

DEMOGRAPHIC AND ECONOMIC FACTORS OF URBAN DEVELOPMENT IN EARLY MEDIEVAL IRAQ

ABSTRACT

Baghdad was among the largest cities in the world during its ninth century “Golden Age” and Abbasid Iraq maintained urbanization rates that may have reached or exceeded 20%. While the political and geographic factors which facilitated the development of Baghdad into one of the largest cities in the Medieval world are well understood, less documented are the demographic and economic factors that enabled this very high level of urban development. This article introduces new data from eighth and ninth century literary sources and quantitative-statistical demographic projections to demonstrate that rapid urbanization in Early Medieval Iraq occurred in the context of broader regional demographic expansion, emergent rural-to-urban human migration, and substantial shifts in agrarian and non-agrarian sectors of the Abbasid economy.

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INTRODUCTION

FEW PLACES IN time have captured the imagination as vividly as the city of Baghdad during the era of the Abbasid caliphate (circa 750 to 1258 CE). For over a millennium, folktales of Caliph Harun al-Rashid creeping through the streets of late-eighth century Baghdad in search of spontaneous adventure emerging from the eclectic and sweeping urbanism of his time have lent an almost mythological quality to urban civilization in Iraq during the Islamic Golden Age. Primary literary sources from this period are no less generous than the *One Thousand and One Nights* in their baroque descriptions of Abbasid urbanism, with the Medieval geographer Ibn Wāḍiḥ al-Yaʿqūbī penning the following entry on Baghdad in his ninth century *Kitāb al-Buldān* (*The Geography*):

“It is the center of Iraq and the greatest city, one which has no peer in the east or the west of the earth in size, importance, prosperity, abundance of waters, and salubrious climate, and because it is inhabited by all varieties of mankind and urban and rural folk who have immigrated to it from all countries.”¹

Despite the rich literary record of a highly developed urban civilization in Iraq during the Early Middle Ages, the material conditions in which the city of Baghdad emerged remain under-examined by historians. Scholarship on the rapid urbanization which Iraq underwent in the century following the foundation of Baghdad in 762 CE has chiefly focused on the well-documented policy of planned urban development which the Abbasid caliphate maintained in its first century of rule, and to a lesser extent on the natural geographic and ecological features of Lower Mesopotamia which made the region particularly suited for large-scale urban settlement.² However, these factors alone cannot account for how Iraq during the eighth and ninth centuries became host to what may have been the highest rate of urbanization in the Medieval world.³ Preliminary questions of demographic growth trends, patterns of urban migration, and material economic developments that facilitated the rapid growth of Medieval Baghdad remain substantively unexplored, yet understanding these material conditions is necessary to fully account for the ascent of the highly developed urbanism which was present in Early Medieval Iraq, a region roughly corresponding to the modern state of Iraq south of the 34th parallel.

The lack of extensive scholarship on these material factors is largely a result of the paucity of quantifiable data for the Near East in the Early Medieval period. The rich textual legacy of Classical Arabic during the Abbasid period means historians have been able to reconstruct in exacting detail from chronicles, diaries, and missives the political processes which led to the emergence of the great Abbasid-era Iraqi cities. However, information on the demographic and economic environment in which these cities were founded and grew to become metropolises is far less readily available in these sources. The literary records that survive from the Near East during the Abbasid period are more often than not concerned with religious and political matters rather than quotidian details of interest to demographic and economic historians such as variations in the price of grain or changes in wages.

As a result, demographic and economic historians of the Early Medieval Islamic period in the Near East have largely been left to piece together the trends of economy and demography which facilitated the growth of urban civilization in Iraq from conjectural references in literary sources, fragments of commercial and tax documents, and comparative demographic datasets from other parts of the Medieval world.

This article directly examines the demographic and economic factors which facilitated the rise of Islamic urbanization in Iraq during the eighth and ninth centuries, with a focus on those material and structural factors which allowed Baghdad to become within a generation of its foundation one of the largest cities in the world during the ninth century.⁴ The regional demographic trends that underpinned the emergence of high levels

1 Aḥmad ibn Abī Yaʿqūb Yaʿqūbī, *The Works of Ibn Wāḍiḥ Al-Yaʿqūbī: An English Translation. Volume 1*, ed. Matthew Gordon (Boston: Brill, 2018), 66-67.

2 For a review of the historiography of Iraq's early Medieval urban development see Hugh Kennedy, "The Feeding of the Five Hundred Thousand: Cities and Agriculture in Early Islamic Mesopotamia," *Iraq* 73 (2011): 177-191.

3 Paul Bairoch, *Cities and Economic Development: From the Dawn of History to the Present* (Chicago: University of Chicago Press, 1988), 371.

4 Bairoch, *Cities and Economic Development*, 371.

of urbanization in Early Medieval Iraq, the population sources that Baghdad drew upon as it expanded rapidly, and the economic structures which allowed for hundreds of thousands of non-agrarian urban residents to provide for their material needs are examined here in order to outline some of the factors which facilitated urban development in Iraq during the Islamic Golden Age.

DATA

THIS ARTICLE INTRODUCES new information from primary literary sources and statistical analysis to explore the material conditions in which complex urbanism in Early Medieval Iraq emerged. The pseudonymously written Syriac Christian *Zuqnin Chronicle*,⁵ compiled in Mesopotamia during the second half of the eighth century, is examined here as a source of data on prices of staple commodities, population trends, and agrarian wage rates in Iraq around the time of Baghdad's foundation. While the case for Christian Syriac literary sources more broadly as vital documentary sources of information on the economy of the Near East during the Islamic Middle Ages has been made by Michael G. Morony,⁶ the *Zuqnin Chronicle* remains a substantially untapped wellspring of conjectural quantitative data for the Near East in the latter half of the eighth century. The beginnings of a quantitative analysis of this document have been put forth here.

Additional primary source data is drawn from Arabic literary sources local to Iraq in the eighth and ninth centuries, particularly from the first generation of Baghdadi geographers and chroniclers who produced rich documentary accounts concerning the human geography of the Near Eastern Islamic world during the first century of Abbasid rule. al-Ya'qūbī's *Kitāb al-Buldān*, Ibn Khordadbeh's *Kitāb al-Masālik wa'l-Mamālik*, and al-Ṭabari's *Tarikh*, all penned in Baghdad during the lat-

ter half of the ninth century, are crucial sources examined here for textual references to the demography and economy of Iraq in the early Abbasid period.

