working paper series

ARAB PASSENGERS' AIRLINES FRAMEWORK AND PERFORMANCE: JORDAN CASE

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Working Paper 727

November 2012

The findings and conclusions in this report are based on our present knowledge and information with respect to economic data, source markets, and the status of the competitive market environment at the completion of our fieldwork and upon certain assumptions regarding the future. It should be noted that the availability of information pertinent to our research is often limited and, in various instances, difficult to collect and verify.

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Abstract

The past two decades have witnessed vivid changes in the air transport services sector. These changes started in the developed countries, having a drastic effect on the global air transport services sector. This study performs an ex-post analysis; investigates the impact of the current passengers' airlines conduct (e.g. agreements, alliances etc.) on the performance of the industry (number of passengers, airfares, and welfare) in Jordan. The estimation result- using OLS, 2SLS and GMM- concludes that air liberalization has no effect neither on the number of passengers nor the airfares. This insignificance can be interpreted by the fact Royal Jordanian has full dominance of the Jordanian air market, having the largest market share. However, judging on the desirability of openness is the impact on welfare. Based on the simulation results, increasing competition decreases the total revenue for the producers (as the average airfare has gone down) and increases the consumer surplus. The net effect of these changes on society welfare is positive; the consumer surplus increase outweighs the producers' surplus decrease. This supports the notion of further liberalization in the air market in Jordan.

ملخص

شهد العقدين الماضيين تغييرات حية في قطاع خدمات النقل الجوي. بدأت هذه التغييرات في البلدان المتقدمة، وكان لها تأثير كبير على قطاع النقل الجوي العالمي وخدمات النقل. تجرى هذه الدراسة تحليلا ينفذ بأثر رجعي؛ وتحقق فى تأثير سلوك شركات الطيران الحالية من اجراء لاتفاقيات مثل التحالفات وغيرها على أداء الصناعة (متمثلا فى عدد الركاب، تذاكر الطيران، والرفاهة الاجتماعية) في الأردن. وباستخدام التقديرات OLS، و-2SLS GMM تخلص الورقة إلى أن تحرير سوق الطيران ليس له أي تأثير لا على عدد من الركاب ولا تذاكر الطيران و. ويمكن تفسير هذه النتيجة بالرجوع الى أن شركة الطيران الملكية الأردنية لديها هيمنة كاملة على السوق الأردني، ولها حصة أكبر في السوق. ومع ذلك، الحكم على الرغبة في الانفتاح هو التأثير على الرفاهة الاجتماعية. استنادا إلى نتائج المحاكاة، فان زيادة المنافسة يقلل من إجمالي الإيرادات للمنتجين (بسبب انخفاض متوسط سعر التذكرة) وذلك يزيد من فائض المستهلك. الأثر الصافي لهذه التغيرات على رفاهة المجتمع إيجابي، وزيادة فائض المستهلك يفوق انخفاض فائض المنتجين. وهذا يدعم فكرة زيادة تحرير السوق الهواء في الأردن.

1. Introduction

The Air transport sector has become more widespread, due to global integration, and has quickly evolved to cater for increasing world tourism, business and investments, and cross-border trade and exchange. To capitalize on such a sector, effort must be undertaken towards improvements and more liberalization of the air services sector. In this context, this paper studies the impact of air services liberalization on the performance of the air transport sector in Jordan.

A number of papers investigating the impacts of airline industry's structure on its economic performance have been published (e.g. Micco and Serebrisky, 2006; Albers et al., 2005; Brueckner, 2001; Oum et al. 2000). These studies illustrate that air services liberalization is a major concern because the airline framework can have important effects on fares, profits, consumer welfare and labor and non-labor mobility.

Despite the high importance of the performance of airlines for economic integration and growth, empirical research investigating the impacts of the air agreements on the Jordanian air services sector's performance is very limited to non-existent. Unlike other regional countries there are no papers or studies available to predict the impact of deregulating the airline industry prior to deregulation.

The present study seeks to fill this gap in the literature studying the liberalization of air services sector in Jordan. The paper performs an ex-post analysis; investigates the impact of the current passengers' airlines conduct (e.g. agreements, alliances etc.) on the performance of the industry (number of passengers, airfares, and welfare) in Jordan.

For the analysis, an extended version of the well known **Structure-Conduct-Performance (SCP)** framework was adopted, which postulates that the direction of causality might run in two directions: firstly, the structure of an industry determines firms' conduct which in turn determines performance; secondly, the performance may allow a firm to affect the market structure.

A theoretical model is presented to highlight the main mechanisms at play in the Jordanian airline market. This model has two main testable implications. First, a higher degree of air liberalization unambiguously reduces the airfares paid by consumers. Second, a higher degree of air liberalization has two opposite effects on the number of passengers for a given carrier. It reduces the number of passengers for a given carrier due to more competition but increases the number due to lower average fares. As more and more carriers are in operation due to more liberalization, passengers are presented with a wide array of carriers to choose from and therefore the number of passengers for a given carrier will decrease. At the same time, due to liberalization, average airfares will decrease which will provide potential passengers with an incentive to travel more and therefore the number of passengers will increase as stipulated by the economic law of demand.

The estimation results confirmed the two main implications, using Ordinary Least Squares (OLS), Two Stage Least Squares (2SLS), and Generalized Method of Moment (GMM). In addition, using simulation under the assumption of more liberalization, the results show that the consumer's welfare increases, while the producer's welfare declines. Fortunately, the consumer's welfare effect outweighs the producer's welfare effect, leading to an increase in overall societal welfare.

The study is organized as follows: after the introduction, Section II& III provide the background information of the Jordanian Civil Aviation Industry and the Jordanian Airline Industry. Section IV discusses the economic framework and introduces the measure of openness and describes the model used. Section V explains the estimation results, and finally, section VI concludes and provides policy recommendations.

2. Jordanian Civil Aviation Industry Background

2.1 Structure (ownership, management, regulations, etc.)

This section explores the structure of the Jordanian Civil Aviation Market and will cover the following:

- The number of domestic and/or national airlines companies in the market and their activity.
- The extent to which foreign companies are allowed to operate in Jordan.
- The number of Jordanian airports, which provide and facilitate air traffic movement and their relative importance.

2.1.1 Jordanian Airlines Market

Royal Jordanian Airlines (RJ), the national flag carrier, has been dominating the Jordanian airlines market scene since its establishment in 1963 with scheduled flights domestically, regionally and internationally. According to the Jordanian Civil Aviation Regulatory Commission (CARC) there are 9 Jordanian airline companies that have Air Operating Certificates (AOC) and can operate in the market (Table 1).

The majority of these certified airline companies provide charter (non-scheduled) flight services; several are focused on air freight and cargo with only two airlines that operate scheduled flights to regional and international destinations, which are RJ and Royal Falcon. As Royal Jordanian has full dominance of the market, more focus will be placed on it than the other airlines in this section.

2.1.2 Royal Jordanian Airlines

Royal Jordanian was established and commenced operations in 1963 as Alia, the Royal Jordanian Airline. The airline was later renamed Royal Jordanian in 1986. Royal Jordanian is headquartered in the capital, Amman, and its flights are operated from Queen Alia International Airport (QAIA) in Amman. It has a modern fleet that covers a network of 58 destinations on four continents.

Royal Jordanian was a 100% government owned institution until its privatization in 2007. In December 2007, Royal Jordanian had its Initial Public Offering (IPO), which changed the company's ownership structure reducing the government's ownership to 29%. Table 3 shows major shareholders as of end 2009.

The airline owns Royal Wings, a Royal Jordanian subsidiary company dedicated to charter business, operating from Amman Civil Airport in Marka. It also owns 20% of Jordan Airline Training and Simulation Limited (JATS), 20% of Jordan Aircraft Maintenance Limited (JorAMCo), 20% of Alpha (the flight catering services company) and 6% of the Royal Jordanian Air Academy. Figure 1 shows Royal Jordanian's route to privatization and ownership evolution.

On April 1, 2002 RJ was granted exclusive agreements by the Civil Aviation Regulatory Commission (then Civil Aviation Authority) to operate routes to international destinations out of Amman. In 2006, the agreement was amended and extended for four extra years expiring in February 2010. On February 5, 2010, Jordan's Civil Aviation Authority cancelled the exclusive right of Royal Jordanian to operate scheduled flights to/from Jordan. The eight-year exclusivity deal aimed to boost the carrier's financial performance and its privatization plans. Under its provisions, other Jordanian airline companies were only permitted to operate charter flights during the exclusivity period. Royal Wings and Royal Falcons are currently the only airlines licensed to operate scheduled services in Jordan. The reason behind the annulment is to encourage the carrier to rectify its operational and administrative conditions so as to keep in pace with aviation liberalization and to attract foreign investment.

The airline officially joined the Oneworld airline alliance[1] on April 1, 2007, after it completed all technical and technological requirements to become part of the grouping, making RJ the first Arab and regional air carrier selected to join any of the three global airline alliances (Oneworld, SkyTeam and Star Alliance). By joining Oneworld, RJ has entered a network, which jointly serves more than 750 destinations in almost 150 countries. Moreover, Royal Jordanian is a member of Arab Air Carriers Organization

Royal Jordanian currently has marketing alliances, through codesharing, with several International airlines: American Airlines, British Airways, US Airways, Iberia, Malev Hungarian Airlines, Tarom, Gulf Air, Syrian Arab Airlines, and Yemen Airways.

Royal Jordanian currently has a fleet of 32 aircrafts of various sizes that cater for its needs. There are 8 aircrafts on order as of 2010. Table 4 provides details of the fleet. Table 5 shows statistical information on Royal Jordanian for the period of 2005 – 2009 that include number of passengers per annum, revenue and number of employees.

The above table illustrates how there has been an increasing trend in the number of passengers and the value of the revenue passenger km throughout the period except for the year 2009. It also shows that RJ has been increasing employment each year, except for the year 2009. This trend can be linked to both the privatization process, which was accelerated during this time period and the exclusivity agreement, which was granted to RJ. Both of these factors helped in the achievements of the airline as seen in the above table. However, in 2009, due to the effects of the global economic crisis, passenger numbers dropped along with associated revenues.

