WAGE PAYMENTS AND CURRENCY CIRCULATION IN THE NETHERLANDS FROM 1200-2000

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1. Introduction

These days most Dutch adults depend for their income on a wage or a salary. This is certainly true for the active labour force. Working people are paid in money, usually by a transfer to their giro or bank account.

The dominance of wage labour or paid employment is not a recent phenomenon. Independent producers, that is, people who rely on the sale of goods and services on the market for their income, have been in the minority in the Netherlands for a long time. Because of the high level of urbanization, farmers have constituted less than half of the labour force for many centuries already. In the industrial sector, wage-earning workers may well have outnumbered independent workers for even longer.

The payment of wages mainly in money, rather than in kind, dates from even earlier. Hence the significance of money for the payment of wages in the early modern and modern Netherlands is beyond dispute. In sharp contrast, we actually know very little about how those wages were paid in practice: what means of payment were used?; were they the same as in trade?; if not, which were used for the different branches of trade and which for wages?; what was the link between the demand for and supply of means of payment?

All these questions are not easy to answer given the current state of our knowledge. This is remarkable, given that our knowledge of the history of wage labour, payments and finance and coin and paper money production has grown considerably in recent years. The explanation for this should probably be sought in the disciplinary fragmentation between social history (inspired by the social sciences), economic history (by economics) and numismatic history (by archeology, art history and also economic history). The social historian is primarily interested in the level and purchasing power of wages and above all in wage negotiations and the accompanying conflicts; the economic historian in the money supply, the effective circulation of money; and the numismatist in the production of coin and paper money.
of money, inflation and deflation, national income and the labour ratio; most numismatic historians, finally, in the production techniques of the currencies and their external form. This may be a sensible division of labour in many respects, but it also has its disadvantages.

Because of this disciplinary demarcation, a misleading notion on the historical function of currencies can take hold. This is because of the strong emphasis on the use of money in trade. This starts with the common sense explanation of the emergence of coins as a substitute for the cumbersome barter in goods. Small, handy coins replaced sheep or cows, the story usually runs. Representations of coins on paintings also tend to point to commercial transactions rather than the world of work. There are many representations – often with moralistic intentions – of money changers or traders busily weighing gold and large silver coins on a pair of scales. Not only in paintings, but also more generally we tend to link the use of currency primarily with trade: with wholesaling, using large silver and gold coins; and with retailing, using small coins.

This perception is not wrong, but it is one-sided. For one thing, it ignores the widespread use of alternative means of payment in early modern commercial transactions, such as clearances, bills of exchange and early forms of paper money (e.g. ‘cashier’s receipts’) and deposit money. And for another, it ignores how the customers are able to buy from the retailers, so these can buy again from the wholesalers, who then buy from the producers, thus closing the circle. This requires incomes, usually obtained through wages (as well as profits, interest, benefits or grants).

Currently most households in the Netherlands are dependent for their income on a wage or salary. For several decades now this is no longer paid in cash, but is transferred monthly to the bank or giro account of the worker, manager, civil servant or whatever the paid employee’s appellation may be.

To answer the question of the demand for currency, and more specifically for the types of money for wage payments, we have to go back at least to the 1950s and 60s, when cash payments in a pay packet were still the rule. At that time, two major changes occurred.

Firstly, there was a gradual change towards paying not only white-collar workers but also blue-collar workers on a monthly rather than a weekly basis (sometimes via the intermediate stage of fortnightly payments). The abandonment of wage controls in 1959 and the related growth in prosperity will have contributed to this. It is true, though, that this change was obstructed for a while by legal restraints on wage payments (see below).

Secondly, there was a shift from cash payments to transfers via bank or giro. Let us take the Philips concern as an example. From March 1967 the senior managers no longer received their

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6 The Dutch labour force (employed and unemployed) totaled 6,442,000 in 1993. Together they held 6,812,000 jobs and worked for the equivalent of 5,382,000 person-years. Of these person-years, 4,802,000 or 89% were worked by employees and 580,000 or 11% by the self-employed or working family members. A comparison of wages and salaries on the one hand and ‘other earnings’ on the other yields a different balance, 65% and 35% respectively in 1992.

7 This happened in the Netherlands rather later than in the United Kingdom and the United States, for instance. In the Netherlands the big pension-paying institutions led the way. They made their payment systems giro-based as early as 1946; see Lieftenck (1962), pp. 68f.
money by hand, but it was transferred to their accounts on a monthly basis. Somewhat later the rest of the staff followed suit. This changeover was accompanied by an extensive information campaign, which also sparked some protests. These did show that this change was not merely an administrative change, but that married male workers in particular had a strong emotional attachment to the traditional method of payment. A letter by Arie van Zanten, a boilerman from Hilversum, published in the *Philips Koerier* puts it very graphically in local dialect:

> When you get home on Thursday, your chair is ready for you, the cat is pushed off it, you get a cup of tea and a biscuit, and a happy face for the money you’ve brought home. You know what it’s like. And that won’t happen in the future, the cat can stay on the chair, whether you come home or not, the money will come in. The man at the bank now brings the surprise!

By the time of this sweeping change in the way wages were paid, the overwhelming proportion of the labour force was already in paid employment. Most incomes were brought into circulation in cash through these pay packets, and with great regularity, once a week on a Saturday for most wage earners and once a month for most other workers.

Around 1960 most pay packets probably still contained coins, but only as small change to make up the full amount. With the average weekly wage at around 100 guilders, most of the amount would have consisted of paper money, not loose rix-dollars (i.e. 2.5-guilder pieces) or guilders.

The weight of the silver coins of those days alone would have made that highly unlikely from the point of view of convenience. Depending on the division between guilders and rix-dollars, 100 guilders in silver coins then weighed between 600-650 grams.

But less than 50 years earlier, before the First World War, most pay packets did not contain any paper money, only coins, as will be shown. This meant that at the same time every week tens of millions of coins had to be ready to be put into pay packets.

So at least until the first half of the 20th century we should see coins not only, and perhaps not even primarily, in the light of commercial history, but certainly also in the light of the history of labour and labour relations. This applies in particular when the following conditions have been met. Firstly, when a large proportion of the population is dependent on wage labour, which has been the case in the Netherlands since around 1500. Secondly, when this income is not transferred via a bank or giro but is paid in cash. And thirdly, when the amount to be paid is so low that the use of coins is a more obvious choice than paper money.

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8 *Philips Koerier*, no. 23, 8 April 1967.
9 In 1960 around 81% of all person-years were worked by employees and 19% by the self-employed; wages and salaries on the one hand and ‘other earnings’ on the other accounted for 54% and 46% respectively.
10 In 1960 a total of 17,186 million guilders was paid in wages and salaries and 14,359 million guilders in ‘other earnings’. In 1925, when the first figures of this kind were published by Statistics Netherlands (CBS), the corresponding totals were 2,393 million guilders and 2,508 million guilders. Between 1925 and 1930 wages and salaries overtook ‘other earnings’ for the first time.
11 The silver guilder in circulation since January 1956 weighed 6.5 grams, and the rix-dollar, which was introduced five years later, weighed 15 grams. Thus a payment exclusively in guilders would have weighed 650 grams, and one in rix-dollars 600 grams.
12 The same applies for paper money and bank notes in lower denominations. This aspect of the history of paper money will not be developed here.
As far as I am aware, the relationship between coin production and circulation on the one hand and wage payments on the other was first analysed systematically by the British historian Peter Spufford in his definitive *Money and its use in medieval Europe*, published in 1988. Almost in passing and in tentative terms he makes this connection in this discussion of the introduction of the Tours groat towards the end of the 13th century. Almost in passing, because he does not return to it in the conclusion of his study. Perhaps this is also why his interesting and inspiring comments on this aspect do not appear to have found much response.

Spufford places the introduction of the groat within the framework of the decline of feudalism and the emergence of paid mercenaries from the 1170s in France.13 The count of Flanders also paid his soldiers in Tours groats for the first time in 1298.14 But not only soldiers became wage earners; with the rise of the cities and thus the trades and crafts, wage payments became increasingly important. The availability of large numbers of coins became essential in the cities for another reason as well: in contrast with the countryside, with its direct land and other taxes, in the cities most taxes were indirect, in the form of excise duties on the primary necessities of life.15 Thus during the 13th century various denominations came into use at the same time. During the 14th century this expanded into a money system across the whole of Western Europe, consisting of three types of means of payment and coins:16

- for international trade, first metal ingots (until the first half of the 14th century in the Netherlands, marked from 1253) and from the 12th and 13th centuries bills of exchange, and from the 14th century gold coins and cheques17;
- for payments of wages and rents, locally minted silver coins;
- for the purchase of food (primarily bread) and giving alms, small change, initially made from poor-quality silver (black silver and bullion) and later from non-precious metals; this small change was by no means always supplied by the central government; there was scope here for unlicensed minters and for private manufacturers of tokens.