Supplementing these primary source accounts, quantitative analysis of global historical population estimates produced by statistical demographers remains another frontier of research on Medieval Islamic demographic and economic history. While the application of these datasets to the question of Near Eastern urban demographic trends during the Medieval period has been recently examined by Tariq Madani (2019),⁷ on the whole, demographic-statistical approaches to Medieval Islamic demographic history remain an under-examined avenue of research. In this article, historical population figures for the Near East published by the *Institut national d'études démographiques* serve as a data source for quantitative analysis of the demographic trajectory of Iraq during the Abbasid period.⁸

BACKGROUND

PRIOR TO UNDERTAKING an examination of these demographic and economic trends, it is necessary to briefly take stock of the scope and scale of Iraq's urban development by the middle of the ninth century, the period generally agreed to be the high-water mark of Iraq's medieval urbanism.⁹

Recent population distribution estimates for the Near East during the eighth and ninth centuries have substantiated the remarkable degree of urban development captured in literary sources from the period. Drawing chiefly from archaeological data and statistical inference, Pamuk and Shatzmiller (2014) estimated that the rate of urbanization in Iraq during the early Abbasid period was around 20%, with roughly 1 in 5 Iraqis living in cities during the early to mid-ninth century.¹⁰ This exceptionally high degree of urbanization in Early Medieval Iraq is

5 For an assessment of the authorship of the *Zuqnin Chronicle* see Amir Harrak "Identity of Chronicler" in *The Chronicle of Zuqnin, Parts III and IV: A.D. 488-775* (Toronto: Pontifical Institute of Mediaeval Studies, 1999), 4-8.

6 Michael G. Morony, "Michael the Syrian as a Source for Economic History," *Hugoye* 3, no. 1 (2010): 141-172.

7 Tariq Madani, "The Historian and Quantitative Approaches: Demographic Studies of Islamic Cities," *Al-Muntaqa* 2, no. 1 (2019): 27-29.

8 For a review of the methodology used to construct these estimated figures see Madani, *The Historian and Quantitative Approaches*.

9 Most secondary sources agree that by the 10th century Iraq had entered into a period of protracted de-urbanization which would continue into the modern period, placing the peak period of medieval urbanization in Iraq around the middle of the ninth century. See Ashtor, *A Social and Economic History*, 170-172.

10 Şevket Pamuk and Maya Shatzmiller, "Plagues, Wages, and Economic Change in the Islamic Middle East, 700-1500," *The Journal of Economic*

placed in stark relief by the rate of urbanization estimated in other parts of the world during the Medieval period. Paul Bairoch (1988) estimated that the rate of urbanization in eleventh century China during the height of Song period was at most 14%,¹¹ while Europe during the apogee of Medieval development in the thirteenth century never exceeded an estimated average urbanization rate of 10%.¹²

This very high rate of urbanization present in eighth and ninth century Iraq is made all the more remarkable considering the extant state of urban development in Iraq during the period immediately preceding Baghdad's foundation by the Abbasid Caliph Abu Ja'far al-Mansur in 762 CE. Quantitative population estimates for the Near East during the late pre-Islamic and early Islamic period generally argue for widespread demographic decline in the region coextensive with broader population reductions across the Mediterranean world during the late-Antiquity period of de-urbanization.¹³ This demographic data is reified by archaeological analysis, which also points towards a period of general decline in Byzantine and Sasanian urbanization in Mesopotamia during the period immediately preceding the Islamic era.¹⁴ As a result, when the Abbasids ascended to power in the mid-eighth century they inherited a post-Classical, Early Medieval ecumene of relatively diminished urbanization and agrarian production in their Lower Mesopotamian heartland.

That the Abbasids were not only able to reverse this trend towards de-urbanization but also able to achieve an unparalleled level of urban development in a very short timeframe is highlighted by a description of Baghdad during the closing years of al-Mansur's reign, less than 15 years following the city's foundation, which is recorded by Wāḍiḥ al-Ya'qūbī:

*The lanes and streets were counted, and there were six-thousand of them. There were thirty thousand mosques, apart from those constructed later. The public baths were counted and numbered ten thousand, not including those built later.*¹⁵

While this passage hints at a very large population for Baghdad in the decades following its establishment, the specific population of Abbasid Baghdad during the height of its development in the ninth century has been hotly contested. Jacob Lassner (1970), in consultation with both primary source accounts and archaeological data, provided an upper estimate of 500,000 and a lower estimate of 280,000 for Baghdad's early ninth century population.¹⁶ Lassner's upper estimate has generally been the figure preferred in recent scholarship on Abbasid social and demographic history¹⁷ and will on that basis be the urban population figure privileged here. However, it bears mention that specific estimates of the population of Baghdad at the apex of its Medieval development are highly speculative, ranging widely from upper estimates of over 1 million to lower estimates of less than 100,000.

DEMOGRAPHY

THREE QUESTIONS WILL be posed to frame this examination of the trends of Abbasid demographic history which facilitated urbanization in Iraq during the eighth and ninth centuries: (a) Did the urban population of Iraq primarily grow as the result of rural-to-urban migration or through elevated urban fertility rates? (b) Was Iraq's rapid urbanization during the late eighth and early ninth centuries coextensive with broader regional demographic growth? and (c) Was there a differential pattern of growth in Iraq relative to other regions of the Abbasid caliphate during this period?

History 74, no. 1 (2014): 214.

11 Bairoch, *Cities and Economic Development*, 353.

12 Bairoch, *Cities and Economic Development*, 137.

13 Madani, *The Historian and Quantitative Approaches*, 27.

14 Eliyahu Ashtor, *A Social and Economic History of the Near East in the Middle Ages* (Berkeley: University of California Press, 1976), 16-17.

15 Aḥmad ibn Abī Ya'qūb Ya'qūbī, *The Works of Ibn Wāḍiḥ Al-Ya'qūbī*, 83.

16 Jacob Lassner, *The Topography of Baghdad in the Early Middle Ages: Text and Studies* (Detroit: Wayne State University Press, 1970), 157-158.

17 The figure of 500,000 for Baghdad's ninth century population has been the basis of research conducted by Pamuk and Shatzmiller (2014), Hugh Kennedy (2011), and Eliyahu Ashtor (1976) among others.

(a) Did the urban population of Iraq primarily grow as the result of rural-to-urban migration or through elevated urban fertility rates?

Determining whether the growth of Iraq's urban population during the early Abbasid period was primarily the result of rural-to-urban migration or the result of endogenous urban population growth through above-replacement fertility levels is crucial to understanding where the hundreds of thousands of people who populated Baghdad at its Medieval height came from.

Estimated fertility rates for urban Iraq during the Abbasid period trend towards relatively low figures, with an average household size of four in late-eighth century Baghdad suggesting fertility rates that hovered around replacement level.¹⁸ Indications of an urban mortality rate which exceeded this rate of fertility can be teased out of sources from the period which document repeated outbreaks of disease in Baghdad throughout the early Abbasid period.¹⁹ While it is likely that some of the population growth which Baghdad underwent in the eighth and ninth centuries was the result of urban childbirth, the available urban fertility rate data from the period, weighed alongside the general demographic phenomenon of high urban mortality for cities in the Medieval era,²⁰ indicate that the expansive urban population growth of Iraq in the early Abbasid period was most likely the result of rural-to-urban migration from surrounding areas, rather than autochthonous urban childbirth.

