

Economic Performance and Economic Growth in the Early Islamic World

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Abstract

The author argues that in the case of Islamic history, the growing interest in the economic theory of institutions and their role in economic growth has shifted the scholarly methodology from empirically based research, to theoretical models which favoured sweeping generalizations about the negative roles of the Islamic state and legal institution. Shatzmiller's examinations of the role of Islamic institutions in periods of economic growth show that economic growth was visible in the key indicators of the Caliphate's economy between ca. 750 and ca. 1100. The conclusion is that there was nothing intrinsic to Islamic institutions that impaired economic growth.

Résumé

Un intérêt grandissant pour la théorie économique des institutions et pour le rôle de ces dernières dans la croissance économique a récemment modifié la méthodologie des historiens spécialistes de l'Islam. Les recherches empiriques ont été de plus en plus délaissées au profit de modèles théoriques favorisant les généralisations à l'emporte-pièce sur le rôle négatif joué par l'État islamique et les institutions juridiques. Examinant le rôle des institutions islamiques en période de croissance, Shatzmiller montre que les indicateurs clés de l'économie califale témoignent d'une croissance économique entre 750 et 1100 environ. Il faut en conclure que rien dans les institutions islamiques n'entravait intrinsèquement la croissance économique.

Keywords

Money supply, population growth, human capital, rational economic decisions, capitalistic features

'Islam' as a Historical Inefficient Economic Model— The 'Institutional' Argument

The study of the West's rise to economic prominence has dominated the field of economic history in recent years. Economic historians ask why the countries along the Atlantic coasts, beginning with Western Europe,

forged ahead and remained so consistently, while others did not. The question has been analysed through two main areas of investigation, with an array of circumstances and configurations. One, with a heavy theoretical component approach, studied the role of institutions in the process,¹ while the second, more empirically based, investigated the economic growth of the West by measuring the rise in productivity and improved standards of living.² Until very recently, the investigation of both these lines of argument routinely excluded a global perspective. Appropriately named the 'West and the Rest' and the European 'miracle', the investigation considered the lack of economic growth elsewhere as an inherent deficiency and therefore of no interest. Economic historians, in particular those of the 'Orient', but others as well, were annoyed that non-European economic history was dismissed as irrelevant. Niels Steensgaard criticised what he saw as a line of thought which "has dismissed Asia as an outer arena of no significance in the development of a capitalistic world-system before the nineteenth century".³ Jack Goldstone, in the pages of this journal, commented wryly that "this is hardly the first time that satisfied people reflected on their ascendance," suggesting that "if we are to understand economic progress we must do more than merely examine the growth of Europe and study the "causes of economic progress whenever and wherever it has occurred".⁴ Ernest Gellner was sceptical of a view in which "non-Europeans constitute a kind of unproblematic and unexciting baseline, a moral null hypothesis, which invites no intellectual exploration, and contains no valuable lesson."⁵ The reasons for the disinterest in the history of the Orient may be linked to ideology rather than fact, since Asian societies, in particular Japan, India and China, have seen a change resulting from improvement in their economic fortunes. There were correspondingly more resources devoted to research into their history, which also brought about a renewed appreciation of their past performance.⁶ Islamic economic history, on the other hand, became the antithesis to the European situation demonstrating why certain societies were unable to stage their own 'rise' through intensive growth, maintain it once it occurred, or successfully emulate the European model. Corresponding to

¹ Among them North, 1973. Acemoglu et al. 2005.

² Allan, 2001. Allan, Bengtsson and Dribe, 2005. Maddison, 2007.

³ Steensgaard, 1991: 9.

⁴ Goldstone, 1993: 105 and 119.

⁵ Gellner, 1988.

⁶ Bing Wong, 1997. Pomerantz, 2000. Allan, Bengtsson and Dribe, 2005.

this bifurcated line of research on economic growth, Islamic economic institutions were seen as inefficient, Islamic economic decisions were all irrational and their economic performance paralyzed by unchangeable religious interdictions.⁷ As a result Islamic societies, in particular those of the 'Arab heartland' have not achieved economic growth, nor will they do so in the future.⁸

In a world where opinion is already alienated by Islamic extremism, a theory linking Islam to economic failure conveniently feeds a view of an Islamic world inherently inept and hopelessly doomed. In an article in the *Financial Times* of London entitled "The economic failure of Islam" published two weeks after on September 11, 2001 attacks on US soil, Martin Wolf suggested that the attacks were not a result of recent events, such as US policy in the Middle East, but the outcome of "a long-term historic failure... of bitterness over inability to respond effectively to centuries of financial progress." Economists indeed point to a 'rentier' state in the modern Middle East, dominated by self-serving greed, inability to apply or adopt existing technologies efficiently and plagued by inefficient allocation of resources.⁹ The intellectual legitimization for this line of argument is found in the sophisticated literature on the inefficient Islamic institutions which had appeared somewhat earlier. Since the investigation of economic growth is centered round institutional behavior, scholars like Greif, Kuran and their students have used the theory of institutions to show why economic growth in Islamic societies failed to materialise.¹⁰ This development, however, should give economic historians pause: the argument uses medieval Islamic economic history as a proxy.

Greif's model of Islamic inefficiency is based on information containing a sample of 175 Geniza letters, which were written by members of a group of Jewish Maghrebi traders in the 11th and 12th centuries C.E. Unlike Udovitch, who studied the same Geniza documents but in conjunction with Islamic commercial law, Greif's behavioural model was based on the attribution of cultural beliefs.¹¹ Looking at the organizational patterns described in the letters, Greif put forward the model of a 'coalition' whose economic behaviour used a mechanism such as

⁷ Most recently, Landes, 2010: 2-3.

⁸ Landes, 2010: 3.

⁹ Brach, 2009.

¹⁰ Greif 1989, 1993, 1994, as well as Kuran, Harris, Rubin, quoted below.

¹¹ Greif, 1994.

'reputation' to discourage cheating among its members' agents. At the same time the 'coalition' also benefitted from an internal information-transmission system.¹² But the 'coalition' is also a limited and limiting organization because its economic behaviour is governed by 'cultural beliefs', which created a 'collectivist equilibrium' and limited growth. Greif states that "collectivist cultural belief" creates a 'wedge' between efficient and profitable agency relations, leading to a "segregated" [quotation marks in the original] society in which efficient intereconomy agency relations are not established."¹³ The 'collectivist' is opposed to the 'individualist equilibrium' enjoyed by the Genoese traders who were contemporaries of the Geniza traders.¹⁴ The 'collectivist' mentality society builds a horizontal social structure while the individualist cultural beliefs' society builds a society with a vertical social structure.¹⁵ The 'collectivist beliefs' society will have less wealth accumulation, less power of enforceability and a built-in inability to expand trade; hence the failure of the Maghrebi traders to increase trade and the success of their rivals, the Genoese traders. Based on the assumption that Jews and Muslims living under the aegis of Islam shared the same 'cultural beliefs, Greif extended the 'coalition' model to include all Muslim traders in the medieval Islamic world.¹⁶ Muslims were "limited by the initial expectations regarding the boundaries of the society", in other words, 'collectivist equilibrium' resulting from the Islamic 'cultural beliefs' condemned Islamic traders to inefficiency and underperformance, led to the inability to take advantage of their opportunities, thus limiting economic progress and prosperity within Islamic societies.¹⁷ While this is no doubt a serious accusation, where is the evidence that the 'cultural belief' of the 'collectivist equilibrium' derives from Islam? This is what Greif has to say:

The Maghribis were *musta'ribûn*, that is, non-Muslims who adopted the values of the Muslim society. Among those values is the view that they were members of the same *umma*. This term, though translated as "nation" is derived from the word *'umm*,

¹²) Greif, 1993.

¹³) Greif, 1994: 931.

¹⁴) *Ibid.*: 922.

¹⁵) *Ibid.*: 927.

¹⁶) Greif, 1989, p. 881. Greif refers to Goitein, 1967, and Udovitch, 1970, in support of the model as representing the Muslim Mediterranean world.

¹⁷) Greif, 1994: 933.

meaning mother, reflecting the basic value of mutual responsibility among the members of that society. (See, e.g., Cahen 1970).¹⁸

I looked up this reference and discovered that Cahen never said any such thing. The term *umma* does not even appear anywhere in his chapter about the economy and institutions written for the *Cambridge History of Islam*, which Greif quoted. On the other hand, *umma* is mentioned in the previous chapter written by Von Grunebaum, he says: "The Arab Muslims were an 'umma, unified body, a *jamā'a*, community and by modern criteria, clearly a nation" (p. 473). Nowhere does he suggest that belonging to the *umma* means lack of individualism, never mind the entire construct built on that single word.¹⁹ It is hard for a historian to argue with a theory which reduces Islamic institutions to the dubious interpretation of a single word *umma*, especially since Islamic historians point to a rather strong individualism among Muslims.²⁰ More damaging, the scholarly construct of the theory ignores an entire body of research into Muslim trade and traders which may have challenged this stereotype. The fact that networks such as the Sogdians,²¹ the Ibādis,²² or Karīmīs,²³ to mention just a few, preceded, co-existed with and outlived the Jewish Maghrebi traders and operated successfully during the medieval period may suggest a different, or additional paradigm which would challenge the 'umma = collectivist' one. Islamic legal sources, earlier than and contemporary with the *Geniza* documents, should have been consulted, as they offer a different view. A collection of *fatwās*, dealing with the implementation of commercial law,²⁴ and a treatise on Islamic maritime law, both dating from 11th-century Tunisia, provide plenty of evidence about the degree of enforceability of contracts in Islamic law. In fact, they show exactly the opposite of what Greif claimed. Legal principles and court decisions were enforced, and rules on partnerships and contracts were codified and enforced

¹⁸ *Ibid.*: 923. The reference is to Cahen's entry and is a misattribution.

¹⁹ On the *Cambridge History of Islam* and the Von Grunebaum's chapter, Said, 1979: 304-5.

²⁰ Marshall Hodgson constructed Islamic history as a series of individual acts. See discussion in Bulliet, 2009: viii-xi.

²¹ De la Vaissière, 2002.

²² Francesca, 2002. Savage, 1997. Prevost, 2008.

²³ Ashtor, 1956.

²⁴ Idris, 1961.

throughout.²⁵ In sum, the notion of the inefficient Islamic institutions is not supported by their *modus operandi* as reflected in the empirical evidence.

The next point in the elaboration of the theory of Islamic inefficient institutions, replaced Greif's cultural beliefs' with Islamic law.²⁶ Islamic law is blamed for instituting an inefficient partnership law, and for blocking change. By the same token that Greif chose 'coalition' to explain why Islamic trade was inefficient, Kuran, and others selected the 'lack of the corporation' to focus their comparative investigation, mostly because it was useful for highlighting the European situation. In comparison the Islamic partnership was small, simple and ephemeral.²⁷ But the problem with Islamic partnership law was that of the law of inheritance, which mandated that the division of property upon death triggered immediate collapse of any investment partnerships. The inheritance law crippled all investment ventures in Islam and capitalism, which in Europe benefited greatly from the 'corporation' could not develop there. Islamic societies, obeying Islamic law, did not, or simply could not, keep wealth undivided.

