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LAND, LEASE AND LABOUR IN IRAQ, 600-1100. SOME PRELIMINARY THOUGHTS ON FACTOR MARKETS, THEIR CONTEXT AND EFFECTS

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1. Introduction: Markets in economics and history

The historiography of markets, both in economics and history, is dominated by much received wisdom. First, there is the assumption – mostly implicit - that markets as a system of exchanging and allocating resources by way of the price mechanism are a modern phenomenon. Commodity markets are generally considered to have been present in many past societies, but economies which also organize the exchange of land, labor and capital by way of the market are deemed modern. These economies are assumed to have grown out of older, more stagnant ones, with more traditional mechanisms of the exchange and the allocation of land, labor and capital, and this shift has presumably helped these societies develop and become wealthy. Further, and especially in neo-classical economics, there is the tendency to see these markets as a kind of abstract playing field where supply and demand meet, or as a playing field where as few regulations as possible should obstruct the working of the forces of supply and demand. It is often assumed that markets, if unfettered, offer flexibility and dynamism, and they create economic growth and enhance welfare.

Since the late 1990s some of these assumptions are being criticized, however. New Institutional Economics and the works by Douglass North in particular have made an impact in the field of economics and subsequently in economic history, and as a result markets are seen now as a complex web of formal and even informal institutions, not as an abstract playing field. The idea that markets are intrinsically flexible and adaptive, is also nuanced now, since it is clear that these market institutions can become frozen and sometimes do not adapt to changing economic or ecological circumstances, even in cases where the inflexibility hurts growth. The concept of institutional sclerosis, as put forward by, for instance, Mancur Olson and Douglass North in his later work, is widely accepted now. Lastly, in recent years more people - both inside and outside academia - have come to question the welfare-enhancing effect of markets again. The arguments they bring forward are the seeming inability of markets to benefit all parties involved in market exchange – in many developing countries, for instance -, and also the economic downfalls and recent problems in financial markets, and the negative social and ecological effects associated with market competition.

These criticisms are not shared by all, however. The latter one is especially contentious, since many neo-classical economists would hold that the ecological and social problems are not the intrinsic result of markets but rather of the malfunctioning of markets because of obstructions, interference by governments or flaws in the current market frameworks. Correcting these flaws, and having markets function more freely, would solve these problems. And even if there is more interest now in the institutional organization of markets, and in the possible problems associated with market competition, the assumptions that factor markets are modern, help dynamism and stimulate economic growth, still stand and are widely held; not only by neo-classical and neo-institutional economists but also by many neo-marxists, who at least see them as instrumental or even crucial in helping traditional, feudal societies to escape from stagnation.

These assumptions seem to be underpinned by historical research. Much of the recent research in economic history is devoted to charting the rise of markets for land, labor and capital in Western Europe. Bruce Campbell for England and Bas van Bavel for the Low Countries have illuminated the emergence of factor markets in the course of the high and late Middle Ages.[1] The northern parts of the Low Countries, for instance, turn out to have had most of the land and very substantial parts of labor and capital exchanged by way of the market by the 16th century, in order for market exchange to remain dominant since then. This suggests that factor markets are a modern phenomenon – with other parts of the world bound to follow the leading example of Northwestern Europe at some point later in history. This chronology also suggests that the rise of factor markets in Northwestern Europe must have stimulated development and created wealth, since we are much wealthier now than in the past and also much wealthier than parts of the world where factor markets are still weak and restricted. It seems hard to argue against such logic.

Yet the people involved in this workshop know that factor markets are not modern, but existed in several periods throughout history. They are not always rising, but after some time they stagnate and decline, and perhaps rise again in a next phase, as can be shown for the case of Iraq through the Babylonian, neo-Babylonian, Sassanid and Islamic ages, for instance. This insight already severs the assumed link between markets and modern wealth, and it can form a powerful antidote against teleological assumptions on markets and their effects.

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[1] Bruce Campbell, 'Factor markets in England'; Bas van Bavel, 'The organization and rise of land and lease markets in Northwestern Europe and Italy, c. 1000-1800', *Continuity & Change* 22 (Cambridge University Press, 2007) pp. 13-53; Id., 'The transition in the Low Countries. Wage labour as an indicator of the rise of capitalism in the countryside, 14th-17th centuries', in: P. Coss, C. Dyer & C. Wickham (eds.), Rodney Hilton's Middle Ages. *Past & Present Supplement* 2 (Oxford University Press, 2007) pp. 286-303.

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 link between markets and the social distribution of property and power, an element missing in most neo-classical and neo-institutional analyses of the formation and functioning of markets. This is remarkable, since the ideas of the champion of neo-liberal thought, Adam Smith, can only be understood when set in the context of a particular distribution of property. Although Smith argued that accumulation of capital is necessary for production to improve, he saw this a the result of the accumulation of smaller, individual savings, and he reasoned from a situation typical of the pre-industrial world in which he lived, which was characterized by relatively small-scale, owner-managed production. Markets, according to him, would work best with small-scale buyers and sellers, who could not individually influence the market, in a situation of atomistic competition. And he believed that markets would reinforce this situation, since the effect of his market system would essentially be egalitarian. This is an assumption which can be questioned by looking closer at the long-term effect of market exchange on the distribution of property and power, and at the effect of changes in the distribution of property and power on the organization of market exchange.

The distribution of power and property is relevant also with respect to the institutional organization of markets. If we would see the development of institutions as the effect of a confrontation between various social groups, than the resulting institutional framework is not automatically the most efficient one for society as a whole; rather it is best suited to the interests of the elites in power.[2] Elites, as those emerged as a result of their success in market exchange, can adapt and shape the institutional organization of markets to suit their interests. This can enhance their economic success, but at the same time erode the basis for further economic growth.[3] More generally put, the functioning and effects of markets can only be understood when placed in their social and political context.

Following from this, there are several elements ideally to be investigated, although especially for the pre-modern period cases that data will not always permit this. The first requirement is a quantitative reconstruction of the rise, stagnation and decline of markets, accompanied by an analysis of the quality of these markets, mainly to be performed by using concrete, quantitative indicators for the accessibility, mobility and flexibility these markets offered, as well as more

[2] A notion more often found in work on political economy, and recently made again by Ogilvie, 'Whatever is, is right?', for instance.

[3] A hypothesis tested in the NWO research project "Economic Growth and Stagnation in the Pre-Industrial Era: Iraq, Italy and the Low Countries, 600-1700" at Utrecht University.

descriptive, qualitative assessments. In view of the suggested link with the social distribution of power and property, there is also a need for a reconstruction of the distribution of land and capital, and the changes in this distribution over time, and the control of various social groups over offices, legislative bodies and other forms of authority. The final requirement is a reconstruction of economic growth and decline, and of the changes in living standards, preferably by quantitative indicators, such as real wages but also human stature. This reconstruction is also needed for the period before the rise of factor markets, in order to allow for a quantitative assessment of the effects of their rise. For all elements especially the chronology of developments in these fields is crucial, since this will allow us to further investigate the causality.

Most progress can arguably be made by looking not at commodity markets – as is often done in studies on markets and their effects in the very long run (such as those by Karl Gunnar Persson)[4] – but especially at *factor* markets. Whereas commodity markets are almost universal in history, and thrived in many places and times, factor markets were more rare, since many other, feasible ways of exchanging and allocating land, labor and capital exist, including the state, family and kin, and horizontal associations. Factor markets are much more intriguing. They come much closer to the being of people, as they do not deal with inanimate goods and products, but directly affect each person's labor power and their most valuable asset, their land. Also, factor markets appear and disappear again, and differ far more in their institutional arrangement than commodity markets do.[5]

This paper looks into the development and role of factor markets in one of the major, pre-industrial examples of successful market economies in western Eurasia: Iraq in the early Middle Ages. This area is chosen for this investigation not for its favourable sources – as these are clearly less than for preceding periods or for contemporary cases as early medieval Egypt.[6] As a result, the following sketch is patchy and sometimes even speculative. Still, there are sound reasons to study early medieval Iraq, since this area was the economic forerunner of its era and had dynamic markets; not only in goods and products, but also in land, labor and capital. If a positive effect of the rise of market exchange is assumed, one would expect to find it especially here.

In the 8th and 9th centuries, Iraq was probably the most economically advanced area of western Eurasia. The urbanization rate in Iraq, which reflects the power of the society to generate agrarian surpluses and develop non-agricultural sectors, was substantial, and probably

[4] Karl Gunnar Persson, *Grain Markets in Europe.*
[5] Special issues *Continuity & Change* 23.1 (2008) and 24.1 (2009).

more than a fifth, perhaps even a quarter.[7] Baghdad, with almost half a million inhabitants, was larger than any other city in the Near East or Europe. And also the towns of Kufa, Basra and Wasit counted about a hundred thousand inhabitants. This period was also a high point of culture, not only in architecture but also in scientific scholarship, with Baghdad perhaps able to claim the title of intellectual capital of the world, which again points to the ample availability of surpluses. This florescence was partly a result of the flows of tribute to the caliph – tribute that also came from other parts of the Abbasid empire – but also of the endogenous development of Iraq. The latter can be inferred from various indicators of economic development, such as the advanced technology employed in agriculture, industries and hydrology, the high level of occupational specialization and the importance of non-agricultural activities.[8] This period was also one of increasing market exchange. Markets for goods had always been important here, but further increased in importance, together with urbanization and specialization, both in agriculture and outside it. Connected to this, the money supply in the Abbasid period greatly increased and letters of credit came widely into use, enabling and stimulating financial transactions and market exchange.[9]

It seems only logical to see this period as the economic high point of Iraq and to at least partly link this to the rise of markets. Still, on closer inspection, there are two counter-arguments. First, archaeological research in particular indicates that Iraq had earlier, in the 6th century, had a period of great prosperity, under the Sasanians, with large-scale irrigation works and the extension of agricultural land.[10] This was before the monetary upsurge and the boom in factor markets. Tentative calculations suggest that GDP/capita before the early Islamic period was already fairly high, at about twice the subsistence level; the early Islamic period does not stand out in this respect.[11] In technological respect, too, practices were rather a continuation of earlier periods than innovations. Second, the increase of market exchange and monetization in the 8th and 9th centuries, and the growing mobility of land, labor and capital in the market did not lead to further growth. Instead, even in the same period, there were the first signs of stagnation, and these became even more apparent in the 10th century. Irrigation works fell into