Spufford stresses that this is a typically urban system, which would thus be found primarily in urbanized regions such as the Southern Netherlands. In the countryside, on the other hand, all payments were determined by the harvest cycle.18 Only when the harvest was sold did the farmers receive good coins, and the richer ones among them paid their shepherds, ploughmen and harvesters on an annual basis, or sometimes a semiannual basis. Around this time debts and loans were also paid off and taxes and tithes paid. The specialization of particular farmers in industrial crops, dairy products and meat probably strengthened this seasonal character even more. On the big pay day, which depending on the region fell some time in the months of September, October or November, or on the small pay day on 24 June (the feast day of Saint John), the money came to the countryside, but it would not stay there for very long: ‘Most of it returned to the city as quickly as it had come out, and left the countryside within a few weeks’.19 This dichotomy between the city and the countryside was only blurred to some extent with the expansion of horticulture and cottage industries around the main cities from the late Middle Ages onwards, especially in the urbanized Southern Netherlands and Northern Italy.20

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14 Ibid., p. 231.
15 Ibid., p. 382.
16 Ibid., pp. 232, 283, 321-335.
17 Ibid., pp. 2, 209-224.
18 Ibid., pp. 382-387; see also p. xiv.
19 Ibid., p. 384.
20 Ibid., p. 386. The growing importance of payments for mercenaries, as observed earlier, seems to contradict this dichotomy. But it is unlikely that soldiers helped towards the monetization of the countryside by making large expenditures there.
In his book on the use of money in the Middle Ages Spufford could of course not consider to what extent the system which in his view emerged in the 14th century was able to maintain itself subsequently.21 Fortunately he does permit himself a frivolous excursion to 20th-century Britain, which it is worth repeating here in full:22

One might cite the modern analogy of the £5 note. In 1950 average gross weekly pay in Britain was £7 10s 5d, and over three quarters of British wage earners had weekly after-tax take-home pay between £3 and £10. The £5 note was then still a rare denomination. Under 400,000 were in circulation. In 1964 the average gross weekly pay-packet was £19 11s 9d, and over three quarters of British wage earners had weekly after-tax take-home pay between £10 and £40. The £5 note had become common. Over 1,000 million were in circulation. In the 1960s the £5 note was of some use to ordinary wage earners, when it represented under a third of the weekly take-home pay. In the 1950s it had not been, when it represented over a half of the weekly take-home pay.

Inspired by Spufford’s insights and suggestions, I will endeavour to answer the question underlying this article in two stages. First I will try to reconstruct the century between 1850 and 1950, and within that above all the years between 1870 and 1914. For that period sufficient information seems to be available to study the relationship between wage levels, wage payments, currency circulation and coin production. On the basis of these insights I will try to outline the main developments during the previous centuries as well. I will use the rise of the cities from 1200 onwards as the starting point.

2. Wage levels, currency circulation and coin production in the Netherlands, 1870-1914

To reconstruct the situation around the turn of the 19th and 20th centuries, we first have to ask ourselves how many wage earners there were, how much pay they received, and how often these wages were paid. Having thus gained an insight into the ‘demand’ for currency, we will try to assess, on the basis of currency circulation and coin production, to what extent the ‘supply and ‘demand’ were matched.

2.1 Wage earners and wage levels

In 1900 the Netherlands had a population of just over 5 million, divided into 1,113,000 households. The active labour force was twice as large as the number of households, which means that in addition to around 1 million (mostly male) heads of households, another 300,000 partners, 300,000 children living at home and 200,000 children and young adults living elsewhere contributed directly to the household income.23 In round numbers, 800,000 households depended on a wage as their sole or main source of income, 200,000 received an

21 Spufford does suggest that this threefold system could come under pressure from a shortage of small change, for instance in the 15th century and, following on from Meuvret’s work, probably also in 17th-century France; see Spufford (1988), pp. 334f, 340.
23 In this highly simplified description on the basis of CBS figures, no account has been taken of people who did not live in families, such as single-person households, nor with people who lived in a larger household but kept their earnings for themselves; the proportion of women is also underestimated; see Van Eijl (1994) and Smits, Horlings and Van Zanden (2000), p. 114.
income in the form of profits from the sale of goods (e.g. shopkeepers, traders, artisans), while the remainder, 100,000 households, were mainly dependent on an income from pensions, benefits, interest payments or investment gains.24

How much money was involved in the payment of wages? On the basis of the available evidence on the national income and the composition of the labour force, the Netherlands’ total wage bill in 1900 can be estimated at around 400 million guilders for workers and just under 100 million guilders for supervisory and managerial staff.

In what denominations did this not inconsiderable sum of nearly 500 million guilders have to be available? To answer this question, we first have to know the frequency of the payments. To what extent did the weekly wage actually dominate? On the basis of wage levels and payment frequencies we then have to try to reconstruct the precise contents of the pay packet.

2.2 Wage payment frequencies

Because of the unimaginably wide variety in wage formation and wage payments just over a century ago, there is a danger of losing sight of the forest for the trees. People were paid on the basis of piece rates, time rates or performance rates (e.g. tips instead of wages for some waiters and barbers). These payments could be irregular or regular. In the case of time rates the units could be a year, a quarter, a month, a fortnight, a week, a day, a half day or an hour. Broadly speaking, however, the following payment frequencies can be distinguished.25

Payment once a year (or sometimes twice a year) was the norm for living-in staff, such as servants, farmhands and maids. Since this payment was on top of room and board, the actual amount of money involved did not have to be that much, especially not once advances of, say, one guilder pocket money per week had been deducted. Seasonal payments follow on from annual wages. These often involved larger amounts of money, because seasonal work was performed on the whole without board. Seasonal workers also tried to keep the advances to a minimum in order to save as much money as possible to take home with them. Sometimes they were even paid with paper money.

Quarterly payments did not occur among wage earners to my knowledge, but they did among pensioners. For instance, around 1900 former soldiers in the Royal Dutch Indian Army (KNIL), the colonial army in the Dutch East Indies, were paid every three months.

Until the second half of the last century, monthly payments were only common among senior and managerial staff, and very rare for workers. As one observer remarked sarcastically about the Van Oppen iron foundry in Maastricht in 1906: ‘Wages were paid, all very posh, once a month’.26 Sometimes charitable payments were made monthly, instead of the more common weekly distributions. But this form or relief was in any case wholly inadequate, and money had to come from other sources as well, and no doubt also more frequently than once a month.

Fortnightly payments were known in the second half of the 19th century in only two industrial centres, the Zaanstreek and Maastricht. In the Zaanstreek oil mills in 1890 the fortnightly wage was paid as piece rates, in which a team was paid per milled load. In the big Maastricht

24 With thanks to Kees Mandemakers; see also Mandemakers (2000).
25 I am not aware of any systematic overview in the literature. I have gathered the following evidence from qualitative descriptions.
26 Ubachs (1976), p. 142; he wrote this in 1934.
ceramics and other factories the fortnightly wage was known as the \textit{quinzaine} (the French term for ‘fortnight’).

The weekly wage seems to have been the norm in manufacturing and the trades and crafts. We have many examples of this from the second half of the 19th century. Despite all the variety, on the basis of qualitative sources we can conclude tentatively that the largest common denominator was the wage payment at the end of the week, on Saturday afternoon or evening. As Van Boetzelaer wrote in his dissertation from 1902: ‘The whole structure of working-class society is framed on being paid at the end of the week.’\textsuperscript{27} This applied even for freelance workers who carried out piece-rate jobs lasting less than a week, for instance dockers working in the port of Rotterdam. They too could only collect their wages once a week. On the whole, credit in the shops and pubs was probably not extended for longer than a week.

Weekly wage payments were also encouraged by the labour laws in force at the time. When the employer and employee had agreed on a time rate on the basis of a week’s work (which in turn was linked to dismissal notice periods), then such a wage could be paid at most every two weeks, but not every month for instance.

I was able to confirm the dominant practice of weekly payments to workers on Saturdays by examining the accounts of several, more or less randomly selected, factories for which sufficient detailed information on actual wage payments was available. Among the selected ceramics and delftware factories in Gouda between 1870 and 1930, the weekly wages for the workers had to be prepared every Saturday. This of course required some organization, because it is clear from the records that the large amounts of cash required were generally not held on site. Every Saturday the cash was collected from the local bank or taken there by the bank’s cashier. (These sources offer no details on how the money was transported.) In any case the workers were paid the same evening.

2.3 \textit{A first interim assessment: the ‘demand’ for currency exerted by wage-paying institutions}

We can now make an interim assessment and calculate what amounts of money had to be available at certain times to meet the needs of all wage earners and in this respect comparable groups of people (e.g. benefit recipients). We assume that the total amount required, as argued above, was around 490 million guilders per year around the turn of the last century. Part of this had to be available on the first Saturday of every month and part on every Saturday evening. We have not been able to find any exact information about the division between weekly and monthly wages. But let us assume that, generally speaking, supervisory and managerial staff were paid monthly and workers weekly. In practice this meant that 8 million guilders had to be available once a week, and another 7.5 million guilders once a month.\textsuperscript{28} So around 15.5 million guilders had to be available for wage payments on the first Saturday of every month, and 8 million guilders on the following three Saturdays.

\textsuperscript{27} Van Boetzelaer (1902), pp. 98f.
\textsuperscript{28} One could argue that the less frequently paid wages of domestic servants, for instance, should be deducted from this amount. But it should be also be borne in mind that some benefits were paid weekly. On balance, then, we can justifiably stick with these figures.
Although monetary theory during the period under discussion did not go into too much detail, it can still be regarded as consistent with this outcome. In the years before and immediately after the Second World War, Pieter Lieftinck, finance minister from 1945-1952, assumed that for the Netherlands the total ‘money supply’ amounted to half the ‘national income’, which corresponds to what Verrijn Stuart observed on the relationship between ‘national income’ and ‘money quantum’ for the United Kingdom and the United States at the time. But as we saw, only a small proportion of that – at most 1% (i.e. 15.5 million guilders out of 1.7 billion guilders) was needed regularly for wage payments, described as ‘real transactions’ or ‘real turnover’ in Lieftinck’s words. The distribution of money circulation can be represented as an inverted pyramid, with deposit money at the top, bank notes in the middle and coins at the bottom. Deposit money accounted for around 55% of the total money supply in 1938 and in 1946-1948, and cash for around 45%.

Now that we know the total amount of money needed for wage payments every month and every week around the year 1900, we can turn to the question in what denominations this money had to be available. We will concentrate here on weekly wages. Let us consider for now a worker’s weekly pay packet. This would contain slightly more or slightly less than 10 guilders. How was this amount made up? To put it crudely: as one gold 10-guilder piece (or, from October 1904, a 10-guilder note), as four rix-dollars, as ten loose guilder pieces, or 1,000 cent pieces or even 2,000 half-cent pieces?

