

Egyptian and Syrian commodity markets after the dissolution of the Ottoman Empire: a Bayesian VECM analysis

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Abstract

The disruption of the Ottoman Empire caused dramatic changes to the economic and political structure of the Middle East. The newly established nations, incorporated into British and French formal and informal empires, actively implemented a range of protectionist policies, thus disrupting the regions traditional trade flows and patterns. This paper investigates the impact of this new economic setting on commodity market integration in Syria and Egypt, using Bayesian inference. After testing for co-integration through the calculation of Bayes factors and computing impulse response functions, our results point to weakly integrated markets.

The ancestors of the London bankers were still roaming the wilds with clubs in their hands, when the Phoenician sails were plying a prosperous trade between Syria and Egypt. The Phoenician sails have long since gone beyond the horizon but the Syro-Egyptian trade continues. Twenty-five centuries of commercial relations bind the two countries together.

Burns, 1933:82

1 Motivation

After the end of World War I, the former unification of the Middle East under a single imperial authority was substituted by a series of separate states with their own tariffs, custom regulations and currencies. Thus, the core of the Ottoman Empire was fragmented into nine countries: Egypt, Syria, Lebanon, Transjordan, Iraq, Palestine, Turkey, Saudi Arabia and Yemen. Only the latter three exercised full sovereignty during the interwar era; Britain retained control over Egypt, which was declared a protectorate; the other Arab nations became administered by Britain and France, in accordance with the so called Mandate system, established by the League of Nations.¹

Previous studies indicate that the Middle East became progressively more integrated with the international economy during the so-called first wave of globalisation (1850-1914), thus following the same path of many other regions of the world (Issawi, 1966; Owen, 1981; Inan, 1987; Kasaba, 1988; Pamuk, 1987, 2004; Inalcik and Quataert, 1996; Panza, 2013). At the time, global commodity and factor markets became increasingly more integrated, primarily thanks to the dramatic improvements in transportation technologies (Foreman-Peck, 1995, O'Rourke and Williamson, 1999).

This period was followed by an anti-global and autarkic interwar era, when commodity and factor price convergence came to a halt (Findlay and O'Rourke, 2007; Federico, 2012).

¹The League of Nations sanctioned the division of the Ottoman Empire and granted Britain the right to administer Transjordan, Palestine and Iraq and France the right to administer Lebanon and Syria. (Cleveland, 2004).

One of the major causes for such reversal of globalisation has been identified with the failure to dismantle the system of protectionist trade policies put in place during the Great War.² In fact, in its aftermath, average tariff rates continued rising globally: from Europe to the US,³ from Latin America to Asia.⁴ Furthermore, other forms of protectionist policies, such as quantitative restrictions to trade, government sanctioned trade monopolies, import licences, antidumping legislations and competitive devaluations remained a widespread practice of interwar commercial policy internationally.⁵

Over the past decades, economic historians have made a concerted effort in examining the dramatic changes that affected the economies worldwide in the period between the First and Second World Wars, using different empirical approaches.⁶ However, with a few exceptions, the

²Eichengreen (1992) provides an excellent overview of the global economy during the interwar period.

³In the mid-1920s tariffs were unambiguously higher than they had been in 1913 in Bulgaria, Czechoslovakia, Germany, Hungary, Italy, Romania, Spain, Switzerland and Yugoslavia (Findlay and O'Rourke, 2007). In the US, the Fordney-McCumber Tariff Act and later the Smoot-Hawley Tariff considerably raised overall protection (Irwin, 1998).

⁴In Latin America average tariffs increased from 22.2 percent in 1929 to 27.3 percent in 1932. In Asia tariffs were on the rise, too: between 1918 and 1929 average tariffs climbed from 4.8 percent to 14.7 percent in India and from 10.8 percent to 25.3 percent in Burma (Clemens and Williamson, 2004).

⁵During the interwar years, protectionism's damaging impact on trade volumes was not counteracted by a decline in the costs of international transport. While some productivity growth had been achieved in ocean shipping during the interwar, this was diminished by rising factor prices and thus was not sufficient to overcome the effect of widespread rampant protectionist measures (Shah Mohammed and Williamson, 2004).

⁶Despite the existence of a voluminous literature on the interwar era, only very few works have explored empirically the disruption of commodity market integration and hence the deterioration of the process of international price transmission, which brought to a halt the globalizing trends of the previous four decades. An important exception is provided by Findlay and O'Rourke (2004:461-5), who measure commodity price differentials between different cities of the world to attest the disintegration of global markets.

countries of Middle East have yet to be fully incorporated into this research agenda, with most of the existing economic history literature being predominantly of qualitative nature (Herschlag, 1964 and 1975; Mead, 1967; Issawi, 1982; Tignor, 1989; Quataert, 1994; Owen and Pamuk, 1998).⁷

Focusing on the experiences of Egypt and Syria, this paper draws attention on some fundamental questions to bring new insights on Middle Eastern economies during the interwar era: Did the region share the same anti-global developments of most countries? Did the Egyptian and Syrian commodity markets, once united by the same custom union under the aegis of the Ottoman Empire, disintegrate? Or did the incorporation of the two nations into the British and French colonial systems lead to the establishment of improved linkages within the region?

We address these issues through an empirical investigation of the process of market integration between Syrian and Egyptian commodities using Bayesian inference. We contribute to the scholarly debate on two fronts: first, we bring new insights to the growing market integration literature focusing not only on a period that has strikingly received very little attention, the interwar,⁸ but also on a relatively unexplored region, the Middle East.⁹ Secondly, the analytical tools chosen represent an important methodological contribution to the field, due to their specific suitability in dealing with small datasets within a dynamic multivariate framework. To this purpose, we explore the evolution of Middle Eastern market price relationships across time (1923-1939) and space (Aleppo, Beirut, Cairo and Alexandria), applying state of the art developments in Bayesian structural vector error correction models.¹⁰

The paper is structured as follows: we first provide background information on historical trade patterns in the Middle East before the disruption of the Ottoman Empire (Section 2)

⁷Notable exceptions are Hansen, 1991; Pamuk and Williamson, 2000; Yousef, 2002; Karakoc, 2012.

⁸Important contributions are Hynes, Jacks and O'Rourke (2012), Trenkler and Wolf (2005), Federico and Persson (2007).

⁹We are not aware of the existence of any study on market integration in the Middle East in the interwar era.

¹⁰One of the important features of the Bayesian approach is that it ensures that the results hold even if the sample is not representative of the whole population and/or the unit root properties of the data are not guaranteed.

and during the interwar (Section 3), drawing attention on the commercial ties between Syria and Egypt (Section 4). We then analyse the factors which impacted the degree of market integration between the two countries, focusing on the role of trade policy, transport networks and commercial institutions (Section 5). After presenting our dataset (Section 6) and describing the methodology used in the empirical analysis (Section 7), we present and discuss the co-integration results (Section 8). Section 9 concludes.

2 Trade patterns in the Ottoman Empire before WWI

Before the dissolution of the Ottoman Empire all its regions belonged to the same custom union.¹¹ From mid-19th century most Ottoman provinces experienced a spectacular increase in trade flows, spurred on by declining transport costs (Harlaftis and Kardasis 2000).¹² The larger size of imports and exports is emblematic of the Empire's participation to the first wave of globalisation, which determined a partial shift in the patterns of exchange from within the region itself to trade with Europe. Such changes were particularly dramatic in Egypt, whose openness and integration with the world economy were the highest in the whole Ottoman realm.¹³

While trade with Europe grew, intra-Ottoman commerce continued to represent a larger portion of the economies of most Middle Eastern states during the 19th and early 20th Century, despite the absence of well-developed infrastructure and transport system (Inalcik and Quataert, 1996:770).¹⁴ For example, in 1862 the value of Ottoman imports in the province of Damascus was

¹¹Import and export duties were fixed at 8 percent and 1 percent per respectively by a series of trade treaties signed in 1861/2. Some minor alterations occurred between 1870 and 1914 Tunisia became a French protectorate in 1884 and Libya and Italian colony in 1912.

¹²Trade rose from 9 million Turkish Lira in 1830 to 45.9 million in 1910-13 (Owen and Pamuk 1998:4).

¹³See Panza 2013 for a study of market integration comparing the Egyptian and the western Anatolian cotton markets.

¹⁴Ottoman international exports formed around 25 per cent of Ottoman agricultural production, so that the remaining 75 per cent stayed within the Empire (Inalcik and Quataert 1996:834).

five times greater than that of non-Ottoman goods (Inalcik and Quataert, 1996:836).¹⁵ Moreover, 80 per cent of all Damascus exports were directed to the Empire in 1892 (Frank 2004:418). In 1910 about 45 per cent of Syria's ¹⁶ exports and 19 per cent of its imports went to and came from Egypt and other parts of the Empire (Musrey, 1969: 8; Frank 2004: 418).¹⁷ Trade between the various administrative divisions of Syria was substantial, too.¹⁸

Egyptian regional trade figures are less impressive, but still not negligible. Imports from other parts of the Ottoman Empire covered about one fifth and around 11 per cent of Egyptian average annual imports in 1884 and in 1909-1913 respectively. On the other hand, trade with Europe was much more conspicuous, with about two-thirds of Egypt's exports going to Britain and over one-third of its imports coming from there at the turn of the century (Musrey, 1969: 200, footnote 9). Egypt's linkages with Great Britain were strengthened after colonization in 1882, when it de facto withdrew from the Ottoman custom union and signed a separate trade treaty with the Empire. This imposed a reciprocal 8 per cent *ad valorem* import tax ¹⁹

The outbreak of the First World War, together with large numbers of casualties, forced migrations, famine and disease, led to a dramatic disruption of trade flows, compounded by the embargo of the Allies on the Mediterranean.²⁰ Its aftermath brought about the political and economic dismantlement of the Empire, marking the end of its large free trade area and the

¹⁵See Inalcik and Quataert (1996:836-7) for a detailed account of intra-Ottoman trade flows.

¹⁶The region generally referred to as Syria before WWI (*Bilad-el-Sham*) included present day Syria, Lebanon, Jordan, Israel and Palestine.

¹⁷These exports included items such as barley, millet, sheep and other livestock, dried apricots, legumes, wine, etc., but also silk and cotton textiles.

¹⁸For example cereals were sent in large amounts from Homs and Hama to Aleppo, Tripoli and Beirut; from the Hauran to Damascus and Haifa; and from Gaza and Beersheba to Jerusalem and Jaffa. Fruits, vegetables, oil, soap and textiles and leather were also important trade items.

¹⁹Despite the Ottoman imperial tariff increase to 11 per cent in 1907, Egyptian goods continued to be subject to the lower 8 per cent rate.

²⁰In 1916, the volume of Ottoman foreign trade decreased to one fifth of the level before the war, 90 percent of which was undertaken with Germany and Austria (Pamuk 2005:118).

beginning of significant economic divisions within the Middle East.