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6 Petra M. Sijpesteijn, 'Landholding patterns in early Islamic Egypt'.
7 Ashtor, pp. 89-91; Bosker, Buring & Van Zanden, 'From Baghdad to London' (2008).
8 Ashtor, *Social and Economic History,* Watson, *Agricultural Innovation;* Hassan and Hill, *Islamic Technology;* Shatzmiller, *Labour.*
9 Maya Shatzmiller, paper for this conference; Udovitch, *Partnership and Profit.*
10 Adams, *Land behind Baghdad,* 69-83.
11 Peter Foldvari & Bas van Leeuwen, 'Comparing per capita income', paper presented at this workshop (2011); S. Pamuk & M. Shatzmiller, paper presented at this workshop (2011). See also the conclusion below.

disrepair, the cultivated area shrank, output declined and the urbanization rate fell.[12] In the 9th century, most big towns already experienced demographic decline, and this was counterbalanced only by a further growth of Baghdad. In the 10th century, however, both Baghdad and the other towns declined, a decline proceeding in the 11th century, and resulting in the towns being reduced by more than half in absolute numbers.[13] This decline is indicative of the fact that Iraq lost its dominant economic position and went into a sharp decline

There are no great external shocks, of a climatologic, epidemic or military nature for instance, to be blamed for this decline in Iraq; this paper instead argues that the causes may be endogenous. It can be hypothesized that the rise, organization and functioning of markets – and of factor markets in particular – and the negative feedback cycle resulting from the rise of factor markets, form the key elements in this. Preceded by a general look at land tenure (section 2), this will be investigated in this paper by looking at two factor markets: those for lease land (section 3) and for labour (section 4). Not much material is available, particularly not of a quantitative nature, but we will assemble some pieces of evidence here. In the last section (section 5) we will contrast the findings with some macro-economic indicators, in order to come to a preliminary assessment.

2. Land tenure in Iraq

In recent years, the literature on economic development and social change in the pre-industrial era has shifted its focus more to the countryside. The traditional emphasis on the role of cities as sole motors of development, and that on the backwardness of rural economy and society, has been left, and more attention is paid to the interaction between town and countryside, and even to a possible progressive role of the rural economy. The recent literature on rural development, however, is imbued with the same teleological ideas as described more generally above. Both neo-Smithians and neo-Marxists seem to endorse the view that absolute, exclusive property rights in private hands, combined with competitive land and lease markets, are the direct road to social change and economic growth in the pre-industrial countryside. This success story is

[12] M. Campopiano, "State, Land Tax and Agriculture in Iraq from the Arab Conquest to the Crisis of the Abbasid Caliphate (Seventh-Tenth Centuries)", in *Studia Islamica*, 2011 (Campopiano, 2011a); Idem, "Fiscalité et structures économiques et sociales en Iraq de la conquête arabe à la crise du califat abbaside (VII-X siècles)", in *Espaces et Réseaux en Méditerranée VIe et XVIe siècle.* III. *Repenser l'espace économique méditerranéen (Ve-XVe siècle),* sous la direction de D. Coulon, A. Nef, Ch. Picard, D. Valérian, Paris, Bouchène (Bibliothèque de la Méditerranée), in print, scheduled 2011 (Campopiano, 2011b)

particularly told for Western Europe in the late medieval and early modern period, an area for which recent reconstructions of the chronology and spatial distribution of the rise of short-term leasing are available. These show how in the 12th century leasing for fixed terms becomes more important in the center-north of Italy and in the 13th century in the north of France, the southern Low Countries and the Rhineland.[14] In a of the few regions within these areas, such as coastal Flanders in the 14th century, the Guelders river area and Lombardy in the 15th and 16th centuries, and some parts of England in the early modern period, this resulted in accumulation of land, increasing investments and an agrarian transition.[15] Whether the rural transition in these regions contributed to long-run economic growth is not easy to assess. But at least initially, the growing market-orientation and specialization, and also the investments made in capital goods and the related reduction of labor inputs, have pushed up labor productivity in these regions, albeit at high social costs. The fact that these developments only occurred in a few regions already indicates that they were not the automatic result of the rise of short-term leasing in itself. The exact institutional organization of the lease and the lease markets were also determining the outcome, since this enhanced the security of tenant and landlord, or not, kept transaction costs to a minimum, or not, and promoted productive investment, or not. Further, needed was a sound arrangement of joint investments and reimbursement after expiration of the lease term of the investments made by the tenant. This favorable institutional arrangement should be paired with the opportunities for market-orientation, as offered by high urbanization, early monetization and big urban markets, as all found in these regions.

Even if these conditions were available, however, it can be shown how the effects of short-term leasing sometimes changed over time. A fine and well-known example is the sharecropping lease in central Italy, the *mezzadria*. Initially, in the 12th and 13th centuries, this system was probably conducive to investment, specialization and economic growth in the agricultural sector, but as the economic, political and jurisdictional power of the urban elites grew, and these urban elites extended their grip over the countryside and its population, this system was increasingly used to bind rural labor and to profit from the forced interlinkage of capital, labor, lease and product markets.[16] Investments declined and the rural economy stagnated, and rural society became impoverished.

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13 Data kindly provided by Eltjo Buring, Utrecht University, 3-5-2011

14 Bas van Bavel, 'The emergence and growth', in BvB & P. S.(eds.), *The development of leasehold.*

15 B.J.P. van Bavel, 'Land, lease and agriculture'; D. Sella, 'Household, land tenure and occupation in north Italy in the late sixteenth century', *Journal of European Economic History*, XVI (1987), 487-509, esp. 491; R.C. Allen, *Enclosure.*

16 R.J. Emigh, 'The spread of sharecropping. The political economy of transaction costs', *American Sociological Review*, LXII (1997), 423-442; B.J.P. van Bavel, 'Markets for land, labour, and capital'.

This example points out the importance of the social balance behind these institutional arrangements. It can be hypothesized that the social context, or more specifically the balance between tenant and landlord, was a crucial element in determining the outcome. The landlord must have been able to have enough grip over the land to securely lease the land out, but without having the power to force the tenant or to bind him to the land. On the other hand, the tenant should have secure possession of the land for the term of the lease, but without the possibility to hurt the property rights of the landlord. Also, if tenants lacked capital and other resources, and were highly dependent on the landlord, the organization of the lease was likely to be less favorable for the tenant. This offered rent-seeking possibilities to the landlord, but in the long-run it eroded any possible economic gains from the rise of leasing and resulted in under-investment.

In Iraq, absolute, exclusive property rights to land had certainly never existed, in the sense that the state could always claim a large part of the revenues, by way of substantial taxes. Income rights to the land are therefore always shared. Wanting to squeeze the situation with respect to property rights to land into the Western, "modern" concepts would be wrong. Just like in the high medieval West, these property rights were divided over a host of persons and parties, of which in early medieval Iraq the state was always a main one.[17] The other elements of the bundle of property rights, that is to rights to use, inherit, access and sell the land, however, could well be united in one hand there.

That was the case already before the Islamic conquest, under the Sasanian Empire. The Late Sasanian period laid the foundation of the system of land tax extraction that was followed after the Arab conquest. Before the reign of Husraw Anōšag-ruwān (531-579), taxation seems to have been based on a system that assessed land tax on the basis of a share of the crops[18]. Tax assessment based on a share of the crops depended largely on the crucial role of the nobility in collecting the tax in the area under their control and handing in a share of it to the central authorities, while the king had direct control over crown lands[19].

The administrative reforms accomplished under Husraw, seem to have fundamentally changed this system, at least in some areas of the Empire. The reform of tax assessment, based on a cadastral survey of the land and a stronger centralisation of the system of tax collection,

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17 Compare the situation in early medieval Egypt: [G. Frantz-Murphy, 'Land tenure in Egypt in the first five centuries of Islamic rule', in: *Agriculture in Egypt*]

18 Rubin, 1995: 232; Lukonin, 1983: 745-6; Morony, 1981: 158.

19 M.Campopiano, "*Alā l-misāḥa* and *muqāsama* Land Tax: Legal Theory and Balance of Social Forces in Early Medieval Iraq (Sixth to Eighth Centuries)", in *Journal of the Economic and Social History of the Orient*, 54/2 (2011), in print (Campopiano, 2011c); Rubin, 2004: 245; Lukonin, 1983: 723 and 726-7; Pigulevskaja, 1963: 186-7; Altheim-Stiehl, 1954: 18-9.

saw the bureaucracy more closely involved in the work of tax collection at every level. Tax was collected on the basis of a fixed amount of money per unit of surface area. The tax rate varied according to the nature of the crops: for example tax rates for fields cultivated with wheat were different from rates for fields cultivated as vineyards[20].

The role of state officers in tax collection became more important at every level. An example of this involvement of the state in this system of surplus extraction can be the role of the 'judge' (*dādwar*). The judge had an extremely important role in land administration as he was competent in what we would call the bundle of property rights existing on the soil, covering similar competences to those of a modern-day cadastral bureau[21]. Even the conditions of land tenure seem to have changed, at least in part, in some areas of the Empire, as a result of the reforms in the 6th century. Another consequence of Husraw's policies was that landholding was increasingly seen as a simple grant from the sovereign. This evolution changed the balance of power within the Empire and influenced patterns of landholding and land administration in Sassanid society. The class of the *dahāqīn* (as they are called in Arabic sources, which often refer to them when discussing the situation of Iraq after the conquest) became the backbone of the Persian military, they represented the 'petty nobility' of the Empire and owed their position to royal land grants.[22]

The land-tax assessment in Iraq after the conquest seems to have followed the general outline of Sassanid surplus collection. The main land tax was called *kharādj*: the tax, imposed on the land of conquered populations who had not accepted Islam before the conquest and had not signed a special agreement (*suh*), was levied on most of the conquered areas.[23] Tax assessment on *kharādj* land mainly followed a system called *'ala l-misāha*: from a fixed portion of land a fixed amount of money and/or crops was collected[24]. Another kind of tax assessment was the tithe (*'ushr*), which was assessed on the land of

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[20] Campopiano, 2011c; Gariboldi, 2007: 178-9; Mårtensson, 2005; Rubin, 1994: 227-97; Frye, 1984: 324-5.
[21] Campopiano 2011c; Daryaee, 2009: 133.
[22] Campopiano, 2011c; Daryaee**,** 2009: 29, 147-8; Gariboldi, 2007: 31-8; Lukonin, 1983: 734; Altheim-Stiehl, 1954: 141.
[23] Concerning continuity and change in the tax assessment system after the Arab conquest, see: Campopiano, 2011c, M. Campopiano; "Land tenure, land tax and social conflictuality in Iraq from the Late Sasanian to the Early Islamic period (fifth to ninth centuries)", in *Late Antiquity and Early Islam, Continuity and change in the Mediterranean 6th-10th century, Authority and control in the countryside*, Conference proceedings, 13-16 September 2010, Université de Leyde-Université d'Oxford-Université de Princeton-Sorbonne, Paris IV, Université Panthéon-Sorbonne, Paris I, École Pratique des Hautes Etudes , ed. by P. Sijpesteijn, Bril, Leiden, in print, scheduled 2011 (Campopiano, 2011d);Donner, 2008; Oran-Rashid, 1989; Donner, 1981: 239-40.
[24] Morony, 1984b: 100; Campopiano; 2011a and 2011c

believers (Muslims). It seems that farmers residing on state lands were bound to pay tax/rent proportionate to the yield, as in the Sassanid period[25].

