

Coin Production in the Low Countries

*Fourteenth Century to the Present**

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Abstract

The new dataset and web application 'Coin production in the Low Countries: fourteenth century to the present' provides scholars with user-friendly access to mint-masters' accounts going back to the Middle Ages. They give insight into the production of legal tender (within the Low Countries and occasionally elsewhere as well), and provide access to such variables as regional production figures and coin denominations. This data article provides an introduction to the sources as well as the dataset, and suggests how the latter might contribute to new research into long-run economic and social history.

Project website

<https://socialhistory.org/en/projects/coinproduction/>

Datasets

<https://datasets.socialhistory.org/dataverse/coinproduction/>

Web Application

<https://socialhistory.org/en/projects/coinproduction/search/>

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Introduction: coin production figures, economy and society

Now that paper money is increasingly being replaced by mobile banking, it seems future generations will use fewer coins in everyday economic exchange. This is a fundamental deviation from much of history, when coins were the grease that kept the wheels of the economy turning. Currencies first appeared in the form of metal coins in around 500 BCE, originating more or less at the same time, and most likely independently, in the eastern part of the Mediterranean, northern India and central China. Over time they were increasingly used in everyday transactions, in particular because small fractions became available very early on, enabling the payment of rents, wages and daily shopping at the market. Metal coins were the most important medium of exchange until recently, as the paper money we are familiar with nowadays only emerged much later; except for a few short-lived episodes with paper currencies, very few ordinary people would have ever seen paper money before the First World War.¹

Some of the metal coins that went from hand to hand centuries ago have been preserved and are currently held by museums and collectors. The study of these coins by numismatists provides important insights with respect to the production of coins. For instance, so-called 'die studies'² can broadly indicate how many coins of a certain type were produced by closely comparing surviving coins and establishing the number of dies that have been used in the production of a coin.³ Such studies are particularly useful for providing clues to coin production before the later Middle Ages, and thus also allow for an impression of the level of monetization of historical societies: the degree to which state officials, merchants and ordinary people used coins to pay and collect taxes, to buy and sell commodities, and to pay for and be rewarded for work.

1 The examples of paper money in China, especially in the Yuan (1271-1368) and early Ming (1368-1644) dynasties, as well as in Sweden (1661), are perhaps best known. In the Low Countries, early examples of the use of paper money include handwritten (later partly printed) *kassierspapier*, which was used by Dutch merchants from the seventeenth century (J.P.B. Jonker, 'Kassierspapier', in: J.M.W.G. Lucassen (ed.), *Gids van de papiergeld-verzameling van het Nederlandsch Economisch-Historisch Archief* (Amsterdam 1992) 107-119, and 4-5, 120-132).

2 In 'die studies' the number of stamps (dies) used in coin production is calculated, through comparison of the preserved coins. Since dies could only be used to produce a limited number of coins, the number of dies used in production can indicate total coin production.

3 See for instance: P.P. Iossif, 'Who's wealthier? An estimation of the annual coin production of the Seleucids and the Ptolemies', *Revue Belge de Numismatique et de Sigillographie (RBNS)* 161 (2015) 233-272.

In addition, the types of coins – gold, silver, copper, and their weight – as well as the quantities in which they were produced provide clues as to how money was used, and by whom. Valuable gold coins, which re-emerged in Europe in the fourteenth century, were the currency of choice for merchants and other wealthy individuals.⁴ Less valuable silver coins were more likely to be used by the common people and together with copper coins they have been linked to the emergence of wage labour towards the end of the Middle Ages.⁵ Also, the places where coins were found by archaeologists – in towns or in the countryside – and in what capacity – as part of larger coin finds buried in the ground, or as stray finds indicating they were simply lost – can help explain how money was used.⁶ Larger coin finds could for instance indicate the owner had managed to save, but also that there was reason to hide the coins out of fear of theft.

In addition to numismatic studies, research into historical sources can provide additional insights into the use of money. The earliest extant accounts of mint output date from the thirteenth century. For England there are continuous series available beginning as far back as 1220.⁷ It is however possible to estimate the output of the royal mint in as early as 1158,⁸ or even 1087.⁹ Most other early output figures are much more fragmentary and therefore necessarily impressionistic in nature. An estimation of the mint output of Cologne can be made for the year 1174, but series of mintmasters' accounts are of a much later date.¹⁰ The earliest French royal mint account to survive is from as late as 1254. It is not clear to which mint it refers, nor how long a period it covers. It is therefore of little use. Regular series of French royal mint accounts have not survived from before the middle of the fourteenth century.¹¹ This also applies to the mints of Florence, Genoa, Barcelona, Valencia, Navarra and Sardinia.¹² Mintmasters' accounts for Lübeck are first available from

4 P. Spufford, *How rarely did medieval merchants use coin?* (Utrecht 2008).

5 J.M.W.G. Lucassen, 'Deep Monetisation. The Case of The Netherlands 1200-1940', *TSEG* 11:3 (2014) 73-122.

6 J. Pelsdonk, *Quovadis, NUMIS?* (presented at the Van Gelderlezing 2014/2017) https://www.academia.edu/34905865/Quo_Vadis_NUMIS_Van_Gelder-lezing_13_Haarlem_2014_2017_.