The argument against the Islamic inheritance law is not new and has been raised many times in the context of the debate about the *waqf*, an institution which moved property from private ownership into a suspended state of ownership which protected it from coming under the mandate of estate division.²⁸ Since I have conducted a great deal of research on the subject of property rights in the Islamic legal records, based on law (*fiqh*), notary practice (*shurūṭ*) and court records (*wathā'iq*), I feel qualified to address the empirical basis of this argument. I have investigated Islamic property rights in two cases: institutional property rights (*waqf khayri*, or public *waqf*),²⁹ and individual property rights in estate division.³⁰ The first case, that of the public *waqf*, property endowed for the maintenance of religious institutions managed by religious

²⁵ Khalilieh, 1998.

²⁶ Kuran, 2001, 2003, 2004, 2005a, 2005b, 2010. Kuran's papers serve as the basis for some of van Zanden's comparisons between medieval Europe and Islam. See below. Van Zanden, 2009: 60-4.

²⁷ Kuran, 2005a. Harris, 2009. It is at least inaccurate, if not misleading, to speak of small enterprise.

²⁸ See the discussion in Shatzmiller, 2001.

²⁹ *Ibid.*

³⁰ Shatzmiller, 2007.

officials, the property was shown to have suffered neglect, was ripe with 'free riders', and property rights were constantly challenged. However, the conclusion should only be regarded as a partial one, since it relates only to the practice of one legal school in one region. The *waqf* endowments of North Africa and Muslim Spain were registered according to the Mālikī rite, which is different; Ḥanafī law regarding *waqf* decreed just the reverse. According to the Ḥanafī rite, supervision and management of the properties was entrusted to private hands, normally the previous owners who divested themselves from the property but controlled and benefitted from wages for its management. In the case of the estate divisions in 15th-century Granada, the evidence reveals rational economic judgment and scrupulous handling of individual property rights. The estate division documents show that the legal system provided a stable environment for making decisions when family members agreed that they would not split a shared property, but at the death of the owner would develop new arrangements for its exploitation. According to the legal indictments, various payments representing individual shares in the inheritance changed hands. Properties in Granada were never parceled. The notaries registered the new arrangements in the very same documents which announced the estate division and the calculation of the shares. Investment arrangements which were already in place were maintained and individuals, most of whom in the 15th-century Granada documents happened to be women, pooled their resources together after estate divisions in order to enlarge the range of their investments.³¹

Another argument directed against Islamic law is that it blocks institutional renewal through negative feedback, another process highlighted by the European environment as being crucial for economic growth. In the process, institutional self-destruction will occur, and then a new, better functioning institution will emerge. While European medieval institutions became "self-destroying" through this process, and moved afterwards towards regeneration, Islamic institutions did not. No negative feedback occurred, therefore no modified institutional behaviour followed and no new efficient institutions arose. The evidence for this rests with Muslim traders, the 19th-century Ottoman merchants whose activities were curtailed by Islamic law while Ottoman Jews and Christians who chose to abandon Islamic law and accept European protection fared better in

³¹) *Ibid.*: 61-77.

international competition.³² Countering this argument is evidence, first, that Muslim merchants in the Ottoman Empire, Iran and the Middle East appeared to have been quite active in international trade,³³ and second, that Islamic law regularly incorporated changes through *fatwas* written by jurists at the request of judges confronted with new conditions.³⁴ There is no evidence that Islamic law was an obstacle for efficient economic decisions, rather the contrary.

The disparaging view of the Islamic economic performance was shared, or maybe even initiated, by European medieval historians such as Robert S. Lopez:

Because nomadic grazing and caravan trade had been the basic occupations in their country of origin, the Arabs tended to despise farming and respected traveling commerce, the profession of Muḥammad himself. But although this unusual bent could provide a fresh stimulus to economic growth, it was partly offset by the Arabs' traditional disinclination for political order and teamwork.³⁵

John Hall, a sociologist, focused on Islamic political institutions as the cause:

The cyclical state in Islam was unstable, and this affected the economy in two ways. It was arbitrary and predatory enough to interfere directly in the market, with the workings of justice and the autonomies of cities. On the other hand, government was weak. Land went out of circulation with a corresponding loss of tax revenue and a limitation on the number of state servants it was possible to recruit.³⁶

The attribution of irrational economic behaviour to Muslims is baffling in the context of medieval historiography. Both medieval and modern Europeans have always acknowledged the contribution of medieval Arabs and Muslims, regarding them as their masters and mentors in the natural and exact sciences, medicine, mathematics and philosophy, theology and geometry. It is widely acknowledged that Islamic scientific expertise

³² Kuran, 2004. For a critical review of this particular element of Kuran's theories, see Boogert, 2009.

³³ Gilbar, 2003. Braude, 2007.

³⁴ For examples with regard to women's property rights see Shatzmiller, 2007. Also Hallaq, 1994.

³⁵ Lopez, 1971: 24.

³⁶ Hall, 1988: 29, but see the rebuttal by Garcin in the same volume. Garcin, 1988.

contributed to the development of technical devices.³⁷ On what basis then, could they be seen as ‘irrational’ human beings when it comes to economic behaviour? One possibility is that European historians did not bother with the evidence provided in the literature. By 1971, when Lopez wrote and in 1984, when Hall did, there was enough material available to allow them to at least dispense with the customary references to the Prophet Muhammad the ‘trader’ and his wife Khadija, as proxies for Islamic economic history, a meaningless maxim, but one still used recently by people writing about ‘Islamic economic behaviour’.³⁸ The available material included monetary history, history of prices and wages, land ownership, trade and even estimates of living standards.³⁹ Professor Udovitch, himself a student of Lopez, argued for a fair portrayal of the role of law in his book on labour and partnership which appeared in 1970.⁴⁰

It may also be that the methodology used by Islamic economic historians discouraged consultation. This methodology favoured close textual examination of Arabic texts and interpretations and discarded any quantitative approach, or the broad strokes drawn by economic historians, as well as the use of the theoretical models and mathematical quantitative applications which were universally accessible.⁴¹ This resulted in a fragmentary body of work, consisting of studies resulting from the discovery and publication of isolated texts and a long term disinterest in quantitative historical investigation. Again the field has not kept up with the new trends in economic history and the application of new methodologies used to explore it, such as statistical techniques applications and comparative studies. Over the last 30 years, these strategies have opened new areas of research and offered new insights into the economic history of the ancient and medieval worlds. Collective works, team projects, datasets posted on the internet, and monographs all transformed the economic

³⁷ Al-Hasan and Hill, 1986.

³⁸ Harris, 2009: 6.

³⁹ Ashtor, 1968. Cahen, 1970. Ehrenkreutz, 1970.

⁴⁰ Udovitch, 1970.

⁴¹ “Un livre qu’on ouvre avec embarrass et tristesse” (“A book one opens with embarrassment and sadness”) Cahen wrote in his review of Maurice Lombard’s book, *The Golden Age of Islam*, in the *Revue Historique* 247(1972), p. 471. Cahen thought that the book lacks the authority with which it presented its conclusions because it came without bibliographical references.

history of ancient Babylon,⁴² the Roman Empire,⁴³ the Byzantine Empire,⁴⁴ and early medieval Europe and England.⁴⁵ There is currently a considerable gap between the soft kind of economic history, a descriptive collection of episodes from literary sources which still passes for economic history in the medieval Islamic field and the concrete quantified, mathematically formulated and analytical exploration of economic trends of the rest. Works on Islamic economics, which fail to engage in quantitative measurements, recent economic theories, especially on institutional behavior, are dismissed out of hand.⁴⁶ We should not be surprised that the outcome is a verdict of ‘inefficient Islamic economic institutions’.

Bringing Islamic economic history to the level of the rest by incorporating the new methodologies cannot happen overnight. The collection of quantitative datasets requires a long-term team and collaborative effort, but we need to begin by disowning the old and frankly misguided adage that the Arabic sources cannot yield material for quantitative work. Hinz’s collection of data on metrology, measurements and weights,⁴⁷ Ashtor’s on prices and wages,⁴⁸ Album’s on coins, types, conditions, metrology, denominations countermarks, mints and dates,⁴⁹ all show otherwise. The datasets collected for the Babylonian, Roman and Byzantine Empires’ economy from literary sources also show what can be done.⁵⁰ As we have seen above, what began as the investigation of the rise of the West is now more narrowly focused on what constitutes economic growth in ancient and medieval societies. Roman historians are currently looking to “test and quantify the general impression of economic growth from 100 BC to c. AD 200,”⁵¹ while historians of medieval England have been studying the period between 1086 and 1300, as one of economic expansion.⁵²

⁴² For the so-called Astronomical Diaries from Babylon, compiled by R.J. van der Spek (Vrije Universiteit Amsterdam), see <http://www.iisg.nl/hpw/data.php#babylon>.

⁴³ Harris, 2008. Bowman and Wilson, 2009.

⁴⁴ Kravari, Lefort and Morrison, 1988-1991. Laiou and Morisson, 2002.

⁴⁵ McCormick, 2001. Britnell and Campbell, 1995, for summaries of past work and new initiatives.

⁴⁶ Rubin, 2008.

⁴⁷ Hinz, 1970.

⁴⁸ Ashtor, 1969.

⁴⁹ Album, 1998.

⁵⁰ For commodity prices in Babylon see <http://www.iisg.nl/hpw/babylon.php#top>. For the Roman Empire, <http://www.stanford.edu/~scheidel/NumKey.htm>

⁵¹ Bowman and Wilson, 2009: v.

⁵² Britnell and Campbell, 1995.

There are no direct claims for economic growth in Western Europe during the period from 700-1000, though McCormick's encyclopaedic compilation of data suggests some areas of growth even there.⁵³

The benefits of the comparative approach lie in the possibility to see broader and more long-term perspectives. For instance, European medievalists admit that the Islamic lands achieved economic vigour and prosperity between 700 and 1000, although they use it particularly in matters which explain events in Europe itself.⁵⁴ The events traced to Europe's economic rise, the commercial revolution of the 13th century,⁵⁵ and the Black Death in the 14th century, could and should be investigated in the Islamic context.⁵⁶ Bosker, Buringh and Van Zanden suggested that most of the growth in Europe occurred in the centuries before 1450, after which the economy of Europe—with the notable exception of a few regions around the North Sea—stagnated for about 350 years.⁵⁷ Others trace 'the great divergence', referring to the moment when Europe began its economic ascent, to later periods, the eighteenth or even the nineteenth centuries.⁵⁸ The focus on the 'great divergence', has recently led Kuran to apply it to Islamic law.⁵⁹

Any Islamic perspective is even more conspicuous by its absence but can a case be made for an Islamic economic growth in the period 700-1000?

The most obvious way to demonstrate and measure economic growth in this period will be to estimate GDP for the two dates, 700 and 1000 and compare them. While this currently appears to be an implausible proposition for the early Islamic period it may not be impossible in the long run since there are numbers and calculations of GDP for Rome,⁶⁰ for Anglo-Saxon and Norman England, between 1086 and 1300,⁶¹ and

⁵³ McCormick, 2001.

⁵⁴ For instance on the end of slavery in Europe. Bonnassie, 1991. Fynn-Paul, 2009.

⁵⁵ Lopez, 1971.

⁵⁶ Van Zanden, 2009.

⁵⁷ Bosker et al. 2008: 15 and Figure 6.

⁵⁸ Allan, 2001.

⁵⁹ Kuran, 2011.

