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This book covers the economic history of all world regions in a reprentative way, using similar indicators for the interesting development of the regions – and provides insights for today. Its modest prize (ca. 20 British Pounds) should encourage a wide readership of students, scholars and the interested general public.

Rima Ghanem and Joerg Baten

Middle East and North Africa

Introduction

In recent years, the Middle East and North Africa region has been characterized in newspaper reports by its many conflicts between religious and political groups. To understand the present situation, it is important to study the region's development over the last few centuries. The first impression of Middle Eastern history is the great heterogeneity of its development. We cover the geographic region between Morocco and Afghanistan (including the former Soviet Republics in Central Asia and the Caucasus that have a substantial Muslim population).These countries have experienced multi-faceted development over the past five centuries. However, prominent economic historians of these world regions, such as Charles Issawi (1982), have distilled some common features that characterized many of the Middle Eastern countries. One common factor was contact with Europe during the nineteenth century, which Issawi described as a "challenge". Just before WWI, European merchants (and sometimes their governments) had taken over many important positions in Middle Eastern economies outside agriculture. In contrast, Issawi interprets the developments during the twentieth century as a "reaction" in which many Middle Eastern political leaders aimed at reducing the European influence. They also tried to mitigate the role of religious minorities in economic core positions of their countries.

Since Issawi and Owen (1993) wrote their famous overviews in the 1970s and 1980s, some progress has been made in the quantitative analysis of long-run economic trends of the Middle East. Most famously, Şevket Pamuk has presented his estimates of urban real wages and national income estimates for a number of countries in this region. Coşgel and Ergene (2012) have studied the development of early modern inequality based on tax registers for Northern Anatolia and additional sources. Others have focused on complementary issues that

are discussed below. Another theme that was studied with considerable effort was the development of the "biological standard of living".[1] The development of human stature can serve as an indicator of two key welfare components, nutritional quality and health. This development was reconstructed for a number of Middle Eastern economies. The Middle East actually had a relative advantage over Europe during the middle of the nineteenth century (Stegl and Baten, 2009). Since the 1880s, however, there has been a dramatic change in the biological standard of living relative to Europeans. It seems plausible that this shift in relative welfare also influenced a deep feeling of injustice in the Middle Eastern population.

Finally, we draw on new research about trends in education and human capital. Though education in the Middle East was quite developed during the High Middle Ages, various available indicators suggest that Middle Eastern governments and families underinvested in this core determinant of economic growth and competiveness during the period beginning with the late Middle Ages. Additionally, the differences among countries within this region of the world were substantial, and interesting to study in themselves.

Medieval and Early Modern period

During the Medieval period, the technology of the Middle East was superior to that of Europe and knowledge was flowing from the former to the latter. A good example is medical knowledge. Not only was the ancient knowledge kept in libraries of the Middle East, but physicians also developed it further. This early progress is visible in urbanization rates: Bosker, Buringh and Van Zanden (2013) recently estimated the urban share for the geographic area of the Middle East compared to Europe (Figure 1). Clearly, urbanization levels were much lower in Europe. They increased at roughly the same pace as in the Middle East until approximately 1100. Even if the Middle East remained more urbanized until 1700,

[1] The main indicator is human stature (see below). The term was first used by Komlos; see chapter "Introduction" in this volume.

its urbanization apparently reached a plateau after 1100. During the late medieval Mongolian invasion and plague episodes, it even temporarily declined. In contrast, Europe was converging during the period 1500-1800, and finally overtook the Middle East in 1800 (but note that the later Russian Empire and Scandinavia are excluded, which would reduce European urbanization).

As it is typical for World regions that have achieved technological and economic leadership in a certain period, the Middle East saw the formation of large empires, beginning with the Arabic ones of the early medieval period. The Ottoman Empire massively expanded in the fifteenth century toward the Balkans and Southeastern Europe, and in the sixteenth century toward the East and North Africa. In the seventeenth century, it stretched from Bosnia to Iraq and the Arabian Peninsula. In North Africa, only Morocco remained independent. The reasons behind the geographical expansion of the Ottoman Empire have been studied in recent research from a new perspective. Iyigun (2013) analyzed the directions of imperial expansion based on the cultural influences of the Ottoman ruler's family. While male lineage was mostly predetermined, the Sultan mother was typically a former slave, often a convert who was born in Europe. Because the Sultan's mother educated the prince, she provided her son with some cultural preferences that influenced the direction of territorial expansion. For example, fifteenth-century mothers were of Turkish origin, with only one female slave from Albania in between. The ethnic backgrounds of the Sultan's mothers during the sixteenth century were different, as one Polish and two Italian women became concubines and later prince's mothers.[2] During the eighteenth century, the pirates of the Western Mediterranean provided French female slaves (as well as Italians and women from the Balkans); some of these later became Sultan's mothers. Iyigun (2013) argues that this composition influenced the direction

[2] In the seventeenth century, many Serbian women also entered the Harem and became Sultans' mothers, in addition to one Russian and one Greek. However, during this century, there were also Bosnians and one Albanian who might have come from Muslim families.

of territorial expansion, specifically, the shift away from Christian target territories between the fifteenth and sixteenth centuries toward the regions of the East, and back again during the seventeenth century.

The quantitative evidence on the economic history of the Middle East during the early modern period is quite limited. Many historians have speculated that it was a period of decline. They came to this conclusion by noting that the Islamic Empires of the High Middle Ages were powerful and their scientists very progressive, while travel reports from the eighteenth century largely portrayed an image of backward technology and poverty. However, it is not clear whether the development was really an absolute decline rather than a relative one. It might have been that the level of eighteenth century development was simply somewhat lower than in Northwestern Europe (that had developed enormously) because the latter was the basis of comparison.

Trade routes between medieval Europe and Asia that had passed the Middle East shifted. This was one of the major events in Middle Eastern economic history (Findlay and O'Rourke 2007, p. 142). During the Middle Ages, the Middle East earned monopoly profits from the trade of Asian spices and luxury goods with Europe. In the early modern period, these monopoly profits flowed first to the pockets of the Portuguese, then to the Dutch, and finally to the British and French. However, the merchants of the Middle East also found additional sources of trading income such as the trade of Yemenite coffee (Raymond 1973, cited from Owen 1993, p. 5). This change in trade routes could not have had a very large influence on Middle Eastern economies because trading income affects only a small part of the population.

Beside the effects of shifting trade routes, there were medieval and early modern demographic shocks; Borsch (2005) argued that the late medieval plague events and the Mongol invasion hit the Middle Eastern irrigation economies in Iraq and Egypt particularly

hard because they needed a critical mass of population density to keep up the irrigation systems. The Mamluks who were ruling Egypt in a "predatory" way (Findlay and O'Rourke 2007) were even less willing to invest in the public works that were necessary for irrigation, as the number of peasants and hence the rents for the Mamluks dropped after the great plague. While the plague increased real wages in Western Europe, it might have had detrimental effects in the irrigation-agricultural parts of the Middle East.

In spite of these interesting hypotheses, information regarding early development in the Middle East is based on quite fragmentary data. Pamuk and Özmukur developed more solid evidence on real wage developments in Istanbul and other large cities. They found that in general, the development of urban craftsmen's wages was on a level similar to Southern and Central Europe during the sixteenth to eighteenth centuries (Figure 2). Clearly, the rich European northwest had already left Istanbul behind. However, compared with other European cities, Middle Eastern urban centers maintained a similar welfare level. Özmukur and Pamuk stressed the fact that their estimates referred to a specific social group, and it might not be so clear how other groups of society were developing. However, we would interpret this evidence as plausible support of the view that living standards were at least equal to most of Europe until the eighteenth century.

Nevertheless, the scant evidence that we have on human capital formation suggests that the Middle East did not participate in the European human capital revolution. Evidence regarding sixteenth-century Maghreb suggests that basic numeracy equaled only 10 percent in the late fifteenth/early sixteenth century, and reached approximately 50 percent in the period between the late sixteenth to early eighteenth century (Juif and Baten 2013). For eighteenth-century Turkey and Syria, we have estimates in the range of 10-50 percent (Baten and Ghanem 2014). In the same period, numeracy in Europe grew from approximately 50 to 90 percent. Hence, Europe emerged as a dramatically strong competitor.

Limitations to the 'rule of law' at the beginning of the nineteenth century

What characterized the Middle East at the beginning of the nineteenth century? Many contemporary observers noted the complicated institutional structure and sometimes the missing "rule of law" (reviewed in Kuran 2011). Taxation capability was low and rulers often were exploitative; in many cases their ethnic background differed from those of the ruled (in Iran and Egypt, for example).

However, some regions actually benefitted from low levels of the rule of law, such as the Maghreb pirates. In Algeria and Tunisia, an important additional element was the pirate economy of the seventeenth and eighteenth centuries.[3] Originally created by a tradition of holy war against the Christians, privateering was developing into an industry for the Algerian and Tunisian port cities.[4] Ships whose owners were not willing or able to pay a substantial fee were captured, and the surviving personnel sold on slave markets if no ransom was paid. Some Christians who accepted conversion also joined the corsair fleet as renegades. Contrary to the reputation of privateering, corsair activity was a well-organized business. It involved many different actors. As for Tunis' pirates, a pirate crew consisted of at least the ship owner, captain, naval crewmen and armed warriors. The latter were mostly former hostages. Although the hostages were violently taken, many later joined the pirate business and benefitted from it. Through the trade of booty, they not only acquired wealth but also rose in social rank. Tunis as an expansionary city of that time welcomed foreigners in its midst and, in return, gained economic profits. Algerian pirates sailed as far as Northwestern Europe for slave raids.