3 Middle Eastern trade during the interwar era

The dissolution of the Empire gave origin to a set of countries with separate customs and different units of monetary systems. Palestine, Transjordan and Iraq became British mandates and had their currencies tied to the British pound. France obtained a mandate over Syria, a large region comprising the states of Syria, Greater Lebanon, Jabal al-Duruz, the Government of the Alawis (Latakia) and the Sandjak of Alexandretta. The official currency became the Syrian pound, tied to the French franc.²¹

Egypt, which became a British protectorate in 1914, was unilaterally declared independent by Britain in 1922. However, the economic and political ties between the two countries remained very strong during the whole interwar period: the British High Commissioner held powers with a strong potential for intervention in Egyptian economic matters since London reserved rights over four areas: defence, imperial communications, the Sudan and the protection of foreign interests (Tignor, 1984, p. 4 and 44).²² Furthermore, the Egyptian pound remained pegged to the Sterling.

Despite the economic and political fragmentation, inter-Arab trade still constituted a substantial share of the total trade of most countries during the 1920s, aided by moderate tariff rates. Over one third of Syrian exports went to and around one tenth of its imports came from Egypt, Palestine, Transjordan, Iraq, the Hejaz and the Nejd, with Egypt and Palestine being its most important customers. Over two-fifths of Palestine's trade was conducted with Syria and

²¹On April 1, 1920 the French High Commissioner emitted a decree for the establishment of a new Syrian paper currency based on the French franc. Thus, the Syrian pound, equivalent to 20 francs and divisible in 100 piasters, became the unit of currency, replacing the Turkish gold pound (Himadeh 1936: 264).

²²In Egypt, a Department of Foreign Affairs was created in the Ministry of Interior to safeguard foreign interests, which benefitted from a series of tax exemptions allowed by the so called capitulations (Tignor, 1969: 47). Moreover, British officials continued to play a fundamental role in the upper strata of the bureaucracy.

Egypt, and most of Transjordan's exports went to Syria, Egypt and Palestine. Despite Egypt's lower level of engagement in the region (only about one-twentieth of its trade was carried on with other Arab countries), it imported a substantial quantity of goods from Palestine, Syria and Sudan and exported to those countries a considerable amount of cotton and other commodities (Musrey 1969: 15).²³

Trade with the mandatory/occupying powers (France and Great Britain) became increasingly more important since the dissolution of the Empire, despite the initial absence of preferential commercial agreements. It was facilitated by tied currencies, foreign investments and foreign control. During the late 1920s over one third of Egypt's exports went to and around one fifth of its imports came from Great Britain. France was one of Syria's leading trade partners, accounting for about one-sixth of Syrian imports and exports.

However, despite the disruption of the Ottoman Empire and the establishment of closer linkages with Great Britain and France, there was still a semblance of regional market in the Near East by 1930, which constituted an important outlet for foodstuffs and other agricultural commodities, as well as for a small number of manufactured goods produced in the region (Musrey 1969: 16).

It was during the 1930s that this market shrank, owing to a series of intertwined global and domestic factors, namely the depression, tariff escalation and monetary policy developments. The dramatic reduction in prices and output after Great Depression led to an intensification of protectionist trade policies worldwide. Economic nationalism, which had not previously been a significant factor in inter-Arab trade relations, began to assert itself, mirroring a global trend. The division of the world in currency blocs (dollar, sterling, franc) had repercussions on Middle East, weakening trade linkages among countries belonging to different blocs. The region was shaken by the same de-globalisation forces common the rest of the world, characterised by shrinking capital flows and declining commerce, both regionally and internationally (see Figure

²³Many of the export figures could be biased upwards since they include also re-exports. However, it is important to highlight that not all the trade conducted via land route was recorded and a great deal of smuggling took place within the region (Musrey, 1969: 207).

1).

4 Egyptian and Syrian commercial ties in the interwar

The post-war commercial conventions between Syria and Egypt were based upon the latter's position as non-member of the League of Nations: being non-contiguous to Syria, Egypt could not be granted preferential tariffs normally allowed for bordering countries (Burns, 1933: 82). However, a provisional most-favoured-nation agreement was formally established (Accord of November 1, 1928, Burns, 1933:83), but it did not involve the granting of preferences.

In Syria the import duty applied to most goods remained the old Ottoman rate of 11 per cent *ad valorem* until 1923. Duties were raised progressively, ranging between 15 per cent (normal duty) and 30 per cent (maximum duty) in 1924 and between 25 per cent (normal duty) and 50 per cent (maximum duty) in 1926, mainly for the purpose of raising revenues.²⁴

Until 1930, Egypt applied a uniform 8 per cent *ad valorem* tariff on most imports. Once tariff autonomy was gained, a set of protectionist measures were taken to encourage industry (see Table 1). Tariffs on raw materials were lowered and on manufactured goods risen (Hansen and Nashashibi, 1975:4).²⁵ A new general duty of 15 per cent was put in place together with specific duties applicable to a series of goods, reaching 25 per cent: duties rose particularly on fruit and vegetables, which represented most of Syrian exports to Egypt, and continued to grow over time.²⁶ With the devaluation of the Egyptian pound in 1931, due to British abandonment of the Gold standard, duties on many agricultural and industrial goods kept on rising and did so throughout the 1930s.²⁷ For example in 1931 the duties on bananas rose to 45 per cent and

²⁴Normal duties were applied to countries member of the League of Nations, while maximum duties to non-members.

²⁵In addition to the tariff reform, the government supported manufacturing through subsidies, cheap loans and other industrial policy measures.

²⁶Duties were raised also on household soap, artificial silk and other articles (Mursey, 1969:21).

²⁷In addition to imposing high tariffs, the government of Egypt also extended funds to encourage the establishment of new industries and the modernization of old ones, and it purchased carpets, footwear,

on oranges to 110 per cent (Burns, 1933: 85). Consequently Syro-Egyptian trade relationship deteriorated remarkably, with Syrian exports experiencing an 85 per cent decline between 1930 and 1933 (see Figure 2).

In Syria, too, import duties were raised substantially on many articles during the early 1930s. As retaliation to Egypt's trade policy, the tariff rate on rice, which constituted the main import from Egypt, increased, too. In 1930, Syria's ten main exports to Egypt were subjected to an average weighted duty of 21.1 per cent, whereas the ten main Syrian imports from Egypt bore an average weighted duty of 14.6 per cent (see Table 2).

The tariff war continued during the 1930s. In April 1933 Egypt imposed a surtax of 100 per cent on Syrian imports and on August 1933 Syria subjected Egyptian imports to its maximum duties, which were twice the normal rate. While a formal provisional most-favoured-nation agreement was signed in 1934, Egypt's tariff increase at the end of the 1930s and Syria's multiple devaluations did not aid a reinstatement of pre-depression trade relations. The Syrian pound (tied to the French franc) was devaluated in 1936, and additional devaluations followed at intervals during 1937, so that it depreciated by around 50 per cent by the end of 1937. After the first devaluation in 1936, Syria raised most of its duties by 15 per cent, followed by an additional 20 per cent in May 1938.

While Syrian imports of Egyptian goods do not seem to have been affected extensively by tariff escalation, its exports to Egypt dropped significantly from 1930 (see Figure 2). For example, while during 1929 and 1930 around 17 per cent of Syria exports went to Egypt, this figure dropped to around 5 per cent for the remainder of the 1930s. While during the 1920s Syria had exported to Egypt a substantial amount of different agricultural commodities, as well as various types of textiles, by 1939 Egypt imported only a limited range of Syrian goods (Musrey 1969:22). The reason for such different repercussions of increased tariffs on bilateral trade relations is related to the timing of the onset of protectionism. The drop of Syrian exports

clothing and other articles from Egyptian producers only (Musrey, 1969:17). While such policies had a positive impact on industrialization, they also had adverse effects on Egypt's inter-Arab relations, especially with Palestine and Syria.

to Egypt after the depression was so dramatic since until 1930 Egypt kept a comparatively low tariff rate (which did not hamper foreign trade). On the other hand, Syria embraced a protectionist stance much earlier, with its tariff rising progressively from 1923: in fact, it was in the 1920s that Egypt's exports declined the most (Figure 2).

The deterioration of the Egypt-Syria trade relation was paralleled by an analogous worsening of the whole Middle Eastern regional commerce. Similar policies of protectionism coupled with competitive devaluations were adopted by most countries of the region. By 1939 Egypt's inter-Arab trade, excluding Sudan, constituted less than 3 per cent of its total trade (Musrey 1969:25). The only semblance of a regional market in the Near East during the 1930s was limited to Palestine, Transjordan and Syria. Within such a framework, almost no attempt was made to develop regional economic ties.²⁸

5 Commodity market integration in the Middle East

Before investigating the impact of such deterioration of regional commercial ties on the integration of Middle Eastern commodity markets, it is sensible to question whether these markets had ever been integrated, regionally and/or with the global economy. Despite not abundant, the empirical literature on the topic attests to the establishment of closer linkages between Ottoman and international markets during the second half of the 19th century (Pamuk, 2004; Panza 2013).²⁹ The evidence on regional integration is less solid, owing to the scarcity of data. However, estimates of the cost of living for several Ottoman cities show a degree of co-movement. CPI indexes in Edirne, Bursa, Damascus and Cairo indicate clearly that the prices in these cities moved together with those in Istanbul for the period for which data are available, i.e. from 1460 to mid-19th century (Pamuk 2000).

The end of the Empire and the heavy mark left by WWI, both in terms of physical destruction

²⁸The only exception was the maintenance of free trade relations between Egypt and Sudan and those between Syria and Palestine. The latter were terminated in 1939.

²⁹However, the degree of market integration varied among Ottoman regions, with the coastal areas having tighter linkages with the world market (Panza, 2013).

and of economic and monetary dislocation, left the Middle East facing severe inflationary pressures, like most belligerent countries. Currency pegs to the franc and the sterling implied a renewed commitment to the gold standard. Recovery was particularly hard for the countries of the sterling bloc, as the British pound fixed its value at the pre-war gold parity, despite the considerable change in financial strength and competitiveness. *The French franc's devaluation at one fifth of its pre-war parity gave Syria a competitive advantage over other countries in the region.* The whole region was affected by the intrinsic fragility of the international system made of reparations, war debts and lack of cooperation which crumbled with the Great Depression. The downward spiral of competitive devaluations, tight monetary policy and protectionism, which triggered an unprecedented fall in global trade, hit negatively Middle Eastern commodity markets, too.

The world-wide spread of protectionist practices lowered international trade flows; widening price wedges between trading economies arising from declining export prices and increasing import prices caused a disintegration of global market (Hynes, Jacks and O'Rourke 2012:120). How did Middle Eastern commodity markets react to such global changes? Did the region experience the same disruption in price transmission as the rest of the international economy documented by Hynes, Jacks and O'Rourke (2012)?