⁶⁰ For Rome, Rathbone, 2009. Allan, 2009.

⁶¹ Mayhew, 1995. Though controversy over the estimates continues. Snooks, 1995, Mayhew, 1995: 194-9.

even for medieval Europe and the Middle East.⁶² Stuart Borsch's innovative and comparative study on the economic repercussions of the Black Death in Egypt, is to my knowledge, the only one to estimate Egypt's agrarian and total GDP, although Chalmers attempted an approximation of the Andalusian economy during the period under consideration.⁶³ Borsch calculated the total revenue of the agricultural sector in 1300, 1517 and 1596-1597, revealing a considerable decline, 58%, in the agrarian GDP. He also showed that based on his calculations, wheat prices rose after the plague, which could be expected, but that wages also declined, which should not have happened, which meant that the purchasing power of Egyptian labourers was 80% less in 1600 than it was in 1300.⁶⁴ Unfortunately Borsch ignored the evidence produced in a previous study by Sabra, showing that wages increased in Cairo in the period 1347-1400 in response to the shortage of labour.⁶⁵ This throws some doubt on Borsch's conclusions regarding the real wages of the Mamlūk period before and after the Black Death as well as his GDP numbers. Borsch refers to the landholding system as the culprit, showing that the Mamlūk landholders' ability to force the peasants to accept low wages was effective in spite of the dwindling supply of manpower.

In the remainder of the paper I propose to examine some key areas of the diagnostic indicators of economic growth and structural changes as a proxy for a full quantification needed to substantiate the early Islamic economy. The following is not a detailed analysis or a synthesis of the subject but a list of factors and bibliographical references where quantifiable material exists and can be found, where it has been partially collected, and what has been done with similar material in adjacent disciplines. I will collate the evidence of increased supply of money with structural changes in agriculture, manufacturing, and trade, as indicators of change in "scale and in patterns" in institutions, living standards, productivity rates and income levels.⁶⁶

⁶² By the late Maddison, 2007: 192 for per capita GDP by Islamic regions for the year 1000 and pp. 81-7 for comparison with Europe for the year 1000.

⁶³ Borsch, 2005: 67-90. Chalmers, 1992.

⁶⁴ Borsch, 2005: 91-112.

⁶⁵ Sabra, 2000: 121-3.

⁶⁶ Rostow, 1959: 4. See Owen's analysis of the so-called 'decline' of the pre-modern Middle East, and adopting a "more constructive approach" to it. Owen, 2009, p. 1-2.

Key Indicators and Structural Change in the Early Islamic Period

Mines, Mints Output, Money Supply

The evidence of an early and increased supply of money in the economy is currently the best tool for thematically linking structural changes in the Islamic economy. How much money was available in the economy? Could the economy be quantified in terms of money? While Islamic monetary history is still awaiting detailed analysis,⁶⁷ the quantity of coinage available for study and the literature investigating it, already offer an area most likely to permit quantification along similar lines to those suggested by numismatists and monetary historians of other societies.⁶⁸ Roman and medieval monetary historians have applied the Fischer equation, $MV=PT$ —where M represents the supply of money, V is for velocity, P is level of prices and T is the level of monetary transactions to their data—with various degrees of conviction.⁶⁹ Whether or not a similar effort will be feasible for Islamic monetary history is a matter for debate; however, using numismatic evidence and related studies it is possible to study the quantities of coins in circulation and their movement throughout the regions. Noonan and Kovalev have already investigated the output of the mints and the velocity with which dirhams circulated and applying this system to other mints will increase the evidence of circulation.⁷⁰ We cannot use the Mediterranean basin as a tool for measuring distance and speed of circulation of coins in the early Islamic period, something which could be used in the case of the Roman Empire. On the other hand our numismatic evidence is richer than that for the Roman Empire.

The hoards found on the North-East trade routes provide the largest amount of coins dating from the 10th century, but coins from the 8th and 9th centuries found in hoards minted in places such as North Africa suggest wide ranging monetary circulation and monetization of trading transactions. Numismatics is not the only source for our data; the increased number of coins found in hoards is also supported by literary and archaeological evidence of increased activities in the mines and by the mints. The production of precious metals by regions and provinces may

⁶⁷ Eherenkreutz, 1970 and 1977. Album, 1998. Shatzmiller 2011b.

⁶⁸ Spufford, 1988. Mayhew, 1995. Harris, 2008. Howgego, 2009.

⁶⁹ Howgego, 2009 and the studies quoted.

⁷⁰ See below.

Table 1: Number of Dirhams in Hoards According to Centuries
Based on Kovalev and Kaelin, 2007

Century	Number of Dirhams
7th	158
8th	16,640
9th	66,946
10th	183,116
11th	62,027

be calculated on the basis of the mines known to have been active and the amount of metal excavated. It is currently possible to compile a full list of the mines which were active. Partial calculations of the amount of metal extracted have been done for the central Asian, Moroccan and Arabian mines, and preliminary work has been done on others.⁷¹ The numismatic evidence can also help in the reconstruction of the mines, since minting took place in some of the mines themselves at least in Arabia and Central Asia. As to the mints, the existing data indicate a significant rise in the number of mints, minting activities and mint production in almost every region during the first three centuries of Islamic rule. With the exception of Muslim Spain, which was experiencing a hesitant recovery from Visigoth practices and the effect of the pre-Carolingian and Carolingian economic sluggishness,⁷² the other Islamic regions, North Africa, Egypt, Syria, Arabia, Iran, Iraq, Uzbekistan, and Afghanistan, demonstrate a gradual but robust increase in money production and supply until the 'silver famine' of the 11th century.⁷³ The calculation of individual mints' production based on hoards findings has already begun,⁷⁴ and the calculation of the entire coin production will be helped by the publication of an inclusive catalogue of silver hoards between the 800-1100 centuries, currently under way.⁷⁵ The productivity of each mint may be also calculated by the die count method and checked against the analysis of the hoards. Ehrenkreutz has already made suggestions using this method.⁷⁶ Album's

⁷¹ Bourjakov, 2008. With detailed maps of regional mines done by Russian archeologists. Noonan, 1986. Kovalev, 2002. Rosenberger, 1964.

⁷² Noonan and Kovalev, 2000. Chalmers, 1992: 750-4.

⁷³ Opinions diverge as what exactly were the causes of the silver famine. Kuroda, 2009.

⁷⁴ Mostly by Noonan and Kovalev based on the hoards from North-Eastern trade.

⁷⁵ Kaelin and Kovalev, 2007.

⁷⁶ Ehrenkreutz, 1976.

list will facilitate the creation of a comprehensive dataset of mints,⁷⁷ and further numismatic evidence may be used to help establish time sensitive estimates.⁷⁸ Mine and mint productivity may be calculated for both silver and gold.

Monetization

Increased money supply does not necessarily mean increased monetization, but in the Islamic regions this has been demonstrated through the monetization of wages, taxes, commodities, and market transactions, in both cities and the countryside. In the 7th century, the early years of Islamic rule, wages in the rural areas were partially paid in food items, but as the monetization of the countryside increased wages were paid even more so in cash.⁷⁹ Recent work on army pay suggests that cash wages for soldiers were and remained the norm.⁸⁰ The very high wages paid to dignitaries, vizirs, and army commanders also confirm that very large amounts of specie were in circulation.⁸¹ The question of whether or not taxes were collected partly or completely in cash from the rural areas is more complicated. As with wages, taxes were reported in the sources in monetary units and, as with some of the wages, tax amounts reported were very large. Were they only estimated in money of account, or actually collected and delivered in cash to the capital? Most of our estimates about these taxes come from the Abbasid budgets, though budgets from other states, such as the Samanids, are also known. From the fact that they report both cash and kind, we may assume that specific commodities, such as textiles and candies were deliberately collected in kind and most probably shipped to the capital for immediate consumption at the court.⁸² We may therefore assume that markets for either the peasants or tax collectors were available to allow them to raise cash by selling agricultural produce. Flat rate taxes, like the *jizya* or poll-tax, were always listed and paid in money. The provinces in the East initially had their taxes evaluated in silver money and paid their taxes in dirhams, while the

⁷⁷ Album, 1998.

⁷⁸ For methodology Spufford, 1988. For similar methodologies used in analyzing the Roman monetary systems, Lo Casio, 2008.

⁷⁹ Ashtor, 1968.

⁸⁰ Kennedy, 2001 and Kennedy, 2002. Gordon, 2001.

⁸¹ Ashtor, 1968.

⁸² Several variations of the Abbasid state budgets were studied by Von Kremer, 1875. For variations on this list, El-Ali, 1971.

Table 2: Abbasid Taxes in 785 for a total of 409,180,000 dirhamsBased on Ibn Khaldun, *The Muqaddimah*, tr. F. Rosenthal, I: 362-63

Annual Taxes Collected from the Provinces circa. 785			
Province	Cash Dirhams	Cash Dinars	Collected in Kind
Sawād	27,780,000		200 Najrānī cloaks,
	+ 14,800,000		240 pounds sealing clay
Kaskar	11,600,000		
Tigris Countries	20,800,000		
Hulwān	4,800,000		
Al-Ahwāz	25,000		30,000 pounds sugar
Fārs	27,000,000		30,000 Rose water bottles,
			20,000 pounds black raisins
Kirmān	4,200,000		500 Yemenite garments,
			20,000 pounds dates,
			1,000 pounds cumin seeds
Mukrān	400,000		
Sind	11,500,000		150 pounds Indian aloe wood
Sistān	4,000,000		300 checkered garments,
			20,000 pounds sugar-candy
Khurāsān	28,000,000		1000 Silver ingots,
			4000 pack animals,
			1000 slaves,
			27,000 garments,
			30,000 pounds myrobalan
Jurjān	12,000,000		1,000 silk pieces
Qūmis	1,500,000		1,000 silver ingots
Tabaristān,	6,300,000		600 abaristān carpets,
ar-Rūyān,			200 robes, 500 garments,
Nihāwand			300 napkins, 300 goblets
Ar-Rayy	12,000,000		20,000 pounds
Hamadhān	11,800,000		1,000 pounds Pomegranate marmalade, 12,000 pounds honey
The region between al-Basra and al-Kūfah	10,700,000		

(cont.)

Annual Taxes Collected from the Provinces circa. 785			
Province	Cash Dirhams	Cash Dinars	Collected in Kind
Māsabadhān and ar-Rayyān	4,000,000		
Shahrazūr	6,000,000		
Mosul	24,000,000		20,000 pounds white honey
Azerbaijan	4,000,000		
Al-Jazīra and Euphrates districts	34,000,000		
Karaj	300,000		
Jilān	5,000,000		1000 slaves, 12,000 bags honey, 10 falcons, 20 robes
Armenia	13,000,000		20 embroidered carpets, 20,580 pounds variegated cloths, 10,000 pounds salted fish, 10,000 pounds herring, 200 mules, 30 falcons
Qinnasrīn		400,000	1000 loads raisins
Damascus		420,000	
Jordan		96,000	
Palestine		310,000	300,000 pounds raisins
Egypt		1,920,000	
Barca	1,000,000		
Ifriqiya	13,000,000		120 carpets
Yemen		370,000	Excluding garments
Ijāz		300,000	
Total	313,780,000	3,816,000	

regions in the Mediterranean basin had theirs estimated in gold and paid in dinars until the mid-8th century, when the Abbasid budget stated taxes in gold dinars only.

