

# Wages and Currency: Global and Historical Comparisons

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## Abstracts

*The South-Chinese currency zone: China, Japan and insular Southeast-Asia from 12th-18th centuries*

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From the 12th century on a trading zone based on the use of a cast base-metal currency developed in the region stretching southward from China. China, Japan and Java used the same type of currency but knew different stages of economic development. If we take the situation sketched in the call for papers into consideration, can we draw conclusions for this area and period on the occurrence of wage-labour and medium-denomination coins and perhaps even a causal relation between them?

The part of the currency-systems is easier to sketch than the part of the wage-payments but from archival research, printed sources and literature scattered cases of the way the coins were used can be summed up. There are however some obstacles on the theoretical side.

When, like Jan Lucassen does in his article, we take the demand for currency into consideration, we should also pay attention to the supply side. The technology of minting determines the possibilities and costs of coin supply. The different aspects of striking or casting coins make it difficult to compare between European and East-Asian societies.

Could it be that the 'stages of growth' model of Lucassen is based mainly on western economic situations and the economic theory arising from it?

During the whole period coins were produced in one area to be shipped to another area. Thus China exported coins from the 12th till 16th centuries to Japan and Java, Japan produced them for Vietnam in the 17th century and Java shipped its own product to Bali, Sumatra and the Molucca's in the 18th century. This small currency was used in trading-transactions, in payment for services but also for hoarding and saving. We see that a 12th-century Javanese ferryman was paid in coin, as were 17th century Japanese bearers. These are of course no real wages, but were there wage-relations? As in the case of soldiers, an early group of wage-earners, we see that as late as early 19th century Java offers us the case of soldiers complaining that they didn't want to be paid in silver 'dubbeltjes' but in copper cents because their wives couldn't use the coins at the marketplace. Monetization of society as a whole should be taken into consideration as well then. In the absence of medium- and often large-denomination coins and the occurrence of both long- and short-distance trade in monetising societies, can we still uphold the general applicability of the 'Stufentheorie'? I would like to elaborate on this based on further research.

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*Currency, wages and debasements in 14TH-CENTURY FRANCE*  
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At the end of Middle Ages a monetary phenomenon spread like an economic plague through

Western Europe: debasement. The sovereign could change the official (nominal) value of circulating coins at will and modify (generally secretly) the weight and fineness of new coins to bring about substantial profit for his treasury. This kind of "monetary policy" was initiated to all appearances by the king of France Philippe the Fair in 1295. This practice, condemned firmly by theologians like Nicolas Oresme and later by economists, rapidly contaminated all European countries for more than four centuries. Periods of frenzied debasements took place in France in the 1350s, in England during the reign of Henry VIII and in the burgundian Low Countries between 1385 and 1433. Coins could lose 80% of their silver content in a few months or a few weeks and circulate officially with a constant official value.

Social and economic consequences of these policies were severe. Debasement increases the nominal money stock and induces inflation. All contracts, (very abundant in the Middle Ages), agreements and prices are affected by the increasing discrepancy between metallic and nominal value of money. When the prince decided to stop debasement, he usually devalued the face value of coins and (or) created new heavier coins. This firm measure aroused social agitation. Debtors who had contracted in feeble money suddenly had to pay in strong money.

Wages paid in kind are not altered by debasement but the monetary wages or the monetary part of wages underwent the fluctuations of the metal value of the money of account. A consensus exists among economic historians: wages adjust more slowly than prices of goods to the silver content of the unit of account. In economic language they notice a strong rigidity of wages during periods of monetary instability. Medieval workers are usually grouped in two categories: firstly, those who are independent workers employed day by day ("toutes manières de gens gagnans et ouvrans à journées" = journeymen) like vine-dressers or, for a certain task like masons and, secondly, people who are paid a regular salary by masters of craft guilds. The first category is paid daily or when the task is done, and the second generally get their pay packet weekly, in accordance with the statutes of the craft guilds. They all receive circulating money which can be good, debased, foreign or counterfeit. Historic reality is more complex.

scheme:

- independent workers (paid daily or for a special task in circulating money)
- regular workers of craft guilds:
  - a) mint personnel (moneyers and other workers are paid daily, when the mint works, in new money)
  - b) craft guilds except for mint personnel (paid in circulating money)

When new money is minted, the profit (seigniorage) is used to pay the debt of the Prince, in the first place the salary of those who work for him. This is an easy way to put new money into circulation. The salary of mint personnel follows a particular rhythm. Workers convert ingots of silver or gold into the alloy requested and prepared the blanks for coinage. They receive a few coins per ingot ready for coinage. Moneyers get one or more coins per 2400 coins (ten pounds) hammered. These wages, paid daily, are laid down by royal ordinance and we know them well. Modifications of mint wages can occur in three ways:

- a new ordinance
- a new kind of coin
- a variation of the amount of coins minted. Monetary stability induces unemployment and debasements or adjustments provoke a large increase in the mint's production

We can work out easily, not only nominal wages (in money of account) but also real wages (in grams of silver or gold) for these kind of workers because written records are very explicit.

The conditions of payment for other categories of salaried people are not very well known. French medieval registers and accounting records are written in money of account and the actual coins used for payment are not designated. Money-changers sometimes refused or devalued newly minted coins or overvalued old ones. Monetary circulation is, according to all historians, very complicated. The evolution of nominal wages of the "private sector" results from many economic and demographic factors. The increase in nominal wages of a mason in the 1350s may be the consequence of the Black Death and the scarcity of labor force and (or?) the result of the disastrous monetary policy of the Dauphin Charles.

We will propose some solid conjectures about specific kinds of workers' purses in 14th-century France: mint personnel, guild members and journeymen.

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*Structure and Movement of Wages in the Mughal Empire*

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This paper explores four inter-related factors which went into the making of the wage structure in the Mughal Empire (16th and 17th centuries India). It also discusses the question of inter-sectoral, inter-regional and overtime movement of wage rates and their implications for economic organization, income distribution and accumulation. It must be admitted that quantitative data on wages, prices, money-supply and income are extremely limited and fragmentary for the whole of medieval India. It is only from the 19th century onwards that one begins to get unbroken statistical material on these indices. This explains the short notices the subject has received in current historiography. However, there is sufficient evidence- some of it fresh- to commence an investigation into the process of wage determination and to place new interpretations upon already existing material.

## I

Paid in any form - benefits, commodity, money - wages represent the price of labour transacted at a given level of the market. The first and foremost components of the wage structure are time and skill. In any society free from servitude, a participant in a process (productive or otherwise) where labour is expended is entitled to receive something in return. The return may assume different forms but is reckoned is by the time taken to conclude the labour process. In Mughal India wages were determined by taking 1) the day as the unit of time (from dawn to dusk in diurnal chronology), 2) the month (Indian and Islamic lunar months of 29 days or extended month of 40 days), 3) harvest cycles of varying length in the countryside (with their peak and slack seasons), or 4) the year in the case of stable employment. There was no practice of paying weekly wages in medieval India. Piece wages were paid, such as in the mint or building construction, by the amount of work done by the wage-earner.

The reckoning of time for wage payments became complex when a particular skill was required to perform a piece of work. This is reflected in the wage differences within the same sector as well as between different sectors at any one time (Tables I and II).

Table I  
Wage Rates  
Sanctioned in the Imperial Establishment (c. 1595)

Category of Labourers	Daily Wages in dam (copper coin of 323 grains troy)
Ordinary Labourer	2
Superior Labourer	3 to 4
Carpenter	3 to 7
Builders	5 to 7

Table II  
Wages Paid in the Mint (c. 1595)

Category of Labourers	Wages paid in dams for crafting 1000 coins of:		
	Gold (169 grs.)	Silver (178 grs.)	Copper (323 grs.)
Blank Cutter (zarrab)	210.50	53.56	20.00
Smelter-assayer (sabbak)	-	54.00	-
Weigher (waznkash)	17.50	6.76	0.44
Striker and hammerer (sikkachi and patakchi)	14.00	5.38	3.00

(The hammerer received 1/6 of the total paid to the striker)

The first section analyzes how skills were weighed by employers in formulating payments. For instance, higher wages were paid to the blankcutter due to the delicate nature of his job which demanded exactitude, as all blanks had to be cut with shears to an equal size and weight (kamil ul wazn). My own experience of calibrating coin specimens preserved in museum and private collections suggests that - advancing a margin to wear and tear, and tolerance (sanctioned deviation from the mint standard) - Mughal coins betray a high degree of uniformity in weight, size and shape within a single series. In the case of precious metals, greater precision and time were required to weigh the blanks on a fine balance. Compared to silver weighers the workload of the gold weigher in the mint was at least 10 times higher because a single batch consisted only of 100 coins.

## II

We now move to the second factor. Just as the circulation of any commodity is facilitated by the availability of an efficient medium of exchange, wage-payments too get organized and enlarged with the widening circles of money-use. Monetization therefore plays an important role in determining the wage structure and forms which wage payments take. Once the wage sector is monetized, changes in currency circulation begin to impinge on wage movements and income

distribution. The issues discussed in the second section can be summarized as follows:

(i) Medieval Indian society is often characterized by the co-existence of two domains of economic activities: one of subsistence production in the village where the role of money is generally understood to be marginal and exchange was based on a socially established network of reciprocal obligations (jajmani). Payments were made to village workers and artisans from a common pool or individual household basis but the forms they took are difficult to identify as there was never any formal conceptualization of these as wages. Many artisans held revenue free lands granted to them by the village community in lieu of the services they performed. Is it reasonable to assume that taxes due to the state on artisanal holdings constituted their wages? Other issues include payments made to agricultural labourers and village officials and the extent to which these were expressed and paid in money as a result of greater contact between the market and the countryside. Village level documents show entries in account books relating to cash payments made to officials and a moneychanger (sarraf). Tavernier says that there was no village in India where a moneychanger was not present (c. 1666 AD). The presence of the sarraf suggests that the village community was drawn into the vortex of monetary economy and was familiar with the conception of exchange rates. Thus, the identification and computation of rural wages will not only establish the incomes of the rural class with greater certainty but also allow a better comprehension of the village economic organization and labour market (hitherto ascribed to the realm of autarchy).