In the irrigation economies of Egypt and Mesopotamia, clear property rights and the rule of law would have been most important, because irrigation agriculture is particularly

[4]See Larguèche (2001).

dependent on clear institutional settings. But even here, property rights were not always clearly defined.[5] It is very important to understand the structure of property rights to land in the Middle East, and in Egypt and Iraq in particular.[6] In general, land rights were very complicated (Owen 1993, p. 33). In principle, the state owned most of the land except for some gardens, orchards and the real estate on which the houses and the villages stood. However, many families had already begun using some legal tricks to imitate something like private family ownership at the beginning of the nineteenth century. Generally, the most secure property rights were established in the Mount Lebanon area, and partially so in Anatolia, Lower Egypt and parts of Syria. In contrast, in Southern Syria, Upper Egypt, Mesopotamia and Palestine, we have communal redistribution of land. Each peasant received a new plot of land after the harvest season. Quasi-private ownership was impossible in this communally organized land tenure system, of course. Only toward the mid-nineteenth century was there a tendency toward imitating private ownership in these regions. While most of the land was owned by the state, local rulers could obtain a large part of the tax revenues. In principle, the rules said that between 10 and 50 percent of the production should be taxed, plus some additional duties. However, this was only a theoretical tax rate. In practice, a peasant's skill in hiding part of the production was very important, and those who were more skilled at hiding were able to achieve a higher standard of living. Tax evasion was quite common, and tax payers considered this to be legitimate because they received almost no

[5]The wealth of Arabia consisted traditionally mostly of its goats and sheep. Also famous were the horses and camels. Oman developed a significant trading position with up to 2000 ships moving between India and Southern Africa in the early nineteenth century. Some mines for copper and lead existed. Yemen specialized in the production of coffee. This country was politically heavily contested and suffered from several conflicts.
[6]See on the following Owen (1993), Mokyr (2003) and Issawi (1982).Grain was certainly the most important agricultural product. Additional crops included flax, tobacco and opium. The famous Nile inundations helped achieve relatively respectable grain productivity. The other irrigation economy of Mesopotamia (today's Iraq) was also mainly oriented toward grains. However, the rivers were slightly more difficult to handle in Iraq. In particular, they delivered floods in the "wrong" month, in April and May. This was too late to irrigate the winter crop. However, it could destroy unprotected fields. In addition, the Tigris and Euphrates rivers flooded very quickly in spring, coming from the northern mountains, sometimes causing rivers to move permanently to new channels. In addition to the mentioned grains, large numbers of dates were grown in the south of Mesopotamia around Basra.

public goods in return. For example, there was little protection except perhaps against other local lords. Therefore, the peasants protected themselves in fortified villages.[7] The roads and other infrastructure were in a relatively poor state at the beginning of the nineteenth century, and the irrigation systems were not centrally surveyed.

Iran, with its long history of early cultures and Empires, had suffered particularly hard during the late Middle Ages and the early modern period. Many invasions of nomadic tribes, whose leaders became rulers in this country, affected it negatively. The relationship between these rulers of nomadic origin and the peasants and merchants of Iran was always difficult; therefore, their ability to raise regular taxes was low. Hence, arbitrary confiscations were often used. Relatively unsecure property rights and governmental preference for nomadic tribes resulted in a reduction of irrigated land and an increase of pastures and wasteland before 1800.[8]

Urban craftsmen and transport infrastructure around 1800

In contrast to Western European proto-industrial production in the countryside, industrial production in the Middle East was mostly concentrated in the cities. Trade in the famous suqs, as well as administration, were the other main functions of the urban centers. With the exception of Istanbul, the cities themselves were all situated next to a substantial area of cultivatable land with reasonable soil quality (see Owen [1993, p. 45]). Textile production was the most important industry, complemented by food-processing, furniture and specialized

[7] There were even special towers without doors and windows in Mesopotamia. Some of the peasants also aimed at creating temporary alliances with Nomads in order to prevent tax collectors from taxing a large part of their production.

[8] During the nineteenth century, the situation of property rights gradually improved, but now population growth was rapid and the imperial interests of Britain and Russia became a challenge for Iran. Although Britain gained considerable influence and Iranian merchants felt that their natural resources were expropriated, Iran never became a formal colony. The Russian Empire was more successful in neighboring Azerbaijan, which later in the nineteenth century provided substantial oil revenues. Russia also expanded into the steppe of modern Kazakhstan and the “silk road” area of central Asia.

industries in some places.[9] Even though technological progress in production was slower than in Europe, some industries – such as Turkish armament producers and shipbuilders – could produce goods at similar levels of quality to those produced by Europeans (Owen 1993, p. 46). Obviously, the military interests of the Ottoman Empire required such exceptions. Most other industries, with fixed price systems and guild systems in which old masters typically commanded younger apprentices, were not conducive to innovation, even if a certain quality of craftsmanship was preserved.

Another very important urban function was to organize caravan trade. Complemented by coastal and river-based trade, the main caravan routes within the Ottoman Empire connected Syria and Mesopotamia (and from there led to Persia and in some periods to China). A caravan artery went East-West in Southern and Northern Anatolia and from there to Central Asia. Trade goods comprised textiles and spices from India and Southeast Asia in exchange for European manufactures, African ivory, skins, ostrich feathers and similar items, as well as a limited variety of Middle Eastern goods (such as Syrian cotton thread and yarn, and Lebanese silk). Black slaves from Africa were traded northward, and white slaves from Russia and the Balkans were traded southward. Trade within the Ottoman Empire consisted of grain, sugar, cotton and other products from Egypt in exchange for textiles, soap, dyestuffs, and processed food from Syria and Anatolia. Imports and exports of Mesopotamia were relatively limited, but there was quite some transit trade, and Persia exported opium, carpets, and other products. For overland transport, in addition to the regular costs for camels and personnel, safety costs were often large. Bedouin tribes often required “dues” that could be as large as three times the normal transport cost (Owen 1993, p. 54).

In conclusion, the Middle East at the beginning of the nineteenth century showed complicated property rights and little economic dynamism, although there were exceptions.

[9]Well-known were muslins from Mosul and damask from Damascus, for example.

The systems of production and taxation did not encourage development; nor were land resources completely used.

Reform period: the early nineteenth century

During the early nineteenth century, the situation in the Middle East changed dramatically. We will focus on three development paths of the nineteenth century: mild reforms and problematic openness in the Ottoman Imperial core, forced development in Egypt, and direct colonization in Central Asia and Algeria.

(1) The famous Tanzimat reforms in the Ottoman core (mainly from 1839) fundamentally changed the law, administration, military and economic situation. Although many fields were affected by the reforms, equality of the citizenry was perceived as one of the most important. Previously, the Jewish and the Orthodox and Armenian Christians had a particular status with both advantages (as Muslims saw it) and disadvantages (as the minorities saw it). After the reforms, all citizens of the Ottoman Empire should have been treated equally – in theory at least. As an additional component of the reforms, military service was regulated to a maximum amount of five years.

Tax farming, which had been a problematic economic institution, was successively abolished during the reforms. Previously, a rich tribal leader, merchant or feudal lord could obtain the right to collect taxes after paying a fixed amount to the government. This caused substantial overtaxing, leading to conflict and inequalities of real tax burdens because some tax farmers were more effective – and sometimes violent – in their tax collection efforts (but see Coşgel 2012). Finally, an important point was the opening of the Ottoman economy to imports. European governments also influenced the reforms. It soon became clear that in many fields

of industrial production, the Middle Eastern craftsmen could not compete with their European counterparts, as trade with Europe was intensified.[10]

(2) Egypt had a special and remarkable development during the nineteenth century, mainly stimulated by political changes initiated by Mohammad Ali Pasha. Since Roman times, Egypt had always been ruled by persons born abroad or with parents from outside of the country, and the Albanian Mohammad Ali Pasha was no exception. During the 42 years of his reign, Mohammad Ali reformed the Egyptian state and economy in a radical way. One of his main aims was to build a strong army that would be able to protect his new state. Reforms were also applied in the education system, again with the motivation to provide the army with educated leaders but also to train Egyptians in the skills demanded by modern industry, trade and administrative positions. Many factories were built and new industries developed during the Mohammad Ali period. Plants for the construction of ships, the production of chemicals, weapons and other important products were realized. Apart from factories for military purposes, the textile industry also flourished during this period. Imports and exports were severely controlled because much of the government budget stemmed from trade revenues organized by marketing boards. Agriculture was the focus of the reforms. By changing the land property system, building new dams and watering channels, developing the irrigation system, introducing new crops and controlling planted yields, agricultural production increased substantially during the early nineteenth century.

Mohammad Ali also created a law of mandatory military service to expand the army. In the end, it included almost 4 percent of the population. Egypt had become a military state and participated in many wars during the nineteenth century, such as in Hijaz, Sudan, Greece and Syria. Ali used his oversized army to develop a power position for Egypt. He also

[10]Population growth was stimulated by these reforms, as more land was now put to use. Another strong determinant of population growth was the fact that the plague disappeared during the early nineteenth century.

intended to provide more raw materials to Egyptian industry. The forced development of military power, agriculture and new industries has similarities to Soviet strategies (but without communism).

Mohammad Ali died in 1848, and his successors adopted different strategies. His son Ismail Pasha encouraged science and agriculture, and decided to ban slavery in Egypt. During the early 1860s, when U.S. cotton producers dropped from the world market due to the American civil war, Egyptian cotton production flourished. During the following period, however, Egypt began to suffer from many disasters including epidemic disease, flood, and wars. Ismail Pasha had to rely on foreign debt to solve these problems, and he could not find a solution to pay back the increasing foreign debt. The Egyptian economy weakened, and the English and French colonial powers started to increase interventionist policies, until England transformed Egypt into a protectorate in 1882.

(3) Direct colonization took place in Central Asia, the Caucasus and Algeria: Russia began a territorial expansion, first to the northern steppe of the Central Asian region, during the mid-eighteenth century when several Kazakh tribes called Czarist troops for support. While the Kazakhs interpreted this event more as a temporary alliance under Russian supremacy, the Czar now considered the northern steppe to be part of the Russian Empire; however, the Imperial administration started to integrate the Kazakh steppe only during the early nineteenth century. Between 1822 and 1848, the three main Kazakh leaders (the Khans) of the minor, middle and major horde were suspended. A number of Russian forts were built to control the conquered territories. Russian settlers were provided with land, reducing the area available for Nomadic tribes in the Kazakh steppe. Many of them were forced to adopt sedentary lifestyles. As a result, in the various regions, between 5 and 15 percent of the population were immigrants. This Russian colonization was accompanied by many conflicts between the

1820s and 1840s, during which the Slavic settlements were often attacked. Russian troops only succeeded in ending this series of rebellions in 1846.

If we consider the numeracy of Kazakhs, it was quite remarkable (Figure 3). During the early nineteenth century, Kazakhs were actually more numerate than were Russians. However, Russia experienced a human capital revolution during the nineteenth century, and the colonized Kazakhs could not keep pace. Still, numeracy was higher than that of the more urbanized Central Asians in what later became Kyrgyzstan, for example.

