dates sector in Tunisia*. Presented at the February 2020 IFPRI-FAO joint seminar "Analyzing the Untapped Potential of Industrial Clusters in Tunisia" in Tunis, Tunisia.

Porter, M.E. 1990. *The Competitive Advantage of Nations*. New York: The Free Press.

Ruan, J., and X. Zhang. 2009. "Finance and cluster-based industrial development in China." *Economic Development and Cultural Change*, 58 (1): 143-164.

Sonobe, T. and K. Otsuka, 2006. *Cluster-Based Industrial Development: An East Asian Model*. London: Palgrave MacMillan.

UN Comtrade. 2020. https://comtrade.un.org/

Xu, C. and X. Zhang, 2009. *The evolution of Chinese entrepreneurial firms: Township-village enterprises revisited*. IFPRI Discussion Paper 854. Washington, DC: International Food Policy Research Institute (IFPRI).

Yoshiko, Y., ed. 2011. *Industrial Clusters and Micro and Small Enterprises in Africa*. Washington DC: World Bank.

APPENDICES

Appendix 1: Structured interview questions for Cluster-based Development Research Project

The Food and Agriculture Organization of the United Nations (FAO) is currently undergoing a new research project in partnership with the International Food Policy Research Institute (IFPRI) Egypt office, under the title of “Cluster-based development”.

Tunisia has a long tradition and a large number of clusters - interconnected businesses, workshops or firms that are geographically concentrated and are working in similar or related activities that are interdependent- for example olives, dates, textiles and garments, leather and handicrafts clusters and many others.

During this mission IFPRI and FAO research teams intend to learn from the different (researchers, experts and producers) who have the knowledge on some of Tunisia’s most promising clusters and their respective locations. Your participation in this structured interview is very much appreciated.

تعمل منظمة الأغذية والزراعة للأمم المتحدة(FAO) بالشراكة مع مكتب المعهد الدولي لبحوث السياسات الغذائية (IFPRI) بمصر حاليًا على مشروع بحثي جديد تحت عنوان "تطوير التجمعات الانتاجية."

تونس لديها العديد من التجمعات الانتاجية العضوية (حيث يوجد مزارعين , وورش و منشآت صناعية تعمل في نفس المجال, متمركزة في منطقه جغرافيه واحدة.) ; مثلا, تجمع انتاج الزيتون وتجمع انتاج التمور , تجمع انتاج الملابس الجاهزة , تجمع انتاج الحرف اليدوية والجلود وغيره . خلال هذه الزيارة ، يود فريق البحث أن يتعلم قدر الإمكان عن جانب الإنتاج في هذه الصناعات وأين يقع تكتل أنشطة هذه الصناعات .

Name:

Title:

Organization:

1. Information about the organization/ business/ firm. Which value chain does it serve?
2. Where are the opportunities (within this business/ project)
3. What are the challenges (within this business/ project)
4. What are promising sectors for generating employment in the wake of ongoing reforms in Tunisia
    a. With a focus on Agroindustry?
    b. With a focus on Handicrafts?
    c. With a focus on Leather?
    d. With a focus on Textiles?
5. How do you define an industrial cluster?
6. Which industry is more well known for clustering? (or has a history of clustering).
    a. Please share the name of the clusters and spell out the exact location.
    b. Regarding the identified cluster, how is the cluster doing so far?
    c. What are the bottlenecks for further development?

7. In your opinion what can the Government do to overcome these bottlenecks? Any policy options you suggest?
8. For research purposes, in your opinion what should be our criteria to narrow down our choice of sectors (clusters) to make our case of choosing certain industries in certain locations?
9. Does your organization or other organizations do any work on that specific cluster? Please share resources.
10. Who do you recommend we meet who has knowledge or is currently conducting similar research on industrial clusters in Tunisia?