(ii) This brings us to the other domain of economic life which was characterised by the prevalence of market relations of exchange and the use and flow of money. It was this multi-layered monetized sector which expanded enormously in the 16th and 17th centuries as a result of:

- a) the eastward migration of international silver and its transmission through the maritime and caravan routes to India in exchange for textile, indigo, sugar and spices;
- b) the westward migration of the Mughal empire to embrace coastal regions (Gujarat, Sind and Bengal) which were direct recipients of foreign bullion. This expansion linked the entrepots and hinterlands in a single network of exchange;
- c) the fiscal and monetary policies of the Mughal state, such as the introduction of a cash-nexus in tax payments (zabt) and wage disbursements (triggering a cycle of monetary circulation), the establishment of an open coinage system through imperial mints, and the implementation of a series of measures (beginning 1582) to create a standardized currency system in the empire (through recurring recoinage of demonetized specie and the introduction of freshly minted money into the exchange circuit);
- d) and the emergence and consolidation of a class of merchants, money-changers and bankers which mediated between production and exchange through commenda (shirkat), money-changing (sayrafi), deposit banking, respondentia (avak), bills of exchange (hundi), commercial usury, and inland and marine insurance (bima).

[These aspects are treated in detail in Najaf Haider, 'Precious Metal Flows and Currency Circulation in the Mughal Empire', *Journal of Economic and Social History of the Orient*, 39, 3 (1996), Special issue on 'Money in the Orient', pp. 298-364.]

(iii) What impact did monetization have on the form of wage payments? With an increase in monetary circulation it is logical to argue that wages would assume money-form on a bigger scale than before. This phenomenon is borne out by scattered references to money wages in Persian and European sources. In a few cases, one can even see a transition taking place in the

mode of payment.

Before the influx of silver altered the monetary landscape of Mughal India, the dominant exchange media consisted of billon and copper coins at the higher echelons and non-metallic currencies (cowrie shells and bitter almonds) at the lowest level of the market. With the coming first of gold (1500-1550) and then silver (1550-1700), the top and medium layers of exchange came to be occupied by the two precious metals. While the billon coin was withdrawn from circulation (the Mughal monetary authorities instituted a strict regime of purity), copper money was made available to the economy at a time when the size of the wage earning population was swelling and a shift was taking place from kind to cash payment. While an unknown portion of copper currency was demonetized and diverted to the industrial sector (for making pots, pans and canons), and fractional silver money did make some inroad into petty transactions in the form of the ana (1/16 of a rupee), contrary to current assumptions copper did not completely disappear from the monetary scene and the dam retained its presence in those areas where piece wages and time wages had to be paid in small amounts.

Evidence on copper money will help us address the problem associated with ascertaining whether wages calculated on daily basis were actually paid at the end of the day's work or accumulated and paid after a month in silver. Or whether monthly wages stated in silver were disbursed on a daily basis in copper money at the current rate of exchange if such money was available in plenty.

This problem offers an entry point into an interesting area of monetary history yet to receive scholarly attention: the triangular relationship between trimetallic currency circulation, market rates of currency exchange, and wage payments. A set of evidence will be presented in this section to demonstrate how employers and wage earners wrestled with one another to get the best out of bi-metallic arbitrage in cases where wages were stated in one currency and paid out in another and where fluctuations in exchange rates influenced the size of real money transfer.

### III

The role of the Mughal state in institutionalizing a monetary economy has already been pointed out. The impact of the consumption pattern of the ruling elites on the wage sector is also of some relevance. The ruling elites were concentrated in cities which attracted an overwhelming proportion of cash revenue siphoned from the countryside out of which a big urban craft and service sector were maintained. The elites owned and supervised manufactories (karkhanas) in which the ornaments of their luxurious life were fashioned. In the last quarter of the 16th century, there were 1000 karkhanas in the city of Lahore alone which produced only one item—shawls. Similarly the construction of palaces, inns, monuments, etc. (often sponsored by the state) absorbed a huge labour force consisting of stone carriers (sang bardar), stone-cutter (sang tarash), architects (mimar) and engineers (muhanddis).

According to the Dutch factor, Pelsaert, every wife in a noble's harem was attended upon by 10 to 100 maids who were paid on a monthly basis. The figure for the imperial harem was 4,700 women for 300 ladies. In this section we make a comparison between the wage sector maintained by the state and that operated by merchants and manufacturers and discuss how wage levels in the two varied.

The state also contributed to the creation of a viable environment for offering employment. Although political interference was present (such as the exaction of forced labour), it did not materially affect the free-trade character of the Mughal state. There were no legal restrictions on accumulation (the law of escheat worked only for indebted nobles), business methods (including

usury), and the movement of artisans and professionals. Indeed, the state made efforts to break the monopolies of skill-based professions ensured by the caste system (more details in our next section) to boost the supply of labour in individual sectors. Aurangzeb's declaration that the monopoly held by the gold wire drawers of the Srimal caste was illegal is a case in point. The Mughals followed their predecessors in allowing and encouraging artisans and workers to settle in newly founded cities. The territorial unification and political stability under the Mughal rule facilitated the short and long distance migration of wage earners to areas of employment.

#### IV

It is important to assess the relevance of one of the most outstanding social institutions of India - the caste system - for the wage market. Sustained by kinship, endogamy, commonsality and rituals of purity, the caste system created hierarchies which were difficult to breach. The caste system seems to have had a dual impact on the supply of labour/skills and the determination of wages. In the agricultural sector, it helped to create landless labourers, mostly menial and ready to be hired, by excluding them from landownership. Without the presence of this pool of resources, it would have been impossible for the upper caste peasantry (village headmen, zamindars, etc.) to cultivate their large estates at minimum costs. It is important to remember that the land-man ratio was favourable and cultivable waste could be occupied at no cost since the state promoted its ploughing for revenue. The caste system not only ensured the abundance of labour but kept agricultural wages to the level of subsistence. For the landholding village aristocracy specializing in the production of cash crops, this was an important source of wealth accumulation.

Since members of a caste could only practice their ancestral profession - and could not switch to another easily - rural manufacturing also received a plentiful supply of artisans such as cotton carders (naddaf) and oil pressers (teli), who might not be able to find employment in their own village. Gradually the system gave birth to a class of itinerant artisans and labourers who hawked their skills from village to village. A contemporary European observer left a graphic description of one such social group servicing the cotton textile industry, arguably the most important in our period of study:

We went next to Gitbagh, five leagues from Mader, we met great many colies (koli), which are people of a caste or tribe of gentiles who have no fixed habitation, but wander from village to village, and carry all they have about with them. Their chief business is to pick and clean cotton, and when they have no more to do in one village they go to another.

The description highlights another interesting issue: the employment of family labour, women and children. Such labour was particularly visible in the building and mining industries where wage labour was harnessed en masse. Here again the employer not only had a much wider pool of resources (women working with members of their family or caste felt secure and would not have ventured out on their own) but also at lower costs. Wages paid to women were less than those paid to their male counterparts for the same type and amount of work.

One way in which artisans and workers could have negotiated for a bigger role in wage determination was through the guild. But the emergence of a guild system in India was thwarted by caste-formation. The caste system, although acting as a substitute, lacked the organization and apparatus necessary to boost the bargaining power of the group and safeguard the interest of the wage earners. Professional castes did have their headmen but the latter were concerned more with caste matters. Although they mediated between the employer and wage-earners, evidence so far indicates that (except in the case of the corporate bodies of merchants and money-changers

called mahajan) they did not play any effective role in regulating wages in the way that guild masters did in medieval Europe.

On the other hand, in certain professions, skills and trade secrets were jealously guarded and transmitted from one generation to another within the caste, a process which resulted in the preservation and intensification of skills. An exquisitely calligraphed and illustrated manuscript was hailed at the Mughal court over a printed book, presented by the Jesuits, on account of its beauty, elegance and lower costs of production. Whenever the demand for such exclusive craftsmanship exceeded its limited supply, which was usually the case, wages were set at a very high level. This explains the extraordinarily high wages paid to the blank-cutter and assayer in the mint since both came from the highly skill intensive sub-castes of goldsmiths and silversmiths. This also explains the restrictions placed on the migration of such artisans out of the Mughal empire but not between two imperial mints. When a monetary crisis occurred at Delhi, mint workmen from were dispatched from Gujarat. But the English met with stiff resistance from Gujarat officials in their efforts to hire blank-cutters and assayers for their newly established mint at Bombay.

V

Ever since Earl J. Hamilton co-related money-wages and prices for his treatment of 'profit inflation' and capital accumulation for the Industrial Revolution, the study of wage movements have assumed added significance. For the first time, at least in modern historiography, the power of money to bring about major changes in economic and social structure was so persuasively espoused. W. H. Moreland, in his classic study of the Mughl economic organization, found no noticeable change in wage levels and took this to be a sign of stagnation. Irfan Habib considered the possibility of money wages lagging behind prices, but for him the magnitude of profit inflation was too modest to hold wide ranging implications for the economy.

Two points will be made in this last section. First, Moreland's assumptions about wage movements were flawed, as he had reduced the real value of the principal copper coin (dam), in which wages were expressed, by half in the 17th century. While the wages of an unskilled labourer doubled between c. 1595 and 1637 (from 2 dams to 4 dams), Moreland saw no change because he considered the latter figure to be equivalent to 2 dams. Such misinterpretations of numismatic evidence has marred the validity of his time series stated in money and used for macro-economic analyses. [The critique is presented in detail Najaf Haider, 'The Quantity Theory and Mughal Monetary History', *Medieval History Journal*, 2,2, 1999, pp. 309-48, esp. 338-44.]

The data used by Moreland, and the additional evidence suggest that money wages did increase in the Mughal Empire in the course of the 17th century. This section will discuss the variation in wages in different sectors and its relationship with money supply and labour demand.

Secondly, regarding real wages, the price history of the Mughal Empire suffers from the problem of inferring general movements through changes in bi-metallic ratios which, in the case of copper, diminishes its value by half (a la Moreland). If wages and prices are serialized afresh and their movements examined in close proximity, a better understanding of the factors working behind both movements and their implications for different sections of the population can be arrived at.

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*Some aspects of wage payments and coinage in ancient Rome, I-III century AD*

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Although Roman society was essentially rural and large industrial enterprises and even huge urban centres remained exceptional, hundreds of thousands of Romans in the cities, villages and especially those serving in the army and the administration must have received wage payments on regular bases. About the exact pay-rates or the denominations used to pay them, much remains uncertain and sources are fairly scanty.

The Roman state issued a wide range of denominations (as much as nine different ones!) and it is quite clear that each of them had it's own utility. We will sketch the function of these different coins and try to answer the question which denominations were specifically used to pay wages and if wage payments influenced the minting policy of the empire. Long distance trade or the needs of trade were rarely (or never) sufficient a reason for the Roman government to start minting. Most Roman coinage is directly linked with government expenditure and the state's fiscal needs.