7 M. Allen, *Mints and money in medieval England* (Cambridge 2014).

8 P. Spufford, *Money and its use in medieval Europe* (Cambridge 1988) 196-197.

9 J.L. Bolton, *Money in the medieval English economy 973-1489* (Manchester/New York 2012).

10 Spufford, *Money and its use*, 195.

11 *Ibidem*, 204-208.

12 *Ibidem*, 415-419.

1342.¹³ Medieval records of coin production are unavailable for most other German mints, as well as for instance Bohemian, Hungarian, Castilian, Aragonese, Portuguese and several Italian mints.¹⁴

It is therefore clear that long-run series of coin production are few and far between. The importance of the dataset presented here is thus all the more clear. The sources presented here, mintmasters' accounts from the Low Countries, provide information about the coin production of the mint houses – of which there have been around 250 from the early Middle Ages up until present times (Map, Appendix 1). Here the official media of exchange ('legal tender') were produced for the various countries, provinces and cities of the Low Countries; authorities only began to commission foreign mint houses to produce legal tender in the late eighteenth century. For the Low Countries, the accounts are available from the fourteenth century onwards, although the earliest date varies from one province to another. The earliest mintmasters' accounts available in our dataset are from 1334 and concern the mint house of the Count of Flanders in Ghent; in later periods they also become available for other provinces. A summary of the mint house accounts included in our database is presented in the Table (Appendix 2).

Coin production: the role of the sovereign

To understand the conditions under which coins were produced, it is first of all crucial to discuss the role of the sovereign. Coin production was one of the *regalia*, the bundle of exclusive rights held by the sovereign.¹⁵ The sovereign was in control of – and responsible for – the supply of sufficient media of exchange. Since coins could disappear through a negative trade balance, melting down, wear and tear, or hoarding, maintaining a sufficient quantity of coins in circulation could be quite a challenge. In the later Middle Ages, temporary reductions in European silver production created problems with the supply of coins – so-called money scarcities – that in turn caused problems in economic exchange. American silver supplies could only partly remedy this, as early modern sovereigns continued to struggle with the production of copper coins that could

13 Ibidem, 280.

14 Ibidem, 415-416, 419.

15 D. Hägermann, 'Regalien, -politik, -recht', in: *Lexikon des Mittelalters* (Munich 2003) 555-559, there 557-558.

serve as small change.¹⁶ A big part of the problem was that sovereigns did not usually take the initiative to mint coin, but instead waited for the public to bring gold, silver and copper to the mint houses for reminting. Merchants in particular brought precious metals to mint houses, but they were mostly interested in having these reminted into large gold and silver trade coins, which they could use in interregional trade.¹⁷

This is not to say that the sovereign could not profit from coin production. Taxation of mint production could be very lucrative: data presented by John Munro suggest such taxation could account for up to 70 per cent of the total income of the counts of Flanders in the fourteenth century.¹⁸ Yet another way for monarchs to profit from minting was coin manipulation – having mint houses take in silver bullion, producing coins with a reduced intrinsic value, and putting these in circulation against the existing exchange rate. Such a debasement policy is visible in the late fifteenth century for instance, when the silver content of the *groat* was gradually reduced by more than 50 per cent in less than twenty-five years. This approach could prove profitable in the short run, but eventually also caused problems as such monetary policies could prove highly disruptive to long-term credit arrangements.¹⁹ Indeed, the philosopher Nicolas Oresme (1323-1382) already suggested the general public – and not the sovereign – should be in control of such an important public good as the media of exchange,²⁰ an idea that is nowadays reflected in the cryptocurrency movement.

Finally, coinage provided sovereigns with a crucial means of advertising their rule.²¹ All coins depicted – and usually continue to depict – symbols of the sovereign or state: a portrait, coat of arms, or text, for example. Centuries before the emergence of the mass media, coins must

16 T.J. Sargent and F.R. Velde, *The big problem of small change* (Princeton 2002) 4-7. More recently: O. Volckart, 'The big problem of the petty coins, and how it could be solved in the late Middle Ages', Working Paper (London 2008) <http://eprints.lse.ac.uk/id/eprint/22310> (accessed 29 December 2017).

17 In addition to maintaining a sufficient supply of coins, sovereigns were also responsible for reducing the number of foreign and 'bad' – clipped or worn down – coins in circulation, by having these reproduced as new domestic coins.

