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**STRUCTURAL CHANGE AND ECONOMIC DEVELOPMENT IN THE ISLAMIC MIDDLE EAST  
700-1500: POPULATION LEVELS AND PROPERTY RIGHTS**

**Abstract**

Economic historians have recently treated Islamic institutions as ‘growth retarding’, ‘averse to change’, ‘path dependent’, ‘lacking creative destruction’, ‘extractive’ rather than ‘inclusive’ and blamed their lacking in change for the underdevelopment of the Middle East. This paper argues for a different approach to Islamic institutions implying that they boosted economic growth. The paper explores changes in economic structures, a transition in population levels from high to low, and a transition to individual property rights and provides economic indicators of growth. Articulated via Islamic law, legally sanctioned birth control and women’s property rights were instrumental in assuring low fertility rate and equitable and well spread income in the population. The paper concludes theoretically and empirically that Islamic institutions were innovative, amenable to change and efficient.

**Introduction**

There are currently various scholarly and disciplinary debates going on as to what ailed, and is ailing, Muslim-majority states. Political economists focus on what currently blocks economic development in the Middle East, for instance lack of support of intellectual freedoms, lack of the rule of law, lack of citizenship rights, lack of entrepreneurship and markets, as well as lack of attention to the multitude of national experiences.<sup>1</sup> Economic historians, on the other hand, have turned their gaze to the past, in particular to the role of medieval institutions, Islamic law and religious elites, blaming them for a long-term economic stagnation and backwardness. By associating cultural institutions with Islam, the Middle East, and economic failure, economics of religion, has taken us back to the 19<sup>th</sup> century’s Islam belittling spirit. By applying the most sophisticated theoretical models to medieval Islamic institutions, economic historians painted Islamic institutions as ‘growth retarding’, ‘averse to change’, ‘path dependent’, lacking

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<sup>1</sup> Defined as “deficits” see *Arab Human Development Report*. (AHDR)

## Structural Change

‘creative destruction’, ‘extractive’ rather than ‘inclusive’.<sup>2</sup> Not all economic historians have signed to the methodology and the assessment based on it. Bosker, Buringh and Van Zanden wrote that “Many explanations for Europe’s rise and the Islamic world’s stagnation have been posited in the largely narrative, theoretical economic history literature...”<sup>3</sup> However, the literature has grown in recent years from a trickle to a torrent, and without input from Middle East historians, continued to rely on second-hand general narratives.<sup>4</sup> Others have offered a vast array of achievements during the period referred to as the ‘Golden Age of Islam’ with evidence of endogenous, efficient, culturally rich Islamic institutions but did not engage with the perceived inconsistency.<sup>5</sup> The dichotomy between early Islamic economic achievements, performance, scientific and intellectual explorations and a hypothesized stagnation and hypothetical backwardness attributed to what followed was simply dismissed as a paradox.

Below I present new evidence and argue that empirically and theoretically Islamic institutions need to be seen as growth-promoting. I examine Islamic institutions interacting in the economy in two instances of change in economic structures during the first three centuries of Islamic rule in the Middle East. These were change in population levels from high to low, and a change in property rights from common property rights to individual ones. I will show that low population levels that began exogenously, with the impact of the plague of 541 and recurrences, was later maintained endogenously. I argue that the evidence of an early and legally defined Islamic voluntary birth control, correspond to evidence of small families, high wages, and growth in human capital which together attest to a period of economic growth sustained by an early demographic transition. The second change, a change in property rights was not unrelated to the first. I document the change by examining the property rights given to women in Islamic law and argue that they played a role were a economic powerful. Women received property at an early age which was placed under their control and incentivized them to become wage earners. The new property rights were instrumental in distributing benefits more equitably and efficiently throughout the economy, but when it comes to women, it rationalized the practice of birth control. The articulation of voluntary birth control and women’s rights by the Islamic legal

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<sup>2</sup> For review of the literature see Baker, Rubin and Woessmann, 2020, pp. 43 and ff.

<sup>3</sup> Bosker, Buringh and Van Zanden, 2013, p. 1419.

<sup>4</sup> I examined the literature on previous occasions. See Shatzmiller, 2011 and Shatzmiller, 2018b.

<sup>5</sup> Compare Findlay and Lundahl, 2006; Findlay and O’Rourke, 2009, pp.43-86.

principles suggests a spontaneous link between law and economy during the formative years of Islamic law.

Rather than referring to the ‘spirit of the law’ I will demonstrate that what motivated the two institutions, was their link to the economy. Changes to labour structures, urbanization, the monetary system, in standardizations, such as in weights and measures, religious expressions, language, script, literacy tools, had their dimensions in the demographic transition and women’s property rights. In the long run they also helped to maintain the gains achieved further calling into question the image of Islamic institutions as growth-retarding. I begin by examining the evidence used in few instances where Islamic institutions were depicted as growth-retarding.

### **HISTORICAL EVIDENCE AND INSTITUTIONAL CHANGE**

The first case revolves around formal and informal institutions. Using the personal letters, exchanged among a small group of Maghrebi traders and agents, the Judeo-Arabic documents from 11<sup>th</sup>-13<sup>th</sup> century Egypt, Avner Greif suggested that the group employed informal means to enforce conduct in trade activities.<sup>6</sup> The letters refer to shaming, threat to one’s reputation, or social isolation, and Greif suggested that they were used to enforce a code of economic efficient behaviour and regulate trading activities and secure honorable conduct. Gil, reviewing the same and a much larger group of trade related disputes concluded otherwise, “It may easily be argued that the normalization of trade relations was enforced by the Jewish courts, and that they were the entities which, according to Jewish religious law, attempted to resolve the conflicts.”<sup>7</sup> Greif acknowledges the existence of court documents but does not consider them, although ignoring evidence to the contrary is a major drawback since it invalidates the conclusion. The recent publications of thousands of court documents demonstrate that investments in trade, trade organization and trade related conflicts, were conducted and resolved on the basis of the most formal of institutions, written law and courts.<sup>8</sup> Greif may be correct, ‘shaming’ was an effective social mechanism to incentivize good behaviour, but it could not enforce it. As far as Jewish law

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<sup>6</sup> Greif, 1989, 1993, 1994. For the *Geniza* documents use in economic history, Goitein, 1967.

<sup>7</sup> Gil, 2003, p. 314.

<sup>8</sup> See trade related court documents in Goitein and Friedman, 2008; Ackerman-Lieberman, 2012; Ackerman-Lieberman 2017. The informal institution theory also solicited skepticism on the part of European economic historians, see Edwards and Ogilvie, 2012.