What could be the reasons for this remarkable early numeracy level? The settler share can most likely explain part of this, although Russians were a minority in the Kazakh steppe.[11] Another factor could be the relatively good nutritional situation in Kazakhstan. Protein malnutrition that plagued many other populations living in more densely populated settlements was absent in Kazakhstan. Additionally, in later stages of the process of Russian human capital development, Russian settlers of the 1870s and 1880s might have stimulated so-called contact learning (Prayon and Baten 2013). As the Kazakhs observed that Russians were successful with higher investment in human capital, the Kazakhs tended to adopt this strategy as well.

While the northern steppe only had population densities of about one to two persons per square kilometer, the southern part of Central Asia was more densely populated; its urbanization rate was as high as 15-20 percent during the late nineteenth century. This was the region of the old Silk Road, which had connected China with the Middle East and Europe since ancient times. Famous urban centers such as Samarkand had a remarkably developed merchant culture. Politically, the region had experienced many different rulers during the early modern period such as Mongols, Persians and Arabs. Soon after its cities had been conquered and sometimes destroyed, the income of merchant trade and intensive irrigated

[11] Even if migrant selectivity might have been positive, the effect could not be very large.

agriculture allowed reconstructing them once again. The Russian Empire invaded the Khanates of Kokand, Bukhara and Shiva during the 1860s, i.e., much later than it invaded the northern steppe. One motivation was to prevent the British colonial Empire, which had captured Afghanistan, from further expansion northward. In addition, the intensive cotton agriculture was attractive even more during the 1860s when the U.S. civil war led to the cotton famine that also affected the textile factories of Saint Petersburg and Moscow. In contrast to Kazakhstan, military resistance was more limited in the Silk Road region, similar to the northern steppe; however, some regions lost considerably in numeracy relative to Russia (Figure 3). The later region of Uzbekistan with its capital Samarkand was the most numerate of the whole region and better educated than Russian or Kazakh regions. However, even before the Russian conquest, numeracy stagnated. During the colonization and accompanying military destruction in the 1860s, numeracy fell dramatically. After modest recovery, the famous center region of the Silk Road was only 75 percent numerate in the 1880s, almost 20 percent lower than was Russia.[12]

In Algeria, numeracy was also quite high initially and stagnated on a relatively high level (Baten and Ghanem 2014). In contemporary travel reports of the mid-nineteenth century, the indigenous farmer population is described as unusually industrious and hard-working (Deutsches Staats-Wörterbuch 1857). The military conflicts between the French and the indigenous Arabs and Berbers were heavy and long; only after the mid-nineteenth century was Algeria really a French colony. Algeria was – apart from twentieth century Israel– the country most heavily settled by Europeans in the Middle East. During the late nineteenth and early twentieth century, the European share was almost a fifth of the population. The French government aimed at making Algeria an assimilated part of France, and this included

[12]This was a substantial relative decline of human capital during and after colonization. In the later Kyrgyzstan region, development was similar (but from a lower initial value), whereas Turkmenistan had a surprisingly low level during the 1830s and 1840s.

substantial educational investments especially after 1900 (Figure 4). The indigenous cultural and religious resistance heavily opposed this tendency, but in contrast to the other colonized countries path in Central Asia and the Caucasus, Algeria kept its individual skills and a relatively human-capital-intensive agriculture.

In summary, we perceive three types of fundamental change: the Tanzimat reforms that opened many economies to European competition (and deindustrialization); the infant-industry strategy of Mohammed Ali in Egypt; and the direct colonization, which led to a relative decline in human capital in the Silk Road region and stagnation on a high level in Algeria.

Why did the Middle East deindustrialize during the nineteenth century?

Pamuk and Williamson (2010) note that during the eighteenth century, the Ottoman Empire was completely self-sufficient in textile production, which represented a large share of traded industrial goods. There were even small exports of carpets, silk and textiles. The share of the textile market that would be covered by domestic producers in the Ottoman Empire was still close to 100 percent in 1820; however, between then and 1910, it fell to less than 20 percent (Pamuk and Williamson 2010).

Pamuk and Williamson (2010) offer a trade-based interpretation of the process during which the Middle East deindustrialized. They argue that not only were imported British textiles during the nineteenth century outperforming many local producers, but another important point was the improving terms of trade of cash crops. Raw cotton prices increased substantially, for example. This change in terms of trade tempted the Middle East to specialize in this area of production. When the terms of trade for these goods declined again during the 1930s, there already was a high degree of path-dependence, which kept Middle

Eastern economies in the cash-crop specialization. One could imagine that deindustrialization and concentration on agriculture discourages the development of skills.[13]

Other scholars searched for institutional factors that might have weakened the Middle Eastern economies, leaving them less competitive. Kuran (2011), for example, argued that institutions of Islamic law that were appropriate for early periods tended to become handicaps for growth during the nineteenth century. He criticized the stability of (1) inheritance laws because they did not allow capital accumulation, (2) the lack of legal frameworks for capital firms and (3) the religious trusts called waqfs, which locked capital resources into relatively inflexible institutions. Kuran was convinced that it was not colonialism or religious attitudes *per se* that was growth retarding, but the excessive stability of these law concepts. Another institutional interpretation was given by Rubin (2011), who also criticized the view that Islam *per se* tended to generate less growth-conducive institutional design. For example, if interest constraints are considered, both the Christian Church and Islam aimed at restricting interest during the Middle Ages. This is an obvious example of an institution that limits capitalist development by constraining credit. In the early phase, Islamic bankers and merchants were actually more successful than Christian ones in circumventing this religious constraint (Rubin 2011). For example, Rubin reports about the Mukhatara institution known in Medina during the eighth century. One person bought a good for a certain price, but the other one bought it back immediately for a higher price to be paid later. However, later on, the development of credit institutions that circumvented religions constraints was more rapid in Christian Europe. Rubin argues that this was caused by the need of rulers to be legitimized by religious leaders. This factor became more important in the Islamic sphere. During the early period of

[13]We would argue that this is the case if no exogenous motivation for human capital investment exists. However, the cases of Denmark, New Zealand and the early history of the United States suggest otherwise; skill-intensive agriculture certainly was an option to develop high income even before later industrialization took place in some of these countries.

Christianity, the first followers of this religion lived under Roman rule. Christian religious leaders developed doctrines that implied separated religious and governmental power. This was comparable to Jesus' insistence on giving Caesar what belonged to him and God what was his. In contrast, during the early years of the Muslim religion, political power was weak and the first Caliphs gained their legitimization from being relatives of Mohammed. The leaders that later followed them felt legitimized by obeying religious rules very strictly. Although Christian popes and bishops also tried to influence politics—and kings used religion as legitimization—in Christianity, there was always more tension and sometimes competition between religious and political leaders (Rubin 2011, p.1316-7).

Another factor that limited industrial competitiveness in the Middle East might have been the interaction between economic segregation and human capital development. Some minorities were considered to be predetermined for occupations in finance and trade in the Middle East; therefore, talented individuals of the majority might have had fewer incentives to develop trade-related skills. This limited human capital development. An important social factor in the economic development of Middle Eastern Economies was the minorities of Greeks, Armenians, Jews and Christian Arabs. They were active in the trade sector and played a role in finance, export-oriented agriculture and the modest beginnings of modern industry. European merchants and colonial bureaucrats cooperated with them and partly protected them because these minority members were often more interested in learning foreign languages and developing technical skills.[14] In Turkey, Greeks, Armenians and Jews were most important. In particular, the Galata bankers dominated Turkish financial development during the early twentieth century. Armenians and Greeks were also active in internal trade, industry, crafts and the professions. In Iran, minorities played a smaller role, except for Jews, who were

[14]In addition, the Tanzimat reforms from the 1830s removed many of the constraints under which the minorities ("millets") had been suffering for centuries. They also received support from people of the same religion who lived in Europe and America.

active in both Iranian industry and trade. In Egypt, Copts held a remarkable share of the land, and they worked in the professions as well as government services. In Lebanon, Christians began to dominate foreign trade and the silk industry beginning in the early nineteenth century. This group also took over the traditional Jewish role in Syria in finance and industry. The importance of these minorities was largest in the period at the beginning of the twentieth century. After that, the growing national aspirations of the majorities had the effect of more and more majority members starting to cover positions previously held by the minorities. However, the motivation of talented Arab, Iranian and Turkish majorities to invest in trading skills developed late partly because the minorities had a low social reputation in their eyes and imitating them was not desirable.

Living Standards

Pamuk (2006) found that GDP development was slow in the Middle East. He estimated that GDP grew from only $611 per capita in 1820 (measured in constant 1990 dollars) to $1,023 in 1913, covering Turkey, Egypt, Arabia and Iran. As a percentage of the U.S./Western Europe national income value, this meant falling back from 49 to 25 percent. The gulf region developed even more slowly than did the core region of the Ottoman Empire, with Lebanon being the richest country in 1913.

Does this lag in production capacity imply that the overall standard of living was lower? Özmucur and Pamuk (2002) pointed to the fact that real wages were actually equal or greater in the large Middle Eastern cities. As real wages reflect urban unskilled and skilled craftsmen`s welfare, it seems that the richer strata such as merchants and professionals were lagging compared to Europe.

Another approach to analyzing welfare is to look at human stature. This reflects health and nutritional quality, which are important components of the standards of living of a

population. This is especially informative in data-scarce regions such as the Middle East and North Africa. For the Middle East, some recent estimates have been based on anthropological measurements; a number of famous anthropologists travelled in the Middle East in the eighteenth and nineteenth century, systematically measuring many individuals.[15]

The height measurements are organized by birth cohort,[16] and a sufficient number of observations allows assessment of the period from the mid-nineteenth century onward. Stegl and Baten (2009) choose a sample of eight Middle Eastern countries where height data were available for the studied period (Figure 5). Turkey, Iraq, Iran, Egypt, Syria, Lebanon, Palestine/Israel and Yemen are included. They compare the average heights of these countries with a sample of central and southern European countries. Stegl and Baten showed that people born between 1850 and 1870 in Middle Eastern countries enjoyed on average a favorable nutrition compared to Europe. However, in 1880, the average heights of Middle Eastern people decreased suddenly. European human stature began to exceed it, although with only a small difference for three generations. This difference increased over time, reaching more than 7 centimeters for the generation born in 1980. Compared with the world height average, this initial lead vanished during the twentieth century (Figure 6).