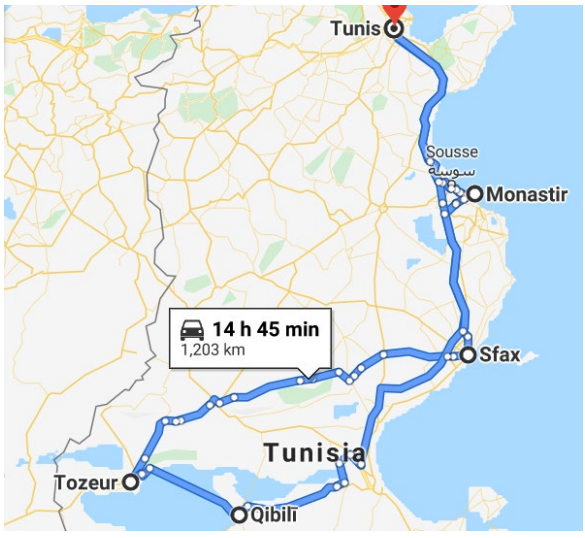
Appendix 2: Leather cluster and date cluster field visits

Leather cluster field visits in northern Tunisia

19 February	Leather handicrafts in Tunis, the capital
Meet with the head of leather labor union in Tunisia at 9:30 AM who will escort us to the local producers of leather handicrafts in the capital. At 5 PM, depart Tunis and travel to Monastir.	
20 February	Tour leather value chain in Monastir, including leather collectors, tanneries and craftsmen
Field visits in Monastir. Meet head of leather labor union in Monastir, who will escort us around the organic cluster there. Then depart to Sfax.	
21 February	Tour the full leather value chain in Sfax
Spend the full day in Sfax touring the leather cluster there & meet with the head of leather labour union in Sfax	
22 February	Morning in Sfax, then head to Tozeur
Team brainstorming and discussion on leather clusters. Depart Sfax in afternoon to head to southern Tunisia	

Dates cluster field visits in southern Tunisia

23 February	Field visit in Tozeur town
9h00 – 10h30:	Visit to farmers in the new Tozeur Oasis (Ibn Chabbat perimeter)
11h00 - 12h30:	Visit to farmers in the traditional Tozeur Oasis; visit to Eden Palm fabrics where handmade date derivative products are produced
14h30 - 16h15:	Meeting with cluster manager and Pôle Djerid and presentation of Tunisia Dates cluster and main dates value chain improvement activities.
16h00- 17h30:	Tour in old city of domestic market for dates, handcraft, etc.
24 February	Continue field visit in Tozeur town
8h30 - 9h00:	To Nefta (25 km)
9h00 - 10h00:	Meeting at date export company, Rose de Sable
10h15 - 11h00:	Meeting with an organic fertilizer company, Oasis Services
11h00 - 11h30:	To Hezoua (30 km).
11h30 - 12h30:	Tour and meeting with Beni Grib Farmers organization and industrial company.
14h30 -15h00:	To Dgeche (10 km from Tozeur)
15h00 - 17h00:	Visit to CRRAO (research center) & Oasis Training center. Meeting with managers.
25 February	Field visit in Qibili town
8h00 - 09h30:	To Qibili town through the Chott el Djerid salt lake.
09h30 - 10h30:	Visit to dates technical center facilities (CTD)
11h -12h30:	Visit to organic farmers groups in Blidette - Qibili and their industries platform (VACPA farming fidelity program)
15h:	Return to Tunis



Appendix 3: Research project workshop agenda, 26 February 2020

IFPRI en partenariat avec FAO

"Analyser le Potentiel inexploité des Clusters Industriels et agro-industriels en Tunisie"