## Structural Change

on trade was concerned, it was changed into a new code by Maimonides concurrently, because of changing circumstances, a perfect example of how ‘cultural beliefs’ institutions changed.<sup>9</sup> Both Jewish and Islamic legal institutions show a parallel process of creating legal arrangements based on codes of law, put into practical use in notarial manuals, and enforced by Jewish *responsa*, Islamic *fatwas*, and sitting courts.<sup>10</sup>

The lessons derived from Jewish Maghrebi traders were soon applied to the conduct of Muslim traders as a whole in a historical context of great significance.<sup>11</sup> A single Arabic term, *umma*, mother, was used to place them in a socio-psychological category of ‘collectivists’, which explained their failure to participate in the growing Mediterranean trade, highlighting the success of their contemporaries, the Genoese traders, who were ‘individualists’.<sup>12</sup> The symbiosis between Jews and Muslims is historically correct and demonstrated by evidence on parallel developments in law and culture. Both Goitein and Udovitch strongly believed in it and used *Geniza* material from Egypt to illustrate the functioning of Islamic economic institutions.<sup>13</sup> Yet Goitein was the first to caution against uninformed misrepresentation of trade institutions on the basis of the *Geniza* letters. In the case of Islamic *suftaja* to reference the European *bill of exchange*, he wrote, “the translation is not warranted by the usage of the *Geniza*”.<sup>14</sup> The difficulty in depicting Muslims ‘collectivists’ rather than ‘individualists’ and therefore having inefficient institutions is not supported by the evidence. If the criteria for classifying individuals as ‘individualist’ as suggested by the literature is social recognition of personal achievements, Arabic sources are filled with evidence of recognitions.<sup>15</sup> Islamic scientific investigation was

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<sup>9</sup> Cohen, 2017.

<sup>10</sup> See for instance the 11<sup>th</sup> century Jewish notarial manual from Lucena, Spain. Rivlin, 1994 and compare with Andalusian notarial manuals.

<sup>11</sup> Greif, 1993, 1994.

<sup>12</sup> Greif, 1994 and fully developed in Greif 2006. Greif referenced his claim to Cahen, 1970. The reference is to the *Cambridge History of Islam*, but I could not find it in Cahen’s entry. The word *umma* appears in Von Grunebaum’s entry but without being associated with a ‘collectivist’ or ‘individualist’ society.

<sup>13</sup> Udovitch, 1970.

<sup>14</sup> Goitein, 1966, p. 28-29.

<sup>15</sup> Gorodnichenko and Roland, 2012.

## Structural Change

rewarded in social status,<sup>16</sup> while money, premiums and employment opportunities were offered to translators, historians, physicians, philosophers, literati, scientists, mathematicians.<sup>17</sup>

The adverse role ascribed to religious elites in blocking political change is another example. Egyptian religious elites were blamed for accepting donations in return for legitimizing and supporting the Mamluk regime, 13<sup>th</sup>-16<sup>th</sup> century.<sup>18</sup> Eric Chaney concluded that the religious elites received donations in return for collaboration and legitimation of the regime, produced a causality link between self-profiting Egyptian *ulamā*' and lack of long-term political change. The evidence in support consists of a large database of records of Nile flooding, rise in wheat prices, popular protest against it, and literary evidence of monetary donations, mosque enlargements and appointments for the *ulamā*'. Chaney hypothesized that with each economic crisis, autocratic rule in the Middle East became more entrenched and political change less likely. Beside excluding long-term evidence on millennial impact of the yearly fluctuations in Nile flooding with agricultural disasters and popular uprising which were emblematic of the history of Egypt, specific evidence of change under the Mamluks is ignored.<sup>19</sup> There was a change in revenue distribution under the Mamluks with estates that previously supplied *ulamā*' salaries and income for the religious elites, now under the control of the Mamluk *amirs*. The Mamluk regime encouraged speculation in grain prices by allowing the *amirs* to dump grain previously collected from their estates on the market in time of scarcity.<sup>20</sup> Private land converted into *waqfs*, also deprived religious elites of source of income. The *ulamā* had to be compensated somehow which explains the donations and other benefits. In a study of the new Hanafi law on land ownership Baber Johansen has demonstrated how the *ulamā*' reacted and articulated the new conditions.<sup>21</sup> In fact, the Hanafi jurists' involvement in rewriting the law of land ownership is a perfect demonstration of institutional change in the later medieval period. The general historical context matters as well. There is no evidence that religious elites ever played an effective role in regime change in the Middle East or that they otherwise supported popular riots

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<sup>16</sup> Brentjes, 2010; Brentjes and Morrison 2011; al-Hasan and Hill, 1986; Gutas 1998, Ashtor 1969. Artists regularly signed their work.

<sup>17</sup> See below.

<sup>18</sup> Chaney, 2013.

<sup>19</sup> Lev, 2004; Shoshan, 1981b; 1983.

<sup>20</sup> Shoshan, 1983.

<sup>21</sup> Johansen, 1988.

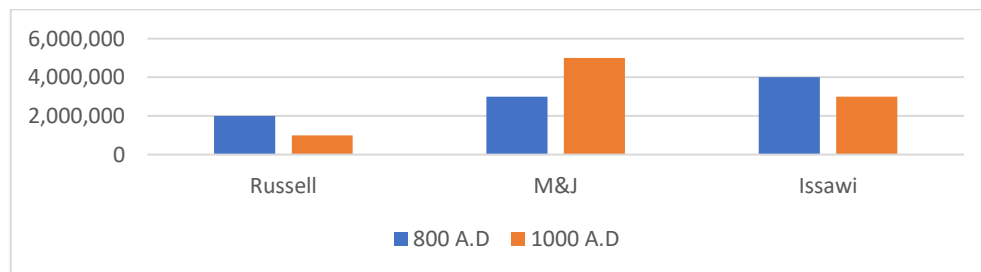
for that purpose. In conclusion, prioritizing economic theory over evidence to claim that Islamic economic institutions were growth-retarding is methodologically weak and conclusions based on it, need to be cautiously approached. As I propose below, there is plenty of evidence from the Middle East to suggest a different view of the Islamic institutions, which is fully supported by theory and comparative studies.

### POPULATION LEVELS AND DEMOGRAPHIC TRANSITION

#### i-Population Estimates and the Plague

What do we know about population levels in the Middle East under Islamic rule? As may be observed in **Figure 1** in the case of Egypt demographers give contradicting population estimates which suggest various economic scenarios.

**Figure 1**  
**POPULATION ESTIMATES FOR EGYPT 800-1000**



The estimates in **Figure 1** are derived from three demographic studies commonly used by historians.<sup>22</sup> They include articles by Russell,<sup>23</sup> the *Atlas of world population* by McEvedy and Jones,<sup>24</sup> and an article by Issawi.<sup>25</sup> The conflict over the estimates originated in disagreement over the impact of the plague, whether population levels recovered and by how much. Russell believed that population levels continued to decline after the 8<sup>th</sup> century, thus giving the plague recurrences in the Middle East a much greater role in keeping population level down, while Issawi and McEvedy and Jones, saw an increase in population size but differed as to the degree.