2.1.3 Royal Falcons Airlines

Royal Falcon Airlines commenced its operation in August 2007 after being awarded its AOC for non-scheduled operation. On 28 June 2009, Royal Falcon Airlines was awarded its Scheduled AOC after completing all economic and technical requirements of the Jordanian Civil Aviation Regulatory Commission (CARC). It currently has several scheduled regular routes to regional and international destinations including Baku in Azerbaijan, Sharjah in the UAE, Mousul and Najaf in Iraq. Table 6 indicates the current Royal Falcon Airlines routes.

Currently Royal Falcon Airlines is currently completing all requirements to pass the IATA Operational Safety Audit (IOSA) to enable it to be a fully-fledged national carrier with scheduled operations.

2.1.4 Jordan Aviation

Jordan Aviation was established in 1998 and started operations in October 2000. It launched services from Amman as the first privately owned charter airline in Jordan. It operates scheduled and worldwide charter services flights, mainly to the Middle East, Europe and Africa (see annex 4 for destinations). It also provides wet lease services[2] to major airlines seeking additional capacity. Its main bases are Amman Marka Civil Airport and King Hussein International Airport in Aqaba. It is also an important provider of air transportation for UN peacekeeping forces. Jordan Aviation is a member of the Arab Air Carriers Organization.

Jordan Aviation is privately owned and has over 700 employees (around 16% of employees in RJ). The airline has grown considerably since it commenced operations nearly 10 years

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[1]The Oneworld member airlines include American Airlines, British Airways, Cathay Pacific Airways, Finnair, Iberia, Japan Airlines, LAN, Malév Hungarian Airlines, Mexicana, Qantas, Royal Jordanian and S7 Airlines. Kingfisher Airlines, India's only five-star airline, and Airberlin, the second largest airline in Germany, will join in the near future.

[2] A wet lease is a form of a leasing agreement that provides multiple services and under the agreement, the owner will provide a crew, maintenance, and other services needed for the aircraft. A dry lease on the other hand, is the lease of the basic aircraft without any additional services such as insurance, maintenance… etc.

ago, and this is evident from its fleet (see Table 8). Additional aircraft are planned to enter service in the near future as Jordan Aviation is planning to expand into other market segments. It is worth noting here that the number of in-service fleet of Royal Aviation is almost a third of that of RJ.

2.2 Foreign airlines operations in Jordan

Concerning foreign carriers, there are over 40 foreign airlines that operate flights to Jordan. Some of the airlines operate the flights to Jordan on a codeshare basis (See Annex 5 for the list of carriers). In addition to these carriers, there are over 30 other airlines that have offices or representatives in Jordan but do not operate any flights to Jordan directly or on codeshare basis.

Any restrictions placed on the operations of foreign carriers in Jordan are based on the different bilateral air service agreements signed between the different countries as well as any affiliate or alliance agreements. This will be discussed in more detail in section2 (Agreement part).

2.2.1 Jordanian Airports

There are 3 civil airports that provide and facilitate air traffic movement in Jordan, running domestic, regional and international flights. Two are located in the capital city of Amman and one is in the Seaport City of Aqaba. Table 10lists the airports with their locations, type and IATA code.

Historically all three airports were owned 100% by the Government of Jordan. Over the past ten years the Government of Jordan has been adopting a gradual liberalization policy regarding the civil aviation sector, leading to the privatization of two of its airports. In 2007 it transferred the assets of the King Hussein International Airport to the Aqaba Development Corporation. Also in 2007, the government embarked on both the privatization of Queen Alia International Airport (QAIA), Jordan's main airport and Royal Jordanian Airline's hub airport, and its expansion under a BOT (Build, Own, Transfer) agreement, as part of its drive to make Jordan a regional hub.[3] Under the terms of the BOT Agreement with the Government, the investor (Airport International Group - AIG) is responsible for the rehabilitation of the existing terminal, development of a new $600M terminal designed by internationally renowned Foster + Partners as well as operating and managing the airport for the period of 25 years. Scheduled to be completed in 2012 at the expansion plan will handle a capacity of 9 million passengers.

The importance of the airports differs with the number flights they handle, the number of passengers they can serve as well as freight and mail services. As stated above, the most important airport for Jordan is Queen Alia International Airport; handling over 80% of aircraft traffic and serving around 93% of passenger traffic to Jordan, leaving the rest of flights to the other airports. Table 11 shows the air transport movement in all airports since 2005.

2.2.2 Queen Alia International Airport

Currently QAIA serves 47 airlines, four of which are domestic airlines, and 43 of which are foreign airlines, making it the main destination for most of the foreign carriers flying to Jordan. Table 12 lists the airlines that have scheduled regular flights to and from QAIA, noting that some of the foreign airlines operate on codeshare basis to Amman.

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[3]The future expansion project reached financial close on 15 November 2007. The project is a $675 million BOT (Build Own Transfer) basis transaction involving a 25-year contract for Rehabilitation, Expansion and Operation Agreement ("REOA" or "Concession" Agreement).

QAIA has been unable to meet the sustained growth in air traffic of 7 percent per year since2000 because of capacity constraints. Therefore, the Jordanian Government decided to rehabilitate and expand the airport, which includes the construction of a new 100,000-square meter terminal. The Government hopes that the upgrades to the airport will see the development of QAIA as a key hub in the region, with the national carrier, Royal Jordanian, having a strong pan-Arabian and intercontinental network.

After the expansion of the airport is completed in 2012, QAIA will be able to handle the Airbus A380, thus allowing more flexibility for the airline's use of airplanes for their Amman/regional route. The airport expansion plan once completed should enable the Queen Alia International Airport to handle around nine million passengers a year, nearly three times as many as it did before the expansion plan.

2.2.3 Amman Marka Civil Airport

Amman Marka Civil is a one-terminal airport located in East Amman. It is a public/military airport that was established in 1950 and is owned by the Government. It was the home hub of Royal Jordanian until Queen Alia International Airport was inaugurated in 1983.Marka Airport mainly serves now as a regional airport servicing domestic and nearby international routes. It is home to airlines such as Royal Wings, Royal Falcon, Jordan Aviation, and Arab Wings.

2.2.4 King Hussein International Airport

King Hussein International Airport was declared an open airport in 2003.The airport has a single runway and one terminal. The capacity of the Terminal at present is 1.5 million passengers a year. There are currently around 3,000 aircraft movements a year. A significant proportion of these are training flights in addition to the regular and charter flights. The largest operator at Aqaba is Royal Jordanian through its subsidiary Royal Wings. The airport is located in Aqaba International Industrial Estate

2.3 Agreements

This section begins with a general outline of the history of agreements between airlines, giving some international examples. It then focuses on agreements in a regional context, mentioning the ACAC plan for gradual liberalization and the problems it encountered. Finally, Jordanian plans for air liberalization and an "Open Skies" declaration by 2011 are discussed, along with the steps taken in line with this strategy.

In 1978 world airlines started to liberalize air transport industry through setting up agreements. Agreements between airlines cover different degrees of cooperation spanning from only simple codesharing to a more complete joint venture including common marketing, services at airports and other service delivery points. Some agreements can also benefit from anti-trust immunity (Brueckner, 2001). Agreements are classified into complementary and parallel categories. The complementary agreement refers to the case where two firms link up their existing networks so as to feed traffic to each other. The parallel agreement refers to the collaboration between two firms who, prior to their alliance, are competitors on some routes (Oum et al., 2000). Such agreements are beneficial for firms as well as for consumer welfare. The deregulation of air services provision influences competition, efficiency in terms of revenue passengers, number of flights, capacity and airfares (mentioned in more details in Section III).

There are many different models around the world. The USA is pursuing, through various bilateral or multilateral agreements, a strategy of liberalization (as far as possible) of the air markets. The European Union (EU) is following a regional strategy by implementing open skies among its members. The countries of the Association of South-East Asian Nations

(ASEAN) have also agreed and are firmly proceeding with the formation of open skies within the region (Forsyth et al., 2006).

In the context of Arab regional integration, in Rabat 1999 the Arab Civil Aviation Council (ACAC) and Arab Air Carriers Organization (AACO) have agreed that bilateral OSAs should be started among Arab countries to facilitate the implementation of a multilateral agreement approach by the end of 2003. They have also decided to sign a plan to achieve this objective and to have a yearly evaluation to its application where it should be reviewed in order to reach a final open skies agreement.

In addition, ACAC prepared a regional arrangement for gradual liberalization into four stages, starting in November 2000 and ending by November 2006 with the liberalization of the fifth freedom which concerns the right of an airline in one country to carry traffic between two countries outside its own country of registry as long as the flight originates and terminates in its own country of registry.

Unfortunately, arrangement dates were not respected. Instead some countries unilaterally declared OSAs in some or all airports. Others have entered the scene with bilateral agreements between Arab with other non-Arab countries, such as the case of Jordan, Egypt and Morocco. The rest of the countries have not signed any agreements due to many explicit or implicit constraints; they are still applying the Air Bilateral Service Agreement (ABSA).

Since 1953, Jordan has been entering into bilateral air service agreements at a regional and global level. But it is only over the past 5 years that the Government of Jordan has embarked on expanding and liberalizing its air services by setting up bilateral agreements and alliances at the regional and global level aimed at strengthening its competitive position. In 2007, with the Civil Aviation Law No. 41, and the new Jordan Civil Aviation Regulations, the Government of Jordan started on the road to full liberalization without restrictions but with regard to protecting the interest of Jordanian air carriers. To achieve these goals, a National Air Transport Strategy for the year 2009 – 2011 was formulated and put into effect. The strategy goals are as follows (National Transport Strategy, 2009):

- Implementation of the liberalization policies in the Air Transport sector in Jordan in a manner that achieves the national economic interests.
- Completion of the regulatory framework of the sector.
- Enhancement of the civil aviation safety & security standards in Jordan.
- Strengthening the economic regulations of the air transport sector.
- Development of air navigation services infrastructure.
- Ensuring flexible and efficient use of Jordanian Airspace.
- Promoting Jordan as a regional training centre for aviation activities.
- Providing access to the civil aviation sector related information.
- Participation in Environment Protection.

The Government of Jordan as a result of the strategy expects the declaration of Jordan as an "OPEN SKY" by the end of 2011 without any restrictions.

