New Perspectives on Factor Markets and Ancient Middle Eastern Economies: A Survey

Bas van Bavel
Utrecht University
b.j.p.vanbavel@uu.nl

Abstract

The conventional view of markets for land, labour, and capital as a modern, Western phenomenon is questionable. Factor markets did indeed exist in Iraq, and even thrived, in various parts of its pre-modern history, including the period around 2000 BCE, the "long" sixth century (c. 620-480 BCE), and the eighth and ninth centuries CE. By employing the long-term approach used in this issue of JESHO and by placing the organization of these markets in their wider social-political context, we can understand better how these markets developed, how they functioned, and why they rose and declined again.

Keywords

markets – long-term development – Iraq – exchange of land, labour, and capital – antiquity – Middle Ages

Even though markets have become a major topic in recent historiography, there are few studies investigating the shifts in the importance of markets and their functioning over the very long run. The present volume offers such a long-term study, by focusing on the case of ancient and medieval Iraq. Markets, defined here as a system of exchanging and allocating resources by means of the price mechanism—with prices determined primarily by the forces of supply and demand—existed in Iraq from early in its history. At various points in that history, as will be shown further below, they even formed a main system of exchange and allocation in Iraq. This applies not only to the markets for goods
and products but also to those for land, labour, and capital—that is, to the factor markets, on which we will concentrate in this volume.

The long presence of markets makes Iraq an apt case for an investigation of the formation, functioning, and effects of these markets over the long run. In this volume, we will undertake such an investigation for the period from c. 700 BCE to c. 1100 CE, that is, roughly from the neo-Babylonian to the Abbasid period. Iraq in this period was home to one of the most advanced civilizations in the world (as it had been earlier), as witnessed by the high levels of urbanization, learning, architecture, and political and economic complexity.1 The source material for this period is not abundant, at least compared with later periods in history, and it is unevenly spread over the various centuries, but it is richer than that available for most other parts of the globe, and it allows us to take at least a tentative first step.

This step consists, first, of a reconstruction of the functioning of markets in Iraq during this period of almost two millennia. Next, and much more tentatively, this volume seeks to place the market developments in a wider context. It focuses especially on the socio-political context, because this is where the main determinants of the organization and functioning of markets may be found.2 How did societal transformations and political regime shifts interact with the development of markets? Did political events, such as the fall of the Sasanian empire and the Islamic conquest, for instance, cause a rupture in the functioning of markets? How did the rise and decline of markets interact with the rise and decline of new social groups? A long-term approach is necessary to answer such questions.

This investigation focuses not on commodity markets, which were important in this area and remained so over longer periods, but specifically on markets for land, labour, and capital. The existence of these factor markets was discontinuous, because other allocation systems sometimes played a much larger role in the exchange and allocation of land, labour, and capital than in those of goods and products. Our reconstructions show, however, that at various points in the pre-modern history of Iraq, factor markets did exist and even thrived. This insight and the material assembled and analyzed here allow us and future researchers to position the history of market development in Iraq at the heart of present-day debates on economic and social history, as these increasingly stress the importance of the development of factor markets. The present theme issue of JESHO makes a fresh contribution to these debates,

---

1 See below, section 2.
2 This is suggested by recent economic and sociological literature, as will be further elaborated below, in section 1.
through its long-term approach and by introducing into them our knowledge of the early history of markets in the Middle East.

The present issue can thus perhaps help cure some of the myopia in present-day assumptions on market development, assumptions that result from the conventional equation of markets with Western Europe and modernity. This introduction looks first at some of these assumptions (section 1). Next, it outlines the main geographical, economic, and socio-political characteristics of Iraq, forming the backdrop against which the analysis of markets is set (section 2). Section 3 covers the prehistory of the markets investigated—that is, the period before 1000 BCE—and sketches some of the main characteristics of these markets. Section 4 introduces the separate papers and attempts to integrate them with and link them to more general economic and social developments, offering an initial tentative conclusion.3

1 Introduction: Markets in Economics and History

In recent years, there has been much historical research into markets. Their formation and functioning, including their quantitative aspects, are ever better investigated. This applies to the late medieval and early modern history of Western Europe but also to the ancient economies, such as those of the Roman Empire and ancient Babylonia.4 Most of these latter studies limit themselves to investigating markets for products and goods, specifically those for grain. This issue of JESHO, however, focuses not on these commodity markets but on factor markets, that is, markets for land, labour, and capital. Factor markets are arguably more fascinating than commodity markets. Whereas commodity markets are almost universal in history and thrived in many places and periods, factor markets were rarer, because there are many other means of exchanging and allocating land, labour, and capital, including redistribution by public authorities and their tribute or fiscal systems, transfers within family and kin, and systems of voluntary redistribution within horizontal associations or communities.

3 For their comments on earlier versions of this introduction I want to thank Michael Jursa (Vienna), Bas van Leeuwen (Utrecht University), Michael Morony (UCLA), Paolo Sartori (Vienna), Rolf Strootman (Utrecht University), Arek Soltysiak (University of Warsaw), Bert van der Spek (VU Amsterdam), and the other authors in this issue of JESHO, and, for her work on regularizing the references and bibliography in this issue, Willemijn Luchtenbelt.

4 See, for instance, Erdkamp 2005:106-205, and several chapters in van der Spek et al. 2013.
Factor markets are interesting also because they do not deal with inanimate goods and products but affect directly each person's labour power—their most valuable asset—their land, and the exchange and allocation of the scarce capital available. Factor markets appear, disappear, and reappear and differ far more in their institutional arrangement than do commodity markets. This is in part because of the cultural and social value attached to the exchange and allocation of land and labour and the resulting influence of families, the state, and religious norms on this exchange, even if this is organized through the market. Precisely because of the highly varying organization of factor markets, their effect on economic and social development is highly variable. As such they must form a crucial element in any explanation of long-term processes of divergence between societies (van Bavel, de Moor, and van Zanden 2009).

This volume aims to make a contribution to these issues, by exploring the development and roles of factor markets in one of the major, pre-industrial examples of market economies in western Eurasia—Iraq, the main portion of historical Mesopotamia.

