6

Aviation

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Morocco faces a complex development challenge: searching for growth amid ailing fundamentals and a serious global recession—a challenge comparable to that of building a plane while trying to fly at the same time. In the last decade, Morocco has reformed a number of its institutions and opened its market to trade and foreign direct investment (FDI). It has built key infrastructure, including major highways, port facilities, and airport systems. And in 2006, Morocco concluded a key free trade agreement (FTA) with the United States. This chapter provides an evaluation of the FTA in its fourth year of implementation, with a focus on its impact on the aviation sector.

As a result of a concerted effort to modernize the country's infrastructure and liberalize its economy, Morocco has achieved a moderate real GDP growth rate of 5 percent annually over the last five years (IMF 2008) and managed to attract FDI for a number of landmark projects, exemplified by the Tanger-Med port and trade zone,[1] which may be a "game changer" for the Moroccan economy. As the biggest African port overlooking the Straits of Gibraltar, and with special trade and industrial zones over 190 square miles of coastal territory,[2] Tanger-Med is central to Morocco's trade strategy.

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1. Other ongoing projects include a major commercial district in Casablanca, Casanearshore, and a tourism resort in Agadir called the Taghazout Station. More information about Tanger-Med is available at www.tmsa.ma/en.

2. Tanger Mediterranean Special Agency (TMSA) has territorial jurisdiction over development in this area.

The Moroccan government has also adopted a strategic plan, Plan Emergence, for the promotion of seven industries: automotive, aeronautics, electronics, textiles, offshoring, food processing, and fisheries.[3] The government identified these sectors as having the most potential for spearheading Morocco's industrial development. The aeronautics sector, for instance, has attracted a healthy amount of foreign investment in aircraft component assembly lines and maintenance facilities.[4]

Since 2000, Morocco has concluded FTAs with a number of its trading partners—chief among them is the European Union (2000). Others include Turkey (2004), the Greater Arab Free Trade Area (2005), and the Agadir Agreement with Egypt, Jordan, and Tunisia (2006). Yet, persistently weak intraregional trade and the absence of a common market for the Maghreb region are particularly disappointing.

Morocco concluded its FTA negotiations with the United States in 2004, but implementation was delayed until 2006 so Morocco could establish an institutional framework to comply with certain FTA provisions, notably concerning intellectual property (IP) and environmental and labor standards. The FTA thus likely produced benefits well before implementation by bolstering exposure for Morocco's reform agenda; other results of the agreement are still relatively modest.

Ailing Fundamentals and Looming Challenges

The Kingdom's widening merchandise trade deficit can be interpreted as a statement about its global competitiveness. As shown in figure 6.1, Morocco's merchandise trade deficit with the world was estimated at more than $20 billion in 2008,[5] or about 22 percent of the country's GDP.[6] A slowdown in returns from tourism is already evident in 2009 as a result of the economic slump in Europe and around the world—the downturn in tourism is visibly affecting the country's leading tourist destinations,

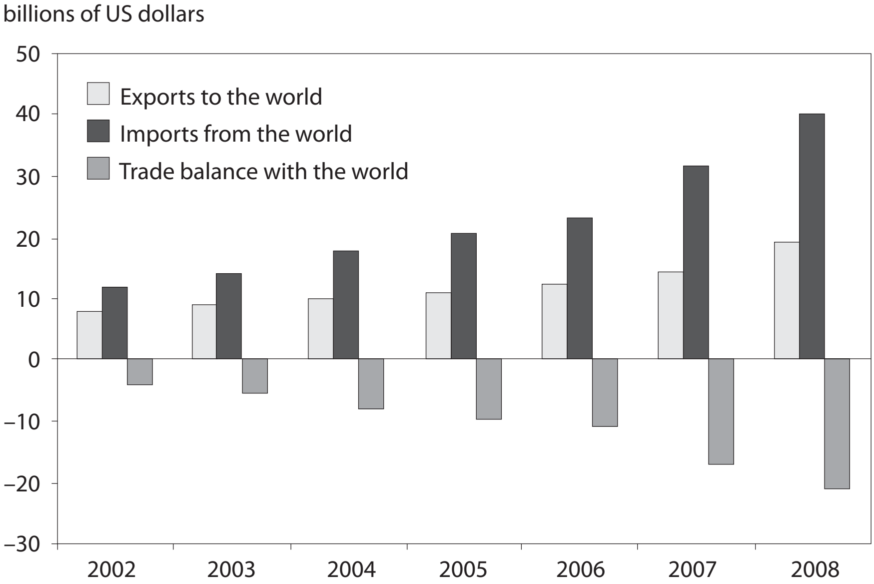
3. Interview on March 2, 2009 in Casablanca with Mohammed Chahoub of the Centre Marocain de Promotion des Exportations (CMPE; Moroccan Center for the Promotion of Exports).