Village estates under the control of *dahāqīn* were the normal agricultural and taxation units at the time of the Arab conquest: *dahāqīn* helped in the collection of surplus and its transmission to the State in the form of taxes[26]. Fiscal agents were still required to deal with responsible individuals within the village or district in order to help them collect taxes and mediate between the peasantry and the bureaucracy[27].The strong presence of central authority in the process of surplus extraction and control of the producing classes in no way meant that the landed estates could not be sold or exchanged[28] : land was sold or exchanged after the conquest[29].

Attempts to prohibit land sales in the Sawād seem to occur from the beginning of the 8th century. As Morony has pointed out, the rationale behind this policy might have been to prevent the loss of revenue through conversion or sale to Muslims, as the *kharādj* was in theory a tax on the land of unbelievers[30]. In the course of the 8th century, however, the idea that the status of the land (*kharādj* or '*ushr*) was independent from the condition of the landlord seems to have prevailed. However, both attempts to enforce a prohibition of land sales in the Sawād and then the necessity of making the status of *kharādj* land independent from the religious beliefs of the owners point to the emergence of a Muslim landed elite and a concentration of landed property in its hands from at least the beginning of the 8th century, as it has been suggested by Campopiano in some recent contributions[31].

The Umayyads tried to strengthen central control over land: their land surveys, indispensable in a system of surplus extraction based on the *'ala l-misāha* system, was one of the ways of doing this[32]. On the other hand, land grants from the caliphs, in particular for land reclamation, encouraged the formation of an elite of landlords mainly composed by members or clients of the ruling dynasty, and that usually paid less taxes (they were usually bound to pay the tithe instead of the heavy *kharādj*)[33]. The access of the state to land surplus was, from the end of the 9th century onwards, limited not just by the power of the landlords but also by the multiplication of the intermediaries because of the development of tax farm and later of the *iqta'*

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[25]Morony, 1984b: 104-5; Campopiano, 2011a and b.
[26] Campopiano, 2011a and c; Daryaee**,** 2009: 29 and 147-8; Morony, 1981; Altheim-Stiehl, 1957: 141.
[27] Morony, 1981: 210; Løkkegaard, 1978: 166-8; Cahen, 1954: 136-52.
[28] Morony, 1981: 135. More generally, see also Schmucker, 1972; Morony, 1988.
[29] Campopiano, 2011c; Campopiano, 2011d
[30] Morony, 1981: pp. 140-1.
[31] Campopiano, 2011c; Campopiano, 2011d.
[32]Wadād al-Qāḍ ī, 2006: 365; Robinson, 2000: 44-50.
[33] Campopiano, 2011and 2011 c; 2011d; Kennedy, 2004; Morony, 1984a: 211-3

system. Tax-farming was possible at different levels, within the central or local government, or within smaller districts. To offer the necessary financial guarantees to the State, the tax-farmers had to be chosen from the upper classes of 'Abbasid Society, strengthening the power of the already existing commercial, landholding or political elites, leading to a weakening of the rights of the government on land and land surplus. This evolution was strengthened by the rise under the Buwayhids the military iḳṭā' developed, with system based on the concession of the fiscal rights of the State over land in place of a salary.[34]

3. Leasing in Iraq

Leasing existed already long in this area. In Mesopotamia, from the middle of the third millennium BC, many people tilled the land for part of the crop or a fixed amount of silver, and in the 19th century BC written lease contracts start to appear, especially in the north of Mesopotamia.[35] Particularly urban proprietors leased out their land, in leaseholdings of some 5-6 hectares of arable on average, for a fixed sum or a third of the crop. In the neo-Babylonian period, the fairly rich source material shows tenants of smaller, family-sized plots of land (mostly less than 5 hectares of land), but also agricultural entrepreneurs leasing larger holdings from temples or crown land, as amply attested in material from the 6th century BC.[36] These entrepreneurs, often also acting as money-lenders to the estate holders, could manage the land themselves, but they could also decide to sublet the land, which gave rise to hierarchies of tenants. In the Sasanian period, as documented for Jews, the main form of tenancy was share-cropping for one-quarter to one-third of the crop[37]. The sharecropper held permanent rights and could sublet the land, thus offering him strong rights to the land. Next there were systems more akin to the lease, with the tenant (*hoker, akkàr*) leasing the land for a fixed annual payment of money or crop, without any permanent rights to the land.[38] The latter system emerged after the Arabic conquest as the main system These *akara* were the main type of tenants on Muslim-acquired estates and often lived in a dependent position, more or less tied to the land. Although

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[34] Campopiano, 2011 a and b; Tsugitaka, *State and Rural Society in Medieval Islam. Sultans, Muqta's and Fallahun* (Leiden-New York-Köln, 1997), 20-1; C. Cahen, " L'évolution de l'iqta' du IXe au XIIIe siècle. Contribution a une histoire comparée des societés médiévales", *Annales. Economies, Societés, Civilizations* 8, 1953, 25-52

[35] W.F. Leemans, 'The rôle of landlease in Mesopotamia in the early second millennium BC', *JESHO* 18 (1975) pp. 134-145.

[36] Jursa, *Aspects of the economic history*, 184-206. [Van Driel, 'Agricultural entrepreneurs', in Klengel & Renger (1999)]

[37] M.G. Morony, 'Landholding in seventh-century Iraq', pp. 162-165. [M. Morony, "Land use and settlement patterns', in King & Cameron (eds.), *The Byzantine and Early Islamic Near East*]

the early Islamic conquerors in principle may have been were against leasing, and the Prophet said to his followers that if you were not able to use the land yourself, you should have it used by your brethren for free[39], in practice this turned out to have no observable effect.

The part of the cultivated area given out in short-term lease and its development over time are very difficult to reconstruct. The sources available for the Sasanian and the Early Islamic period (chronicles, juridical and geographical treatises) do not allow us to give precise figures on the diffusion of short-term lease. We can try to assess whether the short term-lease enjoyed an increasing diffusion analyzing the works of the jurists and the few scattered information we have from the chronicles. Analyzing works such as those of Abū Yūsuf (†798) , that increasingly supported sharecropping and other forms of short term leases since the 8th century onward, it seem reasonable to see the 8th century as a period of diffusion of this kind of contract[40].

The diffusion of the short term lease took place in a context in which the presence of smallholders was already declining. As we have seen in the previous chapter, the presence of small landowning peasants reached a first nadir in the late Sasanian period. In the Umayyad period there were still peasant freeholders, but increasingly land became concentrated into the hands of Muslim elites, as we have seen (section 2). From the second half of the 10th century large landownership even further increased.[41] This dominance of large landownership could in theory have pushed up the importance of short-term leasing.

Compared to the two possibilities emerging in Northwestern Europe (peasants working their own land or tenants leasing the land from large landowners), there were much more constellations in early medieval Iraq: serfs on larger estates, landless wage labourers on larger estates and slaves on estates. The diffusion of serfdom and slavery will be better explained in the following section. However, there is no doubt that least till the whole of the 8th century serfdom was one of the dominant forms of organization of rural labour.

Perhaps the sources in due course will learn us a little more about the exact organization of leasing, but information on Iraq is very scarce. We hardly know what the length of the lease contract in years was, for instance. Perhaps most of the leases were for only one year, or for indefinite terms at the will of the landlord, but direct information on this for Iraq is very scarce, in contrast to early medieval Egypt, for instance. [42] If these lease terms

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[38] Campopiano, 2011c

[39] B. Johansen, *The Islamic law on land tax*, pp. 27-28.

[40] Campopiano, 2011c

[41] Campopiano, 2011a and 2011d

[42] Banaji, 'Aristocracies'. Cf. for a similar lease terms in early medieval Egypt: Banaji, *Agrarian change*, pp. 199 and 237-238. [Richter, 'Cultivation of monastic estates…. land leases', in: *Monastic Estates in Late*

indeed were predominant, this would have created insecurity for the tenant and reduced his incentives to invest in the land.

Other elements of the lease contract are not known to us either; the source material is too limited for this. It is unclear, for instance, whether the tenant had full use rights during the lease term.[43] Neither is clear what the size of tenancies was. We do know more, however, about the payment of the lease, in money, kind or as a share of the crop. In the period after the conquest, sharecropping seems to have been very important in Iraq. This is reflected in the legal discourse. Islamic jurists were in principle against sharecropping, since this system could be interpreted as a type of *riba al fadl*, or undeserved income from unequal exchange of land, leading to the exploitation of the weaker groups in society, but in the course of the 8th century more jurists in Iraq try to legitimize its use.[44] There are sharecropping contracts described by Abu Yusuf, in a system were the land tax is *muqasama*, this means based on a share of the crops.[45] The criticism on sharecropping as unjust instrument of exploitation, however, remains a topic among a few jurists, as with the scholar Abu Bakr Ahmad ibn Alial-Bayhaqi in the 11th century. It is striking, however, that the initial resistance of Islamic jurists against sharecropping, and the attention to its exploitative nature, had already weakened in the course of the 8th century, probably because of the fact that exactly sharecropping was that dominant here and it was impossible to ban its use .