The third century saw the introduction of a larger silver coin, the double denarius or antoninianus. We will see how bullion shortness, a defective tax system, inflation and army pay rises (but in which order?) were the cause of this change.

Civilian wage earners are more difficult to grasp, but the rare evidence we possess seems to show that the daily pay rate often corresponds with the basic silver coin of the period (the denarius), although it is quite dangerous to generalize this. <http://altern.org/gigm/service.htm>

The presence of a large body of wage earners has clear effects on the monetary circulation. The clearest examples come from the military presence in the provinces of Gaul and Germania. The arrival and departure of Roman soldiers changed the circulation pattern on several occasions. Two cases will be discussed in detail.

In a last section of this paper I should like to discuss the introduction of locally produced copper coinages between 50 BC and 50AD in Gaul. Although one can imagine how these were used in urban, proto-urban, religious and market centres, it is not so clear how these coins entered circulation. Different propositions can be formulated and one of them is the emergence of a body of wage earners employed by the civilian authorities (local militia, building activities, etc.).

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*Wages and money in Iraq during the 19th century*

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The country which is called Iraq today, was under Ottoman rule from 1534 till 1918. This area was divided into three provinces, Mosul in the north, Baghdad in the middle and Basra in the south. These provinces had different social, economic and administration structures. The Iraqi provinces had seen big political, social and economic changes in the 19th century. In 1830, the governor of the Baghdad province, Davut Pasha, was a thorn in the flesh of the British government, because of his policy against the British in Iraq. The successful military movement of Mohammed Ali Pasha, the governor of Egypt, against the Ottoman administration in Egypt and Syria in 1831, led the Ottoman administration to accept the demands of the British government in Iraq. In 1831 the Ottoman State removed Davut Pasha using military force and

after that they removed the Kurdish Emirates in the north and established a new central administration in Iraq. In 1847 the local Ottoman authorities in Iraq announced new laws and started a reformation in the land system.

In this period the old system of Timar was abandoned and the Iltizam system became the most acceptable system in the administration of the governmental economic organisations in Iraq such as the Miri lands, customs doors, mines and petrol sources. In this system the local governments rented out the administration of these economic organisations, by public auction to wealthy persons on 1-3 year contracts. This system gave the economy a monetary character and now the government started to pay monthly salaries to their civil and military personnel, as well as to other branches of society in Turkish money.

In the first part of this study we shall try to throw light on the wages of the government personnel and on the other government payments to different groups in society, such as religious and tribal leaders, widows and poor people.

With these changes in the political, social and economic life in Iraq, there was another factor affecting these parts of life in Iraq. That factor was the increase in the rate of international trade between the West and the East via the Iraqi lands and Basra port. This factor had a negative effect on some sectors of local textile industry, but on the other hand, this factor had a positive effect on local agriculture, trade and service sectors.

The increase of the international trade via Iraq led to an increase in the supply of foreign money in the Iraqi market after the second half of the 19th century. So in this period we see that many of the foreign currencies have an acceptable daily value in the Iraqi markets, such as the English pound, the Russian rouble, the Prussian taler, the Persian kran and tomaan and the Indian rupee.

In this study, I shall try to throw light on the wage policy of the Ottoman local authorities and the supply of (local and foreign) currencies in Iraq as a result of the increase in international trade in Iraq during the 19th century.

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*Coinage and wages: the British experience, 7th- / 15th- / 18th- centuries*

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The hypothesis that denominational structure can provide clues about the nature of a society's currency requirements and may have reflected the nature of trade and the labour market is an extremely interesting one, which I would propose to explore with specific reference to England and Scotland. Until 1603 English and Scottish money was entirely separate, and the two systems were not completely merged till 1707. These parallel systems thus provide useful comparisons, in which the Scottish currency was usually 'weaker', resulting in a more extended denominational structure providing the Scottish economy with more smaller denominations. The English currency was generally 'harder', reflecting a more healthy balance of payments, but perhaps also resulting in small change problems and possibly contributing a rather deflationary influence.

Generally, however, England provides a good deal of evidence which seems to support the

hypothesis. The dominance of the English penny, corresponds well with the 13th and 14th century wage levels, and the increasing tendency to create cut fractions to meet social and economic needs illustrates a 'grass-roots', popular response to government policy failings. The introduction of the 4d groat in 1351 corresponds exactly with the jump in wage rates resulting from the Black Death, contrasting with the failure of Edward I's groat of 1279, which seems to have been introduced in response to the gros tournois (perhaps for reasons of prestige), but which was not a success.

Nevertheless, there seem to be a number of modifications to the thesis, suggested by the British experience. The trend towards wage labour in the course of the middle ages was itself a complex phenomenon, which did not proceed chronologically at a steady pace. Elements of monetised trade and labour are apparent well before 1300, earliest and most strikingly evident in the pages of Domesday Book (1086). On the other hand, there was also some re-imposition of labour services in the 13th century.

It also seems clear that the importance of gold coinage in England in the 7th, 15th and 18th centuries, did not accord with the requirements of the economy. Small change seems to have been a more or less chronic problem until the development of token coinage. The place of small scale credit within the system needs to be explored.

Thus it appears that we need to be fully aware of other factors influencing the denominational structure of the British coinage, especially, for example, the market price of bullion, the traditions of the mints, the contract details of the mint staff, and the use of the mint as a source of government income. Thus the relationship between the open market price for bullion and the price the mint was prepared to pay sometimes had an important influence on the size of the output, and the choice of denominations. Mint tradition in Britain argued strongly against the production of copper, regardless of the needs of British society. Mint contracts consistently failed to provide moneymakers with an incentive to spend the extra time and effort necessary to produce adequate supplies of small change. Equally pressure on the mint to yield a royal profit may have pushed consideration of the needs of the economy into second place. In short, although a consideration of the structure of a particular coinage can have important implications for the nature of the society for which the coinage was intended, it needs also to be remembered that other factors may often have coloured the choice of coinage denominations.

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*Ways of wage payment in the Netherlands until about 1970*

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The aim of this paper is to explore the ways in which payment of wages took place in the Netherlands until about 1970. The study deals with various aspects from a socio-cultural, cultural-philosophical and socio-economical point of view.

The key question will be tackled by studying written and oral sources, as far back into the past as possible. It is expected however that the nineteenth and twentieth centuries will be the main period under survey.

The method of payment of wages changed fundamentally when (free) giro-services were available to private persons by commercial banks and the Postcheck- en Girodienst (which later became the Postbank): the wages were not paid in cash anymore, but were transferred via the giro account of the wage-earner. The final introduction of widespread payment of wages via giro-services can be dated at the turn of the sixties and early seventies of the twentieth century.

In this research the following sources will be consulted:

- key persons in the distribution of money, such as the local cashiers of the agencies of De Nederlandsche Bank; personnel/soldiers employed by the Ministry of Defense, dealing with the payment of the pay; cashiers of greater corporations like Philips, Shell, De Staatsmijnen; bookkeepers of middle-class and small (retail)businesses (informants are most likely the corporate accountants)
- (quasi) literary sources
- papers and magazines
- the so called 'fondsenman' who made his weekly tour to collect the premiums for all kinds of insurances: this is an illustration of the concept of 'earmarking' money. The money earned is kept for several, not interchangeable goals. Especially the so-called 'dooienfonds' (=the insurance for funerals) was the last source that was used for paying debts.
- instructions to local cashiers for the payment to recipients of relief and unemployment benefit.

The location where the wages were paid may tell something about the (too quick) spending of the wages received: were the wages paid in the office of the company, in a pub, in a bank, on the work floor? The character of each of the places where the wages were paid may have had a greater social influence than has hitherto been assumed.

The sequence of payment may give an indication of the social status and the corresponding socio-economic position of the wage-earner. Here wages are seen in the broadest sense as the regular and periodical remuneration for work performed.

In collecting data for this paper special attention will be given to the gathering of objects like pay packets and wage sheets. Here the cooperation of (local and regional) broadcasting corporations will be requested. It would be great if the older listeners or viewers would still have these objects, and would be willing to show them for research purposes.

The questions raised will be answered by focusing on the theories of among others Marx, Simmel, Bourdieu and Zelizer.

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*Wages payments and foreign coins in Limburg 1840-1914*

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This paper aims to establish a relationship between wage payments, the shortage of Dutch small change and the lasting circulation of Belgian and German coins in the Dutch province of Limburg between 1840 and 1914. This region is of particular interest because of its complex political past, its geographical position and the prolonged circulation of foreign coins, which can

be partial put down to wage payments. The annual records of the Maastricht based agency of the Dutch central bank (since 1864) gives quantitative insight into the amount of coins and paper needed in this predominantly rural region with only a few industrial towns. This source along with additional research in the archives of the Royal Mint and the Chambers of Commerce has given some remarkable perspectives on regional attitude towards money.

After the United Kingdom of the Netherlands established the guilder as the unit of its new decimal monetary system (in 1816) a variety of older currencies and coinages remained in circulation as legal tender. Besides, in the border regions coins of neighbouring states continued to be used abundantly. In the Dutch province of Limburg, overvalued Belgian and German coins even threatened to drive out Dutch coins altogether. There were historical as well as psychological, legal and economical reasons for the lasting circulation of foreign coins in this remote province of the Netherlands.

Dutch authorities failed to end the persistent and abundant circulation of especially Belgian 2-centime pieces, also to be known as Belgian cents. Their size and weight made it easy to mix these coppers with Dutch cents, especially when wrapped in paper into fifty-coin calls. Albeit these so-called knappers, when completely made of Belgian cents had a countervalue of 47\_ cents, they were going from hand to hand as if they were half guilders. Limburg entrepreneurs were blamed to the excess of foreign coins as they persisted in paying their workers in overvalued foreign copper, thus making a profit of five percent. Wage payments along with the chronic shortage of small change and the general acceptance by the Limburg population - which treated Dutch money as foreign - made it very hard to evict Belgian and German specie. Across the border, in the Rhineland, shortage of national specie contributed to lasting of the truck system.

In 1864, one of the tasks of the branch of the Nederlandsche Bank in Maastricht was to facilitate the circulation of legal tender- both banknotes and coins - in Limburg. At that time less than one percent of money circulation consisted in Dutch guilders. This changed over time as will be shown.

At the beginning of the 20th-century the emerging mining industry gave a new impetus to the circulation of foreign specie, now predominantly German marks. Cross border labour was one of the key factors in this process. Again huge quantities of coins - and not banknotes - were circulating. On the eve of WO I however, the general willingness to accept foreign coins payments had diminished.