4. The government has also launched an ambitious program, called Plan Maroc Vert, to promote national champions in agribusiness and produce a net GDP infusion from the agricultural sector of as much as $10 billion over 10 years. "Plan Maroc Vert: L'agriculture marocaine à la croisée des chemins," *Aujourd'hui Le Maroc*, April 25, 2008.

5. These estimates are derived from data published by Morocco's Office des Changes.

6. The IMF (2008) projects persistent current account deficits for Morocco over the next five years. Although positive trends are forecast for trade in services and in overall net transfers, the deficit in merchandise trade is expected to double in 2013 compared with 2007. Also, current uncertainties in global financial markets may negatively affect projected inflows from tourism and worker remittances, thus exacerbating current account deficits.

Figure 6.1 Moroccan merchandise trade with the world, 2002–08



Note: 2008 estimates are by the Royaume du Maroc, Office des Changes (Foreign Exchange Office).

Sources: UN Comtrade Database, http://comtrade.un.org; Royaume du Maroc, Office des Changes, www.oc.gov.ma.

Marrakech and Agadir, and the air travel industry too can expect to feel the pinch from the decrease in tourism flows to Morocco.

Another challenge that the country may face as a direct result of the current global recession is a potential slowdown in worker remittances and expatriate travel flows. Such a slowdown would have direct implications for both air transportation and the economy. Transfers account for about 10 percent of GDP, offsetting much of Morocco's merchandise trade deficit, and their flow provides a reliable boost for the economy (IMF 2008). Yet a 2009 World Bank report warns that remittances to Morocco and other developing countries with low-skilled expatriate workers are particularly vulnerable to the crisis (Ratha, Mohapatra, and Xu 2008).

What is more, a substantial portion of those transfers has recently been invested in the local real estate market. The market enjoyed a boom in the last few years, but it appears that the bubble is deflating and some worry that a sell-off may trigger the withdrawal of some of those investments by Moroccans living abroad.[7] The big test will come during the

7. Interview with Mohamed Mekouar, general manager of Upline International, March 2, 2009, Casablanca.

summer, when travel and remittance flows of the expatriate community into the country will serve as an important indicator of the challenges that lie ahead for Morocco's economy and air travel industry.

Air Transportation: Toward both Mobility and Trade

Air transportation is an important instrument of mobility for both the expatriate community and the tourism industry. It enables access in a country that is still building its ground transportation infrastructure, and it supports just-in-time trade and business travel to Morocco's hub cities. The Kingdom's aviation infrastructure is relatively modern and several of its airports are adequately equipped for international passenger and cargo traffic, although none are up to the standards set by integrated airport cities in other parts of the world.[8]

Morocco welcomes only a fraction of the traffic handled by major airports north of the Mediterranean. For example, total traffic (passenger and cargo) through Morocco's 13 airports represents only 25 percent of the traffic passing through Spain's main hub airport, Madrid-Barajas.[9] This discrepancy is another indicator of the underdeveloped fundamentals of Morocco's economy and trade infrastructure.

Furthermore, as mentioned, Morocco's aviation sector is facing serious headwinds with a downturn in tourism and a potential decrease in travel by expatriates in the summer of 2009. The country's Office National des Aéroports (ONDA; Airports Directorate) reported a 4 percent decrease in passenger traffic in the first two months of 2009,[10] and the International Air Transportation Association (IATA) has recently announced that demand in passenger traffic continues to decline around the globe (IATA 2009).

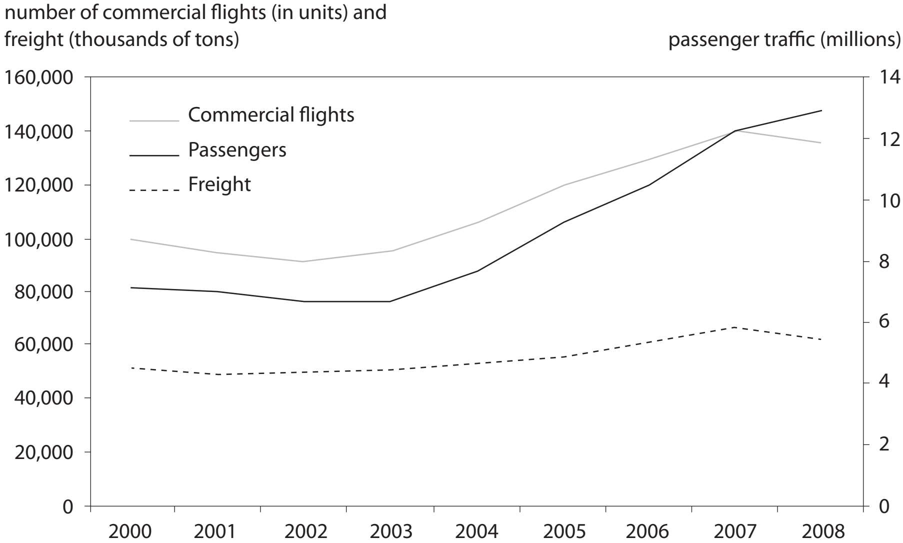
To be sure, Morocco's aviation sector has seen modest growth over the last decade, following key liberalization reforms, major international agreements, and stronger foreign investment interest. But, although encouraging, it would be premature to conclude that this growth trajectory represents a take-off for Morocco's air transportation market. First, as figure 6.2 shows, the growth in air traffic is rising from a low base—comparable to traffic typically handled by a regional airport in the United States. Second, the growth trajectory is highly dependent on the tourism industry and hence vulnerable to adverse external events (e.g., terrorism, global