The question whether Iraq in the pre-industrial era, or any society before the modern period for that matter, possessed real markets—let alone formed a market economy in which the market was the main system of allocation and exchange—is debated. Many economic historians and economists treat markets for land, labour, and capital as essentially a modern phenomenon. This view was promoted by Polanyi, who, in the 1940s and 1950s, asserted that comprehensive factor markets were a revolutionary innovation of the nineteenth-century English economy. He asserted that profit-maximizing behaviour and the supply-and-demand price mechanism in fully open markets for land and labour were not found earlier (Polanyi 1977: 6-11, 43, 276). Similar ideas were promoted by Moses Finley, who likewise argued against the existence of factor markets and market forces in antiquity (Finley 1973: 22-24, 33-34, 158-160). As a result, the dominant view—including in mainstream economics—has long been that no “real” market economies existed before the modern era.

In stating his ideas and proposing a strict definition of the market, Polanyi offered a useful warning to those who would too easily project modern ideas about modern, open, and free-functioning markets on the markets of the past. Especially in neo-classical economics, there was, and still is, a tendency to see markets as a kind of abstract playing field where supply and demand meet, and to see well-functioning markets as those where as few regulations as possible obstruct the operation of these forces of supply and demand. Polanyi was

---

5 See also the related special issues of Continuity & Change 23/1 (2008) and 24/1 (2009).
right that we should not project these ideas on the past, but he seems to have overestimated the extent to which nineteenth-century markets and those of present-day market economies conform to these abstract ideas about freely functioning markets.

Since the late 1990s, the "new institutional economics," and the works of Douglass North in particular, have successfully argued that markets are a complex web of formal and even informal institutions, rather than an abstract playing field (North 1990: 8-9, 27-32, 61-69). Land markets, for instance, even in the modern period, are never fully open and free but are heavily influenced by tradition, familial relations, and personal attachments, and by zoning laws and state legislation. North, in grappling with Polanyi's ideas, has done much to disprove the supposed dichotomy between market and non-market elements in the organization of exchange and has shown how they interact, complement each other, and are often integrated in the market framework, with a crucial role played by the state or public authority, especially in enforcement (North 1990 and 1977; Jursa 2005: 171-186). As North observes, if we followed the strict definition of Polanyi, we would find markets nowhere at all. Not only do non-market elements play a fundamental role in the functioning of markets, but market economies are also able to accommodate and integrate non-market forms of exchange and allocation and even make elements seemingly inimical to the market, such as state influence or slavery, into a vital part of their functioning. This is the case at present—with state power forming an essential element in the security of markets, even in highly advanced financial markets—and it was also the case in the past, as in ninth- and tenth-century southern Iraq, with its slave labour and indentured labour, used on highly market-oriented plantations which were otherwise fully integrated into factor markets (Snell 1997: 149-158).^6

There is now more attention paid to the institutional organization and social embeddedness of markets and to their interaction with other allocation systems, such as the family or the firm. Moreover, the traditional neo-classical idea that markets are intrinsically flexible and adaptive is nuanced now, because it is clear that these market institutions can become frozen, or fixed, and sometimes do not adapt to changing economic or ecological circumstances, even in cases in which the inflexibility damages growth or threatens sustainability. This institutional sclerosis occurs especially as a result of the influence of special interest groups who have vested interests in the organization of the market and who block changes (Olson 1982).

---

6 See also the contribution of van Bavel, Campopiano, and Dijkman in this issue of JESHO.
More generally, sociologists have stressed how market exchange presupposes social relations between the exchanging parties. In contrast to what is assumed in much of the orthodox economic literature, human actions within markets are seldom isolated and driven only by the pursuit of self-interest; they are mostly embedded in social relations, if only through implicit trust or morality (Granovetter 2001: 51-76; Nee and Ingram 1998: 19-45). This is an insight elaborated by several historians, especially for markets characterized by insecurity, agency problems, or multiple-part transactions, as in long-distance trade or the credit market (Muldrew 1993: 163-183). Ethnic ties or common beliefs and normative systems may be vital in this, as argued by Avner Greif in the case of the Jewish Maghribi merchants, who held a firm position in the Mediterranean trade of the tenth to twelfth centuries and used these ties to overcome the risk that agents and partners would not honour agreements (Greif 1993: 525-548). However, even if exchange is sometimes virtually impersonal, as in some present-day markets, notions of fairness, reputation, and trust still play a role, bargaining between people may take place, and all kinds of social mechanisms are at work. Also, markets require a government, public authority, or third party, if only to protect property rights, enforce contracts, and reduce insecurity for the parties involved in the transaction, in both modern and ancient economies (Block and Evans 2005: 505-526; Garraty 2010: 3-32, esp. 20-24). Formal and informal institutions thus complement each other in structuring market exchange. Even today, markets are, to a large extent, socially and politically embedded, and markets and market economies are never fully free and ruled by the forces of open-market competition alone. Instead of assuming the openness of markets and contrasting this to non-market allocation systems, and instead of wanting to know whether or not these ancient economies knew “true” markets (Yoffee 2001), this volume on ancient Iraq will investigate how open and dynamic these markets were and how and why the degree of their openness changed in the very long run.

This approach is necessary, because it can disprove some incorrect assumptions about markets, both in mainstream economics and in history. Despite the nuances mentioned above, some traditional assumptions still stand, most clearly the one that markets as a system of exchanging and allocating resources by way of the price mechanism are distinctively modern. In this sense, the too-strict definition of “real” markets and Karl Polanyi’s ideas on this still have an impact. Market economies—which organize not only the exchange of

---

7 Compare, however, the critical notes by Edwards and Ogilvie 2012: 421-444, who place more emphasis on formal legal rules.
8 And see below, section 3.
commodities but also that of land, labour, and capital predominantly by way of the market—are still generally considered a modern phenomenon. These “modern” economies are assumed to have grown out of older, more stagnant ones, characterized by more traditional mechanisms of the exchange and the allocation of land, labour, and capital, and this shift has presumably helped these societies develop and become wealthy. It is often assumed that markets, if unfettered, offer flexibility and dynamism and that they create economic growth. It is not only neo-classical and neo-institutional economists who widely hold the assumption that markets are modern and create “modern” economic growth, but also many neo-Marxists, who see markets at least as instrumental or even crucial in helping traditional, feudal societies escape from stagnation.

This teleological view can be refined by looking at the rise, development, and effects of markets in earlier periods, especially in the pre-modern period. When approaching these markets along the recent theoretical lines discussed above, it becomes clear that factor markets already existed before the modern period. Several recent studies on England and the Low Countries, for instance, have charted the emergence of factor markets there in the course of the high and late Middle Ages (Campbell 2009: 79-106; van Bavel 2010: 45-80). The northern parts of the Low Countries turn out to have had most of the land and much of labour and capital exchanged by way of the market by the sixteenth century. This pushes the rise of factor markets, and even that of market economies, several centuries earlier than in the traditional picture. Still, even this new chronology leaves untouched the idea that factor markets are a modern phenomenon, with northwestern Europe taking the lead and other parts of the world following.