We can assume with some certainty that the pay packets generally contained Dutch silver coins, as we will show. Precisely what silver coins is more difficult to determine. No direct quantitative information is available in the accounts kept by the factories and banks mentioned above. We will therefore have to approach this issue indirectly, as it were, first by asking what composition of coins in the pay packet most suited the workers, and then by looking at some qualitative information on payments, as well as information about the circulation and production of several specific denominations.

2.4 Mainly Dutch silver coins in the pay packet

Some of the above-mentioned options can be excluded at the outset, namely payments in copper coin, gold coin or paper money. But another question, the extent to which payment was always made in Dutch money, is more difficult to determine.

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29 In the major Dutch works on finance and banking of the day, such as those by N.G. Pierson, M.W. Holtrop, G.M. Verrijn Stuart, P. Lieftinck and H.M.A. van der Valk, I found at most several asides on this issue; see the following notes and Van der Valk (1946); for an international perspective, see Falise (1959).
30 Lieftinck (1962), p. 67; for new calculations, see Barendregt (1993), p. 223; Verrijn Stuart (1946), p. 94. On the basis of partly the same evidence, Holtrop (1928), pp. 181f, arrives at ratios between one-half and one-third for France, the United Kingdom and the United States.
31 Lieftinck (1946), p. 80.
32 Verrijn Stuart (1946), p. 95; see also Lieftinck (1946), pp. 86f. After the monetary reform he oversaw while finance minister (1945-1952), Lieftinck assumed that the amount of deposit money were twice as large as that held at banks. As for the circulation of treasury notes, zinc money and pre-1940 silver coins, at the time the tip of the inverted pyramid, he did not even consider it worth quantifying these; see Lieftinck (1962), pp. 67 and 46.
33 Verrijn Stuart (1949), pp. 259 and 270. Below we will return to the division within cash between bank notes on the one hand and treasury notes and coins on the other.
The use of the smallest change – bronze coins worth half, one and two and a half cents – had been restricted to a maximum of 25 cents in the 1877 and 1901 coinage acts. So no one, not even a worker, had to accept a higher amount made up of bronze coins. Earlier in the 19th century a slightly higher maximum of one guilder’s worth of copper half and one cents applied. Article 5 of the Coinage Act 1901 and later laws also set a maximum of one guilder for nickel 5-cent pieces (actually produced from 1907), and of 10 guilders for silver 10-cent and 25-cent pieces. Article 6 of the Coinage Act 1948 contained the same provision for the latter two coins. So it was at least legal to fill the imaginary pay packet we are trying to reconstruct primarily with 10- and 25-cent pieces, but not with bronze, nickel or (earlier) copper pieces. Whether that is what really happened we shall see below.

Payment in units of 10 guilders must also be rejected as unlikely. Until 1904 this denomination was only available as gold coins, apart from a limited number of 10-guilder treasury notes. (A 5-guilder coin was minted only in 1912.)

It was not until 1904 that the Netherlands Central Bank considered it useful to issue 10-guilder bank notes. Although since 1875 seven million gold 10-guilder coins had been minted (in theory more than enough to meet the needs of wage-paying institutions around the turn of the century), very few were actually in circulation. As elsewhere in Europe, gold coins were held mainly by the banks. Ten-guilder notes were sufficiently in circulation after 1904, but for reasons outlined below, they were rarely used for wage payments.

A final question – not that obvious but still important – remains to be answered. To what extent were payments in the Netherlands made with Dutch money? Although for a long time the 19th century coinage acts did not explicitly stipulate that the public had to accept only Dutch coins, the government was taken aback in the middle of the century when it became increasingly clear that large amounts of foreign money were circulating in the country. A state commission set up in 1855 identified three major exceptions to the primacy of the national currency.

Firstly, large amounts of Belgian copper money (minted since 1832) was in circulation, mostly in rolls of 50 2-centime pieces, known as knappers, which were introduced by the Brabant textile mill owners, especially in Helmond, Eindhoven and Tilburg, as equivalents to copper half guilders. This gave them a 6% conversion advantage in the wage payments. These practices only ended 20 years later with the introduction of bronze instead of copper small change with a smaller diameter.

Secondly, in Limburg province Belgian (and some French) money was almost the only money in circulation, especially silver 1- and 5-franc pieces. During the period of the United Kingdom (1814-1830), this province was part of the Southern Netherlands, and under the 1816 coinage act French money was officially allowed as legal tender. Although no longer legal tender from 1825, it remained the province’s main currency. From 1830-1839 Limburg (with the exception of Maastricht) formed part of the newly separated Belgium, and the new Belgian money, based on the French, was brought into circulation there. After the transfer of part of the province to

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34 The Ministry of Finance had been circulating 10-guilder notes since 1849; see Jacobi and Van Beek (1988), pp. 50f. Something similar was done in Germany, where 20-mark notes (equal to 9 guilders) were printed from 1906.

35 Vissering (1920), pp. 56 and 234, and Verrijn Stuart (1949), p. 217. Vissering points out that even though most of Europe was on the gold standard, ‘the coins in circulation were almost exclusively silver’. See also Sprenger (1995) on Germany, where gold 5-mark pieces were not popular, but gold 10- and 20-mark pieces were. But here too most of the gold coins were held by the banks.
the Netherlands, this situation did not change for the time being, except that the Dutch guilder was accepted as the unit of account and that taxes had to be paid in Dutch money. Towards the end of the century some Dutch money also came into circulation, but it only really became the sole tender from the First World War. (Incidentally, the 1877 coinage act offered the option of foreign currency being used legally in border municipalities. At the same time, some Dutch money also circulated in German and Belgian border areas.)

Thirdly, from the foundation of the Kingdom in 1814 the Twente textile mill owners had started to buy Prussian and Hannoverian thalers and their subdivisions, probably especially the so-called ‘two-thirds’ (zweidrittels), cheaply across the border. With these they paid their workers, who initially worked at home and from the middle of the century increasingly in factories. Other employers, such as peat owners, also adopted this practice. It was still prevalent in 1864, but must have disappeared soon afterwards, except in border municipalities. In these areas payment in German money was allowed under certain conditions under article 19 of the Coinage Act 1901, provided the worker agreed.

In summary, then, we can say that around 1900 Dutch money was the main currency used for wage payments. Only in Limburg province wages were still paid in Belgian money rather than Dutch silver. Hence the amount of 15 million guilders required for wage payments may have been somewhat smaller in practice. Although much research is still needed into the circulation of foreign currencies in the Netherlands in the 19th century, it is already clear that around the middle of the century less Dutch coin was need to pay wages than around 1900. It was precisely in important industrial sectors such as the Maastricht ceramics industry and the Brabant and Twente textile industries that other currencies were widely used at the time.

So what Dutch silver coins made up the average wage packet of 10 guilders around 1900? From the existing wage levels and payment frequencies and the statutory provisions we can deduce no more than we have above. Therefore we now turn to qualitative information about the wage earners’ needs. Can this yield arguments in favour of specific denominations?

2.5 The needs of wage earners

Vrolik and Pierson had a clear idea of different social groups’ needs for coins: ‘Of course silver coins will never be the currency of choice among rich people. But why would a worker prefer to receive a wage of 10 guilders in one gold piece rather than four rix-dollars or 10 guilder pieces? He is more likely to prefer the latter.’ The many budget studies from the end of the 19th century give a good impression of a wage earner’s expenses and hence an answer to the rhetorical question raised by these leading economists and politicians.

On the basis of an early example of a worker’s budget, from 1870, we can gain a concrete idea of how the wage received on Saturday afternoon was spent. The main conclusion is that most of the weekly income was spent on only a few items. Since shopkeepers tended to give credit during the week, this would mean relatively large amounts of money per week were exchanged in one go, which would mean in turn that a worker would be better off with large-denomination silver coins rather than smaller 10- and 25-cent pieces.

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36 Incidentally, in terms of weight the distribution between half guilders, guilders and rix-dollars during their period was the same: 10 guilders at 10 grams weighed 100 grams, as did four rix-dollars at 25 grams.
37 Vrolik en Pierson (1883), p. 39.
38 See Giele (1979), pp. 38f.
A former worker at the Regout ceramics factory who had become an innkeeper and coal merchant and now had former colleagues among his customers, declared on 20 January 1887 that workers were paid fortnightly (the *quinzaine*). That is also when he received his money: the workers ‘have a drink on the quinzaine; no worker has any money during the week; ... they say, just write it down’. He confirmed that the same happened at other shops: ‘that’s the way it goes; nearly all workers live on credit’. This innkeeper in turn paid the brewer on a monthly basis.39

In other parts of the Netherlands, workers did not have to live on credit as long, because they were paid weekly. Even so, nearly the whole wage was spent almost immediately every Saturday evening. A striking example of this can be found in the reminiscences of the schoolteacher and writer Theo Thijssen. His mother ran a ‘grocery cum bread store’ in the Jordaan district of Amsterdam from February 1891. Nearly 50 years later he could still remember:

> By about 4 o’clock in the afternoon the customers started to arrive for their Saturday shopping, and mother would stay in the shop ... until about 11 o’clock. If there were still customers, she could not close the shop at that time. She might keep it open until midnight. Then the large silver coins, the guilders and rix-dollars, were counted and locked in the secretary. We kids counted along with anticipation. If mother could lock away 50 guilders, it had been a ‘reasonable’ week, she would say.

On other days the takes were rather smaller. On normal weekdays no more than 2 guilders and on Wednesdays 6 guilders. In other words, on Saturday afternoon and evening Mother Thijssen made three-quarters of her total weekly income. And she would not have been the only one.40

For workers – or rather more likely, their wives – who had to stop by at a number of shops and suppliers to pay their bills, it would thus have been quite handy to receive guilders and rix-dollars from their employers. This was clearly the case in the Jordaan district, but the question is whether it was elsewhere as well. Judging from the few descriptions of wage payments which have been preserved, this indeed seems likely.