8. Morocco's airports, including Casablanca's Mohammed V airport, have minimal nonaeronautical development around them, in contrast to European or Gulf airports that have become major providers of commercial and hospitality services.

9. Airport statistics derived from 2007 Airport Council International (ACI) Statistics reports, www.airports.org (accessed on April 6, 2009) .

10. Data derived from Monthly Traffic Reports published by ONDA, www.onda.ma (accessed on April 6, 2009).

Figure 6.2 Morocco's traffic of commercial flights, air cargo, and passengers, 2000–2008



Source: Office National des Aéroports (ONDA) Traffic Reports.

recession). Furthermore, as can be seen in figure 6.2, cargo traffic has seen very little growth over the last decade, so merchandise trade is a weak "flow enabler" for Morocco's air transportation sector.

This is not to say that the Moroccan authorities have been idle in creating conditions for growth in the airline sector. Morocco has reformed its aviation regulatory regime and concluded Open Skies agreements with its trading partners. The government has also invested in airport infrastructure and mapped air traffic goals to its keystone national strategy on tourism.[11] However, despite these efforts, there is still much to be done, especially with regards to institutional deficits that hamper trade and aviation-sector development.

Liberalization Reforms and Open Skies Agreement

Morocco has undertaken several policy reforms in the past five years to liberalize its aviation sector and engage private-sector investment in airline flight, support, and maintenance operations. Morocco signed an Open Skies agreement with the United States in 2000 and concluded a similar

11. Vision 2010 and Plan Azur make up Morocco's national tourism strategy, available at www.tourisme.gov.ma (accessed on June 22, 2009).

agreement with the European Union in 2006. These agreements lift major restrictions on air service development between the parties, but the agreement with the European Union has had the greatest impact.

Almost a decade after the enactment of the Open Skies agreement with the United States, aviation traffic between the two countries remains stagnant—for example, there is still only one direct airline route between the two countries, operated by Morocco's flag carrier, Royal Air Maroc (RAM). In contrast, the Open Skies agreement with the European Union has increased passenger flows to and from Morocco by more than 30 percent since its entry into effect in 2006, albeit mainly in low-cost travel.[12] The agreement allows Moroccan carriers to provide service between EU countries[13] and lifts cross-border investment restrictions in domestic airlines. As a result, Morocco's first private low-cost carrier, Jet4You,[14] started operating in 2006, providing service to a number of European destinations from Morocco, and it has continued since its local investors divested in late 2008.

Also, in 2004, the Kingdom announced a policy initiative to align its aviation sector with its tourism strategy, Vision 2010-Plan Azur. The goals of this policy are as follows:[15]

- establish a strategic framework for transparent sector liberalization;
- create a new domestic carrier to serve tourist destinations;
- refocus the strategy of the national flag carrier, RAM, on regular scheduled service;
- provide nondiscriminatory assistance to new market entrants; and
- develop practical and targeted approaches for development in coordination with the Tourism Ministry.

Two major shortcomings are evident in the government's priorities for its aviation reform agenda. First, the policy's orientation is mainly geared toward one specific flow enabler, tourism. Second, the outsized involvement of the government as owner, operator, regulator, and promoter of air transportation restricts both innovation and growth in this sector. Although the new policy attempts to assure the private sector that

12. Estimate based on traffic statistics available from ONDA. The latest ONDA activity report is available at www.onda.ma.

13. This is a form of cabotage, or "fifth freedom" rights, as defined by the 1944 Convention on International Civil Aviation.

14. Jet4You is now wholly owned by German carrier TUI. Atlas Blue is the only other local low-cost carrier, but it is a wholly owned subsidiary of the government-owned RAM.