18 J. Munro, *Wool, cloth and gold. The struggle for bullion in Anglo-Burgundian trade, 1340-1478* (Toronto 1978) 22.

19 C.J. Zijlenderdijn, 'De schuldvraag. Monetaire politiek, publieke schuld en wanbetaling in Holland, ca. 1466-1489', *TSEG* 9:3 (2012) 27-46, 34.

20 J.A.M.Y. Bos-Rops, *Graven op zoek naar geld. De inkomsten van de graven van Holland en Zeeland, 1389-1433*. Hollandse studiën 29 (Hilversum 1993) 35.

21 E.J.A. van Beek, J.M.W.G. Lucassen and M. Purmer (eds.), *De canon van ons geld. De geschiedenis van onze munten, penningen en biljetten* (Bussum 2017).

be considered as a major means for monarchs and heads of state to present themselves to their subjects. Infringements on coin production by local authorities could therefore provoke a fierce response: as early as 1047 the Holy Roman Emperor Henry III (ruled 1046-1056) sent troops to demolish the clandestine mint in Rijnsburg, Holland, where Count Dirk IV of Holland (ruled 1039-1049) had pennies produced bearing his own name.²²

Sources: mintmasters, their instructions and their accounts

Considering how important the right to mint coins was for sovereigns, how did they exploit this right? The usual way was to lease the right to mint coins to the highest bidder, who then became mintmaster in charge of the mint house. For the duration of the lease the mintmaster had to earn back his investment, keeping to the parameters the sovereign had set in the instructions as to the types of coin that could be produced as well as their quality. To make sure the mintmaster kept to the instructions, the sovereign carefully monitored the mint house and appointed officials, called *essayeurs* and *waardijns* (wardens), as supervisors. The reasons for this tight control were not only to prevent the production of inferior coins, but perhaps most importantly to make sure the sovereign received an agreed-upon percentage of the profits.²³

To gain a better understanding of mintmaster instructions, it might be useful to look at an example from the Middle Ages that also serves to indicate how things were arranged in the early modern period. On 29 July 1430 the count of Holland, Duke Philip of Burgundy, sent an instruction to the mintmasters of Dordrecht, Jan Nemerij and Arent Musch. They were instructed to produce a gold coin, called *schild*, which was to have a fineness (*alloy*) of 15.5 carat gold. As to the weight (the *taille*), the mintmasters were instructed to produce 67.5 coins from a troy mark (defined in 1799 as 244.759 grams).²⁴ In addition to this, the

22 J.J. Grolle, 'Floris V op de penning. Vormgeving en imitatie van Hollandse munten met "het portret van graaf Floris V"', in: E.H.P. Cordfunke and H. Sarfatij (eds.), *Van Solidus tot Euro. Geld in Nederland in economisch-historisch en politiek perspectief* (Hilversum 2004) 55-73, there 55.

23 E.H.G. van Cauwenbergh and L. Verachten, 'The monetary history databank of the Southern Low Countries, 1493-1789' (IISH Dataverse), there 3 <http://hdl.handle.net/10622/T8NXKC> (accessed 29 December 2017).

24 From the fourteenth to the early eighteenth centuries the precise value of the troy marc could vary

sovereign also instructed the mintmasters of Dordrecht to produce a half *schild*, again with an alloy of 15.5 carat gold, and a *taille* of 136 coins struck from a troy mark.²⁵ This means the half *schild* was relatively speaking less valuable than the *schild* (the half *schild* would contain 1.810 grams, the *schild* 3.646 grams rather than 3.620 grams). Perhaps this indicates the sovereign expected half shillings to be in greater demand than shillings. In his instruction, the sovereign also indicated the margin of error he would allow: with respect to fineness the tolerance remedy (*remedie*) was a quarter of a carat gold (that is: a 1.6 per cent deviation from the 15.5 carat gold prescribed in the instruction), and with respect to weight two *engelsche op elck marc wercx*s (that is, 3.76 grams per troy mark of 244.759 grams, or a 1.54 per cent deviation). Exceeding these parameters resulted in a fine to be paid by the mintmasters. Finally, the sovereign stipulated a tax (*sleischat*) of one shilling per troy mark used by the mintmasters. The mintmasters thus paid a tax to the sovereign of 1.48 per cent of the production of whole and half shillings (this was on top of the money they paid for the right to operate the mint). The mintmaster's account of the production of whole and half shillings, to be discussed below, indicates that 1,857 troy marks were used in 1430-1432, and that the mintmasters should have paid a tax of 1,857 shillings to the sovereign. This was a large sum: expressed in hourly wages it was the equivalent of more than 65,000 hours of work.