In line with the strategy, Jordan's Civil Aviation Regulatory Commission (CARC) started implementing the liberalization on national levels by removing the restrictions imposed on licensing new carriers and by changing the legal regulatory framework to encourage PSP. Currently CARC has a list of 86 Air Service Agreements signed by the Hashemite Kingdom of Jordan with other Governments. These agreements include 27 agreements with European nations, 13 agreements with Middle Eastern nations, 6 agreements with North and South American nations amongst others. Of these agreements, Royal Jordanian and/or the designated carrier of the other State are currently utilizing 44.

Each of these Bilateral Air Service Agreements (ASA) have certain regulations, permissions and restrictions that govern the air service between Jordan and the other countries that include the designation, permitted weekly frequency, freedoms granted, restricted cities and codeshare permission. Of these permissions and restrictions, the freedoms granted and the permitted weekly frequency have the most effect on the airlines operating these flight routes. The definitions of the freedoms granted are shown in Box (1).

The full list of Bilateral Air Service Agreements between Jordan and other countries is shown Annex 1 of this report.

By joining Oneworld alliance in 2007, Royal Jordanian gained access to the alliance's 700 destinations helping it overcome the restrictions dictated by Jordan's signed bilateral ASAs.

Since 2009, CARC has continued to conduct bilateral air transport negotiation for the purpose of concluding new air services agreements and/or amending the current agreements, in line with the national strategy to liberalize the civil aviation sector. Twenty-five "Open Skies" Air Service Agreements have been signed since then. Furthermore Jordan signed the European Horizontal Agreement, with negotiations underway with the EC for the conclusion of a comprehensive agreement. Jordan is currently implementing Open Skies policy with 21 countries on reciprocal basis.

Also part of the liberalization process, CARC ended the Route Exclusivity Agreement with Royal Jordanian in February of 2010 allowing for more competitiveness in the market. Even with this action, the Jordanian Aviation market is still mainly represented by Royal Jordanian, which dominates more than 95 percent of the domestic market compared to domestic airlines and 52 percent in the international market compared to foreign airlines.

Since the change of policy and the move towards liberalization, Jordan has witnessed an increase in the number of passengers that travel between it and the countries that it has Open Sky agreements with. Annex 2 shows this increase for the period of 1995 – 2008.

Finally, Royal Jordanian successfully joined an Arab integration project called ARABESK. It is an unofficial voluntary cooperation agreement among 9 Arab airlines (EgyptAir, Saudi Airlines, Gulf Air, Yemen Airways, Royal Jordanian, Middle East, Tunisair, Syrian Air, and Ethihad Airways) under the auspices of the AACO. The project was launched in 2005 and activated in January 2006, having several commercial aspects and means of co-operation among its members, such as coordinating schedules, reducing duplication on routes and linking the destinations network of members, stretching from North America to East Asia. These are followed by commercial agreements such as codeshares, special prorate agreements (SPAs) targeting to reach full commercial co-operation among the members; hence, boosting market share.

3. Jordanian Airline Industry's Economic Performance

3.1 The Jordanian aviation market

This section investigates the Jordanian Aviation Market, with particular focus on Jordanian Airlines represented by Royal Jordanian only. The analysis deals with the performance of the sector in regards to profits, number of passengers and other determinants that account for the sector's performance. The discussion solely addresses Royal Jordanian since it is the dominant airline. For the period 2005-2009, Royal Jordanian profited annually from larger air traffic movement, except for the last fiscal year 2009 where the movement went down slightly by 1%. The number of passengers grew with an average annual growth of 10% percent for the period, going from 1.82 million in 2005 to 2.66 million in 2009 (explained on page 11). From 2005 to 2006, there was a growth of 10 percent, then; the number of passengers grew by 18 percent in 2007, and 14 percent in 2008 (2.7 million passengers). In 2009, due to the global financial crisis, the number of passengers decreased by 1%.

Furthermore, the number of departed flights for the same period of 2005 – 2009 trended upwards with an average annual growth rate of 15%. It is important to note that in 2009, during the global financial crisis, Royal Jordanian's departure flights did not decrease but went up by 4% (Figure 1-2). This is because in that year, RJ introduced two new routes to its network (Brussels and Benghazi) and increased the frequency of its flights to some destinations such as Beirut, Cairo, Dubai, Abu Dhabi, and Jedda, due to anticipated increase in traffic and to put itself on the map as the carrier of choice in the Middle East. These efforts proved to be fruitful since the number of passengers has increased by 13% from 2009 to 2010 (Royal Jordanian 2010).

It is evident that the international air movement is the major contributor to the air movement trend in Jordan due to the fact that there is only one domestic route between Amman and Aqaba, operating 1 – 2 flights daily, making domestic air movement insignificant.

All three airports are primarily for air traffic movement in Jordan. The main airport conducting and servicing flights and passengers are, in order, as follows: Queen Alia International Airport, Marka Civil Airport, and King Hussein International Airport. Queen Alia International Airport has the most critical role as it controls 81% of air traffic movement. For the period 2005-2009, on average, it serves more than 93 percent of the passengers coming to and leaving from Jordan, and 78 percent of the flights arriving and departing Jordan.

Regarding efficiency, the Jordanian Aviation market (Royal Jordanian only) increased its capacity utilization, captured by the passenger load factor PLF[4], gradually and slowly. It rose from 69 percent in 2005 to 72 percent in 2008; but it went down to 68% in 2009 due to the effects of the global financial crisis as well as Royal Jordanian not scaling back its number of flights during 2009 even though the number of passengers had decreased.

In conclusion, RJ saw a growing trend in the number of passengers throughout the period under study except for 2009, where the number of passengers decreased by 1%. An important point to be raised here is that even though the number of passengers decreased in 2009, the number of flights departed was increased by RJ as part of its overall strategy in solidly positioning itself as the carrier of choice for the MENA region by introducing new routes and increasing the frequency of existing regional routes. It determined on doing this in 2009 because of the need to expand before it lost its exclusivity agreement. Moreover, in all years under study, RJ made a profit except for the year 2008 where oil reached a record price, which translated into a very high fuel expense. However, it should be noted that the effects of hedging conducted by RJ are not taken into account in the analysis.

3.2 The Jordanian Airlines Industry – Royal Jordanian

The focus in this section is on the economic performance of the Jordanian airline industry. Since Royal Jordanian is the incumbent carrier in the Jordanian airline market, dominating the scheduled domestic and international air traffic movement, our analysis will only focus on it. Royal Jordanian's number of passengers witnessed an upward trend since 2004/05 till 2008/09 with the minimal decrease in 2008/09.It also had a positive growth rate of passengers, between 2004 and 2008, and a negative growth rate between 2008 and 2009 (Figure 3). The rate of growth decreased significantly from 14 percent in 2008 to 1 percent in 2009.

In this context, we should refer to the impact of the global financial crisis on the air transport industry in general, being one of the most important service industries in the world. Demand on travel declined as well as revenues of the airlines, according to the initial estimates of the

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[4]This measures how much of an airline's passenger carrying capacity is used; it is calculated as the total passengers kilometer to total available seats kilometer

International Air Transport Association (IATA), decreased by about USD80 billion. Net losses were estimated at around USD11 billion. In regards to Royal Jordanian, the decline in passenger and cargo volumes led to a decline in the company's revenues of 14.5% as a result of 13% drop in average passenger yield caused partially by the reduction in fuel surcharge which followed the drop in fuel prices worldwide. In addition, ticket prices decreased because of the high competition among airlines regionally and internationally, and the emergence of low cost carriers in the Middle East and the Gulf Area. On the other hand the Royal Jordanian's operational expenses went down by 19.1% as a result of the drop in the operational costs attributed mainly to a 47% drop in its fuel bill. Accordingly, the company achieved a net profit of about JD28.6million in 2009 against a net loss of JD24.6million in 2008 (due to very high fuel costs), at a time when most world airlines had significant losses (Figure 2).

Another important question to be answered is: to what destinations are the Royal Jordanian passengers traveling? This question is important, as the answer will indicate the geographical distribution of passenger revenues and profitable destinations for the airline. Looking at Royal Jordanian's case, the geographical distribution of regular revenues shows that Europe constituted 28% of the revenues, the highest among the regions, followed by America with 21%. Arabian Gulf, Levant and Africa formed 19%, 18% and 4% respectively. Having said this, the drop in revenue from the European and American sectors was the highest between 2008 and 2009. European and American revenues went down by 21% each. This drop in revenue was due to the global financial crisis, which affected these two continents more than anywhere else. The passenger traffic in the Levant region grew by 4% over the previous year despite the global financial crisis.

All of the above shows that Royal Jordanian is performing well in the market and has shown sustainable growth for the period 2005 – 2009, notwithstanding the effects of the global financial crisis. First, its number of passengers witnesses an upward trend, with the minimal decrease in 2009. Second, it was able to achieve a significant net profit in 2009 when most of the world's airlines were experiencing losses. Third, during time of economic stability, on average, the highest passengers' growth rate was in the Europe, America and the Far and Middle East respectively. But in time of erratic negative events, the best performing destinations were in the Middle East. This suggests more efforts should be devoted to expanding its network regionally in the Middle East by enforcing bilateral/multilateral agreements.

4. The Economic Framework

This section first introduces the framework and model to be used for the economic analysis and then continues to discuss the measure of openness that is incorporated in the model. Furthermore, an econometric analysis is conducted to inform the discussion and come up with findings based on evidence. Finally, a simulation analysis is conducted to predict the impact of further liberalization.

Market structure conduct and performance (SCP) framework was derived from the neoclassical analysis of markets. The SCP paradigm was the brainchild of the Harvard school of thought and popularized during 1940-1960 with its empirical work involving the identification of correlations between industry structure and performance.

The structure, conduct and performance hypothesis states that the degree of market concentration is inversely related to the degree of competition. This is because market concentration encourages firms to collude. More specifically, the standard SCP paradigm asserts that there is a direct relationship between the degree of market concentration and the degree of competition among firms.

Accordingly, the analysis in this paper will be based on SCP framework, which implies that the structure of an industry determines firms' conduct, and hence determines firms' performance.

The framework was first introduced by Bain (1951) and has been much debated subsequently. Bain's (1951) seminal paper was based on the analysis of the performance of US firms in 42 industries in the latter half of the 1930's. He found that the rates of return of firms in the relatively more concentrated industries significantly exceeded those of in the relatively dispersed industries. He interpreted this result as evidence for the SCP paradigm. Demsetz (1973) suggested an alternative explanation for the abnormal performance identified by Bain (1951). His argument was that the abnormal profits observed reflected the higher level of efficiency of firms, not the presence of collusive behaviour and pricing.