15. Information obtained from the official site of the Moroccan Transport Ministry, www.mtpnet.gov.ma (accessed on April 7, 2009).

it is to receive nondiscriminatory treatment, the reality of competing with a government-owned airline, along routes regulated and controlled by the government and at airports owned and operated by the government, is an exceedingly difficult proposition for the private sector to entertain.[16]

What is more, Morocco's air carrier market, despite its recent liberalization, is constrained by the existence of a subsidized airline monopoly: Because RAM is a government-owned carrier, it has advantages that are unavailable to its privately owned competitors. For example, some of the airline's training and infrastructure costs are borne by the state treasury, and this has a distorting effect on the local market for air service. RAM is a mature organization with capable professionals at its helm, so it should assume the responsibility of earning its market share both domestically and internationally instead of being sheltered by the Moroccan taxpayer.

It is true that demand in Morocco's air transportation market is still relatively underdeveloped, and profitability has eluded airlines around the globe in recent years. But while operating a private carrier in Morocco is naturally subject to these familiar market-based challenges, a centrally controlled public monopoly of the air transportation system only adds to the problem.

Infrastructure Modernization

In addition to policy reforms and international treaties, Morocco has invested in the modernization of its airport and air traffic control infrastructure in the past few years. The country's principal hub airport in Casablanca expanded to include a new international terminal and a new runway with enhanced approach capabilities. However, although the new terminal provides additional capacity for passenger handling and is well equipped for international traffic, the new runway does not offer additional capacity.[17] The lack of capacity modeling in the planning process may have led to a less-than-optimum runway design. ONDA is also investing in the expansion of several other airports—especially those serving tourist destinations such as Fès, Marrakech, and Essaouira—over the next five years (table 6.1).

Morocco already has relatively modern systems for communication, navigation, and surveillance, as well as excellent training infrastructure for air traffic controllers.[18] Moreover, it has recently completed a transition

16. A government document lists RAM as one of eight public companies that Morocco intends to privatize. Reuters, "Update 1: Morocco to Privatize Royal Air Maroc," October 15, 2008. If carried out, this would alter the competitive landscape.

17. The distance between the two runways is not enough to allow for simultaneous aircraft arrivals.

18. Assessment made during a site visit in support of the Communication, Navigation, and

Table 6.1 Morocco's planned investment in airport infrastructure, 2008–12 (millions of dollars)

Project	2008	2009	2010–12	Total
Air traffic control/management	4.0	7.5	45.5	57.0
Airport expansion	161.9	128.5	318.5	608.8
Casablanca's Mohammed V Airport	31.1	18.9	63.0	112.9
Marrakesh Airport	35.8	12.5	81.3	129.5
Other airports	95.0	97.1	174.3	366.4
Other projects	84.2	84.2	252.7	421.1
Total	250.1	220.2	616.7	1,087.0

Source: ONDA (2008).

plan to satellite-based navigation for air traffic control and is working to harmonize its air traffic management system with the EU Single Sky initiative.

Nonetheless, except for freight facility upgrades in Casablanca, there are no major investments to develop infrastructure that would support a business case for air cargo. Instead, merchandise trade in Morocco relies heavily on maritime and ground transportation. In fact, more than 95 percent of the country's merchandise trade is processed through its ports.[19]

Developing Tanger-Med as an Integrated Multimodal Hub

Morocco's ability to create market and institutional conditions for trade capacity development is extremely important to its overall growth trajectory. Therefore, an integrated approach to the development of Tanger-Med, with competitive feeder industries providing capacity and multimodal systems ensuring delivery, is key to its success. To that end, an indigenous industry of time-critical manufacturing, assembly, and distribution needs to be developed and integrated into the global supply chain.

The integration of air service into the Tanger-Med development plan would certainly bring multimodal efficiency to this key development project and create trade-enabled flows for the Kingdom's air transportation sector. The existing airports in Tangiers and Tetouan are inadequate for the ambitious program envisaged by Tanger-Med and the potential traffic it

Surveillance Air Traffic Management (CNS/ATM) Transition Plan funded by the US Trade and Development Agency.

19. Speech by Minister of Transport Karim Ghellab at the 2008 Mediterranean Conference on Logistics (MEDLOG 2008) held in Tangiers, Morocco, December 4–5, 2008, www.mtpnet.gov.ma.

would attract. Moreover, both airports are surrounded by residential developments and do not offer any significant opportunities for expansion.[20] A new greenfield airport project should be introduced into Tanger-Med and developed to offer intermodal access to port facilities and logistics platforms.[21] These developments would enable Morocco to take advantage of both maritime trade and air cargo; the former delivers volume at the expense of speed, whereas the latter delivers both speed and high-end value.