26 Février 2020 | Hôtel Laico Tunis, Mohamed V, 1080 Tunis

9:30 – 10:00	Enregistrement	
10:00 – 12:00 **Session 1 – Séminaire**	**Session inauguration : mots de bienvenue** • **M. Philippe Ankers,** Coordinateur de la FAO pour l'Afrique du Nord • **Mohamed Amrani,** Fonctionnaire technique chargé des politiques Agricoles, FAO SNE • **Clemens Breisinger,** **Chef de programme de pays, Égypte** L'Institut International de Recherche des Politiques Alimentaires (IFPRI -Égypte)	
	Conférenciers	**Sujet des Présentations**
	• S.E.M. Le Ministre de l'Industrie et des PMEs	Les initiatives publiques de développement des clusters industriels en Tunisie – Le secteur cuir: quels défis et enjeux?
	• S.E.M. Le Ministre de l'Agriculture, des Ressources Hydrauliques et de la Pêche	Les initiatives publiques de développement des clusters agro industriels en Tunisie – Exportation des dattes: défis et enjeux
	• TBA, expert des chaines de valeurs (UNIDO)	Expériences de développement des clusters industriels et agro industriels et des chaines de valeurs en Tunisie
	• Xiaobo Zhang, Senior Research Fellow (IFPRI) – "The cluster-based development model – lessons learned"	Le modèle de développement des clusters: les expériences internationales des pays dans le développement de leur clusters
	• Fatma Abdelaziz (IFPRI Égypte) – "IFPRI- FAO Cluster Based Development Research Project & Next Steps"	IFPRI – FAO projet à la Tunisie: Objectifs et les étapes suivantes
	Session 1 Q&A	
12:00 – 12:30	Pause-café	
12:30 – 15:30 **Session 2 – Atelier des parties prenantes**	Session des groupes de discussion • Table Ronde 1 : Dattes • Table Ronde 2 : Cuir	
	Discussion et Remarques de Conclusion	
15:30 – 16:00	Le déjeuner	

Appendix 4: Workshop questions for roundtable participants

1) Introductions
    a) Please share your name, title (value chain position), city. (share registration sheet)
2) Status or perceptions of performance of cluster
    a) Tell us the history of the cluster
        i) When did it start?
        ii) Please highlight the growth trend since the start of the cluster
        iii) How would you evaluate the cluster's performance today? (declining/ stagnant / growing)
    b) What is the competitive edge of each actor in the cluster value chain?
    c) Locate the cluster on the map and identify which players of the value chain are existing in which city
3) Present the value chain chart
    a) Validate the chart; see if any segments or linkages are missing
4) Bottlenecks
    a) Do this by portion of the value chain, ask about the top three bottlenecks that each player faces in the value chain, ranking/prioritizing them.
    b) Moderator will fill in the chart as we go
5) Solutions/way forward
    a) What kind of services do you need from the private sector?
    b) What kind of services do you need from the public sector?
        i) Have you communicated these demands to the public sector? With whom do you communicate?
        ii) Moderator will fill in the chart as we go
6) Informal mechanisms and collective actions:
    a) Do cluster actors gather to discuss these issues?
    b) Do they normally work to solve their problems individually or do they do it with the other members of their cluster?
        i) Specifically for dates, do you solve problems privately or through GDA or associations or unions?

Appendix 5: Supporting actors and institutions within the leather and date sector

Appendix Tables 5.1 and 5.2 describe the supporting actors and organizations within the leather and date sector, respectively. We can classify these into three general categories: i) government actors, ii) cluster-focused organizations, and iii) educational and training programs and research centers.

Appendix Table 5.1: Supporting actors and institutions in Tunisia's leather and footwear sector

