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*Prices and Price Formation in the Islamic Middle East:  
the Role of Money Supply and State Policies*

HYPOTHESIS, CHRONOLOGY AND DATA

This paper offers a preliminary exploration of a subject that so far elicited only limited interest and brief comments from previous generations of Middle East economic historians.<sup>1</sup> I propose to revive interest in the topic by focusing on long-term patterns of state behavior in the markets as a tool in the investigation of price formation. I suggest that there was no direct intervention in pricing of commodities in the markets during the first three centuries, 650-950 AD, of Islamic rule in the Middle East. Instead, state policies and administration targeted the technical instruments of pricing, the components of the monetary system which could then offer an efficient and stable instrument for conveying the value of goods and wages in monetary terms in a monetized and commercialized economy. Mostly it was an effort of steadying and stirring the monetary system away from hoarding precious metals, making it more pliable to demand for liquidity by increasing the amount of coins produced. A shift in price formation factors emerged in the end of this period, however. A structural change instigated a flow of state revenue from the central government to a new class of military elites. The change resulted in placing large quantities of the basic commodities, mostly grains, in the markets by exogenous actors, altering in this way the environment of market supply and demand mechanism. Together with the new actors, the state, now forced to compensate for a lack of revenue, engaged in monopolistic behavior. A parallel decline in the quality and performance of the monetary system, occurred, probably related to incompetent policies, and resulted in deficient currency and insufficient monetary circulation. Together, the modification in the behavior of the two factors, state policies and monetary system, culminated in a prolonged era of state intervention in markets and skewed price formation process in the Middle East.

Put otherwise, the absence of evidence of state intervention in fixing commodities prices during the first three centuries of Islamic rule is significant. For instance, *mubtasibs*, market inspectors, were not given the power to impose prices, neither

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<sup>1</sup> Economic historians like Ehrenkretz and Ashtor are the exception that proves the rule. On their work more below.

was the ‘just price’ notion present in Islamic law.<sup>2</sup> Yet, there is no lack of state policies undertaken in other areas of the markets. Just the reverse occurred as the state was making economic decisions affecting the markets. I present evidence of Umayyad and Abbasid actions affecting the monetary system and argue that explicit state policies on coin production and money supply in the early Islamic rule in the Middle East, were intentional and instrumental in the development of market economy. The early policies comprised invigoration of minting, a unified system with standard weight and coin design, legitimate and easily recognized coinage and stable exchange rate of gold to silver. Increased supply of precious metals to the mints in response to the growing demand for coins, a swift re-organization of the mints, and increase in coin production enhanced the monetization of the economy, and facilitated the pricing of commodities in market transactions in monetary units. Ultimately, changes in the economy forced the state to change its policies. The need to recruit outsiders as soldiers and pay them forced the introduction of the *‘iqṭā’* system, as a method of army payment. As the system expanded over the years with the growing size of the army, more and more state resources, which came in the form of taxes, had to be shifted away to pay them. Evidence from 13<sup>th</sup>-15<sup>th</sup> centuries Egypt and Syria, shows both the state under the Mamluks and the elites, trying to increase profits by strategically placing grains in the markets. By the power to control the flow of basic commodities, which they came to hold through this system, both state and individuals played the markets for their benefit. The introduction of factors exogenous to markets mechanisms and manipulated for limited profit disrupted the process of price formation.

The paper unfolds as follows. The first section deals with the early three centuries of Islamic rule, 7<sup>th</sup>-10<sup>th</sup> centuries, in Iraq and Egypt. It concludes with an early 10<sup>th</sup> century episode, 935-942, of dramatic and sudden increase, over 263%, in the price of wheat in Iraq. In the second section there is an examination of the nature of the event, asking whether this episode signaled the effect of the alienation of state revenue or of monetary instability in Buyid Iraq. In the third section I bring evidence from 13<sup>th</sup>-16<sup>th</sup> century Egypt, depicting strong state intervention in the markets. By bringing evidence from a wide chronological spread I do not claim that the hypothesis offered here would be a stand-in for the Islamic economy at large, or monetary history of a larger “Islamic” world. The methodological focus remains Iraq, Syria and Egypt, the Middle East. Nor do I suggest that its findings replace a region by region study. Elsewhere I explored a different trajectory in North Africa, where the Moroccan Marīnid state, 1250-1465 AD, benefitted from large supply of gold, efficient legal institutions, paid the troops in cash stipends and expanded into an early Atlantic/Mediterranean Empire.<sup>3</sup> However, unique regional trajectories

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<sup>2</sup> On the *Hisba* manuals with instructions for *muḥtasib* see M. SHATZMILLER, *Labour in the Medieval Islamic World*, Leiden 1994. M.H. FADEL, *Ribā*, cit., for concepts of prices in Islamic law.

<sup>3</sup> M. SHATZMILLER, “*Islam and the ‘Great Divergence’: The Case of the Moroccan Marīnid Empire 1269-1465 AD in The Articulation of Power in Medieval Iberia and the Maghrib*”, ed. A. BENISSON, London 2013 (Proceedings of the British Academy (195), Published for the British Academy by Oxford University Press), pp. 25-47. The case demonstrates the significance of high quality coinage, the reason why the Moroccan coinage of the 12<sup>th</sup> century, the *morabūtinus*, was the long-term money of ‘trust’ in the Medi-

buttress the argument in favor of the two factors investigated here, even if they did not exactly conform to the trajectory of the Middle East.

There are various approaches to the study of historical price formation. Roman and Byzantine historians focused more closely on the two factors examined here. Dominic Rathbone's studied private sales of wheat in Roman Egypt, 1<sup>st</sup> to 3<sup>rd</sup> century and concluded that most of the time prices were determined by regional factors of supply and demand but that compulsory purchases of wheat by the State were always made at the lower range of the normal price which affected 11% to 33% of the crops in an average year.<sup>4</sup> G. Maniatis exposed just the opposite happening in the Byzantine Empire, where the state intervened regularly in market mechanisms by applying anti-monopoly legislation, anti-hoarding rules, and one-man one-trade rule.<sup>5</sup> Both authors are wary though, of drawing conclusions for the effect of their findings on the economy in general and particularly on economic growth.

The two qualifiers of price formation, market mechanism and state intervention, vanished from the scene altogether in early medieval Western Europe, with the decline of cities, monetary circulation and the decentralization of political power. Taxes were paid in *corvée* and kind and the feudal regime brought back a bartering economy.<sup>6</sup> Other authors go well beyond money and state in price formation, in the framework of the economic history of Europe, and look for inputs from demography, purchasing power, trade activities, means of payment and whether the economy is labor intensive, or capital intensive for the impact on markets and economic growth.<sup>7</sup> Historians of the T'ang dynasty in China, 618-906 AD, contemporaries of the Abbasids, linked price formation to the lack of metal coinage there and to the imposition of monopolies on the sale of salt, iron and tea and difficulties in collecting taxes.<sup>8</sup>

For the Middle East the two studies by Ashtor are the most useful in providing quantitative data for the study of price formation. The first, *Histoire des prix et des salaires dans l'Orient Médiéval*, contains data on commodities prices, monetary units and wages, collected from primary sources and arranged according to regional and chronological order, Iraq, Egypt and Syria, from 650 to 1500 AD.<sup>9</sup> The second, *Les métaux précieux et la balance de payments du Proche-Orient à la basse époque*, is a study of

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terranean. See *Morabitinos* in 12th century Zaragoza in M. BARBER and K. BATES, trans. and annotated, *The Templars. Selected sources*, Manchester 2002 (Manchester University Press), p. 126.

<sup>4</sup> D. RATHBONE, *Prices and Price Formation in Roman Egypt*, in *Économie Antique. Prix et formation des prix dans les économies antiques (textes rassemblés par Jean Andreau, Pierre Briant, Raymond Descat)*. *Entretiens d'archéologie et d'histoire*, Saint-Bertrand-de-Comminges 1997, pp. 183-244. See details pp. 197-198.

<sup>5</sup> G. MANIATIS, *Price Formation in the Byzantine Economy Tenth to Fifteenth Century*, in "Byzantion", 73, 2003, pp. 401-444.