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*Living upon 'credit and a little labouring work': the economic context of wages and wage payments in England c. 1600-1800*

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In his work on the artisans of eighteenth century Paris, Michael Sonenscher has argued that 'the relationship between work and wages was mediated by a variety of non-monetary customs and rights.' In 1989 Leonard Schwarz suggested that such factors needed to be investigated much more thoroughly for other parts of Europe as well if we are to properly understand what went

into the 'formation of the wage'. From this work it is clear that wages were not simply a straight forward cash payment for work done. The level earned and what such earnings meant in terms of wealth and status were bound up with estimations of the value of factors such as entitlements to food or drink and other customary entitlements in kind, hours worked, skill, fines and compensatory payments for urban living conditions. But in addition to these influences, it is clear that the form and meaning of the wage was equally affected by the illiquidity of monetary exchange and the structure of credit networks within the economy. During this period the number of gold, silver, or copper coins in circulation was very limited.

Farm servants often found that their wages were partly paid through exchange in kind or other customary entitlements such as beer, food and clothing, reducing the number and amount of cash payments that had to be made by farmers. Even wages for urban workers and rural day labourers, which were supposed to be paid weekly in cash, were often paid only irregularly if cash was unavailable. This paper will examine the extent of such illiquidity and assess its affect on the social role of wage labour in England in the early modern period.

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*Money, coinages, and wage payments in the economies of later-medieval England and the Low Countries*

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The manner in which wages were paid, in both town and countryside, for urban and rural craftsmen and for agricultural labourers in medieval Europe is a vexing problem that is not difficult to resolve. For northern Europe, the later medieval Low Countries and England do offer, however, sources that, if not completely resolving all the inherent problems, do shed considerable light on the nature of wages and wage payments. From various archival sources in both England and Belgium I have, over the space of many years, collected many thousands of such wage transactions, for the period approximately 1280 to 1540 . For England, the primary or largest source is the voluminous set of manorial records, much of whose data (from American as well as English archives) have been transcribed in the working papers now available in the Beveridge Price and Wage History Collection, in the Archives of the British Library of Economic and Political Science (BLPES, at the LSE). There are also some town accounts (municipal treasurer's accounts), guild accounts, and other urban records that provide useful if less continuous wage data. I have culled the London archival records (in the Guildhall Manuscript Library and the Corporation of London Record Office), while relying on the BLPES Beveridge Collection for other sets of urban wages. For Belgium, I have used primarily the municipal treasurers's accounts, or stadsrekeningen, from the various Belgian civic archives (stadsarchieven, stedelijke archieven) and also the national archives (Algemeen Rijksarchief) in Brussels: for wage records of Bruges, Ghent, Ypres, Mechelen, Leuven, Dendermonde, and Aalst, principally for the 14th, 15th, and early 16th centuries. I have also collected all of the available archival data on the mint accounts of the southern Low Countries for the 14th, 15th, and early 16th centuries, from which I have compiled annual coinage data (including coinage denominations struck); and for England, I have used the already published mint accounts that provide similar data.

The principal questions addressed in my ongoing research and in this paper are:

(1) To what extent were wages paid for work according to output — piecework wages - and to

time expended, whether daily or weekly? In most occupations, agricultural and industrial - and above all in textiles - wages were primarily piecework; but the sources for piecework wages are much less plentiful than for time-work. I do have, however, piecework wages for some tasks, both agricultural and industrial; and a set of wages in the woollen textile industry that combine piecework and timework (fullers's wages).

(2) To what extent were wages - and the question here is primarily for time-wages - paid in kind (or truck) and how much in coined money?

a) While Jan De Vries has found considerable evidence for wage payments in kind in the early-modern (northern) Netherlands, I have found very minimal evidence of such wages in kind for urban craftsmen in the towns of late-medieval Flanders and Brabant. I have also found evidence (though principally from the Leiden textile industry) of strong guild resistance to payments 'in truck'

b) Late-medieval England, however, yields much more evidence of wage-payments in both kind and money, though such evidence is more rural than urban (virtually none in urban settings). I also found that wages paid solely in coined money almost always equal the value of the wage payments made in a combination of coined money and kind (food, drink, clothing). I have found that the proportion of wage payments made in kind diminished after the Black Death: roughly half in kind before the 1340s, falling to about one-third in kind (or disappearing entirely), in the later Middle Ages.

c) The other interesting issue about wage payments is seasonality in daily wage payments: i.e., with lower wage payments in the winter than in the summer, reflecting the fewer hours of sunlight in which to work productively. In late-medieval England, seasonality of daily wage payments - obviously a non-issue in piecework wages - largely disappeared after the Black Death, while being retained in smaller towns in the Low Countries (and surprisingly for an evidently longer period of time in the north: in the United Provinces), more so in Brabantine than in Flemish towns.

d) The frequency of coined-money wage payments, and the denominations of the coins, so used, is a question rather more difficult to answer, though payments seem typically to have been made for either (i) the week, or (ii) the actual period worked, which was rarely for more than a week or two weeks at a time, and often for only a very few days. Limitations of time and space may, however, prevent me from addressing all of these issues, or limit the time period and geographic area that I can cover.

e) On the basis of my research on minting, mint-outputs, money, and prices, along with the research on wages, I also intend to calculate the wage payments (in money) in terms of both silver (i.e. the silver contents of the coins presumably used) and of the quantity of consumer goods (chiefly foodstuffs) that could have been acquired with weekly and annual wage payments. For the latter purpose I am employing: (1) for England, the well known Phelps Brown and Hopkins index of a 'basket of consumables', but amended by my own research on their working papers in BLPES (LSE), from which I have extracted the actual prices of the goods in their annual basket; (2) for Brabant, the Van der Wee Consumer Price Index, for the Antwerp-Lier region, modelled on the Phelps Brown and Hopkins index; and (3) for Flanders, my own Flemish Consumer Price Index (but only for the period 1350 - 1500), modelled on the Van der Wee index.

Limitations of time and space may prevent me from covering all these topics, or may force me to restrict the temporal (time-period) and spatial (geographic regions) coverage of these topics,

particularly for the final issue, in relating wage payments to the quantity and values of goods that could be purchased with the money wages (i.e. calculation of the real wage) and to the varying silver contents of such wages. For this issue, the former evaluation of the true real wage is more interesting than the silver content of the wages.

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*Long distance trade. Coinage and wages in early modern India*

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This paper will explore the relationship between long distance trade, coinage and wage payments made to free labour in early modern India. The intense relationship between the first two of these three variables in the case of India is well established. The great potential of the expansion in the volume and value of Indo-European trade opened up by the discovery of the all-water route via the Cape of Good Hope in 1498 would, for example, have been frustrated if the simultaneous discovery of the Americas had not provided Europe with substantial additional quantities of silver for use in the trade with Asia. This was because Europe of the pre-Industrial Revolution phase was simply unable to supply goods that could be sold in India in reasonably large quantities at competitive terms to raise the necessary amount of purchasing power to pay for the goods bought there. These goods were therefore paid overwhelmingly in precious metals - silver and gold in the form of both bullion and coins. The principal silver coins that entered Indo-European trade in large quantities around this time were the Spanish rial of eight and its north-western European counterpart, the rix dollar. A "bullion for goods" model was nothing new for India. Middle East was the principal supplier of silver bullion and coins to India in the pre-European phase.

Given the almost total absence of indigenous production of precious metals, the bullion and coins obtained from her trading partners constituted the backbone of India's monetary and coinage system. I will argue that the view held by a number of western scholars that unlike in the case of Europe, silver imported into India "went promptly into hoards or was demonetised and became a commodity satisfying the oriental penchant for ornaments" is fallacious. Indeed, I will establish that the entire lot of imported bullion and coins was converted into Indian coins and led to a corresponding expansion in the stock and the flow of coins in the economy. That would bring me to a discussion of the Indian coinage system which in the northern part of the subcontinent was completely centralised and was without any question one of the most quality - controlled and sophisticated coinage systems in the world. I will also briefly touch upon the question of humble money such as small sea shells called cauris which also figured in wage payments.

The growing supply of coins in the system led to greater monetization with a steadily rising proportion of total transactions in the economy taking place within the monetized sector. Among other transactions, this also applied to wage payments made to free labour in the economy which represented an overwhelming bulk of the total labour supply and commanded a market-determined wage. As for data on wage rates, we do indeed have sources such as the *Ain-i-Akbari* written in the last decade of the sixteenth century which details wages paid to a wide category of workers employed in the imperial establishment. Some of these workers were paid on a monthly



basis while others were paid on a daily basis. Several categories of skilled workers were paid on a piece-rate basis. A comparison of these wage rates with those in the official British colonial government's publication *Prices and Wages for 1874* (both converted into quantity of wheat commanded) strongly suggests that wages of unskilled and semi-skilled workers had undergone a considerable decline over this period.

The much more important category of workers regarding whom information on wage rates is available is that of urban and semi-urban handicraft artisans producing for the national and the international markets. In so far as this output was manufactured on the basis of inventory building in workshops organised by merchant entrepreneurs, the wages to the artisans employed were paid in coins of low denomination on a daily or a weekly basis. We also have the case of the silk reeling unit run by the Dutch East India Company in Kasimbazar in the Murshidabad district of Bengal in the seventeenth and the eighteenth centuries. Initially the unit was run on the basis of a contract with a master reeler but later the Company decided to assume the entrepreneurial responsibilities itself and arranged for the payment of wages in cash under its direct supervision.

The overwhelming bulk of the marketed output of handicraft products such as textiles, however, was produced under a variant of the standard European putting out system with the weaver being responsible for the procurement of the raw material. The payment made by the intermediary merchants to the weaver obviously had the equivalent of a wage payment in the package but it is a component on which the availability of firm and definitive information is somewhat limited.

On the basis of the available information, what I propose to do in the paper is to convey a broad idea of both the money and the real wages earned by textile weavers in early modern India. I also propose to compare the real wage level of the Indian weavers with that of the weavers in pre-Industrial Revolution Britain on which a fair amount of information is available. I will establish that contrary to popular belief the Indian weaver was no worse off than his British counterpart. Quite a bit of information exists on this theme and I propose to use it in fair detail.

Finally, we have some information on how the labour market with special reference to the question of wage payments in coins was distorted in some parts of India such as Bengal in the latter half of the eighteenth century. This was a consequence of the wresting of political authority in the province by the English East India Company from the Mughal authorities. The consequences of such distortions will be commented upon.