Another questioning of the SCP framework concerned the nature of the causal links between the 3 components. The original SCP framework states that the structure of an industry determines firms' conduct, which, in turn, determines performance. However, the literature suggests that the direction of causality might run in other directions than the simple S-C-P. Subsequent development in industrial organization shows that the performance may allow the firm to affect market structure through mergers, acquisitions and other forms of concentration. This is well illustrated by the US airline market.

4.1 The Model

To illustrate the conceptual framework of the study, we consider the following simple model. There are 3 distinct countries (cities) indexed by the set of capital letters (A, B, C). Each country is linked by a single hub-city, denoted by the same letter at its country. Individuals living in each country wish to travel to other cities, and all travels are supposed to be round-trips.

The historical framework for airline traffic (before liberalization) has been a duopoly by route. In such framework, each incumbent carrier (i.e. Airline AA for county A) uses A as its hub to operate the whole network. The consumer from A can choose AA or AB for a travel (A-B). Due to the duopoly situation, the consumer is indifferent between the two except if there is a real difference in the quality of services.

However, even in the historical framework the consumer from A had potentially a third choice (A-C, C-B) and it happened that (A-C, C-B) is preferred to (A-B). Denoting airline AA fares for (A-B) as FA-AB and abstracting from the quality of services, this means that FAAB > FCAC + FCCB. However, such a third choice was relatively rare.

With the possibility of signing airlines agreements (e.g. alliances, OSA etc.) the third choice became much more likely. This is because the agreement could affect, in particular, FA-AB, FC-AC and FC-CB. Actually, one can even imagine a new fare denoted FC-AB, going from A to be B using carrier AC, which is lower than FC-AC + FC-CB.

To accurately take account of such complex interactions, the analysis cannot be limited to the carriers and the country levels but should take account of the route level too.

Moreover, the demand for air travel depends upon fares but also on frequencies and other service attributes such as the level and quality of air and airports services delivered.

Airline agreements might also have an effect on these factors. Hence, even without a change in fares, agreements may change consumers' preference for a given carrier. The final outcome depends on the type of agreement, consumers' utility and the strategic interactions between the various actors (carriers, airports and governments).

From the above discussion, it follows that passengers coming to Jordan will have different choices. Some will take direct flights, others will take indirect flights and for the same

itinerary some will travel with RJ while others will prefer another carrier (regular or low cost). To model such diversity in consumers' choice, it is now practice in economics to use the Dixit-Stiglitz model. The model considers a representative consumer faced with a variety of products and who chooses the basket (composed of each variety), which maximizes his/her utility. The representative consumer's decision is, actually, reflecting the choice of the whole set of passengers to Jordan.

The representative consumer has a Constant Elasticity of Substitution (CES) utility function of the type:

$$V_n(q_1, \ldots, q_n) = \left(\sum_{k=1}^{n} q_k^{\emptyset} \right)^{\frac{1}{\emptyset}} , 0 < \emptyset < 1$$

(1)

Where q_k is the quantity of variety k, n the number of available varieties and Ø reflects the elasticity of substitution between the different varieties.

The consumer chooses q_k so as to maximize its utility under the budget constraint:

$$\sum_{k=1}^{n} p_k q_k = B$$

(2)

Where p_k is the price of variety k and B the consumer's budget.

The maximization gives the following demand function for a variety k

$$q_k = \left(\frac{p_k}{P} \right)^{-\sigma} \frac{B}{P}$$

(3)

Where

$$\sigma = \frac{1}{1 - \emptyset}$$

$$P = \left(\sum_{k=1}^{n} p_k^{1-\sigma} \right)^{\frac{1}{1-\sigma}}$$

Let's assume that each variety is provided by a different producer having a constant marginal (average) cost c_k and that n is high enough that no individual producer can affect P. Producer k will set the price p_k so as to maximize its profit:

$$\max(p_k q_k - q_k c_k)$$

(4)

This yields to the equilibrium price and quantity

$$p_k = c_k \frac{\sigma}{\sigma - 1}$$

(5)

$$q_k = \frac{\sigma}{\sigma - 1} \left(\frac{c_k}{C} \right)^{-\sigma} \frac{B}{C}$$

(6)

Where

$$C = \left(\sum_{k=1}^{n} c_k^{1-\sigma} \right)^{\frac{1}{1-\sigma}}$$

Coming back to the airline market, let's take Equations (3) and (6) in log and use Ø, which have an easy interpretation:

$$Log(q_k) = -\left(\frac{1}{1-\emptyset} \right) \log(p_k) + \left(\frac{\emptyset}{1-\emptyset} \right) \log(F) + \log(B)$$

(7)

$$Log(p_k) = \log(c_k) + \log(\frac{1}{\emptyset})$$

(8)

4.2 Measure of openness

In estimating the impact of agreements in the air transport services sector on its performance, the main channel through which a given agreement affects the variables of interest is through its impact on competition. Hence, one needs a quantitative indicator summarizing the main provisions of the agreements with respect to competition.

Given the multiplicity of dimensions and provisions of airline agreements as well as the qualitative nature of many of them, it will be very difficult to incorporate them directly into estimation. It is, therefore, necessary to construct an index that transforms the qualitative nature of the agreements' provisions into quantitative indicators. Moreover, constructing such indicators will be very useful for cross-countries comparison.

In constructing the Openness Index (OI), barriers can be classified according to various criteria such as by mode or de facto versus de jure.

Focusing on the classification by mode, it is useful to disaggregate the sectoral trade restrictiveness/openness indexes by mode (Dihel& Shepherd, 2007). There are four modes categorizing the services' barriers, namely: Cross-border supply, Consumption abroad, Commercial presence, and Movement of natural persons (Table 16).

Cross-border supply refers to the supply of a service from the country of the supplier into the country of the consumer. Consumption abroad involves the purchase of services by the consumer while abroad in the country of the supplier. Commercial presence entails the supplier providing services through foreign-based establishment in the country of the consumer. Movement of natural persons relates to the supply of services by an individual from the country of the supplier in the country of the consumer. This classification offers a clearer picture of the nature of services restrictions and permits the isolation of barriers with the highest potential impact on services trade (Marouni and Munro, 2009).

Regarding the air index, we will just deal with two modes that are relevant to the airline industry's barriers, namely: Cross-border supply and Commercial presence.

Cross border supply (Mode 1) queries whether Jordan has air transport agreements; the extent of its air freedom; restrictions to charter flights, low cost flights and cabotage; if it is a member of airline alliances; and how flights and gate slots are allocated in airports. Commercial presence (Mode 3) investigates the following issues: foreign ownership in the provision of international and domestic scheduled services; the public ownership in the carriers; foreign provision of cabotage; and foreign ownership and management of airports; restrictions on the provision of repair and maintenance services through commercial presence.

However, in this paper we will use the existence of an Open Skies Bilateral Agreement (OSBA) on a given route for a given year as a proxy for the openness in airlines industry. For

the open skies bilateral agreements, routes with no agreements take a dummy of 0, for a non-enforced agreement take 1, while the enforced agreement take 2.

5. The Results

5.1 Openness index results

The OI's coefficient is statistically not significant in both passengers and fares equations. Given that Openness was measured by one variable only (Open Skies- Bilateral Agreements), the insignificancy of OI may be interpreted by the fact that Royal Jordanian has full dominance of the market in Jordan and has the largest market share. It was established in 1963 and it has a fleet of 32 aircrafts of various sizes and covers a network of 58 destinations on four continents. All these characteristics make Royal Jordanian the first airline company in Jordan. Accordingly, the impact of Open Skies- Bilateral Agreements in the air transport sector on competition, and thus on the performance, will be minimal.

5.2 Econometric results

5.2.1 The empirical implementation of the model

As discussed above, the relevant unit of analysis in the airline market is the route level. However, deepening the analysis can only be done, especially when it comes to quantitative assessments, at the expense of exhaustiveness. Our analysis will be limited to Royal Jordanian passengers. The empirically testable equations are drawn from the model that was discussed in economic framework section. The analysis there has shown that the number of passengers for Royal Jordanian depends on the elasticity of substitution between its product and other carriers', on consumer's income, on the number of other carriers and on fares. Fares set by Royal Jordanian depend, in turn, on costs and on the elasticity of substitution between its product and other carriers'. Openness of the Jordanian airline market (measured by OSBA) having potentially an effect on these determinants, the analysis of the impact of openness on Royal Jordanian passengers and fares should add to these determinants, or interact them with, the Openness Index.

The resulting equations are estimated over the period 2001-2008. The following adjustments to equations (1) and (2) have been made. First, to take account of the potential impact of the 2008 global financial crisis, a dummy variable (CRISIS) is introduced.

Second, to keep the theoretical model tractable, we did not introduce the plane capacity utilization or load factor. However, there is a consensus in the empirical literature that this variable is an important determinant of fares. The latter is decreasing in this variable. Unfortunately, there are many missing values of load factors at the route level in the series we obtained.

Third, we allow for some rigidity in fares and passengers by introducing the lag of each. Finally, preliminary estimations favour the introduction of OI as an explanatory variable rather than in interaction with the other variables.

These lead to the following version of the two simultaneous equations below which are estimated using the Generalized Method of Moments:

$$\log(Pas)_{it} = \alpha_0 + \alpha_1 \log(GDPpc)_{it} + \alpha_2 \log(Pop)_{it} + \alpha_3 \log(Fare)_{it} + \alpha_4 (OI)_{it} +$$
$$\alpha_5 (Crisis)_t + \alpha_6 \log(Pas)_{it-1} + \varepsilon_{it}$$

$$\log(Fare)_{it} = \beta_0 + \beta_1 \log(Raw)_{it} + \beta_2 (OI)_{it} + \beta_3 \log(Pas)_{it} + \beta_4 (Crisis)_t$$
$$\beta_5 \log(Fare)_{it-1} + \eta_{it}$$

where

Pas: Number of passengers

Fare: Air Fares

Pop: Total population in the spaces linked by the route

GDPpc: Total GDP per capita in the spaces linked by the route

OI: Openness Index

Raw: Costs of Raw materials computed as explained below

Crisis: Dummy for the financial crisis. It takes 1 in 2007 and 0 otherwise

i , t: Route and year respectively.