Type of actor	Stakeholder	Description	Role & mandate
Government actors	Export Promotion Center (CEPEX)	Public establishment acting under the supervision of the Ministry of Trade and Industry. Created in April 1973, CEPEX is part of the institutional support system for the private sector and acts within the framework of national export promotion objectives.	CEPEX's role is to promote Tunisian exports and support businesses in this area through: • Provision of information on markets, sectors, regulations, etc. • Organization of seminars and training sessions on topics related to the export development – logistics, electronic commerce, certification, marketing, etc. • Facilitation of administrative procedures and resolution of export problems, through the single office • Granting of bonuses to companies (between 30 and 50 percent) on specific actions for promotion of exports, through the FOPRODEX Fund • Market research abroad, promotional materials, brand registration, prospecting trips, participation at fairs and shows abroad • Organization of prospecting missions: collective participation in fairs and shows, business meetings • Carrying out of institutional and sectoral communication campaigns abroad
	Agency for the Promotion of Industry and Innovation	Public establishment under Ministry of Industry and SMEs, created in 1972.	The Agency for the Promotion of Industry and Innovation is responsible for the implementation of Government's policies relative to the promotion of the industrial sector. It provides services to industrial sector firms and monitors industrial activities. Some of its primary roles include: • Providing companies declaration and assistance • Managing investment benefits granted to companies; • Updating company database, publishes information and watch bulletin • Realizes strategic positioning studies and sectoral monographs • Promotes innovation within companies • Supports the creation of businesses through a network of 28 business incubators installed in universities and technopoles in different regions of the country • Organizes promotional events to promote sectors, such as the textile and clothing sector
	Foreign Investment Promotion Agency (FIPA Tunisia)	Public institution under Ministry of Development Investment and International Cooperation, created in 1995.	The "FIPA-Tunisia" Foreign Investment Promotion Agency is responsible for providing the support needed to foreign investors and for promoting foreign investment in Tunisia. In addition to its headquarters in Tunis, it has eight offices located abroad: Ankara, Brussels, Cologne, Doha, London, Madrid, Milan, and Paris. As part of its prospecting work, FIPA organizes various contacts and missions to meet foreign investors. For the leather and footwear sector, there are no specific actions which are currently organized by the FIPA for the promotion of the sector. Before 2015, some actions were carried out by the agency to promote foreign direct investment in the sector, particularly through participation in trade fairs abroad specializing in leather and footwear. This was done in cooperation with CEPEX.

Type of actor	Stakeholder	Description	Role & mandate
Cluster / sector-specific organizations	National Federation of Leather and Shoes (FNCC)	FNCC is attached to the Tunisian Union of Industry, Commerce, and Crafts. The Federation has a dozen national union chambers including tanneries, hide collectors, shoe manufacturers, leather goods, exporters, artisans, and tradespeople.	FNCC's main task is to defend the interests of its members (companies specializing in leather and footwear), but also their support for development. The federation is involved in subjects that concern the profession and is the spokesperson with public authorities for leather and footwear companies. In terms of continuing education, FNCC is responsible for drawing up partnership with the CNFCPP for the design and coordination of the implementation of an annual collective training program for companies in the sector. However, between 2016 and 2018, no training action was carried out.
	National Center for Leather and Shoes (CNCC)	A public and economic interest establishment operating under the supervision of the Ministry of Industry, created in January 1969.	CNCC has a mission to develop and promote the leather and footwear sector in Tunisia. It offers technical assistance and coaching, training, analysis, research and development, industrial promotion, and information and communication services to sector actors. CNCC employs 68 people, including 37 officials and technical supervisors.
Training and research organizations	Various Technical and Vocational Education and Training (TVET) centers	Several public training centers offer training in the leather and footwear industry, four of which are explicitly focused on the sector: Mégrine, Tazerka, Sfax, and El Jem. Other TVETs not specialized in the leather and footwear industry provide training relevant to aspects of operations in the sector.	The vocational training system has provided training and learning for several specialties in the leather and footwear industry. Qualification levels range from the Higher Technician Certificate (BTS) to the Certificate of Competence (CC). Some examples of these programs and the qualifications TVET centers offer include: • BTS in shoe manufacturing (at CSF Mégrine). • Professional Technician Certificate (BTP) in Design and modeling, Shoe and leather manufacturing, and Leather machinery industrial maintenance. • Professional Aptitude Certificate (CAP) in Shoe pricking, Leather working, and Shoe finishing. • Competence Certificate (CC) in Finishing process, Cutting process, and so on
	National Center for Continuing Education and Professional Promotion (CNFCPP)	Public body supervised by Ministry of Vocational Training and Employment.	Its mission is to assist and support companies in the diagnosis of their needs in training, developing a training plan, carrying out training actions and their evaluation. It also manages the funding system for continuing education actions. For the leather and footwear sector, training activities that have benefited from CNFCPP funding has been rare in recent years.