<sup>6</sup> P. SPUFFORD, *Money and its Use in Medieval Europe*, Cambridge 1988. See details pp. 7-74.

<sup>7</sup> See for instance P. MALANIMA, *Pre-Modern European Economy. One thousand years (10<sup>th</sup>-19<sup>th</sup> centuries)*, Leiden 2009. K.G. PERSSON, P. SHARP, *An Economic history of Europe. Knowledge, Institutions and Growth, 600 to the Present*, (2<sup>nd</sup> edition) Cambridge 2015.

<sup>8</sup> D.C. TWITCHETT, *Financial Administration under the T'ang Dynasty*, Cambridge 1970, details pp. 66-83.

<sup>9</sup> Paris 1969 (S.E.V.P.E.N.) Ashtor's price and wage data may be found on <http://www.medievalislamicconomy.uwo.ca/>

the monetary crisis in Mamluk Egypt, 13<sup>th</sup>-16<sup>th</sup> centuries.<sup>10</sup> Two articles by ASHTOR also trace the developments of prices in the Middle East.<sup>11</sup> The historiography of Islamic monetary system is particularly strong on the numismatics aspects, aspects which document the developments of state policies, such as the design of new coins, integration of a bi-metallic structure, revival of the mints, increase in coin production and money supply and monetization.<sup>12</sup>

The study of the economic history of the Middle East has been a long-term project of mine and for the purpose of which I have compiled a new database now available on line at: <http://medievalislamiceconomy.uwo.ca/>, containing data from the Arabic sources. The database includes wages, commodity prices, cost of living, coins, dynastical coinage, mints and fineness, weights and measures, which is used here. I have also used data from the Judeo-Arabic documents of 11<sup>th</sup>-13<sup>th</sup> century Egypt, known as the *Genizah*.<sup>13</sup> The 350,000 *Genizah* documents, all on paper, are partially published but an effort is currently under way to put the entire collection online.<sup>14</sup> The letters written by merchants in particular, contain rich statistical evidence on prices and markets.<sup>15</sup> Although the documents originated in a specific segment of Middle Eastern society, the Jews of Cairo, the evidence that they provide has long been recognized and used in the study of the economic history of medieval Egypt. I have used intermittently *Genizah* data.<sup>16</sup>

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<sup>10</sup> Paris 1971 (S.E.V.P.E.N.)

<sup>11</sup> E. ASHTOR, *L'évolution des prix dans le Proche-Orient à la basse-époque*, in "Journal of the Social and Economic History of the Orient", 4, 1961, pp. 15-46. IDEM, *The Development of Prices in the Medieval Near East*, in *Wirtschaftsgeschichte des vorderen Orients in islamischer Zeit*, Leiden 1977 (E. J. Brill), pp. 98-115.

<sup>12</sup> See among other, A. EHRENKREUTZ, *Monetary Aspects of Medieval Near Eastern Economic History*, *Studies in the Economic History of the Middle East*, ed. M.A. COOK, Oxford 1970, pp. 37-50. EADEM, *Money*, in *Handbuch der Orientalistik*, Leiden 1977, pp. 84-97. M. BATES, *History, Geography and Numismatics in the first century of Islamic Coinage*, in "Revue Suisse de Numismatique", 65, 1986, pp. 231-261. S. HEIDEMAN, *The Merger of Two Currency zones in Early Islam. The Byzantine and Sasanian Impact on the Circulation in Former Byzantine Syria and Northern Mesopotamia*, in "Iran", 36, 1998, pp. 95-112. Ş. PAMUK, *A monetary history of the Ottoman Empire*, Cambridge 2000, pp. 1-40. C. MORISSON, *Le monnayage omayyade et l'histoire administrative et économique de la Syrie*, in *La Syrie de Byzance à l'Islam VII<sup>e</sup>-VIII<sup>e</sup> siècles*, Damascus 1992, pp. 309-318. M. BATES, *Commentaire sur l'étude de Cécile Morisson, La Syrie de Byzance à l'Islam VII<sup>e</sup>-VIII<sup>e</sup> siècles*, Damascus 1992, pp. 319-321. M. SHATZMILLER, *The Role of Money in the Economic Growth of the Early Islamic Period (650-1000)*, in *Sources and Approaches across Disciplines in Near Eastern Studies – Proceedings of the 24<sup>th</sup> Congress, Union Européenne des Arabisants et Islamisants, Leipzig 2008*, V. KLEMM et al. eds., *Orientalia Lovaniensia Analecta* 215, Leuven-Paris-Walpole, MA 2013, pp. 271-305.

<sup>13</sup> S.D. GOITEIN, *Mediterranean Society: The Jewish Communities of the Arab World as Portrayed in the Documents of the Cairo Genizah*, Berkeley- Los Angeles 1967 (University of California Press, Vol. 1). A.L. UDOVITCH, *Reflections on the Institutions of Credits and Banking in the Medieval Near East*, in "Studia Islamica", XLI, 1975, pp. 5-22. J.-CL. GARCIN, *Le JESHU et la recherche sur l'histoire économique et sociale des pays musulmans*, in "Journal of the Social and Economic History of the Orient", 36, 1992, pp. 139-153. K. HOPKINS, *Taxes and Trade in the Roman Empire (200-B.C.- AD 400)*, in "Journal of Roman Studies", 70, 1980, pp. 101-125. In particular, p. 103, note 10.

<sup>14</sup> <http://cudl.lib.cam.ac.uk/collections/genizah>

<sup>15</sup> The Cambridge collection holds probably two-thirds of the world's *Genizah* items, about 200,000 pieces. Personal communication of Dr. B. Outhwaite, director of the Taylor-Shechter collection in Cambridge.

<sup>16</sup> On using the merchants' letters for the study of economic history see S.D. GOITEIN, *Mediterranean Society*, cit. J.L. GOLDBERG, *Trade and Institutions in the Medieval Mediterranean*, Cambridge,

Finally, I also use the evidence from a study on the purchasing power and standards of living in the medieval Islamic Middle East.<sup>17</sup> The study suggests that in the aftermath of the Justinian Plague people living in Iraq and Egypt between the second half of the 8<sup>th</sup> century and the 11<sup>th</sup> century, enjoyed standards of living reaching 2 to 3 times subsistence level. GDP per capita income in Iraq ranged between 890 and 990 in Purchasing Power Parity (PPP) adjusted 1990 U.S. dollars and between 800 and 910 U.S. dollars in Egypt. Compared with contemporary societies, people living in the Middle East enjoyed high standards of living and highest GDP per capita.<sup>18</sup> These findings had implications for the topics studied here.

#### THE EARLY MONETARY SYSTEM: MINTS, COINAGE REFORM AND INCREASED MONEY SUPPLY

Coined money was commonly used in the Middle East by the time of the Islamic conquest in the 7<sup>th</sup> century and commodities' value was largely expressed in monetary units of local currencies. The extent of overall monetization of the economy as well as levels of commercialization of the economy, varied however. Ancient Greece was partially monetized but the Roman Empire, the Sassanid Empire and Byzantium are believed to have been monetized thoroughly.<sup>19</sup> However, the Middle East also suffered from economic decline caused by a prolonged Justinian plague and recurrences, including monetary sluggishness. Just before the Islamic conquest coin production and monetary circulation in the Sasanid empire barely existed.<sup>20</sup> The revival of the monetary system was then the first step needed to enable pricing of commodities in monetary terms.

The first target of the new administration was to revive the monetary system by revamping tax collection, and which was still directed from Mecca.<sup>21</sup> The monetary system required direct physical intervention in the mints and its overhaul had to wait until the administration was on the ground, with the move to Damascus in

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MA 2012. A. GREIF, *Reputation and Coalition in Medieval Trade: Evidence on the Maghribi Traders*, in "The Journal of Economic History", 49, 1989, n. 4, pp. 857-882. PH. ACKERMAN-LIEBERMAN, *Commercial Forms and Legal Norms in the Jewish Community of Medieval Egypt*, in "Law and History Review", 30, 2012, n. 4, pp. 1007-1052.

<sup>17</sup> Ş. PAMUK, M. SHATZMILLER, *Plagues, Wages, and Economic Change in the Islamic Middle East, 700-1500*, in "Journal of Economic History", 74, 2014, n. 1, pp. 196-229.