Indirect evidence that urban Iraq in the early Abbasid period grew via rural-to-urban migration is available through archaeological data. Relevant archaeological data from Iraq dating to the early Abbasid period has indicated that the growth of large urban centers in Iraq was accompanied by a corresponding decline in the size of smaller market towns and rural communities throughout Mesopotamia. While Baghdad at its peak in the ninth century covered a geographic area which was more than ten times

the size of the preceding Sasanian capital of Ctesiphon, upon whose foundations Baghdad was built, Abbasid-era rural settlements and smaller market towns across Mesopotamia saw a decline in their total hectareage relative to the Sasanian period.²¹ Small market towns, which covered an area of 599 hectares in Mesopotamia during the Sasanian period, by the early Abbasid period had declined in area by 43% to cover only 344 hectares. Similarly, larger non-urban market settlements in Mesopotamia during the Sasanian period covered roughly 1,244 hectares, while by the early Abbasid period these larger non-urban areas of settlement declined by 41% to cover only 730 hectares.²²

This archaeological evidence of a pattern of rural-to-urban migration in Iraq around the time of Baghdad's foundation and initial growth is corroborated by primary source accounts of fugitive taxes introduced by Abbasid authorities in the late eighth century to tax the internal migration of non-Muslim *dhimmi* landless labourers.²³ The *Zuqin Chronicle* specifically references a practice whereby agents of the caliph would enter cities in Lower and Upper Mesopotamia to round up *dhimmi* migrant labourers and extract from them a particular form of poll tax levied against rural-to-urban migrants.²⁴ These migrants were likely enticed by the demonstrably higher wages for unskilled labour in urban areas of Iraq²⁵ and moved en masse to urban areas even in the face of efforts to discourage this migration. As a result, there is compelling evidence to make the claim that large urban areas of Iraq in the early Abbasid period grew at the expense of rural populations through a process of large-scale rural-to-urban migration, rather than through urban childbirth.

(b) Was Iraq's rapid urbanization in the late 8th and early 9th century coextensive with broader regional demographic growth?

Having established that the urban population of Abbasid Iraq most likely grew through a pattern of

18 Ashtor, *A Social and Economic History*, 205.

19 Ashtor, *A Social and Economic History*, 170.

20 Robert Archey Woods, "Urban-rural mortality differentials: an unresolved debate," *Population and Development Review* 29, no. 1 (2003), 29.

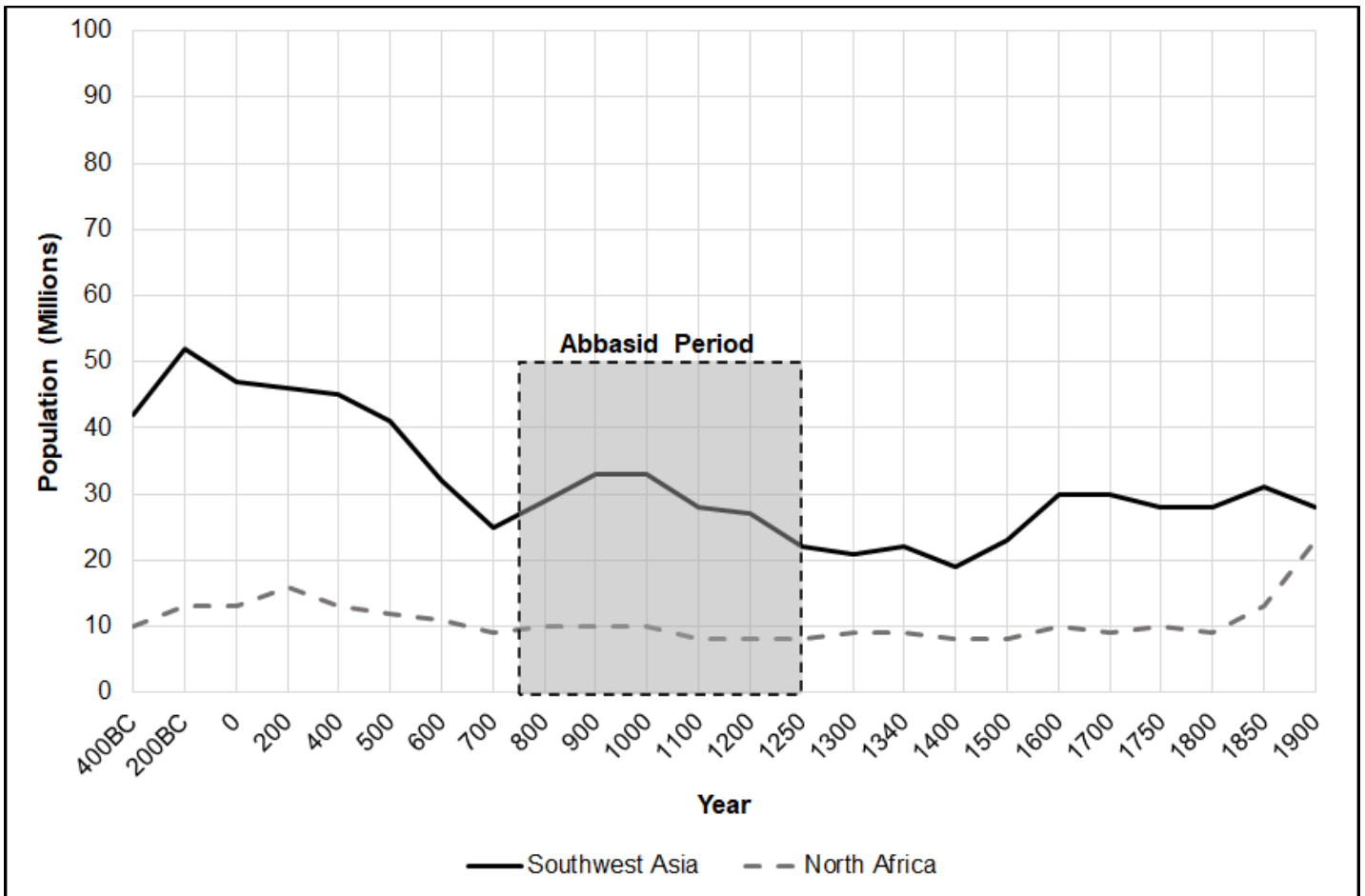
21 Ashtor, *A Social and Economic History*, 90.

22 Calculations based on figures presented in Table 19 of Robert Adams, *Land Behind Baghdad: A History of Settlement on the Diyala Plains* (Chicago and London: University of Chicago Press, 1965), 72.

23 Ashtor, *A Social and Economic History*, 40.

24 Harrak, *Zuqin Chronicle*, 237, 258.

25 Eliyahu Ashtor, "Histoire Des Prix et Des Salaires Dans l'orient Medieval," *The American Historical Review* 75, no. 7, (1970): 64.



Estimated Population of Southwest Asia and North Africa from the early Classical period to the 20th century. [Fig 1.1]

rural-to-urban migration from surrounding regions, it is important to determine whether this population migration occurred within the context of broader demographic growth. If Baghdad’s population grew alongside broader regional demographic expansion, then the growth of the urban population in Iraq during this period can be considered to be at least partially a corollary of overall demographic expansionary trends.²⁶ If there was no such broader regional demographic expansion, then additional factors must be considered to account for the eighth and ninth century growth of Iraq’s urban population.