ε,μ: Error terms

From the above discussion and Section V, the expected signs of the coefficients of interest are:

$$\alpha_1 > 0, \alpha_2 > 0, \alpha_3 < 0, \alpha_4 < 0$$

and

$$\beta_1 > 0, \beta_2 < 0, \beta_3 < 0$$

5.3 The data

International Civil Aviation Organization (ICAO) provides the number of passengers for the period 1999-2009. Data on airfares per route come from International Airline Industry Association (IATA). They represent the average fare per seat without any information on classes; discount or other loyalty rebates. It is important to keep in mind that defined this way; the fare already includes the distance. Since they are available annually (2001-2008), the effect of seasons is not an issue. Finally, the total number of Air Jordanian routes that are included in the analysis totalled15.

5.4 Estimation results

We estimate 6 sets of results: 3 for the passengers' equation and 3 for fares. Each 3 sets give: first, the OLS results using the reduced form (only exogenous variables as explanatory) of each equation; second, the 2SLS results of the system; and third, the GMM results of the system. In both the 2SLS and the GMM, exogenous variables and lagged dependent variables are used as instruments.

According to table (17), the overall quality of the fit is relatively good (the adjusted R2 is between 0.33 and 0.34). The coefficients of GDP per capita, population, the lagged value of passengers, and fare are significant (at 10 percent or higher) and exhibit the expected sign. The coefficients of lagged dependent variable are highly significant, supporting the introduction of these variables among the explanatory. The system estimations (2SLS and GMM) exhibit similar patterns for the coefficients.

Focusing on the GMM results, the variables of interest are significant with the expected sign. The 2008 global financial crisis did not affect the number of travelling passengers by Royal Jordanian airline, keeping other factors constant. In addition, the coefficient of fare signifies that when fares rise by 1 percent, the number of passengers decline by about 0.6 percent, keeping other factors constant. This result is quite predictable by the law of demand. The rise in airfares makes flights more expensive for people, reducing their purchase of flights tickets and hence decreasing the number of passengers. The OI's coefficient is statistically not significant, indicating that the liberalization of the aviation market doesn't affect the number of passengers in Jordan.

Table (18) reveals the estimation results of fares equation. According to this table, we can note that the overall quality of the fit is very good (the adjusted R2 is around 0.96). The coefficients of crisis and the lagged value of fares are statistically significant with the expected sign. The global financial crisis coefficient is statistically significant at the 1 percent level with a positive sign, indicating that the crisis led airfares in Jordan to rise. The coefficient of the lagged value of fares is significant and positive indicating that airfares in Jordan follow an upwardly trend overtime. The OI coefficient is not significant meaning that the liberalization does not affect airfares in Jordan.

5.5 The impact of further liberalization

The previous section examines the relationship between the structure of the airline market and the number of passengers and fares to and from Jordan, taking the structure as given. In the present section, we will examine the impact of further liberalization (changing the structure) on these variables as well as on the welfare in Jordan. Welfare is composed of consumers' and firms' surpluses. The impact on consumers' surplus is, in general, captured by combining the impacts of output and prices, while firms' surplus is measured by profits. Hence our intermediate variables of interest are output, prices and profits.

For examining the impact of less restricted aviation environment on the producer, consumer and societal welfare, we use the reduced form of the structural system together with the estimated parameters ($\hat{\alpha}_k$ and $\hat{\beta}_k$) and the exogenous variables. The reduced form equations are the following:

$$\overline{Pas}_{ij} = e^{\left(\frac{1}{1-\hat{\alpha}_3\hat{\beta}_3}\right)\left(Z^1_{ij} + \hat{\alpha}_3 Z^2_{ij}\right)} \qquad (8a)$$

$$\overline{Fare}_{ij} = e^{\left(\frac{1}{1-\hat{\alpha}_3\hat{\beta}_3}\right)\left(Z^2_{ij} + \hat{\beta}_3 Z^1_{ij}\right)} \qquad (8b)$$

where

$$Z^1_{it} = \hat{\alpha}_0 + \hat{\alpha}_1 \log(GDPpc)_{it} + \hat{\alpha}_2 \log(Pop)_{it} + \hat{\alpha}_4 OI_{it} + \hat{\alpha}_5 Crisis_t + \hat{\alpha}_6 \log(Pas)_{it-1}$$

$$Z^2_{it} = \hat{\beta}_0 + \hat{\beta}_1 \log(Raw)_{it} + \hat{\beta}_2 OI_{it} + \hat{\beta}_4 Crisis_t + \hat{\beta}_5 \log(Fare)_{it-1}$$

Table 19 shows the results of the scenario where OI7 =1.38 on all routes. As a consequence of increased competition, the number of passengers decreases, as does the average airfare.

We can observe from Table 20 that the total revenue of producers will decrease, while the consumer surplus will increase. The net effect of producer and consumer surplus changes on societal welfare is positive; the consumer surplus increase outweighs the producers' surplus decrease.

6. Conclusion

The past two decades have witnessed vivid changes in the air transport services sector. These changes started in developed countries, where liberalization of the sector was initiated, in turn having a drastic effect on the global air transport services sector. This study examined the Jordanian airline market performance and the link with liberalization.

As shown in the results section, the Openness Index results are statically insignificant in both passenger and fares equations, given that the Openness was measured by one variable only (the Air Bilateral Service Agreement). This insignificance is also interpreted by the fact Royal Jordanian has full dominance of the market, having the largest market share.

Therefore with regards to the Jordanian air transport sector, the impact of Air Bilateral Service Agreements on competition and the performance of the sector are minimal.

After reviewing the empirical results, in section V. B, it can be concluded with the dominance of one airline, Royal Jordanian, and based on an insignificant OI result, liberalization currently does not affect airfares in Jordan.

From an economic point of view, the relevant criterion for judging on the desirability of openness is the impact on welfare. Welfare is composed of consumers' and firms' surpluses. The impact on consumers' surplus is, in general, captured by combining the impacts on output and prices while firms' surplus is measured by profits. Based on the simulation results in section V, it can be concluded that increased competition decreases the total revenue for the producers (as the average airfare has gone down) and increases the consumer surplus. The net effect of these changes on societal welfare is positive; the consumer surplus increase outweighs the producers' surplus decrease.

It is important to note that the negative result of producers does not take into account that Jordanian carriers under competition pressure might improve their services and reduce their costs and end up gaining, instead of losing, market shares, thus turning producers' revenue to positive in the long run, further benefiting societal welfare.

In conclusion, for liberalization to have a major effect on societal welfare and not to disincentive producers, the Jordanian aviation authority should adopt liberalization measures that foster effective entry of domestic carriers and foster competition among these carriers.

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Box 1: Freedoms Definitions

Third freedom	The right of an airline of one country to carry traffic (passenger, cargo, mail) from its country to another country.
Fourth freedom	The right of an airline of one country to carry traffic (passenger, cargo, mail) from its country to another country.
Fifth freedom	The right of an airline of one country to carry traffic between two other countries providing the flight originates and terminates in its own country.
Sixth freedom	The right of an airline of one country to carry traffic between two other countries via its own country.
Seventh freedom	The right of an airline of one country to carry traffic between two other countries without the flight originating or terminating in its own country.

Figure 1: Royal Jordanian's Ownership Evolution, from 1999 until 2008

| 1999 Established RJ Investment Company by transferring RJ's assets and debt; Failed attempt to privatize RJ to a strategic investor in 2000 | RJ corporatized as a public shareholding company in 2001 | **Duty Free**-- 100% sale to Aldeasa in 2000; **Catering**--80% sale to Alpha in 2001; **Maintenance**—80% sale to Abraj Capital (UAE) in 2005; **Training and Simulation**—80% sale to Alsharquyah Group in 2006; **Engine Overhaul**—100% sale in 2002 | 100% GOJ | Civil Aviation Regulatory Commission (CARC) established in 2007 26% GOJ; 3% Armed Forces; 7.8% employees; 63.3% of GOJ's shares intended for ASE | 26% GOJ 3% Armed Forces Investment Fund; 10.3% Social Security Corporation; 5.8% employees; 19% Mint Group; 12.7General Investments; 23.4% free float |

Source: Impact of Restructuring and Privatizing State-Owned Infrastructure and Non-Infrastructure Enterprises in Jordan. 2009

Figure 2: Royal Jordanian Profit (Loss) 2005 - 2009
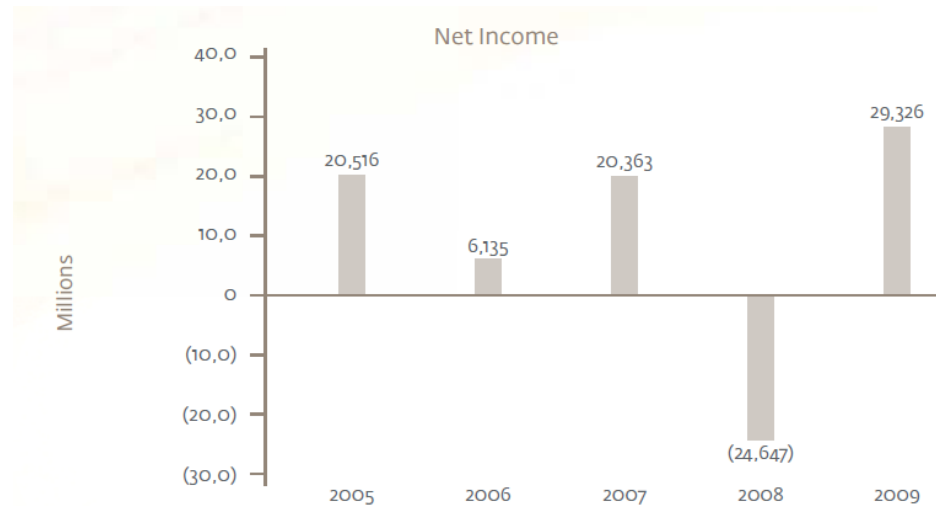
Source: Royal Jordanian 2010