The share of the agricultural output actually paid as lease (and not as tax) was probably a relatively small part, and smaller than in Western Europe where fiscal pressure was limited. In Iraq, a very substantial share was paid as taxes, which different kinds we have described in the previous section although the exact share varied according to the legal status of land. Tax rates probably increased after the conquest, but afterwards tax rates did not change radically over time[46]. The main exception is formed by the diffusion of the muqasama land tax, a tax assessed on the base of a share of the crops (a tax mainly assessed to collect grains), diffused under al-Mahdī (ruled 775-785). This makes it easier to calculate which share of the tax was due as tax and which as rent[47]. Different rates are given for this kind of assessment of the land tax with a maximum rate of 50% and minimum rate of 10%, that probably depended on

Antique and Early Islamic Egypt] [Project by Petra Sijpesteiijn]

43 B. Johansen, *The Islamic law on land tax*, pp. 38-39.

44 M. Campopiano, 'Mukusama land tax'.

45 Abū Yūsuf, *Kitāb al-kharādj* (transl. Ben Shemesh), pp. 115-6; *Kitāb al-kharādj*, p. 52 (Arabic text); H. Yanagihashi, *A history of the early Islamic law of property*, pp. 253-275. [Ziaul Haque, *Islam and feudalism*, 1985, pp. 88-105]

46Morony, *Iraq*, 103.

47 Campopiano 2011c

different factors such as irrigation of the land, positions of the fields, etc .[48]. We can have an idea of the distribution of the surplus between taxation and rent in a sharecropping contract looking at a text of Abu Yusuf, which considers the case of a landlord who is renting the land to a tenant for the payment of 5/6 or 6/7 of the produce, whilst the owner sustains all the other expenses: the payment of the *kharādj muqasama* would have already been deducted from the tenant's share[49]. If we suppose a tax rate of 50% of the crop, the rent would have been of little more then 33% of the crops. In this case the landlord must have paid the seed.

The big question is how all this promoted investments in agriculture, either by the landlord or by the tenant farmer, or rather blocked this. This is an issue which awaits further research. Opportunities to do this are offered by the descriptions of how the investments in sharecropping contracts were organized: the jurists describe different combination of labor and capital inputs (seed, animals, etc.). A first glance at these show that there was little security for the tenant. He was not sure to reap the benefits of his investments and in practise in most cases only brought in his labor. So, investments should be made by landlords, but their incentive was not too big either, also because the lease sum was only a relatively small part, compared to the tax.

How this all affected agriculture is hard to say; there is no direct evidence. There are, however, some indirect indicators. Adams' research has shown the decline of the cultivated area starting at least from the 9th century. Although the results of his research have been nuanced, it is still difficult to object to the fact that the tilled surface area at the end of the 10th century had substantially shrunk compared to the 7th or 8th century.[50] There is also the decline of land tax revenue during the 9th century. Land tax revenue at the beginning of the 10th century is much lower then at the end of the 8th, as it has been recently confirmed by Campopiano's research (see Appendix A for figures), at least partly as a result of the declining agricultural output.[51] The latter resulted in a rise of food prices between the 8th and 10th centuries, not only in nominal prices but also in real terms (see below and appendices A en B). This directly affected the position of wage labourers and town dwellers; a topic to be dealt with in the next section.

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[48] C. E. Bosworth, "Muqāsama" in *EI* (2), vol. VII, pp. 506-7; Campopiano, 2011b and c.
[49] Abu Yūsuf, *Kitāb al-kharādj* (transl. Ben Shemesh), pp. 115-6; *Kitāb al-kharādj*, p. 52 (Arabic text).
[50] [Adams, *Land*, 98-102 See also: Campopiano, 2011a and 2011b; M. G. Morony, "Land Use and Settlement Patterns in Late Sasanian and Early Islamic Iraq", in *The Byzantine and early Islamic Near East* II *Land Use and Settlement Patterns,* ed. by G.R.D. King and Averil Cameron (Princeton, 1994), 221-29
[51] Campopiano, 2011a and 2011b

4. The labour market in Iraq

In Europe markets for wage labour began to develop at the end of the Middle Ages: serfdom and labour services made way for free labour, performed for cash wages and structured by contractual relations. This development should not be envisaged as a uniform process. Scope and character of labour markets varied, depending on social and political relations. In some regions coercion continued to be an important factor. Nor was the development of labour markets a matter of inexorable progress towards greater efficiency. It is not difficult to find examples of situations where influential groups in society, in reaction to changed circumstances or to shifts in the balance of power, introduced restrictions intended to reduce the flexibility of labour markets in order to protect their own interests. Craft guilds, for instance, contributed to the development of a flexible supply of skilled labour by providing an efficient system for the training of apprentices, but in Flanders, where these guilds gained political power, they also restricted access to the crafts for outsiders and limited the number of journeymen a master could employ. In Holland, where guilds had less power, they were unable to shape the labour market to the same extent.[52] Likewise, in post-Plague Italy and England labour shortages induced legislation intended to freeze wages, force everybody under 60 to work, and punish the breaking of employment contracts. This cannot be attributed to demographic developments alone: in other parts of Europe similar shortages did not trigger the same reaction. Pressure by the influential Italian patriciate and English gentry respectively, and the existence of a strong tradition of compulsory labour services were part of the explanation.[53]

In early medieval Iraq the labour market was likewise affected by the balance of power in society. In the Late Sasanian empire labour relations were determined, to a considerable degree, by coercion. The *Hazār Dādestān*, a collection of law cases compiled in the first half of the 7th century, refers to slavery; slave owners could be kings, individuals, but also Zoroastrian temples.[54] In addition, there was a sizable labour force of captive origin. Syrian and Greek captives were employed in agriculture on the estates of the *dahāqīn* (aristocratic landlords who were also village administators), or in manufacturing.[55]

Captives with special skills might be forced to work in royal workshops situated in towns that were under the direct control of the king. This happened, for instance, to the fourth-century Christian martyr Phusik, a brocade weaver who was transferred, with his family, from the city of

52 Van Bavel, *Manors and Markets*, 205-207.
53 Cohn, 'After the Black Death'; Kuijpers, 'Labour legislation'.
54 Perikhanian, 'Iranian Society and Law', 634-641;
55 Morony, *Iraq After the Muslim Conquest,* 273.

Bishapur (in present-day western Iran) to nearby Karkha-de-Ledan, where he was put to work in one of the royal workshops near the palace as one of the 'artisans of the court'. In other cases corvee labour for the court seems to have been combined with a livelihood as an independent artisan. This is suggested by the story of the Nestorian bishop Simeon, a contemporary of Phusik and also a Christian martyr. Simeon spoke up in protest against the heavy taxes imposed on his co-religionists, many of whom were artisans: he complained that they were required to pay a double personal tax and in addition had to perform labour for the king.[56]

Among the urban artisans, or at least among those who were Christians, some form of internal organization seems to have existed: representatives of various crafts, referred to as their 'heads', co-signed some of the resolutions of the Nestorian councils. In her book on the Sasanian towns, Nina Pigulevskaja refers to the crafts as 'guilds' and to their heads as 'deans'.[57] This suggests a close resemblance to the guilds in medieval Europe, but it is doubtful if the analogy is justified. Very little is known about the functioning of the associations of Sasanian craftsmen; it is not clear if they had a role in the training of the workforce and the regulation of labour relations. At least in the royal towns their autonomy was probably limited: there, all artisans were subjected to the supervision of the *qarugbed,* the 'chief of artisans' installed by the king. The fact that Phusik, himself a brocade weaver, was appointed as *qarugbed* indicates that this functionary served as a linking pin between state and artisanat; but since he was sent out by the king to visit the artisans in another town, it also appears that royal authority ultimately prevailed. If the autonomy of artisans was greater in other towns is unknown; nor do we know if Zoroastrian artisans knew similar associations.

Urban labour markets changed significantly after the arrival of Islam. In part these changes were related to the rapid increase of urbanization. Iraq's three largest towns Baghdad, Basra and Kufa, all date from the first 150 years of Islamic rule; some of the existing towns, like Mosul in northern Mesopotamia, expanded in this same period.[58] A growing demand for products and services stimulated specialization. Al-Dinawari's 'Encyclopedia of Dreams' paints a vivid picture of the wide range of activities in manufacturing, trade, and services that Baghdad must harboured in the tenth century. The streets of the city teemed with craftsmen and labourers of every sort, pedlars and traders selling all kinds of wares, porters and carriers, household personnel, and many others.[59]

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[56] Pigulevskaja, *Les villes,* 159-160, 170-171.
[57] Pigulevskaja, 160-161.
[58] Bosworth, *Islamic Cities.*
[59] Fahd, 'Corps de métiers'.