This misconception can be avoided only by turning to other parts of the globe, especially the Middle East. The research on the ancient and medieval history of the Middle East make clear that factor markets are not modern but have existed in several periods throughout history, as the papers in this volume will show for the case of Iraq through the late Assyrian, neo-Babylonian, Achaemenid, Seleucid, Parthian, Sasanian, Umayyad, and Abbasid periods, that is, from c. 620 BCE to c. 1100 CE. These papers will illustrate that markets do not always rise but, after a while, stagnate and decline, perhaps to rise again later. Perhaps this alternation of rising and declining markets existed even before the period under investigation, as suggested, for instance, by evidence from the period around 2000 BCE.9 This insight severs the assumed link

9 See below, section 3.
between markets and modern wealth, and it can form a powerful antidote to teleological assumptions on markets and their effects.

Finding an alternative explanation for the functioning and development of market economies in the long run is the next step. An important element in such an explanation is the analysis of the ways in which markets interact with other systems of exchange and allocation, including the state, families, and communities (as discussed above), but we must also delve deeper into the social context in which markets are embedded. More specifically, this means investigating the link between markets and the distribution of property and power, an element missing in most neo-classical and neo-institutional analyses of the formation and functioning of markets. This absence is remarkable, because, clearly, the effects of market exchange can be understood only when the interests of the actors and parties involved in market exchange are taken into account. These interests and the resulting decisions are related directly to the social position of these actors. The way credit, lease, and labour markets are used in a society dominated by small-scale peasants, for instance, differs greatly from that in a society dominated by large-scale agrarian entrepreneurs, and the effects differ accordingly.

The distribution of power and property is relevant also to the institutional organization of markets. If we would see the development of institutions as the effect of a confrontation between various social groups, it is clear that the resulting institutional framework is not automatically the most efficient one for society as a whole. In many cases, it will instead be best suited to the interests of the elites in power (Ogilvie 2007: 649-684). Elites, including those who emerged as a result of their success in market exchange, may adapt and shape the institutional organization of markets to suit their interests. This may enhance their economic success, but it will simultaneously erode the basis for further economic growth.10 Even if the latter is open to further research, most scholars now agree that the functioning and effects of markets can be understood only when placed in their social and political context. The papers in this volume will thus try also to investigate how people organized these markets, and how various social groups exerted their influence on the organization and functioning of these markets, for instance, through their hold on offices and other forms of public authority. This will contribute, we hope, to a better understanding of the interaction between markets and their socio-political

---

10 A hypothesis tested in the Nederlandse Organisatie voor Wetenschappelijk Onderzoek research project "Economic Growth and Stagnation in the Pre-Industrial Era: Iraq, Italy and the Low Countries, 600-1700" at Utrecht University (2007-2012, directed by Bas van Bavel); see also Michael Jursa's contribution to this issue of JESHO.
context and to explaining the long-term changes in the importance, organization, functioning, and effects of these markets.

2 The Setting: The Main Geographical, Economic, and Socio-Political Characteristics of Iraq

Before focusing on the factor markets themselves, this introduction will look briefly at the wider setting in which these markets in Iraq functioned. Although this setting was not fixed or unchanging, there are some striking continuities and basic patterns in the millennia under investigation here. Some main elements even go back long before this period, including soil characteristic and other aspects of geography, the importance of irrigation, the presence of empires, bureaucracies, writing and taxation, and the importance of cities. We will introduce these elements briefly here, as they are relevant to a better understanding of the roles of markets, which developed in close interaction with them.

By "Iraq," we mean here the core of the present-day country of Iraq, of which the most important part consists of the fertile basins, levees, and marshes of the rivers Tigris and Euphrates, the area that formed the major part of historical Mesopotamia. Largely omitted from consideration here are the desert areas in the southeast and the mountainous areas in the north. Even though economic links and exchanges did exist, of course—most notably in labour and commodities—social and economic structures were fundamentally different there. The focus here is on the fertile alluvial plains, covering some 200,000 km². Within this area there were several ecological zones, ranging from the plateaus in the north to the fertile alluvial plains in the centre and the marshy areas in the south. The northern parts, roughly north of Samarra, had enough rainfall to permit dry farming or rainfed agriculture, but in most of Iraq rainfall was insufficient, and arable agriculture was possible only through irrigation. The practice of channelling river water to the fields started earlier, but the first traces of real irrigation systems date from the seventh and sixth millennia BCE, while major hydraulic schemes developed later, especially beginning in the mid-third millennium BCE (Steinkeller 1988; Postgate 1992: 173-183; Oates and Oates 1976). These sometimes elaborate systems of irrigation, consisting of canals, dikes, dams, weirs, and sluices, brought the water from the Euphrates and its tributaries and later also from the Tigris but also had to protect the land from destructive river floods; in contrast to the Nile, with its regular floods, these rivers were characterized by sharp, unpredictable fluctuations in water flow. Water management thus required large investments.
in construction and maintenance, as well as effective coordination. This coordination was not in all cases centralized and top-down. Even in a period of strong state power, such as the twenty-first century BCE, other groups besides the state were involved intensively in the organization of water management (Rost 2011: 211-269).

Although this area lacked almost completely other natural resources, including metals and stone, the fertility of the soils, combined with irrigation and the advanced sort of arable agriculture practised here, produced high yields; these yields were obtained with very small quantities of seed, resulting in high yield-to-seed ratios, of 25-40 to 1 (Jursa 2010: 48-53). Surpluses were high, although at times they were restricted by salinization of the soil. Surpluses were especially high in the central part of Iraq, where the most fertile soils were found, that is, the black alluvial land deposited by the rivers, which was replenished by the silt deposited by the rivers. Aside from cattle farming, especially the keeping of sheep and goats, and some fishing, the emphasis in agriculture here was on the intensive cultivation of grains, mostly barley but also wheat (Mauer 1983: 63-78). In the south there was date cultivation and, more generally, thriving horticulture, which was labour intensive and produced a high output per hectare.