Conventional demographic models for the Near East during the early Islamic period have argued for widespread population declines prior to the eighth century, with population growth trends only beginning to emerge in the early to mid-eighth century.²⁷ This is the demographic trajectory influentially detailed by Eliyahu Ashtor (1976),

who, drawing on analysis of primary literary sources and historical commodities price data, concluded that all areas of the Near East experienced population decline between the fifth and eighth centuries as part of broader post-Antiquity population declines across West Asia.²⁸ Demographic growth trends re-emerged in the region roughly concurrent with the start of the Abbasid period.²⁹

More recent quantitative work undertaken by Tariq Madani (2019) has produced data that has complicated the conventional model of demographic growth in the Near East during the Abbasid period. Madani, in a quantitative analysis drawn principally from statistical-demographic figures compiled by Jean-Noël Biraben, made the case for overall demographic decline in the Near East during much of the Pre-Modern Islamic period, declines which saw net negative population growth during the Abbasid period.³⁰

²⁶ For an examination of the correlative growth trend between regional populations and the urban centers of those regions see Bairoch (1988), 185.

²⁷ See Ashtor (1976), Pamuk and Shatzmiller (2014), Adams (1965), Watson (1974).

²⁸ Ashtor, *A Social and Economic History*, 86-92.

²⁹ Ashtor, *A Social and Economic History*, 92.

³⁰ Madani, *The Historian and Quantitative Approaches*, 27-28.

Despite this projected net negative demographic growth trend in the Near East throughout the Abbasid period, the population estimates made by both Madani and Biraben present a notable discontinuity coextensive with the earliest portion of the Abbasid period. To highlight this discontinuity, the specific trajectory of demographic growth in the Near East between the Classical and Modern periods has been charted in Fig. 1.1 utilizing numeric figures published by the *Institut national d'études démographiques in Démographie: Analyse et synthèse Tome V*.³¹

Examining the population growth trajectory of the Near East presented in Fig. 1.1, it is apparent that the claims made by Madani arguing for pervasive demographic declines throughout the pre-Modern Islamic period and the claims made by Ashtor and others arguing for demographic growth during the early Abbasid period can be synthesized. The overall trend presented in the population estimates charted in Fig. 1.1 point towards chronically depressed population levels in the Near East throughout the pre-Modern Islamic period when compared to the preceding period of Classical Greco-Roman and Persian urbanism extant prior to the fifth century. However, a notable disruption to this trend of net negative growth is observable starting around the turn of the eighth century, with a trend of net positive population growth present in the region between the eighth and tenth centuries. In the eighth century alone, the population of Southwest Asia, defined in this dataset as corresponding to Mesopotamia, the Levant, and eastern Anatolia, is estimated to have grown by ~16% in a significant reversal of post-Antiquity population declines throughout the region. This interceding period of population growth in the Near East, which at its broadest extent encompassed the early-to-mid eighth century to the middle of the tenth century, was concurrent with the period in which the great cities of Abbasid Iraq were founded and grew to become metropolitan population centers. Net negative population growth trends re-emerge around the middle of the tenth century with the permanent decline of Abbasid power and the onset of prolonged de-urbanization in Iraq.³²

Primary literary sources from the eighth to tenth centuries appear to corroborate the projected population trends charted in Fig. 1.1. Specific references to growing populations in the Near East beginning in the eighth century can be found in several literary sources. An early reference to this trend appears in the *Zuqūn Chronicle*, which records that in the year 786 AD, Caliph al-Mansur took personal notice that the population of Upper Mesopotamia appeared much larger than expected and as a result ordered a new assessment of the taxes levied on the region.³³ Elsewhere, Ibn Khordadbeh records the densely settled nature of the *Sawād* region of Iraq during the mid-ninth century in the *Kitāb al-Masālik wa'l-Mamālik* by documenting numerous new suburban settlements in Baghdad's hinterland founded in the two centuries following the Islamic conquest of Iraq, indicating substantial urban population growth throughout the eighth and ninth centuries.³⁴

As a result of this analysis, there is evidence to provide a tentative answer to the question posed at the start of this section. The period in which urbanization rates in Iraq reached or exceeded 20% coincided with a brief period of regional population growth which temporarily reversed the post-Classical to pre-Modern trend of net negative demographic growth in the Near East. That the city of Baghdad grew alongside an expanding regional population provides an invaluable line of evidence to understand why Abbasid urban civilization emerged when and where it did.

(c) Did the population of Iraq grow differentially to other regions of the Abbasid caliphate during the 8th and 9th centuries?

At its Medieval height, Baghdad's population exceeded that of all other cities in the Abbasid caliphate.³⁵ Establishing whether Iraq experienced greater demographic growth than other similarly urbanized regions of the Abbasid caliphate is crucial to understanding why the population of Iraq's Medieval cities great-

31 Demographic estimates drawn from Jean-Noël Biraben, "L'histoire du peuplement humain des origines à nos jours" in *Démographie: analyse et synthèse. Tome 5*, ed. Caselli et al (Paris: Institut national d'études démographiques, 2001), 9-31.

32 Ashtor, *A Social and Economic History*, 92.

33 *The Chronicle of Zuqūn, Parts III and IV: A.D. 488-775*, trans. Amir Harrak (Toronto: Pontifical Institute of Mediaeval Studies, 1999), 234.

34 Ibn Khordadbeh, *Kitāb al-Masālik wa'l-Mamālik*, trans. C. Barbier de Meynard (Paris: Société Asiatique, 1865), 241.

35 Ashtor, *A Social and Economic History*, 89.

ly outstripped those of other densely settled areas of the Abbasid caliphate. If Iraq's net population growth in the early Abbasid period outpaced population growth of neighboring regions, then the disproportionate growth of urban areas in Iraq can be partially explained by differential demographic growth patterns between Iraq and other areas of the Abbasid caliphate.

While Fig. 1.1 tentatively indicates a trend of population growth in Southwest Asia in the eighth and ninth centuries which did not occur simultaneously in North Africa, the next most densely settled and urbanized area of the Abbasid state, this differential regional growth trend can be further demonstrated through a comparative analysis of wage data from Iraq and Egypt.

Assuming that population growth will typically generate deflationary pressure on wages as a result of increases in the supply of labour,³⁶ trends in wage growth between regions of the Abbasid caliphate can be used to indirectly estimate the population growth trajectories of these regions. Wages for unskilled labour are utilized here, as the impacts of demographic changes on wage rates is felt most acutely in the subsistence-level wages paid to unskilled labourers.³⁷ As historical wage data from the Abbasid period is fragmentary, this comparative analysis will be limited to the urban areas of Iraq and Egypt between the eighth-thirteenth centuries using figures drawn from primary data compiled by Shatzmiller and Pamuk (2014) from the *Cairo Geniza* for Egyptian data and from al-Ṭabari's *Tarikh* for Iraqi data.³⁸ Wages here are denoted in *dinars*, a standardized gold currency issued by dynasties across the Medieval Islamic world which was worth approximately one month's subsistence for a family of four.³⁹

Fig. 1.2 demonstrates the growth in wages for unskilled labourers in Egypt and Iraq during the Abbasid period. Notable here is that wages remained depressed in Iraq relative to Egypt during the entirety of the Abbasid period, indicating consistently higher demand for unskilled labour in Egypt compared to Iraq despite the demonstrably higher level of urban, agricultural, and infrastructural development in Iraq.