The only existing work that looks at the issue of market integration in the Middle East, to the best of our knowledge, is a case study on Egypt in the 1920s-30s by Tarik Yousef (2000). The author tests for the presence of price transmission for a series of commodities in various Egyptian towns and concludes that these were integrated. His findings seem to suggest that the Egyptian markets were not negatively impacted by the Great Depression. Our paper extends Yousef's work by providing some new insights on Syro-Egyptian price integration, drawing from the classic paradigm of the Law of One Price (LOP), as specified by the standard spatial price determination model of Takayama and Judge (1972). The LOP postulates that markets are integrated when the price difference between two homogeneous goods sold in different locations equals to transfer costs. This implies that changes in demand or supply in one location are translated into the same degree of price change in each trading market. On the other hand,

policies that impede the pass-through of price signals, such as government-induced distortions (tariffs, quotas, subsidies, etc.) or the presence of imperfectly competitive market structures, weaken the linkages between two trading economies, hindering, or *in extremis* preventing, markets from integrating.

Before making an empirical assessment on the degree of price transmission between Syrian and Egyptian markets, we are able to identify two opposing forces that influenced arbitrage opportunities between them. On the one hand, a series of factors may have acted against market integration: rising protectionism, particularly tariff escalation in the 1930s; the practice of competitive devaluations first of the Egyptian pound (1931) and successively of the Syrian pound (1936); Egypt/Britain and Syria/France preferential trade agreements; the rise of nationalism. All these forces caused an increase of the price differentials between trading markets, potentially leading to their disintegration. At the same time, other factors may have favoured integration: the relative low rates of protection in Egypt until early 1930s; the expansion and improvements of physical infrastructure in both countries, which had a positive impact on transport costs; and the development of better commercial institutions which lowered transaction costs. Since we have already discussed the evolution of the use of protectionist practices between Syria and Egypt, sub-sections 5.1 and 5.2 will have a closer look at transport and transaction costs.

5.1 Transport

Both Syria and Egypt underwent a process of infrastructure development during the interwar, particularly the transport sector. In Egypt the transport system was improved by the building of roads and airports and the modernisation of railways (Issawi 1963, p. 32), which lowered shipping costs domestically. The cost of rail transport was constantly reduced, in response to an increase in motor competition.³⁰ Railway tariffs were adjusted downward to encourage exports and to help local agriculture and industry by carrying bulky products at reduced rates (Issawi

³⁰While water transportation along the Nile represented another source of competition, most commodities were transported by train due to the quicker delivery time and to the fact that river transport was not much available in Lower Egypt (Fahmy 1931:100).

1963:202). As a result, the capital stock in transportation rose, as mirrored by the increase in railway length (Table 3). International transport costs were reduced, too; in fact, a series of subsidies were granted to Egyptian shipping companies, which expanded their merchant fleet.³¹

In Syria the French administration embarked on an extensive program of transport development. French policymakers became particularly active from 1933/4 with the appointment of Count Damien de Martel as new high commissioner, who established a six-year plan to promote the development of roads, railways, ports and irrigation (Gates 1998, p. 31). Road building was expanded through a systematic program (Table 4): three longitudinal trunk lines were constructed, each traversing one of the three plains running parallel to the coast (from Râs al-Nâkûra via Tyre, Didon, Beirut, Tripoli, Latakia and Antioch, to Aleppo; from Tyre via Zahlah, Baalbak, Homs and Hama, to Aleppo; from Dar'a via Damascus to Homs). A series of transverse lines joining the plains and valley by connecting them across the mountain ranges was also developed, for example from Beirut to Damascus, from Tripoli to Homs, from Latakia to Aleppo (Himadeh 1936:179).

French capital financed most railroad expansion and maintenance during the mandate: rail tracks grew from 525 to 950 miles between 1914 and 1938 (Grunwald and Ronall 1960:55). Railway rates experienced a sharp decline since 1928, due to increased competition from motor vehicles. Himadeh (1936:184-5) reports that from 1928 railway rates were modified from week to week to meet this competition and that freight rate dropped from 5.62-8.10 Syrian piasters per ton in the late 1920s to 1-2 piasters per ton in the mid-1930s.

Shipping facilities were also improved: in particular, the port of Beirut expanded, doubling in size, and endowed with larger warehouses.³² Postal and telegraphic services experienced

³¹Another major improvement in transportation was connected with the development of the Suez Canal: between 1876 and 1934 six improvement programs were implemented increasing trade efficiency and thus expanding merchandise flows. However, this did not have any impact on Syro-Egyptian trade.

³²However, all loading, unloading and storage transaction were monopolised by a French company, thus resulting in high port charges (Himadeh 1936, p. 234).

considerable progress, strengthening regional communications. Moreover, the first telephone lines were installed both within the Syrian territory and in connection with Palestine, Transjordan and Egypt.

5.2 Commercial institutions

The interwar period saw the consolidation and expansion of a series of institutions focusing on trade, particularly commercial banks, in both countries. In Egypt, some of the gaps of the credit system were filled by the creation of specialised, government-sponsored banks which, among other things, facilitated trade transactions (Issawi 1963, p.33). The foundation of the Egyptian Chamber of Commerce in Cairo was followed by the formation of other commercial banks in the 1920s easing both domestic and international trade. A particularly important role was played Bank Misr, the first purely Egyptian owned and managed institution, mirroring the rise of the Egyptian merchant and business community. The increase in the capital base of the bank facilitated the availability of credit for import-export activities (Tignor 1984). Its special linkages with Syria consolidated trade relations between the two countries. Moreover, new multinational bank branches dealing with domestic and international trade were opened: British and French banks, already widespread in the Egyptian territory before WWI, were joined by Italian and Belgian ones.

In Syria both foreign and domestic banks expanded the scope of their operation in the 1920s and 1930s, with commercial banking representing a major component of their activities. French banks opened new branches in different Syrian cities, all dealing with foreign trade: the Banque Française de Syrie, established in 1919; the Crédit Foncier d'Algérie et de la Tunisie opened its first branches in Beirut (1921) Aleppo (1930) Damascus and Tripoli (1931); the Compagnie Algérienne expanded to Beirut (1931) and Tripoli (1932); the Banco di Roma, confined to purely commercial banking, established three branches in Beirut, Aleppo and Damascus after WWI (Himadeh 1936 287-8).

Another chief banking establishment contributed to improve commercial operations, particularly between Syria and Egypt: the Banque Misr-Syrie-Liban. It was founded by the Bank

Misir in collaboration with a group of Syrian financiers with the aim of improving trade and economic relations between the two countries (Himadeh 1936, p.290).

Figure 3 illustrates the movement of price gaps between various Syrian and Egyptian goods sold in Beirut and Alexandria, respectively. A visual inspection of the data does not allow us to identify a clear common trend among prices, which makes it difficult to evaluate whether the described improvements in transport and commercial institutions were enough to counter the impact of rising protectionism and of the other forces disrupting trade. Thus, an assessment of the process of market integration between the two markets requires a more thorough analysis. In the following section, after describing the dataset, we will define our empirical strategy.

6 Data

One of our contribution stems for the creation of a new dataset for Syrian prices, using a completely unexplored primary source: the *Bulletin Économique Trimestriel des pays sous Mandat Français*. Egypt's prices are taken from the *Annuaire Statistique*. We collected quarterly data on eight commodities commonly used by Egyptian and Syrian consumers in Alexandria, Cairo, Beirut and Aleppo: wheat, olive oil, barley, flour, sugar, rice, coffee, soap. Our final data have been converted in £GB per kg. All Egyptian goods were expressed in Egyptian piasters (100 piasters equal to 1£E) and were converted in £GB using the following exchange rate: 1£E= 1.025 £GB (El Imam 1962). Prices were reported in the following units: wheat (type Zawati) in *ardeb* of 150kg; barley (type baladi Beheri) in *ardeb* of 120 kg; rice (type de Damiette, mahsous) in *kadah* of 1.835 kg; coffee (type Santos, no. 1) in *rotl* of 0,449 kg; sugar (type granulé), olive oil (type de Candie) and flour in *oke* of 1.248 kg; soap (type baladi, Kafr el Zayat) in *rotl* of 0,449 kg.

Syrian goods were originally either in Turkish or Syrian piasters and converted in £GB using the quarterly exchange rates published in the various issues of the *Bulletin Économique* (1923-1939). The following units were used for prices in Beirut: *ocque* of 1.280 kg for coffee; *kantar* of 256 kg for wheat and barley; *rotol* of 2.564 kg for soap, flour and sugar; kg for rice. Prices in Aleppo were reported in kg or quintals.

7 Methodology

Using the framework offered by co-integration analysis, our study of market integration explores the evolution of the relationship between commodity prices in Syria and Egypt both in the long and short-run. This approach is widely used in the literature as attested by the large body of theoretical and empirical studies, including those within the field of economic history.³³ In the past few years the debate on how market integration should actually be measured has been quite lively, with scholars resorting to sophisticated econometric tools, mainly based on co-integration or price dispersion (Uebele 2011, Jacks 2005, Federico and Persson 2007, Sharp 2008). To this purpose, we draw from the so-called “weak form” of the LOP, identifying the following relationship between prices:

$$y_{i,t}^A - y_{i,t}^B \leq c_{i,t}^{AB}, \quad (1)$$

where subscript i stands for different commodities, t denotes a time period, A and B refer to two locations and c to the cost of transferring i from A to B. The condition of full price equality embodied by the so-called ‘strong form’ of the LOP (i.e. $y_{i,t}^A - y_{i,t}^B = c_{i,t}^{AB}$) is unlikely to occur in the short-run, and even more so in our historical setting. Nevertheless, the relationship described in equation 1 constitutes an equilibrium condition, since spatial arbitrage will ensure that $y_{i,t}^A - y_{i,t}^B$ will move towards $c_{i,t}^{AB}$. In our empirical analysis we will investigate the degree of price transmission between Syrian and Egyptian commodity markets focusing on two specific aspects of the LOP:

- 1) The fulfilment of equation 1, which embodies the existence of price co-movement or completeness of price adjustments between locations. This is tested through co-integration tests.
- 2) The dynamics of the price relationships, represented by the speed of adjustment to the equilibrium defined in (1), after a price change in one location. This will highlight the degree of market

³³For an excellent review of the existing economic history literature on market integration see Federico 2012.

efficiency (Federico 2012) and will be performed via analysing impulse response functions.