Supported by the high yields obtained here, population densities in the fourth and third millennia were already high. The core areas held some 10-20 people per km² (Adams 1981: 90). Archaeological research has yielded estimates for the Seleucid period (312-140 BCE), showing that about 4.5 million people lived in this area, that is, some 20-25 per km², although other authors prefer somewhat lower figures (Aperghis 2004: 35-40). Similar estimates of the total population of this area around 800 CE vary from 2.5 million to 4 million people (MacEvedy and Jones 1978: 149-180; Ashtor 1976: 87-89). The latter, higher figure is also based on archaeological research. If these figures are correct, populations around 800 CE would have been lower than they were a millennium earlier, in the Seleucid period, which might have resulted in part from the high toll taken by the Justinian plague and the following epidemics, from the mid-sixth to the mid-eight century CE, and perhaps also to the decay of the

---

11 For instance, yields of 14-17 hectolitres of barley per hectare in the first millennium BC, which are comparable to yields in northwestern Europe in the late Middle Ages and early modern period. Yield-to-seed ratios in Iraq were five to ten times greater than in northwestern Europe.

12 The estimate, based on Adams (1981), is criticized by other scholars, including Walter Scheidel, as too high.
irrigation networks in the seventh century (Dols 1974). Still, despite possible fluctuations and uncertainties, the estimates for the period under investigation in this volume all point to population densities of 15-25 per km², which were among the highest in the world.

Many of these people lived in towns. As early as the fourth and third millennia BCE, larger settlements and cities were a conspicuous feature of the area. The largest cities in the world were found here, and they were often situated close together. Uruk had some 36-60,000 inhabitants in the third millennium BCE, and Ur and its hinterland held some 20-40,000 people in the early second millennium BCE, although these population numbers calculated from archaeological data or surface areas are only rough estimates (Adams 1981: 69-76, 84-85, 136-155; van de Mieroop 1992: 21-22, 220-223). Other large centres were Nippur and, later, Babylon and Seleucia on the Tigris. Babylon's inner city had a surface area of 400 hectares, including many temples and palaces, and an additional 500 ha within the outer wall, which was probably largely uninhabited. The population was probably about 80,000 to 100,000 in the Neo-Babylonian period, followed by some decline in the Hellenistic and Parthian periods. Seleucia, founded c. 300 BCE, occupied some 500 hectares and, according to the estimates of classical authors, had between 300,000 and 600,000 inhabitants in the first centuries CE. Even if this last, very high figure is correct, Seleucia could, thanks to productive agriculture and large surpluses, still be fed by its own hinterland (van der Spek 2008: 33-45).

The rise and decline of many of these cities, especially the capital cities, were inextricably linked to the power of the imperial dynasties of the period. Capital cities and administrative centres were often founded at the start of a new dynasty, blossomed, and fell, as the dynasty gave way to a new one. Examples are Seleucia on the Tigris, greatly enlarged and made into one of the capitals of the newly founded Seleucid empire, or Ctesiphon under the Parthians, or Baghdad, the new capital founded by the Abbasids (van de Mieroop 1997: 51-53). Conversely, this mechanism is seen in the sometimes deliberate destruction of the main cities of previous dynasties. Urbanization was, therefore, driven substantially by centralized extraction of resources and associated consumption and services, and by royal building projects, and less by industrial production or endogenously developed functions.

Still, on average, urbanization remained high over the centuries. A new peak in urbanization in Iraq was reached in the early medieval period, after the Arab conquest; the highest levels of urbanization in the world at that time were

---

13 See also Rezakhani and Morony's contribution to this issue of JESHO.
14 See, for the latter periods, van der Spek's contribution to this issue of JESHO.
probably attained there. Figures are very tentative, but it is clear that, around 800 CE, Baghdad, with an estimated 300,000 to 400,000 inhabitants, was larger than any other city in the Middle East or Europe, while the towns of Kufa, Basra, and Wasit were also among the largest of their time, with roughly 100,000 inhabitants each (Ashtor 1976: 88-90).

Most of these inhabitants were engaged in the services sector, as officials, courtiers, soldiers, servants, carriers, and many merchants, traders and peddlers. Urbanization rates are more difficult to calculate, because the size of the rural population can be estimated only very roughly. Taking the two population estimates for 800 CE as lower and upper bounds, it is clear that urbanization in Iraq must have been substantial, with the urban population probably accounting for about a fifth of the total, perhaps even up to a quarter. This reflects the power of the society to generate large agrarian surpluses and sustain large non-agricultural sectors.

Also conspicuous in this region were the larger political entities, or empires. While the temples, temple-cities, and their kings were the main political forces in the third millennium BCE, and in some later periods, the period between 2300 and 2000 BCE was characterized by a series of political consolidations, most conspicuously under Sargon, who founded a dynasty based in the new capital, Akkad (van de Mieroop 2004: 59-69; Steinkeller 1993: 107-129). The following millennia saw an alternation of city states and empires, with the degree of centralization growing gradually and reaching a new level under the Neo-Assyrian empire, at the beginning of the first millennium BCE. The land between the Tigris and the Euphrates became the home and centre of several of these empires. Associated with this process, we see the development of administrative offices and bureaucracies, hierarchies of representatives, and systems for the levying of tribute or taxes, and the exercise of the legal authority of the crown.

Within this context, writing was developed here. In the second half of the fourth millennium BCE, small notation and recording tablets were introduced, and writing on clay tablets began around 3000 BCE (Postgate 1992: 51-70; Englund 1998: 42-127). Writing was used mainly for calculating and recording administrative, fiscal, and economic matters, and most written sources therefore relate to material matters. Moreover, many documents originated from public administration, which creates a bias towards the activities of the state and the large temple institutions, leaving the activities of others more obscure (Steinkeller 2004: 91-112; Neumann 1993: 19-20, 151). The written material is not distributed evenly over the centuries. Much is available for the Early Dynastic III period (c. 2500-2300 BCE), the Ur III period (21st century BCE)—with some

15 See also van Bavel, Campopiano, and Dijkman in this issue of JESHO: 263-264.
120,000 administrative sources surviving from this period—and the Old Babylonian period (c. 2000-1600 BCE). After a lengthy low, there is again much material from the Neo-Babylonian and Achaemenid periods (especially the sixth and fifth centuries BCE) and, after another low, from the Abbasid and Buyid periods (eighth to eleventh centuries CE). With the exception of Hellenistic and Roman Egypt, there is no other region that has produced such rich ancient source material.

The high levels of urbanization, the upkeep of a state bureaucracy, and the great investments in irrigation all required advanced systems of exchange and allocation of foodstuffs, goods, and financial resources, in order to convey agricultural surpluses from the producers to the cities, to feed the non-agrarian population, and to fund the necessary investments. Also, land, labour, and capital had to be efficiently mobilized for undertaking large irrigation works and prestige projects and for maintaining the economic infrastructure. All this required the flexible exchange and allocation of labour and capital. This was achieved through various systems, including the market, which were often used in combination with each other.