2.6 **Pay day**

As we saw above, it is sometimes possible to distil from company books the sums that were paid out in wages on Saturdays, but to my knowledge never in what form the money was paid: was it mainly in rix-dollars, guilders, half guilders or smaller silver coins?

There are a few qualitative reports which suggest that the pay packets contained mainly large silver coins. A good example is the wage payments at an Amsterdam printworks in 1894. We have a graphic description of what happened because a strike had been called. This started on the Friday morning, and on Saturday evening the strikers collected their pay for the four days they had worked (Monday to Thursday).41

> At the works entrance there stood two police officers. You had to get past them first. In the marble corridor two more. On the stairs another two. And in the office there were three. The boss sat there with a pile of guilders in front of him. When you came in, he looked up briefly. The usual smile on this face was not there. ‘How much?’, he asked each one. You only got four days’ pay. Overtime

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39 *Enquête* (1887), II, pp. 92-97; interview by M. Everaerts, esp. questions 6783 and 6860-6869.
would be paid later .... He quickly checked the payroll to see whether the worker had said the correct amount. He counted the money and shoved it toward the striker with a slyly ‘there’. If someone was slow to leave, he added sharply: ‘just get out!’ . Then they went, watched by the three office staff and past all the police officers on the stairs and in the corridor, with a feeling as if they had stolen something.

Not because of a strike but because of a pay claim, we also have an eyewitness account of a payment in a much smaller business, a farm in Grijpskerke, Zeeland province, around 1907. The four to five weeders asked for a pay rise of 10 cents a day, which would bring their wage to a round guilder. But who would do the asking? The senior worker, Jewannes, had to bell the cat.\footnote{Zwemer (1986), p. 85.}

That Saturday evening he asked the farmer. He wasn’t very keen, but eventually he took the six guilders out of his money box, and he threw them towards Jewannes, threw them on the table. But Jewannes said, ‘That’s not how I want them’. And he picked up the six guilders and gave them back. Then the farmer put them into his hand decently. And from then on they received six guilders per week.

So here too, loose guilders. But I also found an example of payment in rix-dollars, reported by a Rotterdam docker.\footnote{Mol (1980), p. 62f.}

Payments for seasonal work (usually not including board) of course involved large amounts, not least because this kind of work was often also taken on by a team. At times payment was made in paper money, but this immediately caused many problems. A survey among trade unions concerning wage payments made in public houses yielded an interesting response from Sneek. This showed that while this vile custom was not widespread there, there was a case of a team being paid ‘in paper’ rather than ‘in cash’ for a specific bricklaying contract. The writer seems to imply that the paper money (at that time at least a 10-guilder note, but probably a larger denomination) then had to be changed with the publican to pay the individual bricklayers, and that this in turn led to unnecessary consumption of alcohol.\footnote{International Institute (1905).}

A similar complaint emerges from a survey among Amsterdam building workers in 1890. In response to the question whether a team was often paid for contract work with a single note, the answer was: ‘Yes, and that then has to be changed in the pub. Recently I experienced for the first time that the payment was made individually at the office.’ It is true that in this case the employer did not have to arrange for loose guilders, but via the publicans they still had to be available on Saturday evening, although of course the consumption of drink would have made the total wage in coins somewhat smaller.\footnote{Giele (1979), p. 71.}

All the information gathered thus far relating to wage levels, payment frequencies, statutory provisions concerning payments, workers’ needs and qualitative descriptions of pay day suggest that around 1900 wages were paid mainly with single guilders, possibly supplemented with rix-dollars, and of course with small change to make up the right amount. We have thus now reached the point where we have to consider whether the postulated ‘demand’ for around 8
million loose guilder pieces every Saturday\textsuperscript{46} is reflected in the circulation and perhaps even in the minting of coins.

2.7 Currency circulation and production

By now we have sufficient indications of the widespread use of large silver coins, and within that of guilders, in wage payments around the turn of the last century. The question is now to what extent the circulation or perhaps even production of these denominations was consistent with this analysis, and whether this kind of information may even allow us to draw more precise conclusions.

This is no simple matter in the first instance. The actual currency circulation we would have to identify for this purpose seems only very indirectly correlated with the production around that time. Firstly, the currency in circulation is the result of production over years or decades, and in some cases even a century or longer. Secondly, in the Netherlands a not inconsiderable proportion of the production ended up directly or indirectly in the colonies (and eventually also came back again\textsuperscript{47}). Thirdly, a large proportion of the coins was held almost permanently by the banks, especially the Netherlands Central Bank, and a less clear proportion also under the proverbial mattress.

Some of these difficulties can be overcome, so that with the help of evidence on the circulation of guilders and rix-dollars in the Netherlands and which were not used in the colonies\textsuperscript{48} and were not held in the central bank’s vaults, we can still obtain some reasonable results. This information is only available on an annual basis from 1901. But we can make a partial reconstruction for the middle of the 19th century.

In the absence of other evidence, there are three suitable points in history to test the above assumption. These are situations where changes took place in circulation patterns within a short space of time. The first occurred in the 1840s, the second at the start of the First World War, and the third (to some extent) immediately after the Second World War.

The old money from the Republican period and the comparatively insignificant number of coins minted during the reign of King William I (1814-1840) were replaced in the 1840s with new coins, minted from 1840 onwards. Most of the production from that decade must still have been in circulation in the Netherlands around 1850, because the export of silver coins to the Dutch East Indies was still negligible at that time. The minting during the 1840s can thus be deemed to reflect the demand at that time.

From 1840 to 1851 the Royal Mint in Utrecht minted silver coins to a nominal value of 142 million guilders.

\textsuperscript{46} We can assume that the first Saturday of the month, when payments were much larger, would still not have been that different from other Saturdays in terms of the coin required, since the much higher monthly salaries would largely have been paid in paper money.

\textsuperscript{47} Vissering (1920) and Pierson (1911), pp. 232 and 261-272. See also Muntverslag over 1907, p. 71, and Hoitsema (1908), p. 153, note 1. Half guilders circulated almost exclusively in the Dutch East Indies until the 1930s, where this denomination fitted in well with daily wage levels.

\textsuperscript{48} It is also unclear to what extent Dutch coins were used in other countries for minting, which would have been a drain on supply in the Netherlands. (The Mint’s annual reports confirm that foreign coins were also regularly melted down and reminted in the Netherlands.)
A comparison of the small change minted during that time (only 6.7 million guilders worth of 5-, 10- and 25-cent pieces) with the situation on the ground half a century later reveals that silver small change was not yet that important (4.7% compared to 14.7%). But in both cases these coins were not significant components in wage payments. The production figures thus confirm the information gleaned from other sources. The fact that production of half guilders was rather low, in a period before the export to the Dutch East Indies had taken off, also fits in with previous evidence.

The production of guilders (26% of the total value) and rix-dollars (67%) – each separately more than enough to meet demand on pay days – cannot yield any conclusions with regard to wage payments unless we know what proportion of this production was actually in circulation. Probably not even a third, judging from a comparison of this 142 million guilders in silver coins in 1850 with the situation half a century later (see below), when both the population and prosperity levels were much greater. Most of the rix-dollars, as well as many guilders, were most probably held in the central bank’s vaults.49

In 1875 the government expressed the view that, ‘for the purpose of daily exchange’, 40 million guilders in large silver coins had to be in circulation. At the time this was equivalent to 10 guilders per head of population. The government knew that this was more than the 6 marks per head of population in circulation in Germany at the time, but it thought that the Germans themselves had decided this was too low. Consequently, the government came to the conclusion that circulation was ‘too high’ by around 100 million guilders.50

We have more reliable information from 1901 onwards. Statistics show that around 20 million guilders and 30 million rix-dollars were in ‘active circulation’ on the eve of the First World War. (Following the mint director C. Hoitsema, we will use this term for the circulation outside the central bank.) The rix-dollars, incidentally, still fulfilled a peculiar role in the 1900s, because a proportion of them circulated to offset a shortage of 10-guilder treasury notes. At the start of the century, just over one million 10-guilder bills were in circulation, which turned out to be far too few. For when these notes were withdrawn and replaced by bank notes of the same value from 1 October 1904 onwards, demand proved so strong that four years later nearly three million were already in circulation. As a result the active circulation of rix-dollars diminished at the same time, albeit not as quickly as the circulation of the new bank notes rose.51

On the basis of this information we can conclude that at the start of the 20th century no more than 20 million guilders and 8 million rix-dollars were needed for so-called ‘active circulation’ if only sufficient quantities of 10-guilder notes had been available.

Thanks to the special circumstances of August 1914, we can gain a better insight into the balance of rix-dollars and guilders used for weekly wage payments. Of course, as it happened, the Netherlands was not drawn into the First World War, but in late July 1914 that was by no means certain, and those people who had something to lose took steps to protect their assets.

49 Unfortunately the Netherlands Central Bank’s published annual reports during the 19th century did not yet give a breakdown of denominations held.
50 Handelingen Tweede Kamer 1875-1876, pp. 176 and 56f.
51 Hoitsema (1908) and Muntverslag over 1911, pp. 32-34. For an early observation on this function of silver coin, see the comments by the finance minister, Hendrik Jacob van der Heim, in 1876, Handelingen Eerste Kamer 1876-1877, 18 December 1876, p. 95.
Silver coins quickly disappeared from circulation, a development which was not due to the workers. As the Oprechte Haarlemsche Courant wrote on 11 August 1914:\textsuperscript{52}

The workers are not the hoarders. Most of the weekly wage received today is spent by the following Saturday, just as the money received the previous week will by today have made its way through the municipality.

But the workers did experience the consequences of the hoarding directly. Thing came to a head on Saturday, 8 August 1914. As wage payments threatened to freeze up, the government decided to print new paper money immediately. And when this seemed to be inadequate later in the week, a number of municipalities (Rotterdam, Amsterdam and Enschede in the first instance) and companies took similar initiatives. Altogether, notes to a value of 6 million guilders were printed that week.