The quantitative study of commodity prices may begin with Ashtor's *Prix et salaires* and be augmented by numbers culled from sources on trade, labour, *ḥisba* manuals, and legal sources. A dataset of commodity prices in different markets will make it possible to study market integration. Market integration can also be studied by correlating exchange rates or

the transaction costs over distances.⁸³ Whether we can talk about complete monetization, as opposed to partial monetization, and whether or not the economy was integrated during the period under consideration, will depend on the results.

Mines and Urbanization

The minting facilities which were discovered during the excavations of the mines also demonstrate their role in urbanization.⁸⁴ The archaeological excavations unearthed new settlements, sometimes entire cities, in the mining areas in the Central Asian region which supplied the millions of 10th- and 11th-centuries silver dirhams found in the Viking hoards.⁸⁵ The mines, which continued to function until the end of the 11th century, attracted a considerable inflow of workers which in turn created a long-term demand for goods and services. Large quarters and family accommodations have surfaced in the digs, as well as mosques, since the growing mining towns required religious services and educational establishments. The needs of the growing population of these mining towns had an impact on the surrounding agriculture as well, requiring supplies of food and animals. An expansion in agricultural cultivation and markets followed in the neighbouring regions. Growing demand for their product, namely bullion and coinage, led to an increase in the miners' income, which enabled them to purchase imported luxury goods brought by the long distance trade. The miners growing income contributed not only to import, but to the establishment of new industries in and around the mines and the provision of consumer goods.

Population Growth

Was the increase in the money supply positively linked to population growth in the early Islamic Empire? We cannot be sure until we establish that there was population growth during this period and this has not been done yet. In a recent paper Bosker, Buringh, and van Zanden estimated the population of cities in the Arab world by 900. They concluded that

⁸³ See Kessler and Temin, 2008.

⁸⁴ On the organization of mining and mining occupations, Shatzmiller, 1994: 175-6, 187-90.

⁸⁵ Bourjakov, 2008.

“a first analysis of these data demonstrated that in terms of urbanization the Arab World was much ahead of Western Europe in the first half of the millennium”.⁸⁶ This may well be correct, but at the same time and in spite of the general assumption that population growth occurred, there is also evidence to the contrary which should not be ignored. Historians of the Roman Empire estimated a demographic growth from 20 to 40 million people over a millennium, but it is certain that the population was no longer so large when the Muslims arrived. Instead there was a declining population and indications of continuing labour shortages in the Mediterranean basin and further East.⁸⁷ More evidence comes from estimates of the numbers of plague victims and the decline in cultivated areas, which explain the attempts made by the Islamic administrations to remedy the situation by purchasing slaves and forcing settlements.

The population around the Mediterranean continued to decline in the aftermath of the Justinian plague of the 6th century, but more significantly it continued to decline over the next three centuries because of recurring plagues, which visited not only the Syrian coast but also Iraq.⁸⁸ The numbers which Morony collected from the Syriac Zuqnin chronicle show that the population continued to decline by the hundreds of thousands. Labour shortages affected both the agricultural and urban (manufacturing) sectors. The decline caused by the plagues matches the decline in the area under cultivation in and around Baghdad measured by Adams.⁸⁹ If birth control practices are to be taken into consideration the natural reproductive rate of Muslims was equally low. Evidence from legal and medical sources shows that the practice of birth control was common.⁹⁰ Furthermore, small families, of 1,5 to 3 off-spring per family, were the norm well before the 14th century.⁹¹

The role of population growth is notably difficult to interpret in pre-modern societies yet crucial for any calculations of economic growth. Population growth may lead to new technologies and more output through division of labour and specialization, higher productivity and

⁸⁶ Bosker, Buringh and Van Zanden, 2008: 26.

⁸⁷ Bowman and Wilson, 2009: 5, doubt these numbers. See three estimates for the Islamic regions in Shatzmiller, 1994: 55-7.

⁸⁸ Morony, 2007.

⁸⁹ Adams, 1965: 84-111.

⁹⁰ Musallam, 1983. Disregard Maddison's interpretations of Islamic fertility. Maddison, 2007: 193.

⁹¹ Lutfi, 1985. Shatzmiller, 2007.

higher wages and standards of living. However, it may also lead to the reverse; where the increased population could harm economic growth by consuming much or all of the gain in productivity, causing diminishing marginal returns and lowering standards of living.⁹² Which of these scenarios fit the Islamic case? The evidence hints that the conditions following the plagues between 700 and 1000: population decline, cheap land, labour shortages and increasing wages, were similar to the conditions in Europe after the Black Death in the 14th century, which have led effectively to economic growth.⁹³ The increased division of labour which occurred in the manufacturing sector, on which more later, the improvements in agriculture, so called the 'Green revolution' may well also have been a result.⁹⁴ New techniques, applied scientific knowledge and instruments, and manpower-saving devices appeared everywhere during the period under consideration.⁹⁵ In terms of population, it may well be that the combination of all three factors, slave import, settlement and migration, alleviated the manpower situation and thus helped the higher Arab urbanization rate in this period. The economic growth in the early centuries of Islamic rule in the Middle East followed a parallel track. In conclusion, even if the role of population growth remains open, it certainly cannot be interpreted as causing a decline in living standards.

Slaves

Much has been made in European historiography of Muslim slave purchases. However, most of these slaves were acquired from African sources,⁹⁶ Central Asia (Turks) and Northeastern Europe (Slavs), not from Western Europe.⁹⁷ The importing of slaves from East Africa already took place during Sassanid times but increased considerably under Islamic rule. There was an attempt to use African slaves in the army and the experience may have given them an advantage during the Zanj revolt of the mid-9th century, but the practice was later dropped, together with the attempt to

⁹²) Jongman discussed it for the Roman economy, where different approaches are suggested. Jongman, 2009: 118-20.

⁹³) Pamuk, 2007.

⁹⁴) Watson, 1983.

⁹⁵) Al-Hasan and Hill, 1986. On this more below.

⁹⁶) Ragib, 1993. Ashtor, 1968.

⁹⁷) Gordon, 2001.

Table 3: Estimates of Plague Victims 6th-9th Centuries

Based on Morony, 2007.

Date (C.E.)	Estimated No. of Deaths	Location
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

employ them in the agricultural sector, or in clearing the marshes.⁹⁸ They may have ended up in the cities where they were engaged in domestic service or the manufacturing sector. Austen estimated that between the years 650 and 1500, the entire slave trade involved about 5 million slaves, with at least 2 million to 2.5 million captured directly from the regions bordering the Red Sea, thus avoiding the 'Western' road, via Sijilmasa and Fez, where it joined the gold export route.⁹⁹ According to Savage slave export in the 8th-10th centuries was managed single-handedly by the Ibādī slave traders of Ifrīqiyya.¹⁰⁰ The import of Turks also increased in the 9th century, something which was documented by the Abbasid chroniclers as they traced the role of the Turkish guard in the civil wars of 815-889. This guard, which accompanied the Caliph to the new capital Samarra, was made up of slaves brought to Iraq from Transoxiana and the

⁹⁸ On the revolt of the Zanj in mid-9th century, see Popovic, 1976. The revolting slaves minted their own coins.

⁹⁹ Austen, 1987: 59.

¹⁰⁰ Savage, 1997: 67-89.

Table 4: Number of slaves imported into the early Islamic world

Based on Gervase Clarence-Smith 2006, pp. 11-16.

Number of Slaves	Where Slaves from	Where slaves taken	Period/Year
6,000,000	Africa	Islam	650-1500
60,000	Sind, South Asia	Inner Asia and Persia	712-13
Several million	Turks	Central Islam	9th-14th centuries
70,000-100,000+	Turks	Caliphate Turkish Military Slave Corps	9th century
?	Circassian military slaves	Egypt	From 1382
Thousands	India	West Turkistan	Late 14th century
Millions (only slightly less common than Turks and Africans)	Europe, Egyptians, Syrians, Persians, Berbers, and Iberians	Islam	Up until 16th century
200,000	Balkans	Ottomans	1400-1650
2,500,000	North of Black Sea (incl. some Circassians)	Ottomans	1450-1700
1,750,000	North of Black Sea (Ukrainians, Poles, Russians)	Ottomans	1468-1694

Caucasus, especially the Khazar lands.¹⁰¹ The size of this guard was said to be 4,000 strong. The great slave markets were located in Basra, Baghdad and Khwārazm.

The impact of the Islamic slave purchasing power on the European economy has been the subject of many interpretations. One favoured by European historians referred to earlier is that the abundance of money in

¹⁰¹) The story of the Turkish guard is told in Gordon, 2001. Pipes, 1981. In spite of the recent interest in the Turkish military slaves there has been little research into the economic dimensions of the phenomena, prices, wages, numbers, organization, dynamics, etc.

Table 5: Destinations of Western European Slaves within the Islamic World

Based on McCormick, 2001, p. 252.

Destination	Quantity	Percentage
Africa (including 3 at the Tunisian court)	15	35
Arab world, unspecified	11	26
Syria and Iraq (Emesa and Samarra 2 ea.; Baghdad 3; Basra 1)	8	19
Spain (Cordova 2)	4	9
Crete	3	7
Egypt (Alexandria and old Cairo)	2	5
Total	43	100

the hands of Muslims made it impossible for Europeans to compete for slaves, and this finally led to Europe's abolition of slavery.¹⁰² Another interpretation is favoured by Spufford, who observed that the decline in the money supply in Europe during the late 9th century and the early 10th century, the considerable decline in the use of money and the quantity of coin in circulation may all be explained by the cessation of slave exports from Europe to the Islamic lands. According to him, slaves were paid for in Islamic gold coins of the *mancus* fame, money which was then used by nobles and churchmen to buy oriental goods, particularly spices, but also garments.¹⁰³ When the gold ran out, the Muslims were paid in silver, which eventually also ran out when the European silver mines became depleted.¹⁰⁴ McCormick has suggested that the number of European slaves sent to the Islamic world was large, based on reports of Arab raiders, even though the Arabic sources do not confirm these numbers.¹⁰⁵ European historians were so adamant about its impact on Europe that one wonders if it was not blamed for the long term economic decline there.

Finally, if the purchase of slaves is accepted as a factor in the Islamic population growth, then it may be interpreted in another way by adding the legal admonition for setting slaves free upon the master's death. Slaves in Islam were eventually manumitted and incorporated into society.

¹⁰² Bonnassie, 1991: 1-60, summarizing and correcting Bloch's thesis for the reasons for the disappearance of slavery in Europe. See note 94 supra.

¹⁰³ Spufford, 1988: 61.

¹⁰⁴ *Ibid.*: 55-73; on the slow revival of deniers' minting by Carolingian and post or sub-Carolingian mints, see *Ibid.*: 60.

¹⁰⁵ McCormick, 2001: 759-77.