Source: Authors

Appendix Table 5.2: Supporting actors and institutions in Tunisia's date sector

Type of actor	Stakeholder	Description	Role & mandate
Government actors	Office of the Commissioner for Agricultural Development (CRDA)	Under the Ministry of Agriculture.	CRDA carries out landscaping of new oases and maintenance of old oases, monitors different operations done by farmers to ensure the quality of dates, and is largely responsible for the implementation of agricultural policy of government. One of its missions is to ensure the protection of resources through the conservation of water and soil, managing hydro-agricultural infrastructure, and protecting oases from desertification and disease.
	Investment Promotion Agency (APIA)	A non-administrative public institution to promote private investment in agriculture, fisheries and related services, as well as in primary processing activities.	APIA's services target farmers and young entrepreneurs in the field of agriculture and at the primary transformation level. These include: • Granting financing and tax benefits for new investment; • Identification of investment opportunities and project ideas that contribute to achieving national agricultural objectives; • Assistance to entrepreneurs in the preparation of their business plans and coaching them throughout the implementation phase of their project through business incubators and specific training programs; • Organization of economic events, seminars, information days and partnership meetings; and, • Participation in trade fairs in Tunisia and abroad.
	Industry and Innovation Promotion Agency (APII)	APII is a network of support services for industrial firms. Operates under the supervision of the Ministry of Industry.	The agency implements government's policy on promoting the industrial sector and innovation. Provides a support structure for businesses and developers, offering services and products in the form of information, technical assistance, partnerships, and studies.
	Date Technical Centre (CTD)	CTD was created in 1996. Has offices in both Kebili and Tozeur regions.	CTD's general objectives are: • Ensure research results are applied within actual conditions of farms according to the demands and needs of producers; • Carry out programs relating to implementation of results of research, taking into account their adaptation to specificities of the different date-producing areas. • Conduct extension to enable the rapid and efficient transfer of technical progress. • Organize the dissemination of the most effective date production techniques in collaboration with various agricultural research organizations. • Build a database to ensure the rational use of recorded data and technical knowledge. • Undertake studies and gather any scientific and technical documentation related to the sector to disseminate to users. • Work to support development of date production through the training, retraining and development of field extension workers, farmers, trainers, and agricultural teachers.
Cluster / sector-specific organiza-tions	Interprofessional Date Group (GID)	One of the largest date cluster organizations. Primarily provides nets to farmers and signs export invoices. Created in 2019 after splitting from the Interprofessional Fruit Group (GIF). A public-private partnership legal entity with economic interests. Enjoys civil vocation and financial autonomy.	Its main missions are: • To coordinate the links through which the different date products pass in a sector-wide approach. • Encourage producers to integrate their production activities. • Encourage producers, processors, and traders of dates to work together through production contracts. • Facilitate consultation between professionals and the administration in setting the objectives of the date sector • Contribute to market regulation based on appropriate mechanisms in collaboration with private operators and relevant professional and administrative structures. • Promote date product quality and marketing. • Assist professionals in the date sector to integrate scientific and technological developments. • Promote date product exports in collaboration with private operators and relevant agencies. • Collect, analyze, and archive information and set up databases relating to the date sector.

Type of actor	Stakeholder	Description	Role & mandate
	Pole Djerid and the Date Palm Cluster	Has a public-private partnership structure.	Aims to boost the date value chain and to coordinate a new cluster organization called the Tunisia Palm & Date cluster. The new cluster organization involves more than 30 companies, five farmers cooperatives, and ten support centers. It works to support members through both vertical and horizontal coordination in the date sector. This includes accessing to new markets, improving quality, and supporting contractual farming. Its primary focus on is enhancing the competitiveness of the industry notably in exports and in product and quality development. This includes promoting value-addition in date derivative products and diversifying and upgrading palm products for specific purposes.
Training and research organizations	ISET (Higher Institute of Technological Studies) training centers	The two primary dates training centers are ISET Tozeur and ISET Kebili.	The ISETs offer specific diplomas and both short and long-term certificates. They also conduct applied research to meet the needs of local actors.
	Institute of the Arid Regions of Medenine (IRA)		IRA's main task is to carry out the research necessary for the development of, in particular, oasis agriculture. Other areas of focus include the protection and conservation of natural resources in the arid and desert regions of Tunisia and the fight against desertification.
	Regional Research Centre for Oasian Agriculture (CRRAO)	CRRAO is located in Tozeur	CRRAO is responsible for carrying out research and experimentation in oasis agriculture. It has the following missions: • Improve production systems by developing appropriate techniques and methods. • Study the conservation, processing, and valorization of oasis agricultural products. • Carry out technical, economic and sociological research related to oasis and its environment. • Contribute to the transfer of technology and further strengthen links between producers and industries.