Considering this rather strong financial incentive, and in view of the importance of a reliable currency, the sovereign made sure the mintmasters were monitored. The warden was usually appointed for life, and monitored all the main aspects of coin production, including the quality of the coins and dies produced. He was also in possession of the coin stamps and handed these out to the mint personnel during working hours. The warden was also the main contact person both for the sovereign and the representatives of various social groups, such as the

in time and space. For the Southern Low Countries 246.076 grams has been suggested for the eighteenth century. For the North, Polak assumed 246.076 grams was common between 1606 and 1795; Scheffers uses 246.084 grams for the Dutch Republic. See: E. Aerts and E.H.G. van Cauwenberghé, 'Organisatie en techniek van de muntfabricage in de Zuidelijke Nederlanden tijdens het Ancien Régime', *Jaarboek van het Europees genootschap voor Munt- en Penningkunde* (1987) 7-144; M.S. Polak, *Historiografie en economie van de 'muntchaos'. De muntproductie van de Republiek (1606-1795)* (Amsterdam 1998) 108; A.A.J. Scheffers, *Om de kwaliteit van het geld. Het toezicht op de muntproductie in de Republiek en de voorziening van kleingeld in Holland en West-Friesland in de 18de eeuw* (Voorburg 2013) 125. In our calculations we have adhered to 244.759 grams.

25 J.J. Grolle, *De muntslag van de graven van Holland. Tot de Bourgondische unificatie in 1434* 1 (Amsterdam 2000 2nd ed.) document 65.



Illustration 1 Medal minted for the occasion of opening the West-Friesland 'coin box' (muntbus) in Medemblik, 1746 (Munthandel Verschoor <http://www.verschoor.com/penningen/detail/1746.-muntbus-openingvan-west-friesland-te-medemblik-onder-muntmeester-theun/historie-penningen>); Also mentioned by Scheffers, *Om de kwaliteit*.

urban elites.²⁶ Whereas the warden was constantly present, the *essayeur* was not: he was usually appointed for a short period of time by the sovereign to check the fineness of the coins produced. He worked with a sample of the coins that the mintmasters were obliged to put in the so-called 'coin box' (*muntbus*). At the 'opening of the box' (*muntbusopening*), the *essayeur* determined whether the mintmaster should be fined for not keeping to the sovereign's instructions. After the opening of the box, the mintmasters could also proceed with writing the accounts that they had to hand over to the sovereign indicating the number of coins they produced, and the weight and alloy as established by the warden and *essayeur*. The mintmasters of Dordrecht, Jan Nemerij and Arent Musch, did this on 20 February 1434.²⁷ Their account indicates that the mintmasters of Dordrecht had indeed produced 189,643 shillings and 3,439 half shillings between 1430 and 1432.²⁸

We should of course view these sources critically because, intentionally or not, mistakes could be made. One reason for this was because usually the accounts were not filled in on pre-printed forms, but rather repeated a standard formulation; Van Cauwenberghe and Verachten suggest this indicates that early modern mintmasters copied the previous accounts every time, and that by doing so, they continued to work

²⁶ Grolle, *De muntslag* 1, 1.

²⁷ Grolle, *De muntslag van de graven van Holland. Tot de Bourgondische unificatie in 1434 2* (Amsterdam 2000 2nd ed.) 20 February 1434.

²⁸ The Hague, Nationaal Archief, Grafelijkheidsrekenkamer Registers, reg. 4937.

with obsolete data, and made no allowance for the most recent ordinances. These authors also frequently found indications that the mintmaster did not immediately comply with the latest instructions: after the sovereign had ordered a devaluation or a revaluation of a certain coin, the mintmaster sometimes continued calculations using the old value. In most cases the deviations were limited though, and their influence on the value of minted coin was rather negligible.²⁹

The dataset: Coin production in the Low Countries: fourteenth century to the present

Mintmasters' accounts have been studied for a long time. Originally this type of research flourished in Belgium in particular: Victor Gaillard published volumes on Flanders in 1852 and 1857.³⁰ Apart from discussing medieval Flemish coinage, Gaillard offered editions of mint houses' accounts, thus providing the reader with an idea not only of the coins that existed in the Middle Ages, but also of the numbers of coins that were produced. For other regions, there are publications by specialists like Alphonse de Witte (Brabant),³¹ Jules de Chestret de Hanefte (Liège),³² and in the twentieth century Marcel Hoc (Flanders and Tournai).³³

Coin production studies were less popular in the Netherlands. In the late nineteenth century, work had begun on describing the monetary history of the provinces of the Dutch Republic, but only one year

29 Van Cauwenberghe and Verachten, 'Monetary History Databank', 3-4.

30 V.L. Gaillard, *Recherches sur les monnaies des comtes de Flandre, depuis les temps les plus reculés, jusqu'au règne de Robert de Béthune inclusivement* (Ghent 1852); V.L. Gaillard, *Recherches sur les monnaies des comtes de Flandre, depuis les temps les plus reculés, jusqu'à l'avènement de la maison de Bourgogne* (Ghent 1857).