There were also strong differences between regions within countries; these regional differences shed light on the explanation of the height trend. In Iraq, for example, the average height differed between desert inhabitants and the other inhabitants (both urban and rural). The desert Bedouins were on average 0.85 centimeters taller than were other Iraqis. The reason behind this difference is the low population density in the desert, where more people

[15] The advantage of these samples is that there is no social selectivity in height measurement, although there could be a regional selectivity issue. Stegl and Baten (2009) already accounted for this potential distortion; it seems not to play a large role.

[16] All heights are organized by birth cohort, because the strongest influence on final adult stature occurs during the years after birth.

could benefit from the meat and milk of the stock breeding in which the desert tribesmen engaged.

In Turkey during the late nineteenth century, Stegl and Baten (2009) find the shortest population in the western coastal areas, which are now the richest regions in the country, while the tallest people lived in central Anatolia. A likely explanation is again the low population density in central Anatolia. The population specialized on cattle farming. For example, Issawi (1980) analyzed tax returns and reported that animal husbandry was most important in the relatively dry inland regions. In this central area, low population density and a partly nomadic lifestyle allowed protein-rich nutrition.

Egypt is a dry country in general; the agriculture depends mainly on Nile water. Only in the northern coastal region is the rainfall level slightly elevated. The inhabitants of this area had the advantage of obtaining enough rain for their crops, and their height values were greater than were those of other Egyptian areas. The desert inhabitants of Egypt also had a height advantage in comparison with the urban population. For neighboring Libya, Danubio et al. (2011) found that the heights of nomadic Tuareg born in the 1880s to 1900s were 3 cm greater than the heights of other Libyans; on average, they were even 8 cm taller than were Libyan oasis inhabitants.

In general, between 1850 and 1870, the inhabitants of the Middle East showed a high average stature according to nineteenth century standards (Figure 6). This good level first dropped in the 1880s. One potential immediate cause of the 1880s height drop might have been the cattle disease, which originated in Asia in the 1880s and then moved through the Middle East to the eastern part of Africa, which was severely hit in the 1890s.[17] However, there were additional underlying forces affecting the relative decline of Middle Eastern

[17] In Iran, the decrease happened in 1880 as well. Gilbar (1986) assumes that, in Iran, the boom of crops agriculture such as cotton, opium and grain encouraged people to pay more attention to planting these crops and pushed them away from animal farming.

heights. During the nineteenth century, parts of the Middle Eastern population still benefitted from the so-called “proximity advantages” to animal husbandry. Bedouins and other inhabitants of the Middle East who lived close to goats, sheep and cattle could enjoy more protein from milk and meat. Not only rich people could buy this; poor tribesmen also obtained their share, especially of the less-popular parts of the animal. In contrast, Europe with its densely populated urban centers did not have good access to protein sources during the mid-nineteenth century. In the twentieth century, the situation changed. Even perishable foodstuffs such as milk could now be transported, thanks to refrigeration transport technology. European inhabitants of large cities could provide their children with good nutrition, and urban populations became taller than rural ones. Europe also made strong and early progress in Public Health and medical development. Their GDP level was much higher than in the Middle East during the twentieth century; hence, they could afford good nutrition and health during this later period.

Summing up, the interesting and slightly astonishing fact of this section was that during the mid-nineteenth century, Middle Eastern populations did not necessarily suffer from poor nutrition, relative to Europeans. The fascination of European travelers and writers for the inhabitants of deserts might have originated partly in the special economic situation of nomads during this period. The strong relative decline during the twentieth century might have stimulated perception of severe injustice among these tribesmen, who still trained themselves in military activities.

The Middle East in the twentieth century

Issawi (1982) concluded that, for the period just before WWI, almost all powerful positions in Middle Eastern economies had been taken over by Europeans or minorities such as Armenians, Greeks, other Christian minorities and Jews. He interprets the following century

as an attempt to reverse this development. Europeans and entrepreneurial minorities were forced or encouraged to leave, or sometimes killed (such as many Armenians in Turkey). The two world wars that devastated Europe allowed the Middle Eastern reaction to abolish privileges (such as immunities for European merchants) and to nationalize railways, banks, gas stations and other utilities. The ideology of the interwar and postwar years further promoted government-owned mining and industries. However, even if nationalized industries might have been able to satisfy consumers with relatively simple products during the mid-twentieth century, this way of organizing industries tends to be weak in the quality of goods produced, and in the long run, new investments were missing. For example, countries such as Yemen lost their minority tradesmen (that might have developed into entrepreneurs later on), and the relatively low status of human capital development made it difficult to develop its own Yemenite entrepreneurial groups. Turkey was more successful in developing its own entrepreneurs, given that the status of education had always been higher and the Ataturk reforms placed particular emphasis on education. In addition, Turkey also benefited from the slightly more equal gender distribution of education after the Ataturk reforms.

In Turkey during the time of Mustafa Kemal Ataturk in the first half of the twentieth century, many reforms were initiated in different fields such as politics, economics and culture. Ataturk's reforms can be summarized mainly as abolishing the sultanate and afterwards the caliphate system in the country and converting the republic of Turkey into a secular state. That is, Turkey, although having a Muslim majority, changed from being an Islamic state to a laic country. Ghanem (2014) assessed whether separating the religion from the government had a positive influence on human capital in Turkey. The results confirm that the secular state of Turkey led to a clear increase in numeracy levels in the different Turkish regions. New schools were built and primary schooling became mandatory and free. In addition, Ataturk replaced religious education with a national education system. Turkey did

not change to an atheist state; the freedom to worship and follow religions existed. However, the idea was to concentrate on Islam in the mosques and religious places; what mattered at school was science and education (Ghanem 2014)

After the Middle East had deindustrialized during the nineteenth century, the situation started to change during the twentieth century. Political movements in the Middle East not only demanded a political renaissance, but many of its leaders also saw the need for reindustrialization (Issawi 1982). The two World Wars also made clear that European imports of industrial goods were not automatically available. The exceptional situation during the wars also allowed experimentation with new production methods within the Middle Eastern countries, even if these were not yet competitive.

Already before WWI, some industries were growing again in Egypt and Turkey, for example. Soon after the breakdown of the Ottoman Empire, Turkey started to develop more-active industrial policies. Indirectly inspired by the Soviet Union, Turkey decided to set up two five-year plans during the 1930s, making clear that the state would play a strong role in this reindustrialization attempt. All Middle Eastern economies lacked entrepreneurs. As suggested by the ideologies of the time, the state was expected to fill the gap. In addition, socialist ideas were important in countries such as Syria, Iraq, Algeria, Afghanistan, Egypt, and obviously Central Asia, then a part of the Soviet Union.

One different approach to industrial development was taken in Palestine and later Israel. The Sykes–Picot Agreement in 1916 divided a part of the Middle Eastern region—which was previously part of the Ottoman Empire—between England (Palestine, Iraq, Transjordan) and France (Syria, Lebanon).The former Ottoman territory of Palestine became a British mandate in 1920. In 1922, the League of Nations decided that in this territory, a "national home" for Jews should be established, while still guaranteeing the civil and religious rights of all the inhabitants. Following this political decision (and reinforced by anti-

Semitism in Germany and other countries during the interwar period), a strong immigration of Jews from different world regions resulted. Their population share rose from 9 percent in 1919 to 32 percent in 1947. Many Jews brought skills and entrepreneurial traditions. Given that the British Mandate aimed at restricting land purchases of previously Arab-owned land by Jewish immigrants, the Jewish population group was initially more urban and had a higher share in industrial occupations than did the Arab majority. This particular development in Palestine, which had terrible political and humanitarian consequences later on, resulted economically in one of the few growth miracles of the region. In addition, the structure of firms was determined much more by private entrepreneurs than by the government as in many other Middle Eastern economies.

Why were twentieth century firms in other countries so often run by the government? Three main reasons come to mind. We already mentioned above that entrepreneurial elites were often foreigners or minorities and that, in the view of Arab, Iranian and Turkish politicians, the influence of both groups was to be reduced during the twentieth century. The other two main reasons were the lack of human capital and skills and the peculiarities of oil production economies.

We first discuss the skills and human capital levels during the twentieth century. Basic numeracy was generally not very high during the nineteenth century and did not converge rapidly to neighboring European levels (Figure 4). Only during the early twentieth century can a strong improvement be noticed. This deficit in the educational component, numeracy, is equally visible in the other components of education, such as literacy. Issawi (1982, p. 113-114) notes that literacy was only 7 percent in Egypt in 1907, for example. The governments spent little public funds on education. The 1860/61 Ottoman budget on education was only 0.2 percent of total expenditure. In Algeria, it was slightly higher at approximately 2 percent (1890-1914). Even during the early twentieth century, the number of school years was quite

low (except in Israel, where it was substantially higher [Barro and Lee 2013]). The most extreme was Yemen, where children received almost no schooling (Figure 7). In the Gulf States, the situation was slightly better.

Similar statements could be made about secondary and tertiary schooling. Such a low level of numeracy and school education made it very difficult to develop a class of entrepreneurs because this type of occupation requires substantial abilities to work with numbers. The function of entrepreneurs was, therefore, taken over by the state.

Another reason was the amount of oil revenues. If the Middle Eastern economies reinvested the government share of oil income, they often did this in the form of state-owned companies. In 1908, oil was discovered in the Middle East. This discovery completely changed the landscape of its economies. Oil had always been used in small amounts, for example, in the form of seepage for rubbing of camel sores. In two places in Iraq, crude oil was already extracted in the 1870s with quite primitive methods. However, real development started in the 1900s. The Iranian government decided to give a concession to a British company. Other countries also gave concessions to European and American firms, ultimately resulting in an oligopoly structure of less than ten large oil-mining firms that has persisted until today with varying actors. In Iran, the British monopoly concession was soon debated with great dissatisfaction among the Iranian population. However, Reza Shah again signed in 1933 an unpopular agreement under British pressure. The question about the nationalization of its oil reserves became one of the key issues in the social and political conflicts in Iran during the 1940s and 1950s.