Some of these people worked under conditions that reflect the coercive structures of the Sasanian era. Royal workshops producing luxury commodities for the caliph and his household also existed in 'Abbasid Baghdad. In principle, the highly qualified craftsmen employed in these workshops seem to have been paid salaries reflecting their superior level of skills. Nonetheless, at least in two cases coercion was used. In the middle of the ninth century caliph al-Mu'tassim, returning from a military campaign in Egypt, took a group of Egyptian captives with him to Baghdad, some of whom were later put to work as weavers to make embroidered linens in the Egyptian fashion. Likewise, in the late tenth century the Buyide emir 'Adud al-Dawla reportedly founded a town in Fars (south-western Iran) to which he transferred "the woolworkers, the silkmakers, the brocade manufacturers, so that all *barrakan* [a fine cloth] is made there today". [60] Forced labour also existed in the form of slaves employed in the household or as artisans in small, private manufacturing. The latter group of slaves had usually received training in a certain craft. In early Basra, for instance. slave artisans working in their masters' workshops were not uncommon. [61] Skilled slaves working as craftsmen brought their masters profit. At the end of the 8th century a slave working as a tailor paid 2 *dirham* out of his daily earnings to his master. In the early eleventh century a slave with an montly income of 45 *dirham* handed in more than half of this sum.[62]

However, in the urban context labour relations based on coercion were a minority. In the Islamic world most artisans and labourers were free men (or women) who performed labour in return for payment, with wages and labour conditions depending on the interplay of supply and demand. [63] The legal framework as it developed in the Hanafite law school—with Abu Hanifa, Abu Yusuf and Shaybani, who all lived and worked in Iraq, as prominent members—saw wage labour as a contract of hire or usufruct *(ijara)*: one person ceded his labour, either for a specified period or for carrying out a certain task, to another. There was no legal distinction between accepting a commission from a client in return for payment (for instance, the delivery of cleaned garments by a laundryman) and hiring oneself out to an employer: employees and independent craftsmen working on their own account belonged, at least in legal terms, to the same category. The flexibility and market-oriented character of the legal framework that thus emerged was reinforced by the fact that in many respects the terms of *ijara* contracts resembled those relating to the contracts of sale that traditionally had an important place in Islamic law. Compensation in the case of damage to the property of the

[60] Dijkman, 'Fabric of Society', 11-12; Michel le Syrien, *Chronique* III (tr. Chabot), 84; Muqaddasi, *Best Divisions,* 381-382.
[61] Shatzmiller, *Labour*, 49.
[62] Ashtor, *Histoire des* prix, 64; Cahen, 'Quelque problèmes', 332.

other party was, for instance, a central principle. So were the liberal opportunities for cancellation of the contract if the hirer or renter had a valid excuse. [64]

Another general principle of Islamic law, that of the partnership, also found a reflection in labour relations. In analogy to the well-known commenda partnerships in trade, artisans could form labour partnerships in which they pooled resources and skills. The jurists of the Hanafite school in particular were open to this kind of partnership, allowing not only collaboration between artisans with the same profession, but also between artisans with different but complementary skills (such as a weaver and a dyer) and, significantly, between an artisan and a stall-owner. Juridical treatises explicitly state that these arrangements responded to economic needs and to existing (probably pre-Islamic) practice.[65] According to Abraham Udovitch labour partnerships of this kind were often veiled forms of employment; the form of the partnership was chosen to avoid the appearance of dependency, which was considered to be degrading and humiliating.[66]

However, legal freedom did not necessarily imply economic independence. In the textile industry, the existence of systems of putting-out or buying-up, dominated by merchant capital, is well-documented for ninth-century Egypt. The contracts between the Banu 'Abd al-Mu'min merchant family and the weavers that worked for them take the shape of obligations: they state that a weaver has received payment for a future delivery of a certain number of linen cloths.[67] Similar systems probably also existed in Iraq. Cohen's analysis of the biographies of scholars in religion and law has rendered several 8th-century examples of theologians and jurisprudents who had a background as drapers in Baghdad, Kufa or Basra, and in the early tenth century the wealthy and influential tax farmer Al-Rasibi allegedly owned eighty textile workshops in south-eastern Iraq and adjacent Khuzistan.[68]

It may not be a coincidence that the riots that broke out in Baghdad in 985 in reaction to the introduction of new taxes on the manufacture of silks and cottons were initiated by the people of the Attabiya quarter. This quarter was a centre of silk production: it was where the Attabi silks, one of Baghdad's primary export product, were made. The fact that the silk workers rose in protest against the new taxes suggests that they had to bear the brunt of the burden: the powerful silk merchants probably tried to shift the financial consequences of the

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63 Shatzmiller, *Labour,* 38-39; Shatzmiller, 'Women and wage labour', 179.
64 Schacht, *Islamic Law*, 154-155; Beg, 'Cost of Living', 155.
65 Udovitch, 'Labor partnerships', 64-76.
66 Udovitch, *Partnership and Profit*, 184-185.
67 Ragib, *Marchands d'étoffes* I, 6-29.

new tax to the small producers.[69] The riot in 985 was one of many. From the early 10th century onward social problems in the cities increased. The chronicles mention one popular revolt after another. Groups of *ayyarun*, poor labourers or unemployed vagabonds, roamed the streets, looting shops and houses. Insecurity became so great that members of the elite fleed the city and merchants organized night watches to guard their possessions.[70]

Developments in the countryside were in stark contrast to the flexible market for wage labour that developed in the cities. In rural labour relations coercion remained important throughout the Islamic era. The power of the landowning elites was strong and these also possessed arbitrary power over the population.[71] In the Late Sasanian period, a subordinate peasantry cultivated the large estates according to different patterns of land tenure. Michael Morony has shown, through an analysis of the Babylonian Talmud, that the most common form of tenancy among Jews was sharecropping, with sharecroppers having a permanent lease of the land, although the presence of tenants who worked the land for a fixed annual quantity of produce is also attested. The latter were what Arabic sources called the *akkār*, those who could lose their right to work the land if they failed to pay their rent.[72] Morony also discusses what he calls the 'apparent fact' of the attachment of peasants to the soil as 'slave' or 'semi-servile' labour, a fact confirmed by the Talmud and by Christian sources which even refer to entire villages and towns inhabited by 'slaves'[73]. Interestingly, according to the tradition reported by Abu Yusuf after the conquest, Caliph 'Umar Ibn al-Khattāb initially wanted to redistribute the land of the Sawād (the rural area of Iraq) among the Muslims, and found that each of them would have received three 'peasants' (in Arabic *fallāhūna*): thus a political constraint seemed to bind the peasantry to the land[74].

Baber Johansen has argued that the Hanafite doctrine on land tax supported peasant ownership of landed property, because the payment of land tax proved the ownership of property rights. Therefore the Arab conquest would have favoured peasant ownership of the

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[68] Cohen, 'Economic background', 26-28; Ben Abdallah, *L'iqta*, 74; Serjeant, 'Islamic textiles' II, 73; Grohmann, 'Tiraz', 788; Ashtor, *Social and economic history,* 137, 151 (quoting Ibn Taghribirdi, *al-Nujum al-Zahira* II, 192 and Arib, *Tabari continuatus,* 44-45).

[69] Abu Shuja Rudhrawari, *Experiences of the Nations* VI 119-120, 361-362; Ben Abdallah, *L'iqta,* 166-167; Serjeant, 'Islamic Textiles' I, 82; Cahen, 'Y a-t-il eu', 57.

[70] Ben Abdallah*, l'Iqta*, 133-181; Micheau, 'Baghdad in the Abbasid era', 241-242. On the *ayyarun* cf. Taeschner, *Zünfte und Bruderschaften,* 43-52.

[71] Banaji, 'Aristocracies', pp. 78-85.

[72] Morony, "Landholding", pp. 162-3.

[73] Morony, "Landholding", p. 164

[74] Campopiano, 2011c; Abū Yūsuf, *Kitāb al-kharādj* (El Cairo, 1886), p. 21.

land, in contrast to attempts to see them as simple serfs attached to the soil[75]. As the analysis of Michael Morony and a recent article by Jairus Banaji have pointed out, this is hard to believe. The fact that legal theorists have discussed whether the peasants of the Sawād could have been seen as slaves seems to be an attempt to find a rationalisation, in legal terms, for the conditions of serfdom of large part of Iraqi peasantry[76]. From this point of view, it seems evident that forms of serfdom existed at least into the 8th century, as has been shown recently by Campopiano in different articles.[77]

Relevant here is also the diffusion of slave labour in the course of the Islamic period, in particular in southern Iraq, near Basra, used to develop cash crop plantations through slave labour. Among these slaves we find the introduction of *Zandj*, African slaves since the end of the 7th century[78]. Basra became an important area for sugar cane cultivation.[79]) A specific element was the diffusion of cash crops (mainly sugar cane) in the south of Iraq (the Basra area), linked to the presence of slave labour: the investors were members of the royal family, or its clients and protégés. Interestingly enough, after the terrible Zandj slave revolt in southern Iraq at the end of the 9th century it seems that sharecropping spread as a kind of substitute of slave labour.[80] All these elements helped to keep the cost of rural labour relatively low, even in periods of plagues and population decline. This went hand in hand with a stagnation in the investments of labour-saving techniques. As mentioned above, most techniques were inherited from the earlier period, while some instruments were even abandoned for cheaper and simpler ones, as epitomized by the replacement of wooden for iron ploughs.[81]

Wage levels are among the few quantitative indicators that can help us assess the efficiency of the labour market. Obviously wages do not depend on the organization of markets alone: non-institutional factors play an important part. When labour is in short supply, its price will rise; when there is a surplus, it will fall. Still, wage levels and wage differentials also reflect the social and political relations in society and the institutional framework of the labour market. The remuneration of manual labour, usually at the bottom end of the wage scale, is a case in point.

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75 B. Johansen, *The Islamic Law on Land Tax and Rent*, (London-New York-Sydney, 1988), pp. 7-19.
76 Morony, "Landholding", p. 165.
77 Campopiano 2011c; 2011d
78 Campopiano, 2011b and 2011d ; A. Duri, *Arabische Wirtschaftsgeschichte*, aus dem Arabischen übersetz von J. Jacobi (Zürich, Artemis Verlag, 1979), pp. 90-2; A. Popovic, *La révolte des esclaves in Iraq au IIIe/IXe siècle* (Paris: Geuthner, 1976), pp. 60-2.
79 Husam es-Samarraie, *Agriculture in Iraq During the 3rd Century AH* (Beirut, Librairie du Liban, 1972), p. 94.
80 M. Ouerfelli, 'Le sucre: Production, commercialisation et usages dans la Méditerranée médiévale'.

The marked decline of the skill premium (the wage gap between skilled and unskilled labour) in late medieval and early modern Europe, for instance, cannot exclusively be attributed to demographic shocks. Skill premiums fell everywhere in the late fourteenth century, but while in southern Europe they rose again in the late fifteenth century, they remained permanently low in northwestern Europe. Besides low interest rates, the efficiency of guild-dominated systems for the development and diffusion of knowledge, through ensuring a flexible supply of skilled labour, probably contributed to these modest skill premiums.[82]

Here an attempt is made to estimate real wages for manual labour in 'Abbasid and Seljuq Iraq. Since the pioneering work of Eliyahu Ashtor on wages and prices in the Middle East, considerable progress has been made in the study of standards of living in pre-modern societies. In a recent study, Walter Scheidel has presented a survey of real wages in various societies in the Middle East and the Mediterranean between 1800 BC and 1300 CE. Scheidel uses wheat wages: daily wages of unskilled labourers expressed in litres of wheat. He finds that in most early economies wheat wages for unskilled labour lay within a 'core range' of 3.5 to 6.5 litres, which is significantly below the average level in early modern Europe. Wages in this 'core range' allowed for no more than bare bones subsistence.[83] The same method will be used here to indicate the development of wage levels in medieval Iraq, not only for unskilled but also for skilled labour. The region ('Mesopotamia') is in fact included in Scheidel's study, but the author used only a few data from Ashtor's work. Although it is certainly true that wage data for Iraq are extremely sparse, expanding the empirical basis is possible and desirable.