31 A.F.F.C. de Witte, *Histoire monétaire des comtes de Louvain, ducs de Brabant et marquis du Saint Empire Romain 1-3* (Antwerp 1894-1897).

32 J. de Chestret de Hanefte, *Numismatique de la principauté de Liège et de ses dépendances Bouillon, Looz depuis leurs annexions* (Brussels 1888).

33 M.R.B.G. Hoc, 'Le monnayage de Philippe II en Flandre', *RBNS* 77 (1925) 7-44; 147-162; Idem, 'Le monnayage des archiducs Albert et Isabelle en Flandre', *RBNS* 78 (1926) 135-157; Idem, 'Le monnayage de Philippe IV en Flandre', *RBNS* 79 (1927) 41-64; Idem, 'Le monnayage de Charles II en Flandre', *RBNS* 80 (1928) 11-35; Idem, 'Les dernières années du monnayage tournaisien (1621-1667)', *RBNS* 84 (1932) 13-30; Idem, 'Le monnayage des archiducs Albert et Isabelle à Tournai (1599-1621)', *RBNS* 86 (1934) 33-42; M.R.B.G. Hoc and F. Baillon, 'Monnaies de Charles VIII frappée à Tournai', *RBNS* 98 (1952) 57-64; see also: M.R.B.G. Hoc, *Histoire monétaire de Tournai* (Brussels 1970). For biographies of nearly all authors mentioned here see: H. Gerritsen, A. van Herwijnen and T. Nissen (eds.), *Toonaangevende numismaten voor de Nederlanden* (Amsterdam 2018).

after the first volume by Willem de Voogt on early modern Guelders had appeared in print, which included coin production figures, De Voogt passed away and the project was abandoned.³⁴ Other coin production studies had a much more limited geographic scope, such as the mint houses of the counts of Bergh³⁵ or, more recently, the municipal mint houses of Nijmegen and Deventer,³⁶ and of Kampen.³⁷

Apart from the studies organized per province or mint house, attempts were also made to provide production statistics for the whole of the Low Countries, and more specifically the lands under Burgundian-Habsburg rule. The British historian Peter Spufford (1934-2017) took it upon himself to collect mint production data for all parts of the Burgundian Netherlands, including the Northern Low Countries and incorporating the existing data on Flanders and Brabant before Burgundian rule.³⁸ Later, Marcel Hoc of the Brussels coin cabinet and H. Enno van Gelder of its sister institution in The Hague published a catalogue encompassing both the Burgundian and the Habsburg Netherlands, in which they used Spufford's research data – at that point still unpublished.³⁹ More recently, authors have emulated and improved the original tradition that combined cataloguing and source publication.⁴⁰ Remarkably, it took a long time before a scholarly study on the Dutch Republic appeared: Menno Polak was the first to provide a fully fledged overview, in 1998, of the Republic's coin production starting from 1606.⁴¹

34 W.J. de Voogt, *Geschiedenis van het muntwezen der provincie Gelderland* (Amsterdam 1874).

35 F.B.M. Tangelder, *Muntheer en muntmeester. Een studie over het Berghse muntprivilege in de tweede helft der zestiende eeuw* (Arnhem 1955).

36 S. Gropp, *De stedelijke muntslag te Deventer en Nijmegen, 1528/43-1591. Stedelijk particularisme tegen Habsburgs centralisme in de Oostelijke Nederlanden* (Hilversum 2004).

37 W. Nijlunsing, M. van der Beek and J.G. Stuurman, 'In Kampen geslagen munten tot 1576', *Jaarboek voor Munt- en Penningkunde* 103 (2016) 99-196.

38 P. Spufford, *Monetary problems and policies in the Burgundian Netherlands, 1433-1496* (Leiden 1970) 172-199.

39 Cf. Van Gelder and Hoc's acknowledgement: 'De plus, M. Peter Spufford, de Cambridge, a bien voulu mettre à notre disposition le résultat de ses recherches personnelles sur les quantités frappées de la période 1434-1496', in: H.E. van Gelder and M.R.B.G. Hoc, *Les monnaies des Pays-Bas Bourguignons et Espagnols 1434-1713. Répertoire général* (Amsterdam 1960) 5.

40 Grolle, *De muntslag* 1; J.-C. Martiny, *Het munthuis in Gent van de Karolingers tot de Calvinistische Republiek, 768-1584* (Ghent 2014); Scheffers, *Om de kwaliteit*. Among printed compilations of coin catalogues that also provide mint production figures, the recent catalogue by Hugo Vanhoudt has to be mentioned in addition to the Van Gelder and Hoc work already discussed: H. Vanhoudt, *De munten van de Bourgondische, Spaanse en Oostenrijkse Nederlanden en van de Franse en Hollandse periode, 1434-1830* (Heverlee 2015).