Table 6: Prices paid for slaves

Based on Ashtor, 1968, pp. 57-59

Year	Gender	Location	Price/slave
Second half of the 7th century	?	Kūfa	50 dinars (600 dirhams)
Umayyad period	Pretty girls for harem	?	400 dinars (5000 dirhams)
772	Both (young)	Abbasid Empire	0.4 dinars (5 dirham)
Second half of the 8th century	?	Baghdad	17 dinars (200 dirhams)
Middle of the 8th century	Young girl	Gondeshapur	66 dinars (800 dirhams)
End of the 8th c.	?	?	150 dinars
End of the 8th c.	?	?	70 dinars
End of the 8th c.	?	Baghdad	50 dinars
First half of the 9th century	Male	Basra	30 dinars
First half of the 9th century	?	Oman	30 dinars (king price) 160 dinars (other)
First half of the 9th century	?	Iraq	20-30 dinars
10th century	?	?	300-333-1000 dinars

Examples of slaves born to slaves and sold in the slave markets exist, but they were the exception rather than the rule.¹⁰⁶ The demographic long-term effect may be found in the nature of slavery in Islam.

Settlements

The incoming Umayyad Islamic administration was constantly preoccupied with the population decline in Syria and Egypt which they found,

¹⁰⁶ Ragib, 2002.

confirmed by the large number of demographic surveys they conducted. As a result beginning as early as the 7th century the surveys were followed by resettlement of Arab tribes.¹⁰⁷ By the middle of the 8th century some 100,000 new Muslim settlers arrived in Syria and Iraq, as well as the gypsies who followed, along with several thousand water buffaloes from India suited for work in the marshes in the Jayhān river.¹⁰⁸ An overhaul of the tax collection system followed the settlement of these newly settled regions of the North-West *thughūr* (points of entry between lands under Islamic rule and territories which were not), Tarsus and Malatya.¹⁰⁹ The Muslim authorities also embarked on a project of settling soldiers, encouraging them by raising their salaries and providing them with buildings both in the cities and in the immediate hinterland.¹¹⁰ In Egypt, Arab settlement also took place.¹¹¹ It appears that free land was available everywhere.

Migration

Another way to estimate the effect of the demographic growth believed to have taken place under the Abbasids is to use a regional approach. While the Mediterranean basin regions suffered from a continuous demographic decline, probably even before the Justinian plague of 541, manpower came from the non-Mediterranean regions of the Empire, Africa and Central Asia. No plagues were reported from these region, which are nonetheless known for unleashing the Justinian plague and the Black Death on 14th century Europe. Tribal migration from these regions towards Baghdad took place regularly in addition to the supply of military slaves. In addition, migration to Baghdad also occurred of elements attracted by the rising commercial activities there, such as the Sogdian merchants who had their own quarter in the city.¹¹² The patterns of urbanization revealed by archaeological discoveries of mosques and palaces, living quarters and municipal institutions in the new or newly conquered cities in central Asia equally document the patterns of migration and settlement of newcomers.¹¹³

¹⁰⁷ Al-Qadi, 2008.

¹⁰⁸ Von Sivers, 1982: 74.

¹⁰⁹ *Ibid.*: 77.

¹¹⁰ Elad, 1982.

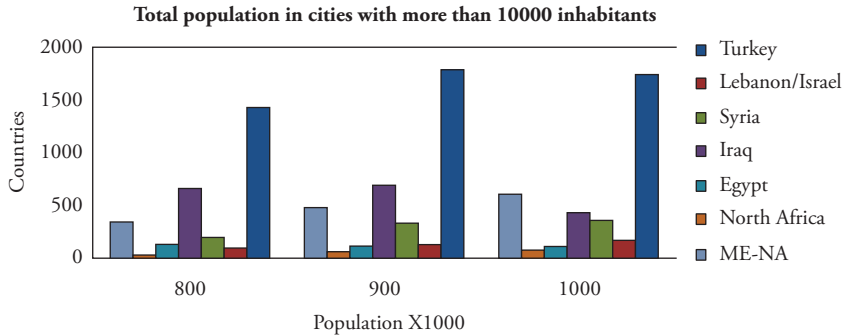
¹¹¹ Frantz-Murphy, 1981.

¹¹² De la Vaissière, 2008.

¹¹³ Benisson and Gascoine, 2007.

Table 7: Urbanization rates

Based on Bosker et al. 2008



Manufacturing and Human capital

Division of Labour

The manufacturing of the early Islamic economy was based on a high degree of division of labour, which was instrumental in the production of high quality items with corresponding degrees for capacity, efficiency and productivity.¹¹⁴ In analyzing the division of labour in the Islamic economy I have relied on a quantitative methodology known as ‘Occupational Classification in Economic Sectors’, developed for the analysis of organizational labour structures. I have used this methodology for the quantification of trade names as indicators of division of labour, finding that the numerical relationships between sectors and trade names represent a reliable indicator for the degree of specialization in each of the categories and sectors analyzed. On the basis of the outcome of the quantification of occupational classification I have been able to provide the relative size of the labour force engaged in each of the sectors and categories and document the changes in the structure of the manufacturing sector and its correlation to growth in productivity.

The occupational classification method I have used in the analysis of the distribution of the labour force in the economy showed that a significant structural change took place within the sectors amenable to showing division of labour, such as manufacturing and services. The trade related occupations in the service sector returned 233 or so commerce-related

¹¹⁴ I have discussed the rationale behind the division of labour as indicator of growing productivity in Shatzmiller, 1994: 11-99.

Table 8: Number of Unique Occupations (Cases) in Sectors of Employment 8th-11th

Based on Shatzmiller, 1994.

Sector of Employment	Number of Unique Occupations (Cases) 8th-11th Century
Primary/Extractive	49 (63)
Secondary/Manufacturing	418 (697)
Tertiary/Service	522 (736)

occupations, which include only occupations associated with commercial and transport activities. These are trade names referring to merchants; sellers of raw materials grown, extracted or gathered in the countryside and brought unprocessed into the city; a large number of middlemen, differentiated according to their location in the markets; specialized commodities; keepers of inns and *funduqs* (hostels); and an array of occupations in the financial services. Transport-related occupations' share of the services was 12% and included animal riders and mariners, porters and couriers, breeders and sellers of pack animals; and makers of saddles and bridles. The specialized groups of middlemen and brokers were also included in this category; they were paid on commission, a percentage of the value of the item they helped sell.

Literacy and the Education of the Workforce

In addition to division of labour, levels of education and literacy of the workforce are now recognized as being a factor in economic growth. Buringh and van Zanden have recently used manuscript production in Europe as a proxy for the effect of literacy on production.¹¹⁵ In the Islamic environment, literacy, and scholarship related activities in general, are an area which is easy to document and quantify thanks to the availability of sources rich with quantifiable evidence. I have studied and evaluated first the literary sources on labour as evidence of a wide intellectual and social interest in skilled and manual labour.¹¹⁶ The fact that the most known intellectuals of medieval Islam wrote about the subject of labour, al-Ghazālī, in the 12th century, and Ibn Khaldūn, in the 14th century, is

¹¹⁵ Buringh and van Zanden, 2009.

¹¹⁶ Shatzmiller, 1994: 69-98, 369-98.

an indication of the centrality of the issue to society. Most of the discussion revolves around whether labour should be treated as a vocation or a need given its usefulness for individual and society's living standards. For the period reviewed here authors such as the *Ikhwān al-ṣafā* may be dismissed as philosophical, elitist and unrelated to productivity, but their work represents intimate knowledge of technical aspects. However, the level of literacy of the workforce is better demonstrated by the technical manuals, the extensive numbers of subjects and copies, as well as the wide spectrum of the trades they describe.

The apprenticeship and training of the workforce was based on both oral and textual transmission of techniques.¹¹⁷ The largest share of the manufacturing workforce in the Islamic cities was skilled; unskilled employment was limited and mostly found in the rural areas. Apprenticeship to a master in the manual trades was the rule and in all likelihood it was undertaken through close physical supervision and by demonstration, oral instruction, and training on the job. For the more sophisticated and literate occupations such as scribes, calligraphers and musicians, to mention only few, an array of professional schools were created. These and other professions such as physicians combined individual instruction with the study of written manuals. The overwhelming number of technical manuals for the manual occupations is a powerful indication that transmission of these techniques passed equally by written texts. In fact, for each of the trades practiced we are aware of at least one manual, and in many instances of several.¹¹⁸ The manuals emerged within three different social and intellectual milieux. The first, the *adāb* model, originated from within the extensive administrative body of the Abbasid court and the secretarial schools. It relied principally on an administrative secretaries' manual but other manuals, on such topics as calligraphy, financial calculations, *kutub al-amwāl* and in particular on taxes, *kitāb al-kharāj* were included in the curriculum. The personnel responsible for religious services provided a large number of manuals, including one for Qur'an readers. Instructions for recitation combined texts transmitted from *muqri'* (reciter) to *muqri'*, and a written chart of all the variant readings to be consulted was attached for cases when the memory lapsed. The second genre developed within the legal milieu and religious services, *qādīs*, notaries, *muhtasibs* etc. In

¹¹⁷ See my entry "Artisans, Pre-Modern" in *The Encyclopaedia of Islam—Three*, in the press.

¹¹⁸ See details in Shatzmiller, 1994: 200-54.

the very early stages these manuals took the form of either a collection of *ḥadīths* or *Responso*, which eventually became fully fledged manuals. The manuals for teachers, the *ḥisba* manual entitled *Aḥkām al-sūq*, and the manuals for brokers, *samāsira*, which were written as early as the 9th century in Ifriqiyya. The third genre, the technical manual for the manufacturing trades, became equally popular and assumed a literate audience. In fact almost every trade, from cooking to *qanāt* digging, ink making, construction, bookbinding, soap-making, minting, drug-making, minting and arms making had its own manual. Their textual scope ranges from highly technical, with no literary sections, to those with mostly literary sections and very few technical ones.

Royal and princely courts remained a focal point for the production of technical manuals. The ruler of 11th-century Tunisia, Tamīm b. al-Muʿizz b. Bādīs, wrote one on book making, inheriting the craft from his father. Agricultural manuals were composed for the *ṭāʾifa* rulers in Muslim Spain, and an arms manufacturing manual was composed for Saladin; a minting manual was composed for the Marīnid ruler of 14th century Morocco and warfare manuals were written for the Mamlūk Amīrs. Agricultural manuals incorporated ancient erudition and combined it with local experience. Scientific knowledge, tools and increasingly sophisticated technical skills were described in them and presumably helped improving the cultivation methods and increasing productivity rates.¹¹⁹ Manuals for applied sciences such as astronomy, medicine and mechanical devices make up yet another group of professional manuals, written in rhymed prose which was intended to facilitate memorizing techniques through recitation and a defined order of movements. One example was a water carriers' manual from Persia which repeated the chain of the water carriers, the parts of the rope and the pail in a rhythmic manner. As with institutional transmission the language of the manuals was not always Arabic, as not everyone communicated in that language, nor did they all write and read the technical manuals, or write their legal documents in Arabic. The quick spread of scholarly texts to the margins of the Empire is born out by the fact that Ibn Sīnā had at his disposal in Bukhāra in the 10th century all the texts of medicine and Greek philosophy translated in Baghdad. All this is strong evidence of a literate workforce, which permits us to assume that literacy helped increase productivity rates in manufacturing.

¹¹⁹ On these below. Watson 1983. Shatzmiller, 1994: 180-1.