Source: Authors

Appendix 6: Interviews conducted during field work

Appendix Table 6.1: Leather sector interviews

Interview ID	Interview date	Type of stakeholder	Stakeholder name	Location
A	19 Feb. 2020	UTICA	Focus group discussion at the Tunisian Union of Industry, Trade and Handicrafts (UTICA),Tunis	Tunis
B	19 Feb. 2020	Leather goods manufacturer	L'Atelier Lital Sidi Rzig, Tunis	Tunis
C	19 Feb. 2020	TVET	CFAMA Sidi Ayed: TVET center for Handicraft, Beb Jdid, Tunis	Tunis
D	20 Feb. 2020	Manufacturing tannery	Fadhloun Tannery, Moknine	Moknine, Monastir
E	20 Feb. 2020	Leather collectors	Visits with a series of traders, leather collectors, and leather storage facilities in Moknine, Monastir area	Moknine, Monastir
F	20 Feb. 2020	Manufacturing tannery	A series of medium to large manufacturing tanneries visits in Moknine, Monastir area	Moknine, Monastir
G	20 Feb. 2020	Small workshops	Visits with a series of small shoemaking and leather goods workshops in Moknine, Monastir area	Moknine, Monastir
H	20 Feb. 2020	Traditional tannery	Visits with a series of small traditional tanneries in Moknine, Monastir area	Moknine, Monastir
I	20 Feb. 2020	Complementary industry	Wool manufacturer, Ksibet el Madyouni	Moknine, Monastir
J	21 Feb. 2020	UTICA	Focus group discussion at the Tunisian Union of Industry, Trade and Handicrafts (UTICA), Sfax	Sfax
K	21 Feb. 2020	Small workshops	Visits with a series of small shoemaking and leather goods workshops in old market of Sfax	Sfax
L	21 Feb. 2020	Leather goods manufacturer	Ahdhiet el Madina	Sfax
M	21 Feb. 2020	Complementary industry	Shoes soles manufacturer, SODAF	Sfax

Source: Authors

Appendix Table 6.2: Date sector interviews

Interview ID	Interview date	Type of stakeholder	Stakeholder name	Location
A	22 Feb. 2020	Exporter	Rose de Sable	Hezoua, Tozeur
B	22 Feb. 2020	Collector	Biya Dattes	Hezoua, Tozeur
C	22 Feb. 2020	Supporting organization	Dates Interprofessional Group	National
D	23 Feb. 2020	Farmer	Beni Ghreb farmer	Beni Ghreb, Hezoua, Tozeur
E	23 Feb. 2020	Exporter	Beni Ghreb	Hezoua, Tozeur
F	23 Feb. 2020	Palm-waste fertilizer	Oasis Services	Nafta, Tozeur
G	23 Feb. 2020	CRDA	Nafta Agricultural Extension Services	Nafta, Tozeur
H	23 Feb. 2020	Dates derivative products & eco-tourism	Eden Palm	Tozeur
I	23 Feb. 2020	Farmer	Chaker Bardoula	Ibn Chabat, Tozeur
J	24 Feb. 2020	Supporting organization	Pole Djerid	Tozeur
K	24 Feb. 2020	CRDA	Regional Commissariat for Agricultural Development (CRDA) – Tozeur	Tozeur
L	24 Feb. 2020	Research center	Regional Research Center on Oasis Agriculture (CRRAO)	Degache, Tozeur
M	24 Feb. 2020	TVET	Sectoral Center of Professional Agricultural Training on Phoeniciculture, Agricultural Extension and Training Agency (AVFA)	
N	24 Feb. 2020	Exporter	Boudjebel SA VACPA	National
O	25 Feb. 2020	Collector	Saif Dattes	Kebili
P	25 Feb. 2020	Farmer	Lakhder	Kebili

Source: Authors

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