<sup>18</sup> Ş. PAMUK, M. SHATZMILLER, *Plagues*, cit., p. 198. On standards of living in medieval societies, D.C. NORTH, *Structure and Change in Economic History*, New York-London 1981 (Norton & Co.). K.G. PERSSON, P. SHARP, *An Economic History of Europe*, cit., p. 32. J. BOLT, J.L. VAN ZANDEN, *The Maddison Project: Collaborative Research on Historical National Accounts*, in "English Historical Review", 67, 2014, n. 3, pp. 627-651. J. GOLDSTONE, *Efflorescences and Economic Growth in World History: Rethinking the 'Rise of the West' and the Industrial Revolution*, in "Journal of World History", 13, 2002, n. 2, pp. 323-389.

<sup>19</sup> G.K. YOUNG, *Rome's Eastern Trade. International Commerce and Imperial Policy, 31 BC-AD 305*, London-New York 2001.

<sup>20</sup> For the decline in Sasanid mint production 628-651 see S.D. SEARS, *A Monetary History of Iraq and Iran, ca. CE 500-750*. Unpublished PhD dissertation, University of Chicago, 1997, pp. 366-376. In addition there occurred massive decline in settlement in Iraq.

<sup>21</sup> See below.

650.<sup>22</sup> With hardly no intervals Muslim-Byzantine gold and copper coins, Muslim-Sasanian silver coins, Muslim-Sogdian silver and Muslim-Iberian gold were minted. These early coins, named by numismatists ‘pre-reform’, in reference to ‘Abd al-Malik’s reform of 697, were hybrid coins, issued in copper, silver and gold, with minimal changes to shape and weight and carrying symbols of previous rulers. The following series were minted: Arab-Sasanian (Silver), Tabaristan (Silver), Dabwayhid Ispahbads (Silver), Abbasid Caliphs/Governors (Silver), Eastern Sistan (Silver), Arab-Ephthalite (Silver), Arab-Bukharan (Silver), Arab-Armenian (Silver), Arab-Byzantine – North Africa and Spain (Gold), Arab-Sasanian (Copper), Arab-Byzantine – Syria and Palestine (Copper), Arab-Byzantine – Egypt (Copper), Arab-Byzantine – North Africa and Spain (Copper).<sup>23</sup> The geographical spread of the coinage produced is an unmistakable indication of the long hand of the state and the existence of a central effort to bring minting to life. The patterns may differ, the rulers’ names, titles, script, geographical location, and designs, are diverse but the uniformity of the action itself shows consistency. It is clear that the governors of the provinces, some of them Umayyad family members, others, generals or clients of the dynasty, were told to reactivate idle and operating mints and use existing dies and precious metals deposits in a drive to produce coinage. The numismatic evidence of the coins produced between the 650 and the reform of 690 shows too many similarities to be a coincidence.

By the same token that early policy favored minting using pre-Islamic dies it also refrained from interfering with the circulation and usage of existing pre-Islamic coins. Pre-reform coins continued to circulate until 813, almost 150 years after the conquest, in some areas. With a non-recall policy in place monetary circulation was sustained and a pragmatic utilitarianism pattern was inaugurated. Even with the accession of a new ruler, which normally resulted in a change in the inscription, coins were not recalled. Coins proclaiming the Abbasids were minted during the last years of the Umayyad dynasty, but were not suppressed or recalled by the Umayyads. Umayyad coins continued to circulate under the Abbasids, and the Abbasid coins remained in circulation after their previous provinces broke away and minted their own coinage. Coins of the Saffarids, (867-910), Tahirids, (821-873), Zaydis of Tabaristan, (864-928), continued to circulate within the Caliphate after they broke away from the empire.<sup>24</sup> The practice helped maintain liquidity, stability and monetization.

It may have helped that the attitude of society to money and coinage was relaxed. Unlike Indian or Chinese societies, which hoarded precious metals or stored them, Muslims did not.<sup>25</sup> Chroniclers of the Islamic conquests report that Muslims

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<sup>22</sup> The early administration while still in Arabia directed its representatives to gather tax records. D.C. DENNET, *Conversion and the Poll Tax in Early Islam*, Cambridge, Mass 1950 (Harvard University Press). W. AL-QADI, *Population Census and Land Surveys under the Umayyads (41-132/661-750)*, in *Der Islam*, 83, 2008, pp. 341-416.

<sup>23</sup> S. ALBUM, *A Checklist of Islamic Coins*, Santa Rosa, CA 1998.

<sup>24</sup> *Ibidem*.

<sup>25</sup> J.F. RICHARDS, *Outflows of precious Metals from Early Islamic India*, in *Precious Metals in the Later Medieval and Early Modern Worlds*, ed. J.F. RICHARDS, Durham 1983 (Carolina Academic Press), pp. 183-207. C.P. KINDLEBERGER, *Spenders and Hoarders. The World Distribution of Spanish American Silver*

regularly melted down plundered gold and silver vessels and did not hoard bullion, ingots or other forms of precious metals. Males' display of ostentatious wealth and jewellery was frowned upon. Mosques and religious monuments remained undecorated, devoid of ornaments and never display vessels made of precious metals. Cash payments were part of dowries as were properties in the form of land and gold and silver jewelry, showing utilitarian approach.<sup>26</sup> Some have doubted Arab understanding of money but Islamic societies approach was pragmatist rather than puritan. That the administration was able to handle mining, minting and coin production with early efficiency is an indication that social dynamics needs to be factored in.

The administration proceeded with speed to put more money into circulation. Within 30 years under the Caliph 'Abd al-Malik an easily recognized new type of gold, silver and copper Islamic coinage was launched asserting the prerogative to issue coinage.<sup>27</sup> The State supplied the dies to the regional mints, uniformity attested to in the coins first under the Umayyads then under the Abbasids. The number of active mints expanded: There were 69 mints minting silver coinage in all the provinces in the Iran-Iraq region under the Umayyads and 85 mints minting silver under the Abbasids, 750-1000.<sup>28</sup>

Ample evidence, both from literary sources and archeological site excavations shows an increased mining during the 9<sup>th</sup> -10<sup>th</sup> centuries.<sup>29</sup> For the 9<sup>th</sup> century peak these were the gold mines located in the Yemen and in Nubia,<sup>30</sup> while the 11<sup>th</sup> century most productive silver mines were excavated in North-Eastern Iran/Afghanistan. Typically, the fineness of both silver and gold coins was also high, ranging in the early period between 93% to 98%.<sup>31</sup> The excavations revealed human habitation surrounding the mines, with houses, schools, mosques, markets. In the case of the Sāmānid silver mines in particular, reinforced precious metals supply may be seen as linked to increased coin production. Mining was in the hands of private entrepreneurs but the state was directly involved by encouraging the exploitation of the rich silver mines in Azerbaijan and Afghanistan, which it controlled when the Samanids broke away from the Abbasid Empire.<sup>32</sup> The coins attest

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1550-1750, Singapore 1989 (Institute of Southeast Asian Studies, Asian Economic Research Unit), On India and China, pp. 57-73, On the Middle East, pp. 49-52.

<sup>26</sup> Marriage contracts from Iraq, Syria, Egypt, North Africa and Spain, are now available for study. On dowries as property right M. SHATZMILLER, *Her Day in Court. Women's Property Rights in Fifteenth Century Granada*, Cambridge MA 2007 (Harvard University Press).

<sup>27</sup> M.L. BATES, *The Abbasid Coinage System, 833-946*:

<http://www.numismatics.org/collections/abbasid.html> (accessed 2008).

<sup>28</sup> S. ALBUM, *A Checklist of Islamic Coins*, cit., pp. 21-22, 25-26.

<sup>29</sup> On Islamic mining see I. BLANCHARD, *Metallurgy and Minting in the Middle Ages*, Stuttgart 2001 (Franz Steiner Verlag), 2 vols. For the Islamic period see vol. 1 *Asiatic Supremacy, 425-1125*.

<sup>30</sup> For archeological studies, T. POWER, *The Red Sea from Byzantium to the Caliphate AD 500-1000*, Cairo 2012 (The American University in Cairo Press).