Agriculture

Since this is the subject of another paper in this volume, my references to the structural changes in patterns and scale of the agricultural sector are limited here to its links with previously mentioned factors. Division of labour in agriculture is restricted by its nature, on the other hand productivity rates may have increased as a result of improved cultivation methods and new irrigation techniques.¹²⁰ Andrew Watson drew attention to an array of new crops, irrigation systems, cultivation methods and land holding patterns which affected productivity rates.¹²¹ In contrast, Adams' archaeological surveys, which unearthed evidence of deserted villages in the Tigris basin, show that increased cultivation, and therefore increased productivity, may not have been the case everywhere. The strongest indication that levels of production were rising is provided by growing urbanization and the growing division of labour in manufacturing; this could not have happened without sufficient or increased supply of raw materials and people from the rural areas. For Muslim Spain, Berber immigration may be added the effect of population growth as a factor in productivity growth, as claimed by Chalmers.¹²² Another dimension of rising productivity in agriculture is manifested through the numerous accounts of tax collection and distribution. In some intensively irrigated regions the sector was under strong government control and government intervened through strict supervision in land holding, labour organization, and crops, to attain complete monopolization of tax revenue. In Egypt, the entire agricultural sector is mapped in the administrative detailed registers covering all aspects. The evidence from Egypt about a link between agricultural intensification, capital accumulation and commercialized industrialization, in particular in the textile industries, and the trade which facilitated it, are strong evidence of higher productivity.¹²³ Sufficient money in the rural areas, markets for agricultural produce, efficient exchange, rents and taxes paid in cash, which made taxes cheaper to collect and easier to transfer and use, all contributed to higher productivity rates. Based on the taxation rates per region it may, in time, be possible to calculate the rate of productivity separately per region.

¹²⁰ Watson 1983. Shatzmiller, 1994: 173-86.

¹²¹ Watson, 1983.

¹²² Chalmers, 1992.

¹²³ Frantz-Murphy, 1981.

Trade and Urbanization

The Bosker et al. Premise

In a recent article by Bosker *et alia*, the authors engaged in a long term, 800-1800, comparative study of the process of urbanization in the Arab world and Europe as a co-factor in economic growth and especially, decline. Converting a variety of comparative data into sophisticated statistical formulations the study reached several conclusions about 'Arab' cities which are relevant here, but which need to be tested against the historical evidence. Their first conclusion was that there was no economic interaction between Islamic and Christian cities during the period under consideration and therefore no feedback between European and Arab cities. The reason was "culture" which "hindered exchange over the borders of the two urban systems".¹²⁴ Here the authors accept Greif's assertions discussed earlier, about the nature of 'Islamic culture' and the negative impact it had on institutional behaviour. However, there is no indication whatsoever that culture hindered exchange between Islamic and Christian cities; on the contrary, 'culture' was exactly the matter exchanged between Muslim and Christian cities. Mutual influences between Byzantium and Islam in areas such as medicine (Ibn Buṭlān, 10th century), mosque/church decoration (the iconoclastic controversy, 8th century), or religion (Bulghar conversion to Islam, 9th century) were such instances. As to economic exchange, the intensive trade between Muslim lands and North Eastern Europe between 700-1000, was the result of strong interaction between Muslims, Vikings, Bulghars, Khazars, Byzantines and others. How was that interpreted as lack of contact due to 'culture'? The trade movement shows exactly the reverse. There was no economic exchange between Islamic cities and Christian ones in Western Europe, but that had to do strictly with economic reasons. The fact that 'European cities' or what passed for cities in Europe at the time, had neither the manufacturing capacities to produce goods that Muslims would be interested in, nor did they have the markets for Islamic manufactured goods, or the monetary means to pay for them. If slaves were the only item traded from Western Europe, there was no reason for Muslim raiders—traders never actually went there to buy slaves—to venture there after that market dried up. The raw materials which the Islamic world

¹²⁴ Bosker *et al.*, 2008: 26.

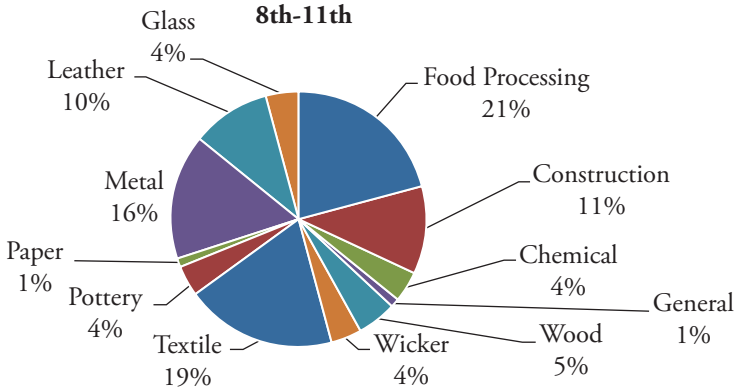
needed for building boats or other constructions, could be supplied from within its own provinces, as was the case of wood shipped from Armenia and India. To attribute the stagnation of the Arab cities from the 10th century onward to the 'culture' factor is unfounded and misguided.

The second conclusion, the hypothesis that the explanation of the divergent development of the two urban systems was caused by more efficient economic institutions in the West compared to those of the Arab world, require clarification also. Bosker *cum suis* conclude that the Arab world had efficient institutions regulating exchange, but that their functioning "was dependent on the existence of a large territorial empire". Once the Empire's control was no longer there, the institutions no longer functioned. In other words, efficient institutions were due to the fact that the Arab world was unified into one state, which guaranteed law and order and imposed similar institutions on economy and society, and which spoke the same language. In fact, from 800 onwards, there was a gradual political disintegration of the Abbasid Caliphate and the existence of a unified state, capable of imposing law and order on all its member provinces is tenuous at best. The assumed effect of the language as a unifying factor is outright wrong. The Abbasid Empire was never able to unify its various provinces; for that matter, neither were their predecessors, the Umayyad Caliphs. By the beginning of the 9th century, an Islamic 'Empire' was indeed a myth. Taxes were already being withheld from Baghdad even before some of the regions at the 9th century established their own dynasties. Because of the amount of taxes at stake Abbasid armies were regularly dispatched to enforce Egypt's remittance in the 9th century, but they did not venture to Spain, the Maghreb or Central Asia. By the time the Samanids began flooding the North-East trade with their high quality silver dirhams in the early 10th century, these provinces were no longer remitting taxes to the capital either. It would be incorrect to compare the Abbasid Empire to the Roman or Mughal or Ottoman empires, the structures are simply not there.¹²⁵ Neither can it be assumed to have the power to abolish 'trade barriers'. In fact the different tariffs are an important source of monetary information. The authors are correct though about the role of institutions in this scenario, since the existence of Islamic state institutions throughout provides a united political vision. Abbasid Caliphate monetary, administrative, cultural or legal institutions, titles, sultan, amīrs, dīwāns, vizirs etc.

¹²⁵ Bang, 2008, suggesting a model of market organization for the Roman Empire built on the model of the Mughal Empire in India.

**Table 9: Distribution of Occupations in Manufacturing Sector
Percentage of Total Manufacturing Occupations According to Type,
8-11th Centuries**

Based on Shatzmiller, 1994.



provided a template copied by the new regimes throughout the provinces; institutions were borrowed, not imposed; it was a part of the state formation process in the lands which came under Islamic rule.¹²⁶ The process of institutional borrowing occurred independently of the Empire's will. In terms of economic institutions they, developed in tandem in Baghdad and in the provinces, involuntary of a 'political will' or imposition from above, as in the case of the *suftāja* (a negotiable instrument in the form of a written bill of credit similar to the modern drawing of a cheque), manifested in both Egypt and Iraq at the same time. The usage of this financial tool permitted risk-free transfer of large amount of money to the government treasury, or monies sent for the Jewish academies from the province to Baghdad, but it was feasible thanks to capital accumulation in both centers in the hands of merchants and tax collectors.

Islamic Producer Cities and Trade

The third conclusion of Bosker *et al.*'s paper, that Muslim cities were 'consumer' cities, as opposed to Christian cities, which were 'producer' cities, builds on the Weberian distinction of city types.¹²⁷ Again, just as the rise of a unifying state was not the main factor in the urbanization process,

¹²⁶ On this process more below.

¹²⁷ Bosker *et al.*: 27.

neither was the demise of a mythical Islamic empire the cause of its decline. Furthermore, the sweeping generalization about the “disintegration of the Islamic state system in the 13th-14th centuries” is not substantiated. On the contrary, both the Mamlūk state in Egypt and the Marīnid state in Morocco, and even the Naṣrid state in Muslim Spain, are examples of well-integrated institutional, administrative, cultural, economic and social states of affairs and all were power players in the Mediterranean political and commercial games of the period.¹²⁸

The cities which flourished in the 13th-15th centuries demonstrate the opposite of institutional decay. The reverse situation is correct. The dynamics and process of urbanization in the early period under consideration here, shows producer cities whose high economic performance should be attributed not only to efficient economic institutions and decisions, but to spatial integration facilitated by trade.¹²⁹ In the case of Baghdad, even though it lacked the power to enforce the remittance of taxes from Egypt, Syria, Khurāsān or North-Africa, it remained an important market for staples and imported luxury goods, in addition to being a source for cultural, scholarly and institutional borrowing. It continued to attract capital for the purchase of luxury goods, investment in trade, or agriculture and manufacturing. The centrality of the capital city in the model developed by Bosker *et al.* may be correct as far as Baghdad is concerned, although the number of manufacturing cities in the region at the same time, should not be ignored.¹³⁰ The most important demonstration of the Islamic cities being ‘producer’ cities comes through trade. The manufacturing capacity which developed in the cities along the overland trade routes was an outstanding urban development, especially of the North-East regions, Iraq and Iran,¹³¹ and provides a model of spatial integration. The following is a 10th century list, compiled by the geographer al-Muqaddasī, of items produced and exported from the towns in the region of Khurāsān-Transoxiana to Baghdād and other cities:¹³²

¹²⁸⁾ On Marīnid Morocco as a Mediterranean and Atlantic power, see Shatzmiller, 2011c. On the Mamlūk state, Garcin, 1988. On the sophisticated state apparatus of Naṣrid Granada, Arié, 1973. Shatzmiller 2007.

¹²⁹⁾ Shatzmiller, 2007b. Shatzmiller, 2011c.

¹³⁰⁾ Shatzmiller, 1994.

¹³¹⁾ Bulliet, 2009.

¹³²⁾ Al-Muqaddasī, 1994: 285-8.