The viability of such a project will hinge on the far-sightedness of its master planning, especially at the early stages of project conception. The lessons learned from dozens of airport projects around the world point to the primacy of a few basic principles in the planning of modern airport cities if they are to be successful and sustainable:

- independent governance and management,
- free trade,
- protective land use,
- intermodal access, and
- renewable energy.

Examples of airports that have embraced these priorities in their development stretch from Amsterdam to Hong Kong and from Frankfurt to Dallas-Fort Worth. These airports are more than just passenger and cargo processing facilities: They are truly integrated commercial and trade development zones with a significant impact on their regional economies.

Thus intermodal logistics and trade-enabled flows are essential if Morocco is to create a competitive advantage for its industry *and* make the most of its FTAs, including with the United States. The integration of world-class air cargo into Tanger-Med is an important endeavor that would further the country's goal of creating a global center for the transportation and logistics industry.

Impact of the Morocco-US FTA on Air Transportation

Since Morocco concluded its FTA with the United States, total merchandise trade between the two countries has more than doubled, reaching about $2.5 billion in 2008. However, the United States accounts for only 5 percent of Morocco's total merchandise trade volume: Trade with the

20. Assessment based on a site visit to both airports in 2003 as part of Morocco's CNS/ATM transition plan.

21. According to a local business publication, *Challenge Hebdo* (November 2008), the Ministry of Transportation has released a tender for a feasibility study to build a new airport in Tangiers, but the scope of this project is still unknown.

European Union is ten times larger in volume and accounts for more than 60 percent of Morocco's two-way merchandise trade.

As shown in figure 6.3 Morocco's FTAs with these two trading partners have produced increases in total merchandise trade flows, but the gains have mainly gone to US and EU exporters. In fact, Morocco's merchandise trade deficits with both the European Union and the United States have widened significantly, a trend that indicates the Kingdom's challenges in improving the competitive position of its industry.

As figure 6.4 shows, the volume of Moroccan merchandise exports to the United States has seen very little growth since the implementation of the FTA, whereas imports from the United States have exhibited an upward climb, with the result that Morocco's merchandise trade deficit with the United States has widened to about $1.5 billion (from about $250 million in 2002), mostly since the FTA went into effect. Morocco's merchandise imports from the United States outweigh its exports by a factor of four. Data from UNCTAD and the WTO show that Morocco's exports are mostly concentrated in sectors that exhibit low growth in global demand, except for the manufacture of electrical and electronic components.[22] For instance, Moroccan exports of aircraft parts offer a small window into the country's industrial potential,[23] although their volume represents less than 1 percent of Morocco's total exports to the United States.

Morocco's poor trade performance is further evidenced by the lack of meaningful growth in direct air and maritime traffic with the United States—bilateral trade between Morocco and the United States is conducted with only one direct maritime line, which began operating very recently.[24] This complicates the free flow of merchandise under the FTA because of restrictions on transshipments and complicated administrative procedures to satisfy rules of origin. Furthermore, commerce between the two countries is conducted with only one direct scheduled airline route. As shown in figure 6.5, air traffic between Morocco and the United States is only now returning to pre-9/11 levels. In other words, neither the Open Skies agreement nor the FTA has had any discernible impact on air traffic between Morocco and the United States. However, it is difficult to isolate

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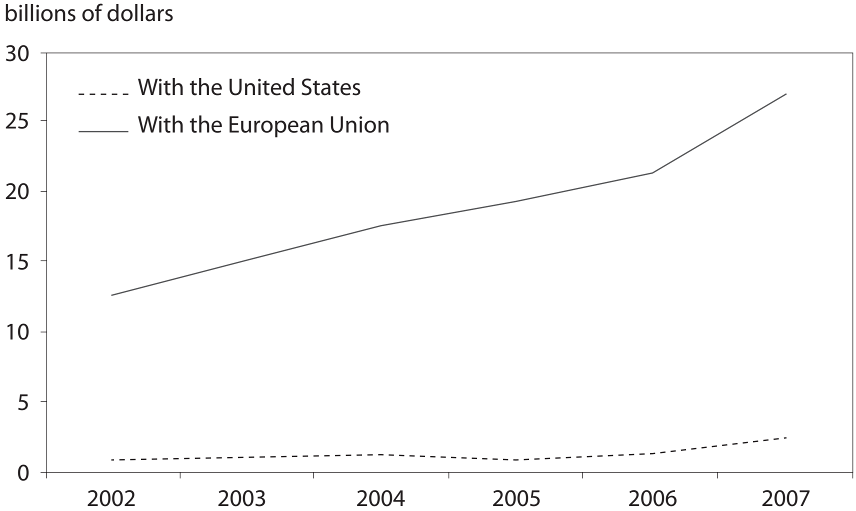
22. Structural analysis of Morocco's trade flows provided by the International Trade Center (ITC), www.investmentmap.org (accessed on June 22, 2009).