That could never have been enough for all wage earners. After all, according to the above calculations, as much as 8 million guilders was already needed for this purpose 14 years earlier. Wages had risen since then and the number of wage earners had grown appreciably as well. Another solution, then, was for some firms simply to postpone their obligations to their employees by a week.

More interesting than the total amounts were the denominations of all these emergency issues. It turns out that mainly guilders and rix-dollars were printed, while 5-guilder bills (for which there turned out to have been far less demand than originally thought) and half guilders were also printed.

Among the three municipalities which brought the most money into circulation (i.e. Amsterdam, Rotterdam and Enschede), the proportions in nominal amounts was 55% guilders and 40% rix-dollars (as well as 5% 25-cent bills).

The predominance of guilder notes in the total wage bill is striking, and broadly corresponds with the scattered evidence which we have gleaned thus far. This is also corroborated by the situation in Germany before the war. Such a comparison is valid because around 1900 around 10 guilders in large silver coins was in circulation per head of population, an amount which was broadly line with the 16 marks of large silver coins in Germany in 1913 (specifically, 1-, 2-, 3- and 5-mark pieces, with the old thaler set at 3 marks).\textsuperscript{53}

On the eve of the First World War, 1-mark pieces accounted for 30% of German silver coins, 2-mark pieces for 30%, 3-mark pieces for 15% and 5-mark pieces for 25%. If we were to apply this distribution to the Netherlands at the exchange rate of 0.60 cents to the mark, this would mean that guilders accounted for around 60% of coins in circulation and rix-dollars for around 40%.

Since the average weekly wage was 12 guilders in 1914 (and would double during the war years), we can assume that the average pay packet consisted of two rix-dollars, six guilders and some small change. Hence the major proportion of rix-dollars in circulation was not primarily used for wage payments but for other kinds of payments, or as bank cash holdings.

\textsuperscript{52} Quoted in Verkooyen (1994), part 2, p. 32.

\textsuperscript{53} Sprenger (1995). This was still about the same amount as applied in 1880, despite sharp price rises, a higher standard of living and the presence of 1 million foreign workers. So there too a part of the 11 marks available in 10-mark gold coins per head of population may also have been used in pay packets, unless the velocity of circulation was greater. See also Pierson (1911), pp. 228, 233 and 255.
The outcome obtained in this way is confirmed by information from the end of the Second World War. The payment of the so-called ‘Lieftinck’s tenner’ in September 1945, intended to cover a person’s weekly needs during the monetary reform, was made exclusively in guilders and rix-dollars. That these were still considered the most appropriate denominations at a time when the average nominal weekly wage was already three times higher than at the start of the First World War also shows how long the guilder coin dominated in the pay packet. Indirectly we may also deduce from this that monthly wages which at the start of the century were in the same order of magnitude as weekly wages 40 years later were also paid mainly in guilders and rix-dollars.\(^{54}\) This conclusion is supported by the presumed ideal composition of the required amounts, in which a balance had to be struck between the employers’ and the employees’ interests.\(^{55}\) On this basis one could argue that wages of 10 guilders or less could indeed best be paid with guilder coins, and that amounts not far above that could be best be paid with some rix-dollars but still mostly with guilders.

### 2.8 A second interim assessment: wage levels, currency circulation and coin production in the Netherlands around 1900

On the basis of all the information gathered thus far about the Netherlands from the middle of the 19th century to the middle of the 20th century, it is clear that the guilder coin played a key role in the payment of wages, with rix-dollars probably becoming increasingly important over time.

Another striking point is that wages apparently tended to be paid in a denomination which corresponded to once or twice the worker’s daily wage. Thus during the years 1870-1914, when the average weekly wage rose from 6.50 guilders to 12 guilders, wages in the Netherlands tended to be paid in guilders and probably increasingly rix-dollars.

This conclusion is all the more important because here we encounter a long-term correlation between wage levels and coin production which is dictated by the ‘demand’ side. After all, until 1901 the Utrecht mint director operated as a private entrepreneur on his own account, albeit within the framework of the coinage act in force at the time. That is to say, coin production was determined primarily by the supply of raw materials by third parties. With the exception of small change (whose levels were set by the Ministry of Finance), the government did not determine the total volume of production, let alone that of specific denominations. Thus the mint director had to deal with the supply of coinage metals on the one hand, and with the demand by post offices and national payment offices for specific denominations on the other. And as we have sought to show here, as far as wage payments were concerned, the latter consisted mainly of guilder coins and to a smaller extent of rix-dollars during the period under discussion.

If the supply of precious metals exceeded the demand for circulation purposes, the mint director would have tended to mint the largest possible pieces. These would be cheapest to produce relatively speaking, and thus yielded the highest profits. That was the case in the period leading up to the Netherlands adopting the gold standard, for instance. At that time it was so cheap to turn silver bullion into coins that between May and December 1874 no less than 32 million guilders worth of rix-dollars were minted for the central bank and many private customers.

\(^{54}\) Also striking in this context is the inverse relationship between unemployment figures and the production of large silver coins in the 1930s, as shown in Jacobi and Van Beek (1988), p. 92.

\(^{55}\) See appendix 3 in the extended original Dutch version of this paper (see footnote 1).
Consequently the supply of silver coins shot up by 20%, and the government was forced to stop the minting.

Apart from such exceptional mintings of the largest existing denomination dictated by the supply side, we can assume that the demand apparently ensured adequate production of the various denominations broadly in accordance with once or twice the average daily wage.

We are now in a position to gain an impression of the velocity of circulation for guilder coins. Let us assume that with ‘active’ circulation of 20 million guilders, around 5 million guilders were needed every Saturday to pay wages (with the other 3 million paid with the help of rix-dollars, and with even more rix-dollars and 10-guilder notes needed on the first Saturday of the month), then the circulation velocity of a guilder coin amounted around one month (see figure 1).56

On the basis of the above we can also go one step further in situating coin within the total money supply, and the different denominations within that supply in terms of their function. For the latter we will assume a hypothetical distribution as indicated in table 1. In addition to the distinctions made earlier, we will also make a distinction here between hoarded money (i.e. cash kept ‘under the mattress’) and the coins in daily circulation.

Figure 1: Wage payments and circulation of guilder coins in the Netherlands around 1900 (see PDF-document for scheme in Dutch)

ACTIVE CIRCULATION
Netherlands Central Bank
savings banks
banks
wholesalers, distributors, suppliers
employers
employees
landlords
Saturday afternoon
Saturday evening
shopkeepers and artisans
Su Mo Tu We Th Fr
‘under the mattress’

Table 1: Hypothetical percentage distribution of coins available in the Netherlands around 1900

<table>
<thead>
<tr>
<th></th>
<th>gold tenners</th>
<th>rix-dollars</th>
<th>guilders</th>
<th>small change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Netherlands Central Bank</td>
<td>90%</td>
<td>40%</td>
<td>20%</td>
<td>10%</td>
</tr>
<tr>
<td>Daily circulation</td>
<td>0%</td>
<td>30%</td>
<td>60%</td>
<td>80%</td>
</tr>
<tr>
<td>‘Under the mattress’</td>
<td>10%</td>
<td>30%</td>
<td>20%</td>
<td>10%</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
</tbody>
</table>

56 For discussions on the velocity of circulation of all currency in the Netherlands, see Holtrop (1928), pp. 181-209, and Barendregt (1993), pp. 225-229.
On this basis we come to figure 2, which represents the total money supply as an inverted pyramid, with coin further divided in a second inverted pyramid.

*Figure 2: Hypothetical representation of the total money supply in the Netherlands around 1900 (see PDF-document for scheme in Dutch)*

<table>
<thead>
<tr>
<th>deposit money</th>
<th>paper money</th>
<th>coin</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>coin</td>
<td></td>
<td></td>
</tr>
<tr>
<td>gold tenners</td>
<td></td>
<td></td>
</tr>
<tr>
<td>silver rix-dollars</td>
<td></td>
<td></td>
</tr>
<tr>
<td>silver guilders</td>
<td></td>
<td></td>
</tr>
<tr>
<td>small change</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

key:
- central bank
- daily circulation
  - ‘active circulation’
- ‘under the mattress’

Following from the findings on the different types of currency indicated above, a threefold functional division of domestic circulation around 1900 offers itself (paralleling that posited by Spufford for the 14th century).

From small to large, there was first the subsidiary coins (from the half-cent to the 25-cent piece; the half guilder was not in circulation at this time), which were used only as change. In terms of nominal value (i.e. not in pieces), this constituted by far the smallest proportion of the total circulation. Then there was, as an intermediate category, the guilder piece, the denomination primarily used for wage payments. And thirdly there were the larger coins (rix-dollar and 10-guilder piece; the 5-guilder piece played no role), which were used primarily for small commercial transactions and as bank cash holdings. Larger payments were made with the help of transfers, bank notes, bills of exchange and clearances.57

3. **Wage levels, coin circulation and coin production in the Netherlands, 1200-1800**

3.1 *Research method*

After all the qualifications we have already had to make for a relatively well documented period such as the years between 1850-1950, it will be clear that we can only make very tentative comments on the posited correlations for the period 1200-1850. We will try to use the insights already gained.

57 See *Advies* (1926), p. 48, ‘Large payments up to thousands of guilders should in practice never be made with rix-dollars, guilders and half guilders, but always with bank notes or by the use of cheques or bank transfers’; and Lieftinck (1946), p. 87, who states that ‘payment in cash is increasingly restricted to the sphere of wage payments and daily consumer spending’.
In particular, we will try to test the hypothesis that the denomination corresponding to once or twice the daily wage was the mostly widely used for wage payments also applies before the 19th century. This would have to result in a long-term correlation between coin production and the incidence of wage labour.

To this end we must have (in so far as possible) an understanding of the wage levels, the extent to which wages were paid in kind\textsuperscript{58} rather than money, the size of the wage-earning population and the frequency of wage payments. We will then have to set the outcomes against what we know about the actual coin circulation in a particular period, or, if this information is not available, against information about coin production. We will distinguish three subperiods, the 13th century, the 14th to 16th centuries, and the 17th and 18th centuries.