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*Wage payments in Italy before the introduction of the "moneta grossa", 11th-12th centuries*  
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The earliest source for almost certainly the earliest "groat" of Europe, the Venetian grosso matapan, reports that the coin was introduced in 1202 to pay the wages of workers in the Arsenal of Venice who were building the ships for the IV crusade. However interesting, this piece of information very likely isn't an accurate reflection of reality, in as much as the Venetian grosso, as the other early monetae grossae of Italy, was introduced mostly for commercial

reasons rather than for paying salaries. It nevertheless suggests that wage labour was well developed and that workers were paid in specie, at least in Venice. Other sources, for example the *Reiserechnungen* of Bishop Wolfger von Erla (1204) and the *Liber Abbaci* of Leonardo Fibonacci (post 1202), indicate that the situation was more or less the same elsewhere in Central and Northern Italy around 1200. The development of 'monetized' wages in Italy thus preceded the innovations in the monetary system to which the introduction of the groat attests.

Prior to the introduction of the groat, a single denomination, the denarius, was used indifferently as a unit of account and as an actual coin, which makes it difficult to analyse the first steps in the dissemination of monetized wages. We cannot be certain, for example, whether evidence for wage payments in the exiguous documentation for before 1200 refers to actual coins or only 'values' for which payment may have been rendered in kind or perhaps in another form of coinage altogether.

In order to examine this issue further, it is useful to supplement the documentary record with other kinds of information, namely evidence from coin finds. Although rare before about 1050, evidence of this sort becomes relatively common from the late 11th century, suggesting that the monetary stock by that time was sufficiently large at least to allow for the possibility that wages could be paid in coined money.

There are, however, significant differences in the composition of coin finds between hoards and stray finds. Coins of virtually all sorts are found in both hoards and stray finds, but hoards, which were often assembled and deposited as a group, tend to be more homogeneous in so far as concerns mint provenance. One of the greatest differences between hoards and stray finds thus lies in their internal composition. This difference may have been due to the fact that hoards, more than stray finds, are more likely to be related to soldiers, who perhaps more often than others found to hide their peculium for safe-keeping.

If so, it may be concluded that soldiers' salaries, reflected in very homogeneous finds, tended to be paid mostly in coins and in the 'official' currency of any given state, or the *caput monetae*, rather than in the many different kinds of *denarii* available in trade and on the market. This probably means that the soldiers were paid according to the coins' nominal value rather than according to their 'market value', or in other words, in *pecunia numerata* rather than *ad pondus argenti*. The rapid erosion of the metal content of virtually all Italian *denarii* during this period further means that soldiers' salaries were probably sharing the same fate.

It would be useful to determine whether this 'devaluation' affected other wages and salaries in Northern Italy during the 12th century. Low workers' salaries thanks to cheap money indeed may have been one of the sources of economic growth among the Italian Communes during the period. A soldier was a very peculiar kind of worker, however, and the experience of the soldiery is not necessarily representative of the broader classes of ordinary workers. The archival evidence is suggestive in certain cases, but it is not conclusive, and further research in this area is still needed.

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*Pennies and Hellens along Rhine and Moselle from the late Mediaeval Period till well into the 19th Century*

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In every-day payment and wage-paying the smallest coins have always been very important. Wages were often paid daily, in our region in Albus, Kreuzer, Batzen, stivers, pennies and hellers and multiples thereof. There exist hoards with thousands of pennies and hellers from the countries along the Rhine to demonstrate the importance of these small coins in every-day-life. In Germany the system of a general penny of equal weight was split up into local penny-currencies during the 12th century. With the appearance of groats and gold coins in the 13th and 14th centuries and the existence of heavy and light pennies such as the heavy pennies of Cologne and Aachen and sterlings on one side and pennies from Schwäbisch Hall (hellers), Holland, Wetzlar, and Lorraine on the other side differentiated monetary systems developed.

We will now only deal with the basic coins. In the late middle ages along the Rhine from Cleves to the Palatinate two main denominations developed. The Heimbach north of Bingen was their frontier until in the second half of the 15th century both systems mixed. The whole region belonged to the Rhenish Monetary Union or was influenced by its currency, based on the golden florin, the Weißpfennig or Albus and pennies and hellers. This union lasted from 1385/86 till about 1537. In the beginning of the 16th century its members were the Electors of Mainz, Trier, Cologne, and The Palatinate, the Dukes of Jülich-Berg, Cleves-Mark, the Landgrave of Hesse, the Bishop of Speyer, and the City of Cologne.

North of the Heimbach the Weißpfennig was subdivided into 12 hellers which after 1430 were struck in the technique of bracteates, called Hohlringsheller or Möhrchen. These silver hellers were struck in Cologne up to the end of the 18th century, and finally in copper. The electors of Mainz and The Palatinate formed a special monetary union based on uniface bowl-shaped pennies whose origins were the pennies of the City of Straßburg. These pennies were firstly struck by 1370 in the Palatinate mint of Heidelberg and proved to be a solid basic coin. By the middle of the 15th century 8 of these pennies made a Weißpfennig, and a practicable relationship of 2 : 3 between these two coins was established. Because of the weakness of the northern partners of the Rhenish Monetary Union the bowl-shaped penny of Mainz and The Palatinate became valid in the whole territory of the Union in 1502. In the following twenty years great masses of these pennies and hellers were minted. A hoard from Mühlhausen in Thuringia is supposed to have consisted of about 40.000 pennies.

After the end of the monetary union the Rhineland was again subdivided into a penny-zone and a heller-zone whose frontier was north of Koblenz. The pennies and hellers survived the monetary reforms of the Holy Roman Empire which should introduce only one currency for the whole empire, the silver florin of 60 Kreuzer of 4 pennies each. But the imperial diet underestimated regional conservatism and the power of the Rhenish electors. So the Rhenish lords and cities kept their local currencies.

From about 1570 to 1605 there was a renaissance of the bowl-shaped penny. Masses were struck. The registers of the Upper Rhenish Circle tell of about 40 million pennies. There are also hoards of about 4000 pennies and hellers. In Frankfurt Jewish bankers changed more than 29 million pennies in the time from 1578 to 1612, certainly more than once. There was a surplus of small currency of bad quality, also on the lower Rhine where the Lower Rhenish and Westfalian Circle controlled the minting more strictly than the directors of the Upper Rhenish Circle did. About 1600 we find the first copper coins on the lower Rhine (Cleves, Aachen), following the

Netherlands. These pennies and hellers were used for wage-paying. Unfortunately we do not have statistical material of the population except for Hesse-Kassel and the big cities. We therefore do not know the relation between hellers and pfennigs and the number of inhabitants of territories and small towns.

The Kipper and Wipper period did not produce bad small change along the Rhine like the Flitters in Northern Germany. Like other lords and cities Count George of Nassau-Dillenburg (1606-1623) tried to regain control over prices and wages and passed a regulation in 1620 with maximum prices and fixed wages on the basis of the silver florin of 24 Albus of 9 pfennigs each. Daily wages differed from summer to winter. A master carpenter for example earned 11 Albus in summer and 9 Albus in winter. If he was given food the wages fell to 7 respectively 5 Albus a day. Unskilled farm workers earned 4 Albus and often less. About 1622 in Herborn, the biggest and busiest town of Nassau-Dillenburg a hoard of 1.066 mainly small coins was hidden. The small coins were Gute Groschen from northern and central Germany, Drei- and Zweikreuzer (Groschen and Halbbatzen) in the southern German System and Deniers (Dolcher = Daggers) from Lorraine which had a value of one Kreuzer. In the hoard there were only six Albus of the Elector of Trier in the system of the florin of 24 Albus. The Herborn hoard contained only 28 pfennigs and hellers and double hellers and pfennigs. In the first two decades of the 17th century an Albus gradually became the equivalent of two Kreuzers on which basis the wages were paid.

After the Kipper and Wipper period the production of pfennigs and hellers sank. Only occasionally were more or less small quantities of very bad silver pennies and hellers produced. In Mainz the last bowl-shaped pennies were struck by 1720. On the lower Rhine only the City of Cologne produced considerable quantities of Hohlringshellers. The City of Aachen continued its copper coinage up to 1798 when it had already become a part of the French Republic. In the second half of the 17th century and about 1750 copper duits were struck in Cleves. Cleves, Jülich-Berg and the Electorate of Cologne began to prefer the Dutch stiver instead of the Rhenish Albus and gradually began to strike stiver coins. In the electoral mint of Bonn quarter stivers ("Füchse" = foxes) were struck from 1722 to 1767. Although they were of copper, they had a value of less than a quarter stiver because they were too light. By the middle of the 18th century Jülich-Berg began to strike larger quantities of stivers, and a copper currency was established on the lower Rhine. The city of Cologne followed. Its last Hohlringshellers consisted of copper, too.

In 1748 the elector of Trier also began to strike copper pennies and multiples thereof. His irresponsible financial administration soon found out that copperminting was lucrative and produced a surplus that led to complaints by those who were paid with it. The electorate had a small army, mainly the garrison of the huge fortress of Ehrenbreitstein who had to protect the relic of Christ's garment in cases of war. They received quantities of those copper coins and had difficulties to spend them without losses. The electoral mints of Mainz and the Palatinate which dominated the penny production from about 1370 to 1520 in the late middle ages had entirely lost their importance and produced small quantities of copper pennies.

The Landgraviate of Hesse-Cassel had rich copper mines in its north-eastern region around Sontra and began to strike copper hellers and multiples in 1723. In the last quarter of the 18th century the administration of the copper, cobalt and barite mines of Richelsdorf ordered copper coins for the wages for miners and foundry workers who received three quarters of their wages in

silver (Hessenalbus and multiples) and one quarter in copper in coins from 1 to 8 Hellers (1 Albus = 12 Heller). We know of a project of the mining clerk in Richelsdorf in 1790 who thought to be able to spend 18.000 to 24.000 Reichstalers for wages over three years, i. e. 6.912.000 to 9.216.000 hellers for wages in the very important mines and foundries of Richelsdorf.

As long as the value of copper coins as well as silver coins depended on their intrinsic or metallic value, speculation even with the smallest denominations flourished. In the early 19th century we know of speculations with copper pennies and hellers which were produced in the collaboration of states with entrepreneurs. In Nassau copper hellers were struck for the export to the Dutch East Indies, in Frankfurt the mintmaster had leased the city mint and struck hellers for the export to the Rhineland and to the Netherlands. There are early 19th-century small copper coins whose origin nobody knows with certainty. They were struck for speculation and are known as Jew pfennigs. It was the rational currency policy of the 19th century that introduced solid small change that enabled the working population to spend their wages without losses.