41 Polak, *Historiografie*.

The pioneering work of the Belgian mediaevalists of the nineteenth century, of Peter Spufford a hundred years later and of others was continued in the 1970s, this time using the new possibilities of the nascent computer technology. The late Professor John Munro (1938-2013) in Canada compiled a dataset covering the mint production for the parts of the Low Countries the dukes of Burgundy and the Habsburgs gradually managed to take control of, for the period 1334-1521.⁴² Professor Eddy van Cauwenberghe and Lucie Verachten did the same, but restricted themselves to the Southern Low Countries, covering 1496-1789.⁴³ Finally, over the past decade, the authors of this article, with the help of many colleagues, have endeavoured to collect all these data, convert them into a uniform digital format and make them available to a wider audience.

In *Coin production in the Low Countries: fourteenth century to the present*, the datasets compiled by Munro, Van Cauwenberghe and Verachten, are brought together in one dataset. The dataset covers five centuries of mint accounts for most of the Low Countries. The datasets of Munro and Van Cauwenberghe and Verachten were already combined and digitized in the 1980s. Although these data have been cleaned up where necessary, we kept the original structure of the datasets intact as a backup for researchers who, for whatever reason, need access to the original files. In addition, we included Menno Polak's data for the Dutch Republic, covering 1606-1795, which were published in the appendix to his 1998 book. These figures were later digitized by Steve Quinn and Will Roberds, who graciously contributed their files to this project. To these three datasets we added the following, in all cases cross-checked for duplicates with our existing datasets: additional figures for the period 1434-1830 published by Vanhoudt;⁴⁴ data on Guelders between 1576 and 1813 by De Voogt;⁴⁵ late eighteenth-century to early twenty-first-century coin production figures for the Batavian Republic (1795-1801), Batavian Com-

42 An overview of the numerous scholarly articles Professor Munro published on coin production and other topics related to the late-medieval economy can be found on his website: <https://www.economics.utoronto.ca/index.php/index/research/publications?personId=51>.

43 Publications based on this dataset include: E.H.G. van Cauwenberghe and R. Metz, 'Coinage and the coin (money) stock. Problems, possibilities and first results (the Southern Low Countries, 1334-1789)', in: E.H.G. van Cauwenberghe (ed.), *Precious metals, coinage and the changes of monetary structures in Latin-America, Europe and Asia (late Middle Ages-Early Modern times)* (Louvain 1989) 7-24; E.H.G. van Cauwenberghe and M. North, 'Die Münzproduktion in den Niederlanden, 14.-18. Jahrhundert', in: *Geldumlauf, Währungssysteme und Zahlungsverkehr in Nordwesteuropa 1300-1800* (Cologne/Vienna 1989) 93-108.

44 Vanhoudt, *Munten van de Nederlanden*.

45 De Voogt, *Geschiedenis van het muntwezen*.

monwealth (1801-1806), Kingdom of Holland (1806-1810), and the Netherlands, Belgium, and Luxembourg until the introduction of the euro.⁴⁶ At the time of writing, (partial) data for the Prince-Bishopric of Liège, Deventer (1538-1583) and Bergh (1565-1581) are being prepared for inclusion.⁴⁷

The result is an overview of coin production figures covering many centuries. The dataset allows the selection of such variables as mint house location and minting authority, production dates, the quantity of various types of coin produced, and their quality in terms of purity and total weight. To make the data more insightful, the dataset also allows the user to express values in *denier* and in hourly wages. The project aims to gather production figures for all coins minted for circulation in the geographic area covered by the present-day countries Belgium, Luxembourg and the Netherlands, or for any of the numerous historical sovereign states and other authorities that were entirely or partly positioned within that territory.⁴⁸ Of course we have omissions: not all mint accounts go back to the fourteenth century, and not all administrative records have survived. In order to determine the extent of the missing figures, we have complemented our dataset with information from coin catalogues.⁴⁹ Thus, the user may check the coins for which production figures are incorporated in our dataset or, in the case of the Northern Low Countries, which mint houses are included in a particular year. A web application we built allows the user to visualize the geographic coverage of our data and its gaps, using novel techniques that account for changing borders from the Middle Ages to the present day.⁵⁰ Some important desiderata are production figures for:

46 J. Schulman, *Handboek van de Nederlandse munten van 1795-1961* (Amsterdam 1962 2nd ed.); G.S. Cuhaj (ed.), *Standard catalog of world coins, 1801-1900* (Iola 2009); Idem, *Standard catalog of world coins, 1901-2000* (Iola 2015).