Comparing Fig. 1.1 with Fig 1.2, it is observable that the period in which wages in Iraq remained the most

depressed relative to Egypt was coextensive with the period in which population growth in Southwest Asia far outstripped that of North Africa. The ratio of subsistence wages between Egypt and Iraq around the time of Baghdad's foundation in AD 762 was roughly 3:1, meaning the average Egyptian unskilled labourer earned roughly three times that of an Iraqi unskilled labourer during this period, even as the value of the *dinar* remained commensurate between the two regions. In the mid-ninth century, during the height of Iraq's Abbasid-era urban development, this ratio stood at 2:1. Only in the mid-tenth century, following the onset of de-urbanization in Iraq, did the ratio in wages between Egypt and Iraq begin to equalize and approach 1:1. While numerous factors likely contributed to the differential growth in wages observed between Egypt and Iraq in this period, the consistently depressed wages in Iraq relative to Egypt are strongly indicative of an overall lower supply of unskilled labourers in Egypt due to lower population levels and slower population growth. Piecing these lines of demographic evidence together, the claim that Iraq in the early Abbasid period experienced population growth which outstripped that of other urbanized regions of the Abbasid caliphate becomes tenable.

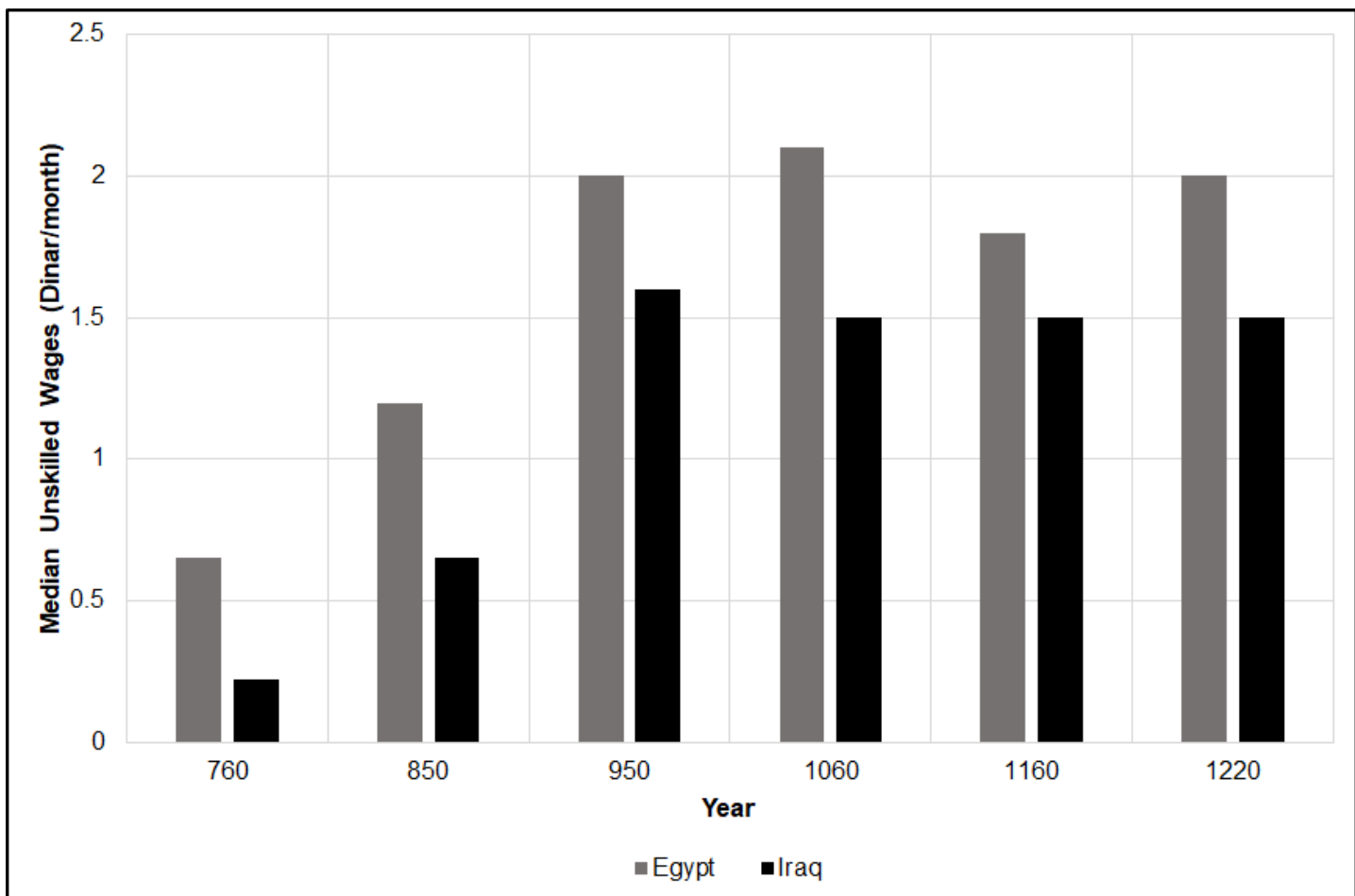
In summary, it has been demonstrated that the cities of Abbasid Iraq grew alongside a total expansion in the population of Southwest Asia. As a result, the tremendous growth of urban areas in Iraq during the eighth and ninth centuries can be considered to be at least partially an extension of broader regional demographic growth. Further, analysis of subsistence wage rates between Iraq and Egypt during this period suggests that population growth in Iraq outstripped that of the second-most urbanized area of the Abbasid caliphate, indicating that the demographic expansion Iraq underwent during the Early Medieval period was not local to all areas of the Abbasid caliphate. Specifically driving urbanization rates in Iraq during this period was a demonstrable pattern of mass rural-to-urban migration, a phenomenon highlighted extensively in both literary and archeological sources. Each of these factors explains, in part, why the population of Iraq's cities grew to such large proportions so rapidly during the early Abbasid

36 As documented specifically for the Medieval Near East by Pamuk and Shatzmiller, *Plagues, Wages, and Economic Change*, 208.

37 This is the group most likely to see falling demand and eroding earnings with population expansion. Pamuk and Shatzmiller, *Plagues, Wages, and Economic Change*, 197-198.

38 Numeric values from tables 1 & 2 in Pamuk and Shatzmiller, *Plagues, Wages, and Economic Change*, 200-202.

39 Pamuk and Shatzmiller, *Plagues, Wages, and Economic Change*, 205, 208.



Estimated Median Monthly Wages for Unskilled Labour in Egypt and Iraq during the Abbasid period. [Fig 1.2]

period. What remains to be examined is how this large urban population was able to not only sustain themselves outside of the rural agrarian economy, but able to thrive and achieve a relatively high degree of affluence.

of liquidity within the Abbasid urban economy, allowing growing numbers of urban residents to purchase their subsistence from their cash wages, and (c) The development of urban factor markets, which generated thriving non-agrarian economic sectors capable of supporting a large urban population not engaged in agriculture.