Figure 3: Passengers Growth Rate-by Region
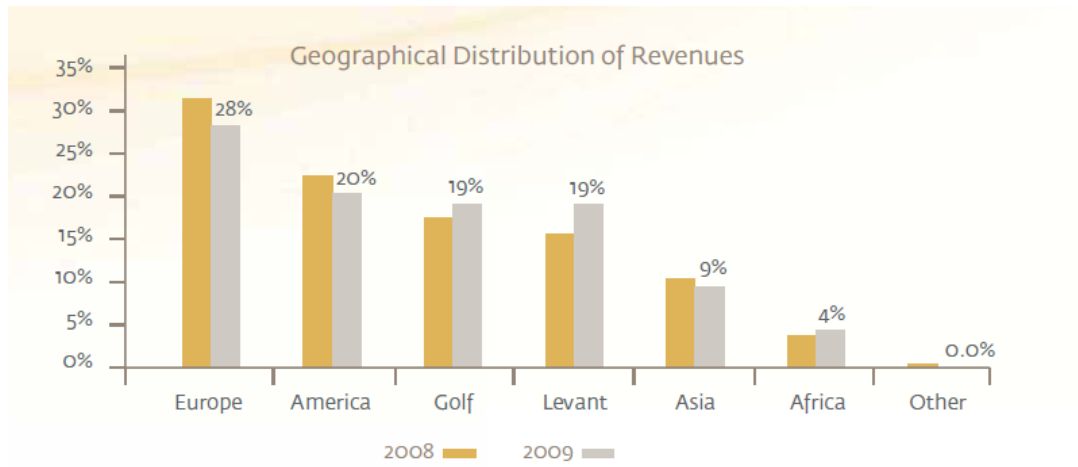
Source: Royal Jordanian

Table 1: Current Jordanian Airlines[5]

No.	Jordanian Air Operating Certificates	Description
1.	Royal Jordanian Airline	Scheduled and Non-Scheduled Domestic and International passenger flights
2.	Royal Wings	Scheduled and Non-Scheduled Domestic passenger flights
3.	Jordan Aviation	Non-Scheduled International passenger flights
4.	Jordan International Air Cargo	Freight
5.	Transworld Airfreighters Co.	Freight
6.	Royal Falcon Air Services	Scheduled and Non-Scheduled International passenger flights
7.	Arab Wings	Non-Scheduled International passenger flights
8.	Raya Jet	Non-Scheduled International passenger flights
9.	Waves Jet	Non-Scheduled International passenger flights

Source: CARC, Jordan, 2011

Table 2: Royal Jordanian Destinations

Middle East & Arabian Gulf		Africa	Europe		Far East & Indian Peninsula	North America
Beirut	Abu Dhabi	Khartoum	Amsterdam	Madrid	Bangkok	New York
Cairo	Aden	Tunis.	Athens	Milan	Colombo	Chicago
Damascus	Al Ain	Tripoli	Barcelona	Moscow	Delhi	Detroit*
Aleppo	Bahrain		Budapest	Munich	Hong Kong	Montreal
Alexandria	Dammam		Frankfurt	Paris	Mumbai	
Aqaba	Dubai		Geneva	Rome		
Suleimaniya	Jeddah		Istanbul	Vienna		
Baghdad	Kuwait		Kiev	Zurich		
Basra	Muscat		Larnaca			
Erbil	Riyadh		London			
Sharm El-Sheikh	Sanaa					
Tel Aviv						

Notes: * Codeshare with affiliate airline (Direct / Non- Direct Flights)

Table 3: Royal Jordanian Major Shareholders

No	Shareholder	No. of Shares as of 31.12.2009	%	No. of Shares as of 31.12.2008	%
1	Government of Jordan	24,468,271	29.00	24,468,271	29.00
2	Mint Trading Middle East Ltd.	16,030,937	19.00	16,030,937	19.00
3	Social Security Corporation	8,437,335	10.00	8,690,568	10.30
4	Gulf General Investments	-	-	-	12.7
5	RJ Staff Provident Fund	2,931,045	3.46	4,849,092	5.8

Source: Royal Jordanian Annual Report 2009

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[5] Three new airlines were established recently (2011), namely Prestige Jet, Solitaire Air, and Petra Airline. However, there is no information on them yet.

Table 4: Royal Jordanian's Fleet

Manufacturer	Type	In Service	On Order	Total
Airbus	A310	4		
	A319	4		
	A320	5		
	A321	4	18	
	A330	3		
	A340	4		
Embracer	175	3		
	195	5		
Total		32	18	50

Source: Centre for Asia Pacific Aviation &Ascend (August 2011)

Table 5: Royal Jordanian Traffic & Statistics[6]

	2009	2008	2007	2006	2005
Period start	1 Jan 2009	1 Jan 2008	1 Jan 2007	1 Jan 2006	1 Jan 2005
Period end	31 Dec 2009	31 Dec 2008	31 Dec 2007	31 Dec 2006	31 Dec 2005
Passenger millions	2.670	2.700	2.370	2.000	1.810
Passenger load factor	68.17 %	72.04 %	70.65 %	66.39 %	69.4 %
Revenue passenger km (mill)	6,772.63	7,380.10	6,553.80	5,573.80	5,503.89
Available seat km (mill)	9,933.78	10,244.00	9,276.20	8,394.76	7,930.67
Freight tonne km (mill)	141.45	194.70	176.00	204.10	228.48
Revenue tonne km (mill)	753.84	861.50	768.00	712.69	730.92
Total employees	4,399.00	4,507.00	4,257.00	3,799.00	3,297.00

Table 6: Royal Falcon Airlines Destinations

Regional	International
Sharjah, UAE	Baku, Azerbaijan
Mousul, Iraq	Stockholm, Sweden
Najaf, Iraq	
Abu Dhabi, UAE	
Jeddah, KSA	

Table 7: Jordan Aviation Fleet

Manufacturer	Type	In Service	On Order	In Storage	Wet Lease	Total
Airbus	A310 – 200	1				1
	A310 – 300	1				1
	A320 – 200				1	1
Boeing	727 – 200				1	1
	737 – 300	6			1	7
	767 – 200 ER	2		1		3
Total		10		1	3	14

Source: CH-Aviation, 2010

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[6] Operating costs are not available.

Table 8: Jordanian Airports

Airport	Location	Type	IATA Code
Queen Alia International Airport	Amman	Public	AMM
Amman / Marka Civil Airport	Amman	Public / Military	ADJ
King Hussein International Airport	Aqaba	Public	AQJ

Source: CARC 2011

Table 9: Air Transport Movement at Jordanian Airports

YEAR	NO. OF AIRCRAFT				NO. OF PASSENGERS				FREIGHT / TON.				MAIL/ TON.			
	ARR.	DEP.	TOTAL	%	ARR.	DEP.	TOTAL	%	Inbound	Outbound	TOTAL	%	Inbound	Outbound	TOTAL	%
2005	24449	24439	48888		1719074	1748447	3467521		50023	54585	104608		839	518	1357	
2006	27134	27132	54266	11.0%	1877625	1906107	3783732	9.1%	46538	51196	97734	-6.6%	870	610	1480	9.1%
2007	29227	29189	58416	7.6%	2055002	2083260	4138262	9.4%	47517	46398	93915	-3.9%	855	511	1366	-7.7%
2008	31993	32130	64121	9.8%	2381522	2430121	4821643	16.5%	47602	41856	89458	-4.7%	1130	511	1641	20.1%
2009	35654	35587	71241	11.1%	2553316	2579748	5133064	6.5%	46733	35573	82306	-8.0%	855	613	1468	-10.5%

NO. OF AIRCRAFT at All Jordaian Airports
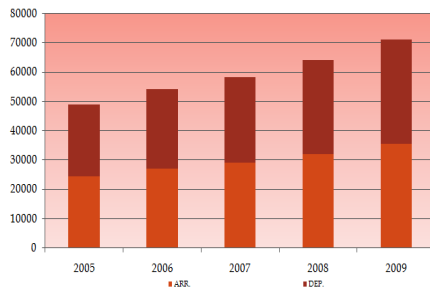
NO. OF PASSENGERS at All Jordaian Airports
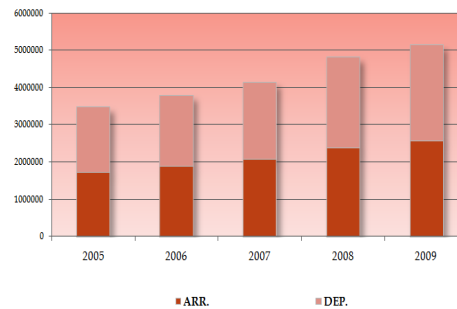
Source:

CARC Jordan

Table 10: Airline companies operating in Marka Airport

Airline	Destination
Arab Wings	AirTaxi
Malta Air Charter	Aqaba, MarsaAlam, Milan-Malpensa
Royal Falcon	Baku, Sharjah, Stockholm-Arlanda, Arbil, Najaf and Abu Dhabi
Jordan International Air Cargo	Destinations in the Middle East, Asia, Africa, and Europe

Source: CARC Jordan 2011

Table 11: Airline companies operating in King Hussein International Airport

Airline	Destination
Arkefly	Amsterdam
Arkia	Haifa, Tel Aviv
AviaconZitotrans	Yekaterinburg
Jetairfly	Brussels [seasonal]
Jordan Aviation	Alexandria, Amman, Bahrain, Doha, Dubai
Neos	Milan
Petroleum Air Services	Cairo, Hurghada, Sharm el-Sheikh
Royal Jordanian	Amman, Paris-Charles de Gaulle
Royal Wings Airlines	Amman, Tel Aviv
Thomas Cooks Airlines	Brussels, Sharm el-Sheikh [seasonal]
Scandinavian Airlines	Stockholm-Arlanda [seasonal], Copenhagen [seasonal]

Source: CARC Jordan 2011

Table 12: Royal Jordanian No. of Passengers Growth Rate

Year	No. of Passengers	% of increase
2005	1821329	
2006	2004599	10%
2007	2366459	18%
2008	2701000	14%
2009	2668590	-1%
2010	3022013	13%

Source: Royal Jordanian 2010

Table 13: Trade Barriers by mode

Mode 1: Cross-border supply	Refers to the supply of a service from the country of the supplier into the country of the consumer.
Mode 2: Consumption abroad	Involves the purchase of services by the consumer while abroad in the country of the supplier.
Mode 3: Commercial presence	Entails the supplier providing services through foreign-based establishment in the country of the consumer
Mode 4: Movement of natural persons	Relates to the supply of services by an individual from the country of the supplier in the country of the consumer

Source: Marouni and Munro (2009).