Let us start with a description of the data: the collected prices for different commodities and geographic locations exhibit several stylised properties that are commonly met in applied studies of financial time series and which are properly modelled in the empirical model. First of all, the individual time series are persistent (the current value of a variable depends in a dynamic fashion on its past realizations) and unit-root non stationary or $I(1)$ (see Uhlig, 1994).³⁴ Two $I(1)$ variables are considered co-integrated if their linear combination contains a common stochastic trend, thus representing a unit-root stationary process. While co-integration is interpreted as a long-term equilibrium relationship between variables, this must not hold exactly at each particular period. The deviations from the long-run equilibrium constitute the short-term dynamics of the price relationship. All these features of the data will be treated empirically by computing Vector Error Correction Models (hereinafter VECM) and Impulse Response Functions (hereinafter IRF) for each commodity.³⁵

The historical dataset presented in Section 6 is cumbersome for the empirical analysis, because it consists of time series that are scarce in the numbers of observations. Commodity prices are collected for the period starting from the first quarter of 1923 and finishing in the first quarter of 1939, so that $T=65$. The small amount of observations complicates classical statistical inference to the extent that it casts well justified doubts on whether the asymptotic properties of the estimators and test statistics hold.³⁶ We therefore use a different approach, namely Bayesian inference.

The Bayesian approach makes a clear distinction between the statistical treatment of observed and unobserved values. Observables, that is data y , are treated as given and non-random, whereas all unknown values, such as: parameters of the econometric model, collectively de-

³⁴The econometric treatment of unit-root non-stationary variables leads to a nonstandard inference within the classical approach, but does not change the inference rules in the Bayesian approach (Sims and Uhlig, 1991).

³⁵VECMs were first introduced by Engle and Granger (1987).

³⁶One possible solution that addresses this problem is to perform an analysis of the small-sample empirical distribution of the estimator and test statistics using bootstrap methods.

noted by θ , forecasted future values of the economic variables, and missing observations, are characterised by probability distributions. The final product of Bayesian estimation is the posterior distribution of the parameters given data and the model, $p(\theta|y, A)$, where A denotes the assumptions behind the econometric model. The posterior distribution summarises all the information about the parameters of the model contained in the sample data. It is a finite-sample distribution which represents the basis for a coherent Bayesian statistical inference (see e.g. DeGroot, 1969). Therefore, inference based on the posterior distribution is valid in small-samples given that the model, A , is specified correctly. In the subsequent parts of this section the structural VEC Model and its Bayesian treatments are presented.

7.1 Structural Vector Error Correction Model

A Structural VEC Model is defined by:

$$A_0 \Delta y_{i,t} = \mu_i + \alpha \beta' y_{i,t-1} + B_{i,1} \Delta y_{i,t-1} + \dots + B_{i,p} \Delta y_{i,t-p} + u_{i,t}, \quad (2)$$

for $t = 1, \dots, T$ where $\Delta y_{i,t} = y_{i,t} - y_{i,t-1}$ is a N -dimensional vector of the first differences of vector $y_{i,t}$, A_0 is a $N \times N$ matrix of contemporaneous effects, μ_i is a N -dimensional vector of constant terms, α and β are $N \times r$ matrices of so called loading coefficients and co-integrating vectors respectively, $B_{i,l}$ for $l = 1 \dots, p$ are $N \times N$ matrices of the short-run dynamics, and $u_{i,t}$ is a N -dimensional vector of error terms that is assumed to follow a N -variate normal distribution with mean set to a vector of zeros, and an identity covariance matrix.

Several features of this model are especially useful in the analysis of the integration of commodities markets. First of all, VECMs explicitly model the long-run equilibrium relationship between the variables which is represented by a vector product $\beta' y_{i,t-1}$. This, despite containing $I(1)$ variables, is stationary. Matrix β is assumed to be semi-orthonormal, that is $\beta \beta' = 1_r$, which assures the global identification of the system $\alpha \beta'$.³⁷

³⁷See Strachan and Inder, 2004 for the solutions to a global and local identification of the system that is

The essential information to assess the presence of integration (or the absence thereof) is the co-integration rank, r , which indicates the number of co-integrating relationships. In the context of our analysis, if the number of the co-integrating relations is greater than one, but less than the total number of the markets analysed in a particular model, then there exists a long-run equilibrium between the markets in particular cities. That case represents the hypothesis of market integration. If the number of the co-integrating relations is equal to zero ($r=0$), then the commodities prices are unit-root non-stationary, but not co-integrated, which implies that the local markets are not integrated in the long-run. If the number of co-integrating relations is equal to the number of variables in the system ($r=N$), then the variables are unit-root stationary, and thus co-integration analysis is not a proper tool to investigate the integration of markets.

7.2 Impulse Response Functions Analysis

IRF analysis represents another useful tool to investigate the timing patterns of commodity market integration (see e.g. Lütkepohl, 2005, for a textbook exposition). The study of IRFs allows us to identify the time patterns of the responses of all variables in the system to a shock of unit value in one of them.

We analyse the responses to orthogonal shocks, $u_{i,t}$, through the $(N - 1)N/2$ just-identifying restrictions imposed on the lower-diagonal elements of matrix A_0 (see Rubio-Ramirez, Waggoner and Zha, 2010, for the newest developments in the identification of structural models). The exclusion restrictions are based on the analysis of the geographical structure, market power and supply chains for each commodity. Since a lower-triangular matrix of contemporaneous effects is used, the role of a particular location in affecting the remaining locations instantaneously is determined by the ordering of the variables in vector $\Delta y_{i,t}$. These considerations are presented for each particular commodity market in Section 8 and in Appendix A.

The use of Bayesian estimation allows us to obtain the posterior distribution of each IRFs. In order to formally assess the statistical significance of the effects of a shock on one of the variables on the others, we report the IRFs 25th and 75th percentiles.

implemented also in this paper.

7.3 Co-integration using Bayesian VECMs

The employment of the Bayesian approach was already motivated for its usefulness for small-sample analysis. In this section some other Bayesian techniques that make co-integration analysis informative are described.

The posterior distribution, $p(\theta|y, A)$, is proportional up to a normalising constant to the product of the likelihood function, $L(\theta; y)$, and a prior distribution of the parameters, $p(\theta)$. The form of the likelihood function is determined by equation (2) and the normality assumption for the error term. The prior distribution reflects the knowledge of the researcher about the parameters prior to seeing the data. Many different premises can determine it; however, in this study its choice is motivated by the identification of the co-integrating space as well as by the small time dimension of the data.

Following Johansen (1988) we identify $\alpha\beta'$ as the co-integrating space, spanned by the plane determined by the vectors of matrix beta, and not by the elements of this matrix themselves. Thus, our prior distribution is specified for the co-integrating space (and not for the parameters of matrix beta) by the informative prior distribution of Strachan and Inder (2004). Moreover, the prior distributions for the remaining parameters of the model are chosen to belong to the class of adaptive shrinkage prior distributions (see Korobilis, 2013, and Giannone, Lenza and Primiceri, 2012). These priors are multivariate normal distributions with the mean set to a vector of zeros of appropriate dimension. The covariance matrix is a diagonal matrix, and its diagonal elements are further estimated. The shrinkage occurs if the values of variances a priori of the parameters are less than the values of their variances a posteriori. Such mechanism proved to be very useful in the estimation of empirical models with a large number of parameters given the sample size (see Giannone, Lenza and Primiceri, 2012). This case is very relevant for the analysis of our data because the potential number of the parameters of the estimated VECM will be large compared to the sample size $T=65$. Thus, the employment of Bayesian adaptive shrinkage technique makes the estimation of such a large model possible and it also improves the its in-sample fit. The estimation of the diagonal elements of the covariance matrix of the normal prior distribution reduces the arbitrariness in the choice of prior specification

and further improves the model fit. The reader is referred to the Statistical Appendix for more details on the prior specification.

The posterior computations are performed following the analysis of Koop, Leon Gonzalez and Strachan (2009), with the difference that the panel data dimension is neglected here and simple VEC Models are estimated for each commodity. Some further modifications to the prior distributions are introduced as presented in the Statistical Appendix.

In order to test whether the variables are unit-root non-stationary, models with co-integration rank set to the number of variables in the system, $r = N$ (representing the hypothesis of stationarity) are estimated and compared to those that assume non-stationarity. The model representing the hypothesis of unit-root stationarity of the variables is equivalent to the model in equation (2) with restrictions imposed on matrices alpha and beta. Beta is here a $N \times N$ identity matrix, and alpha is a $N \times N$ matrix such that the largest eigenvalue of matrix $\alpha + I_N$ is less than one.

The VECM is fully specified by selecting the lag order p , and the co-integrating rank r . In order to choose these two values we compute the so called Bayes factors of the models including all the possible combinations of $r = 1, \dots, N$ and $p = 1, \dots, 4$, as well as a model with no lags, $p=0$, and zero co-integrating relationships, $r = 0$ (Kass and Raftery 1995). The Bayes factors are equal to the ratio of the posterior probabilities of the former models to the posterior probability of the latter ($p = 0; r = 0$) provided that all models have the same probability a priori. Selecting the model that has the highest Bayes factor value determines the values of p and r . The Bayes factors are estimated by computing the Savage-Dickey density ratio (see Verdinelli and Wasserman, 1995, and Koop et al., 2009). The reader is referred to the Statistical Appendix for the analytical formula for the computations.

After computing the Bayes factors and specifying a VECM for each commodity, we calculate IRF. This requires to set some restrictions on the lower diagonal elements of matrix A_0 , which are chosen for each commodity according to bilateral trade patterns and to supply chains. First of all, it is important to highlight that trade between Syria and Egypt took place mainly via steam and sail ships through the ports of Beirut and Alexandria. Specific data on the number of

ships cleared in Beirut and Alexandria are provided by the *Bulletin Économique* and the *Annuaire Statistique* respectively. Data on trade patterns and composition are only sporadically available for each year and for each commodity type. Table 5 provides some evidence on the direction and magnitude of bilateral trade for some of the goods analysed in our study. Thus, when analysing Syrian exports to Egypt (wheat, barley, olive oil, soap, flour, sugar), Syrian cities are considered as the dominant markets, impacting Egyptian prices. The opposite is assumed for Egyptian exports to Syria (rice, and coffee).

Such relations among cities establish the magnitude of the contemporaneous impact of particular markets on prices in other locations and will be informative of the speed of price convergence among different markets. These will be described in more details in the following section.

8 Empirical results

By visually investigating the data plotted in Figures 4 and 5, only the Cairo and Alexandria markets seem to show some common co-movement patterns for most traded goods. Table 6 reports the Bayes factors for each commodity market, using 1 lag.³⁸ The results provide a strong support for unit root non stationarity of all variables, as the models with co-integrating rank equal to N (i.e. the maximum number of locations) have negligible posterior probability (the smallest value of the Bayes factor). They indicate that the rank selection procedure supports the co-integration hypothesis of most markets with $r = 1$, as confirmed by the highest Bayes factor. However, the posterior probability mass of having a co-integration relationship with $r = 1$ is negligible for the olive oil, soap and coffee markets.³⁹ The probability of having a co-integration relationship is calculated by solving a system of equations of the computed Bayes factors. For example in the case of soap:

³⁸These results are consistent for all lag orders.