<sup>31</sup> A. EHRENKREUTZ, *Studies in the Monetary History of the Near East in the Middle Ages. The Standard of Fineness of Some Types of Dinars*, in "Journal of the Economic and Social History of the Orient", 1, 1959, pp. 128-261. Also

[http://www.medievalislamicconomy.uwo.ca/money\\_coinage/metal\\_fineness/index.html](http://www.medievalislamicconomy.uwo.ca/money_coinage/metal_fineness/index.html)

<sup>32</sup> M. SHATZMILLER, *The Role of Money*, cit.

to government supplied dies in the mines, so that minting could be expedited. Merchants could get the dirhams they needed directly in the mining zone. Copper coins were also minted in twenty locations in Northern Syria during the second half of the seventh century and provided petty cash for daily transactions.<sup>33</sup> In conclusion, not only did the conquest not cause trauma to the monetary system in the Middle East, it revived it. Monetized pricing could be undertaken and considerably enhanced by the actions taken by the Umayyad early administration.

#### THE SIZE OF THE MONEY SUPPLY

Whether Umayyad administration managed to increase the quantity of money in addition to reactivating the mints and issuing uniform coinage is related to the technical aspects of minting, notably to the number and quality of the dies. Ehrenkreutz devoted much effort in investigating these aspects but only with partial success.<sup>34</sup> The subject is complicated and controversial, not only for the Islamic money but in general.<sup>35</sup> Until better results are reported Ehrenkreutz results of measuring mint production of the Umayyad and the Tūlūnids mints will be followed. Ehrenkreutz concluded that the Umayyad administration, 650-750 AD, played a role in the inception and expansion of coin production through an initial surge in production and supply of dies. The increase, although he was shy of estimating coin production, was achieved by the opening of new mints. For the 9<sup>th</sup> century Egypt mint production Ehrenkreutz suggested the number of 100,000 dinars annually for the Tūlūnid mint. Nowhere does he link rise in production to rise in demand, in spite of some construction enterprises undertaken by the regime.

In the case of the Viking dirhams, Thomas Noonan, who used both the die count and the hoards count, offered quantitative estimates of mint production.<sup>36</sup> Noonan identified two periods, where, he suggested an accelerated coin production

<sup>33</sup> See Power, *ibid.* S. HEIDEMANN, *The Merger*, *cit.*, pp. 96-99. Kennedy suggested that “there was clearly unmet demand for more coinage” to pay for soldiers’ stipends. H. KENNEDY, *The Armies of the Caliphs, Military and Society in the Early Islamic State*, London-New York 2001 (Routledge), pp. 68-69.

<sup>34</sup> A.S. EHRENKREUTZ, *Early Islamic Mint Output: a Preliminary Inquiry into the Methodology and Application of the ‘Coin-Die Count’ Method*, in “Journal of the Economic and social history of the Orient”, 9, 1966, pp. 212-241. EADEM, *Numismatico-statistical Reflections on the Annual Gold Coinage Production of the Tūlūnid Mint in Egypt*, in “Journal of the economic and social history of the Orient”, 20, 1977, pp. 267-281. The payments of early Arab soldiers and their families were handled by the *divan*, with the help of a register of the active soldiers kept by the central administration in Damascus. H. KENNEDY, *Military Pay and the Economy of the Early Islamic state*, in “Historical Research”, 75, 2002, n. 188, pp. 155-169.

<sup>35</sup> See T.V. BUTTREY, D. COOPER, *Calculating Ancient coin Production: Why it Cannot Be Done*, in “NC”, 154, 1994, pp. 341-352.

<sup>36</sup> On the die count and hoards count methodologies see T.S. NOONAN, *Early Abbasid Mint output*, in “Journal of the economic and social history of the Orient”, 29, 1986, n. 2, pp. 113-175; T.S. NOONAN, R. KOVALEV, *The Dirham Output of the Spanish Umayyad Amirate, ca. 756-929*, in *Homenagem a Mário Gomes Marques*, Sintra 2000, pp. 253-260; T.S. NOONAN, *Dirham Exports to the Baltic in the Viking Age: Some Preliminary Observations*, in *Sigtuna Papers, Proceedings of the Sigtuna Symposium on Viking-Age coinage 1-4 June 1989* (New Series 6), pp. 251-257. R.K. KOVALEV, A.C. KAELIN, *Circulation of Arab Silver in Medieval Afro-Euroasia: Preliminary Observations*, in “History Compass”, 5, 2007, n. 2, pp. 560-580.

took place, one in the 9<sup>th</sup> the other in the 10<sup>th</sup> century. In the first case, he studied 40 hoards containing 11,850 coins, of which 70% were produced in the Near East. He concluded that over the course of almost 70 years after the accession of the Abbasids, mint production increased considerably reaching a peak in the late 770s. Baghdad produced almost 70% of dirhams deposited followed by North Africa.<sup>37</sup> Noonan dismissed criticism of the methodology and concluded that “the number of dirhams deposited during the early Abbasid era fairly accurately reflects Abbasid mint production at this period.”<sup>38</sup>

In the second case, that of the ‘Viking hoards’, deposited in North-Eastern Europe, Noonan proposed using the ratio of 2000 dirhams produced for every dirham deposited.<sup>39</sup> He came with the number of 228,400,000 dirhams produced between the 9<sup>th</sup> and the 11<sup>th</sup> centuries, which he cautiously reduced by a half.<sup>40</sup> While not all coins found in the Viking hoards were Sāmānid dirhams, most of them were, which demonstrates the strong link existing between demand for coinage for the purpose of trade and the state. Early stirring of new trade activities and reinvigoration of long distance trade, as well as trade between regions, motivated both merchants to demand money supply and the state, which collected revenue from it, to supply coins. The Arab geographers gave detailed account of the Northeastern trade routes of the 9<sup>th</sup> and 10<sup>th</sup> centuries, paid with increased number of dirhams in which the Sāmānids, 819-943 AD, maintained strong commercial presence.<sup>41</sup> The demand for coinage to pay for furs, slaves and forest products drove the state to devise strategies to increase the money supply.

The abundancy of dirhams deposited on the northern routes was certainly a unique case. Neither the Vikings nor the Kievans, Bulgars and Khazars, partners and intermediaries in the Islamic trade had a monetized economy in which to invest the Islamic silver, burying it instead in the ground. The lack of Islamic money in hoards in Western Europe may demonstrate the reverse situation. Only 447 dinars, 104 dirhams and 25 copper coins were discovered in 34 finds dating between the 8<sup>th</sup> and 11<sup>th</sup> centuries, suggesting little trade, or no trade with the Middle East.<sup>42</sup>

## TAXATION IN MONEY AND TAXATION IN KIND

Additional demand for increased money supply came from those involved in tax collection. It is plain to see how governments would benefit from the ‘monetization of taxes’ since taxation provided a large portion of the coins in circulation.

<sup>37</sup> T.S. NOONAN, *Early*, cit., p. 137.

<sup>38</sup> *Ibid.*, p. 117.

<sup>39</sup> T.S. NOONAN, *Dirham Exports to the Baltic in the Viking Age*, cit., pp. 251-257. R.K. KOVALEV, A.C. KAELEN, *Circulation of Arab Silver in Medieval Afro-Euroasia*, cit.

<sup>40</sup> T.S. NOONAN, *Dirham Exports*, cit., p. 255.

<sup>41</sup> É. DE LA VAISSÈRE, *Les marchands d'Asie centrale dans l'empire khazar*”, in *Les centres proto-urbains russes entre Scandinavie, Byzance et Orient*, M. KAZANSKI, A. NERCESSIAN, C. ZUCKERMAN eds., Paris 2000, pp. 367-378.

<sup>42</sup> M. MCCORMICK, *The Origins of the European Economy, Communications and Commerce. AD 300-900*. Cambridge 2001, p. 344.