47 J.-L. Dengis, *Les monnaies de la principauté de Liège*. Collection Moneta 192 (Wetteren 2016-2017 2nd ed.); Gropp, *Stedelijke muntslag; Tangelder, Muntheer en muntmeester*.

48 Although a few emergency coins are presented in our dataset, we have not attempted to systematically include all emergency coins minted in the Low Countries.

49 Primarily: H. Vanhoudt, *Atlas der munten van België. Van de Kelten tot heden* (Heverlee 2007 2nd ed.); H.E. van Gelder, *De Nederlandse munten. Het complete overzicht tot en met de komst van de euro* (8th ed. Utrecht 2002).

50 R.J. Stapel and K. Meijer, *Coin production in the Low Countries* (Web Application) (2016) <https://socialhistory.org/en/projects/coinproduction/search/> (accessed 28 December 2017).

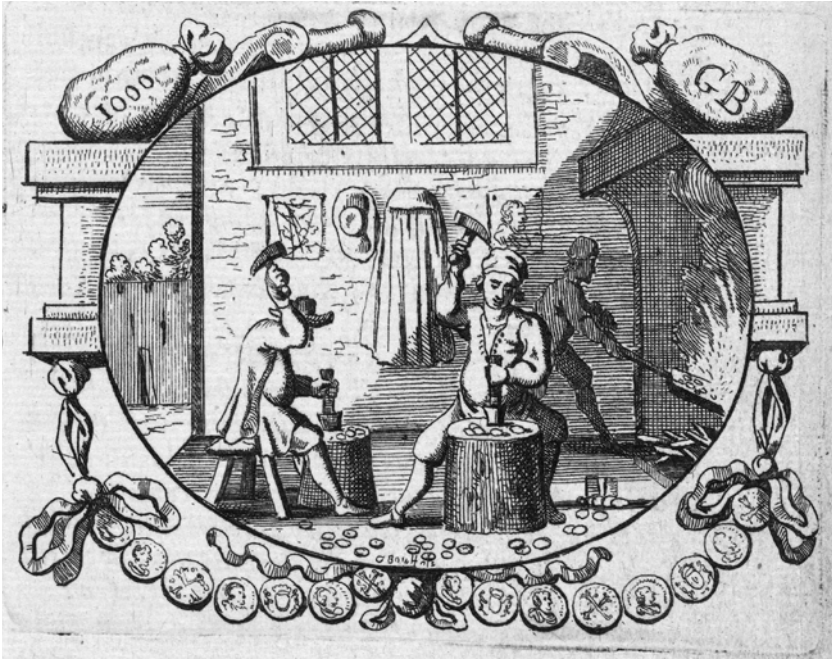


Illustration 2 Gaspar Bouttats, *Mintmaster's workplace*, printed in F.F. Lijftocht, *Voor-winkel van patientie in den droeven tegenspoedt* (Utrecht 1679) 185 (source: Rijksmuseum: RP-P-1911-406).

- Mint houses before Burgundian-Habsburg rule (with the exception of Brabant and Flanders), e.g. Holland, Utrecht.
- Mint houses in the Low Countries, but outside of Burgundian-Habsburg rule, e.g. Liège, Stavelot-Malmedy.
- Mint houses in the transitional period between Habsburg rule and the overhaul of the monetary system in the Dutch Republic in 1606, except for Guelders.
- Mint houses of provinces seceded to France: e.g. Artois, part of Flanders.
- Mint houses of smaller authorities, such as cities.
- (Additional)⁵¹ copper coins of the Dutch Republic.
- Modern paper money, gradually replacing coins of larger denominations.

⁵¹ Some copper coins are included using available figures in Scheffers and De Voogt. Polak focuses on gold and silver coins only. Scheffers, *Om de kwaliteit*; De Voogt, *Geschiedenis*; Polak, *Historiografie*.

It will have become clear that *Coin production in the Low Countries: fourteenth century to the present* does not claim to be the final dataset: like any other dataset it reflects the data that have been collected and made available up until now. Although we are confident we cover the vast majority of the surviving mintmasters' accounts for the Low Countries, some new or overlooked sources may emerge in the future; we are likely to make additions in time. For now, the dataset and website provide researchers with state-of-the-art data related to coin production, and a tool to be used to analyse these.

Research prospects

The mintmasters' accounts first of all provide insight into long-run developments with respect to the monetization of society. They allow estimates of the money stock,⁵² and also new assessments of the impact of the money supply on pre-modern economies. Or to put it another way: 'does finance make a difference ...?'⁵³ Indeed, whether the money supply and financial institutions were important for economic development has divided scholars up to the present day.⁵⁴ Considering the divergent economic fates of the Southern and Northern Low Countries in the late Middle Ages, early modern period, and modern age, the present dataset will enable a refinement of ideas about how the financial sector contributed to economic development in history.