³⁹We consider negligible the probability for co-integration to occur if $Pr[M_1|data]/Pr[M_0|data] < 5\%$.

$$\begin{cases} -2.73 = \ln \frac{Pr(r=1)}{Pr(r=0)} | y, A \\ -4.898 = \ln \frac{Pr(r=2)}{Pr(r=0)} | y, A \\ Pr(r=0) + Pr(r=1) + Pr(r=2) = 1 \end{cases} \quad (3)$$

Hence $Pr(r=0) \approx 93\%$

Sugar is the commodity which provide the strongest support for co-integration, as the two models with $r = 1$ and $r = 2$ gather around 22 and 76 percent of the posterior probability mass respectively. While the Bayes factors provide support for the existence of a long-run linkages between prices, we need to investigate further the timing patterns of the identified co-integration relationships. To this purpose we plot the IRFs for each co-integrated market; these allow us to gain a more thorough understanding of the mechanism of price pass-through between locations. The computation of IRFs requires the identification of exclusion restrictions on matrix A_0 . Such restriction choices have been guided by the nature of supply linkages between Syrian and Egyptian cities. While the commodities included in our analysis were generally both imported and exported bilaterally, Syria was predominantly a supplier of wheat, barley, flour and sugar to Egypt and Egypt an exporter of rice to Syria. Thus, for example, in the case of barley and wheat, the A_0 matrix restrictions assume that: 1) the prices in Beirut were likely to affect other markets, whereas Egyptian cities did not impact the prices in Beirut within one quarter; 2) the prices in Aleppo had contemporaneous effects on the prices in Beirut and Alexandria; 3) the prices in Alexandria affected contemporaneously the prices in Cairo, but not conversely.

This analysis is necessary in order to determine the order of variables in vector $\Delta y_{i,t}$ and in effect to establish contemporaneous relations between the markets. The order of the variables is: Cairo, Alexandria, Beirut and Aleppo, and therefore the left-hand side of equation (2) can now be presented as:

$$\begin{bmatrix} A_{0.11} & A_{0.12} & A_{0.13} & 0 \\ 0 & A_{0.22} & A_{0.23} & A_{0.24} \\ 0 & 0 & A_{0.33} & A_{0.34} \\ 0 & 0 & A_{0.43} & A_{0.44} \end{bmatrix} \begin{bmatrix} \Delta y_{Cairo.t} \\ \Delta y_{Alexandria.t} \\ \Delta y_{Aleppo.t} \\ \Delta y_{Beirut.t} \end{bmatrix} \quad (4)$$

The A_0 restriction matrices for all commodities are reported in Appendix A.

Figures 6 to 12 present the IRF for each commodity. They show for each city the price impact to a shock in all other locations. For instance, in the case of barley (Figure 6) the first IRFs (top left panel) represent the responses of the barley prices in Cairo to the positive price shock of value one in all other markets.

A common pattern emerges from the IRFs of each commodity. The only significant impact of orthogonal price shocks between locations is found within Egyptian markets, with exogenous shocks to Alexandria affecting Cairo's barley, flour, sugar and wheat prices and shocks in Cairo's rice market impacting Alexandria. Moreover, we can observe that the transmission of shocks between these two markets dies out quickly, as IRFs are significant only for 1 or 2 lags (i.e. 1 or 2 quarters), thus highlighting the relatively transitory nature of shocks. The IRFs for the sugar market, which provides the stronger support for co-integration, confirms the above described dynamics. Shocks to the Cairo market provoke short-run price adjustments in Alexandria. Thus, although the IRFs are consistent with integration of Egyptian prices, we can observe that in general price linkages were less than perfect.

The Bayes factors have also provided almost no evidence of integration for the olive oil, coffee and soap markets. The IRF analysis for these commodities illustrates that each of these markets responded only to own price shocks and not to shocks to the other cities. Thus, as was the case for the co-integration tests, the results are consistent with the absence of spatial integration in such markets.

To summarise, our estimations point to the existence of integration in some commodity markets. However, the IRF analysis revealed that the strongest linkages occurred within Egypt's

markets, rather than between Syria and Egypt. Our results are thus compatible with those of Tariq Yousef (2002) who found the Egyptian internal markets to be co-integrated.

9 Conclusion

This paper has explored the issue of integration between various important Syrian and Egyptian commodity markets after the disruption of the Ottoman Empire. Using multivariate time series analysis based on structural VECMs, we computed Bayesian factors to select the appropriate model for each commodity. This methodology allowed us to investigate the dynamics of the relationship among prices in Cairo, Alexandria, Aleppo and Beirut and their evolution across time. The analysis was matched with the computation of impulse response functions for each market, in order to capture the impact of orthogonal shocks in one location onto the others. After the incorporation of Syria and Egypt into the French and British spheres of influence, trade linkages between the two countries deteriorated considerably, particularly after the Great Depression, when Egypt gained tariff autonomy. This generated an escalation of protectionist policies, which, coupled with the use of competitive devaluations, further damaged the economic relationship between the two countries. While at the same time both Egypt and Syria saw an improvement of their infrastructure and commercial institutions, our analysis indicates that these developments were not enough to counter the impact of protectionist trade policy. The induced increase in price wedges between the two economies inhibited regional price transmission, thus leading to the absence of price pass-through. Moreover, it is likely that the transmission of price signals was strongest between the Egyptian cities of Cairo and Alexandria, as confirmed by the IRF analysis.

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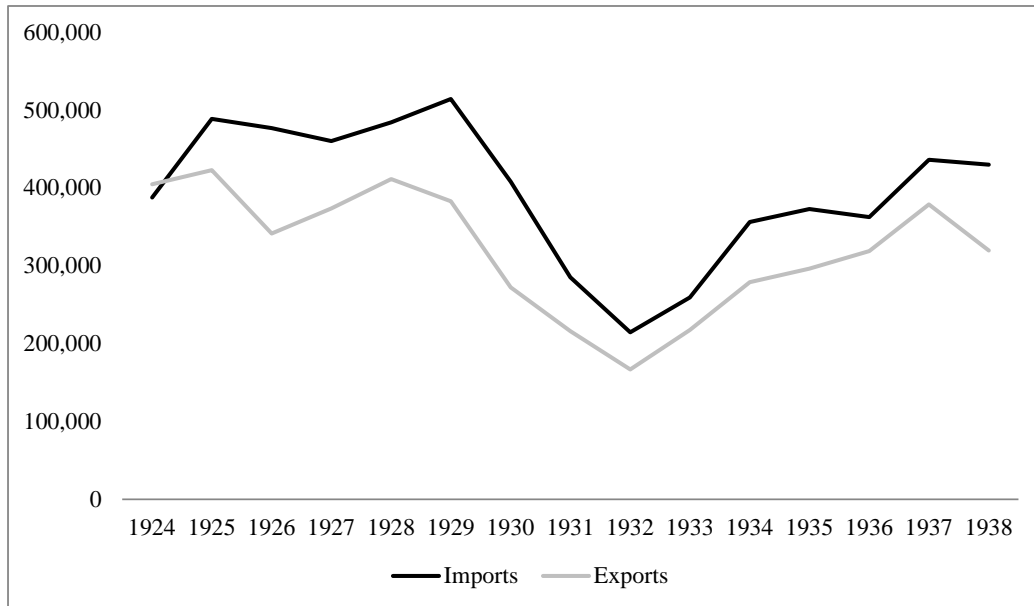
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A Figures

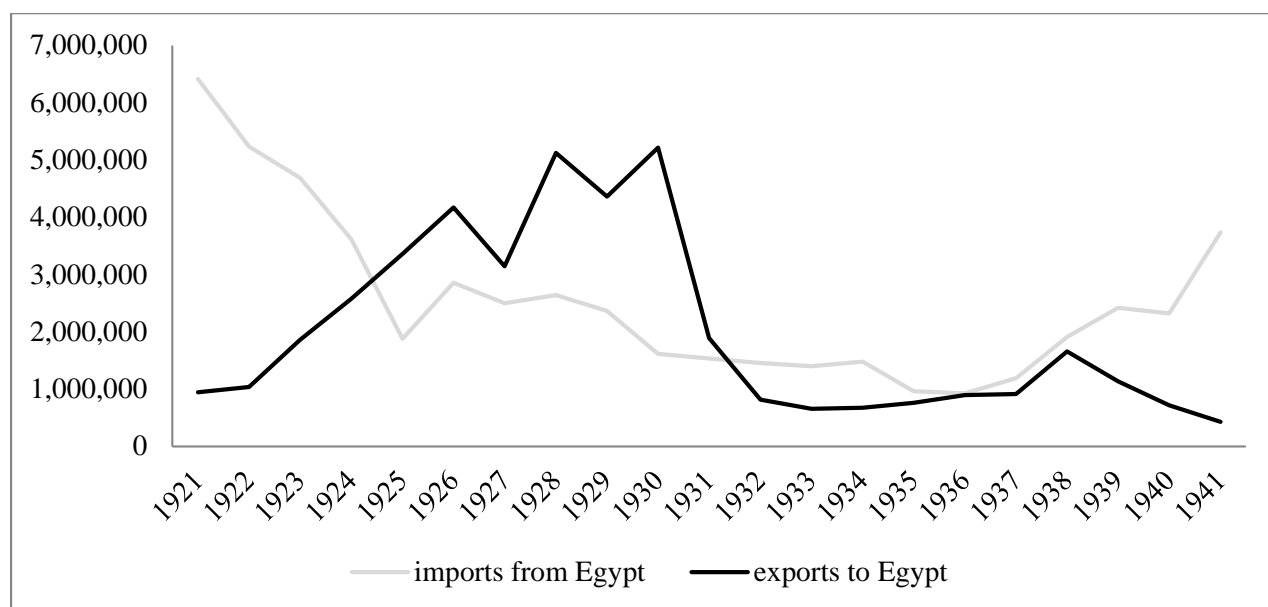
Figure 1: Middle Eastern total imports and exports in thousands US dollars, 1924-38.



Notes: Includes trade of Syria, Egypt, Turkey, Iraq and Palestine.

Sources: Iraq: League of Nations (1924-41). Egypt: Annual bulletin of foreign trade (1924-41). Jewish Agency for Palestine (1945). Turkey: İstatistik Göstergeler (1991). Syria: Saade (1942) and Sluglett (2004). Palestine: Himadeh (1938); Anglo-American Committee of Inquiry on Jewish Problems in Palestine and Europe (1946).

Figure 2: Trade between Syria and Egypt, 1921-1941 in thousands of Syrian pounds.



Sources: 1921-4: Haut Commissariat de la République Française en Syrie et au Liban (1927); 1925- 33: Himadeh (1936); 1934: Bulletin (1934); 1935-1941: Saade (1942).