Admittedly, although wheat was the main food grain in medieval Iraq, wheat wages are a rather crude index of standards of living. Calculating the cost of a consumer basket that reflects the actual composition of expenditure would be preferable, but the scarcity of reliable price data rules out this option. Despite these problems, Van Zanden's research into wage levels in early modern Europe suggest that long term trends in wheat wages reflect the development of living standards of unskilled labourers reasonably well.[84] Scheidel's findings indicate that this is also the case for Roman Egypt.[85] More problematic is the use of wheat wages for skilled labour. Skilled workers earned more and therefore spent a smaller part of their budget on basic foodstuffs; consequently their welfare did not depend on wheat prices to the same extent. However, as an indication of real wage levels, wheat wages are still preferable to nominal wages. Moreover, experiments with the data for two early modern European regions—northern Italy

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81 E. Ashtor, *A social and economic history*, p. 49.
82 Van Zanden, *Long Road,* 164-167.
83 Scheidel, 'Real Wages'; for the European figures cf. Van Zanden, 'Wages'.
84 Van Zanden, 'Wages', 188-192.

(Florence/Milan) and southern England (London)—suggest that variations in the ratio between wheat prices and the price of a standard consumer basket were limited.[86].

The existing research on wheat wages in medieval and early modern Europe and Asia is almost always based on wages of unskilled construction labourers, simply because of the relatively wide availability of data for this category. For Iraq only very few wages for construction labourers are known; however, it is possible to establish benchmarks for the late 8th and the late 11th centuries. The wages of labourers engaged in the construction of Baghdad between 762 and 766 CE are mentioned in the works of several Arab historians, who, according to one of them, based this information on the accounts of Caliph al-Mansur. Unskilled labourers were paid daily wages of 2 or 3 *habba* (0.04 to 0.06 *dirham*). Master craftsmen employed in the project received about twice as much: 1 *qirat* to 5 *habba* (0.08 to 0.10 *dirham*).[87] It has been suggested that these wages were supplemented by other forms of remuneration: rations and tents provided by the authorities, or subsidized food prices.[88] The sources, however, do not state anything of the kind. This may not be a convincing argument in its own right, but as we will see—and as Scheidel has also argued—the results do not indicate that added benefits were absolutely necessary for survival.[89] The 11th-century historian al-Jawzi mentions the wage of day labourers in Baghdad employed in building huts in 1073; the men were probably repairing the damage done by flooding in this year. These wages varied between 3 and 5 *qirat* (0.25 to 0.42 *dirham)* per day.[90] The nominal wages of unskilled construction labourers, it can be concluded, had increased from 0.04 to 0.06 *dirham* per day in the late 8th century to 0.25 to 0.42 *dirham* per day in the late 11th century.

Wheat prices, however, had increased even more. The interpretation of the sparse information on commodity prices for medieval Iraq is complicated by uncertainties about units of measurement, variations in the rate of the (silver) *dirham* to the (gold) *dinar*, and above all the fact that most prices refer to periods of exceptional dearth or abundance. Nevertheless, from

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85 Scheidel, 'Real Wages', 436.

86 For each 50-year period for which data are available wheat wages (calculated from average wheat price in grams of silver and the average wage in grams of silver) can be divided by the welfare ratio computed by Allen. The result is the ratio between the price of a standard consumer basket and the wheat price. This ratio is not constant over time, but with one notable exception (London in the first half of the 16th century) variation coefficients are no higher than 10 to 12% (grain prices and wages in silver: http://www.nuff.ox.ac.uk/users/allen; welfare ratios: Allen, 'Great Divergence', 428).

87 Ashtor, *Prix*, 64 (with references to Tabari, Muqaddasi, al-Khatib al-Baghdadi, Yakut and Ibn Athir); Muqaddasi, *Best Divisions,* 110. A *habba* equals $^1/_{48}$ *dirham,* a *qirat* equals $^1/_{12}$ *dirham.*

88 Beg, 'Cost of Living', 157; Ashtor, *Histoire des Prix*, 64.

89 Scheidel, 'Real Wages', 450 (note 77).

about the middle of the 8th century onward the contours of a wheat price trend can be sketched. Nominal prices rose sharply from the late 8th century onwards, reaching a peak in the 10th century. Price volatility also increased; the 10th century was marked by a series of severe famines. After the 10th century prices fell gradually and continued to do so until the end of the 12th century.[91] Appendix B summarizes the information on wheat prices in normal years at four points in time between the late 8th and the middle of the 11th century, based on the figures presented by Ashtor, Cahen, Beg, and (recently) Campopiano[92]. Using a rate of the (silver) *dirham* to the (gold) *dinar* of 12:1 in the 8th century and 14.3 to 1 in the 11th century, the following wheat wages can be computed.[93]

Table 1

Wheat wages of unskilled construction labourers in Baghdad in the 760s and 1070s CE

	Nominal daily wage in *dirham*	Nominal wheat price in *dinar* per 100 litres	Rate *dirham : dinar*	Wheat wage in litres per day
760s	0.04 – 0.06	0.080	12 : 1	4.5 – 6.8
1070s	0.25 – 0.42	0.560	14.3 : 1	3.1 – 5.2

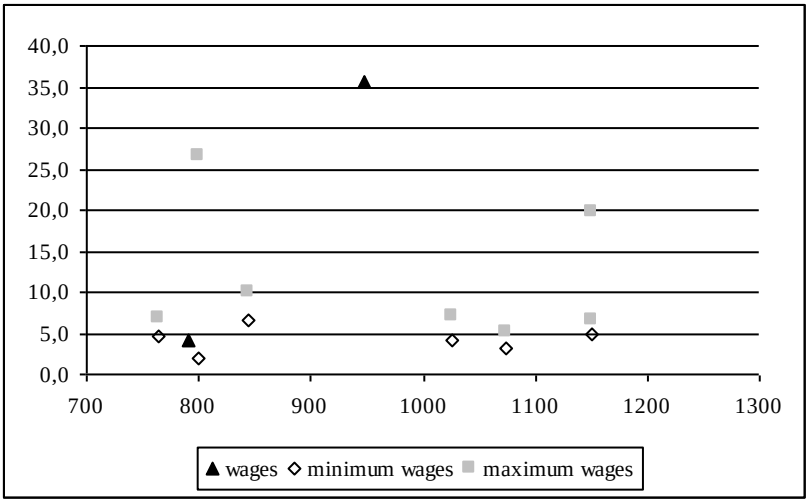
Sources: see text

The figures in the table indicate that both in the 8th and in the 11th century wheat wages of unskilled construction labourers in Baghdad conform to Scheidel's 'core range' and were therefore at the bare bones subsistence level found in most early societies. No other wage data for unskilled construction labourers are available. However, the information on wages of other unskilled workers in medieval Iraq that can be gleaned from the collections of Ashtor and Beg confirms the impression that these workers had to struggle to survive. Graph 1 plots the wages (usually in the form of a range between a minimum and a maximum) for a laundry boy in the (late?) 8th century, dustmen around the year 800, a laundry man in the middle of the ninth century, three guards in the 10th, 11th and 12th centuries, a porter in the 12th century, and the unskilled construction labourers in the 760s and 1070s discussed above (for details and sources see Appendix C). The majority of the wheat wages for unskilled labour are in the range of 4 to

[90] Beg, 'Cost of Living', 158 (refering to al-Jawzi, *Muntazam* VIII, 286), 164.
[91] Ashtor, A Social, 93, 222; Ashtor, Prix, 47, 103, 453, 456 (graph).
[92] See Campopiano, 2011a and 2011b.
[93] For the rate of the *dirham* to the *dinar* cf. Ashtor, *Histoire des prix,* 40, 99; Cahen, 'Problèmes', 340-341.

7 litres per day. The few cases in which considerably higher wages were mentioned do not materially change the picture (for a discussion of these cases see Appendix C).

Graph 1 Wheat wages for unskilled labour in medieval Iraq (in litres per day)



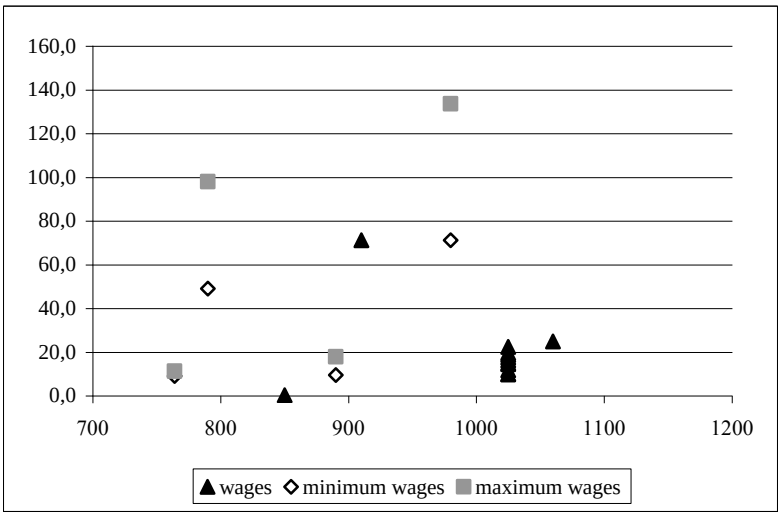
Although the graph does not indicate a clear chronological trend in the development of wages, the wheat wages of unskilled construction labourers in the 8th and 11th century presented in Table 1 seem to suggest that standards of living were even lower in the 11th than in the 8th century. Any additional rations in kind that the 8th-century labourers employed in the construction of Baghdad might have received only add to the difference. However, the very narrow empirical foundation permits only a tentative conclusion on this issue.