ECONOMY

IN ARRIVING AT an account of the factors which facilitated the emergence of an urban economy in Abbasid Iraq that sustained the livelihood of a half million urban residents in the ninth century, three trends emerge as preeminent: (a) The expansion of agricultural capacity, which allowed for a large non-agrarian urban population to be fed, (b) The expansion of the money supply in the Abbasid caliphate during the eighth century, which generated a high level

(a) Growth of Agricultural Production

One of the most remarkable implications of a 20% rate of urbanization in Iraq during the ninth century is that this urban-to-rural demographic distribution suggests that a very large surplus of agricultural produce was available to feed a large urban population not engaged in subsistence agriculture. With an estimated minimum staple grain consumption of 300kg/per capita annually in Iraq during the early Abbasid period⁴⁰ and an estimated

⁴⁰ Pamuk and Shatzmiller, *Plagues, Wages, and Economic Change*, 205.

population of 500,000, the city of Baghdad alone would have required a minimum of 150,000,000 kilograms of staple grain per annum to feed its population at a subsistence level in the early ninth century. Furthermore, rather than merely subsisting, primary source data has indicated that the urban population of Iraq in the early Abbasid period enjoyed a rich and varied diet of fruits, vegetables, spices, and meats, which were available to broad segments of the urban population.⁴¹ Consequently, in accounting for the rapid growth of urban populations in Iraq during the early Abbasid period, it is necessary to take stock of how these populations were fed at a level well above subsistence.

The primary way in which agricultural capacity increased in Iraq during the early Abbasid period was through the adoption of a 24-month, four crop rotation with summer and winter planting seasons in substitution of the traditional di-annual, winter-only two crop rotation of the preceding Sasanian period.⁴² The adoption of this crop rotation methodology meant that the same plot of land could be planted and harvested twice as frequently as before, a change which nearly doubled annual per-unit agricultural yields.⁴³ Allowing for the adoption of a summer planting season in Mesopotamia was the diffusion of key new staple crops from South Asia into the Near East following the expansion of Islam into South Asia during the Umayyad period.⁴⁴ The widespread adoption of the heat-tolerant, summer-planted Durum wheat (*Triticum durum*) and Asiatic rice (*Oryza sativa*) in the Near East during the Umayyad period, in addition to the traditional winter-planted staple crops of Mesopotamia, allowed for the opening of a virtually new planting season in Iraq.⁴⁵

The impacts this novel form of crop rotation had on agricultural productivity in the Near Eastern Islamic world was initially proposed by Andrew M. Watson (1974), who termed the phenomenon the “Arab Agricultural Revolution.” Watson credited this

“revolution” in agricultural production with many of the demographic growth trends observed in the Near East during the early Abbasid period.⁴⁶ While the historically specific mechanisms for per-unit agricultural yield increases in the Near East during the eighth century, and the role played by crops introduced during the Islamic conquest period, remain the topic of longstanding scholarly debate,⁴⁷ literary sources from the period corroborate the theory that there were significant innovations in agricultural practices in the eighth century which resulted in substantial increases in food surplus in Mesopotamia. The *Zuqnin Chronicle* records the following on Upper Mesopotamia in its entry for the year AD 768:

“The price of everything was very moderate: one zuz for thirty qefiz of wheat, forty vessels of wine and eight litra of oil. The land was rich in vineyards and cultivated fields; cattle was like sand.”⁴⁸

As suggested in the above quote, one of the most clearly documentable impacts of these agricultural innovations was a precipitous fall in the price of staple agricultural commodities in Iraq throughout the eighth century as expanding supply more than exceeded the needs of growing demand.⁴⁹ Recorded annually by the *Zuqnin Chronicle*, between the years 768 and 772 the price of wheat in Mesopotamia fell by an astonishing 78% in only four years.⁵⁰ That wheat prices reached record low levels within a decade of Baghdad’s foundation in AD 762 indicates that agricultural production in this period was more than sufficient to feed a rapidly growing population of individuals leaving subsistence agriculture and migrating to urban centers.

While agricultural prices would inflate throughout the latter half of the ninth century with

41 Ahmad ibn Abī Ya’qūb Ya’qūbī, *The Works of Ibn Wāḍih Al-Ya’qūbī*, 97.

42 Andrew M. Watson, “The Arab Agricultural Revolution and Its Diffusion, 700-1100.” *The Journal of Economic History* 34, no. 1 (1974): 11.

43 Watson, *The Arab Agricultural Revolution and Its Diffusion*, 10-12.

44 Watson, *The Arab Agricultural Revolution and Its Diffusion*, 9.

45 Watson, *The Arab Agricultural Revolution and Its Diffusion*, 10-12.

46 Watson, *The Arab Agricultural Revolution and Its Diffusion*, 17.

47 For a review of these debates see Michael Decker, “Plants and Progress: Rethinking the Islamic Agricultural Revolution,” *Journal of World History* 20, no. 2 (2009): 187-206.

48 Harrak, *Zuqnin Chronicle*, 223.

49 Watson, *The Arab Agricultural Revolution and Its Diffusion*, 42-43.

50 The *Zuqnin Chronicle* records that in AD 769 the price of wheat in Lower Mesopotamia was 1 *dinar* for 40 *jarib* of wheat, which converted to metric measurements equals 0.125 *dinars* for 100kg of wheat. By AD 772, the *Zuqnin Chronicle* records the price of wheat as 0.027 *dinar* for 100kg. Harrak, *Zuqnin Chronicle*, 223 and 245.

the decline of Abbasid authority and the rise of regional conflicts in Iraq that disrupted agricultural production and exchange,⁵¹ in the crucial early decades of the Abbasid caliphate—the years in which urbanization rates skyrocketed and urban development reached its apex—there were substantial declines in the price of staple grains. That grain prices declined even amid a documentable increase in demand from population growth and urbanization indicates that revolutionary innovations in agriculture were likely introduced in Iraq in the eighth century which facilitated the feeding of hundreds of thousands of urban residents.

(b) Monetary Expansion

This tremendous increase in agricultural produce available to urban populations for low-cost cash purchase would not have been scalable without a corresponding expansion in the money supply of Abbasid society. Primary sources from the early ninth century indicate that an incredible degree of fiscal liquidity was present in the Abbasid caliphate during the height of its power, as is demonstrated in the following anecdote about Abbasid Caliph al-Ma'mun's financial generosity recorded by Ibn Wāḍiḥ al-Ya'qūbī:

“As for his generosity and open-handedness: On a single day he ordered that 1,500,000 dinars should be given to three individuals – 500,000 dinars to each. Once, when money ran short in the treasury, he assembled his companions and said: “The money has run short, and that has harmed us and our friends. Go and get us a loan from the merchants in the amount of 10 million dirhams until the revenues come in and we repay.” But Ghassān b. ‘Abbād stood up, recounted the favours al-Ma’mūn had bestowed on him, and offered 30 million dirhams, saying, “I have them on hand.” Humayd b. ‘Abd al-Ḥamid al-Ṭūsī said the same, and each of his companions present at the gathering stood up and offered what he had, until what they offered him amounted to 156 million dirhams. He accepted nothing from any of them and rewarded them well.”⁵²

51 Ashtor, *A Social and Economic History*, 168-173.

52 Aḥmad ibn Abī Ya'qūb Ya'qūbī, *The Works of Ibn Wāḍiḥ Al-Ya'qūbī*, 53-54.

53 Aḥmad ibn Abī Ya'qūb Ya'qūbī, *The Works of Ibn Wāḍiḥ Al-Ya'qūbī*, 215.

54 Aḥmad ibn Abī Ya'qūb Ya'qūbī, *The Works of Ibn Wāḍiḥ Al-Ya'qūbī*, 50.

55 0.125 dinars in AD 772 as documented by the *Zuqnin Chronicle*.