3.2 Wages, wage labour and coin circulation in the 13th century

The 13th century constitutes a separate period for our subject. On the one hand this century saw the rise of cities and wage labour in the Netherlands, and on the other hand coin circulation was still so simple that only a single denomination dominated in practice.

With regard to the latter phenomenon, the 13th century marked the end of a period lasting eight centuries or more since the late Roman Empire. During the Roman period different denominations were in circulation in fixed proportions, a situation as we have today, but subsequently monetary exchange was dominated by a single denomination.\textsuperscript{59} To the extent that money wages were paid, they would have been paid in that single coin. For nearly the whole of the 13th century this was the then common silver denier, with a diameter of 1-1.5 centimetres and a weight of 0.5 grams. The obol, equivalent to a half denier, was also minted, but it was probably not important for coin circulation. These coins are rarely found in 13th-century finds, and their relative rarity compared to the denier also suggests as much.\textsuperscript{60}

There is hardly any systematic information on wage levels in the 13th century. City accounts from that time – an important source of information for the following centuries – have survived in the Northern Netherlands only from 1283-1287 and 1326, namely for Dordrecht.\textsuperscript{61}

The oldest known daily wages in these Dordrecht accounts amount to 20 deniers. Since deniers were more or less the sole currency in Holland and the other principalities at that time and since there did not yet exist a separate unit of account, wages could only be paid – contrary to what we have seen thus far – in relatively large amounts of small coins.

The wage-earning population could not have been very large at that time anyway, since the largest cities had populations of only several thousands and many cities were only just emerging. Outside the cities, wage labour was still an exception. In the countryside it was most

\begin{itemize}
\item De Boer (1978), pp. 184 and 203-206, shows that during the 14th century board was still a significant component of the total remuneration besides the daily wage or piece rate. Dibbits (1998), p. 62, however, gives only two examples of payment for services in goods; see also Gooren and Heeger (1993), pp. 22-28, and Paping (1995), p. 178.
\item See Polak (1998), pp. 156f. Theoretically it is possible that deniers of different origin and hence of different content and weight were used alongside each other, so that pseudo-denominations developed as it were. But I have found no evidence of this.
\item Grolle (1997), part 2 (chronological sequence of coin finds).
\item Burgers and Dijkhof (1995), p. ix, notes 2 and 3. For the Southern Netherlands they are available patchily from 1241.
\end{itemize}
common for dike construction and other major earth-moving work. The problem of receiving large amounts of small coins would thus have affected relatively few people.

3.3 Wages, wage labour and coin circulation from the 14th to the 16th centuries

During the last quarter of the 13th century, the situation changed in many respects. For one thing in monetary terms, because several other denominations came into use. Initially these were introduced from the south, but soon they were also minted in the Northern Netherlands, for instance in Brabant and Holland 2.5-denier sterlings and 8-denier (or Tours) groats. In the case of the above-mentioned daily wage of 20 deniers this no longer meant 20 coins, but eight (in the case of sterlings) or two and a half (in the case of the groats, which became popular somewhat later). From the middle of the 14th century, even gold coins were minted in Dordrecht. (Foreign gold coins had already been in circulation before that.) These were not relevant for wage payments, however. Somewhat earlier, half, quarter and eighth groats also started to be minted, which – in addition to the production of deniers which was continued for some time afterwards – suggests a differentiation in the coin series and the emergence of small change.

Another change at this time was that wage earning began to spread: in the countryside, where serf labour was replaced by free labour, but above all in the cities, with their rapid expanding populations. The revolts by artisans from 1245 onwards and the first reported strikes somewhat later were perhaps also signs of ongoing proletarianization.

Wage levels were also becoming more differentiated, it seems. Sillem reports that in the western towns, master artisans earned 24 or more deniers, journeymen 14-16 deniers, and their mates 12 deniers or less.

At the end of the 14th century an important new category of wage earners emerged in Holland. To supplement the conscription of noblemen and able freemen, the counts also began to hire mercenaries for their rapidly expanding military activities, such as the campaigns against the Frisians. Thanks to the financial records kept, we know that these soldiers cost 5 groats per person per day. It is questionable whether the soldiers actually received that amount, but the figure does point to a considerable pay increase compared to the previous period. This pay was after all equivalent to 40 deniers. Perhaps not coincidentally, in addition to the groats which had come to dominate coin circulation by then, double groats, also known as stivers, had

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64 Sillem (1894), p. 321. Twelve-denier groats dominated circulation in the western regions until the middle of the 14th century, and in the peripheral eastern regions for another century; see Van Gelder (1972), p. 271. See also Spufford (1988), pp. 321-320. See also note 69 below.
67 This nominal pay increase (doubling and trebling) also occurred in Deventer between 1344 and 1376; see Sillem (1894), p. 270.
also come into circulation. These mercenaries would thus, if they were paid in full, have received two and a half coins of this denomination per day. Some workers would not have earned that much, closer to 2 stivers (32 deniers) per day, but others, such as specialist building workers, would have received more. The most common coin at this time was now equal to two to four times the daily wage, which was usually also expressed in that currency.

From the rule of Philip the Good (duke of Burgundy and count of Flanders, and also count of Holland from 1433-1467) we know most of the coin totals and their production in the Netherlands. We also have long and consistent wage series from that time onwards. Although minting and coin circulation are not directly related, we can still investigate to what extent changes in wage levels affected the production of coins used for wage payments. On the basis of the mintings of silver coins during the 15th and 16th centuries, table 2 shows a summary of the relative proportions of each denomination, expressed in stivers.

Table 2: Minting of silver coins (percentage distribution of all denominations between a quarter stiver and 20 stivers) in the Burgundian and Habsburg Netherlands, 1419-1598

<table>
<thead>
<tr>
<th>Stiver denominations</th>
<th>1419-1467</th>
<th>1467-1506</th>
<th>1506-1521</th>
<th>1521-1556</th>
<th>1556-1598</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.25</td>
<td>2%</td>
<td>2%</td>
<td>3%</td>
<td>-</td>
<td>1%</td>
</tr>
<tr>
<td>0.5</td>
<td>1%</td>
<td>13%</td>
<td>31%</td>
<td>1%</td>
<td>0%</td>
</tr>
<tr>
<td>1</td>
<td>92%</td>
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<td>27%</td>
<td>8%</td>
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</tr>
<tr>
<td>1.5</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>20%</td>
<td>?</td>
</tr>
<tr>
<td>2</td>
<td>5%</td>
<td>57%</td>
<td>39%</td>
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<td>10%</td>
</tr>
<tr>
<td>3</td>
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<td>7%</td>
<td>-</td>
<td>16%</td>
<td>-</td>
</tr>
<tr>
<td>4</td>
<td>-</td>
<td>1%</td>
<td>-</td>
<td>38%</td>
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<tr>
<td>8</td>
<td>-</td>
<td>0%</td>
<td>-</td>
<td>-</td>
<td>37%</td>
</tr>
<tr>
<td>20</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>17%</td>
<td>41%</td>
</tr>
<tr>
<td>Total in stivers (000s)</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Ditto per year</td>
<td>748</td>
<td>5,268</td>
<td>1,205</td>
<td>3,422</td>
<td>5,339</td>
</tr>
</tbody>
</table>

Both given the heavily dominant production of stivers and their multiples and the expanding wage-earning population (the growth of urban population can be taken as an indicator: it rose

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68 Silver lions equal to 1.5 groats were also in circulation from 1410 or so, as were their subdivisions (known as **leeuwkens**, ‘little lions’). Mercenaries were among those paid in these coins. See Bos-Rops (1993), p. 231, for the link between soldiers’ wages and coin production. See also Spufford (1988).

69 These amounts for soldiers were comparable to daily wages of 2 stivers in Maastricht in 1399/1400; see Koreman (1968), p. 16. Jappe Alberts (1967) shows that daily wages in Arnhem rose from around 2 stivers to 4 stivers between 1353 and 1377. The Hague sawyers’ wages rose similarly; see De Boer (1978), p. 203.

70 Calculated on the basis of figures in Van Gelder and Hoc (1960). The dollars from the time of Philip II have been left out of consideration because until nearly the end of his rule they were worth more than twice the highest daily wages. It should be noted that all these figures are originally from Spufford; see Van Gelder and Hoc (1960), p. 5, and Spufford (1970), p. 175. In the case of Flanders, the production of different denominations of silver coins is known from 1346-1384. The groats dominated until 1362, then the lions, and from 1380 the double groats; see Blockmans and Blockmans (1979), p. 89. See also Munro (1983), pp. 154f. I am not aware of such early evidence for the Northern Netherlands.
from a quarter of the total population around 1400 to 30% at the start of the rebellion against Spanish rule in the 1560s71), it is interesting to see how wages developed.

The first major change in coin production, the move from mainly stiver pieces to double stivers, occurred after the death of Philip the Good in 1467. This could have been a reaction to the doubling of wages in the 1430s.72 This was followed by another century of broadly stable wages. For instance, master bricklayers in Holland received a summer daily wage of around 5 stivers between 1450 and around 1525. The large number of double stivers minted during this period neatly fits in with these wage levels.

In the course of the 16th century there followed another period of wage increases, even more prolonged and sweeping than in the 1430s. In Antwerp the wages of bricklayers’ mates increased by a quarter between 1512 and 1513 and doubled during the 1540s and 50s.73 In the Northern Netherlands wages also doubled during these decades.