Indeed, during the first three centuries of Islamic rule in the Middle East both Umayyad and Abbasid administrations are seen pushing to increase remittance of taxes in cash instead of in kind.<sup>43</sup> The tax registers from the Sasanid and Byzantine administrations were collected and translated into Arabic to provide the local grid of tax payers, tax ratio and taxed products.<sup>44</sup> In late 7<sup>th</sup> century the administration in Iraq tried to impose cash payment on taxpayers who previously paid tax in *nature*, requesting payment in a fix rate in money on land situated within a day's journey from the city markets.<sup>45</sup> The state continued to push for cash payments in 895 when it decided to postpone remittance of taxes from April to June, to allow for the crops to ripe and make produce available for sale in the markets.<sup>46</sup> Understandably, in times of tax remittance, the farmers pressed to sell their produce in the markets to raise the cash they needed, saw a decline in the price of agricultural commodities and resisted it. Even in instances where sale was in the hands of tax collectors, produce prices would decline.<sup>47</sup>

On the other hand, payments in kind presented a severe handicap. The revenue lists of the early Abbasid Empire show large amounts collected in cash but equally large amounts collected in kind.<sup>48</sup> For instance, in 785, under the Caliph Harūn al-Rashīd, the taxes collected in cash amounted to 313,780,000 dirhams and 3,816,000 dinars, and the following: "200 mules, which transported 20 embroidered carpets, 20 variegated cloths, 580 pounds salted fish, 10,000 pounds herring, 30 falcons, 4000 pack animals from Khurasan carrying 1000 silver ingots, 1000 slaves, 27,000 garments, 30,000 myrobalan, 30,000 pounds of sugar came from Ahwaz and 20,000 sugar candy from Sijistan, 1,000 pounds pomegranate marmalade, 12,000 pounds honey came from Hamadhan, 20,000 pounds honey from Mosul, 12,000 bags honey from Jilan, and large amounts of raisins, salted fish and cumin seeds. Some provinces paid taxes in precious metals: the silver mining areas like Qumis and Khurasan, paid taxes in silver ingots equal to 28,000,000 dirhams. The Yemen paid its taxes in gold forwarded to Baghdad twice a year.<sup>49</sup> The shipment of of such amounts of commodities was not only cumbersome and expensive, but probably wasteful as well. Goods which were not immediately consumed required urgent sale

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<sup>43</sup> D.C. Dennet provides a region by region discussion of the early efforts for reorganizing the tax collection system. D.C. DENNET, *Conversion and the poll tax in early Islam*, Cambridge 1950.

<sup>44</sup> On the W. AL-QADI, *Population Census*, cit.

<sup>45</sup> D.C. DENNET, *Conversion*, cit., p. 46. On cash payments on the conquest, p. 47.

<sup>46</sup> A. AL-HASAN, *The Financial Reforms of the Caliph al-Mu'atadid (279-89/892-901)*, in "Journal of Islamic Studies", 18, 2007, n. 1, pp. 1-13.

<sup>47</sup> G.M. FRANTZ-MURPHY, *Land Tenure in Egypt in the First Five Centuries of Islamic Rule (seventh-twelfth centuries AD)*, in *Agriculture in Egypt from Pharaonic to Modern Times*, A. BOWMAN, E. ROGAN eds., Oxford 1999 (Proceedings of the British Academy, 96), pp. 237-266.

<sup>48</sup> I. KHALDŪN, *The Muqaddimah*, Princeton 1958 (Princeton University Press), trans. F. ROSENTHAL, vol. I, pp. 361-365. For variations on this list see SALEH AHMAD EL-ALI, 'A New Version of Ibn al-Mutarrif's List of Revenues in the early Times of Harūn al-Rashīd', in "Journal of the Social and Economic History of the Orient", 14, 1971, n. 3, pp. 303-310.

<sup>49</sup> Gold remained the principal metal coined in the Yemen for over three centuries, down to the Ayyubid conquest. See M. LOWICK, *The Mint of San'a: A Historical Outline*, in *San'a, An Arabian Islamic City*, R.B. SERJANT, R. LEWCOCK eds., London 1983, pp. 1-3.

and resulted in low prices. The treasury suffered a loss. Urban taxes such as the head-tax, *Jizya*, on non-Muslims, or taxes collected as rent from shops were always paid in cash, given the dynamic monetized nature of urban economy, yet the problem of taxes in kind continued to weigh on the administration.<sup>50</sup> In the year 844 the Abbasid tax revenue from the Lower Diyala region declined. It amounted to 13,352,500 dirhams, out of which 10,011,000 dirhams were paid in barley, the rest in cash.<sup>51</sup> Tax revenue under the Tūlūnids, 868-905 AD, was levied in cash but collected partly in kind, *dariba*, and its ruler committed to sending 300,000 dinars to Baghdad.<sup>52</sup>

In conclusion, if the state wished to increase the monetisation of the rural economy to enable or facilitate tax collection in cash, it needed first to increase the supply of money going there. The large amounts of produce in the form of taxes, interfered with market price formation mechanism of supply and demand.

### THE PRICE OF FACTORS OF PRODUCTION

The organizers of our conference wanted participants to avoid the price of land, labor and capital, the factors of production, yet, a short foray into the Islamic scene is not without merit, having some bearing on the argument in the next section.<sup>53</sup> Factors of production may or may not trade in factor markets in Europe's medieval and pre-modern economies, but in the case of the medieval Middle East the question is more complicated.<sup>54</sup> The price of agricultural land in the Middle East is especially hard to assess since the sources do not actually address sale of land and questions such as land ownership and access to land remain elusive. The discussion by the jurists whether conquest occurred via treaty or offensive is particularly harmful to understanding the historical process of land acquisition. It will be erroneous to assume uniformity when in fact the land regime varied from one region to the other.<sup>55</sup> For instance, there are no land prices quoted by ASHTOR in *Prix et salaires* for Iraq, Syria and Egypt, for 700-1000. The papyri from 7<sup>th</sup>-10<sup>th</sup> centuries Egypt provide information about rents and leases paid in Egypt for the right to cul-

<sup>50</sup> M.S. GORDON, *The Breaking of a Thousand Swords. A History of the Turkish Military of Samarra (A.H. 200–275/815–889 C.E)*, Albany 2001. See p. 120 n. 151.

<sup>51</sup> R.M. ADAMS, *Land Behind Baghdad: A History of the Settlement on the Diyala Plains*, Chicago-London, 1965 (University of Chicago Press), p. 101.

<sup>52</sup> G.M. FRANTZ, *Saving and Investment in Medieval Egypt*, unpublished PhD dissertation, University of Michigan 1978. G.M. FRANTZ-MURPHY, *A New Interpretation of the Economic History of Medieval Egypt: The Role of the Textile Industry*, in "Journal of the Social and Economic History of the Orient", 24, 1981, n. 3, pp. 274-297.

<sup>53</sup> Compare with conditions in Byzantium. G. MANIATIS, *Pricing of the Factors of Production in the Byzantine Economy*, in "Byzantium", 73, 2003, pp. 60-95. B. VAN BAVEL, *The Invisible Hand? How Market Economies have Emerged and Declined Since AD 500*, Oxford 2016.

<sup>54</sup> *Property Rights, Land Markets and Economic Growth in the European Countryside (Thirteenth-Twentieth centuries)*, G. BÉAUR, H. SCHOFIELD, J.-M. CHEVET, M. T. PÉREZ PICAZO eds., Turnhout 2013.

<sup>55</sup> B. VAN BAVEL, M. CAMPOPIANO, J. DIJKMAN, *Factor Markets in Early Islamic Iraq, c. 600-1100 AD*, in "Journal of the Social and Economic History of the Orient", 57, 2014, pp. 262-289. In Iraq the right to extract revenue from agricultural land was in the hands of the State.

tivate the land, for instance, but land rents are not reported elsewhere.<sup>56</sup> In Egypt, the land was owned by the state and was leased by the state to lease holders who most likely divided it into plots and leased it to the peasants. No one has studied the lease markets in Egypt, although the potential for understanding movements in prices is there. North Africa and Spain stood apart since there agricultural land was owned privately and no *'iqṭā'* land was distributed.<sup>57</sup>

The price of labor is another matter. As pointed out earlier, the study of wages, or the price of labor of unskilled laborers in the aftermath of the Justinian Plague show that wages responded positively to supply and demand mechanisms and remained high for most of the medieval period, highlighting growing demand for manpower.<sup>58</sup> Other determinants of the price of labor such as skill, location, efficiency, and attitude towards work, income and leisure affected wages too.<sup>59</sup> In relationship to the Byzantine labor scene, Muslim workers were completely free to choose their occupation, where and how to work and how much to charge for their products, again, allowing market mechanism to work. Skilled artisans, who did not own their shop, were free, like unskilled journeymen, to contract their labor out to whomever they wanted. State employment was available mostly in the palace administration but also in manufacturing of metal objects and in the mint, as well as in the royal textile factory, the *tiraz*. Wages were competitive even in the court workshop and there is no evidence of wage control. The Islamic State did not set wage rate, nor did it dictate the choice of occupation or location.<sup>60</sup> Labour was not coerced and slave labour was not employed on agricultural land nor in urban manufacturing. There were no professional associations and professional guilds to prevent the free movement of labour.