These allocation systems were, however, not directed solely to fulfilling economic needs. They were also connected to social hierarchies and the position of the elites, who used these systems to buttress their position in society (Oates 1977: 473-478). Around the mid-third millennium BCE, for instance, temples and the members of the temple hierarchy played a leading role in directing labour, organizing agriculture, and collecting taxes. Later, as their role was reduced, temples remained important centres of redistribution and major estate holders, which were, in turn, linked directly to the market, for instance, in order to engage workers, to transact or lease out land, or by contracting interest-bearing loans (van de Mieroop 1992: 77-105).

From the late third millennium BCE onwards—and even more markedly by the early first millennium BCE—the levying of tribute, fiscality, and the associated redistribution by public authorities, city states, monarchs, and/or empires constituted a main allocation system (Ellis 1976), complemented by large landholding by state or crown. Again, this system was linked to the markets and to the merchants, who, for instance, converted tax payments in kind into currency and provided loans. Parallel to this and often complementing the power of state elites was the exchange and allocation of labour and capital by force and other forms of coercion, as found in systems of corvée labour. Labour services were especially important in the Achaemenid period, for instance (Jursa

---

16 See Jursa; van Bavel, Campopiano, and Dijkman in this issue of JESHO, respectively: 173-176; 263.
Another allocation mechanism was voluntary or collective redistribution, as within associations, kinship units, or communal organizations. This system seems to have played a lesser role in Iraq, at least following the loss of power of village communities to temples and "states" in the course of the third millennium and the rise of nuclear families, which in the late third millennium replaced the large families and earlier kinship systems (Renger 1995: 271-272, 278; Gelb 1979: 60-91). Mutual redistribution and common ownership of grazing lands and springs, however, did remain important among Bedouins and within the clans or tribes in the desert and marsh areas (Løkkegaard 1978: 20-24, 36-37), although this did not stand in the way of commercialization. Their pastoral products were often destined for the market, and the level of monetization among these people was high. More generally, especially in the towns of Iraq, the people in the private, non-institutional sector used the market as a main system of exchange and allocation. These various allocation systems thus complemented each other and continuously interacted with each other and especially with the market. As the papers in this volume show, the nature of this interaction and the relative weight of the different systems within it varied through time. Iraq stands out, however, in the sense that, from very early on, markets were a main component in this interaction and at times even formed the main allocation system. In contrast, for instance, to northwestern Europe where factor markets emerged only in the high Middle Ages, a vast repertoire of market institutions was available in Iraq much earlier. This introduction will now look at this emergence and the early history of markets in Iraq.

3 Early History of Markets in Iraq

A crucial period in the formation of the rules of the game of market exchange, including the exchange of land, labour, and capital, was the late third millennium BCE, which was probably the earliest period of active, dynamic factor markets. One element in this was the growing use of weighed silver as a unit of value, means of payment, and/or instrument of accounting. The shekel as a unit of weight of silver (8.33 grams) was first used in the late third millennium, sometimes in the form of rings weighing from 1 to 60 shekels. Other currencies were also used. Units of barley, copper, and tin formed the cheaper ones, and silver and gold the expensive ones, but silver was dominant, especially in

17 See Jursa in this issue of JESHO: 182-185.
long-distance trade (Powell 1996: 224-242). From the Achaemenid period, some coined money was also used, but it was only with Alexander the Great (356-323 BCE) that coined money became the standard. This probably further enabled transactions, even if it had the drawback of creating different currencies, and it perhaps stimulated the extension of market exchange. The introduction of coins did not bring a radical shift, however, because weighed silver already functioned as money.

Public authorities played an important part in decisions regarding coinage and in hoarding or putting precious metal and coins into circulation. There was a continuous alternation of periods with an adequate supply of precious metals (such as the sixth century BCE or the fifth to eighth centuries CE) and ones with a limited amount (including the fifth and fourth centuries BCE and the tenth century CE). There were also radical shifts in supply, for example, with Alexander the Great, who put 5000 tons of silver into circulation after his conquest of Persepolis in 331 BCE.

Much of this precious metal and many of these coins were used as means of payment in commodity markets. The use of precious metals for market transactions was ubiquitous in Iraq, from the third millennium BCE on. The institutional organization of these markets was, in part, formed and developed through temples, palaces, and kings, which established standardized weights and measures, means of payment, formal contracts, etc. (Dercksen 2004: chap. 2). These commodity markets, on the one hand, and states/authorities and their fiscal systems, on the other, were not conflicting exchange systems but were often complementary and mutually reinforcing. Helped by the security and low transaction costs brought about by standardization and aided by the transport opportunities offered by the dense networks of navigable canals, commodity markets thrived, and regional specialization proceeded, even though not all estates and holdings became fully oriented towards the market. Commodity markets were fairly well integrated, as reflected by low price differentials and high price integration, at least from the late seventh century BCE onwards (Pirngruber 2011).

Property rights to land were clear and fairly secure, apart from the possibility of expropriation or pressure exerted by the crown. This security, which was furthered by the registration of sales, made possible the development of land-market transactions. In the first part of the third millennium BCE, numerous sales of arable plots, houses, and gardens were already recorded, especially for

---

18 For the introduction of coins, see van der Spek in this issue of JESHO: 205-207.
19 See Jursa; van der Spek; Rezhakani and Morony in this issue of JESHO: 205-206; 243-244.
20 See Jursa; van der Spek in this issue of JESHO: 174-176; 204, and the references there.
the northern and central parts of the alluvial plain, with hundreds of surviving charters often mentioning the sale prices, expressed in shekels of silver per iku (0.36 hectare) (Renger 1987: 53-61; Steinkeller 1989). Land was in the hands of the crown and temples, which used the market for some of their transactions, but also in private hands. Sometimes private sellers needed the consent of their relatives or the representatives of a communal organization, but most sellers acted alone, and all buyers did, which points to widespread private, individual property (Gelb 1979: 68-72; Renger 1987: 290-291, 295, 306-307). Around the middle of the third millennium, in the pre-Sargonic period, many sellers of land, houses, and orchards still acted together, sometimes even in large numbers, testifying to the role of kinship rights, but later in the third millennium BCE we see mainly single sellers from nuclear families who apparently held the full property rights.