During the pre-WWII period, most oil extraction took place in Iran and on a much smaller scale in Egypt. Only during the 1940s did Iraq also become a major exporter. To a much smaller extent, Bahrain and other Middle Eastern Countries also increased exports. Up to 1940, Middle Eastern and North African oil production was still below 5 percent of world

production. However, it then exploded to 26 percent in 1960, reaching a maximum of 42 percent in 1975. Initially, the Middle Eastern countries did not receive much of this new wealth. However, between 1950 and 1975, direct payments from the petroleum companies to the governments rose from $240 million to $81 billion (and to $163 billion in 1979). The renegotiation of contracts with the petroleum companies and the formation of the OPEC in 1960 resulted in dramatic change. OPEC's cartel policy during the Arab-Israel conflict of 1973 and later in the 1970s generated a flood of revenues for the oil states Iran, Iraq, Kuwait, Saudi Arabia, Qatar, United Arab Emirates, Egypt, Libya, Algeria, Bahrain and Oman (Oman, and also Syria, Israel and Turkey had quite small revenues).

What was the effect of oil production on the economies? Issawi (1982, p.207) concludes after carefully weighing many pros and cons that the initial period of the 1950s and 1960s was quite beneficial. In particular, some of the least-developed countries receiving oil revenues served as a stimulus for their economies. In general, only a small part of the population worked in oil production (normally less than 2 percent), but in the Gulf States, it could be up to one-half. Many persons who left oil companies also created their own firms. Training on the job allowed developing the necessary entrepreneurial skills and the "spirit".

However, the 1970s oil price increase and production expansion brought an enormous amount of wealth that resulted in mixed blessings for at least three reasons: (1) Some of the classical 'Curse of Resources' phenomena occurred. Issawi (1982) speculated that it was difficult for the Middle Eastern people to find agreement on how to distribute the wealth, partly because it was subjectively not "earned" by the individual population groups in the oil countries.[18] (2) In addition, the view that "anything could be imported" was shared by many Arabs and Iranians, which was poison for reindustrialization efforts. (3) The high expectations of income generated by the seemingly inexhaustible stream of revenues became unrealistic.

[18] In contrast to industry, for example, where profits went to entrepreneurs and wages to workers.

Rising inequality between those who benefited and those who perceived themselves as losers created so much dissatisfaction that it could even lead to civil war as in the case of Algeria, or at least extremist political attitudes in other countries.

What could the government do about all this? The only feasible strategy was to try to reinvest much of the oil revenues into firms that would generate income after oil income ended. The owner of those firms was often the state. A major problem was, however, that the state-owned firms tended to be highly inefficient. A government bureaucrat was not necessarily the ideal person to maximize productivity and to reduce costs. When problems of competitiveness appeared, managers demanded import protectionism and monopolies, rather than improving the production side and looking for new markets and new technologies. Only in recent decades have these issues have been partly improved and structural reforms initiated. However, perceived injustice in some of the countries was already widespread. In addition, possibilities for democratic participation and improving the situation were limited, which reinforced dissatisfaction. Finally, some of the industrial countries performed interventions to secure oil resources for themselves in recent decades. All these factors resulted in a series of wars and internal conflicts that have had terrible consequences for the Middle East until even today.

To what degree are these developments of the twentieth century reflected in GDP trends and living standards (Figure 8)? If we consider the development of GDP per capita in the Middle East between the 1950s and today, we can rely on some informative statistics which are of course not beyond doubt, especially not for the early periods. Some of the governments also had a strong preference for window-dressing of indicator variables. However, in general, we can gain some insight from looking at GDP as an indicator of productive capacity. Given that we have a large number of countries in the Middle East, we reduced the set of the countries we examine in detail to 13 because, for example, some of the

Gulf countries such as the United Arab Emirates, Kuwait and Bahrain developed similarly to Qatar.

If we look first at the six countries which represent the center and the north (Lebanon, Turkey, Israel, Iran, Afghanistan and Iraq), we see that Israel had a relatively favorable development. Given the relatively good educational status of the Israeli population, this is not astonishing—even though the country did not benefit from oil resources. This is quite different in the cases of Iran and Iraq, both of which had a substantial GDP increase from the 1950s to the 1970s. The oil price explosion and expansion of oil production was clearly a driver here. Especially during the early 1970s, oil prices were at an enormously high level. Later on, Iran had some modest decline during the intensive war of 1980-88 with Iraq. In Iraq, in contrast, we have a substantial decline of GDP per capita in the 1990s following the Kuwait crises and the two Gulf wars with the United States. GDP in Iraq has most likely experienced the strongest decline of any of the larger countries of the Middle East. The poorest country in this region is Afghanistan, which always had a very low development level; also, the country's educational values were usually quite low. Interestingly, the second highest level of GDP was initially reached by Lebanon. Despite not having oil reserves, Lebanon, as the banking center of the Middle East and one of the trading centers, had a high national income in the 1950s, even without oil.

Moving to the Arabian and Gulf economies, we see again a strong difference in the early period between countries with and without oil. For example, Yemen was very poor, whereas the small oil economies in the Gulf like Qatar started with a quite high GDP per capita. The small population of Qatar combined with very large oil reserves resulted in an enormously high GDP per capita. Saudi Arabia and Oman benefited from the oil increase. In the 1990s to 2010s period, the three richer countries of this world region had relatively similar

GDP values. Finally, we consider three countries of the North African area.[19] We see that Libya shared the strong increase in oil revenues between the 1950s and 1970s. When oil was not a driving force anymore, Libya experienced a decline in GDP per capita up to the 1990s and stagnated since then. There was a gradual increase in Egypt and Algeria. Even during the period of the Algerian civil war (1991-2001), the GDP level did not plummet catastrophically because it was offset by other factors.

Because GDP per capita is strongly dependent on oil revenues and availability, it is important to consider life expectancy as an additional welfare indicator for this period is (Figure 9). If we compare trends in life expectancy for the same countries, we first observe a steady increase in all the countries, which is mainly driven by worldwide medical progress. Everywhere in the world, we had a strong increase in life expectancy during this period. However, looking a bit more closely, we see some interesting differences in life expectancy. First, slightly different from GDP development, Lebanon develops much better. It starts again at the second highest level directly behind Israel, but in contrast to GDP developments, it stays at a high level, even during the civil wars of the later twentieth century (1975-1976, and sporadically thereafter).

The other countries typically developed from values between 35 and 45 years of life expectancy in the 1950s to values of approximately 65 in the 2000s, but some countries deviate from this pattern. The most obvious deviation is Afghanistan, which started at a very low level of approximately 37 years of life expectancy. During its history of civil war and underdevelopment, there was only very modest progress in Afghanistan. Modern technology was not able to diffuse in this country; even in the 2000s, we still only have values of approximately 45 years of life expectancy. In contrast, in Iran, which started even slightly lower than Afghanistan according to these estimates, we see substantial progress in the 1950s

[19]Again we omit Tunisia and Morocco because the development was quite similar to the one of Algeria

to 1970s. Even during the Iran-Iraq war, which many observers compared to WWI in terms of violence and number of victims, Iran and Iraq did not experience a decrease in life expectancy.[20]In Iran, parallel developments of improving health and nutrition most likely counter-balanced the war effects, although the value of 65 is slightly below what most other Middle Eastern countries achieved during this period. In the Gulf region, Qatar was always slightly ahead of Oman and Saudi Arabia. Unfortunately, we do not have estimates for Yemen during this period. In North Africa, we see a somewhat parallel development in the three countries under study up to the 1970s, after which Egypt had slightly less progress.

Conclusion

The economic history of the Middle East, North Africa, and Central Asia offers a great amount of variety. Although urban cultures may have lost the world-leading role they had in the high Middle Ages, the urban centers of the region continue to be highly important. Istanbul was the largest city in Europe until 1750. At the other extreme, nomadic economies of the deserts and half deserts display some surprising characteristics. For example, nutritional status was substantially higher in the Middle East than in Europe during the mid-nineteenth century. This can be partly explained by the good access of nomadic people to protein. Only after the cattle plague period of the 1880s and 1890s did health and nutrition development become worse than in Europe. During the nineteenth century, the Middle East became the object of colonialist influences from Western European powers after the Ottoman Empire gradually decreased in influence and became the 'Sick Man of Europe'. In the northeast of the Islamic world, the Russian Empire expanded to include the previous Khanates of Bukhara, Fergana, and other Islamic central Asian territories. Cash-crop economies developed, such as cotton in Egypt and what is today Kyrgyzstan.

[20]We assume that there is not misreporting

During the twentieth century, the first substantial oil revenues were earned in Iran and other countries. The economic history of the Middle East, North Africa, and Central Asia was also a struggle with the 'Curse of Resources' both during the nineteenth and the twentieth centuries. Pamuk and Williamson (2010) demonstrated that, ironically, favorable development of export prices for Middle Eastern cash crops (such as cotton) lured the region into deindustrialization. Positive price signals had negative long-run consequences.

Another reason why Middle Eastern economies found it difficult to compete with European industrial goods was that human capital and skills to compete with European producers were lacking. The Ottoman Empire had invested almost no public funds in schooling during the mid-nineteenth century; nor did families or religious schools teach abilities useful for industrial development. In addition, low governmental abilities to tax were a factor, as well as institutional developments that interacted with traditional laws and rules of the world region.

The 'Curse of Resources', of oil in particular, also had the effect that many revenues were reinvested in state-owned firms that became inefficient burdens on the economies. A number of studies have discussed whether oil and other natural resources often result in specific types of political economies in which small groups obtain great wealth while a large part of the population considers their share of income and political participation to be insufficient.