Figure 3: Price gaps between Syrian and Egyptian commodities, 1923-39.

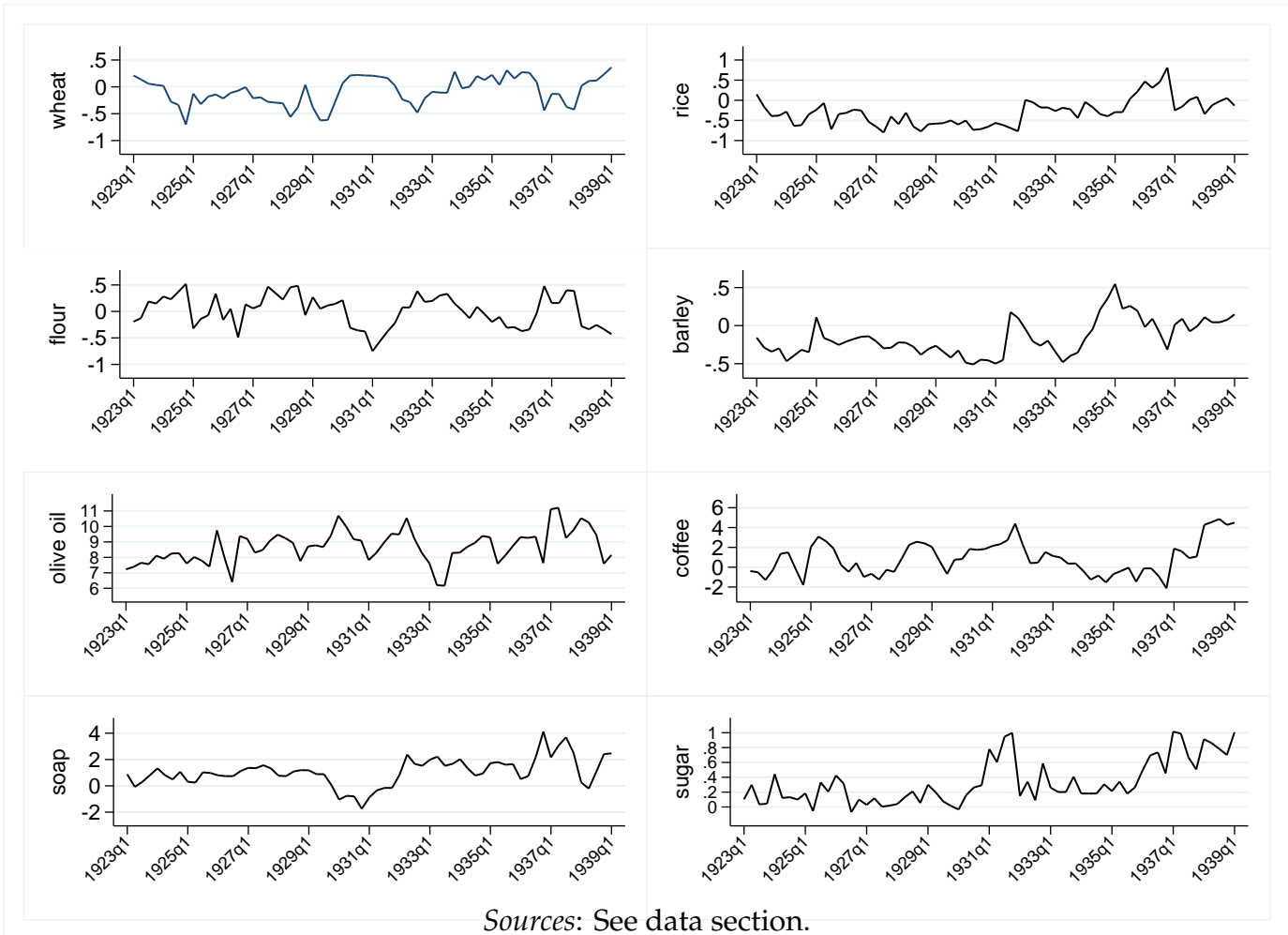
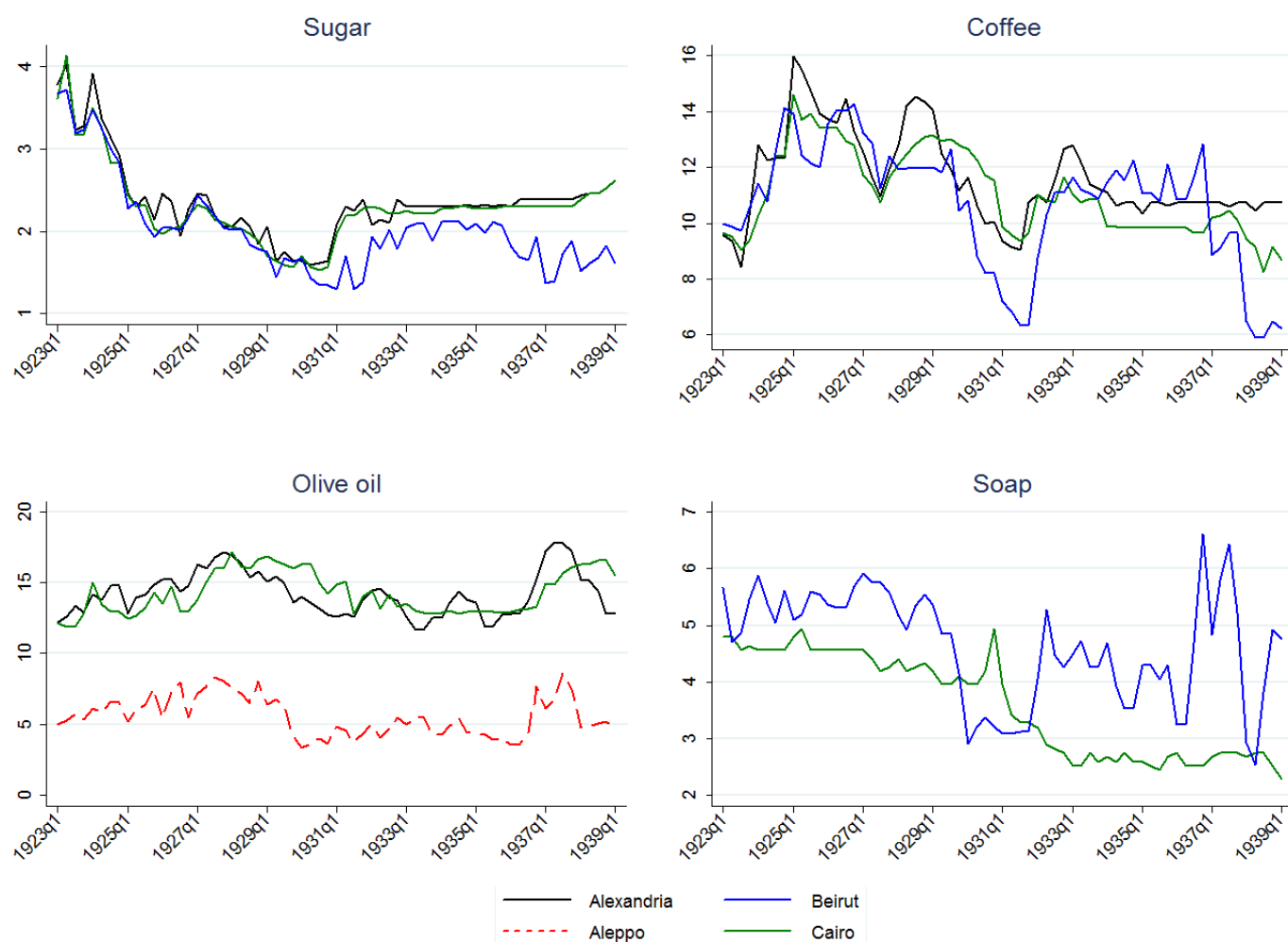


Figure 4: Price of wheat, rice, flour and barley in Egypt and Syria, 1923-1939



Sources: See data section.

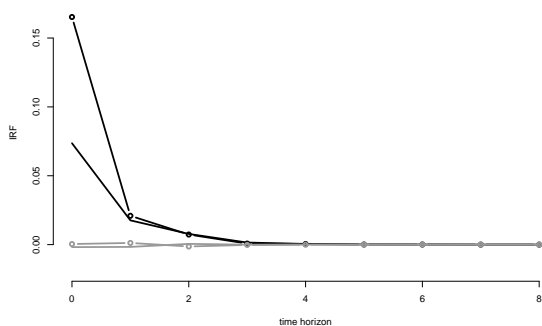
Figure 5: Price of sugar, coffee, olive oil and soap in Egypt and Syria, 1923-1939



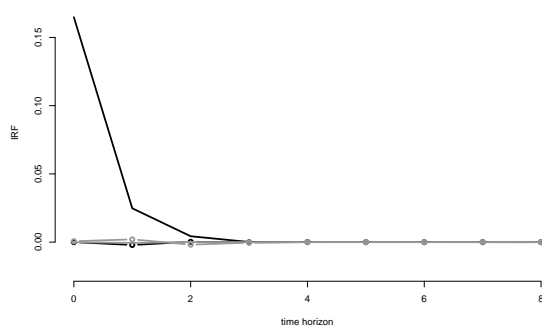
Sources: See data section.