Leasing had long existed in this area. From at least the middle of the third millennium BCE, temples and notables leased out their land, and many people tilled the land in exchange for part of the crop (usually one-seventh or one-eight) or a fixed amount of silver or agricultural production. In the nineteenth century BCE, written lease contracts begin to appear, again especially in the northern parts of the river plains, with the numbers rising in the eighteenth and seventeenth centuries (Mauer 1979; Leemans 1975: 134-145). Urban proprietors, in particular, leased out their land, in holdings of some 5-6 hectares of arable on average, for a fixed sum or one-third of the crop. In the Neo-Babylonian period, the rich source material shows tenants of smaller, family-sized plots of land, as well as agricultural entrepreneurs, leasing larger holdings from temples or crown land (Jursa 2010: 184-206). These entrepreneurs, often also acting as moneylenders to the estate holders, could manage the land themselves, but they could also sublet the land, which gave rise to hierarchies of tenants. Some of this land was leased out or sold, together with canals and water rights, which made it much more expensive, and some was leased with no provision for irrigation (Stolper 1985: 130-134). Either way, access to water was crucial to the successful exploitation of the land.

In the hiring of labour, Iraqi society could build on the institutions developed in a long tradition of wage labour in the area of the Euphrates and Tigris, a tradition that began around the fourth quarter of the third millennium BCE. Wage labour was common in the Ur III period, around the year 2000 BCE, and became more important in the Old Babylonian period, in the first half of the second millennium (Silver 1983: 808-809; Powell 1987: 201-202, 272-278). Public institutions had tens of thousands of people working for food rations, both as

21 See also Jursa in this issue of JESHO: 189-190.
craftsmen and as agricultural labourers, with wage labourers working alongside day labourers and semi-dependent and dependent workers. All kinds of labour arrangements existed, as documented in the surviving labour contracts from this period, drawn up by the employer and held mostly by the hired person, who may have been a slave, a dependent person, or a free man (Lautner 1936; Neumann 1993: 56-69). Especially for labour-intensive tasks such as digging canals and transport, but also during agricultural peak times such as harvest, labourers were hired, mostly by the month but also by the day or the year, and paid in silver or rations of barley. Wage labourers often worked in gangs, sometimes with unfree labourers, overseen by foremen. There was some fluctuation around 2000 BCE, but wages were mostly standardized, indicating that labour markets—like many of their modern labour counterparts—were ruled not only by competitive forces of supply and demand but also by custom and forms of dependency. In later periods, references to wage labour dwindled again, as the hiring of labour often alternated, or became mixed, with corvée labour, dependent labour, or even outright coerced labour. Labour coercion included the deportation of large groups of people, who were subsequently used in agriculture or industries; this happened on a massive scale in the Sasanian period, for instance, when those deported were sometimes settled in towns newly created to this end.

Although volume and competitiveness were perhaps insufficient to label these credit transactions a market, loans (with interest) of silver and grain between private parties or with private parties involved, are recorded for the late third millennium BCE. Loans existed earlier, but interest rates are now also mentioned, usually at 50% or 33.3% per year (Steinkeller 1981: 141-143). Merchants in Nippur and Umma, as well as an owner of a flock of sheep, for instance, had constant supplies of liquid capital at their disposal, and part of this was advanced to others as interest-bearing loans (Steinkeller 2004: 105). Credit was sometimes offered on a small scale and linked to the labour market, for instance, as loans were repaid by the debtor as a stipulated number of working days, a practice attested for the Ur III period, at the end of the third millennium BCE (Neumann 1993: 154). Besides these loans, other forms of credit and raising of capital were also used, for instance, by making purchases on order or by business partnerships (Kolinski 2010:89-91). Later periods, too, show interest-bearing loans, with the interest rates typically in the range of 20 to 40% per year, although transactions mostly were too few and rates too

22 For the neo-Babylonian period, see Jursa in this issue of JESHO:177-182.
23 See Rezakhani and Morony in this issue of JESHO: 251-253.
24 For the sixth century BC, see also Jursa in this issue of JESHO: 193-194.
firmly fixed by custom to consider this a competitive market.²⁵ A main exception is the Islamic period, in the eighth to tenth centuries, when the capital market was large and very dynamic.

At the beginning of the period under investigation here, the main institutions of the markets for commodities and land, lease, labour, and capital therefore had already been available for some time. Iraq had long experience with these markets, and, in the centuries around 2000 BCE, it had even experienced a period of dynamic markets for land, lease, labour, and capital. An example of how the markets in this period were linked to each other is the system in which tenants leased land from a temple in return for a share of the crop or fixed quantities of grain or silver and also made a payment in silver to public officials who assembled the money for expenses on irrigation works, and, in turn, used this for paying the wages of irrigation workers (Steinkeller 1981). Here, public authority, temples, private tenants, the lease market, the labour market, and commodity markets were intimately connected to each other.

The relevant developments in our period, which are investigated in the papers in this volume, are therefore found not in the rise of the market or the "invention" of market institutions but in changes in the exact formulation and combination of these institutions, their use and the context in which they were used, their effects, and the importance of market exchange compared with the other systems of exchange and allocation. Quantitative reconstructions of the rise, stagnation, and decline of markets, and quantitative indicators of the accessibility, mobility, and flexibility offered by these markets are used where possible, although the source material will, in practice, force us to limit ourselves to making more descriptive, qualitative assessments.

4 The Rise, Decline, and Functioning of Markets in the Very Long Term: Preliminary Conclusions and Avenues for Further Research

Evidence for the various parts of the long period investigated varies greatly, because of the different types of sources and the varying amount of information available. As a result, the approach offered by the authors in this volume also differs, ranging from a detailed discussion of the few available sources to more general analyses, but some main lines of inquiry can be discerned. In the period between c. 700 BCE and c. 1100 CE, commodity markets always functioned in Iraq, albeit with varying intensity, but factor markets were more changeable and discontinuous. The chapters in this volume show how they

--

²⁵ Jursa; van Bavel, Campopiano, and Dijkman in this issue of JESHO: 192-195; 278-281.
rose and declined. At least two periods of heightened market dynamism in the exchange of land, lease, labour, and capital can be identified; these are the "long" sixth century (c. 620-480) BCE and the seventh to tenth centuries CE. In these periods, markets certainly functioned alongside other exchange and allocation systems, most conspicuously the state and its fiscal organization, but, in the interaction with these other systems, markets were clearly the dominant system. The ninth century CE, in particular, was characterized by dynamic markets for labour and land and especially for lease and capital. Iraq during this period had a market economy.