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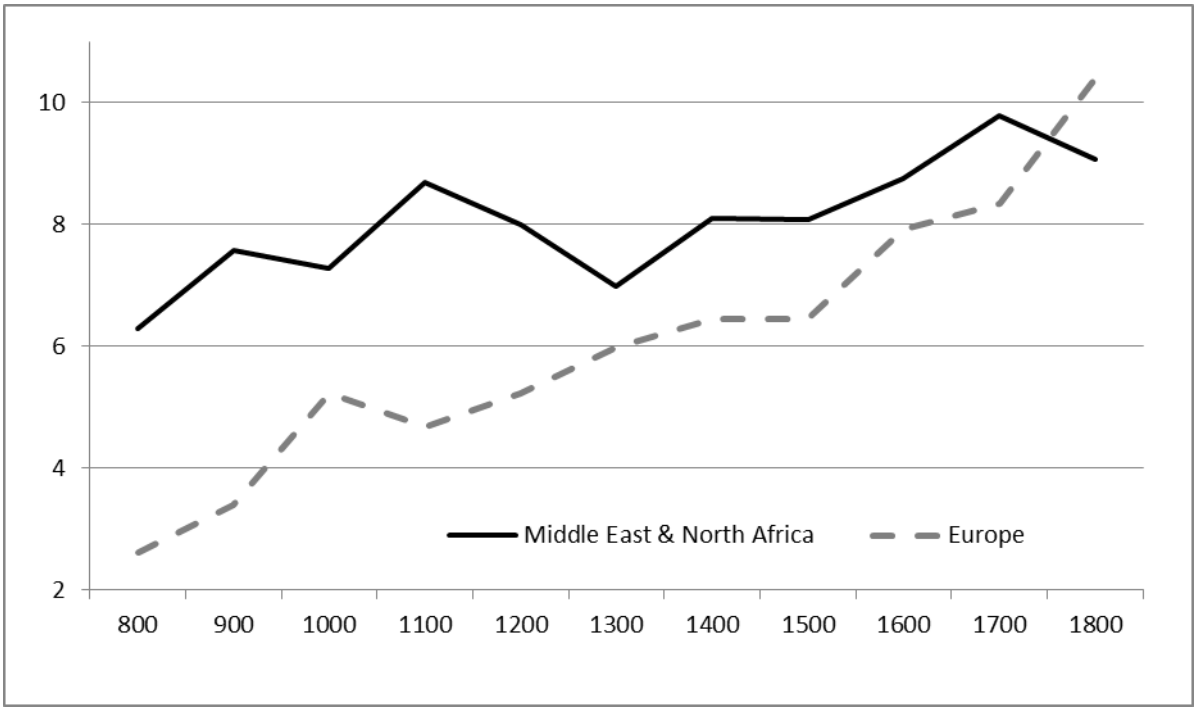
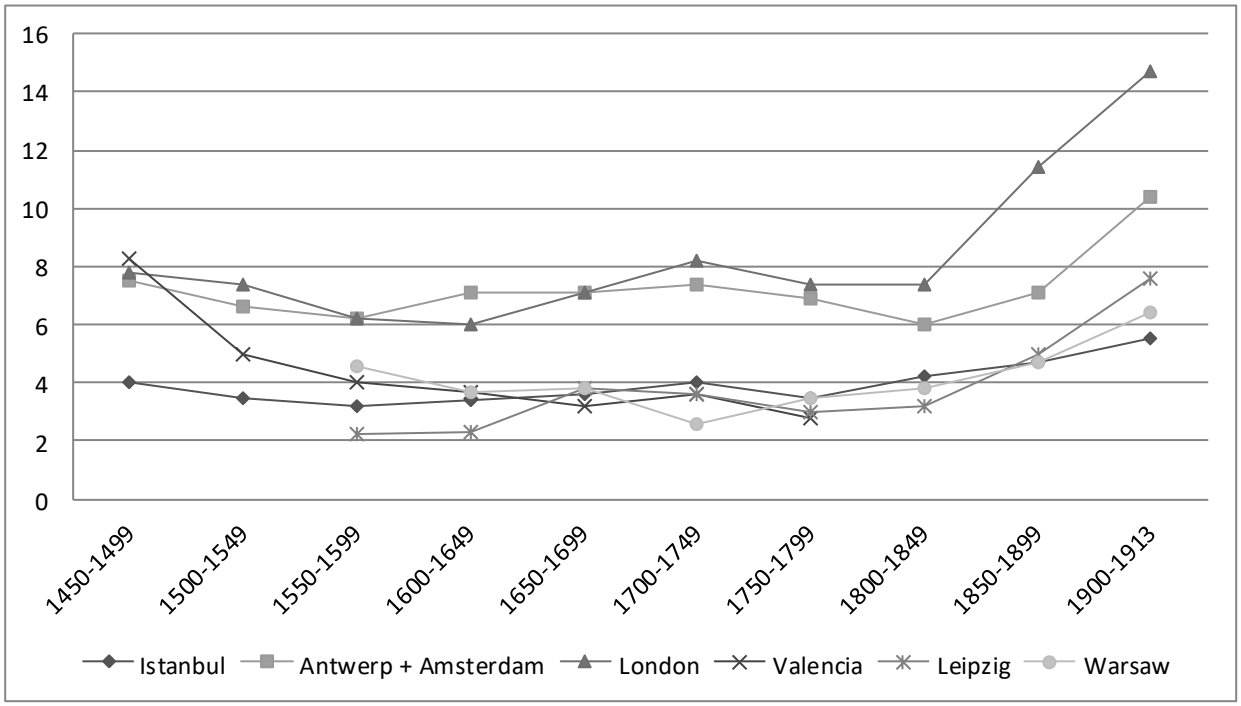
Figure 1:Urbanization rates in the Middle East and North Africa, compared with Europe



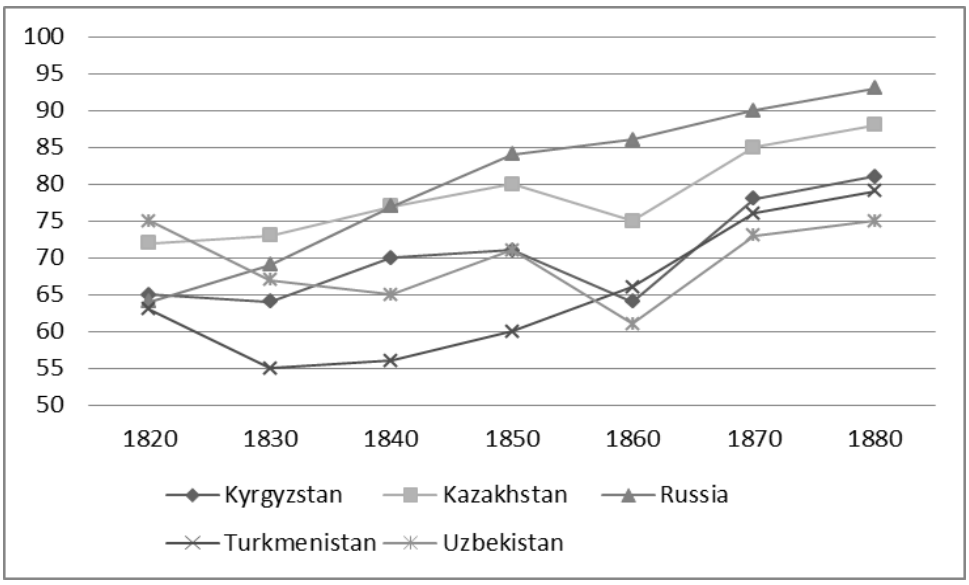
Source: Bosker, Buringh and Van Zanden 2013. Note: The geographic definition is used, which categorizes the Byzantine Empire as a Middle Eastern economy even if it was Christian, and Sicily and Muslim Iberia as European, even if it was Muslim during the early part. However, given that their population sizes were similar, and given that there was no religion-specific data available, the authors kept it this way. Excluded are Russia, the Caucasus, Scandinavia, Iran and Afghanistan. Only cities with populationgreater than 10,000 are included.

Figure 2:Real wages of unskilled urban workers



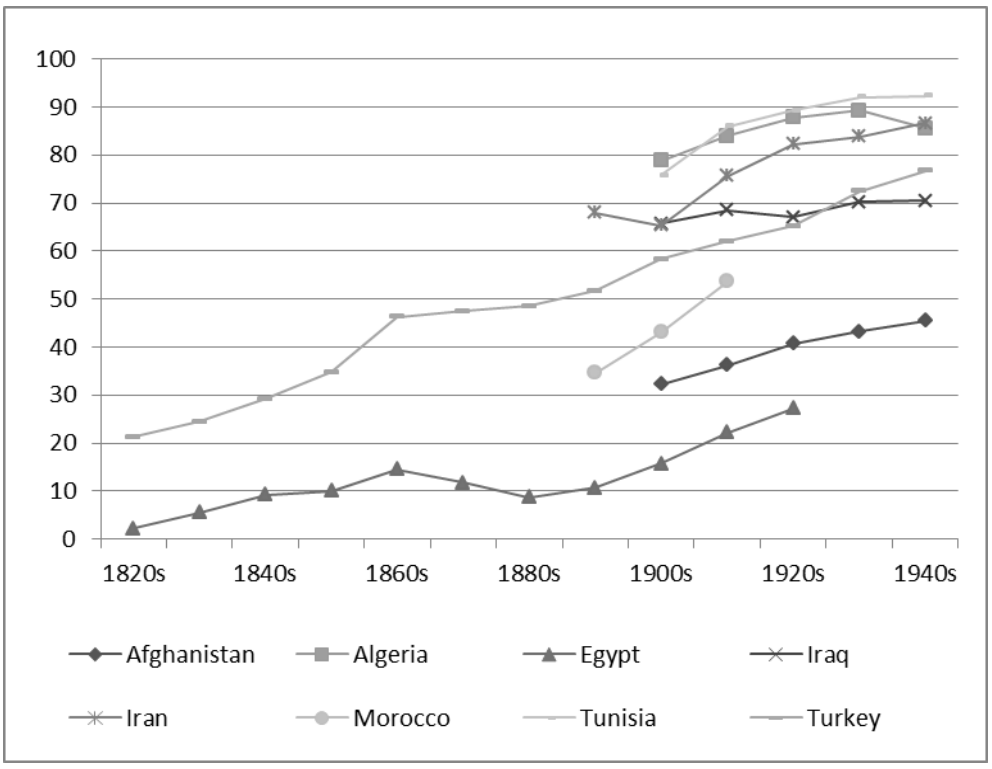
Source: Özmucur and Pamuk (2002). For European cities, they used Robert Allen's estimates. Notes: Real Wage of Unskilled Construction Workers in European Cities, 1450-1913 (wages [in grams silver] divided by CPI [in grams silver]).

Figure 3: Numeracy in Central Asia



Source: Prayon and Baten (2013).

Figure 4: Numeracy in Selected Middle Eastern Countries



Source: Prayon and Baten (2013).