23. This is also an encouraging indicator for Morocco's Plan Emergence, although the overall strategy is open to criticism in terms of conception and implementation because of its focus on sectors with low growth in global demand and its weak emphasis on workforce development.

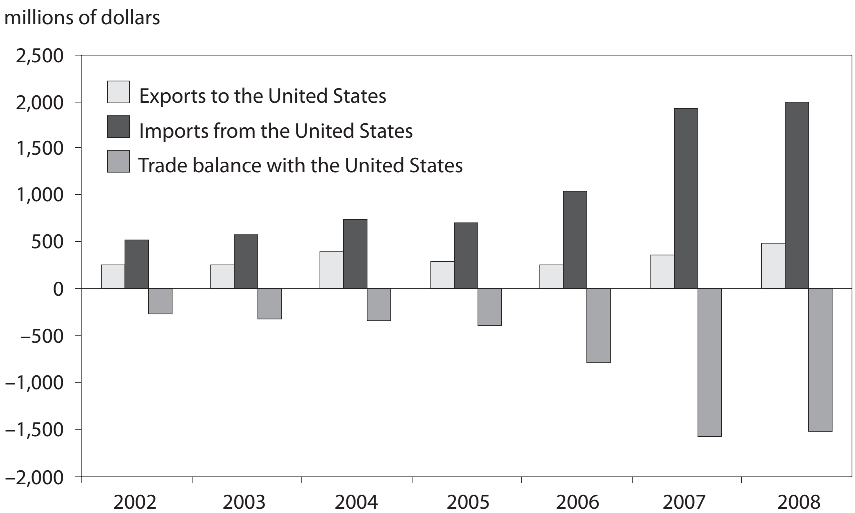
24. A new direct maritime line linking the new port in Tangiers to the eastern coast of the United States was launched on June 8, 2009 in advance of the second session of the Moroccan-American joint committee on FTA implementation. See Morocco Business News, "New Morocco-US Maritime Route Launched," June 10, 2009, www.moroccobusinessnews.com (accessed on July 13, 2009).

Figure 6.3 Morocco's bilateral merchandise trade with the United States and the European Union, 2002–07



Source: UN Comtrade Database, http://comtrade.un.org.

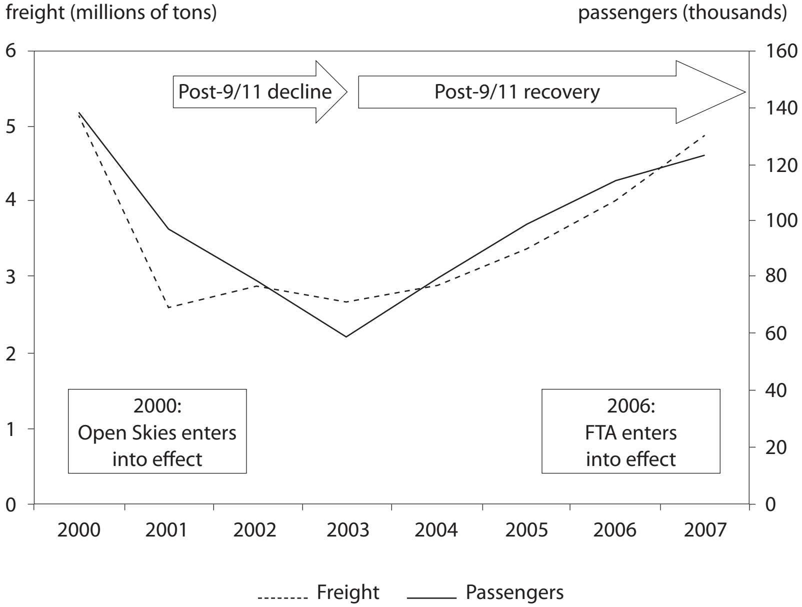
Figure 6.4 Moroccan merchandise trade with the United States, 2002–08



Note: 2008 estimates by Royaume du Maroc, Office des Changes (Foreign Exchange Office).

Sources: UN Comtrade Database, http://comtrade.un.org; Royaume du Maroc, Office des Changes, www.oc.gov.ma.

Figure 6.5 Air traffic between Morocco and the United States, 2000–2007



Source: Office National des Aéroports (ONDA) Traffic Reports.

the effects of these agreements from the global downturn in the aviation industry. It is possible that the post-9/11 recovery of Morocco's aviation sector would have been weaker without the FTA.

To be sure, air transportation is merely an instrument of trade to which it offers both capacity and frequency. But the removal of obstacles to growth in this sector could enhance the utility of aviation to the Kingdom's overall strategy for economic development. For example, although airports are natural local monopolies, they do not have to be state-controlled central monopolies. In fact, it is counterproductive for airports to make local market demand subservient to central control. Airports are economic engines, and they should act as such within the parameters of the local markets they serve.