Wages for skilled labour

Although we do have wage data for skilled construction labourers in the 760s—as mentioned, the craftsmen involved in the construction of Baghdad earned 0.08 to 0.10 *dirham* per day—no comparable data seem to exist for the 1070s, or indeed for any other year in the medieval history of Iraq. However, the collections of Ashtor and Beg render information on the remuneration of various other types of skilled manual labour: in some cases wages, in others the average earnings of craftsmen working for their own account. These data refer to a (slave) tailor around the year 800, a weaver and a glass turner in the 9th century, another tailor and a smith in the 10th, and a barber around 1060. In addition there is a cluster of ten wages, varying from 23.8 to 54 *dirham* per month for manual labourers in the early 11th century, collected by

Cahen from two mathematical treatises, the *Kitab al-Hawi* and the *Kitab al-Kafi*.[94] The incomes for skilled labour have been converted into wheat wages in the same way as the wages for unskilled labour. The result is presented in graph 2 (for details and sources see Appendix C).

Graph 2 Wheat wages for skilled manual labour in medieval Iraq (in litres per day)



Apart from a few outliers (for explanations see Appendix C), the data can be divided in two groups. The tailors and the smith were, at 50 to 100 litres or more, well-paid. It is possible that the two high figures for the 10th century are overestimations, caused by the wild fluctuations in the rate of the *dirham* to the *dinar* at this time. However, even if this rate had been 25:1 instead of 15:1, the resulting incomes for the tailors and the smiths would have been well above average.[95] The second group of earnings is at a much lower level. The 8th-century masons, the 9th-century glass turner, the entire cluster of 11th-century artisans, and the 11th-century barber all had incomes equalling 9 to 25 litres of wheat per day. Notably, this implies that they still earned between two and four times as much as unskilled labourers. Moreover, whereas wages for unskilled labour may have declined over time, the graph does not suggest a similar downward trend for wages for skilled labour. If this is correct—again, the scarcity of data allows for no more than tentative conclusions—it suggests that in the long run skilled craftsmen were more successful in maintaining their standard of living than unskilled workers.

[94] Cahen, 'Problèmes', 332 (refering to the *kitab al-hawi 45*v, 114r, 116r, and *kitab al-kafi*, tr. Hochheim, II 17, III 15).
[95] Cf. Beg, 'Cost of Living', 161, who draws this conclusion for tailors (but not for smiths).

In summary, wages for manual labour in 'Abbasid Iraq were already low in the late 8th century and may even have declined over time, at least for unskilled labour. Iraq's prominent position in international trade, its high degree of urbanization, and the development of a legal system to accommodate wage labour apparently did not automatically lead to better standards of living. Instead, the rather large gap between the remuneration of skilled and unskilled labour—significantly larger than in late medieval northern Europe—and the even greater wage differentials between various types of skilled manual workers suggests a segmented labour market. Stagnation and segmentation suggest the existence of rent-seeking mechanisms and artificial barriers to mobility; further research is required to discover if this was indeed the case.

5. Social context, some macro-economic indicators and concluding remarks

In this exploratory survey we have tried to show how the development of factor markets in Iraq interacted with the social and political relations in society. It will be clear that it is too early to draw firm conclusions. However, on the basis of the admittedly sketchy picture, it is possible to formulate an hypothesis which can be tested by future, more systematic research.

The following reconstruction can be made. The social context within which the factor markets in Iraq were organized and used underwent strong changes in the period between 600 and 1100. In the 7th and 8th centuries Iraq was the core of a large, centrally ruled empire. It had a highly-developed system of taxation, which paid for a strong bureaucracy and army, and well-balanced property structures. The state bureaucrats, townsmen, foundations, small landlords and peasants all held secure positions in the distribution of landownership and political leverage, and kept each other in check. This balance was formed and consolidated in the previous period. The late-8th and 9th centuries, however, saw this balance disappear, with the rise of merchant-bankers who were also tax farmers and later that of a military aristocracy, who also dominated the grain trade, acquired trade monopolies and built market-oriented estates.

The now dominant groups increasingly pushed other social groups aside and made huge profits, partly via the markets. When they entered the markets they had not only vast amounts of land and capital, but also the capability to adapt formal institutions and informal rules of market exchange, and thus probably made entering the market for other parties less

attractive. The position of the non-elite groups deteriorated, as witnessed by the impoverishment of the peasantry and probably also by a decline of urban wages for unskilled labour. Poverty and discontent fueled a series of revolts by peasants and slaves, especially from the mid-8th century to c. 900, but these were all crushed. The new, powerful elites could exert an ever growing influence on the institutional framework of exchange, exercized in particular in the 9th century. All these processes further fueled social polarization, hampered the functioning of markets and reduced investments. In the 10th and 11th centuries the consequences became also apparent in the cities, where, often induced by high food prices, one riot after another erupted. As a result, the 10th and following centuries saw a decline of agriculture and industries in Iraq, a reduction in the cultivated area, the shrinkage of towns, and a long economic decline.

In this process, there are clear differences between developments in the towns and in the countryside. Market exchange in the towns, also of labour and capital, seems to have been more unrestricted and dynamic in the early Islamic period. In contrast, the exchange of land, labour and capital in the countryside remained much more restricted and characterized by coercion, subjected to the interests of the tax-receiving state and the elites, mainly operating from the towns. This process did not conflict with, or block market exchange. On the contrary: the functioning of the skewed factor markets, and the commercialization of the rural economy, aided this process. The organization of land tenure / leasing, for instance, seems to have been well-suited to squeezing the countryside and rural labor, and this increasing surpluses and promoting urbanization and the introduction of new crops generating market profits. In the long run, however, it weakened investments and heightened the pressure on the exploited rural population. It is therefore not surprising that social unrest manifested itself in the countryside first. However, in the second phase in the 10th and 11th centuries, the effects were also felt in the cities. Eventually the country as a whole suffered: the urban population rapidly declined, villages became deserted, irrigation works deteriorated and the agricultural area shrank.[96]

The early Islamic socio-political changes had allowed for a relatively balanced socio-political structure, aided a relatively unrestricted functioning of markets for goods, labour and capital, and growing market exchange, especially in the towns, associated with growing monetization of the economy. This is also reflected in growing urbanization rates and an "agricultural revolution" in the 7th and 8th centuries.[97]At the same time, these developments increased inequality and furthered the rise of new, ever more powerful elite groups. These availed themselves of the market in order to squeeze the countryside and used the non-

[96] E. Ashtor, pp. 168-169.

economic, coercive opportunities offered by and within the market, again particularly at the detriment of the countryside. This resulted in declining investment and a decline of the cultivated area, a decline of the tax revenue, rising food prices, and growing social difficulties, as peasant flight in Upper Mesopotamia in the second half of the 8th century, and peasant revolts in the second half of the 8th century and early-9th century. These developments in the next stage also started to affect the towns. As a result of declining tax revenues and rising food prices, the basis for economic growth was eroded and towns, mainly relying on surplus-extraction from the countryside and hardly possessing a productive and competitive economy, started to shrink.

The current information on sizes of towns confirms this sketch. The absolute size of towns grew to a top around 900, arguably as a result of the increasing success in the extraction of surpluses from the countryside, also by making use of the market, and increasingly drawn to the capital, Baghdad.[98] In the 10th century the erosion of the productive base of the countryside further proceeded and also hit the towns and Baghdad itself, resulting in sharp urban decline.

Future research will undoubtedly refine this picture, or perhaps even modify parts of it, especially when other quantitative indicators are made available. Progress will be made by way of estimates of GDP/capita. For the second half of the first millennium BCE, blessed with relatively abundant source material, fairly reliable estimates by Foldvari & Van Leeuwen are available now. These show GDP/capita fluctuating between c. 600 and 800 $, with the high point of 800 $ reached in the latter part of this period, around 100 BCE.[99] Although material is scarcer for the early medieval period, it does allow us to arrive at estimates for this period, too. The estimates by Pamuk & Shatzmiller for southern Iraq show GDP/capita at about a similar level as the estimates for the earlier period: 656 $ around 720 AD and $ 640 around 1220.[100] If anything is suggested by these figures, it is that any changes were more likely situated in economic development and organization, the distribution of wealth, and broadly defined welfare than in economic growth per se. Also, these estimates show that levels of GDP/capita in the early medieval period are not impressive, compared to earlier periods or compared to other areas.

Future research can especially make progress in better reconstructing the developments in levels of welfare. Perhaps archaeological research into human bones will allow

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97 Andrew M. *Watson* (1974), 'The Arab *Agricultural Revolution* and Its Diffusion, 700–1100', The Journal of Economic History 34 (1), pp. 8-35.
98 Bosker, Buring, Van Zanden, 'From Baghdad to London', and the estimates kindly provided by Eltjo Buring, 3-5-2011.
99 Peter Foldvari & Bas van Leeuwen, 'Comparing per capita income', paper presented at this workshop (2011).
100 S. Pamuk & M. Shatzmiller, paper presented at this workshop (2011)

us to reconstruct long-term trends in human stature, crucial especially for periods where written material is scarce. This will also allow us to link the medieval figures to those obtained for the modern period, with material for Iraq from around 1870/1880 already made available and investigated.[101] Some results are available, for instance for Tell Ashara on the Euphrates in present-day Jordan (see appendix D).[102] At first sight the figures do not indicate that the early medieval period or the first millennium AD stand out, but the number of observations is still too low to reach any firm conclusion. We will therefore eagerly await the progress of archaeologists. Their results will help us to arrive at a fuller picture of the links between monetization, market exchange, urbanization, economic growth and broad welfare; a picture which probably does not conform – at least not automatically – to much of the received wisdom of present-day historiography and will form a valuable antidote to this.

[101] M. Stegl & J. Baten, 'Tall and shriking Muslims' (2009).
[102] Arkadiusz Soltysiak, 'Preliminary report on human remains from Tell Ashara'. For data from the first millennium BCE: Jursa, 2010, pp. 805-806.