The price of capital is usually taken to be the equivalent of the interest rate charged on loans, but in the Middle East there is not much information available on the subject. The early development of the monetary system helped create large stocks of metal money and evidence is available on capital accumulation but less so on loans. Tax collectors and merchants in the provinces and in Baghdad moved large amounts of cash around, ultimately leading to the development of credit instruments.<sup>61</sup> For instance, the need to transfer capital accumulated in the hands of

<sup>56</sup> The papyri contracts from early Egypt contain rent prices which need to be collected and evaluated. In the meanwhile, see G.M. FRANTZ-MURPHY, *Arabic Agricultural Leases and Tax Receipts from Egypt 148-427 A.H./765-1035 AD*, Vienna 2001.

<sup>57</sup> M. SHATZMILLER, *Unity and Variety of Land Tenure and Cultivation Patterns in the Medieval Maghreb*, in "The Maghreb Review", special number, "The Question of Maghreb Unity" Proceedings of the Second Annual Conference of North African Studies, London, 25-26 June 1982, pp. 24-28. Instead, tax revenue from the cities could be assigned to individuals at the whim of the court.

<sup>58</sup> Ş. PAMUK, M. SHATZMILLER, *Plagues*, cit.

<sup>59</sup> M. SHATZMILLER, *Labour*, cit., on labour organization. On human capital formation in the Islamic world, M. SHATZMILLER, *Human Capital Formation in Medieval Islam*, in *Workers of the World - International Journal on Strikes and Social Conflict*, I 2013, pp. 49-71.  
<http://www.workersoftheworldjournal.net/images/WW%203%20final.pdf>

<sup>60</sup> M. SHATZMILLER, *Labour*, cit.

<sup>61</sup> On banking instruments see E. ASHTOR, *Banking Instruments between the Muslim East and the Christian West*, in "Journal of European Economic History", 1, 1972, pp. 553-753. A. UDOVITCH, *Reflections on the Institutions of Credits and Banking in the Medieval Near East*, in "Studia Islamica, XLI, 1975, pp. 5-22.

tax collectors and governors in Egypt, to Baghdad, was linked to the appearance of the *suffaja*, essentially notes of credit drawn on a bank in the capital.<sup>62</sup> However, loans were private, namely between individuals and not anonymous. When a banker cum merchant known to the government, extended loans it meant, advance payment on taxes to be collected, in reality bridge-financing, enabling the government to meet its obligations. There is no mention of interest charged on these loans, nor is there interest on loans contracted between family members. Neither do the notary's forms, prepared for use in all commercial transactions, include interest. The loan contracted between husband and wife in Granada, which was registered by the court has no mention of interest, for instance.<sup>63</sup>

Most of the information on loans extended for commercial purposes come from the *Genizah* documents in the period, 11<sup>th</sup>-13<sup>th</sup> centuries, showing that interest was indeed charged.<sup>64</sup> There were also loans made by the Jewish community in Cairo to the poor and needy, small loans, extended to help in paying the poll tax, the *Jizya*. All loans were denominated in gold dinars, while interest payments were made in dirhams. The practice was necessary to keep the value of the loaned capital intact since the ratio of the dirham to the dinar fluctuated violently during those years. Ashtor collected data on interest rates from the Jewish *Genizah* documents and compared them to rates charged on loans contracted by Venetian merchants living in the Islamic cities.<sup>65</sup> He found that until the 10<sup>th</sup> century the interest rate in the Middle East was between 6 2/3% and 10%, while in Europe interest rate was 33, 3%.<sup>66</sup> By the 12<sup>th</sup> century, 'Islamic' interest rate climbed to 10% then to 15% in Egypt under Saladin, a rise which may be linked to the monetary crisis there and the supply of precious metals. The examples cited by ASHTOR of loans contracted by the Italian merchants were made with European funds and denominated in European currency. There is no indication of loans made with Muslim money.

Did the interdiction on charging interest on loans impede monetary circulation or the movement of capital?

Most of what is known of banking, investment and finance comes from the *Geniza* documents of the 11<sup>th</sup>-13<sup>th</sup> centuries, as no contract models appear in correspondence or the Islamic notarial records.<sup>67</sup> On the other hand, no empirical evidence surfaced to substantiate infringement of the rule on charging interest. No intervention was ever recorded to prevent transactions charging interest, on the part of the court, the police or the state. As far as we can tell, resistance to interest

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EADEM, *Bankers without Banks: The Islamic World*, in *The Dawn of Modern Banking*, New Haven-London 1979 (Yale University Press), pp. 255-273.

<sup>62</sup> W. FISCHEL, *Jews in the Economic and Political Life of Mediaeval Islam*, New York 1969 (Ktav publishing house), pp. 12-25. G.M. FRANTZ-MURPHY, *A New Interpretation*, cit.

<sup>63</sup> For 15<sup>th</sup> century Granada loan made by a wife to her husband for their daughter's dowry, M. SHATZMILLER, *Her Day in Court*, cit., pp. 176-194,

<sup>64</sup> S.D. GOITEIN, *Bankers Accounts from the Eleventh Century AD*, in "Journal of the Social and Economic History of the Orient", 9, 1966, pp. 28-66.

<sup>65</sup> The source of the data are the Venetian notarial registers E. ASHTOR, *The Development of Prices*, cit., p. 199. E. ASHTOR, *Banking Instruments*, cit.

<sup>66</sup> *Ibid.*, p. 209, note 69.

<sup>67</sup> S.D. GOITEIN, *Mediterranean Society*, cit., I, pp.148-266.

charging was located in Islamic legal theory and debated among jurists and religious scholars.<sup>68</sup> Goitein concluded that “Muslims lent Jews money on fixed interest,” and that “during the same period Jewish bankers gave loans to Muslims and it stands to reason that they too, charged interest.”<sup>69</sup> Will leave it at that.

#### THE 10<sup>TH</sup> CENTURY RISE IN PRICES IN BAGHDAD

To conclude this preliminary investigation of price formation in the price history of the Islamic Middle East, I propose to look into two cases, one from 10<sup>th</sup> century Iraq, the other from 13<sup>th</sup>-16<sup>th</sup> century Egypt, where factors exogenous to competitive markets, affected price formation. In both cases the factors in question were not institutional factors, similar to the legally formulated interventions in price settings in Byzantium. Rather they were impediments to market pricing mechanisms based in structural changes in the political and economic settings. In other words, they were the result of shifts in the identity of political players and giving them the power to alter revenue flows.

Between 935 and 942 AD the price of wheat rose in Baghdad by 263%, the price of flour rose by 246% and the price of bread by 210%.<sup>70</sup> A 7 years’ extreme rise in the prices of a basic commodities was out of the ordinary in the price history of basic commodities in Iraq, both in terms of percentage and length of time and thus warrants attention.

To display the price environment of the first case a table presenting wheat, flour and bread prices from Iraq gathered from our long-term database is provided in the Appendix.<sup>71</sup> The price data in the table begins in the year 919 and concludes in 956, highlighting the tremendous rise of the 935-942 episode. The numbers represent the price per unit of weight of wheat, flour and bread by date and all prices were converted to the equivalent weight in kg and expressed in gold dinars. When expressed in dirhams in the sources, the conversion rate used was 1:12-13 in 935 and 1:13 in 942.<sup>72</sup> Initial results show the complementarity of the price movements of wheat, flour and bread. Their prices rose in tandem and in a fixed rate: the prices of flour and bread were consistently higher than the price of wheat, with the price of wheat hovering around 87%-95% of the price of flour and the price of flour hovering around 82% of the price of bread.