That said, the day-to-day management of airports should not be confused with the strategic development of the aviation sector. The latter does benefit from a centrally guided vision that creates conditions for increased economic activity, strategic sectoral development, and enhanced market appeal for FDI. The day-to-day management of airports, on the other hand, is appropriate in an environment that is competitive and accountable to local market conditions.

Without a central authority, airports would be compelled to compete with each other and partner with local businesses and governments to attract new traffic. With regional competition in place, airports search for new ways to brand and innovate. They are pressured by market forces to tackle air service development in innovative ways and engage airlines and airport tenants through operational and financial incentives. Thus Morocco's central management of airports is counterproductive to local aviation growth. Moreover, it is inconsistent with government efforts in recent years to promote a decentralized approach to development.

Challenges to FTA Implementation

Moroccan business leaders often cite a variety of reasons for the lackluster effects of the FTA, but they almost always fault deficits on two fronts: networks and language. A local entrepreneur explained it this way: "The FTA may very well provide me with a business opportunity, but if I can't pick up the phone and call someone on the other side of the deal, then there is no opportunity."[25] The lack of business networks between the two countries imposes a serious burden on companies who wish to take advantage of the FTA, especially small and medium-sized enterprises (SMEs) that lack the resources of multinational companies. Firms therefore quickly turn to the easier alternative: doing business with Europe.[26]

The language handicap is also an obstacle to business between the two countries. At a recent FTA workshop held by the American Chamber of Commerce (AMCHAM), the Moroccan foreign trade minister identified "inadequate mastery of English" among local businesses as "a potential barrier to Moroccan exports" (AMCHAM 2009). In the short term, partnerships between the private sector and academia to develop executive training programs in English would represent a good step forward, complemented over the longer term by education reforms.

Both of these issues are important for promoting development in the aviation sector. The international language of the aviation industry is English. Virtually all of the knowledge created in aeronautics and aviation systems planning is articulated and debated at international forums in English, which is also the official language of air traffic control and international trade. In addition, mastery of the English language is essential to expand business and industry networks in global markets, which are a prerequisite for capacity development and, hence, increased flows for air transportation.

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25. Interview with Karim Chraibi, energy consultant, February 23, 2009, Casablanca. Chraibi was an adviser to former Prime Minister Driss Jettou.

26. Established business and government networks between Morocco and Europe (especially France) provide a key advantage to the Morocco-EU FTA over its US equivalent.

FTA Gaps and Areas for Improvement

Although the Morocco-US FTA addresses local specificity in trade through tariff phaseout schedules and temporary tariff preference levels (TPLs) for vulnerable sectors, the agreement does not explicitly acknowledge the outsized asymmetry between the two economies. The agreement cannot be viewed only through the prism of improved market access. It also needs to be seen as a vehicle for development, with the United States taking a greater interest in assisting Morocco with building a sustainable global competitive position for its economy. Morocco needs this assistance in order to make further reforms more viable at home, but it is also in the interest of the United States to play an important role in the development of a key ally in the Maghreb region.

In contrast to Morocco's Association Agreement with the European Union, the Morocco-US FTA lacks the support mechanisms of the Euro-Mediterranean Partnership in areas such as trade capacity development, workforce training, investment promotion cooperation, infrastructure development assistance, and trade facilitation through cumulation of origin.[27] The Morocco-EU agreement is more comprehensive in scope and benefits from a higher level of bilateral engagement.

As the Joint Committee on the Morocco-US FTA continues its consultations on strengthening the agreement, it would be useful to assess the feasibility of allowing cumulation of origin between Morocco and other US FTA partners. This would incentivize greater specialization in trade with the United States and allow for new synergies among US trade partners, such as between Morocco, Jordan, and Israel.[28] This triangular synergy, for example, can create shared opportunities between Morocco's Tanger-Med and the qualifying industrial zones (QIZs) in Jordan and Israel. The committee should also study joint investment programs in trade capacity development so that opportunities for direct transportation lines between Morocco and the United States are justified and supported by the market. FTA restrictions on transshipments currently act as a disincentive to some Moroccan exporters.[29] Short of lifting these restrictions, a sustainable way of addressing them is to build more capacity for trade between the two countries and attract regional trade flows to Morocco's transportation hubs.

27. The Pan-Euro-Med system of cumulation of origin allows EU trade partners (e.g., Morocco and Jordan) to cumulate processing and obtain preferential treatment for products with originating status in any of the member countries (European Commission 2009).