Table 14: Estimation Results of the Passengers System

Variable	OLS	TSLS	GMM
C	1.164246	1.162291	1.162291
	(1.698259)*	(1.722306)*	(1.793464)*
Log (GDP Per Capita)	0.358857	0.594416	0.594416
	(1.959919)*	(2.827620)***	(2.944444)***
Log (Population)	0.558742	0.838486	0.838486
	(2.278417)**	(3.133006)***	(3.262447)***
OI	0.262161	0.257805	0.257805
	(1.417865)	(1.405341)	(1.463402)
CRISIS	0.024183	0.113246	0.113246
	(0.172148)	(0.764700)	(0.796294)
Log PASS (-1)	0.231173	0.220886	0.220886
	(1.702388)*	(1.711723)*	(1.730378)*
Log (FARE)		-0.571426	-0.571426
		(-2.019803)**	(-2.103251)**
Included Observations	90	90	90
R-squared	0.366730	0.385841	0.385841
Adjusted R-squared	0.329035	0.341444	0.341444
F-statistic	9.728972	8.690710	
Prob. (F-statistic)	0.000000	0.000000	

Notes: Values in parentheses denote t- statistic. White Heteroskedasticity-Consistent Standard Errors & Covariance. ***, **, and * denote that the coefficient is significant at 1%, 5%, and 10% respectively.

Table 15: Estimation Results of the Fares System

Variable	OLS	TSLS	GMM
C	-0.027031	-0.027122	-0.027078
	(-0.420549)	(-0.420663)	(-0.420596)
OI	0.005315	0.005347	0.005332
	(0.335847)	(0.335756)	(0.335788)
Log (PASS)	0.002509	0.002612	0.002523
	(0.243508)	(0.243490)	(0.243318)
CRISIS	0.084611	0.084841	0.084553
	(3.011896)***	(3.011911)***	(3.011868)***
Log FARE (-1)	1.004418	1.004561	1.004316
	(38.23389)***	(38.23425)***	(38.23397)***
Included Observations	91	91	91
R-squared	0.956867	0.956871	0.956869
Adjusted R-squared	0.954861	0.954862	0.954877
F-statistic	476.3625	475.8642	
Prob. (F-statistic)	0.000000	0.000000	

Notes: Values in parentheses denote t- statistic. White Heteroskedasticity-Consistent Standard Errors & Covariance. ***, **, and * denote that the coefficient is significant at 1%, 5%, and 10% respectively.

Table 16: Simulation Results of the Impact of Setting OI7 =1.38 on all Routes

	Impact on all passengers
a. Actual number of passengers	204165
b. *Simulated number of passengers*	160043.4399
c. Difference: (b-a)	-44122
d. Actual average fare US$	264
e. *Simulated average fare US$*	257.3457936
f. *Difference: (e-d) US$*	-7
g. *Difference in total revenue:* (b – a) * d + b * f US$	-12701825.81
h. *Change in consumer surplus*: - f * a US$	1347208.297

Table 17: Simulation Results of the Impact of One Standard Deviation Improvement in the OI 7 over All Routes

	Impact on all passengers
a. Actual number of passengers	204165
b. Simulated number of passengers	180388.3275
c. Difference: (b-a)	-23777
d. Actual average fare US$	264
e. Simulated average fare US$	260
f. Difference: (e-d) US$	-4
g. Difference in total revenue:	
(b – a) * d + b * f US$	-6957485.942
h. Change in consumer surplus	
- f * a US$	769995.4673

Annex 1: List of Bilateral Air Service Agreements between Jordan and other Countries

No.	Country	Signed/ Initialed	Designation	Permitted Weekly Frequency	Utilized / not Utilized	Actual Frequency / Week	Freedoms Granted	City Restrictions	Codeshare permitted
1	Algeria	S. 1980	Multiple	Open skies	Yes	AH – 1	3,4	Algeria	
2	Afghanistan	I. 1972	Single	Not stated	NO		3,4	Kabul	
3	Armenia	I. 1993	Multiple	Airline Agreement	NO		3,4		
4	Austria	S. 1976	Multiple	7	Yes	RJ – 5	3,4	Vienna	yes
5	Australia	I. 1992	Multiple	2	NO		3,4,5		
6	Azerbaijan	I. 1993	Multiple	Open skies	Yes	RZ – 1	3,4		yes
7	Bahrain	S. 2000	Multiple	Open skies	Yes	RJ – 4 GF – 5 2B – 3	3,4,5	Bahrain	yes
8	Belgium	S. 1960	Multiple	Open skies	NO		3,4		yes
9	Bosnia	S. 2006	Multiple	Airlines Agreement	NO		3,4		yes
10	Brazil	S. 1975	Single	Not stated	NO		3,4	Rio de Janeiro Sao Paulo	yes
11	Brunei	I. 1994	Multiple	Airlines Agreement	NO		3,4	Bandar Seri Begawan	
12	Bulgaria	S. 2001	Multiple	Airlines Agreement	NO		3,4	Sofia	yes
13	Canada	I. 2007	Multiple	2- direct / or 4- with intermediate points	Yes	RJ – 2	3,4,5	Toronto / Montreal	yes
14	Chile	S. 1977	Multiple	Airlines Agreement	NO		3,4	Santiago	
15	China	I. 1992	Single	7	NO		3,4,5	Beijing Shanghai Guangzhou	yes
16	Congo	S. 2004	Multiple		NO		3,4	To be specified	
17	Cuba	I. 1998	Multiple	Airlines Agreement	NO		3,4		
18	Cyprus	S. 1975	Single	4	Yes	RJ – 4 CY – 4	3,4	Larnaca-Paphos	yes
19	Czech	S.1997	Multiple	Not stated	NO		3,4		
20	Denmark	S. 1961	Multiple	Not stated	NO		3,4	Copenhagen	
21	Egypt	S. 1986	Multiple	2100 Seats No restrictions on frequencies	Yes	RJ MS	3,4	Cairo, Luxor Alexandria Sharm El Sheikh	yes
22	Finland	S. 1978	Multiple	Not stated	NO		3,4,5	Helsinki	
23	France	S. 1966	Multiple	7	Yes	RJ – 7 KLM / AF- 7	3,4	Paris + 1 other	yes
24	Germany	S. 1970	Multiple	7 -10 Tempo.	Yes	RJ – 8 LH / AC – 7	3,4	3 points	yes
25	Greece	S. 1968	Single	4 Summer / 3 Winter 7 Temporary till the end of S. schedule	Yes	RJ – 4	3,4	Athens	
26	Hong Kong	S. 2004	Multiple	Open skies	Yes	RJ – 3	3,4,5	Hong Kong	yes
27	India	S. 1989	Multiple	14 per week, subject to the condition that not more than (7) services shall be operated to/from any one point of call in India cargo – unlimited frequency	Yes	RJ -5	3,4	Calcutta, Delhi, Mumbai, Amritsar	yes
28	Indonesia	S. 1991	Multiple	4 in principal	NO		3,4	Jakarta	
29	Iran	S. 1998	Single	2+1 cargo	NO		3,4	No restrictions	
30	Iraq	S. 1953	Single	Open skies	Yes	RJ- 24 IA - 7	3,4	No restrictions	
31	Ireland	I. 1998	Multiple	Not stated	NO		3,4,5	No restrictions	

Annex 1: Continued

No.	Country	Signed/ Initialed	Designation	Permitted Weekly Frequency	Utilized / not Utilized	Actual Frequency / Week	Freedoms Granted	City Restrictions	Codeshare permitted
32	Israel	S.1996	Double	11 Winter / 12 Summer 800 Seats	Yes	RJ - 14 IZ - 2	3,4	Tel Aviv, Haifa	
33	Italy	S. 1980	Single	7,2 of which to city Milan	Yes	RJ -7	3,4,5	Rome + 1 city, cargo Rome, Milan	
34	Ivory Coast	I. 1979	Single	Not stated	NO		3,4,5	Abidjan	
35	Japan	S. 1997	Multiple	Units of capacity basis 3 units	NO		3,4,5	Osaka	
36	Korea	S. 1978	Single	Airlines Agreement	NO		3,4	Seoul	
37	Kuwait	S. 1977	Multiple	Open skies	Yes	RJ -7 Kw1 -6 J9 - 6	3,4	Kuwait	
38	Lebanon	I. 2006	Multiple	Open skies	Yes	RJ - 21 MEA -7	3,4	Beirut	
39	Libya	S. 1978	Single	5	Yes	RJ - 3 LN - 3	3,4	Tripoli, Benghazi	
40	Malaysia	S. 1977	Single	3	NO		3,4,5	Kuala Lumpur	yes
41	Malta	I. 1999	Single	Not stated	NO		3,4,5	Malta	
42	Mauritania	S. 2000	Multiple	Not stated	NO		3,4	No restrictions	
43	Luxemburg	S. 1962	Multiple	7 Pax and Cargo 2 Cargo 5th freedom	Yes	CLX - 2	3,4,5	Luxemburg	yes
44	Moldova	I. 1999	Multiple	Airlines Agreement	NO		3,4	No restrictions	
45	Morocco	S. 2008	Multiple	Open skies	NO		3,4,5	Casablanca	yes
46	Nepal	I. 1999	Multiple	Airlines Agreement	NO		3,4	No restrictions	
47	Netherlands	S. 1961	Multiple	7+7 cargo	Yes	RJ - 5	3,4,5	Amsterdam, Maastricht cargo	yes
48	Nigeria	S. 1980	Single	1	NO		3,4	Lagos, Kano	
49	Norway	S. 1961	Multiple	Not stated	NO		3,4	Oslo	
50	Oman	S. 1974	Multiple	Open skies	Yes	RJ -4 WY - 4	3,4,5	Muscat	
51	Pakistan	I. 2007	Multiple	12 - 3 of which with 5th freedomcargo: open skies 3,4,5	NO		3,4,5	Karachi, Lahore	yes
52	Palestine	S. 1995	Multiple	Open skies	NO		3,4		
53	Philippines	S. 1996	Single	2 subject to commercial agreement	NO		3,4,5	Manila	yes
54	Poland	S. 1993	Multiple	Airlines Agreement	NO		3,4,5	Warsaw, Krakow	yes
55	Portugal	I. 1989	Multiple	Airlines Agreement	NO		3,4,5	No restrictions	
56	Qatar	S. 1974	Multiple	7	Yes	RJ -4 QR - 7	3,4,5	Doha	
57	Romania	S. 1975	Multiple	Airlines Agreement	Yes	RO - 3	3,4,5	Bucharest, Timisoara	
58	Russia	I. 2006	Multiple	10 Pax - Cargo open skies	Yes	RJ - 3	3,4,5	Moscow, St. Petersburg	yes
59	Saudi Arabia	S. 1963	Multiple	Open skies	Yes	RJ - 19 SV -18	3,4	Jeddah, Riyadh, Dammam	
60	Senegal	S. 1977	Single	Not stated	NO		3,4	Accra	
61	Sierra Leone	I. 1983	Multiple	Not stated	NO		3,4	Freetown	
62	Singapore	S. 1976	Single	2	NO		3,4,5	Singapore	yes
63	Slovakia	I. 1997	Multiple	Open Skies	NO		3,4,5	No restrictions	
64	South Africa	I. 1995	Multiple	2 Pax Cargo not stated	NO		3,4	Johannesburg, Cape Town, Durban	