<sup>22</sup> Findlay and Lundahl, 2006, provide a useful summary.

<sup>23</sup> Russell, 1958, 1966, 1972.

<sup>24</sup> McEvedy and Jones, 1978.

<sup>25</sup> Issawi, 1981.

## Structural Change

In the presence of new, considerable and consistent body of evidence it is therefore necessary to reconsider the likelihood that the first Bubonic Plague to hit the Middle East, 541-750, the Justinianic plague, had a larger impact than previously thought.

Despite the recent skepticism expressed by historians of Late Antiquity about the severity of the Justinian plague, we need to assess correctly the demographic impact of the plague.<sup>26</sup> Namely we need to take into consideration for instance, recent scientific evidence confirmed the genetic composition of the plague pathogen,<sup>27</sup> the discovery of mass graves,<sup>28</sup> and evidence from primary sources that document the impact of the recurrences. The numbers in **Table 1** illustrate the severity of the impact of plague and plague recurrences in the Middle East.

**Table 1**  
**NUMBER OF PLAGUE VICTIMS 6<sup>th</sup>-9<sup>th</sup> CENTURY**

<b>Date (C.E.)</b>	<b>Estimated No. of Deaths</b>	<b>Location</b>
541-543	5,000-16,000/day	Constantinople
541-543	majority of population	Egypt
541-543	Entire villages and towns depopulated	Palestine
557-558	35,000 in three months	Amida
Mid 6th-Mid 8th c	Population repeatedly decimated	Levant
743-744	600,000 in one month	Bostra and Hawran
743-744	100,000	Mesopotamia
773-774	1,000/day	Lower Mesopotamia (Mawsil)
841-843	500/day	Ramla
841-843	Many villages deserted	Mesopotamia to Syria and the coast
841-843	1/3 of population	Palestine

**Source:** Morony, 2007.

The evidence confirms that between the seventh and the ninth centuries the Middle East lost about 50% of its population and that the recurrences further aggravated the situation.<sup>29</sup> The

<sup>26</sup> Haldon et al., 2018.

<sup>27</sup> Wagner et al. 2014. [http://www.thelancet.com/journals/laninf/article/PIIS1473-3099\(13\)70323-2/abstract?\\_eventId=login#back-corl](http://www.thelancet.com/journals/laninf/article/PIIS1473-3099(13)70323-2/abstract?_eventId=login#back-corl)

<http://www.theguardian.com/science/2014/jan/28/plague-victims-shed-light-disease-origins>

<sup>28</sup> McCormick, 2019.

<sup>29</sup> Harper, 2017 and Jongman, 2011, for Rome. Conrad, 1981a and 1981b for the Middle East. Findaly and Lundhal, 2006; Pamuk and Shatzmiller, 2014.

numbers cited in **Table 1** represent what contemporaries saw and while given to errors, paints a picture of a major human loss and suffering that lasted over centuries.<sup>30</sup> It approves Russell's point of view not only that population could not have recovered in the eighth century but also that there probably were other factors in explaining why there was no population recovery by the tenth century, which he could not explain. The Arabic sources support it with evidence on manpower shortages and how the new administration attempted to handle it.

### ii- Labour Shortages, Immigration and Slaves' Imports

There is strong evidence to suggest the occurrence of labour shortages during the first three centuries of Islamic rule and for the State's attempts to resolve them through settlement policies, immigration and slaves' import. The evidence shows that Arab settlement in the Middle East began even before the conquest was completed and may have been part of it. Soldiers were told to settle in Iraq as early as 636, directed to cities, first in the garrison cities of Kūfa and Basra, and then in 640 ordered all the way up to Mawsil.<sup>31</sup> In Egypt, where the Muslim administration prohibited the settlement of soldiers, the need for manpower was unrelenting. Between 641 and 776 the government tried to redress the shortages by returning fugitives to their villages and forcing land tenure on them. Bedouin tribes' who migrated first to Syria, were sent to Egypt in 673.<sup>32</sup> On the Northern frontier, the Umayyad administration continued the policy of settling Arab soldiers in garrison cities, *ribāts*, along the Byzantine frontier, the *thughūr*.<sup>33</sup>

When labour shortages continued the new administration in Damascus resorted to encourage more immigration from Arabia. In 717 the Umayyad Caliph ʿUmar II issued a call for immigration, *hijra*, to the Middle East. Addressing the Arabian tribes, he said,

*“The Prophet has said, the gate of emigration, (al-higra), should be opened to all the people of al-Islam... we open it up to whosoever may emigrate of the Bedouin, and who sells his cattle and removes from his Bedouin abode to the abode of emigration...”*<sup>34</sup>

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<sup>30</sup> Morony, 2007.

<sup>31</sup> Morony, 1981; Lapidus, 1981.

<sup>32</sup> Sijpesteijn, 2013, p. 7.

<sup>33</sup> Ager, 2008; von Sivers, 1982. The pattern of the *Ribāt* settlement is also known from Islamic Central Asia. see De la Vaissière, 2008.

<sup>34</sup> Gibb, 1955.



The call for immigration extended by the Islamic state corresponds to what is referred to in migration theory as the ‘State as ‘labour-recruiter’, and to the response as corresponding to the ‘push-pull’ theory.<sup>35</sup> The ‘push’ factors were the demographic pressure at home, the lack of resources in the desert, low income and low living standards, the lack of economic opportunities, all typical indicators shared by societies that engage in immigration. The features of the Middle East as a migration story in early Islamic rule include all the ‘pull’ factors, demand for labour, availability of land, good economic opportunities, all offered by the new location. While immigration might have provided temporary relief, it was not sufficient given the geographical extent of the territories conquered to Islam in the Eastern Mediterranean. With natural growth flattened by plague recurrences, and demand for manpower remaining high, slaves’ import could have been another solution.

The literary evidence is revealing as to where did slaves come from, and where did they go, namely which sectors of the economy were impacted by slave labour. Slaves in sufficient numbers could only come from regions unaffected by the plague, namely Black Africa, Central Asia, and North-Eastern Europe, origins which indeed correspond to the evidence of the Arabic sources.<sup>36</sup> Slaves, referred to as *saqāliba*, reflect a Slavonic origin, different from generic slaves, ‘*abd*, or Black slaves, *Zanj*, or Turkic slaves, *Atrāk*.<sup>37</sup> The Arabic sources do not confirm the hypothesis suggested by European historians that the Islamic demand for slaves explain an extensive slaves’ imports from Western Europe, and the variety of economic impacts ascribed to them, such as the abolishment of slavery in Europe, the end of gold coinage and halt of monetary circulation in Europe.<sup>38</sup>

Where did the slaves go? Only two episodes in the Arabic sources refer to slaves in agricultural labour for the entire medieval period. The first involved Black slaves in Iraq, the *Zanj*, the other, slaves in North Africa, which evidenced the absence of slavery in the agricultural sector.<sup>39</sup> Slaves do not appear in the manufacturing sector either, although slaves as individuals,

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<sup>35</sup> Castles and Miller, 1998, pp. 19-47, for survey of the literature.