What were the reasons behind the short term rise in commodities prices in mid-tenth century Baghdad? Was it an endogenous and temporary case of infla-

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<sup>68</sup> M.H. FADEL, *Riḥā*, cit.

<sup>69</sup> S.D. GOITEIN, *Mediterranean Society*, cit., I, p. 262.

<sup>70</sup> See Appendix.

<sup>71</sup> <http://www.medievalislamicconomy.uwo.ca/commodities/iraq/index.html>. The assistance of my former research assistant Asad Haider, is gratefully acknowledged.

<sup>72</sup> E. ASHTOR, *Prix et salaires*, cit., pp. 39-41. See also the section Measures and Weights, and Dirham/dinar ratios in our database <http://medievalislamicconomy.uwo.ca/>

tion?<sup>73</sup> Inflation factors identified in comparative cases were changes to the monetary system, mostly debasements, or an increase or decrease in the supply of precious metals. None appeared here. An early set of the silver famine might have been postulated, except that the lack of debasements in the coinage, or change in exchange rate, make it implausible. Furthermore, the episode in Baghdad corresponded to intensive silver mining in the Sāmanid state, which precludes interruption in the bullion supply. Population increase and return to pre-plague levels in Iraq could have put pressure on grain prices but not to such a level and not so fast. Population rise throughout the Middle East was slow to begin with and we would expect a slow rise in food prices throughout the century, rather than a steep and sudden one. In its place, a structural shift in the way agricultural revenue was allocated to market players, was the reason.

By the middle of the 10<sup>th</sup> century state income in the center of the earlier Abbasid empire declined sharply from previous levels. Tax revenue declined by close to 80% as the provinces stopped emitting taxes one by one. Beginning with al-Andalus, then the semi-independent Egypt in the 9<sup>th</sup> century, and the withdrawal of the Northeastern provinces under the Sāmānids and North Africa under the Aghlabids. While Baghdad lost its tax revenue, expenditures on the military rose. Early stirrings in this direction in the 9<sup>th</sup> century coincided with the recruitment of the Turkish guard to become a full-fledged mercenary army.<sup>74</sup> With the decline in state income, the payment to the troops was shifted from payment in cash from the state's treasury, to the right to collect income directly from state land, known as the *'iqṭā'*.<sup>75</sup> By the time of the episode in question, Baghdad went through a long period of social unrest.<sup>76</sup> The steep rise in 935-942 prices coincided with the disorder brought about by the arrival of the new rulers, the *Buyids* or *Buwayhids*, a Shi'ite leaning Persian dynasty. The new comers tried to get access to the income sources by changing the status quo between the military and the state. The disruption in supplying the markets, causing shortages and rise in prices, occurred when the new fiscal administration attempted to wrest control over the grain from resources previously allocated to the military.

The process by which this episode occurred is clear. The extension of the *'iqṭā'* system necessarily meant that the main source of taxation was eliminated from state control and that shift in elites disrupt the markets. The *'iqṭā'* system meant that *'iqṭā'* holders, while trying to raise cash dumped produce in the markets. The conflict between the previous military elites, Turks in this case, and the new comers, for control of agricultural revenue, disrupted the supply of grains. The Shortages caused a short term but steep rise in prices in the markets, which continued until the equilib-

<sup>73</sup> For European cases see P. LATNER, *The English Inflation of 1180-1220 Reconsidered*, in "Past & Present", 171, 2001, pp. 3-29. N. SUSSMAN, *Debasements, Royal Revenues, and Inflation in France during the Hundred Years*, in "The Journal of Economic History" 53, 1993, n. 1, pp. 44-70.

<sup>74</sup> M.S. GORDON, *The Breaking of a Thousand Swords*, cit.

<sup>75</sup> On the rise of the *'iqṭā'* in Iraq and the payment to the army, HABIB BEN ABD ALLAH, *De l'iqṭā' étatique à l'iqṭā' militaire. Transition économique et changements sociaux à Baghdad, 247-447 de l'Hégire/861-1055 ap.J.*, Uppsala 1986

<sup>76</sup> D. SOURDEL, *L'État impérial des califes Abbassides, VIII<sup>e</sup>-X<sup>e</sup> siècle*, Paris 1999 (Presses Universitaires de France). S. SABARI, *Mouvements populaires à Baghddad à l'époque 'Abbaside IX<sup>e</sup>-XI<sup>e</sup> siècles*, Paris 1981.

rium was restored. The role of the ‘tax in kind’, or its equivalent, income from *‘iqṭā’* land was about to grow in price formation with every new political masters, as long as these structures prevailed.

#### MONEY SUPPLY AND STATE MONOPOLISM IN 13<sup>TH</sup>-16<sup>TH</sup> EGYPT

The Egyptian/Syrian monetary system began exhibiting weaknesses by the 12<sup>th</sup> century, under the rule of Saladin.<sup>77</sup> Lack of precious metals affected coin production and fineness, and probably restricted monetary circulation. State monopolies over rare and imported commodities, which began under the Fātimids, did not increase under their successors, the Ayyūbids; Instead there was an increase in the distribution of *‘iqṭā’* land.<sup>78</sup> Taxation registers show that the *‘iqṭā’* holders became an element to be concerned with. The Ayyūbids, who needed armies to fight the Crusades, depended on the *‘iqṭā’* system to pay the troops.<sup>79</sup> It was a slow process which culminated in 13<sup>th</sup>-16<sup>th</sup> centuries in Egypt with the installation of the Mamluks, a military based political elites.

The crisis of the monetary system in 13<sup>th</sup>-16<sup>th</sup> centuries Egypt is well documented.<sup>80</sup> The chroniclers describe a long-term withdrawal of precious metals, gold and silver, and failed, yet repeated attempts by the financial administration to mint high quality gold and silver coins. Their failure to solve the crisis of the dirham concluded with the adoption of copper coinage, itself subject to repeated debase-ments. The money shortages resulted in the ‘copper dirham’, *dirham min al-fulus*, becoming the main market coinage, while the Venetian ducat replaced the dinar as the official coin in trade transactions.<sup>81</sup> The failure of the monetary system created mayhem in wages and in commodities prices. B. Shoshan concluded that each debase-ment was followed by 50% rise in the price of wheat, barley and broad beans, a typical case of inflation, and was blamed for recalls and hoarding of metals, including copper, and for food riots. Long-term hyperinflation in grain prices, hoarding and speculation was a way of life.

The new regime could not help the impact of the disappearance of precious metals had on money supply and instead amplified the measures it took to control prices, especially of grains. The “sultan”, who became the nominal head of state after being a regular Mamluk soldier himself, brought experience in dealing with the

<sup>77</sup> See A. EHRENKREUTZ, *The Crisis of the Dinar in the Egypt of Saladin*, in “The Journal of the American oriental society”, 76, 1956, pp. 178-184.

<sup>78</sup> On the Ayyubid *‘iqṭā’* see H. RABIE, *The Size and Value of the Iqṭā’ in Egypt, 564-741 A.H.1169-1341 A.D.*,” in *Studies in the Economic History of the Middle East from the Rise of Islam to the Present Day*, ed. M.A. COOK, Oxford 1970, pp. 129-139.

<sup>79</sup> Gibb noted that as more revenue was passed on to be collected by the military, their volition to participate in campaigns declined as harvest time approached. the armies of Saladin. H.A.R. GIBB, *The Armies of Saladin*, in *Studies on the civilization of Islam*, ed. S. J. POLK, London 1962, pp. 74-90.

<sup>80</sup> Especially by al-Maqrizi. See J.L. MELOY, *The Merits of Economic History: Re-Reading al-Maqrizi’s Ighathah and Shudbur*, in “Mamluk Studies Review”, 7, 2003, pp. 183-203.