Appendix A
Land tax revenues, 787/8-918/919 ca (based on Campopiano, 2011a and 2011b)

Year or period	Land tax revenues in dirhams
787/8	123,720,000 dirhams
819	114,457,650 dirhams This figure is overestimated as it is based on prices at the beginning of the 10th century. Part of the tax amount was collected in kind.
Middle 9th century	113,097,760 dirhams This figure is overestimated as it is based on prices at the beginning of the 10th century. Part of the tax amount was collected in kind.
918/919	27,354,100 dirhams

Appendix B Wheat prices

Year or period	Wheat price in dinar per 100 liters	Derived from:
760s	- 0.060 – 0.080 - 0.080 - 0.096 - 0.067 Average: 0.077*	- 30-40 jarib for a dinar in 768/69 (Upper Mesopotamia**; Ashtor, Histoire des prix, 42-43; Campopiano ('State, Land Tax, and Agriculture', 32-33) - 25-30 jarib for a dinar in 766/67 (Upper Mesopotamia; Campopiano, 'State, Land Tax, and Agriculture', 32-33) - 30 qafiz for a dirham in 768/69 (Ibid.)
around 800	- 0.400 - 0.265 Average: 0.340	- 1200 ratl for 30 dirham in 791 (Upper Mesopotamia; Campopiano, 'State, Land Tax, and Agriculture', 33) - 1 jarib for 30 dirham (Beg, 'Cost of Living', 147)
tenth century	- 0,800 - 1,067 - 0.987 - 0.889 Average: 0.938	- 2 kurr for 60 dinar in the early tenth c (Campopiano, 'State, Land Tax, and Agriculture', 34-35; Cahen, 'Problèmes', 342-343). - 1 kurr for 40 dinar in 910 (Cahen, 'Problèmes, 342-343) - 1 kurr for 37 dinar in 915 (Cahen, 'Problèmes, 342-343) - 1 kurr for 500 dirham in 970 (Upper Mesopotamia; Cahen, 'Problèmes, 342-343)
first half 11th century	- 0,800 - 0.587 - 0.533 Average: 0.560	- 1 kurr for 30 dinar in 1020 (Cahen, 'Problèmes', 342) - 1 kurr for 22 dinar in the early 11th century (Ashtor, Histoire des prix, 102) - 1 kurr for 20 dinar in 1056 (Ibid.)
12th century	0,480 - 0,533 Average: 0.507	1 kurr for 18-20 dinar. Guestimate based on price of 25 dinar during dearth and 15 dinar during year of low prices (Ashtor, Histoire des prix, 102).

Remarks:

* This is the mathematical average of the five prices mentioned for the period. The choice for the mathematical average is rather arbitrary, but experiments with the median did not lead to significantly different results.

** During the heyday of the Abbasid empire upper Mesopotamia exported wheat to the densely populated and highly urbanized south; wheat prices in the north may have been lower than in the south. However, in the course of the tenth century the price differential seems to have disappeared, possibly because of a more marked decline of agricultural production in the north.[103]

[103] Ashtor, Prix, 44-45, 103. According to Ashtor the price differential actually reversed: from the late tenth century onwards prices in the north were higher than in the south. However, the figures that he presents do not prove this.

Appendix C
Wheat wages for unskilled and skilled labour in medieval Iraq (in litres per day)

UNSKILLED LABOUR					
Occupation	**Date**	**Wage in dirham**	**Wheat price in dinar per 100 litres**	**Rate dirham : dinar**	**Wheat wage in litres per day**
Construction labourer	762 - 766	0.04 – 0.06 (2 to 3 habba)	0.077	12 : 1	4.5 – 6.8
Laundry boy	(late?) 8th c	0.17 (1 daniq)	0.340	12 : 1	4.1
Dustman*	786-809	0.08 – 1.08 (1 qirat to 1 dirham and 1 qirat)	0.340	12 : 1	2.0 – 26.6
Laundry man	c. 850?	0.67 – 1.00 (4 *daniq* to 1 dirham)	0.638 (intrapolation)	20 : 1	5.2 – 7.8
Guard at entry court	947	5 (150 dirham per month)	0.936	15 : 1	35.6
Guard**	Early 11th c	0.33 (cash only) – 0,57 (cash plus bread) (2 silver daniq plus 3 ratl of bread)	0.560	14.3 : 1	4.2 – 7.1
Construction labourer	1073	0.25 – 0.42 3 to 5 qirat	0.560	14.3 : 1	3.1 – 5.2
Porter	12th c	0.25 – 0.33 ("a few qirat: 3 to 4?)	0.507	10 : 1	4.9 – 6.6
Guard at mosque***	12th c	< 1 ("at most 3 dinar")	0.507	10 : 1	at most 19.7

SKILLED LABOUR					
Occupation	**Date**	**Wage in dirham**	**Wheat price in dinar per 100 litres**	**Rate dirham : dinar**	**Wheat wage in litres per day**
Mason/crafts-man in con-struction****	762 - 766	0.08 – 0.10 (1 qirat to 5 habba)	0.077	12 : 1	9.1 – 11.3
Mason	754-775	2.67 (4 dirham for a day-and-a-half)	0.077	12 : 1	289.9
(Slave) tailor	Late 8th c	2 – 4 (paid 2 dirham out of his earnings to master)	0.340	12 : 1	49.0 – 98.1
Weaver*****	9th c	0.02 dirham (1 daniq per week)	0.638 (intrapolation)	20 : 1	0.2
Glass turner	Late 9th c	1.33 to 1.5	0.638 (intrapolation)	20 : 1	10.2 – 19.6
Tailor	Early 10th c	at least 10	0.936	15 : 1	at least 71.3
Smith	Late 10th c	10 dirham to 1 dinar	0.936	15 : 1	71.3 – 133.6
Unknown	Early 11th c	0.79, 0.80, 0.93, 1.17, 1.20, 1.30, 1.40, 1.50, 1.57, 1.80 (23.75, 24, 38, 35, 36,	0.560	14.3 : 1	9.9, 10.0, 11.7, 14.6, 15.0, 16.2, 17.7, 18.7, 19.6, 22.5

		38.9, 42.1, 45, 47, and 54 dirhem per month)			
Barber	c. 1060	2	0.560	14.3 : 1	25.0

Sources:

- Wages: Ashtor, Histoire des prix, 64-67, 112-113; Beg, 'Cost of Living', 157-163; Cahen, 'Quelque problèmes', 332. Wages for which no indication of a date was available, or for which the region of origin was unknown, have not been included.
- Rates dirham – dinar: Ashtor, Histoire des prix, 40-41, 99.
- Wheat prices: see Appendix A. For the ninth century no normal wheat prices are known; the price of 0.638 dinar per 100 litres is an intrapolation based on the price around 800 (0.340) and the price in the early tenth century (0.938).

Remarks:

* Wages for dustmen in the age of Caliph Harun al-Rashid (786-809 CE) ranged from a meagre 1 *daniq* per day (about 2 litres of wheat) to 1 *dirham* plus *1 daniq* (more than 26 litres). This range is so wide that it is hard to believe that all of it refers to unskilled labour. The wage at the high end may perhaps have been earned by a supervisory functionary.[104]

** This guard at a court of law in Baghdad in the middle of the tenth century reportedly earned 150 *dirham* per month. This seems impossibly high: the secretary at the same court, surely a much more highly qualified functionary than the guard, received 300 *dirham* per month and the judge in small cases only 100 *dirham*. Perhaps this is simply a misinterpretation.[105]

*** This guard at a twelfth-century mosque attempted to negotiate a wage of 3 *dinar* on the argument that he had a large family to maintain, but that does not mean that he actually received this wage.[106]

**** This mason reportedly worked for a day and a half in the palace of Caliph al-Mansur and negotiated a salary of 4 *dirham* for this job.[107] This would imply a daily wheat wage of about 290 litres, thirty times that of the craftsmen who were engaged in the construction of Baghdad around the same time. This particular mason may have had possessed unique skills, or perhaps the story is simply an exaggeration; in either case it is of little help in determining regular wage levels. The wheat wage of this mason has not been included in graph 2.

***** This weaver was a female mystic who reportedly invested 2 *daniq* in thread and after a week's labour was able to sell the cloth she had made for 3 *daniq*. Her net income was therefore about 0.05 *dirham* per day. Beg notes that the woman must have been one of the poorest weavers in Baghdad and that her income is probably not representative for weavers' wages in general; after all, from a mystic extreme sobriety may be expected.[108]

[104] Beg, 'Cost of Living', 163.
[105] Ashtor, *Histoire des prix,* 67 (refering to al-Kindi, *Governors and Judges of Egypt*, 574).
[106] Ashtor, *Histoire des prix,* 113.
[107] Ashtor, *Histoire des prix,* 64 (refering to Tabari, *Tarikh ar-rusul* III, 326).
[108] Beg, 'Cost of Living', 161.

Appendix D
Human stature (males unless indicated otherwise)

Iraq, around 1870/1880, anthropological studies[109]

desert population	168.8 cm
urbanites	167.9 cm
rural population	166.7 cm

Jordan, Tell Ashara on the Euphrates, excavations, season 2003/2004[110], n= 13

Middle Bronze period	179 cm males
	157 cm females
19th century	174 cm males
	160 cm females

Jordan, Tell Ashara on the Euphrates, and Tell Masiakh, excavations, season 2005[111]

Bronze Age	169.5 cm males, n=4
	160.0 cm females, n = 4
First millennium AD	169.6 cm males, n=7
	159.0 females, n=16
Modern period	172.4 cm males, n=5
	161.8 females, n=4

Uruk, Iraq, excavations, season 1968/1969[112]

Neo-Babylonian period	167 cm males, n=4
	156.3 cm females, n=4

Tall Šeh Hamad[113]

164.9 cm (n=60) for males
154.9 cm (n=68), for females

Kamid el- Loz, in the Biqa Valley in Lebanon[114]

sixth century:	168.7 cm (n=25) for males
	156.5 cm (n=23) for females

[109] M. Stegl & J. Baten, 'Tall and shriking Muslims' (2009), p. 138.
[110] Arkadiusz Soltysiak, 'Preliminary report on human remains from Tell Ashara', pp. 435-439
[111] Arkadiusz Soltysiak, 'Preliminary report on human remains from Tell Ashara', pp. 439-442
[112] Wittwer-Backofen, 'Einige neubabylonische Skelette aus Uruk', *Baghdader Mitteilungen* 14, 71-94 1983
[113] [Morris, ' Institutions, economics, and the ancient Mediterranean world', Journal of Institutional and Theoretical Economics 160 (2004)] [referentie nakijken]
[114] [Morris Journal of Institutional and Theoretical Economics 160 (2004)] [idem]