Figure 5: Height in the countries of the Middle East

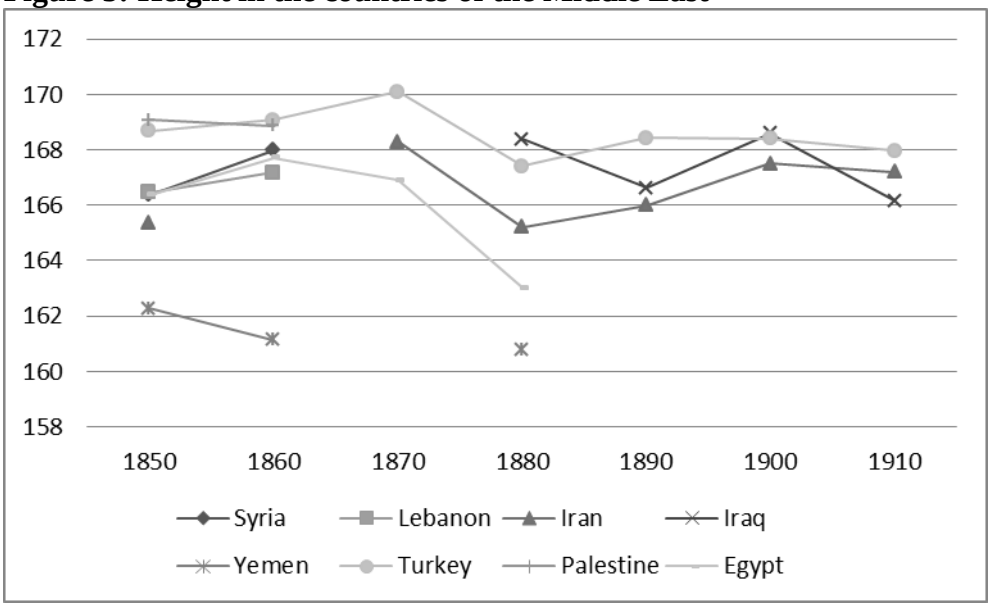
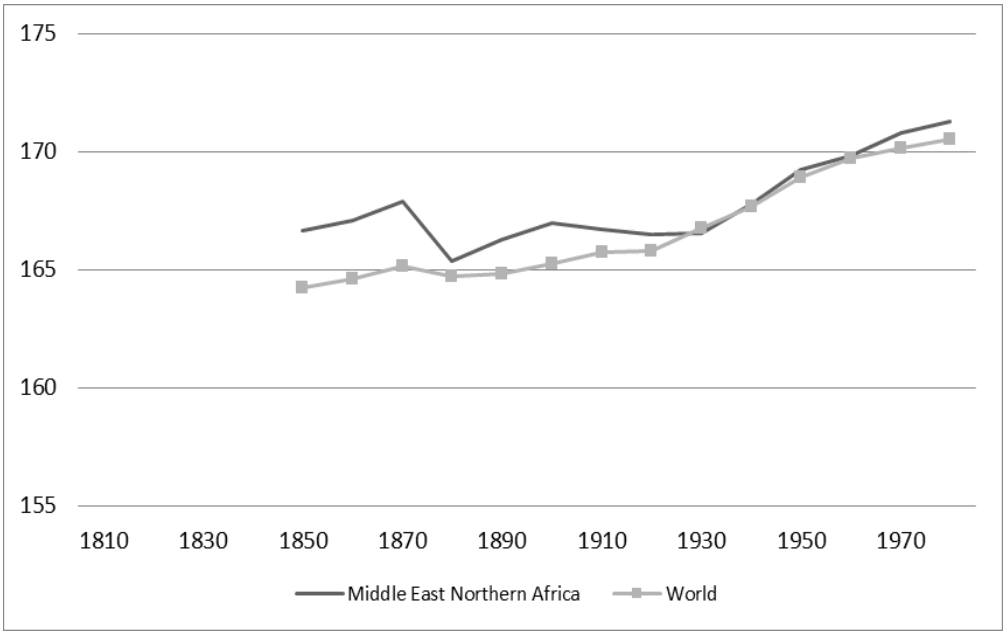
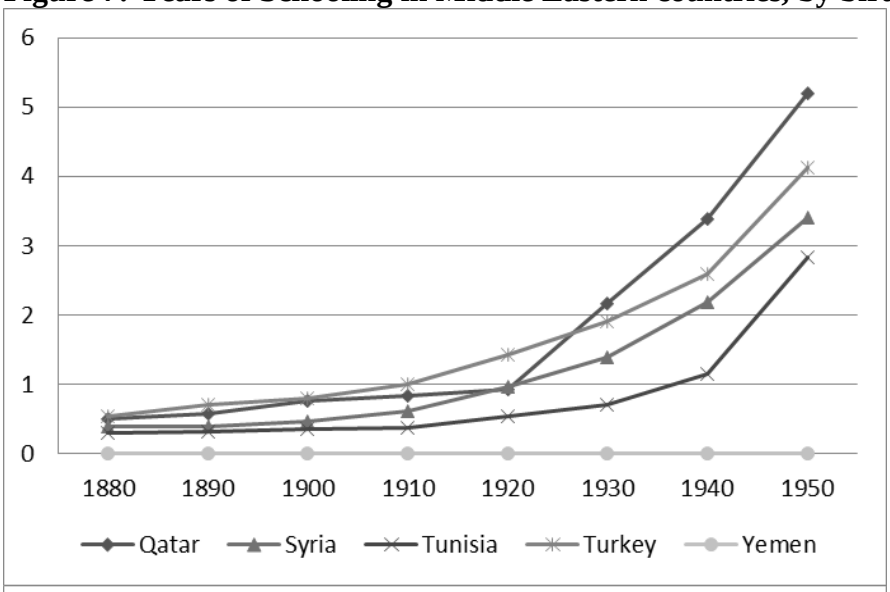


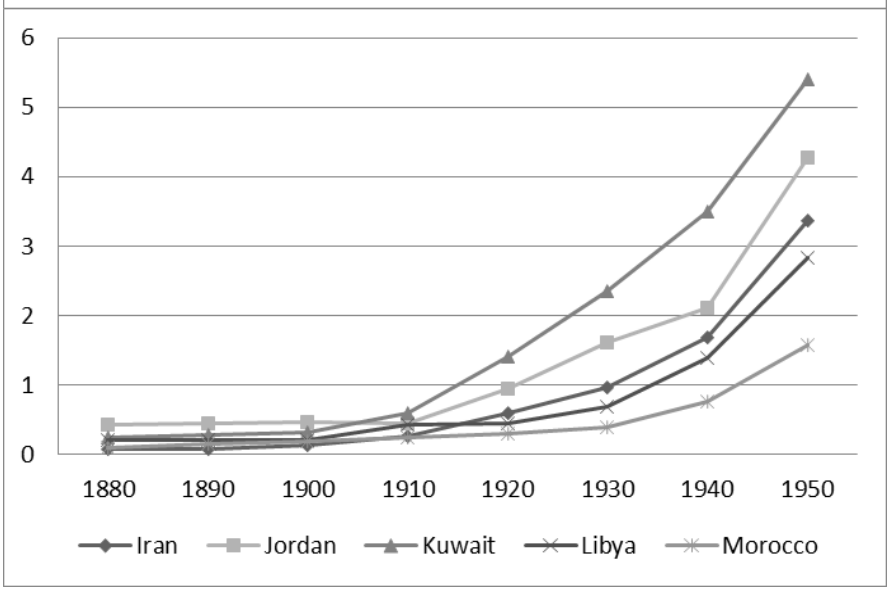
Figure 6: Height development in the Middle East and the World

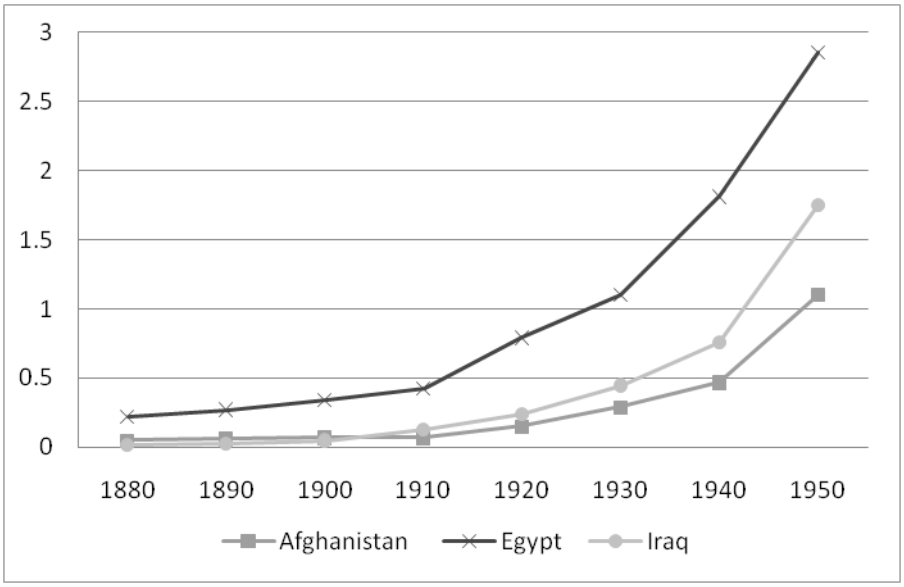


Note: See Baten and Blum (2012) for interpolation strategies (Missing values have been interpolated to avoid artificial "jumps" caused by data availability).