<sup>36</sup> On these and related aspects of medieval slavery, Fynn-Paul, 2009. On slave imports in the Middle East, Amitai and Cluse, eds. 2017.

<sup>37</sup> McCormick, 2001, p. 737, n. 44 and pp. 738-740. The Slav/slave etymology, which McCormick traced to the ninth century, surfaced in Arabic at the same time

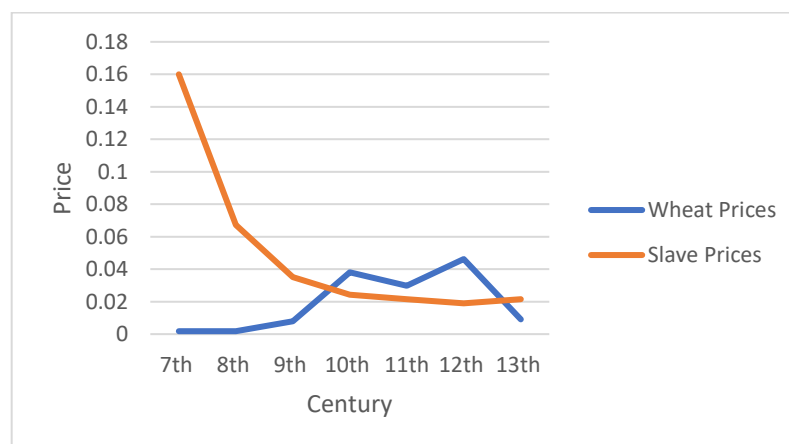
<sup>38</sup> Duby, 1974; McCormick, 2002 on the role of Islamic slave traders but see the paucity of evidence for trade relations between Carolingian Europe and the Middle East in Sénac, 2006.

<sup>39</sup> Popovic, 1976, Talbi, 1981.

could have been employed as artisans or trade agents for their masters, activities over which the Islamic law gave them property rights. Individual records of sale show an ongoing slaves' imports, with most slaves ending in domestic service.

The estimates of the number of slaves arriving in the Middle East over the long-term is subject to speculation.<sup>40</sup> By comparing wheat prices in Egypt to available prices of slaves sold there, I offer a view of the changing demand for slaves. **Figure 2** charts the long-term correlation between wheat prices and slave prices. The mechanism determining prices and availability was demand. When compared to slave prices wheat prices are a good indicator in the case of Egypt, because wheat was a major crop and cultivation levels followed the demographic decline.<sup>41</sup>

**Figure 2**  
**WHEAT PRICES AND SLAVE PRICES IN EGYPT**  
**7<sup>th</sup>-13<sup>th</sup> CENTURY GOLD DINARS**



**Source:** Ashtor, 1969; Ragheb, 2002

As an indicator of manpower supply **Figure 2** suggests that slaves' prices were high during the first centuries of Islamic rule, indicating strong demand. Prices declined beginning in the tenth century and remained stable indicating lower demand for manpower. Wheat prices followed a different trajectory. They were low during the first two centuries of Islamic rule, a trend corresponding to low demand due to population decline, and the loss of the grain market

<sup>40</sup> See the discussion in Clarence-Smith, 2006. pp. 11-16.

<sup>41</sup> See for example of wheat prices in Egypt, Shatzmiller, 2018a and wheat prices in Iraq, Shatzmiller, 2017a.

of Byzantine Constantinople. When population began to recover in the tenth century wheat prices began to rise, reaching a peak between the tenth-twelfth century. Though not indicative of the entire Middle East, **Figure 2** offers an insight to the demographics of the Middle East over the long term.

Although the evidence does not permit us to state that slave imports had an impact on labour markets it helps us to sort out its role in the military. The armies suffered the same long-term lack of manpower. The State began recruitment of slave-soldiers early in the Islamic rule in the Abbasid period.<sup>42</sup> While military slavery in Islam is better represented in the sources and better investigated because of the political implications, the military slaves in Mamluk Egypt is the exception. Here imported foreigners transitioned automatically as a group into Islam and into freedom and were subsequently incorporated into society.<sup>43</sup> Turning military slaves into rulers in Egypt and Syria between thirteenth-sixteenth century was the outcome of a transformation in political organization, not in economic structures.<sup>44</sup>

Islamic law prohibited the enslavement of Muslims and encouraged their conversion and manumission once in the abode of Islam through a lenient manumission mechanism. Manumission of one's slaves was recommended as a charitable act, and manumission documents abound in the archives.<sup>45</sup> The slave population did not reproduce itself in captivity which distinguished it from early and later systems of slavery and therefore need not be considered here as a meaningful institution in the labour system. A slave 'mother', *umm walad*, who bore a child to her master, would become free with her child, which meant that many females were manumitted while young and in childbearing years. The practice stands in contrast to the practice in Rome, where female slaves were not manumitted before they reached menopause.<sup>46</sup> Slave recruitment remained in private hands, as a private not a state enterprise, meaning that on the whole, slavery in Islam became a one generation institution, and its economic impact on labour markets needs to be understood in terms of its demographic impact on society at large.

### iii- A Pre-Islamic Malthusian Phase

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<sup>42</sup> On early military slavery, Crone, 1980; Pipes, 1981, Gordon, 2001.

<sup>43</sup> Ayalon, 1985.

<sup>44</sup> Pamuk, 2014.

<sup>45</sup> Little, 1982. On problems for slave manumission when he or she are held in shares or in partnership, Udovitch, 1970, pp. 113-115.

<sup>46</sup> Scheidel, 1997.

The archeological studies of the post-plague Middle East reveal another dimension beside confirming the devastation caused by the plague. They reveal a high level of human settlement corresponding to the maximal expansion of cultivation in Iraq and Egypt, which suggest to us the Middle East went through a Malthusian phase.<sup>47</sup> Two archeological studies, one for Egypt the other for Iraq, document the peak in settlement and cultivation in the sixth century and the drastic decline by the seventh to about a half of previous settlements, cities and villages.<sup>48</sup> With every land surface under cultivation, it was a remarkable expansion in agriculture with an urban economy to boot.