28. Morocco and Jordan are both party to the Agadir Agreement establishing a free trade zone between the two countries and, in addition to Israel, are also party to the Barcelona declaration establishing the Euro-Mediterranean Partnership.

29. AMCHAM identified these restrictions in its responses to an electronic questionnaire on April 2, 2009.

Conclusion and Recommendations

For Morocco to maximize its benefits from the FTA, it must continue to develop its competitive capacity, reform its public institutions, and build critical infrastructure including multimodal transportation systems. The Kingdom should treat current global challenges as an opportunity for developing game changers for the economy. For example, there is much to be gained from developing alternative energy sources and investing in local green industries. Morocco can also leverage its geopolitical position to create new capital and physical inflows by incentivizing foreign academic institutions to establish an extension of their academic and research programs in the Kingdom. This would not only aid Morocco with its human development challenge but also help create a knowledge-based workforce that can become a catalyst for innovation and growth.

The presence of such stimulus sources in the economy would boost Morocco's aviation sector by creating additional flows and unlocking pent-up domestic demand. A study by the University of California in San Diego found that high-tech workers are on average four times more likely to travel by air than workers in other industries (Kasarda et al. 1999). Thus the development of indigenous knowledge-based industries could pay high dividends in terms of demand for air transportation services.

In addition to Morocco's efforts, the United States should realign and boost its policy on providing assistance to the Kingdom. This assistance should focus on economic capacity and workforce development as well as technology and knowledge diffusion. The United States can help create joint academic and research programs between the two countries and establish a support framework for business and industrial networks—by, for instance, setting up a Morocco-US FTA Center of Excellence at a Moroccan institution of higher learning under the mentorship of a reputable US university. Pilot programs could promote communication between US trade associations, retailers, and entrepreneurs and Moroccan producers through a hub organization acting as a sort of *guichet unique* for US-Moroccan trade and business exchanges. Facilitating trade between the two countries would increase the need for developing air traffic of people and cargo alike.

With regard to development of the aviation sector, Morocco should expand the impact of this vital sector by diversifying its flow enablers and lifting obstacles to private-sector investment in the ownership and operation of aviation systems. As mentioned previously, Tanger-Med is a key project with the potential to become a global center for the transportation and logistics industry. As such, the Moroccan government should treat it as a field of bold and persistent institutional experimentation and implement serious reforms to combat corruption and trafficking in this area. This is an important institutional condition for implementation of the multimodal vision of Tanger-Med enunciated in this chapter.

A greenfield airport project that is effectively connected to new port facilities would enable the Kingdom to promote Tanger-Med as a real alternative to transportation hubs north of the Mediterranean. The planning of this project should combine facility planning and trade capacity development and must ensure independent governance and operation of the airport and its logistics platforms.

In addition, several steps are necessary to further liberalize Morocco's aviation sector and create conditions for increased investment and market activity in air transportation:

- ONDA's control over airports should be phased out and the agency should be reorganized into an independent Air Navigation Service Provider (ANSP). Different models for the operation and management of the Kingdom's airports should be explored, including hybrid public-private partnerships.
- Morocco should proceed with current plans to privatize RAM. The carrier's monopoly power—the elephant in the room of air carrier operations in Morocco—must cede to market-based competition so that private-sector air service has room to grow.
- The Ministry of Transportation should commission a serious study on developing an air cargo industry for the country. This study should assess opportunities in global markets and engage cargo operators about a range of issues including competitive pricing, logistical capabilities, and infrastructure needs. The study should use proven simulation methods and tools as well as a comprehensive survey process.

The aviation industry plays an integral role in defining the terms of competitiveness in the global economy. Aviation has been a remarkable catalyst for market innovation and economic development by (1) expanding access to new markets and destinations around the globe, (2) revolutionizing delivery systems and cross-border supply chains, and (3) enabling a whole new area of global trade to emerge and flourish. In fact, just-in-time trade is not possible without jet aircraft. Morocco should place a high priority on developing its aviation infrastructure and making air service a key element of its trade development strategy.

The Morocco-US FTA is an important agreement that has yet to fulfill its potential. For Morocco, it enables access to the most competitive economy in the world, a market that is home to highly innovative companies, top-rated research institutions, and a top-notch university system that collaborates closely with the private sector on R&D in various sectors including next-generation air transportation systems.[30] For the United States, the

30. The World Economic Forum's *Global Competitiveness Report 2008–09* ranked the United States as the most competitive economy in the world based on its resilience to shocks and its high level of productivity and innovation.

FTA is a mechanism of strategic engagement with a key ally in the Arab world—an ally with a relatively vibrant society that can act as a model for development in the region *if* Morocco can build a competitive economy and if the government continues with meaningful institutional reforms. The FTA must be afforded every chance to succeed because it is in the best interests of both parties.

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