As for commerce, in Naysabūr, 11 different items of clothing and garments, including veils and turbans, all made of expensive cloth, sometime silk, sometime plain cloth as well as bracelets, clothing of hair of superior yarn, iron. From Naysabur's rural districts, much thick clothing. From Nasa and Abīward silk and silk clothes and clothes of Zanbaft, sesame and its oil, fox fur. From Tūs, superior earthenware pots, mats and grain; From Harāt, much cloth, silk brocade of inferior quality, taffeta, raisins, syrup, steel, pistachios and confections; From Marw, garments, veils of silk, silk, cotton, cattle, cheese, cottonseed oil, sesame oil, copper; From Sarakhs, grain and camels; From Sijistān, dates, woven baskets, ropes of bast, mats; From Qūhistān, white clothing, rugs, fine dates; From Balkh, sesame, soap, rice, walnuts, almonds, raisins, dried grapes, clarified butter, honey from grapes, figs, pomegranates, vitriol, sulphur, lead, yellow herb, arsenic, incense, armour, garments, oil, fat, skins; From Garj al-Shār, gold, felt, fine carpets, saddlebags, excellent horses and mules; from Tirmidh, soap, asafetida [a natural resin]; From Walwalij, sesame, sesame oil, walnuts, almonds, pistachios, rice, chickpeas, coverlets, cheese, clarified butter, horns, fox pelts; From Bukhāra, soft fabrics, dried dates, prayer carpets, woven fabrics for covering the floors of inns, copper-coloured lamps, hanging Tabari tissues, horse girths (which are woven in prisons) Ushmuni fabrics, tallow and sheepskins, oil for anointing the head; From Karminiya, napkins; From Dabūsiya and Wadhār, Wadhari fabrics which are dyed in one colour. I have heard that one of the sultans of Baghdad called them the satin of Khurasan. From Rabinjān, winter cloaks of red felt, dried dates, prayer-carpet, pewter ware, skins, strong hemp and sulphur; From Khorezmia [Khawarazm], sables, squirrels, miniver, ermines and the fur of steppe foxes, martens, foxes, beavers, spotted hares and goats, wax, arrows, birchbark, high fur caps, fish glue, fish teeth [i.e. walrus tusks], castoreum oil, amber, prepared horse hides, honey, hazelnuts, falcons, swords, armour, khalanj [birch] wood, Slavonic slaves, sheep and cattle. All these came from Bulghar. Khorezmia also exported jujubes, raisins, almond pastry, sesame, fabric of striped cloth, carpets, blanket-cloth, satin for royal gifts, veils of malham fabric, locks, Aranj arrows for bows that only the strongest could bend, rakhbin (a kind of cheese) yeast, fish, boats hewn and smoothed (the latter also exported from Tirmidh). From Samarqand is exported silver-coloured fabrics [simgun], and Samarqandi stuffs, large copper vessels, artistic goblets, tents, stirrups, bridle-heads and straps; From Dizak, fine kinds of wool and woolen clothes; From Banakāth, Turkistan fabrics; From Shash, high saddles of horsehide, excellent quality quivers, tents, hides (imported from the Turks and tanned), cloaks, prayer carpets, leather capes, linseed, fine bows, needles of poor quality, cotton for export to the Turks, and scissors; From Samarkand again, satin which is exported to the Turks, and red fabrics known by the name of mumarjal, sinizi cloth, many silks and silken fabrics, hazel and other nuts; From Farghāna and Isfijāb, Turkish slaves, white fabrics, arms, swords, copper, and iron; From Taraz [Talas] goat-skins; From Shaljī, silver; From Turkistān, horses and mules are driven to those places, and also from Khuttal. There is nothing to equal the meats of Bukhara, and a kind of melon they have called ash-shaq [or ash-shaf], nor the bows of Khorezmia, the porcelain of Shash and the paper of Samarqand.

It is clear that we are dealing with ‘producer cities’ here. Furthermore, the list, besides providing a useful display of the manufacturing capacities of the cities in the region of Khurasān, also reflects a process of urbanization which took place along the trade routes initiated and invigorated by trade movements. If we cannot say for sure whether markets were integrated, by comparing commodities prices, we can definitely speak about spatial integration of the markets by measuring the distances and the geographical dimensions of the manufacturing cities. An advanced degree of urbanization is also confirmed by evidence of luxury industries which sprang up in the cities, such as the glass and jewelry, in museums and art collections.¹³³ The division of labour which occurred in each of these industries, or sectors of employment further complement a picture of high productivity.¹³⁴

Two Competing Models for Spatial Integration: Overland versus Maritime

Islamic trade, including that of the early period, is frequently compared to a maritime model, either that of the Roman Mediterranean world, or that of the Indian Ocean. The latter is a Mediterranean-based model developed by Chaudhuri as an adaptation of the Braudel model, complete with the geographical and social paradigms of the *longue durée* or the long-term structures.¹³⁵ The historical evidence does not support either maritime model; there is no mention of a massive Red Sea trade in the pre-Geniza period and there is little or no evidence of Indian Ocean monetary circulation, as no minted silver has surfaced in the port cities of the Persian Gulf, the Arabian coast and the Red Sea.¹³⁶ The Roman economy was ‘spatially integrated’ around a body of water; the Islamic one was not. The trade routes, as traced by the geographers and confirmed by the numismatic evidence of hoards and archaeological evidence of mines, point to trade which travelled overland North-East from Baghdad and North of Central Asia. In fact, the centre of its economic growth was located away from the Mediterranean, and its trade patterns borrowed more from Sassanid than Roman trade and were oriented in a different

¹³³ Hasson, 1979. Hasson, 1987.

¹³⁴ Shatzmiller, 1994: 255-323.

¹³⁵ Chaudhuri, 1985: xi-iii, 1-6. In spite of criticism of Braudel’s Mediterranean model, the idea of measuring economic activity around a body of water is alive and well. For analysis of the Atlantic Ocean case, Baily, 2005. Shatzmiller 2011c on Morocco.

¹³⁶ Lowick, 1974. Deyell, 1990. Shatzmiller, 2007. Shatzmiller, 2009.

direction.¹³⁷ This model is more closely matched by the one proposed by Van der Wee and Peeters, which traced a similar process of urbanization, market integration and increasing manufacturing capacities following trade movement of goods in Europe.¹³⁸ While the European model is based on a larger chronological spectrum, it is nonetheless a more relevant model to the Islamic situation. By the same token, the absence of manufacturing capacities around the Red Sea or the Arabian Sea is an indication that no extensive urbanization could have occurred there. The areas surrounding the Arabian Peninsula lacked an agricultural hinterland and could only serve as depots for merchandise arriving and leaving from the port. Long caravan routes linked them to the interior in either Iraq or Persia.

To sum up, the changes in patterns and scale in the trade sector appear to have been considerable and structurally linked, and may suggest economic growth. Practically every component of the Islamic trade was changed and transformed, from commodities manufactured to means of transport, to organizational, legal and financial tools, geographical space, and regional and international markets. The discovery of new markets and an alternative geographical spectrum offered the Islamic Empire and its regional components the opportunity to free themselves from the debilitating effect of the sluggish Mediterranean trade. With the growing size of caravans commercial transactions also became super-monetized, both in absolute terms and in comparison to previous and contemporary transactions. The new markets opened in the new urban centers and the increased supply of coinage made profitable exchange more manageable. The suppliers of the international luxury goods, those whose economies were not monetized were anxious to increase the volume of their goods to satisfy the demand. Evidence from trade is also a good indication of consumption habits and hence an indication of standards of living. For instance, the import of furs, which continued for three centuries, besides of lending itself to monetary calculations, also indicates the availability of monetary surplus to purchase them.¹³⁹ Furthermore, even though the

¹³⁷ Morony, 2004. I have addressed some criticism of the 'historical constraint' of Islamic economy in Shatzmiller, 2007b. See also Spufford, 1988: 352-3. Spufford, 2002: 349, about trade imbalances with North Africa.

¹³⁸ Van der Wee and Peeters, 1970.

¹³⁹ Kovalev and Noonan, 2004 provided information on the cost of furs shipped, how many furs were in a batch, and their prices, the distance which they travelled, where and how sales occurred and how much money was paid for them.

bulk of the trade was conducted using the overland routes, there were ways of decreasing transaction costs. A network of cities and markets, offered animals and commercial services. Transactions of large size took place near the border, and thus kept transaction costs low. The archaeology of the manufacturing quarters in the new cities shows that the overland trade had an effect on urbanization.¹⁴⁰ Efficient provisioning of the markets with raw materials and the new venues for capital investment complete the list of the structural changes. The benefit to the state finances may be reconstructed through customs duties collected and taxes paid on the sale of manufactured goods in regional distribution. A dataset of prices will be helpful in calculating transactions costs.

The prospect of quantifying the trade-related data is indeed exciting and promising. Used in conjunction with the results obtained by studies conducted in ancient, medieval and pre-modern societies, they could help provide alternative estimates of GDP by enhancing our understanding of the composition of society's purchasing power.¹⁴¹

Institutions

The Borrowing of Institutions

The works of governments all over the Islamic lands was facilitated by a unique cultural process of borrowing institutions developed in the centre of the Empire in Baghdad and implemented in the provinces. The political institutions formed in the 7th and 8th centuries were followed by legal and financial ones, as commercial law developed. Even though the political control of the centre over the provinces became unstable during the 9th and 10th centuries, as government apparatus developed in the provinces, states adopted and used political, economic and legal institutions patterned on those of the 'Empire'. The 'cultural' tools of the Islamic institutions were religion and language, tools aiding the process of institutional diffusion. It may be noted though, that while Arabic was widely used in the Middle East, it was not spoken in the North East and central

¹⁴⁰ Heidemann, 2006. Milwright, 2001.

¹⁴¹ Compare Snooks, 1995 for the 11th-century English economy. England's land holding patterns were considerably different from those of the Islamic lands, which may affect the size of the surplus produced and extracted.

Asia.¹⁴² Rather than tight control emanating from the centre of the Empire, the borrowed institutions made economic decisions and economic integration smoother. In this sense Islamic institutions were ‘bottom up’ and not ‘top down’; they were not imposed by the state but adopted by it.

Financial Institutions and Tools

The parallel appearance of political institutions and financial institutions provide the context for the development of financial tools and the role of commercial law as financial intermediary.¹⁴³ Beginning with financial tools, the large sums of money collected as taxes in cash by governments throughout the provinces presented a problem for the economy: the safe transfer of large amounts of coin, and the establishment of the value of the various coins in circulation. The remittance of taxes from the provinces to the capital was the early and main reason behind the development of non-monetary transfer instruments, principally the *sufiājas*, checks to be cashed in banks (not to be confused with bills of exchange). These could only be used safely because of the existence of private, large concentrations of capital in both the capital city and the large tax collection centers in the provinces, frequently in the hands of families. The need to secure the transfers of large sums of money over large distances was not limited to tax remittances but also to investments in inter-regional trade and proliferation of proto-banks.¹⁴⁴ However, these financial instruments could not be used in international trade. Monetization as well as the level of money supply in the Islamic lands set the Islamic economy apart from its neighbours and trade partners in terms of its financial institutions, a situation which lasted for practically the entire period from 700 to 1000.¹⁴⁵ The economies of their partners to the North and the East, the Vikings, Bulgars, Byzantines, Chinese and Indians, had only limited degrees of money supply and monetary circulation and some had

¹⁴² Khan, 2007 on the co-existence of Bactrian and Arabic legal documents of the 8th century. The Samanids may have used Persian, not Arabic, as well, as did the Khwarazmian administration, which used an early Turkish vernacular. Durkin-Meisterernst, 2008.

¹⁴³ On the link between urbanization, the growing amount of money in circulation and financial tools Spufford, 1988.

¹⁴⁴ Fischel, 1969.

¹⁴⁵ Shatzmiller, 2011b.

none.¹⁴⁶ Not only did this result in hoarding of Islamic coins, but the Islamic trade also became imbalanced, since Islamic-manufactured goods could not be sold in return for the luxury goods bought there.¹⁴⁷ The only lasting visible effect of the Islamic coinage, on the trading partners besides the hoards, were the imitations of Muslim coins which were an ongoing phenomena until the European monetary systems rebounded in the 13th century.¹⁴⁸ In view of the 600 years' history of global imitations of Muslim coins by Europeans it is incomprehensible to me why Grierson and Spufford have dismissed Arabs and money as incompatible.