Alston said that in the case of Egypt,

“Roman Egypt experienced a slow rise from the first century AD with a very sharp peak in the first half of the 6th century followed first half of a very sharp decline on the 7<sup>th</sup> century, bringing population level to its lowest level of the 1<sup>st</sup> century BCE”. “Cities and villages were occupied continuously and prospered from the fourth century until the seventh century. By the 8<sup>th</sup> century, 12 out of the 16 towns and villages were either abandoned, deserted or show signs of decline.”<sup>49</sup>

In the case of Iraq, Adams stated,

“It would appear that an adjusted total of occupied Sassanian settlement within the Diyala area whose subsistence needs could only be supplied by local agriculture dependent on gravity-flow canals might be about 2,900 hectares. At 200 person per hectare of built-up town or city, and at 1.4 hectares of cultivable land per person, this implies the cultivation of about 8,100 square kilometer of land—approximately the entire potential area of cultivable land on the lower Diyala plains. And, indeed, it is possible to confirm independently that virtually the entire land surface must have been utilized for agriculture during the Sassanian period.”<sup>50</sup>

The kind of literary sources which described the collapse of the irrigation system in Egypt in the aftermath of the Black Death, is not available to us when it comes to the Justinianic plague, but

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<sup>47</sup> Malthus, 1976; On the classic Malthusian regime, and Neo-Malthusian theories, Abramitzky and Braggion, 2004. On Malthusian trap in growth episodes, North, 1981, pp. 69-186; Livi-Bacci, 2012, pp. 82-105. In the Neolithic and Industrial revolutions, Cipolla, 1962, pp.17-32; Allen, 2001. On Medieval Europe’s long period of population decline, Persson and Sharp, 2015, p. 33.

<sup>48</sup> Alston, 2001 for Egypt; Adams, 1965 for Iraq. Also, Morony, 2004, p. 172-175.

<sup>49</sup> Alston, 2001, p. 161. For data see p. 169 and Table 2 and p. 178 and Figure 3. For different picture, Banaji, 2001, Morony, 2004, p. 170

<sup>50</sup> Adams, 1965, p. 74

the evidence of the archeological studies is strong enough to offer a pattern. Evidently, it is easier to demonstrate the occurrence of a Malthusian phase based on the two-river irrigated zones of Iraq and Egypt than it is in the case of Syria-Palestine. There, agriculture is typically Mediterranean, based on rain fed grains and hills planted with olive trees and wines and population that is more sparsely located.<sup>51</sup> Yet, even in Arabia, which is a region even less susceptible to archeological research, the occurrence of a Malthusian phase in the pre-conquest era, is manifested by the Islamic conquest itself and immigration to the Middle East.<sup>52</sup> Wars, famines, diseases, earthquakes and climate change, the positive checks killing people, have been recorded as well but the dramatic size of the destruction in Iraq and Egypt may only be explained by the Plague.

Recognizing a pre-Islamic Malthusian phase in the Middle East enhances our insight into the demographic transition in the Middle East. The literature suggests that societies experience economic growth as they rebound from a Malthusian equilibrium phase, whether the rebound was triggered by an exogenous drastic event such as the plague, or by other means.<sup>53</sup> Whether the economic growth that occurred in the Middle East was due solely to the plague eliminating population pressure on the resources, or alternatively had the support of endogenous institutions, is at the core of this paper. The temporary respite offered by the relief of population pressure on resources in agricultural societies is believed to have been just that, temporary. But in the case of the Middle East evidence on the practise of voluntary birth control playing a decisive role in slowing population recovery, suggest an institutional tool that facilitated a demographic transition to low fertility rate and related economic benefits.

#### **iv- The *‘Azl*: Voluntary Birth Control in Islam**

There is strong literary evidence and some empirical evidence to the practice of voluntary birth control in Islam. The evidence for the practice was collected from numerous sources from Islamic law, Islamic medicine, chronicles, and Arabic prose and poetry by Basim Musallam.<sup>54</sup> The evidence was augmented by the Egyptian demographer Abdel Rahim Omran with the

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<sup>51</sup> Fuks and al. 2017 with extensive bibliography.

<sup>52</sup> But compare Pellat, 1971. McEvedy and Jones, 1978, pp. 144-148.

<sup>53</sup> Findlay and Lundahl, 2006.

<sup>54</sup> Musallam, 1983.

endorsement of contemporary religious authorities in Egypt in an attempt to convince Muslims of the utility and legitimacy of the practice.<sup>55</sup> A large coverage of the early Islamic traditions shows that '*coitus interruptus*', or '*ʿazl*', was legally sanctioned and authorized by the jurists of all legal schools as early as the second century of the Islamic era. Musallam explained the practice as justified by the notion of the 'bad times', by which civilized people reacted to the political upheavals, insecurities in the cities and the countryside, and exemplified them by the ravages in the Middle East caused by the Black Death.<sup>56</sup> Yet, the practice was clearly initiated earlier since it is so well documented in early *hadiths* and discussed in detail in the early legal sources. The 'bad times' then probably corresponded and corresponded to an earlier plague, that of Justinian.<sup>57</sup> Since the practice appears in a final legally codified version in the *sharīʿa* by the 9<sup>th</sup>-10<sup>th</sup> centuries, when the Black Death appeared, it was established as suggested by evidence of small families in the medieval Middle East.<sup>58</sup>

Russell suggested that the average family in Egypt was of 3.5 persons,<sup>59</sup> a number endorsed by Michael Dols as the average size of medieval household of 3,5 after the plague.<sup>60</sup> Probate inventories dating from 1390-1393 Mamluk Jerusalem revealed that the city had a high rate of unmarried single women, divorced and widowed individuals and that statistically 58% of males and females had no children.<sup>61</sup> Huda Lutfi concluded that "Small families seem to have been more common than larger ones." She stated that "it was more common for families who had children to have 1 or 2 rather than 3 or 4 so the average household is 2,7 which is lower than the 3,5 average that Russell estimated for a medieval family."<sup>62</sup> David Powers also found small families in fourteenth century North Africa, "No family had more than three children and the average number of children per family was 1,6."<sup>63</sup> Archival documents from 15<sup>th</sup> century

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<sup>55</sup> Omran, 1992.

<sup>56</sup> Musallam, 1983, p. 109 and pp. 115-121.

<sup>57</sup> Musallam, 1983, pp.105-121.

<sup>58</sup> Musallam, 1983.

<sup>59</sup> Russell, 1965, p. 72.

<sup>60</sup> Dols, 1981, p. 402; Musallam, 1983, pp. 106-107

<sup>61</sup> Lutfi, 1985.

<sup>62</sup> Lutfi, 1985, p. 256

<sup>63</sup> Powers, 1990, p. 241.