The connection with writing and registration is striking. Like the earlier period of dynamic markets around 2000 BCE, both of these periods of heightened market activity—the long sixth century BCE and the seventh to tenth centuries CE—have many written sources, while the preceding and following periods have far fewer. Many of these sources relate to market transactions. The question remains, however, whether the relative abundance of sources resulted from increased market activity or the other way round—that is, that the richer sources allow us to see more market activities.

The institutional organization of these markets generally shows strong continuity. Political and military changes and events, even the most significant among them, mostly had limited effects. Even the Persian conquest of Iraq in 539 BCE, for instance, did not have a noticeable effect.26 It was only gradually after this conquest that tax pressure was increased and rent-seeking elites strengthened their grip on society, although in 484 BCE the Persians interfered much more directly and shifted more to coercion, also through the markets, which had more direct effects on the economy. The advent of Islam and the social revolutions of the fifth to eight centuries CE did influence the organization of leasing and perhaps the freedom of labour, as they probably strengthened the position of the labourers and tenants, but even though this involved a long series of far-reaching events, the direct effect on the functioning of labour and lease markets is difficult to measure. Continuity was even more obvious in the field of sharecropping, where Muslim legal scholars initially argued against, but increasingly acquiesced in, the importance of sharecropping in Iraq. Also, the monetization and commercialization of the Islamic period appears to have its roots in the increasing use of money from the fifth century CE and the growing dynamism of land and capital markets in the fifth and sixth centuries—that is, beginning already in the Sasanian period.

26 Jursa in this issue of *JESHO*: 196-198.
27 Van Bavel, Campopiano, and Dijkman in this issue of *JESHO*: 269-278.
28 Rezakhani and Morony in this issue of *JESHO*: 243-244.
Another way of approaching the issue of the great continuity in factor markets would be to investigate the terminology of the main institutions of factor markets. Michael Jursa notes that the Babylonian terminology survived into the Islamic period, as with the Babylonian free sharecropper called *errēšu*, which corresponds to the Talmudic and later *arīs*, and the dependent farmer/tiller *ikkaru*, equivalent to the later *hoker, akkrār*. Even though the realities behind cognate terms may have changed, the continuity in terminology is clear.

Much more than commodity markets, which were highly influenced by political and military events (Pirngruber 2011), the institutions and the organization of factor markets displayed a striking continuity and changed only slowly. When these changes occurred, it was the result less of events than of more fundamental changes in society—more specifically, of changes in the balance among various social groups. This was because the organization and functioning of factor markets was a main arena where the various social groups sought to exercise their influence, consolidate their position, and make profits. The dominance of one group could skew the organization of factor markets and erode their possible favourable effects or even lead to their disappearance, as possible participants in the market retreated into self-sufficiency or other allocation systems—including coercion—took the place of the market. Michael Jursa (in this volume), for instance, suggests that the rise, after the long sixth century BCE, of a new, rent-seeking elite and the domination it exerted over society, went along with a decline of free wage labour and market transactions of land. The same is argued by van Bavel, Campopiano, and Dijkman (in this volume) for the early medieval period, especially the ninth and tenth centuries CE, as a new elite of merchant-capitalists arose, in part by using the dynamic factor markets, which enabled them also to become major landowners and office-holders. This was followed by the decline of the same markets.

The lack of sources, especially for quantitative data, makes it difficult to assess the practical functioning of these factor markets—that is, the movements of prices and wages, price shocks, integration, and price differentials. Custom, social relations, dependency, and even coercion clearly played a greater role in the market exchange of land, labour, and capital than in commodity markets. Prices were never the outcome of supply and demand alone and were probably not even primarily determined by supply and demand, except for the two periods of heightened market activity identified here. In the

---

29 Jursa in this issue of *JESHO*:189 fn 27, referring to van Bavel, Campopiano, and Dijkman in this issue of *JESHO*: 269.
sixth century BCE, wages fluctuated—partly in tandem with commodity prices—and often seem to have been negotiated by the parties involved.\(^{30}\) The lease market in this period was equally competitive and open. The land market, despite the security and clarity of property rights to land, was much more restricted, and land transfers were often influenced, or even dictated, by social relations and non-economic considerations. As discussed in the introductory section above, however, this applies also to most modern markets for land.

The papers presented here also allow us to assess some of the effects of market dynamism on a macro level—that is, the effects on agricultural output, economic growth, and welfare. The early medieval period of large and dynamic markets was clearly associated with economic growth and the accumulation of wealth, especially in the towns, as is reflected also by the flourishing of culture and science. This period is also characterized, as we have seen, by the rise of a new elite of merchant-capitalists and by great social inequality, especially in the tenth century CE.\(^{31}\) At the same time, the accumulated wealth was usually no longer invested in the economy, especially not in agriculture, but rather in financial transactions, offices, state power, and means of coercion. Perhaps, something similar can be argued, much more tentatively, for the sixth and fifth centuries BCE, which likewise had dynamic markets, economic growth, and expansion of population, but also ended up in difficulties and hardship. Both periods ended in food shortages and famine and marked the beginning of economic decline (Kleber 2012);\(^{32}\) markets themselves shrivelled after the eleventh century CE. More than the advent of Islam, the tenth and eleventh centuries form a caesura in economic growth and market development.

A challenge for future research is to link these developments in market function to long-term changes in economy and society more generally. Did dynamic factor markets, for instance, go hand in hand with economic growth and rising living standards? In order to answer this and related questions we need to make more use of quantitative indicators, as by using the tax revenues in Iraq as an indicator (Appendix A, for the sixth to fourteenth centuries CE). The level of revenues reflects in part the level of agricultural output and in part the share of this output that the state was able to extract and redistribute by means of taxation. In combination with archaeological data, the sharp, ongoing decline of revenues can tentatively be interpreted as follows: in the late Sasanian period both the physical output and the share of the output appropriated by the state were large, and in the late Abbasid period both were

---

30 Jursa in this issue of *JESHO*: 179-182.
31 Van Bavel, Campopiano, and Dijkman in this issue of *JESHO*: 280-284.

*JESHO* 57 (2014) 145-172
reduced. If this interpretation is correct, it means that the market economy developing in early medieval Iraq did not, in the longer term, have positive effects on the rural economy, as is suggested also by the sharply rising food prices and famines of the period.33

The periods of increased market activity may also be contrasted with long-term developments in per capita GDP in Iraq, for which some tentative estimates have recently become available. For the second half of the first millennium BCE, a period blessed with relatively abundant sources on commodity prices, estimates show per capita GDP fluctuating from about $600 to a maximum of about $800 reached in the latter part of this period, around 100 BCE (Földvári and van Leeuwen 2012: 550-568).34 This level is double the "bare-bones" subsistence level. Although material is scarcer for the early medieval period, it does allow us to make estimates also for this period. The recent estimates by Pamuk and Shatzmiller for southern Iraq show per capita GDP at roughly the same level as for the earlier period, ranging from $890-990 around 760 CE, to $770-860 around 1060, and $640-720 around 1220 (Pamuk and Shatzmiller, 2014). These tentative estimates demonstrate that per capita GDP in the early medieval period of dynamic factor markets is not impressive, compared to earlier periods and other areas, and that these levels declined rather than increased during this period.