City authorities (for instance in Antwerp in 1544 and 1559), provincial authorities and even the central government in Brussels (in 1561 and 1588-1589) sought to reverse this development by decreeing caps on wages, but they were fighting a losing battle. The proposed maximums were a winter daily wage of 2.5 stivers per day in the countryside and 4.5 stivers per day in the cities, but in reality wages were two, three or four times higher than that.74

Reactions from Utrecht and Holland, for instance, showed that both in the countryside (where wage labour was now common) and in the cities wage levels had surged, but then so had prices. The Hollanders also pointed out that a general wage measure ‘would not be practicable in these lands, since the tasks of workers are completely different’, and that the labour is harder in Holland than in Brabant (presumably because of the heavier soil); in other words, the measures should ‘correspond to the nature of the land’. The Utrecht city council took the view that wage formation was ‘entirely God’s work, onto which man should certainly not impose’.75

Fortunately the government did something else apart from closing the door after the horse had bolted. Contrary to what one might have been expected in light of the above, it overhauled the currency system, which had been dominated by the stiver and its multiples for centuries. It started minting new Philip-dollars, at a value which rose from 35 stivers at their introduction in 1557 to 50 stivers eventually; and a mere 18 months after the attempt to impose wage controls, it also brought fractions of a half, a quarter, a fifth, a tenth, a twentieth and a fortieth Philip-dollar into circulation. Unfortunately it is unclear whether there was a direct link between the wage measures of 17 January 1561 and the decision to mint fractions of Philip-dollars on 21 July 1562.

71 Perhaps a quarter of the population in the Northern Netherlands lived in the 75 (out of a total of 152) cities with more than 500 inhabitants. This could have been 30% of the total in 1560, based on the calculations in Lourens and Lucassen (1997).
72 Verlinden (1959), p. 543, illustrates this well for Antwerp: the summer daily wages for bricklayers’ mates shot up from 7 Brabant deniers in 1427-1430 to 10 in 1431-1438 and 12 in 1439, and then remained unchanged until 1512. The wage index of Utrecht cathedral showed an even steeper rise; see Vroom (1981), pp. 524-529; compare this index with some nominal indications in Janse (1965), p. 33.
73 Verlinden (1959).
74 Verlinden and Craeybeckx (1962).
75 Ibid. (1962), pp. 106, 108 and 76.
In particular, the one-fifth Philip-dollar piece, originally valued at 7 stivers and subsequently at 10 stivers, corresponded to the daily wages of skilled workers. More than 10 million of these coins were produced in nearly all mints operating at that time.\textsuperscript{76}

3.4 **Wages, wage labour and coin circulation during the Dutch Republic**

The period of rising wages which started in the 1540s lasted around a century in the Northern Netherlands. From the 1640s the daily wage hovered around the guilder mark for more than two centuries, as we saw above.

Whereas in the early years of Philip II (who became lord of the Netherlands in 1555), the development of denominations still followed these wage increases, in the new Republic formed in the Northern Netherlands from the 1580s there seemed to be very little correlation between denominations and wage levels. This is remarkable for the most urbanized state of the early modern period\textsuperscript{77}, with a large number of wage earners.\textsuperscript{78}

Contrary to what might be expected on the basis of our earlier findings, there was no mass production of coins with a nominal value of a half or a whole guilder from 1640 or so onwards. Instead, double stivers dominated the production of small and medium-sized silver coins in the first half of the 17th century. In the second half of that century, the shilling took the place of the double stiver (see table 3). Shillings with a value of six stivers had been minted in the Dutch Republic since 1581, but only became dominant later on. They appeared in many guises in the following two centuries, such as eagle-, rose-, rider- and ship-shillings. More than 40 million shilling pieces were thought to be in circulation in 1693, as estimated by Schimmel, which converts into no less than 6 guilders per head of population.\textsuperscript{79}

While the summer daily wage for skilled building workers in Holland was still equal to around 2 shillings in 1580, it rose to 3 shillings in 1595 and nearly 4 shillings in 1630. For unskilled building workers, wages moved from just over 1 to 2 and then 3 nearly shillings.\textsuperscript{80}

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\textsuperscript{76} Van Gelder and Hoc (1960), pp. 113-115. For the background to the economic and monetary policies during these years, see Van der Wee (1963), part 2, pp. 222-236. However, he does not give any indications of the link suggested here between the wage measures and the minting of Philip-dollar fractions.

\textsuperscript{77} In 1670 already 45% of the population lived in the cities with more than 500 inhabitants. At the time of the first census in 1795, 10% lived in Amsterdam alone; see Lourens and Lucassen (1997).

\textsuperscript{78} The size of the wage-earning population can be determined indirectly by the balance between the urban and rural populations. Industry, trade and services were concentrated in the cities, agriculture dominated in the countryside. Of course some farmers lived in the cities, especially the smaller ones, but the overwhelming majority of their inhabitants were artisans and their mates. The countryside was completely oriented on the market and highly specialized (especially in livestock breeding and industrial crops), but there was relatively little cottage and other industry, especially compared to neighbouring countries. With some exceptions, such as the Zaan and Gooi districts and the textile centres of Noord-Brabant, northern Limburg and Twente in the 'periphery', the cities were successful in their constant struggle – waged already in the Middle Ages – against competition from the countryside; see Van Zanden (1991). However, it must be said that as yet we do not have much information on the precise degree of proletarianization. For an estimate for Amsterdam, see Lourens and Lucassen (1998), p. 145.

\textsuperscript{79} Schimmel (1882), p. 28.

\textsuperscript{80} De Vries and Van der Woude (1995), pp. 703-713.
Stiver denominations

<table>
<thead>
<tr>
<th></th>
<th>1606-1650</th>
<th>1650-1700</th>
<th>1700-1750</th>
<th>1750-1796</th>
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<tbody>
<tr>
<td>0.5</td>
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<td>-</td>
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<tr>
<td>1</td>
<td>15%</td>
<td>1%</td>
<td>1%</td>
<td>0%</td>
</tr>
<tr>
<td>2</td>
<td>65%</td>
<td>18%</td>
<td>23%</td>
<td>20%</td>
</tr>
<tr>
<td>5</td>
<td>2%</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>6</td>
<td>17%</td>
<td>70%</td>
<td>12%</td>
<td>10%</td>
</tr>
<tr>
<td>8</td>
<td>1%</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>10</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>20</td>
<td>-</td>
<td>11%</td>
<td>64%</td>
<td>70%</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td>ca. 288</td>
<td>907</td>
<td>3,155</td>
<td>1,491</td>
</tr>
</tbody>
</table>

Here, then, we see an unexpected trend break in coin production in the Netherlands between the 16th century (see table 2) and the 17th century (see table 3). Whereas in the second half of the 16th century the dominant coin shifted from the 2- to the 4-, 8- and 20-stiver pieces, suddenly the Dutch Republic was again dominated by 2- and later 6-stiver pieces. Three possible explanations can be adduced for the way monetary developments lagged behind wage developments at this time: the Republic’s international position, its decentralized structure, and the nature of the labour market.

The most important factor is the interest of international trade which prevailed in coin production in the Republic, something which has been known for some time and has again been shown in detail recently by Polak. Because of the international commercial demands, the large pieces were withdrawn from domestic circulation, in so far as they were not actually directly exported, so that this created scope for ‘coins which could meet less high standards because they were deemed to function in domestic circulation against their nominal value, as money’.

In the first half of the 17th century the scope created in this way was only filled to a limited extent by domestic production, as table 3 shows. It was above all coins from the mints in the Southern Netherlands, which were producing flat out, which came into circulation in the Republic. As Van Gelder puts it succinctly: ‘The Dutch mints could produce heavily, but this indigenous money was barely used in the country itself.’ The popularity of the quarter patagon, equivalent to around 12 stivers, is striking in this context and seems to follow on from the earlier mass production of one-fifth Philip-dollars. The latter will still have been in circulation in the 17th century.

In the second half of the 17th century the production of shillings began to meet day-to-day needs in the Republic, as is also shown in table 3. The Republic’s political decentralization – and this is the second explanation – prevented the adoption of a proposal tabled by Holland in 1671 for the introduction of a guilder piece. Instead, the market was swamped with shillings and 28-stiver pieces, minted in outlying provinces and at a lower quality.

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81 Calculated on the basis of Polak (1998). The unit in the table is not, as in table 2, the stiver but the fine silver content. (One mark of silver weighed 246.08 grams.)
84 Van Gelder (1949), pp. 103ff.
the new silver guilder pieces at the Dordrecht mint from 1681 was taken up by other mints subsequently, but this coin only gained in importance in the 18th century (see table 3).

However, it is unclear at what rate these guilder pieces replaced the shillings, and wages were now actually paid in guilders. It is true that the guilder was expressly intended for domestic use and its export was banned, while the new high-quality double stivers and ship-shillings were exported to the East Indies on a massive scale. The circulation of shillings was so large, however, that these perhaps remained the dominant coins for wage payments after all. In any case, according to Schimmel the debased shilling again reigned supreme during the 1820s and 30s, circulating at a value of a quarter guilder. This situation only came to an end with coinage reform under King William II in the 1840s.

A third explanation – subsidiary to the first two, we may assume – of the guilder’s absence in pay packets until the 18th century and perhaps even the middle of the 19th century can be sought in the characteristics of the labour market itself. More than in the previous and subsequent centuries, during the Republic wages were paid not weekly but monthly or at even longer intervals. This was due to the large proportion, amounting several dozen percent, of occupational groups such as soldiers, seamen, domestic servants and migrant workers.

Of all these groups, we know most about soldiers. More numerous in relative terms than in any other European country, especially around 1700, soldiers preferred to be paid in large silver coin, that is to say, riders or ducats of the Republic or ducatons or patagons of the Southern Netherlands. However, the practical arrangements were often different: in the 1680s, for instance, they received bad money such as double stivers, shillings, florins and dollars.

Payments in these large coins were possible because they were made not weekly but monthly. Moreover, these months could often last 42 or even 48 days, the so-called ‘long months’. But the soldiers did not have to wait all that time for their pay, and could obtain a weekly advance or ‘loan’.

For sailors, especially those on the ocean-going ships, this was even more the case, especially among seamen and soldiers employed by the United East India Company (VOC). Leaving aside small advances, payments were made only several times per year or even once every two years.