## Structural Change

Granada, dealing with estate division also show small families, with one or two siblings inheriting.<sup>64</sup>

There is no way to know how effective was the practice. The *'azl* may well have been as ineffective as the array of herbs and potions suggested by the medical literature to prevent conception, or the “taboos, infanticide, and various other means”, suggested by North.<sup>65</sup> More significantly is the correlation suggested in the literature between the practice of birth control and the income and standards of living of a household. Couples who practiced birth control did it because they wanted to avoid hardship to themselves and offer their children better opportunities and they had the means to do it.<sup>66</sup> There are additional indicators that voluntary birth control was a legal institution with strong connection to economic realities, among them high incomes, greater living standards and human capital.

### **v- Standards of Living, Human Capital and Wages**

The literature on economic growth strongly suggests the existence of economic incentives for limiting births.<sup>67</sup> Becker and Galor, for instance, hypothesized that higher incomes flowing to a household would incentivise parents to opt for fewer children in favor of ‘better ones’, offering them the resources to further their skill formation. Typically, they suggest, as standards of living rise so do parents’ expectations and their will to do so, as the fewer children would benefit from the advantages offered by higher education and will benefit from better remuneration. The evidence from the Middle East offers a view of higher wages, higher household incomes and higher standards of living, as well as human capital and a rise in wage premiums for educated elites to match the practice of birth control and support the hypothesis behind it.

In a recent study of wages in the medieval Middle East, Pamuk and Shatzmiller demonstrated that standards of living in the medieval Middle East rose significantly in the aftermath of the Justinian plague and although they declined somewhat subsequently, remained

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<sup>64</sup> Shatzmiller, 2007, pp. 1-6.

<sup>65</sup> North, 1981, p.85.

<sup>66</sup> On an early demographic transition compare Blanc, 2019.

<sup>67</sup> Becker, 1960; Galor, 2011; also, Livi-Bacci, 2012, pp. 34-41 for demographic aspects.

well above subsistence for the duration of the Middle Ages.<sup>68</sup> The rise in living standards in the medieval Middle East also corresponded to a rise in human capital.<sup>69</sup> The extensive literary production in Iraq in the Golden Age of Islam, the disciplines cultivated, the literacy levels, the number of books produced, suggest a corresponding rise in human capital.<sup>70</sup> It was an endogenous transition fueled by scientific legacies in the Middle East and the impact of the patterns of settlement that intensified Arab migration to the cities. The rise in human capital was expressed through an increase in educational institutions, libraries, academies, mosques, with madrasas following in the eleventh century, that corresponded to an increase in the number of educated literate professionals. The migration pattern of the Arab tribes, their preference to settle in the cities, accelerated and facilitated the standardization of the Arabic language and its elevation to the status of the *linguae francae*, the language of culture and state administration and institutions.<sup>71</sup> Growing demand for literati in the state bureaucracy and court, royal and legal personnel, resulted in higher wages awarded to professionals, the like of teachers, astronomers, physicians, judges. **Figure 3** demonstrates the gap that opened between the wages paid to unskilled labour in Iraq and wages paid to professionals. It shows that professionals received remunerative premiums corresponding to their training and their skills and that the peak in premium payments occurred in the 9<sup>th</sup> century and corresponded to the Abbasid Golden Age of Islam.<sup>72</sup>

**Figure 3**  
**AVERAGE WAGES OF PROFESSIONALS AND UNSKILLED WORKERS**  
**IRAQ, 8<sup>th</sup>-10<sup>th</sup> CENTURY**  
**DINARS/DAY**

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<sup>68</sup> Pamuk and Shatzmiller, 2014, Bolt and van Zanden,

<sup>69</sup> Pamuk and Shatzmiller, 2014.

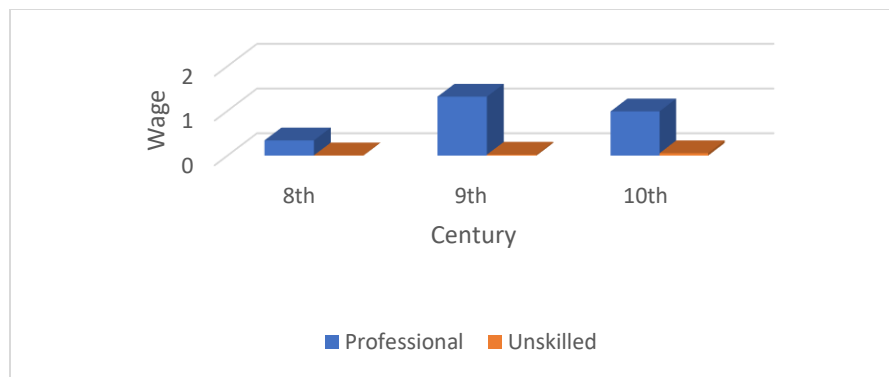
<sup>70</sup> Gutas, 1998.

<sup>71</sup> Shatzmiller, 2018a.

<sup>72</sup> Estimating the scale of professionals' wages presented methodological challenge because of some extraordinary variables. Excluding five extraordinary entries, which produced data standard deviations of 14.52 and 222.61 for the 9<sup>th</sup> and 10<sup>th</sup> century respectively, resulted in standard deviations of 0.77 and 0.91 for the 9<sup>th</sup> and 10<sup>th</sup> century respectively, which is closer to the standard deviation of 0.37 for the 8<sup>th</sup> century.



## Structural Change



**Source:** Ashtor, 1969; Pamuk and Shatzmiller, 2014.

In conclusion, the literature suggests that while economic gains achieved during periods of growth will likely dissolve when population levels rise again, a change to low fertility rate in the Middle East may have saved at least some of them.<sup>73</sup> The gains were secured and maintained through a most significant structural change that took place under Islamic rule which is the articulation of property rights as individual property rights in the Islamic law. Below I illustrate the dimensions and impact of individual property rights through the examination of property rights given to women, including the right to allow the husband to engage in birth control. A transition to low fertility regime that helped maintain economic gains in the long run was enhanced by the change in Islamic law of property rights and probably could have been achieved without it.

### INDIVIDUAL PROPERTY RIGHTS AND WOMEN'S PROPERTY RIGHTS

The benefits of enforced property rights are well established including for instance, protection of investments, limiting “free riders” and minimizing transaction costs. Douglass North associated the transition to individual property rights with birth control.<sup>74</sup> A group living in common property rights has no interest in limiting births but rather in extending its members access to shared resources. Members will strive to curtail birth rate when they can ensure exclusive access to benefits. North’s association of individual property rights with the practice of

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<sup>73</sup> Campbell, 2013.