The money changer (*jabbādh*) smoothed financial transactions by collecting payments, verifying the value of coins, sanctioning investments, converting foreign coins into local currency, estimating the value of the transactions, making tax payments to the treasury, and engaging in banking activities. The rate he charged for his services as a percentage of the value of the transaction may provide a clue about the rate of exchange, transaction costs and the size of the transaction. The sophisticated financial tools which emerged first as imperial financial tools were later used by specialized financial bureaus but also by wealthy individuals in commercial transactions.

The inability of using the sophisticated financial tools in international trade, i.e. trade with non-Muslims, did not affect the development of the Islamic commercial law. Rather commercial law played an important role in enabling capital accumulation in the partnership investment by Muslims of inter-regional and international trade transactions. Udovitch was the first to draw attention to al-Shaybanī, a Ḥanafī jurist, who wrote one of the earliest legal manuals in the 9th century, and drafted investment partnership contracts.¹⁴⁹ In his *Kitāb al-aṣl* al-Shaybanī elaborated the rules for two kinds of partnership contracts related to trade investments, *mufāwada*, and *muḍāraba*, the equivalent of the European *commenda*. During his deliberations, al-Shaybanī stipulated three principles: no partnership might take place using copper coins; all partnerships should be formed using ready cash (*māl ḥādir*); and the coins should be “intermingled”. He further stipulated that switching between *mufāwada*, unlimited,

¹⁴⁶ I have discussed the implication to the Mediterranean Islamic lands as well as the nature of the process in Shatzmiller 2011a and Shatzmiller 2011b.

¹⁴⁷ See analysis in Shatzmiller, 2011a.

¹⁴⁸ McCormick, 2001. Laiou and Morisson, 2007. Deyell, 1990. Twichet, 1970.

¹⁴⁹ Udovitch, 1970.

and *'inān*, limited, partnerships, is possible when circumstances required it. He justified the partnership construct on the basis of the 'customs of the merchants', *adāt al-tujjār*, but without explaining what the term referred to. Udovitch used the *Geniza* documents for demonstrating the investment partnership, even though they dated from the 12th century. Much closer to al-Shaybani's time and to the 'customs of the merchants' is the evidence from the North-Eastern hoards. The numismatic evidence shows that no copper coins were used in trade since none was ever found in the North-Eastern European hoards.¹⁵⁰ The early hoards also show a large number of different coins, explaining that the need for the second rule, which required cash only investments of coins of recognized value. This rule intended to eliminate the mixing of coins, since verification was not always possible. The third rule created flexibility in the movement of capital through investment in trade, allowing more capital to flow into the partnership when needed, even after the conclusion of the contract. To quote al-Shaybani again, "the customs of the traders" are the guideline here. Rather than being an obstacle, as Greif and Kuran claimed, Islamic law appears to facilitate investment partnership for trade. The institutions which shaped market exchange abided by the needs of the economic agents and thus facilitated transactions. Legal sources are also a main source of information for land use and land tenure for the land market in Egypt and North Africa.¹⁵¹

Rational Economic Decisions and Capitalistic Features

Making rational economic decisions should be viewed as a supporting structure in the process of economic growth.¹⁵² A good example of those in the Islamic economy is the way decisions on monetary policies and increased money supply were made and implemented. Acting upon the realization that money supply was crucial for the economy the Umayyad administration took steps to resume minting immediately as early as the 7th century. The government intervened to ensure that the mints all across the conquered regions did not shut down as a result of the conquest and effectively increased the number of mints in towns where they

¹⁵⁰) Noonan, 1974.

¹⁵¹) Talbi, 1981.

¹⁵²) See the discussion in Snookes, 1995: 47-49.

did not exist previously.¹⁵³ They did this first by imitating the existing coinage in regions, and later by introducing its own coinage, coin supply into circulation continued on a regular basis.¹⁵⁴ The standard and appearance of the coins, which was unified through time and space in the center and in the provinces, indicate strong measure of centralization and Government control over the economy, not only over mining and minting.¹⁵⁵ Change in dynasty was accompanied by change in the appearance and sometimes by change in the quality and standard of the coinage. Thus the monetary policy of the Umayyads and the dynasties which followed them, should not be seen in isolation but rather viewed together with other 'rational' economic policies, such as the early manpower surveys, the settlement policies, institutional borrowing, implementation and institutional enforcement of investment contracts, as rational policies in view of supporting the economy.¹⁵⁶

How to maximize benefit from available precious metal depots by taking advantage of their geographical location to increase revenue and trade, are additional examples of rational economic decisions taken by Muslim governments in support of trade. The availability of silver in their mines in Afghanistan and Uzbekistan allowed the Sāmānids to increase production relentlessly, mint millions of silver dirhams with the goal of monopolizing the lucrative North-Eastern trade and concentrate it in their merchants' hands.¹⁵⁷ When the North-Eastern trade with Russia resumed in the 8th century, after years of conflict between Muslims and Byzantines in the Caucasus, the Viking traders were allowed to come directly to Baghdad with their merchandise. This was a cost saving device, saving Muslim traders the trip to the Russian territories in search of furs but also in order to prevent them from having to travel through Byzantium. When neighboring states of first the Khazars and then Volga Bulgars began acting as intermediaries, Muslim traders were able to arrange that transactions took place at the border. This allowed them to control volume during the exchange, verify prices, and make payments on the spot. Under the Sāmānids dirhams were minted exclusively for trade purposes,

¹⁵³ Walmsley, 2010: 23: "...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".

¹⁵⁴ Album, 1998: 14-20 for a comprehensive list of the pre-reform coinage.

¹⁵⁵ Walmsley, 2010. Shatzmiller 2011a and Shatzmiller 2011b.

¹⁵⁶ Al-Qadi, 2008 and *infra* on population decline.

¹⁵⁷ Noonan, 2001. Burjakov, 2008.

and as the size of the capital invested grew so did the size of the transactions. The demand for Islamic silver by Khazars, Bulgars, and Vikings, made it possible for the Muslim traders to impose their preferences. Traders cut costs by executing the deals closer to the border, travelling shorter distances, and enlarging the size of caravans to up to 2000 camels. Trade relations also exercised a continuous and growing cultural effect on the partners and intermediaries. Religion as well as money were borrowed from the Muslims who used them as economic tools. The request by the Bulghar *amir* from the Abbasid court to supply him with preachers, the hiring of Muslim soldiers from Khawrazm by the Khazar king, or the hiring of Khazar soldiers by the Muslims, turned Islamic trade into 'a civilizing mission' which benefitted trade relations. Familiarity with the language and the religion and with the Arabic script, as manifested by the minting of the 'Moses dirhams' in Khazaria,¹⁵⁸ and shared religious practices including conversion to Islam, had a direct effect on facilitating trade relations. Khazars, Bulgars, and Kievan Rus, minted imitations of *dirhams*,¹⁵⁹ demonstrating an acculturation to Islamic norms which may well have generated willingness on the part of the suppliers to accommodate the Muslim traders.

Sectors of the economy such as manufacturing, commerce, and trade, have shown distinct capitalistic features as they grew and developed.¹⁶⁰ In an article published in 1981, Frantz-Murphy demonstrated the appearance of early capitalistic features in the Egyptian economy by linking the intensive irrigation undertaken in Egypt under the Abbasids to the industrialization of the countryside. She has shown how the capital accumulated in the hands of tax collectors was invested in developing large scale cultivation of flax and local textile industry, rather than being remitted to Baghdad. While capital investment in the Egyptian rural areas was meant to provide the raw material needed for commercial weaving, it also raised standards of living there by paying wages to the weavers. The payment of wages in general, and high wages in particular, as was the case of professionals and soldiers in Baghdad, coupled with lenient taxation, explain how local manufacturing stimulated demand by making available a growing array of locally produced items supplied by inter-regional trade, and

¹⁵⁸) Kovales, 2005.

¹⁵⁹) The Rus made imitations of *dirhams* with cross and bird inside the Kufic dirham legends. Rispling, 1987.

¹⁶⁰) For details see Morony, 1993. Frantz-Murphy, 1981. Shatzmiller, 1994.

luxury goods by international trade.¹⁶¹ The amount of surplus left in the hands of consumers helped stimulate manufacturing and linked the regional economies.

One may observe capitalistic features in the ways individual provinces and cities made use of their geographic advantages to develop an economic edge. One such case is provided by the Samanid development of rich silver mines and Khwarazmians forcing the North-Eastern trade to pass through their territory.¹⁶² While the international overland trade was the reserve of the regions along the border, the inter-regional overland trade benefitted from a well organized system of producer-cities. Egyptian governments turned out to be apt participants in the Mediterranean-oriented economies, in spite of the loss of the wheat shipments to the market across the sea. Quick to transfer its economic edge from wheat market to flax and manufactured linen Egyptian producers began shipments to Tunisia and Sicily. Capitalism thus did not leave the Mediterranean with the Roman empire.

Conclusion

The institutional debate has been detrimental to the historical image of Islamic societies. The growing interest in the economic theory of institutions in economic growth has shifted the scholarly enquiry to theoretical sweeping generalizations, away from the need to scrupulously provide empirically based research. This is demonstrated by the postulations in both Greif's and Kuran's publications, that Islamic economic institutions and law were the causes of stagnation and that they prevented economic growth in the long run. However, the scholarly balance and relationship between theoretical framework and empirical base is the responsibility of the historian and these assumptions pose a challenge to medieval Islamic economic historians. Steensgaard made the insightful comment that historical markets were "tales of imperfections, an endless catalogue of deviations from pure theory",¹⁶³ namely that there will be necessarily a gap between theory and empiricism. Those who latch on to the Islamic medieval institutions as samples of imperfection, do so because it is so easy to

¹⁶¹ Long term demand for luxury imported goods, such as Russian furs and Polish amber. Noonan and Kovalev, 2004. Lewicki, 1962.

¹⁶² Al-Muqaddasi, 1994, 285.

¹⁶³ Steensgaard, 1991, 9.

compare them to the well researched and documented process of economic growth through institutional change in Europe. The methodology's logic is faulty and simple minded. The link between the medieval institutions and the inefficiency of Islamic economic institutions drawn in these studies, does not withstand scrutiny on the basis of the empirical evidence. A methodology, which in its rush to produce theory, trumps, ignores and misrepresents historical evidence, will get its conclusions wrong.¹⁶⁴

Our proposed approach allows for a better and more accurate examination of both the process and the role of Islamic institutions in economic growth. It has suggested that pending estimates of rising productivity in the agricultural sector, GDP and GDP per capita, key diagnostic indicators in the period between the 7th and 11th century could be used as proxy. These are an increase in monetization, money supply and circulation; the formation of credit institutions; the development and elaboration of state fiscal institutions with an efficient system of tax collection; the creation of legal institutions to uphold property rights; limited demographic growth compensated by import of slaves and internal migration, in sufficient numbers to provide for rise in productivity, increased output in the manufacturing sector as a result of increased division of labour and literacy of the workforce; an increased volume of trade, efficient markets, commercial techniques and the development of efficient transactions costs. All testify to rational and efficient economic institutional behaviour.

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¹⁶⁴ Not all economic historians writing on Islam ignore the difference. See Cosgel, Ertkes and Miceli, 2010, specifications on theory and empirical material.

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