Arguably more interesting than abstract figures on per capita GDP are indicators of welfare that include non-economic elements and are closer to the actual experience of people. A powerful example is human stature. Archaeological research may help us reconstruct trends in height and allow us to link the ancient and medieval figures to those for the modern period, which also derive from anthropological studies (Stegl and Baten 2009: 132-148). Some results are already available for Iraq and its neighbouring areas—for example, for Uruk and for Tell Ashara on the Euphrates in present-day Syria, near Iraq (Soltysiak 2007: 435-439; Jursa 2010: 805-806)—but the number of observations is still too low to reach a firm conclusion, and we must place these figures better in their social context, as height correlates substantially with social position. Moreover, it may be risky to make comparisons between members of different populations. Much more research is clearly needed: it is unfortunate that there is little investigation of human remains from this area and that

33 See below at 166-167.
34 The authors use various approaches, including one based on the "guesstimates" of Aperghis.
remains from non-classical periods are mostly ignored (although some promising research does exist).  

Another, partial, indicator of welfare is changes in food prices and the occurrence of famines, as exemplified by the fifth century BCE and the tenth century CE; both of these periods followed periods of intensive, dynamic market exchange (Kleber 2012). Again, investigation of human remains will permit better reconstructions of long-term changes in diet and subsistence levels.

The tentative results obtained so far—in the fields of quantitative and archaeological research in which much progress will probably be made over the coming years—suggest that changes in allocation systems and the rise and decline of markets did not always have great long-term effects on the economy. In the short term, the rise of markets may have increased growth, but, in the long term, this effect was eroded again, perhaps even resulting in economic contraction. The rise of factor markets in Iraq, however, may have had a great effect on the distribution of wealth and welfare, which became much more unequal, and on the organization of society.

These tentative thoughts, together with the more robust evidence on the long-term development of factor markets assembled in this volume, highlight the importance of the connection between socio-political factors and the development of factor markets. This relationship worked both ways: socio-political factors determined the development and organization of markets for land, labour, and capital, and they were strongly affected by these markets. Because these developments are often slow to unfold, this two-way interaction is brought out especially by long-term reconstructions, such as the one undertaken here, for the period from c. 700 BCE to 1100 CE. More research along these lines would allow a reconstruction of long-term continuity and change, and an analysis of the underlying factors.

The papers presented here make great strides in the analysis of the interaction between the social and political context in which markets were formed and functioned and the way they interacted with other mechanisms of exchange and allocation, and the influence exerted by markets on society. In making this analysis, especially with the benefit of the long-term perspective, the papers question and refine the effect of political and religious ruptures, including the fall of the Sasanian empire and the Islamic conquests. The long-term perspective shows that these changes were mostly gradual, and the

35 An interesting forum for this research is the electronic journal Bioarchaeology of the Near East (http://www.anthropology.uw.edu.pl/).
studies highlight the processes of the growth and decline of markets. We hope that the insight that markets do not always rise but sometimes decline, and that the causes of their rise and decline are embedded in changes in society as a whole, will make an important contribution to historiography.

APPENDIX A  Tax revenues from the alluvial plains in Iraq (in millions of dirhams), calculated and/or interpreted by various authors

<table>
<thead>
<tr>
<th></th>
<th>Waines</th>
<th>Campopiano</th>
<th>Adams</th>
<th>Ashtor</th>
</tr>
</thead>
<tbody>
<tr>
<td>c. 500</td>
<td></td>
<td>214</td>
<td></td>
<td></td>
</tr>
<tr>
<td>608</td>
<td></td>
<td>240</td>
<td></td>
<td></td>
</tr>
<tr>
<td>628</td>
<td></td>
<td>340</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conquest</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>634-644</td>
<td>116</td>
<td>128</td>
<td>128</td>
<td></td>
</tr>
<tr>
<td>661-680</td>
<td>150</td>
<td>100</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>680-686</td>
<td></td>
<td></td>
<td>135</td>
<td></td>
</tr>
<tr>
<td>694-714</td>
<td>112</td>
<td>124</td>
<td>120</td>
<td></td>
</tr>
<tr>
<td>717-720</td>
<td></td>
<td></td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>738-744</td>
<td>88</td>
<td>124</td>
<td>134</td>
<td></td>
</tr>
<tr>
<td>788</td>
<td>112</td>
<td>115</td>
<td>108</td>
<td>108</td>
</tr>
<tr>
<td>800</td>
<td>94</td>
<td>113</td>
<td>87</td>
<td>78</td>
</tr>
<tr>
<td>819</td>
<td>75</td>
<td>75</td>
<td>c. 60</td>
<td></td>
</tr>
<tr>
<td>915</td>
<td>23</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>918-919</td>
<td>27</td>
<td>31</td>
<td>c. 40</td>
<td></td>
</tr>
<tr>
<td>968</td>
<td></td>
<td>42</td>
<td>42</td>
<td></td>
</tr>
<tr>
<td>c. 975</td>
<td></td>
<td>30</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td>1180-1225</td>
<td></td>
<td></td>
<td>30</td>
<td></td>
</tr>
<tr>
<td>1336-1340</td>
<td>18</td>
<td></td>
<td>c. 16</td>
<td></td>
</tr>
</tbody>
</table>

Bibliography

Campopiano, M. 2012. State, Land Tax and Agriculture in Iraq from the Arab Conquest to the Crisis of the Abbasid Caliphate (Seventh-Tenth Centuries). Studia Islamica 3: 5-59.


Pamuk, Şevket, & Maya Shatzmiller. 2014. *Plagues, Wages, and Economic Change in the Islamic Middle East, 700-1500*. *Journal of Economic History* 74/1: 1-34.