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*Currency, wage payment and large fund settlement system in Japan: 1600-1868*  
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In the Edo period (1600-1868) of Japan, the retail transactions and the payment of wages had been generally settled by gold, silver and copper coins issued by the Tokugawa shogunate government. Unlike in ancient and medieval times of Japan, all of them were treated as legal tender and had an independent unit of account. Because of this unique character, the Tokugawa currency system established in 1601 was sometimes referred to as the three-tier metal standard. Which type of coins to be used was thus decided in the market by the type and amount of transaction: gold and silver coins for the large transactions, and copper coins for the smaller ones.

Gold coins were issued in unit of ryo, bu (1/4 ryo) and shu (1/16 ryo). The first gold coin named Keicho 1-ryo koban weighed 4.76 monme (one monme is equal to 3.76 grams) with 84.29% in gold. Copper coins were expressed by the unit of mon. On the other hand, silver was not coined in a strict sense. It was issued in small pieces of ingot of various weights named Chogin with certified fineness and circulated by weight. The mameitagin silver coin was also minted to fine-tune the weight not covered by the Chogin. Although the exchange rate of three coins was officially set by the Tokugawa shogunate government as 1-ryo gold coin = 50 monme of silver coins = 4000 mon of copper coins, actual rates were determined in the market.

In 1661 a new phase emerged. Hansatsu paper money in small denominations was also used locally to pay for retail transactions, a habit which continued well into the Meiji period. It was issued by the regional feudal government with the permission of the Tokugawa shogunate government to eliminate the local monetary bottleneck. In the Edo period the circulations of national currency around the nation were deeply connected to the commercial transactions. In case net export of commercial goods fell short of the required amount of money, monetary bottleneck emerged locally. Hansatsu was issued by using the gold and silver coins as reserve and its value naturally fell when the local governments over-issued it.

From the end of the seventeenth century gold and silver coins with smaller denominations were

introduced: a half-bu or 2 shu gold coin in 1697, a 2 bu gold coin in 1818, and the Meiwa Nanryo 2 shu silver coin in 1772 whose monetary value was expressed by the gold unit. It was just a reflection of growing demand for the smaller gold and silver coins: as commercial transactions mainly settled by cash currency developed, more portable payment media instead of copper coins were required.

Wages for ordinary people were paid mostly in copper and silver coins throughout the Edo period. Hansatsu was usually used for wage payment in local areas where it was designated as dominant means of payment. New gold and silver coins with smaller denominations had also been used to pay wages. But no relation could be found that the wage payment had a significant impact on the denomination of coins. Wages for Samurai class, which accounted for 10% of the total population, were paid by the rice under the feudalistic rule. That is, they were given a fief by the Tokugawa shogun, and the stipend was measured by the volume of rice. Samurai sold the rice collected from his farmers as the land tax to the tradesman to get money and pay for his way of life. And the rice was usually sold three times a year.

On the other hand, in Osaka, a main collection and distribution center for various goods produced in almost all over the nation, the wholesale transactions among merchants had been settled by silver coins. But both buyers and sellers always had had to pay the additional costs of measurement and transportation at the time of settlement, since the silver coins had been valued by weight. In order to reduce these transaction costs unique to the silver coins, a check issued on the basis of current account deposits at a money changer named ryogae-sho was introduced in around 1660, thus supporting the commercial transaction through its smooth fund settlement. For example, between 1716 and 1736, about 650 ryogae-shos settled the checks issued by about 6000 merchants everyday.

The check settlement system in Osaka offered by the ryogae-sho for the wholesale transactions was as developed and efficient as the Giro-system used in European countries at that time. But the access to the system was limited to the leading merchants and it had never been used to pay wages. In other cities like Edo and Kyoto, no fund settlement system using checks developed since commercial transactions had consisted of retail ones mainly.

The characteristics of the large settlement system via checks were threefold as follows: first, the central institutions, such as the centralized check clearing institution and the centralized fund settlement institution, that constitute large funds settlement system did not exist at all. On the other hand, each ryogae-sho had a strong tie with each other like parent and child forming a pyramid with minor but powerful money changers called juunin-ryogae at the top. Second, the juunin-ryogae created a de facto central fund settlement institution by setting correspondent deposit account used exclusively for mutual settlement, and settled all the checks requested by the subsidiary ryogae-sho. In this sense, the large fund settlement system centering on juunin ryogae can be called as the hybrid of check clearing and fund settlement systems. Third, the juunin ryogae ensured a final settlement by allowing the overdrafts of the both accounts to each other to a certain extent. Furthermore, these overdrafts were usually settled by gold and silver coins based on the net liability amount gained through balancing the debit and credit every half a month or month.

For over two centuries since the mid-1600s, the ryogae-sho in Osaka had been managing quite a sophisticated large fund settlement system comparable to the one in European countries.

However, the Meiji government established in 1868 decided to introduce a modern banking system and requested the unauthorized ryogae-shos to withdraw from their check settlement business claiming that fund settlement using deposit itself is a business unique to a bank. As a

result, the ryogae-shos and their business itself were structurally weakened and finally disappeared by 1700.

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*The development of coinage systems in medieval Venice: coins for trade and for wages*

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Medieval Venetian coinage circulated simultaneously in different economic spheres. As the Middle Ages progressed, separate denominations were issued with distinctive appearance in terms of size, color, and imagery to fill each of these monetary niches.

As elsewhere in Europe, Venice issued a single denomination in the central Middle Ages, a silver penny derived from Carolingian models. In the course of the ninth through twelfth centuries, this coin succumbed to successive debasements declining from about 1.3 grams of pure silver to about .07 grams; the Venetian pound of account based on it declined comparably in value. As Venice rose to prominence in the commerce of the eastern Mediterranean, it sought to base its trade on a fine silver coin, the grosso introduced around 1200 with almost 2.0 grams of silver. For almost a century after the introduction of the grosso, no pennies were issued (though fractional copper coins were minted) and debts contracted in terms of the old penny had to be discharged with the new coin at a fixed equivalence.

In this period, workers' wages were expressed and paid in pounds of old pennies, so they would have lost out in buying power in terms of the grosso, whose principle use was for trade and which would have commanded a premium (agio) on the money market. The common currency of everyday life comprised chiefly old twelfth-century pennies (hoards make it clear that they stayed in circulation) as well as the half-penny and quarter-penny coins (which numismatic indices indicate to have been minted only in very small quantities). If workers were paid in grossi or sought to acquire grossi, these would have been valued at a premium against the penny. In 1278 the penny was re-introduced and the two monetary systems were allowed to float against each other, with the penny-based system used for domestic payments, including wages, while the grosso was maintained as the basis of long-distance trade.

Henceforth there would be three separate pounds of account. The pound of pennies (the old pound of Venice), with which workers continued to be paid, was defined as 240 of the new, baser coins. The pound of grossi was defined as 240 of the heavy fine grosso coins; it became the basis of trade and other large-value transactions. The grosso continued to rise against the new, baser, penny, reaching 32 pennies in the early fourteenth century. A new system of account was introduced to represent the value of the pound of Venice as it had been in 1278 -- the pound 'ad grossos' was defined as 1/26.11 of the pound of grossi; it was used within the state as a sort of inflation-corrected term that allowed for the assessment of duties and payment of debts contracted in old Venetian pounds with grosso coins. The big loss for workers would have been the discrepancy between the value of the pound of pennies in which they were paid and the pound ad grossos for state obligations, which rose to 26.11 : 32 (about 4%) by 1330. In 1285 a gold coin was introduced into the system, the ducat, with its value allowed to float independently of both the billon penny system and the silver grosso.

Around 1330 the denomination system was overhauled so that the locally circulating money would be based on a new coin larger and of finer silver than the penny, tariffed at d12. The

change was probably a response to new issues from Venice's mainland neighbors, which flooded circulation within Venice. The new Venetian denomination, the soldino, was of an alloy of about 60% silver (compared to the 20% of the penny and the 98% of the grosso) and bore innovative imagery, including the first representation of Saint Mark as a lion rather than a man. With the introduction of the soldino in 1330, the pound of Venice (now called the pound of moneta) was defined as 20 soldino coins; the penny was henceforth a divisional coin and ceased to play an important monetary role. Wages of workers were calculated and paid in terms of the soldino, amounting to a decline of about 16% in their wages in terms of silver and the grosso coinage and systems of account.

The real wages of both state officials and private laborers that were paid in terms of the domestic pound were significantly lowered by this debasement. The use of the soldino was extended by decree to residents of the Venetian colony of Crete and to its other Aegean outposts. The major result of the mutation of 1330 appears to have been the great addition of state income brought about by the debasement of the domestic pound; mint revenues appear to have increased forty-fold over the previous period and may have covered the entire annual interest on the state debt. The debasement amounted in essence to a tax on the incomes of wage laborers paid in the new base currency. The standards of the trade coins, the silver grosso and the gold ducat, were maintained unaltered and their values were left to float against the domestic pound. It is probably not coincidental that the debasement followed constitutional changes that had recently put all governmental power, including the setting of coinage standards, in the hands of the merchant nobility and excluded the popular classes from political participation.

Just after the middle of the fourteenth century, following the fiscal crises brought about by the Black Death and a costly war with Genoa, the Venetian government again debased the soldino while maintaining the standards of the ducat and grosso. It also introduced a new coinage, the tornesello, whose circulation was imposed on all wage earners in the colonies. The pound based on the tornesello represented an amount of silver 58% below that of the domestic pound, creating an even lower tier of monetary circulation, probably the first truly colonial coinage regime of European history. As Venice turned its attention from the Mediterranean to the mainland of Italy in the fifteenth century, it followed the precedent of the tornesello in imposing a monetary system on its new terra firma colonies lower than that used for domestic wages, while letting the trade coinage circulate undiminished in standard.

In the paper for the Wages and Currency symposium I propose to trace the development of the various monetary spheres of medieval Venice with special attention to how the state was able to impose and enforce the separate circulation on the various sectors of the economy: domestic, colonial and international. This will include the analysis of archival documentation that I did not exploit in my recent book *Zecca: The Mint of Venice in the Middle Ages* (Baltimore, 2000), whose focus was the working of the mint itself rather than the political-economic aspects of coinage circulation. While there is relatively little available data on wages and prices, examples will be adduced to show how the wages of hourly workers and the salaries of non-noble employees declined as a result of monetary manipulations both in real terms and in comparison to the income of noble state functionaries, whose payment was usually based on the unaltered trade coinages. An exception to this general pattern appears to have resulted from the shortage of manpower following the Black Death of 1348, when added leverage for wage earners can be seen in significant wage and salary rises soon thereafter. It is probably in this context that the major debasement following the plague was the introduction of the tornesello in 1353, which spared workers in Venice at the expense of colonials.