56 Tayeb el-Hibri, “Coinage Reform under the ‘Abbāsīd Caliph Al-Ma’mūn,” *Journal of the Economic and Social History of the Orient* 36, no. 1 (1993): 58-83.

While these figures recounted by al-Ya'qūbī are certainly highly exaggerated, the fact that an individual in the early ninth century could even conceive of such a figure as “156 million dirhams” indicates the degree to which the money supply had expanded in the eighth and ninth centuries. Elsewhere, al-Ya'qūbī records more pedestrian cash exchanges which hint at the highly liquid nature of capital in the Abbasid caliphate: Aḥmad b. Abī Du'ād, a high ranking *qadi* in the court of al-Ma'mun, is recorded as delivering 500,000 *dinars* on behalf of the caliph to merchants in Baghdad who had been afflicted by a fire,⁵³ while the extravagance of princess Zubaidah bint Ja'far during the reign of Harun al-Rashid is highlighted through the recorded purchase of a dress that purportedly cost 50,000 *dinars*.⁵⁴

A few simple calculations further demonstrate that the volume of currency in circulation in urban Iraq during the early ninth century must have been staggering. Taking the figure produced earlier of 150,000,000 kg of wheat per annum to sustain the population of early ninth century Baghdad at a subsistence level and using the lowest recorded price per 100 kilogram of wheat recorded by the *Zuqnin Chronicle*,⁵⁵ Baghdadis in the early Abbasid period would have collectively needed a minimum of 187,500 physical *dinar* coins in circulation simply to purchase staple grains at a subsistence level. As the primary source accounts from al-Ya'qūbī and others indicate, the Iraqi urban economy of the late eighth and early ninth centuries both functioned at a level well above subsistence, and transacted chiefly in cash. Correspondingly, the urban economy of Early Medieval Iraq must have maintained exceptionally high levels of fiscal liquidity.

This expansion of liquidity was the result of numerous factors, including currency reforms undertaken by Caliph al-Ma'mun in the early ninth century subsequent to the onset of mass urbanization.⁵⁶ However, in the period immediately preceding the onset of mass urbanization in Iraq, one key factor emerged which significantly facilitated monetary expansion: the opening of new Trans-Saharan trade routes which provided

Umayyad, and subsequently Abbasid, administrators with a sufficient precious metal supply to mint high volumes of coinage.

The economic importance of the growth of the precious metals supply in the Near East during the eighth century cannot be overstated. Returning to the figure produced above of 187,500 gold *dinars* per annum needed to support Abbasid Baghdad at a subsistence level, this volume of coinage would have equaled roughly 629 kilograms of pure gold.⁵⁷ As the Abbasid economy, like nearly all pre-modern economies, never adopted any form of fiat currency, expansion of the money supply was limited by available supplies of precious metals required to mint new coinage. Growth in the Abbasid money supply, then, was directly tied to access to raw precious metals.

The supply of raw gold in the Near East experienced a boom around the year AD 700 with the opening of new trade routes linking the gold producing regions of the West African interior with Islamic North Africa. Monetary expansion during the earlier portions of the Islamic period in the Near East was largely confined to the melting down of gold confiscated during the Islamic conquest of the region, and the re-minting of pre-existing Byzantine and Sasanian coinage. The creation of new trade links between Sub-Saharan Africa and the Near East as a result of Islamic expansion in Africa expanded the precious metal supply in the Near East such that by the eighth century the Umayyad caliphate was able to mint and issue from scratch a new gold standard currency, the *dinar*, a coin equivalent to 10 silver *dirhams*.⁵⁸

The sheer richness of the precious metals entering the Islamic world via Trans-Saharan trade routes is captured eloquently by al-Ya'qūbī's description of the Saharan trade post of Sijilmāsa during the early Abbasid period:

*"There are mines of gold and silver, which can be found on the surface like plants: it is said that the winds blow it about."*⁵⁹

This monetary expansion in the Near East during the Umayyad period in part precipitated the initial emergence of the first Islamic metropolises of Iraq, with the rise of Basra and Kufah as major urban centers occurring roughly contemporaneously with the introduction of the *dinar* in the early eighth century. These early Arab urban centers of Iraq were founded initially as military colonies that housed large retinues of soldiers who were paid cash salaries.⁶⁰ From the very beginning, these urban areas were highly dependent on cash purchases of imported food to meet the needs of their largely non-agricultural, wage-earning populations. Accordingly, expansions in the supply of money would have had a profound effect on facilitating the exchange of agricultural produce between agrarian producers and non-agrarian urban markets.⁶¹ That large-scale urbanization only began to occur in the Islamic Near East following the introduction of the *dinar* points to the important part this monetary expansion played in the urban development of Iraq during the eighth and ninth centuries.

(c) The Development of the Urban Factor Economy

The expansion of the available money supply in the Abbasid caliphate would not have had a marked effect on urban growth without some means for urban residents to earn remunerative cash wages within the urban economy. The urban factor markets which emerged alongside the foundation and growth of Abbasid Iraq's cities also required processes to maintain capital inflows in order to to expand these markets to accommodate a growing urban population, particularly as food importation into urban areas generated substantial capital outflows. Literary sources from this period paint a vivid picture of a specialized and vibrant urban economy in Iraq during the Abbasid period. Comparative analysis of relevant primary sources from the eighth to eleventh centuries highlighting the tremendous degree of labour specialization present

57 This calculation uses the lower bound of 96% estimated average gold purity for the *dinar* in the late eighth century, as calculated by Tayeb el-Hibri in "Coinage Reform under the 'Abbāsīd Caliph Al-Ma'mūn," *Journal of the Economic and Social History of the Orient* 36, no. 1 (1993): 58-83. The weight of the late eighth century *dinar* is taken from the average weight in grams of 12 *dinars* minted during the reigns of al-Mansur, al-Mahdi, and al-Rashid as compiled by Robert W. Hoge in "A Parcel of Mainly 'Abbāsīd Gold Coins," *The Numismatic Chronicle* 157 (1997): 239-47.

58 Ashtor, *A Social and Economic History*, pp. 80, 84.

59 Aḥmad ibn Abī Ya'qūb Ya'qūbī, *The Works of Ibn Wāḍih Al-Ya'qūbī*, 198.

60 Hugh Kennedy, "The Feeding of the Five Hundred Thousand: Cities and Agriculture in Early Islamic Mesopotamia," *Iraq* 73 (2011): 182.