Figure 6: Barley: impulse response functions analysis

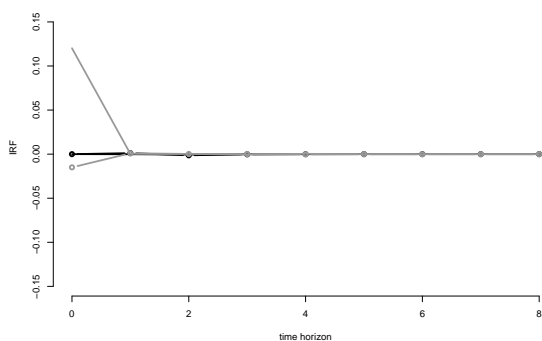
Shocks to Cairo



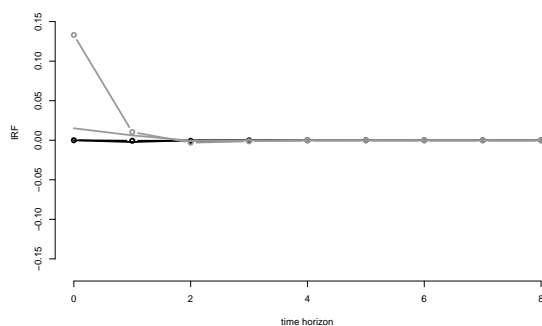
Shocks to Alexandria



Shocks to Beirut

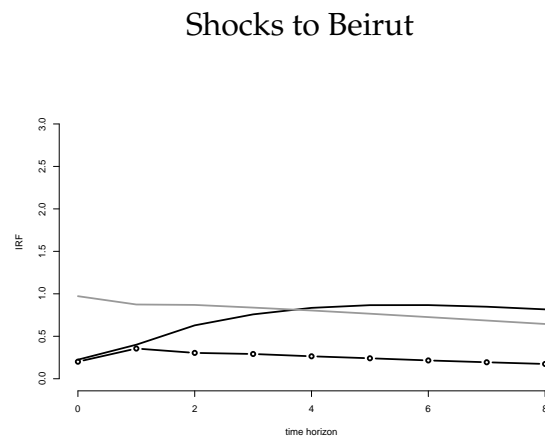
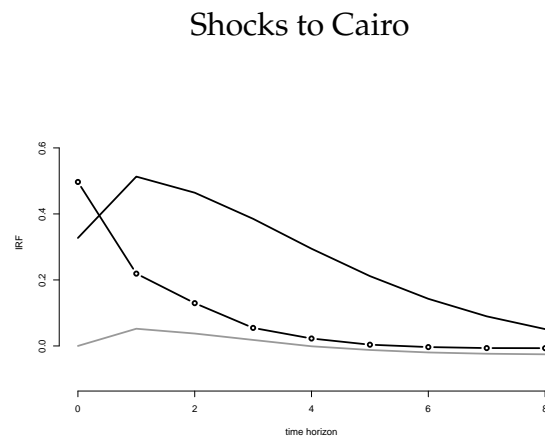
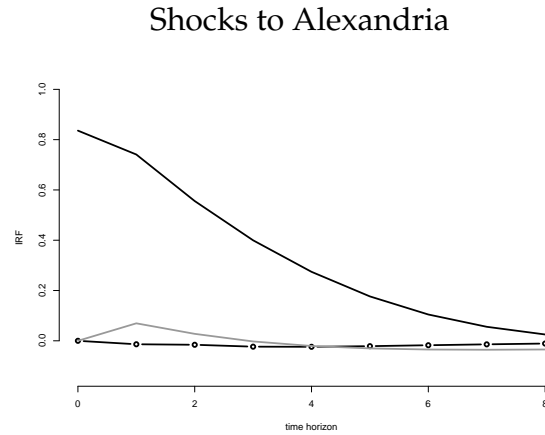


Shocks to Aleppo



Note: Each of the graphs represents the impulse response function (IRF) of a price shock from all the considered cities to prices in cities listed above the graphs. Black lines denote IRF of shocks from Egyptian cities, whereas grey lines denote IRF of shocks from Syrian cities. Black continues line denotes IRF from Alexandria, black dotted line denotes IRF from Cairo, grey continues line denotes IRF from Beirut, whereas grey dotted line denotes IRF from Aleppo. The horizontal axes represent time horizon after the appearance of the price shocks.

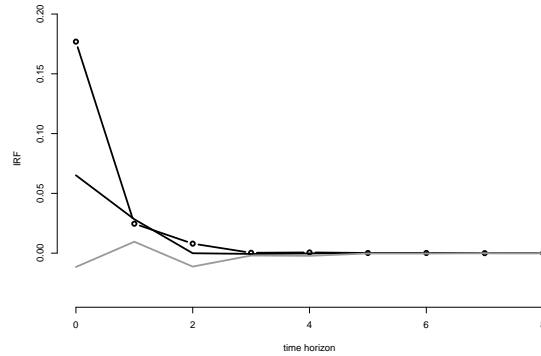
Figure 7: Coffee: impulse response functions analysis



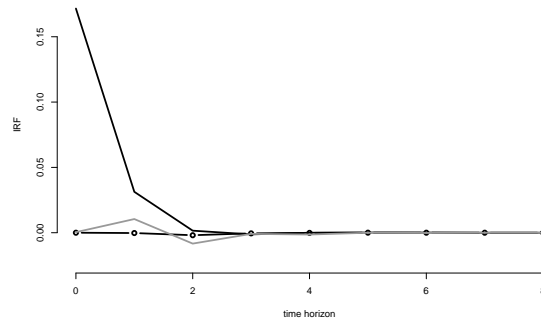
Note: Each of the graphs represents the impulse response function (IRF) of a price shock from all the considered cities to prices in cities listed above the graphs. Black lines denote IRF of shocks from Egyptian cities, whereas grey lines denote IRF of shocks from Syrian cities. Black continues line denotes IRF from Alexandria, black dotted line denotes IRF from Cairo, grey continues line denotes IRF from Beirut. The horizontal axes represent time horizon after the appearance of the price shocks.

Figure 8: Flour: impulse response functions analysis

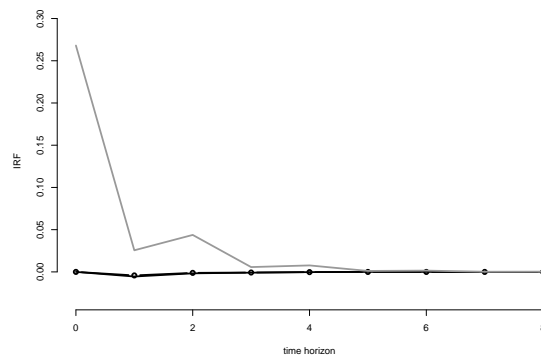
Shocks to Cairo



Shocks to Alexandria



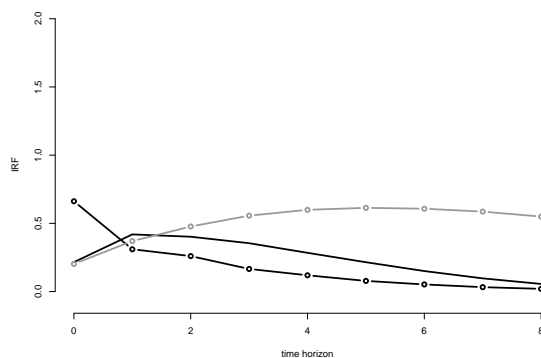
Shocks to Beirut



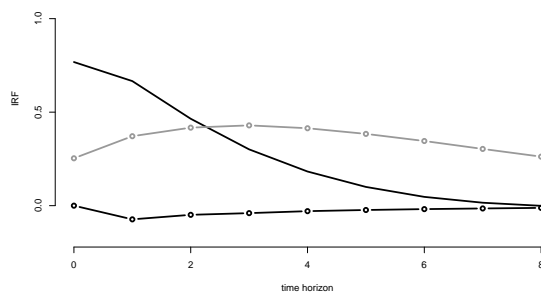
Note: Each of the graphs represents the impulse response function (IRF) of a price shock from all the considered cities to prices in cities listed above the graphs. Black lines denote IRF of shocks from Egyptian cities, whereas grey lines denote IRF of shocks from Syrian cities. Black continues line denotes IRF from Alexandria, black dotted line denotes IRF from Cairo, grey continues line denotes IRF from Beirut. The horizontal axes represent time horizon after the appearance of the price shocks.

Figure 9: Olive oil: impulse response functions analysis

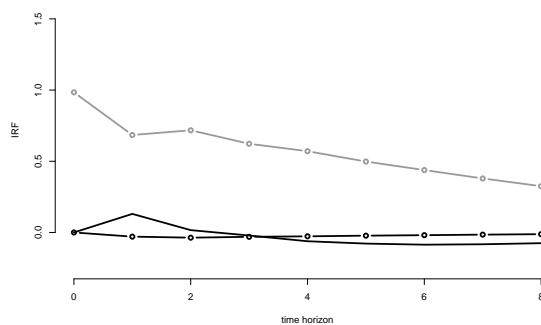
Shocks to Cairo



Shocks to Alexandria



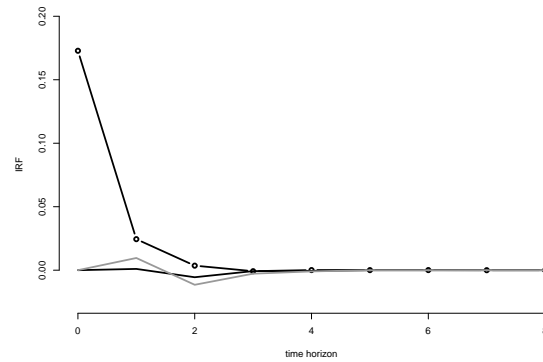
Shocks to Aleppo



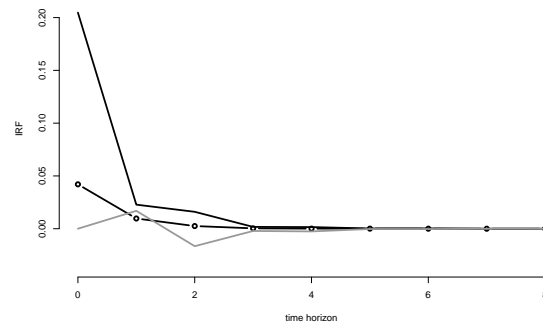
Note: Each of the graphs represents the impulse response function (IRF) of a price shock from all the considered cities to prices in cities listed above the graphs. Black lines denote IRF of shocks from Egyptian cities, whereas grey lines denote IRF of shocks from Syrian cities. Black continues line denotes IRF from Alexandria, black dotted line denotes IRF from Cairo, whereas grey dotted line denotes IRF from Aleppo. The horizontal axes represent time horizon after the appearance of the price shocks.

Figure 10: Rice: impulse response functions analysis

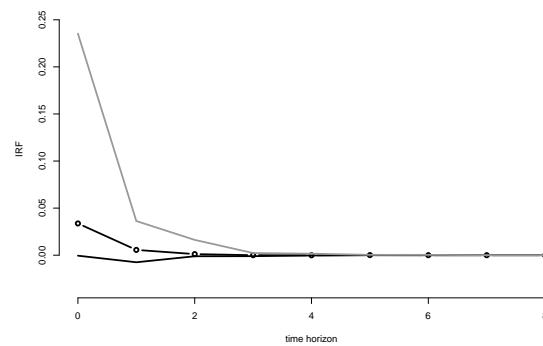
Shocks to Cairo



Shocks to Alexandria



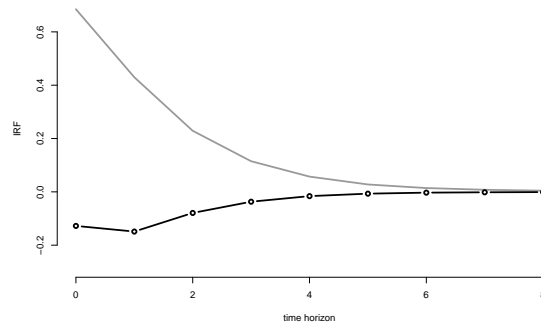
Shocks to Beirut



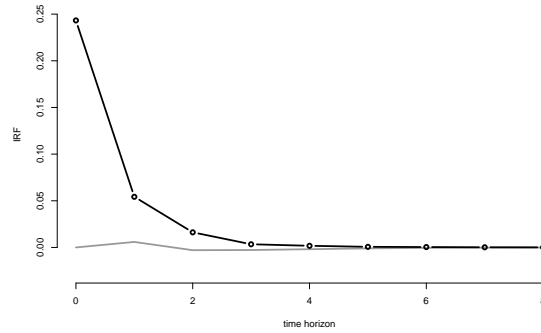
Note: Each of the graphs represents the impulse response function (IRF) of a price shock from all the considered cities to prices in cities listed above the graphs. Black lines denote IRF of shocks from Egyptian cities, whereas grey lines denote IRF of shocks from Syrian cities. Black continues line denotes IRF from Alexandria, black dotted line denotes IRF from Cairo, grey continues line denotes IRF from Beirut. The horizontal axes represent time horizon after the appearance of the price shocks.