<sup>74</sup> North, 1981, 65, 72- 89, quote on p. 85.

birth control is similar to what we observe in our sources. The nomadic society in Arabia was one of common property rights, where property such as herds, camels, tents etc. was held in common by the tribe members. It is likely that a transition to individual property rights may have begun in Mecca, following an increase in trade and accumulation of capital in the hands of Meccan aristocracy.<sup>75</sup> Regardless, the evidence suggests that as the Arabs moved into the Middle East, they moved in with their tribal structures, namely common property rights. The early Egyptian papyri refer to the existence of such structures when they report that the distribution of stipends, money and land from the first *diwāns*, the state register of income in the immediate post-conquest era, went to a tribe.<sup>76</sup> Morimoto demonstrated that the recipients named as the *muhājirūn* were tribes and clans and not individuals.<sup>77</sup> Fines for crimes committed by individuals were also deducted from the tribal *‘atā’*.<sup>78</sup> The recording of individuals as property recipients appears to have been when the governor’s household was involved. As Baber Johansen demonstrated, by the time the early Hanafi law on land ownership appears, it has a well-defined individual property rights over land.<sup>79</sup> Property ownership was determined through the payment of taxes, although this outcome is not clearly demonstrated in the practice in Egypt. There agricultural leases recorded the payment of the *kharaj* by the cultivator of the land, and do not provide definitive private land ownership.<sup>80</sup>

The process was probably evolutionary rather than revolutionary.<sup>81</sup> In the case of the Middle East, the articulation of property rights in Islamic law meant a transition away from common property rights. Individual property rights in Islamic law appear after the settlement in the Middle East and the practice of *‘azl* as determined in the early traditions, *hadīth*, may hint at the link. The law placed the responsibility of birth control on males while protecting the rights of wives to children and the financial support that came with it. By asserting that the permission of

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<sup>75</sup> Suggesting that Meccan elites tried to exclude others from sharing in the trade profits. Ibrahim, 1990.

<sup>76</sup> Morimoto, 1994, pp. 354-355; early tax requests from individuals, Sijpesteijn, 2009, p. 128.

<sup>77</sup> Morimoto, 1994, p. 356 with the list of recipient tribes, pp. 357-360, *muhājirūn*, pp. 363-364

<sup>78</sup> Morimoto, 1994, p. 361.

<sup>79</sup> Johansen, 1988, drew a legal transition between the ‘birth of the *kharaj* payer’ to the ‘death of the proprietors’.

<sup>80</sup> See Frantz-Murphy, 2001.

<sup>81</sup> On the process of the formation of Islamic law see Hallaq, ed., 2004.

the wife for the practice, an explicit link to women's property rights is created, suggesting that the practice was contemporaneous with women's property rights in the Islamic law.<sup>82</sup>

Women's property rights in the Islamic law are presented in **Table 2**. The list was compiled by me from all four legal schools and checked for enforcement through the notarial manuals, court documents and cases represented in *fatwas*.

**Table 2**  
**WOMEN'S PROPERTY RIGHTS IN ISLAMIC LAW**

Right	Acquisition	Requirement	Legal Status
Receive mandatory gift (bride price)	Marriage	Marriage	No forgiveness or trading is allowed
Receive mandatory maintenance	Marriage, divorce, widowhood	Marriage	May be traded for husband's rights
Inheritance (mandatory)	Any time	Any time	No forgiveness or trading in allowed
Receive gifts	Any time	Any time	Forgiveness option
Earn wages	Any time	Occasionally husband's agreement is required	No forgiveness or trading-in
Invest (sales, loans)	Majority	Majority and release from interdiction	No forgiveness or trading- in
Gifting	Majority	Majority and release from interdiction	At will
Agree to consummation of marriage	Marriage	Delivery of bride price	Taking possession of the bride price
Agree to birth control	Marriage	Compensation required	Only to free women
Receive payment for wet nursing	Marriage	Husband's agreement	At will

**Source:** Shatzmiller, 2007.

The legal provisions specified in **Table 2** show that property rights given to women were identical to those of men. Women can inherit from all family members; they have the right to exclusive ownership and enjoyment of property and income, given or generated through wage earning; they have the right to acquire, own, dispose and bequeath freely after release from interdiction and attaining majority, of property transferred to them or acquired through various means, gift, inheritance, wages. Most significantly, no conjugal property was created at marriage and no legal option of interference in women's property ownership and decisions over property

<sup>82</sup> Musallam, 1981, pp. 28-38 on the rights of women.

was offered through marriage. That means that household income could consist of two earners if women consent to contribute to it through their wages. In previous work I presented evidence on the wide spectrum of women's economic engagement and professions in the rural and urban sectors.<sup>83</sup> Recently, I was able also to study quantitatively the property transfers to women at marriage through the *Geniza* documents, where I used 650 marriage contracts denominating cash payment and property as they were transferred to brides.<sup>84</sup> The documents were registered in the Jewish court in Cairo and show a remarkable similarity to the Islamic marriage contract. As such, the marriage contracts confirm the symbiosis between Islamic and Jewish institutions demonstrated by Udovitch in his study of partnership in Islamic law, and alluded to by Greif. The Jewish marriage contracts present us with a similar set of legal entitlements as the ones given to Muslim women depicted above, including bride price, family gift, control over earned income.<sup>85</sup> The mandatory bride price in both Islamic and Jewish law, was given in two installments, immediate and delayed, which were meticulously recorded in the marriage contract and registered by the court. Unlike bride price, marriage gifts were customary in both Jewish and Islamic law and although voluntary, was universal. The evidence studied in the marriage contracts from Cairo and Granada, show that they were always given and registered in the marriage contract.

**Table 3** represents the results of our calculations of cash and property given to Jewish women at the moment of marriage in medieval Cairo.

**Table 3**  
**COMBINED BRIDE PRICE AND FAMILY GIFT**  
**EGYPT, 11<sup>TH</sup>-13<sup>TH</sup> CENTURY**  
**GOLD DINARS**

Bride Price	Observations	Mean	Median	Interquartile Range	Mode	Standard Deviation	Variation	Min	Max
Early	116	15	8	16	5	25	625	1	200
Delayed	132	31	20	30	20	37	1393	1	300
Combined	114	50	30	50	25	75	5575	4	502
Family Gift	65	143	61	152	50	189	35500	2	795

<sup>83</sup> This section draws on empirical evidence presented in Shatzmiller, 1988, 1994, pp. 347–353, 1995, 1997, 2007, 2012, 2013.

<sup>84</sup> The database was constructed from Goitein, 1978, Appendix, available for review on [http://www.medievalislamicconomy.uwo.ca/equity\\_equality/index.html](http://www.medievalislamicconomy.uwo.ca/equity_equality/index.html)

<sup>85</sup> Compare Goitein, 1978.