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*Spanish colonial mints and the transformation of the Spanish colonial economy*

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There were seven mints established in Spanish America in Mexico 1535, Lima 1548, Potosi 1576, Santa Fe de Bogota 1621, Guatemala 1733, Santiago de Chile 1750, and Popayan, in 1758 . The first mint in Brazil was established at the end of the seventeenth century. These mints were an important element in changing many aspects of the colonial economy both at the imperial and bedrock levels of society. Simple examples were that the availability of coins making it possible for tributaries to pay in cash rather than in kind. Miners no longer had to be paid in silver flakes. Royal revenues besides tribute could be paid in coin as well. Imperial functionaries and soldiers were paid in more reliable currency--and more regularly. Availability of coins also made it possible for farmers and merchants to tie themselves more closely to the imperial and world-wide economies.

At the same time mints also created problems. An insufficient number of coins were struck in the lower denominations of one real, half, and quarter-reales, forcing petty merchants in local markets to continue the use of barter and payment in kind. Moreover the high quality of the coinage being carried on in the Indies meant the almost immediate outflow of coins stamped there to other places in both Europe, the Orient, also to English, French, and Dutch America. Fraud and falsification of coinage was still another problem. Despite the establishment of mints in gold-rich areas such as Brazil and New Granada, traffic continued in gold dust and gold nuggets. My paper will focus on these issues, also provide new data on coins struck in Guatemala, Popayan, Lima, and Santiago de Chile.

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*Wages and currency in thirteenth-century Castile*

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The surviving documentary evidence from Christian Spain sheds little direct light on the emergence of a wage-earning class before the thirteenth century. While prelates and lay magnates were careful to preserve records of land transactions and privileges, they rarely felt compelled to record how much, how often or in what species a laborer or craftsman might be paid. We know, for example, that as early as the 1090s the bishop of Compostela in Galicia levied a hearth tax to pay for repairs of a strategic castle. The castle had long been maintained by labor service imposed on the local inhabitants. The bishop, it seems, now desired cash to hire skilled masons to get the job done correctly. We have no record, however, of how many people he employed or how much was paid out.

Another example of the ambiguity of the early documentation can be gleaned from the reign of Queen Urraca (1109-26). In 1116, Urraca attempted to re-established order in the monastic town of Sahagun following a violent rebellion by the burghers. Perhaps as a consolation to the disgruntled towns folk, the queen established a mint in Sahagun under the direction of the abbot.

Her charter gave the abbot the right to hire local townsmen or men from other regions if he saw fit, but Urraca did not trouble to go into more detail. It was simply left to the abbot to see that the mint turned a profit of which Urraca was to receive a third.

The revolt in Sahagun is only one of many rebellions that erupted along the camino de Santiago in the early-twelfth century as a growing mercantile and artisan class, many who were immigrants from beyond the Pyrenees, chafed against seigniorial restrictions. While Urraca's father, Alfonso VI (1065-1109), incorporated a large Muslim population into his kingdom with the conquest of Toledo in 1085, he had also done much to encourage commercial ties between his realm and southern France. One important facet of this policy was his monetary reform. All available evidence indicates that he was the first ruler of Castile-Leon to strike a large-scale coinage - a denarius of 6d fine. A reliable coin in approximate parity with the major coins of southern France helped facilitate pilgrim traffic and commerce along the road to Santiago. Islamic dirhams were minted briefly in Christian Toledo but were replaced by the denarius which was rapidly establishing itself as the coin of daily exchange throughout the realm. While Alfonso VI may have occasionally styled himself "the emperor of two religions," the commercial alignment of Castile-Leon with southern France during his reign stands in contrast to the development of other frontier kingdoms such as Sicily where the Norman kings refrained from introducing a denarial coinage.

As the twelfth century progressed, Castile-Leon's economy became more commercial and clearly more monetized. The emergence by 1200 of a tax (moneda forera) meant to insure the stability of the denarius and voted on by representatives from the clergy, nobility and towns points to the increasing importance of the billon coin in the domestic economy. The crown also had begun to strike an imitation of the Almoravid gold dinar (the morabetino) by the 1180s, but this coin was mainly intended for long-distance trade and its fate was the exclusive prerogative of the crown. The tradition of calling members of the third estate to the royal curia in Castile-Leon predates the practice in England and France and testifies to the influence of the commercial class there by the close of the twelfth century. Beside helping to institutionalize the moneda forera tax, representatives from the towns may have helped Alfonso VIII (1158-1214) formulate price freezes in 1207 in an attempt to control inflation brought on by the king's debasement of the denarius following his defeat at the battle of Alarcos in 1195. Likewise, it was probably pressure from townsmen and the nobility combined that ultimately convinced Alfonso VIII to undo the debasement and re-tariff his debased coin, the pepión, so that it was worth only half the older, stronger coinage.

The mercantile and artisan class of Castile-Leon, then, had begun to enter the national arena by 1200 and their growing influence can be witnessed, albeit sporadically, in the documents of the thirteenth century. Guilds, for example, were becoming powerful enough for both Fernando III (1217-1252) and Alfonso X (1252-84) to condemn them as "evil associations." The crown evidently saw them as a threat to its authority and perhaps also to the local authority of the nobility. Alfonso X tried to ban those associations formed without his consent. By mid-thirteenth century the town of Burgos, a favored royal residence, had a guild of cobblers, blacksmiths and what seems to have been a powerful association of minters. There is also evidence of confraternities of textile workers in Seville and Soria as well as a confraternity of shopkeepers in Soria during Alfonso's reign.

The workshops of these different tradesmen certainly employed semi-skilled as well as unskilled labor. Alfonso X's Fuero Real included decrees meant to protect apprentices and the documents of the cobblers of Burgos make passing reference to their journeymen and apprentices. Still, we

learn nothing as to wages or the numbers of assistants one master might be expected to employ. As we have seen, these mundane matters were not normally within the scope of royal acts and the merchants, artisans, and the people they employed apparently had little need to record such details. Indeed, one might question whether the majority of town men and women were literate before the fourteenth century.

In 1268, however, Alfonso called leading merchants and "good men" from throughout the kingdom to an assembly in the frontier town of Jerez. This assembly, or cortes, promulgated a detailed set of economic regulations that included not only price freezes but ceilings for wages as well. Daily wages were set for a variety of craftsmen and seasonal harvest workers while yearly earnings were stipulated for some types of servants. The ordinances also established different pay scales in different parts of the kingdom. All together, the decrees provide clear testimony to the existence of a significant wage-earning class in Castile-Leon - laborers who were accustomed to receiving their wages in cash rather than in kind. While the Jerez ordinances are well known to historians of medieval Spain they have not been closely examined particularly with regard to what they can tell us about the importance of wage labor in thirteenth-century Castile.

The cortes of 1268 was one of several assemblies called by Alfonso X to deal with the mounting economic troubles of his kingdom. His father, Fernando III, had greatly increased the territory of the realm by conquering the lands of Andalusia and Murcia from Islam but had devoted little time to consolidating these gains. Possibly thousands of Muslims chose to leave the cities of Andalusia rather than live under Christian lordship and the crown sought to attract Christian workers from the north to settle in the cities, particularly in Seville. The overall effect seems to have been a shortage of human resources throughout the kingdom. The shortage may have been particularly acute in terms of skilled labor as it may have been Muslim artisans, rather than day laborers or farmers, who were prone to migrate, confident that they could find a livelihood elsewhere.

While the shortage of labor in Castile at this time is impossible to quantify, we do know something was driving up prices. Inflation was severe enough that Alfonso X called an assembly to Seville in 1252, the first year of his reign, in attempt to curb it. His cortes of 1252 set price ceilings for a variety of commodities and enacted sumptuary legislation aimed at curtailing the growing taste for luxury at all levels of society. This was not a wholly unprecedented move. We have seen that Alfonso VIII had enacted price ceiling in 1207 although he saw no need for sumptuary legislation. Despite the measures of 1252, inflation continued and a cortes called in 1258 promulgated additional price freezes and sumptuary laws.

The ten years that elapsed between 1258 and 1268 saw the economic woes of the kingdom increase dramatically. The merchants and other townsmen who answered Alfonso's summons to Jerez in 1268 now had to address damage caused by four years of prolonged rebellion and warfare. In 1264, the mudéjars - Muslims who had remained in Andalusia and Murcia, primarily in the countryside - revolted against Castilian rule and were supported by a coordinated attack launched from Granada. The mudejar revolt and Granadan war impacted the Castilian economy in two ways. First the crown debased the currency to help meet war expenditures. Secondly, after the suppression of the revolt, Alfonso expelled the mudejars from the kingdom. Both of these actions on the part of the crown help explain the subsequent decrees promulgated by the assembly at Jerez.

We perhaps tend to think of debasement as rampant in mediaeval Europe, but this was not generally so, at least not before the fourteenth century. Thanks in large measure to the moneda

forera subsidy, the crown of Castile-Leon had successfully kept the denarial coinage of the kingdom stable since the mid-twelfth century. The one exception was the debasement Alfonso VIII implemented sometime after 1195, but this was later undone. The result of this conservative policy was that three traditional coins were allowed to circulate within the Castilian-Leonese realm in the early-thirteenth century. The leonés and the burgalés were roughly in parity with each other while the re-tariffed pepión of Alfonso VIII circulated at half the value of the burgalés. To help assure the populace of the continued stability of these coins, Fernando III immobilized the types of his father and grandfather though appears to have minted the coins only sporadically. Alfonso X seems to have followed this same policy in his first decade as king. By 1264, the evidence indicates that the kingdoms supply of denarii, while stable, was limited and worn.

Alfonso X chose to sweep tradition aside and issue one new denarius for the entire realm - a practical reform that was long overdue. He, however, also swept the tradition of stability aside and debased the new coin. It was tarified as equivalent to the burgalés but contained approximately a third less silver. Officially his new piece was called the dinero alfonsi, since it carried his name, but it very quickly became known as the moneda de la guerra or money of the war. A large hoard in the Museo Arqueológico Nacional of Madrid supports that the issue was extensive. Used to fund the war for four years, the moneda de la guerra is ubiquitous in private documents by 1268 and seems to have successfully driven the older coinage out of circulation - these are rarely cited in charters after this date.