Annex 1: Continued

No.	Country	Signed/ Initialed	Designation	Permitted Weekly Frequency	Utilized / not Utilized	Actual Frequency / Week	Freedoms Granted	City Restrictions	Codeshare permitted
65	Spain	S. 1977	Multiple	Open Skies	Yes	RJ -7	3,4	Madrid, Barcelona, not co-terminus	yes
66	Sri Lanka	S. 1992	Multiple	7 - Cargo open	Yes	RJ -2	3,4	Colombo	yes
67	Sudan	I. 2004	Multiple	4 Pax - 3 Cargo	Yes	RJ - 4 SD - 2	3,4	Khartoum	
68	Sweden	S. 1961	Multiple	Not stated	NO		3,4	Stockholm, Gothenburg	
69	Switzerland	S. 2003	Multiple	4	Yes	RJ -3	3,4		
70	Syria	S. 1976	Multiple	Open skies	Yes	RJ -14	3,4	No restrictions	
71	Taiwan	S. 1975	Multiple	3	NO		3,4,5	Taipei	
72	Thailand	S. 1975	Multiple	Open skies	Yes	RJ - 7	3,4,5	No restrictions	yes
73	Tunisia	S. 1976	Multiple	Open skies	Yes	RJ -3	3,4	No restrictions	yes
74	Turkey	I.1973	Multiple	14 - Istanbul/Amman. 7 - Ankara/Amman Baku with 5th	Yes	RJ -7 TK- 8	3,4,5	Istanbul - Ankara	
75	UAE	S. 1998	Multiple	Open skies	Yes	RJ -19 G9 - 7 EY - 13 EK - 10	3,4,5	No restrictions	yes
76	UK	I. 1995	Multiple	10 - London/Amman other - open skies	Yes	RJ - 7 BMI -10	3,4	Any UK	yes
77	USA	S. 1996	Multiple	Open skies	Yes	US / RJ -10 DL - 4	Open skies	None	yes
78	Ukraine	S. 2005	Multiple	3	Yes	RJ - 2 UM - 2	3,4,5	Kiev - Donetsk	yes
79	Uruguay	I. 1977	Multiple	Not stated	NO		3,4,5	Montevideo	
80	Uzbekistan	S. 1996	Single	Airlines Agreement	NO		3,4	No restrictions	
81	Vietnam	S. 1994	Single	2	NO		3,4	Hanoi	
82	Yemen	S. 2003	Multiple	Open skies	Yes	RJ -5 IY -5	3,4	No restrictions	yes
83	Yugoslavia	S. 1976	Multiple	Not stated	NO		3,4	Belgrade	yes
84	Kazakhstan	I. 2007	Single	2	NO		3,4		yes
85	Kenya	I. 2008	Multiple	Open skies	NO		3,4		yes
86	Croatia	I. 2008	Multiple	Open skies	NO		3,4,5		yes

Annex 2: Open Sky Agreements

Open Sky Agreements signed during the period of 1995 – 2007

Country	Basic Year the year before open sky (PAX)	Open Sky Year (PAX)	First Year After Open Sky (PAX)	Open Sky Year (%)	First Year After Open Sky year (%)
	1994	**1995**	**1996**	**1995**	**1996**
Palestine				NO Op.	NO Op.
Yemen	79,650	83,718	77,693	5%	-2%
	1995	**1996**	**1997**	**1996**	**1997**
USA	109,395	117,076	128,735	7%	18%
	2003	**2004**	**2005**	**2004**	**2005**
Iraq	15,111	16,301	61,454	8%	307%
	2004	**2005**	**2006**	**2005**	**2006**
Thailand	98,717	90,665	87,169	-8%	-12%
	2005	**2006**	**2007**	**2006**	**2007**
Hong Kong	6,462	9,274	14,367	44%	122%
Syria	37,595	62,308	81,013	66%	115%
Lebanon	136,083	160,840	187,854	18%	38%
KSA	241,786	267,218	299,648	11%	24%
Algeria	17,587	16,919	19,413	-4%	10%
Bahrain	67,668	84,368	92,872	25%	37%
Azerbaijan	120	254	311	112%	159%
	2006	**2007**	**2008**	**2007**	**2008**
Kuwait	191,871	199,475	168,985	4%	-12%
Tunisia	23,948	21,566	16,778	-10%	-30%
Oman	41,282	49,516	55,286	20%	34%
Total	1,067,275	1,179,498	1,291,578	11%	21%

Annex 3: Jordan – Open Sky Agreements Signed in 2008

Country	Basic Year the year before open sky (PAX)	Open Sky Year (PAX)	First Year After Open Sky (PAX)	Open Sky Year (%)	First Year After Open Sky year (%)
2008	**2007**	**2008**	**2009**	**2008**	**2009**
Morocco	10,640	14,306	N/A	34	N/A
Croatia	1,193	1,904	N/A	60	N/A
Kenai	1,624	2,080	N/A	28	N/A
Belgium	9,983	17,467	N/A	75	N/A
UAE	532,556	541,044	N/A	2	N/A
Total	555,996	576,801	N/A	4	N/A

Annex 4: Jordan Aviation Destinations

Regional	International
Alexandria, Egypt	Langsa, Indonesia
Asyut, Egypt	Surabaya, Indonesia
Luxor, Egypt	New Delhi, India
Manama, Bahrain	Kathmandu, Nepal
Aqaba, Jordan	Istanbul, Turkey
Dubai, UAE	
Doha, Qatar	
Damascus, Syria	

Source: Jordan Aviation 2010

Annex 5: Foreign Airlines Operating in Jordan

American Airlines	Jazeera Airways	Air Algerie
Emirates Airlines	Austrian Airlines	Northwest Airlines
Qatar Airways	Iberia	Virgin Atlantic
KLM	Egypt Air	Wataniya Airways
Cyprus Airways	US Airways	Jetair Fly
Turkish Airlines	Eithad Airways	Kuwait Airways
Air France	African Express Airways	Gulf Air
Lufthansa	S7	UM Air
British Airways	Saudi Arabia Airlines	Oman Air
BMI	Alitalia	Royal Phnom Penh Airways
Middle East Airlines	United Airlines	Sudan Airways
Air Arabia	Air Canada	MALEV
Ethiopian Airlines	LIBYAN	Nas Air
Sama	Syrian Airlines	Aerocondor
Arkia	TAROM	Iraqi Airways
Delta	Yemenia	

Source: CARC Jordan 2011

Annex 6: Airlines Operating from/to QAIA& Destinations

No.	Airline	Destination
1.	Air Algerie	Algiers
2.	Air Arabia	Sharjah
3.	Air Arabia Egypt	Alexandria-Borg El Arab
4.	AirBaltic	Riga
5.	Air France	Paris-Charles de Gaulle
6.	Alitalia	Rome-Fiumicino
7.	Arab Wings	Aqaba, Beirut, Tel Aviv
8.	Aqaba Airlines	Arbil, Barcelona, Beirut, [Seasonal]
9.	Arkia Israel Airlines	Tel Aviv
10.	Austrian Airlines	Vienna
11.	Bahrain Air	Bahrain
12.	British Airways	London Gatwick
13.	Blue panorama Airlines	Milan-Malpensa [Seasonal]
14.	BMI	Addis Ababa, London-Heathrow
15.	Cyprus Airways	Larnaca
16.	Delta Airlines	New York-JFK
17.	EgyptAir	Cairo
18.	Emirates	Dubai
19.	Etihad Airways	Abu Dhabi
20.	Flydubai	Dubai
21.	Gulf Air	Bahrain
22.	Iberia	Madrid [begins 3 July; Seasonal]
23.	Iraqi Airways	Baghdad, Sulaymaniah
24.	Jazeera Airways	Kuwait
25.	Jordan Aviation	Aqaba
26.	Kuwait Airways	Kuwait
27.	Libyan Airlines	Benghazi, Tripoli
28.	Lufthansa	Frankfurt
29.	Malev Hungarian	Budapest
30.	Middle East Airlines	Beirut
31.	Mint Airways	Madrid
32.	Nas Air	Riyadh
33.	Neos	Bologna, Milan-Malpensa
34.	Oman Air	Muscat
35.	Qatar Airways	Doha
36.	Royal Falcon	Abu Dhabi, Baku, Sharjah, Stockholm-Arlanda
37.	Royal Jordanian	All of Royal Jordanian Destinations
38.	Royal Wings	Aqaba, Tel Aviv
39.	Sama Airlines	Jeddah, Riyadh
40.	Saudi Arabian Airlines	Dammam, Jeddah, Medina, Riyadh
41.	Sudan Airways	Beirut, Damascus, Khartoum
42.	TAROM	Bucharest-Otopeni, Beirut
43.	Turkish Airlines	Istanbul-Atatürk
44.	UM Airlines	Kiev-Boryspil [Seasonal]
45.	Vueling Airlines	Barcelona
46.	Wataniya Airways	Kuwait
47.	Yemenia	Beirut, Sana'a

Source: CARC Jordan (2010)