61 Kennedy, *The Feeding of the Five Hundred Thousand*, 181.

in Medieval Iraq records no fewer than 659 distinct professions extant in Baghdad during the whole of the Abbasid period.⁶² The complex specialization of Baghdad's workforce in the early ninth century is highlighted in the following passage from al-Ya'qūbi's *Geography* describing the main commercial market of al-Karkh:

*"There are particular streets for every type of merchant and trade. There are rows of shops and lots in these streets; one group of people and type of commerce never mixes with another, no type of goods is sold with another, and the practitioners of one occupation do not mix with other sorts of artisans. Each market is separate, and all the people are engaged only in their particular type of commerce. The people of each occupation are segregated from those of other groups."*⁶³

That the urban economy of Abbasid Iraq transacted chiefly in cash, with prices set by market competition, is indicated by the documentary record of private bills of sale and lines of credit which survive from this period. These sources provide evidence that commercial transactions in urban Iraq during the Abbasid period were highly financialized, with prices determined by agreement between largely freely contracting agents.⁶⁴ Governmental intervention in commodities pricing appears also to have been limited, with al-Ṭabari recording that, while the Abbasid Caliphs during the eighth and ninth centuries were informed of the prices of staple goods, they did not as a matter of course intervene in the market to prescribe prices during periods of inflation.⁶⁵ Furthermore, in addition to the commercial system transacting in cash, the majority of labourers in urban Iraq during the early Abbasid period were freely contracting wage workers remunerated in cash wages.⁶⁶ The following anecdote from Caliph al-Mu'tasim's vizier, Al-Fadl ibn Marwan, about his own wage negotiations during his adolescence provides an anecdotal example of the system of cash-based wage contracting employed in Baghdad during the early ninth century:

*"In my early days during the reign of [Caliph Harun al-Rashid], I was kitchen steward to Harthama b. Ayam, a miserly man, who had a eunuch who inspected his kitchen. He gave me fifteen dirhams a month as pay, and a ration of bread. One day he said to me: You have earned an increase and how much would you like it to be? I said: At least ten dirhams. That, he said, is a lot of money; let us say four dirhams."*⁶⁷

There is then compelling evidence from the sources that survive from this period to make the claim that the growth in urbanization in Iraq during the early Abbasid period was accompanied by the emergence of a highly financialized urban economy that both transacted and remunerated in cash, with prices set by market competition rather than governmental prescription. This system of factor allocation furnished urban residents in Iraq with the cash wages necessary to purchase their subsistence within the context of a highly commercialized market for staple agricultural commodities.

This cash-based, non-agrarian urban economy required export markets outside of Baghdad in order to generate the capital inflows into Iraq's urban markets that would have been necessary to expand these markets to accommodate the rapidly growing number of non-agrarian workers migrating to Iraq's cities.

That urban finished-goods producers in early Abbasid Iraq found markets both within the Abbasid caliphate and further afield in the Indian subcontinent and Europe is well documented by both archaeological and primary literary source data from the period. Literary sources record that merchants from regions as distant as the Baltic Sea region traveled to Baghdad to purchase finished goods,⁶⁸ while archaeological finds of hoards of Islamic coinage dating from the eighth to tenth centuries across Eastern Europe, Scandinavia, and the Carolingian states provide compelling evidence of

62 Maya Shatzmiller, *Labour in the Medieval Islamic World* (Leiden: E.J. Brill, 1994), 172.

63 Aḥmad ibn Abī Ya'qūb Ya'qūbī, *The Works of Ibn Wāḍih Al-Ya'qūbī*, 79.

64 Van Bavel et al, *Factor Markets in Early Islamic Iraq*, 278-279.

65 al-Ṭabari, *The History of al-Ṭabari Vol. 28: Abbasid Authority Affirmed: The Early Years of al-Mansur A.D. 753-763/A.H. 136-145*, Trans. Franz Rosenthal (New York: SUNY Press, 1995), 140.

66 Van Bavel et al, *Factor Markets in Early Islamic Iraq*, 275-277.

67 Al-Fadl ibn Marwan, trans. D. S. Margoliouth (1921). This selection is taken from a quote utilized by Van Beval et al (2014), 276-277.

68 Donald Dixon. "Varangian-Rus Warrior-Merchants and the Origin of the Russian State." *Journal of Macromarketing* 18, no. 1 (June 1, 1998), 51.

direct trade links between Abbasid Baghdad and Early Medieval Europe.⁶⁹ Trade links between Abbasid Iraq and the Indian & Pacific Ocean regions are similarly well documented, with the Iraqi Persian Gulf port of Basra emerging by the early Abbasid period as the chief conduit by which goods passed between Near Eastern and India-Pacific trade zones.⁷⁰

The circulation of finished goods from urban Iraq to other regions of the Abbasid state is similarly well documented. During the early Abbasid period, governmental officials in Iraq encouraged trade in finished goods between Iraq and the Maghreb, the key “middleman” region in the Islamic trans-Saharan gold trade, in order to facilitate precious metals importation into the Abbasid heartland of Iraq.⁷¹ Elsewhere, literary sources record the existence of numerous merchants and traders in urban Iraq during the early Abbasid period who made their living on carrying trade between Iraq and other regions of the Islamic world, particularly Yemen, Khorasan, Syria, and Egypt.⁷²

As a result, there is ample evidence available to make the claim that the growth of factor markets in urban Iraq during the early Abbasid period was not limited by a lack of demand. Rather, as Iraq’s urban markets expanded throughout the eighth and ninth centuries, urban producers found no shortage of external demand for their products, allowing capital to flow back into Iraq’s cities.

CONCLUSION

PROPOSED HERE HAVE been a series of material factors that facilitated the tremendous growth in urban development Iraq underwent during the eighth and ninth centuries. Sources both literary and statistical-quantitative point towards substantial changes in the demography and economy of Iraq concurrent with the emergence and growth of the city of Baghdad, and the rise of a rate of urbanization in Iraq that may have reached or exceeded 20% during the ninth century.

It has been demonstrated that the large urban population of Abbasid Iraq did not emerge in demographic isolation but rather in the midst of regional net positive population growth in the Near East during the eighth and ninth centuries. Specifically driving urbanization rates in this period was a pattern of rural-to-urban economic migration set against the backdrop of substantial demographic expansion in Iraq. Even as hundreds of thousands of migrants left agriculture for the newly emergent urban factor economy of Iraq, innovations in agrarian production throughout the eighth century meant that these growing urban populations were fed well above subsistence. Facilitating this expanding exchange between rural agrarian and urban factor markets was the large-scale increase in the money supply of the Near East during the eighth century, which created highly liquid markets for both staple commodities and labour. Literary records from the ninth century indicate that the complex urban economy of Abbasid Iraq transacted chiefly in cash, furnishing urban residents with wages sufficient to meet their material needs within the highly financialized factor economy of urban Iraq. Finally, evidence of extensive export markets for Iraq’s finished goods during the Early Medieval period explain in part how Iraq’s urban economy was able to expand to accommodate a very large urban population engaged in economic pursuits outside of agriculture.

Each of these individual factors sheds light on the fundamental question of why Iraq in the ninth century was host to what may have been the highest rate of urbanization in the Medieval world. While literary sources such as al-Ṭabari, al-Ya‘qūbī, and the *One Thousand and One Nights* have long documented a complex and vibrant urban civilization in Iraq during the Early Medieval period, our understanding of the material factors which facilitated this urban efflorescence is still nascent. It is hoped that the avenues of research examined here will continue to gain interest among historians of medieval Islamic urban history so that the material factors which underpinned the period of cultural flowering in Baghdad during its medieval golden age can be better understood. ♦

69 Dixon, *Varangian-Rus Warrior-Merchants*, 58.

70 Ashtor, *A Social and Economic History*, 108.

71 Ashtor, *A Social and Economic History*, 108.

72 Shatzmiller, *Labour in the Medieval Islamic World*, 127-130.

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