The cortes of Jerez, then, was combating an inflation now exasperated by debasement. One of the tasks of the assembly was to set equivalencies for the new coinage - attempting to regulate it in relation to the old billon, the Castilian gold morabetino and the Almohad gold dinar. Beside prompting debasement, the mudejar war also resulted in the crown's decision to expel the mudejar population, now seen as an untrustworthy "fifth column." If it was primarily artisans and merchants that left voluntarily before, the mudejars expelled from Castile c. 1268 were probably largely rural farmers. The crown now desperately sought to resettle the countryside with Christians. Alfonso, had in fact been in Jerez during much of the fall of 1267 and had returned in the spring of 1268 to oversee the resettlement of this crucial frontier area that stood exposed to invasion from Africa. The prospect of cheap land only pulled more people from the already overtaxed northern regions of the kingdom. Again, the demographic upheaval cannot be quantified, but by 1300 it is clear that lords in old Castile were having problems cultivating their lands and resorting to renting out parcels to gain at least a minimum return.

When we take into consideration the mounting shortage of human resources afflicting the realm, the Jerez decrees start to take on greater significance. Unlike the assemblies before it, the Jerez cortes was the first, as far as we know, to address the issue of wages. Could it be that the assembly realized that wage labors, particularly migrant harvest workers, were becoming more essential to the economy in the wake of the mudejar expulsion?

The main body of this paper will provide a detailed analysis of the decrees from Jerez. It will look at the types of workers mentioned and the relative value of their assigned salaries. In this context, it will be particularly important to also delineate changes in the value of the currency for the decrees do at times express wages in pepiones as well as the moneda de la guerra. We must also pay careful attention to differences in assigned wages from one district of the realm to another. Was there an attempt to attract labor to where it was most needed? Finally the paper will

attempt to bring in other sources that might shed light on the extent of wage-labor in the period after 1268. In this regard the, account books of Alfonso heir's, Sancho IV, and the account books from the Cathedral archives of Burgos may prove promising. The latter contain "a running inventory of ecclesiastical property, both urban and rural, from 1267 into the fifteenth century."

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*Official salaries and local wages in Juyan, China, 1st c. BC to 1st c. AD*

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The ancient settlement of Juyan is known today as Ejina Banner, and lies 90 km north-east of Jinta county, Gansu province, China. It was originally the home of the Juyan tribe of the Xiongnu, the Han dynasty's arch-rival. When the Xiongnu surrendered to the Han armies in 102 BC, the strategically located Juyan became Chinese territory. Settlements were built up by the Juyan Sea, and along the Ruoshui River, which had easy access to the prefectural-seat of Zhangye, a major town on the Silk Road to the west. The Juyan sites were gradually abandoned from AD 31.

Over 20,000 documents have been unearthed at the Juyan sites, and the concentrations of the finds correspond with the locations of administrative and military buildings. These documents shed light on the minutiae of everyday economic and financial life at the border settlements; there was a well-established system of accounting and record-keeping, and numerous registers, ledgers, official correspondence and legal documents have survived.

From the documents we know that all accounting at the Han dynasty border settlements was reckoned in coin (Ch.qian). The only coin-type to which this can refer is the Han dynasty wuzhu ('5-grain') coin. The documents indicate vast quantities of coins, with seven examples of over 1 million qian, and the single highest figure being 9.6 million qian. They tell us of official salaries ranging from 360 - 12,000 qian per month.

The money to pay these salaries was collected in tax in central China, and special registers kept track of the collection and redistribution of these coins. Local supply of coinage was not always sufficient, and although reckoned by the month, salary payments were often paid cumulatively in arrears. It was also possible to take an advance against one's next salary payment. Although reckoned in coin, salaries were paid in coins; textiles; a combination of coins and textiles; grain; or salt.

In addition to the official salaries, there was also official employment of local people, for example to fight in battle, and private employment of individuals from elsewhere in China, for example as fishermen and commercial agents, whose wages were reckoned at a daily rate, or by commission..

The mechanics of private enterprise are made manifest in a document recording the court-case between an official and a commoner. The official commissioned the commoner to sell 5000 fish on his behalf for an agreed total of 400,000 qian, involving a round trip of some 20 days. The commoner sold the fish, but for less than the agreed total. By engaging in private trade and

adding in his sons' wages of the last three months, he reached the agreed total, but totally exhausted his family's private means. The official took him to court for failing to return the ox, but his behaviour was deemed inappropriate, and he was demoted!

The paper will examine the documentary and numismatic evidence in more detail.

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*The use of copper and silver coins in regional and local trade and for wage payments in the Philippines, 1880s - 1930s*

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In the 19th century the monetary system in the Spanish colony in Asia, the Philippine Islands, was based on commodity money, that is gold and silver coins having the intrinsic metal value of their formal denomination. In 1866 the mint in Manila started producing currency for the colony, consisting of gold coins of one, two and four pesos, and silver coins of smaller denominations. In addition, the Spanish government allowed the free circulation of Mexican silver dollars or pesos, at par with the Philippine gold peso, the exchange rate between the two coins at the time being in conformity with the international ratio between gold and silver of about 15 to 1. However, after 1877 the shift of western countries to the gold standard reduced the price of silver in gold terms in the world market, and it became profitable for traders in Manila to import cheaper Mexican silver pesos and to purchase Philippine gold pesos and export them. This resulted in the complete disappearance of gold coins from circulation in the Philippines. From the early 1880s until the American occupation in 1898, the Philippine monetary system was de facto on a silver basis.

In the 1890s the circulation of coins in the Philippines was estimated at about 35 million pesos or dollars, consisting of about 20 million Mexican dollars, 12-15 million fractionary Spanish-Filipino coins, and 2 - 3 million banknotes of the Banco Español-Filipino. With this relatively small amount of money in circulation, a number of money flows were carried out each year: the government collected taxes in the order of 12 - 15 million pesos, about 10 - 12 million pesos flowed from Manila to the provinces to purchase the crops, the Chinese community sent about 4-6 million pesos as remittances to China, and Spanish civil servants and military remitted several millions to Spain. In the 1890s and early 1900s the amount of Mexican dollars in the Philippines fluctuated heavily, because of large in- and outflows, caused by political events elsewhere.

Occasionally large outflows caused acute money shortages in Manila.

We can observe the following stratification in the use of currency in this economy.

(a) International trade was carried out on the basis of financial paper in the form of bills of exchange. Foreign merchant houses conducted their import-export trade with international bills of exchange drawn on London. These international bills circulated in business circles in Manila, not in the provinces.

Domestic trade between Manila-based wholesalers and traders in the cash crop (sugar, Manila hemp, tobacco) producing provinces, and financial transactions between the central government and provincial administrations (tax collection and disbursements), were carried out with domestic promises to pay and domestic bills of exchange.

Provincial and local administrators collected taxes in silver currency. Rather than ship these

amounts of metal money to the central government in Manila, they exchanged it with local traders who needed cash to pay the agricultural producers, in return for domestic bills of exchange (or promises to pay) which could be redeemed from merchant-wholesalers in Manila. In other words the domestic promises to pay were negotiable and can therefore be considered as money.

Manila-based Chinese wholesalers and their provincial agents had the practice of exchanging import- and export goods with bookkeeping money, a way of economizing on the use of coins. The use of domestic bills of exchange and the Chinese practice of bookkeeping money increased the amount of money in circulation significantly (an attempt will be made to give an estimate).

(b) Provincial traders financed their advances and payments to agricultural producers, with Mexican dollars and fractionary silver coins. Local and provincial governments collected taxes in the same kind of money.

(c) The Chinese community in the Philippines (around 1900 estimated at 50,000 persons) remitted money to the Chinese mainland. Japanese reports from 1910 and 1935 (recently published in translation) give a rather precise picture of these remittances. Around 1910 the amount remitted was estimated at 6 million pesos annually. The remittance business in the Philippines was carried out by recruiter-couriers, private postal exchanges and Chinese import-export firms. Remittances took place either in the form of cash or commodities. Chinese returning to their country of origin brought carried silver coins with them. This was possible as the Mexican dollar was current in the Philippines and in the Chinese coastal regions.

(d) Agricultural labourers in the provinces and labourers in the cigar and ropemaking factories in Manila were paid in fractionary coins. Payment was done on a daily or weekly basis. The total number of labourers was small in the late 19th and early 20th centuries, as is shown from various censuses during that period. In the late 1880s the amount of fractionary coins in the islands was considered too large and the Manila mint stopped producing them. The amount of wage payments can be estimated on the basis of data on wage levels during the 1880s and 1890s.

(e) Very small coins for daily purchases in the market place were in short supply. There was a small amount of privately made copper coins in circulation, but observers complained that this amount was insufficient for the needs of the rural population. The use of cigars as a medium of exchange was widespread in rural marketplaces from the 1850s till the 1880s. It can be hypothesized that the limited circulation of small copper coins indicates a relative underdevelopment of rural marketplaces (for instance as compared with Java).

The Americans took over the Philippines in 1898 and introduced a currency reform in 1903, putting the Philippines on a gold exchange standard. This was a territorial currency based on fiat money, allowing the use of token coins and paper money. In the next two decades total money circulation increased significantly, while the circulation of coins as a percentage of total circulation decreased from 50% in 1906 to 33% in 1915, and less than 20% in 1920. This relative decline does not indicate a smaller role for coins. In fact, the amount of money allocated for wage payments was increasing.

In agriculture the balance shifted from owner-cultivators to landlordism with sharecropping, and as sharecroppers used more wage labour (to cope with labour peaks during planting and harvesting), this increased the amounts spent for wages in the rural areas. An attempt will be made to give estimates for cash payments in the rice producing provinces of the Central Luzon plain (the rice bowl of the Philippines). Wage payments in Manila-based industries will be estimated as well.

The expanding sugar industry came to depend on a vast seasonal wage labour force. These

payments were made in small denominations and peso coins. An attempt will be made to estimate

In the 1920s people complained that coins of smaller denominations were in short supply. The monetary system reflected the increasing role of wage payments in the Philippine economy.

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*Wage labour, commercialization and currency on Java 1816-1900*

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The paper explores the relationship between the "decline and rise" of wage labour on Java in the 19th century, and the growth of the money supply, in particular the development of the supply and use of small and medium denomination coins that were used to pay wages. It discusses the following issues:

- the development of wage labour in Java during the 19th century (based on the available literature, and some new estimates of the level of wages of skilled and unskilled labourers): it was relatively marginal before the 1830s, declined during the 1830s and 1840s, and "returned" in the second half of the century;
- the ways in which wages were being paid, in particular the coins that were being used to that purpose;
- the development of the money supply, in particular the increase in the supply of small and medium denominations coins;
- the existence of a link between wage labour and the demand for money.