Unfortunately I am not aware of any qualitative, let alone quantitative, sources which can confirm the postulated correlation (or even better, its absence) between coin production, coin circulation and wage payments during the Republic.

All we can say is that the wage payments in small coins were unlikely. This because lawmakers realized quite early on that not only traders but also wage earners had to be protected against payment in large amounts of small coins. In 1689 the States General decided that daily wage payments, including those to ‘working people’, could contain at most 10 stivers worth in small coins. The same applied for weekly payments by ‘manufacturers, masters and others who employ any workers’. Given the average weekly wage of 1 guilder at that time, this meant that

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86 Schimmel (1882), pp. 98-100.
the pay packet had to consist of at least 90% silver coins and at most 10% copper coins. The coinage acts of 1806 and 1816 reaffirmed this restriction on copper small change. For every amount there was a restriction of at most one guilder’s worth in coppers, and for larger amounts even a restriction on payment of the bad 2-, 6- or 28-stiver pieces. But as we saw above, the reality during the reign of King William I was rather different, also for wage payments.

However, we cannot know with any certainty whether wages were paid mainly in shillings in second half of the 17th century and increasingly in guilders in the 18th century. Nor can we be certain that domestic circulation of 28-stiver pieces and dollars or 30-stiver pieces played a role around 1700. But the discontinuation of these series and the short-lived experiment around 1690 with the production of the 2-guilder piece make these coins’ essential role in wage payments rather less likely.

4. Conclusion

For most of the time since the 14th century, but not earlier, there appears to be a certain correlation between the denomination which dominates the circulation of silver coin for a longer period on the one hand and the level of the daily wage on the other (see table 4). This correlation suggests that on the ‘demand’ side there is a strong preference for currency equivalent to four times in the first instance and later to once to twice a wage earner’s daily wage; from the 15th century this comes down to closer to once for the worse paid and twice for the better paid wage earner.

Table 4: Correlation between the level of daily wages and the prevalence of specific denominations in the Netherlands, from the 13th to the 20th centuries

<table>
<thead>
<tr>
<th>Daily wage of a skilled building worker in Holland, expressed in stivers made up of 24 deniers</th>
<th>Most commonly minted (or *imported) denomination</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daily wage expressed in pieces of the most common denomination</td>
<td></td>
</tr>
<tr>
<td>13th century</td>
<td>0.75</td>
</tr>
<tr>
<td>ca. 1300</td>
<td>0.75</td>
</tr>
<tr>
<td>ca. 1350</td>
<td>2</td>
</tr>
<tr>
<td>ca. 1400</td>
<td>4</td>
</tr>
</tbody>
</table>

90 Korthals Altes (1996), pp. 117f, States General Ordinance, 27 October 1698. However, the ordinance of 4 August 1769, which in his view shows that the earlier ordinance was not observed, refers to the Generality Lands (the districts in the south of the Republic which were not represented in the States General), where wages were much lower, down to 20% of those in Holland and Zeeland. See also Schimmel (1882), p. 34.

91 Schimmel (1882), pp. 59, 70, 77, 91f and 269.

92 Most of the wages are for building workers. Where possible, I used an annual average (i.e., from around 1500 onwards, 80% of the summer daily wage). See Van Zanden (1991), pp. 136f; De Vries and Van der Woude (1995), pp. 703-713; Noordegraaf and Schoenmakers (1984), p. 25; Noordegraaf (1985), pp. 66-95; and De Boer (1978), p. 203. For wages in Brabant between 1427-1605, see Scholliers (1960), pp. 89f. See also Scholliers (1975), pp. 312-314, for wages in the Southern Netherlands from 1500-1605 and in the Northern Netherlands from 1550-1599. For the ‘most commonly minted’ denomination (i.e. silver coins excluding the largest pieces between 1557-1832), see tables 2 and 3 and the text above. For production estimates of production in the period before statistics are available (i.e. before 1346 in Flanders), see the useful suggestion in Van Beek (1999), pp. 277f, note 1.
Before around 1300 the share of wage labour in the total economy was probably still too small
to directly influence the demand for currency. From around 1400 to 1550 the above thesis can
be confirmed for the total production of silver coins. (Gold coins were never used for wage
payments.) From that time large denominations were brought into circulation (Philip-dollars
and Burgundian dollars in the first instance), which we have not taken into consideration here,
for two reasons. It is known that during the Republic a not inconsiderable proportion of these
was minted for external trade purposes. And we also argued in analogy with the situation at the
end of the 19th century, when the rix-dollar clearly had a different function from the guilder.

Certainly during the 17th century and perhaps also for another century or more, the demand for
currency generated by the labour market, no matter how important in itself, did not weigh very
heavily. For unrelated reasons, such a large supply of shillings came on the market, equal to a
third or a quarter of the daily wage, that this (and the imported coins from the Southern
Netherlands) probably came to dominate wage payments completely. This was clearly an
inconvenience for such payments compared to previous arrangements.

On the basis of the above, the use of coins (and other money in circulation) from 1300 can be
broadly differentiated as follows:93

- The largest denominations (gold and large silver coins and later paper money) were used
  primarily in commercial transactions which were not settled with bills of exchange etc.
- The middle series (medium silver coins and small paper denominations) were used mainly
  for the payment of wages, to then flow from shopkeepers and artisans and perhaps via
  wholesalers back to the employers, and thus to become available again for wage payments.
  It seems in this context that the most common denominations were equal to once or twice
  the daily wage.
- Small change (small silver and base metal coins) was used both in wage payments and retail
  transactions. A striking feature is that this was sometimes provided not only by the central
government.

Not only in 1900, as we saw in the first section of this paper, but much earlier as well, the total
currency in circulation -- gold from the 14th century, also bills from the 17th century, and
mainly bank notes from the 19th century -- was many times larger than the amount used for

93 See Spufford (1988) and the elegant diagram by Schüttenhelm (1989), p. 85, as well as Munro (1989),
pp. 37-43.
wage payments. When large amounts of coin were produced for the international market, as happened during the Republic, the interests of smooth domestic circulation were even in danger of being overlooked, as Polak has argued.

This tradition of international coin production may explain why the Dutch coinage acts of the 19th and 20th centuries never set totals for mintings per denomination. In Germany and the countries of the Latin Monetary Union this was common from the middle of the 19th century onwards. There the amount of small change and silver coins was correlated with population changes.94

Despite the subordinate importance of currency for the purpose of wage payments compared to commercial transactions, it is easy to imagine that wage payments posed more serious and above all different logistical problems than retailing transactions. Wages not only had to be periodically and massively at the same time, as we have seen, but they also had to be paid to the correct cent or half cent. In contrast with shopkeepers, wage earners did not give change.

These logistical requirements of course do not detract from the overriding importance of trade in the production of currency. Unfortunately we cannot – as William Petty first suggested in 1664 and John Locke subsequently – simply derive society’s need for currency and specifically coins from the level of wages to be paid out every week.95

But if, within total coin production, we consider specific denominations in the middle of the series, we can argue convincingly for the Netherlands at least that there is a long-term correlation with the incidence of wage labour in society. It would therefore be of interest to study the degree of proletarianization in this light.

Summary

This article proposes a functional model regarding the use of currency, and coins in particular. Based on extensive demographic, socioeconomic and monetary evidence concerning the Netherlands between 1870 and 1914, it suggests that the 1-guilder piece and to a lesser extent the 2.5-guilder piece dominated the weekly wage payments during that period. These coins equalled roughly the daily wage of an adult male wage earner. The velocity of circulation of the guilder pieces is likely to have been four weeks. In the period 1400-1800 coins equivalent to once or twice the daily wage dominated actual circulation. Higher-valued coins (gold coins and, from around 1500, dollar-sized large coins) were used for commercial transactions. Before 1300 wage payments were still insignificant in the Netherlands, but in the 14th century the situation changed markedly with the advent of sterlings and groats.

94 Schimmel (1882), pp. 213f, and Schacht (1926), pp. 423f. This probably explains in part the much later and much less detailed coin statistics for the Netherlands compared to neighbouring countries; see e.g. Sprenger (1995).

95 It is worth considering under which circumstances the authorities were not only able but also willing to encourage the use of specific denominations for wage payments by supplying silver coin themselves. During the Burgundian period this was the case under Charles the Bold (1467-1477) for instance for the purpose of paying soldiers; see Spufford (1970), p. 51, and Munro (1989), p. 36. During the Republic the decentralized state was probably not in a position to take such a measure. During the Kingdom this would have been possible, but then there was no need because the professional army had been replaced by conscripts.
This article proposes a new functional approach to the history of currency circulation. Only large silver and gold coins and subsequently paper money were used in trade (next to bullion, bills of exchange etc for large-scale and international trade). Medium-sized silver coins were used primarily for weekly wage payments, and to a large extent by artisans and shopkeepers for their financial transactions. Small coins, in particular coins made from black silver and base metals, were used as the small change needed in such a system.

Seen from this perspective, numismatic and monetary history should no longer restrict itself to the history of trade but should also look for explanations in the field of social and labour history.

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**Table of contents**

1. Introduction
2. Wage levels, currency circulation and coin production in the Netherlands, 1870-1914
   2.1 Wage earners and wage levels
   2.2 Wage payment frequencies
   2.3 A first interim assessment: the ‘demand’ for currency exerted by wage-paying institutions
   2.4 Mainly Dutch silver coins in the pay packet
   2.5 The needs of wage earners
   2.6 Pay day
   2.7 Currency circulation and production
   2.8 A first interim assessment: wage levels, currency circulation and coin production in the Netherlands around 1900
3. Wage levels, coin circulation and coin production in the Netherlands, 1200-1800
   3.1 Research method
   3.2 Wages, wage labour and coin circulation in the 13th century
   3.3 Wages, wage labour and coin circulation from the 14th to the 16th centuries
   3.4 Wages, wage labour and coin circulation during the Dutch Republic
4. Conclusion