Figure 7: Years of Schooling in Middle Eastern countries, by birth decade

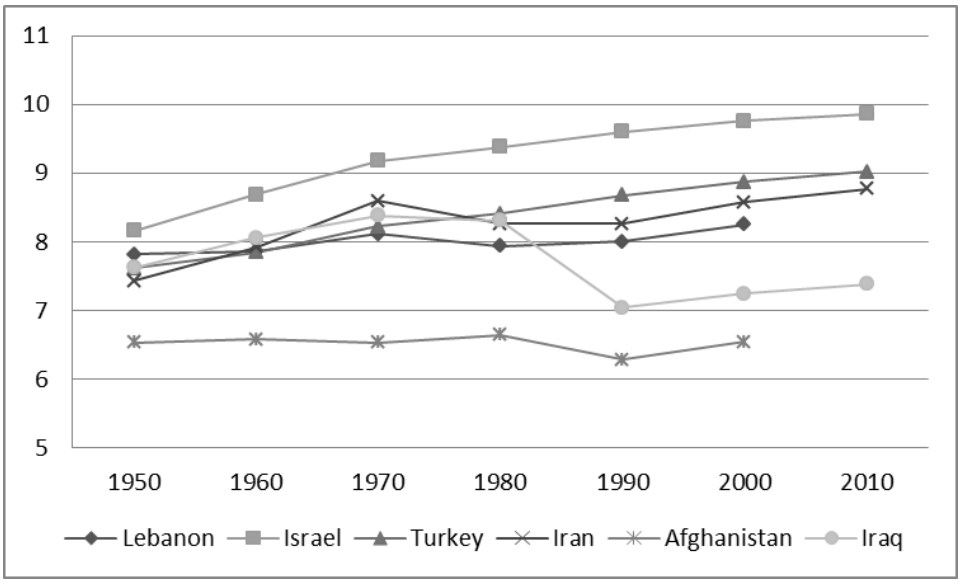


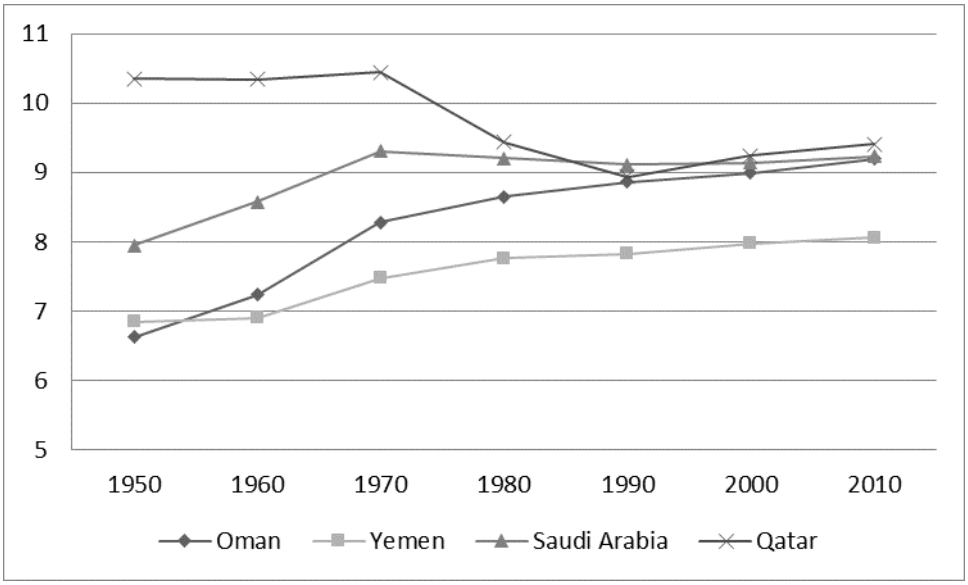




Source: Calculated from the Barro-Lee database (http://www.barrolee.com/) but arranging all data by primary school decade (i.e., the decade in which a cohort was approximately age 10). This assumes no strong survivor-bias distortion and no strong adults schooling (See Baten and Ghanem 2014).

Figure 8: GDP per capita in selected countries of the Middle East





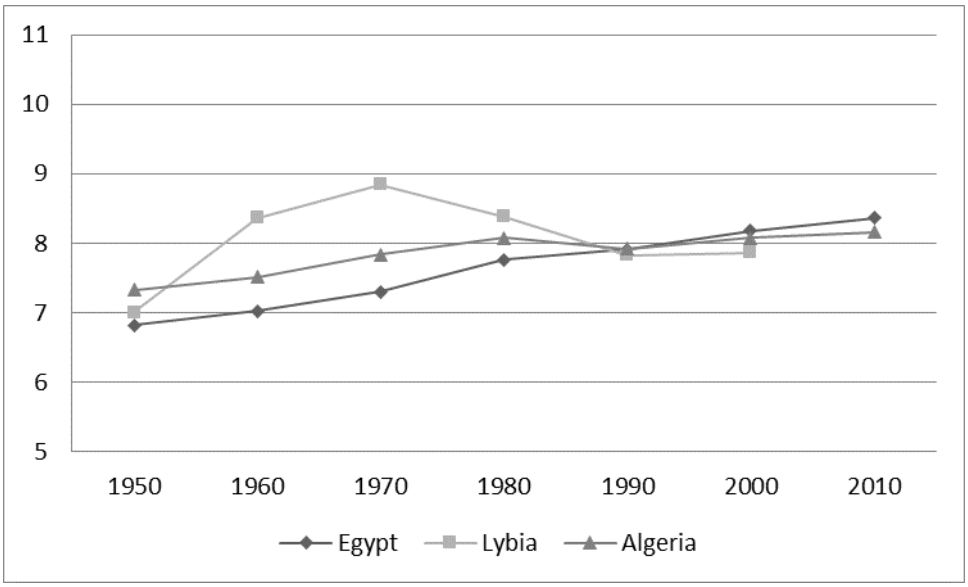
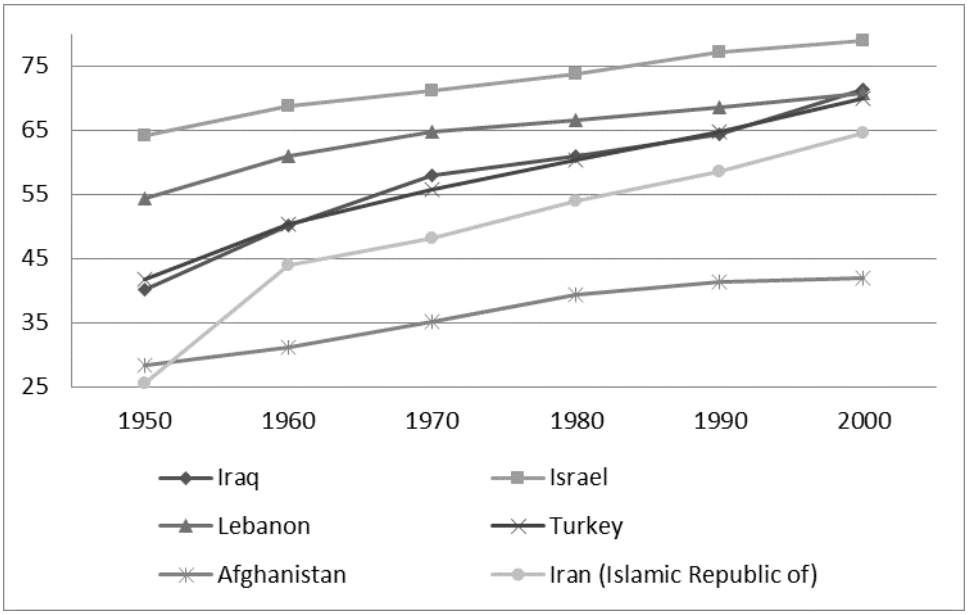
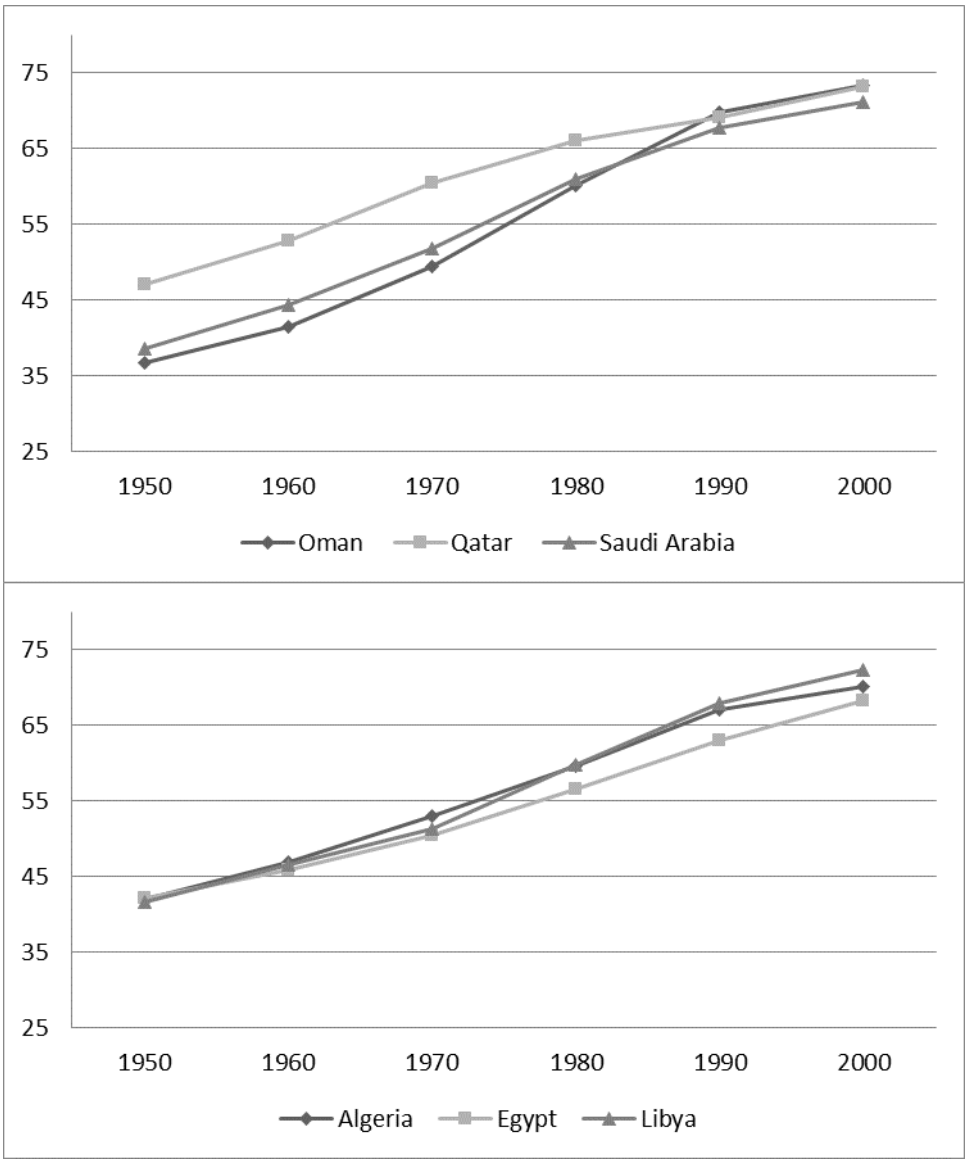


Figure 9: Life expectancies in selected countries of the Middle East

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Egypt
Libya