**Source:** [http://www.medievalislamicconomy.uwo.ca/equity\\_equality/appendices/index.html](http://www.medievalislamicconomy.uwo.ca/equity_equality/appendices/index.html)

The evidence presented in **Table 3** suggests the following: the value of the first installment of the bride price, usually a cash payment, was lower than the value of the second, to be materialized at the moment of divorce, death, or upon request. The value of the family gift, usually in the form of property, varied according to the means of the contracted families, but was more significant than the bride price, and when transferred to the bride's control, represented greater value in her lifelong worth. Its value was determined by the wealth of the family of origin and not the family she was joining, although marriage was managed between same status families. The cash and property transferred to women at the moment of marriage were protected in her hands for the duration of her life. They inaugurated a lifelong process and augmented by wages for both, and by inheritance in the case of Muslim women. The large spectrum of females' occupations in the literary sources, in manufacturing, especially in textile production and agriculture, suggest that the inaugural value of women's property would be supplemented over lifetime with wage earning and that it could be reasonably suggested that women's income was a factor in planning small families. Individual property rights in Islamic law protected women's earnings as well as gains realized in commercial deals, although in the absence of data on women's wages and only sporadic quantitative data on women's inheritance, the quantitative aspect of women's property rights remains incomplete.<sup>86</sup> Based on the estimates bride price and family gift were building blocks of women's economic power. Given at an early stage women could rely on the law to acquire a share of the capital available in the economy. That share was protected in their hands under normal circumstances.

In recent literature there is much discussion of the role of women in economic growth. Some of the themes suggest females' role as a cultural factor,<sup>87</sup> while others highlight their role in the demographic transition, prioritizing the European model, the EMP.<sup>88</sup> A third theme pays increased attention to the changes in women's income through labour earnings and the impact it has on household's standards of living.<sup>89</sup> In this construct, women earning power contributes to

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<sup>86</sup> Shatzmiller, 1994; Shatzmiller, 2007.

<sup>87</sup> Alesina, 2013.

<sup>88</sup> De Moore and Van Zanden, 2010; Van Zanden, 2011; Voigländer and Voth, 2009, 2012, 2013; Dennison and Ogilvie, 2014, rebuttal.

<sup>89</sup> Allen, 2011; Cinnirela, Kemp and Weisdorf, 2017.

the formation of a two wage earners' household, one that is more likely to engage in voluntary birth control and to have fewer but better children.<sup>90</sup> The structural change that resulted in individual property rights in Islamic law, cannot be separated from the evidence of low population levels and manpower shortages. The condition created openings for women in manufacturing and enabled them to earn wages and women's entry into urban labour markets, meant income unlike their work in the rural and agricultural which went unremunerated. That meant usually higher incomes for the household. Individual property rights safeguarded women's earning and property and facilitated decisions over having a smaller number of children.

In conclusion, the transition to individual rights is significant because it included a legal set of property rights for women. As suggested in the literature, the change to individual property rights was linked to low fertility rate and higher incomes for households. The 'rights over the body' given to women in Islamic law constituted the institutional support for low fertility rate. A theoretical and comparative link between property rights, a shift to low fertility rate, economic growth and women would be supported by evidence from the Middle East.

### **CONCLUSION: ISLAMIC INSTITUTIONS AND ECONOMIC GROWTH**

Economic historians have used institutions as variables to measure economic growth, economic efficiency, and change. In this paper I suggested that current methodologies are not inconsistent with the study of the economic history of the medieval Middle East, but that they were hampered by lack of and misapplication of empirical evidence. I argued that historical evidence from the medieval Middle East together with insights from economic theory and comparative economic history, makes it possible to speak about Islamic institutions as growth promoting. Far from being a continuum of Byzantine and Sasanian institutions, institutions in the Middle East were born out of structural changes and accommodated growth generated through them. I examined the evidence and demonstrated that a low population level followed a Malthusian phase in the Middle East and was exogenously generated by the Justinianic plague and maintained by its recurrences. Other developments were endogenous. Evidence of high wages, elevated incomes for household, better living standards and improvements in human

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Humphries and Schneider, 2019.

<sup>90</sup> Galor and Weil, 2000.

## Structural Change

capital, were some of the gains directly linked to smaller families and lower fertility rate, mitigating a new Malthusian phase. I argue that the practice of birth control, formulated and endorsed through Islamic law was instrumental, an institution that supported the demographic transition in the Middle East and economic gains.

Individual property rights in Islamic law was another institution which promoted economic growth, which I investigated through individual property rights given to women. In an environment of change it was a legal institution that had a demonstrable effect on labour productivity, on women's worth, and on household income. The evidence that women were given equal property rights to those of men, suggests a strong historical link between Islamic law and the Middle East economy. Women acquired a legal channel to property acquisition and accumulation as a long-term institution of economic proficiency. In the mind of the jurists who created and enforced them, legal institutions were tools of economic growth under structural changes and incentives of economic gain. Through this study I inserted women into the economic history of the medieval Middle East and corrected their neglect in the study of economic institutions.

A better understanding of the role of legal institutions in the medieval Middle East may explain why political institutions remained the most disruptive factors in economic development. The legal institutions emerged side by side together with political institutions but remained outside the state's scope of interference. Historically, political institutions developed separately from the legal ones and contributed to growth through making rational decisions on growth promoting economic institution. One such case is the establishment of the monetary system in 685 under the Umayyad administration. It produced a huge economic change "...the remarkable feature of coin production in the 7th-8th centuries was the multiplication of towns that minted coins when compared to late Roman practices,"<sup>91</sup> The Islamic state provided support for the translations of Greek sciences into Arabic in the ninth century, the production of theoretical knowledge and its conversion to applied science and technology could not have happened without state support. These played a recognized role in developing human capital. The impact of the legal institutions spread from the center of the Empire, where Islamic law was formed and codified, to the peripheries, encouraged by state institutions, administrations, standardizations of

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<sup>91</sup> Walmsley, 2010, p. 23, directly contradicting late Roman historians, see Banaji, 2001.

economic means that expanded the use of local pools of knowledge. Not all state institutions were growth-promoting. Land ownership for instance, was deficient and plagued with deficiencies all along, not immune from interference by interest groups and disadvantageous to economic performance.<sup>92</sup>

The paper also argued against the propensity among economic historians to prioritize theory over empirical evidence when examining Islamic institutions. The complexity of the economy and the rich empirical evidence available, challenge a verdict of the role of Islamic institutions, made on the basis of massive economic theory with little empirical evidence. The historical records from medieval Egypt do not support a picture of dysfunctionality driven by institutions and cultural beliefs. With due respect to empirical evidence and familiarity with Islamic history and institutions, insights from economic theory will back a better economic history of the Islamic lands.

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<sup>92</sup> See for instance Hansen, 1983, p. 475. "Since land could normally not be bought and sold, nor leased or pledged, there was no market price of land and no market rental of land services."



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