Figure 11: Soap: impulse response functions analysis

Shocks to Beirut



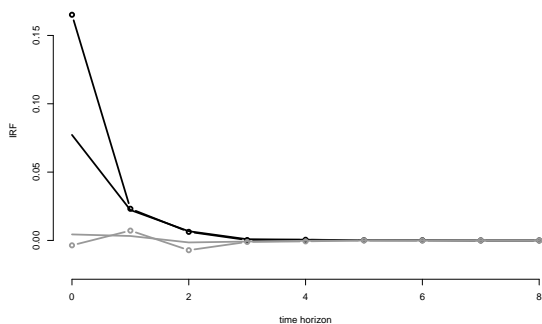
Shocks to Cairo



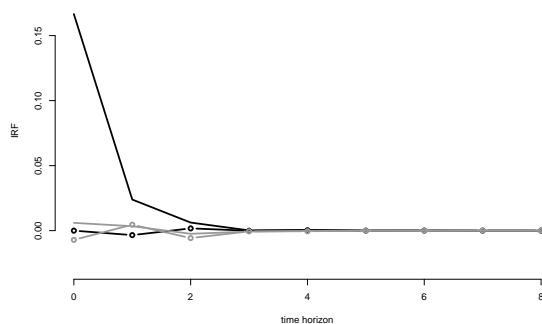
Note: Each of the graphs represents the impulse response function (IRF) of a price shock from all the considered cities to prices in cities listed above the graphs. Black lines denote IRF of shocks from Egyptian cities, whereas grey lines denote IRF of shocks from Syrian cities. Black dotted line denotes IRF from Cairo, grey continues line denotes IRF from Beirut. The horizontal axes represent time horizon after the appearance of the price shocks.

Figure 12: Wheat: impulse response functions analysis

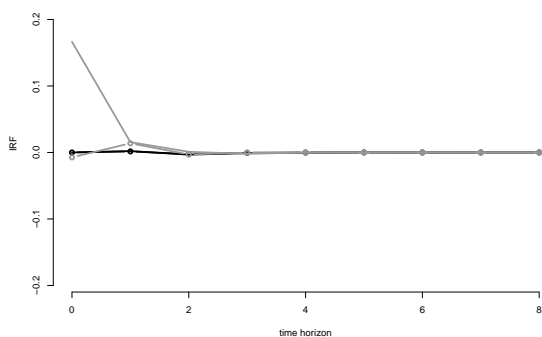
Shocks to Cairo



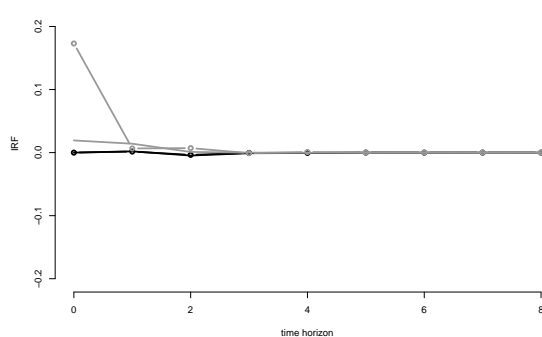
Shocks to Alexandria



Shocks to Beirut



Shocks to Aleppo



Note: Each of the graphs represents the impulse response function (IRF) of a price shock from all the considered cities to prices in cities listed above the graphs. Black lines denote IRF of shocks from Egyptian cities, whereas grey lines denote IRF of shocks from Syrian cities. Black continues line denotes IRF from Alexandria, black dotted line denotes IRF from Cairo, grey continues line denotes IRF from Beirut, whereas grey dotted line denotes IRF from Aleppo. The horizontal axes represent time horizon after the appearance of the price shocks.

Tables

Table 1: Average tariff rates in Egypt, 1913-1938

Period	Custom duty (%)
1913-4	7
1915-21	9
1922-29	11
1931-38	26

Source: Hansen, 1991:87

Table 2: The burden of the Syrian and the Egyptian tariff, 1930

Syrian exports to Egypt			Syrian imports from Egypt		
Commodity	Value SYR £	Egyptian tariff (%)	Commodity	Value SYR £	Syrian tariff (%)
Ovine animals	811,997	7	Rice	1,238,325	15
Butter	402,096	12.4	Asphalt	160,176	11
Fruit paste	369,828	23.7	Raw hides	64,131	exempt
Olive oil	166,657	18.8	Box cartons	58,465	10
Dried legumes	148,309	62	Leaf tobacco	39,666	31
Cotton cloth	124,204	16	Sole leather	27,742	15
Oranges	103,265	65.1	Cotton cloth	26,516	20
Wheat	98,281	14	Cigarette paper	24,138	35
Dried apricots	92,216	12	Jute sacks	22,479	exempt
grapes	72,306	9.4	Beer	21,375	25

Source: Burns, 1933

Table 3: Railways track length in Egypt, 1914-39

Period	Track length (miles)
1914	1,900
1924	2,016
1929	2,035
1934	2,153
1938	2,238
1939	2,268

Source: Authors' calculations based on Hansen 1991:43 and Grunwald and Ronall 1960:55

Table 4: Road network in the Syrian states, 1933

Region	Road type	Road length (km)
State of Syria	Primary roads	865
	Primary trails	1415
	Secondary roads	488
	Secondary trails	2538
Sandjak of Alexandretta	Primary roads	200
	Secondary roads	217
Lebanese Republic	Primary roads	592
	Secondary roads	2280
Government of Latakia	Primary roads	190
	Secondary roads	991

Source: Himadeh 1936:180.

Table 5: Average monthly bilateral trade between Egypt and Syria, selected commodities, 1923, 1924, 1930 (kg)

Commodity	Trade direction	1923	1924	1930
Barley	from Syria to Egypt	98,023	54,250	
Oil	from Syria to Egypt	4,512	3,812	7,686
Wheat	from Syria to Egypt	28,550	81,616	198,307
Soap	from Syria to Egypt	6,278		
Rice	from Egypt to Syria	67,500	67,500	96,717
<i>Source:</i> Bulletin Économique(1923, 1924, 1930); Zilkha 1937				

Table 6: Cointegration rank testing: Bayes factors, $\ln B_{r,0}$

r	barley	coffee	flour	olive oil	rice	soap	sugar	wheat
1	-0.681	-7.307	-1.179	-6.897	-0.909	-2.73	2.832	-1.188
2	-1.858	-9.631	-2.014	-6.762	-1.72	-4.898	4.067	-2.183
3	-5.038	-14.586	-8.331	-8.857	-8.675	-	-5.242	-5.292
4	-13.265	-	-	-	-	-	-	-14.162

Note: The table presents the logarithm of Bayes factors, i.e. the logarithm of the ratio of the posterior probabilities of two models: $\Pr[M_1|data]/\Pr[M_0|data]$, where M_1 is the SVEC model with one lag and the cointegration rank r , and M_0 is the SVEC model with one lag and the cointegration rank set to zero.

Identification of the structural VEC models

Identification of contemporaneous effects matrices A_0 and prior assumptions of the co-integrating systems

Barley and wheat

$$A_0 y_t = \begin{bmatrix} * & * & * & 0 \\ 0 & * & * & * \\ 0 & 0 & * & * \\ 0 & 0 & * & * \end{bmatrix} \begin{bmatrix} \Delta y_{Cairo.t} \\ \Delta y_{Alexandria.t} \\ \Delta y_{Beirut.t} \\ \Delta y_{Aleppo.t} \end{bmatrix}; \quad H_{r=1} = \begin{bmatrix} 1 \\ -1 \\ 0 \\ 0 \end{bmatrix}; \quad H_{r=2} = \begin{bmatrix} 1 & 0 \\ -1 & 0 \\ 0 & 1 \\ 0 & -1 \end{bmatrix}; \quad H_{r=3} = \begin{bmatrix} 1 & 0 & 0 \\ -1 & 0 & 1 \\ 0 & 1 & -1 \\ 0 & -1 & 0 \end{bmatrix}$$

Coffee and rice

$$A_0 y_t = \begin{bmatrix} * & 0 & 0 \\ * & * & 0 \\ * & * & * \end{bmatrix} \begin{bmatrix} \Delta y_{Cairo.t} \\ \Delta y_{Alexandria.t} \\ \Delta y_{Beirut.t} \end{bmatrix}; \quad H_{r=1} = \begin{bmatrix} 1 \\ -1 \\ 0 \end{bmatrix}; \quad H_{r=2} = \begin{bmatrix} 1 & 1 \\ -1 & 0 \\ 0 & -1 \end{bmatrix}$$

Flour and sugar

$$A_0 y_t = \begin{bmatrix} * & * & * \\ 0 & * & * \\ 0 & 0 & * \end{bmatrix} \begin{bmatrix} \Delta y_{Cairo.t} \\ \Delta y_{Alexandria.t} \\ \Delta y_{Beirut.t} \end{bmatrix}; \quad H_{r=1} = \begin{bmatrix} 1 \\ -1 \\ 0 \end{bmatrix}; \quad H_{r=2} = \begin{bmatrix} 1 & 1 \\ -1 & 0 \\ 0 & -1 \end{bmatrix}$$

Olive oil

$$A_0 y_t = \begin{bmatrix} * & * & * \\ 0 & * & * \\ 0 & 0 & * \end{bmatrix} \begin{bmatrix} \Delta y_{Cairo.t} \\ \Delta y_{Alexandria.t} \\ \Delta y_{Aleppo.t} \end{bmatrix}; \quad H_{r=1} = \begin{bmatrix} 1 \\ -1 \\ 0 \end{bmatrix}; \quad H_{r=2} = \begin{bmatrix} 1 & 1 \\ -1 & 0 \\ 0 & -1 \end{bmatrix}$$

Soap

$$A_0 y_t = \begin{bmatrix} * & * \\ 0 & * \end{bmatrix} \begin{bmatrix} \Delta y_{Beirut.t} \\ \Delta y_{Cairo.t} \end{bmatrix}; \quad H_{r=1} = \begin{bmatrix} 1 \\ -1 \end{bmatrix}$$

Statistical Appendix

To be written