<sup>81</sup> B. SHOSHAN, *From Silver to Copper: Monetary Changes in Fifteenth-century Egypt*, in “Studia Islamica”, LVI, 1982, pp. 97-116 and E. ASHTOR, *Les métaux*,

grain markets. The sultan's representatives had the power to collect, purchase and hold large amounts of grain collected as taxes, which could amount to 25,000 tons a year, corresponding to a considerable share of the capital's annual consumption.<sup>82</sup> Additional grain purchases were carried by the Sultan's agents at the lowest price with the intention of selling it with profit. The Sultan could prevent other merchants from selling at the time of rising demand and while he sold his grain. The sultan could also force grain dealers to sell him their grain when prices were low and could force sales at pre-determined prices. Members of the Mamluk administration and individual *amirs* had their own grain storages which they collected as wages. By withholding supplies from the markets, commodities prices were subject to continuous manipulation, aggravated by price controls imposed from time to time on bread sale. The presence of many actors in the grain market, also resulted in wide spread of hoarding and speculation as individuals with grain to sell attempted to get the best price for their grains. The regime, eager to preserve itself, and maintain its unique political brand in existence, continuously augmented the number of grain market actors by purchasing new young military recruits, supporting them while they trained, and investing them with rights to collect income from the land.

Not all interpreters of events in Mamluk Egypt agree with the above. Some have focused on the political turmoil which reigned in Egypt between the 13<sup>th</sup> and the 16<sup>th</sup> centuries, and argued for the role of religion in creating failed political institutions which precipitated economic decline.<sup>83</sup> Another interpretation of the market policies sees the failure of the monetary system and the monopolies exercised by the State as symptoms, not causes. Ashtor and Shoshan among others, saw in them the causes of failing institutions.<sup>84</sup> Environmental causes, such as the failure of the Nile's water to rise or the neglect in maintaining the irrigational canals, certainly played a role, but their impact would have been of a short-term impact, not the long-term picture painted by the chroniclers.<sup>85</sup>

## CONCLUSION

With the case of Egypt in the 13<sup>th</sup>-16<sup>th</sup> centuries we come a full circle. What began with the Umayyads in the Middle East as a policy of non-intervention in the markets was transformed into a full-fledged state intervention in Egypt. But there is a caveat here. Egypt had a long tradition of state intervention in the markets given its unique geographical conditions; state monopolies could not have worked as effi-

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<sup>82</sup> B. SHOSHAN, *Money, Prices, and Population in Mamluk Egypt, 1382-1517*, Unpublished PhD Dissertation, Princeton University, 1978.

<sup>83</sup> L. BLAYDES, E. CHANEY, *Feudal Revolution and Europe's rise: Political Divergence of the Christian's West and the Muslim World Before 1500 CE*, in "American Political science review", 107, 2013, n. 1, pp. 16-34. E. CHANEY, *Revolt on the Nile: Economic Shocks, Religion, and Political Power*, in "Econometrica", 81, 2013, n. 5, pp. 2033-2053.

<sup>84</sup> E. ASHTOR, *Les métaux*, cit., B. SHOSHAN, *Money, prices*, cit., p. 46, EADEM, *Grain Riots and the "Moral Economy": Cairo, 1350-1517*, in "Journal of Interdisciplinary History", 10, 1980, n. 3 pp. 459-477. EADEM, *From Silver to Copper*, cit.

<sup>85</sup> S. BORSCH, *The Black Death in Egypt and England*, Austin 2005.

ciently across the Middle East as they did in Egypt.<sup>86</sup> There revenue collection by the state was uniquely and untypically facilitated by geography. Iraq came close at some point, given its condition as a river irrigated agricultural system, but the water regime of the Tigris and Euphrates rivers was different from the steady flow of the Nile, and Iraq does not have the natural border as Egypt does to defend it from invaders.

I argued here that efficient monetary system, and state policies responding to endogenous needs in the economy, in particular the need for more money and coinage supply, shaped price formation in the Middle East in the short run. In the long run price formation was determined by exogenous factors created by structural changes. I evidenced the early policies affecting the coinage and mint production and identified an increase in the size of money supply as linked to a rise in trade activities. I concluded that the state, by supporting the mints, directly contributed to trade and monetary circulation. I explored the taxation system, which held many of the keys to the needs as well as to the structural changes reflected later in market price formation. I suggested that a strong component of taxes raised in kind interfered with market pricing of commodities. Pricing of luxury items and other imports was not examined at this stage. I continued by using evidence from later periods to strengthen my hypothesis that decline in state income made it impossible for the state to pay its troops with cash wages, and led it to engage in policies which alienated its revenue sources further. Giving military elites, with self-serving interest and narrow and partial view of society and the state's needs, the right to intervene in the basic commodities market, triggered skewed pricing. Instead of blocking the practice, the state itself began engaging in self enhancing profit behavior. The Islamic state was not monopolistic in its inception but developed monopolistic practices as it shed its resources. Nor did it develop legal or ideological tools to defend its predatory behaviour. Instead, with changes in its political and economic circumstances it became both mandatory and possible for its survival to engage in it.

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<sup>86</sup> R.C. ALLEN, *Agriculture and the Origins of the State in Ancient Egypt*, in "Explorations in Economic History", 34, 1997, pp. 135-154.

## Appendix

Tab. 1. Wheat, Flour and Bread prices in Baghdad 935-942

Year	Commodity	Price	Weight	Standard Weight	Price/100kg	Equivalency in Dinar or Dirham/100 kg***
919	Wheat	55 Dinar	1 Kurr	2925 KG	1.88 Dinars	N/A
919	Barley	55 Dinar	1 Kurr	2437.5 KG	2.2 Dinars	N/A
935	Wheat	120 Dinars	1 Kurr	2925 KG	4.1 Dinars	45.1 Dirhams**
935	Bread	¼ Dirham	1 Ratl	401.78 g	62.22 Dirhams	5.66 Dirhams**
935	Flour	3 Dirhams	1 Makkuk	5.94 KG	50.5 Dirhams	4.59 Dirhams**
941 summer	Wheat	130 Dinars	1 Kurr	2925 KG	4.44 Dinars	57.7 Dirhams
941 winter	Wheat	210 Dinars	1 Kurr	2925 KG	7.17 Dinars	93.1 Dirhams
941 winter	Barley	120 Dinars	1 Kurr	2437.5 KG	4.1 Dinars	53.3 Dirhams
941 February	Flour	130 Dinars	1 Kurr	2925 KG	4.44 Dinars	57.7 Dirhams
941 summer	Flour	160 Dinars	1 Kurr	2925 KG	5.47 Dinars	71.1 Dirhams
941 winter	Flour	6 Dirhams	1 Makkuk	5.94 KG	101 Dirhams	7.7 Dinars
941**summer	Bread	-	-	-	5.8 Dinars	75.4 Dirhams
941**winter	Bread	-	-	-	106.1 Dirhams	8.16 Dinars
942	Wheat	316 Dinars	1 Kurr	2925 KG	10.8 Dinars	140.4 Dirhams
942	Barley	120 Dinar	1 Kurr	2437.5 KG	4.9 Dinars	63.7 Dirhams
942	Bread	1 Kirat (0.624 Dirhams)*	1 Ratl	401.78 g	155.3 Dirhams	11.9 Dinars
942**	Flour	-	-	-	146.9 Dirhams	11.3 Dinars
944	Flour	60 Dirhams	1 Qafiz	46.88 KG	78.13 Dirhams	N/A
944	Bread	1/3 Dirham	1 Ratl	401.78 g	82.96 Dirhams	N/A
944	Dates	6 Dinars	100 Ratls	40.178 KG	0.12 Dinars	N/A
946	Wheat	1 Kurr	400 Dinars	2925 KG	13.6 Dinars	N/A
946	Wheat	1 Makkuk	25 Dirhams	5.94 KG	420 Dirhams	N/A
946	Dates	6 Dinars	100 Ratls	40.178 KG	14.9 Dinars	N/A
946 (during civil war)	Bread (east)	1/5 Dirham	1 Ratl	401.78 g	49.77 Dirhams	N/A
946 (during civil war)	Bread (west)	1.25 Dirham	1 Ratl	401.78 g	311 Dirhams	N/A
950	Bread	1/20 Dirham	1 Ratl	401.78 g	12.44 Dirhams	N/A
956	Bread	1/20 Dirham	1 Ratl	401.78 g	12.44 Dirhams	N/A

Source: <http://www.medievalislamicconomy.uwo.ca/commodities/iraq/index.html>