In addition, recent scholarship has suggested that the types of coins that were produced can shed light on the economic structure. Akino-bu Kuroda demonstrated how different types of coins circulated in specific economic and social contexts – gold coins were used by specific social groups and for specific purposes, and therefore moved around in different patterns than silver and copper coins.⁵⁵ Focusing more on the latter, Jan Lucassen suggested coin production figures can indicate

52 N. Palma, 'Reconstruction of money supply over the long run. The case of England, 1270-1870', *The Economic History Review* 71:2 (2018) 373-392; H. Van der Wee and E. Aerts, 'De Vlaams-Brabantse muntgeschiedenis in cijfers. Een poging tot homogenisering van de veertiende en vijftiende-eeuwse gegevens', *RBNS* 69 (1979) 59-87.

53 R. Goldsmith quoted in R. Levine, 'Financial development and economic growth. Views and agenda', *Journal of Economic Literature* 35 (1997) 688-726, there 688.

54 See the contributions in: J. Munro (ed.), *Money in the pre-industrial world: bullion, debasements and coin substitutes* (London 2012).

55 A. Kuroda, 'Concurrent but non-integrable currency circuits. Complementary relationships among monies in modern China and other regions', *Financial History Review* 15 (2008) 17-36.

a situation where the supply of small change was sufficient to speak of 'deep monetization': 'a substantial stock of currencies per capita in circulation, consisting of denominations equalling the value of one hour or less of waged work' (where 'substantial' is a monetary value equalling five times the hourly wage of a skilled craftsman).⁵⁶ In this respect, and based on mintmasters' accounts, Lucassen concluded for the Northern Low Countries that 'deep monetization' was established in the sixteenth century. Research into the production of small change thus has the potential to also tie in to questions about the importance of coins for the emergence of commercialized societies that relied to a large extent on wage labour. Did temporary money shortages cause problems,⁵⁷ or could they be countered by a culture of credit?⁵⁸

Mintmasters' accounts can also reveal important information about beneficial monetary policy. The latter has been suggested as an indicator for 'good government' in a recent contribution by Elgin, Karaman and Pamuk, who have demonstrated how fiscal pressure continued to lead to debasements in Eastern Europe in the early modern period, but ceased to do so in the South and West – something they link to urbanization and representative government.⁵⁹ The present dataset allows for a further refinement of the link between monetary policy and 'good government', for instance with respect to the question when and where debasement policies stopped, and under what political circumstances. Furthermore, it may also allow quantitative testing of relations between stable currencies and economic growth.

Finally, coin production was big business, both for the sovereign who earned a handsome amount of money through the taxation of coin production and sometimes debasement policies, and for the mintmasters who invested in the right to mint coin, and had to earn back the investments they made in acquiring the right to mint.⁶⁰ It was also a business

56 Lucassen, 'Deep Monetisation'; J. Lucassen, 'Deep monetization in Eurasia in the long run', in: R.J. van der Spek and B. van Leeuwen (eds.), *Money, currency and crisis. In search of trust, 2000 BC to AD 2000* (London/New York 2018) 55-101.

57 J.H. Munro, 'Deflation and the petty coinage problem in the late-medieval economy. The case of Flanders, 1334-1484', *Explorations in Economic History* 25 (1988) 387-423.

58 C. Muldrew, *The economy of obligation. The culture of credit and social relations in Early Modern England* (New York 1998).

59 C. Elgin, K. Karaman and Ş. Pamuk, 'Debasements in Europe and their causes, 1500-1800' (Oslo 2015) <http://cepr.org/sites/default/files/Pamuk%20-%20oslo%20text%20June%202015.pdf> (accessed 12 December 2017).

60 See the data on profits from coin production in the Dutch Republic in Polak, *Historiografie*; and the discussion on whether mintmasters should be regarded as entrepreneurs in Scheffers, *Om de kwaliteit*, 58.

of global proportions, bringing in large quantities of silver from South America and, from the seventeenth century onwards, exporting coins from the Dutch Republic to South and East Asia, Russia and the Levant. *Coin production in the Low Countries: fourteenth century to the present* thus also provides long-run quantitative data on what arguably was a type of business venture that existed for many centuries (and in fact continues to exist in the form of *Koninklijke Munt van België* and *De Koninklijke Nederlandse Munt*; the modern state of Luxembourg never had a national mint and has minted mostly in Brussels).

By way of conclusion

With reconstructions of GDP series going back to the late Middle Ages and an increasing interest in comparative research designs and natural experiments of history, *Coin production in the Low Countries: fourteenth century to the present* hopefully provides a new generation of scholars with a way to make use of data collected during the past decades.

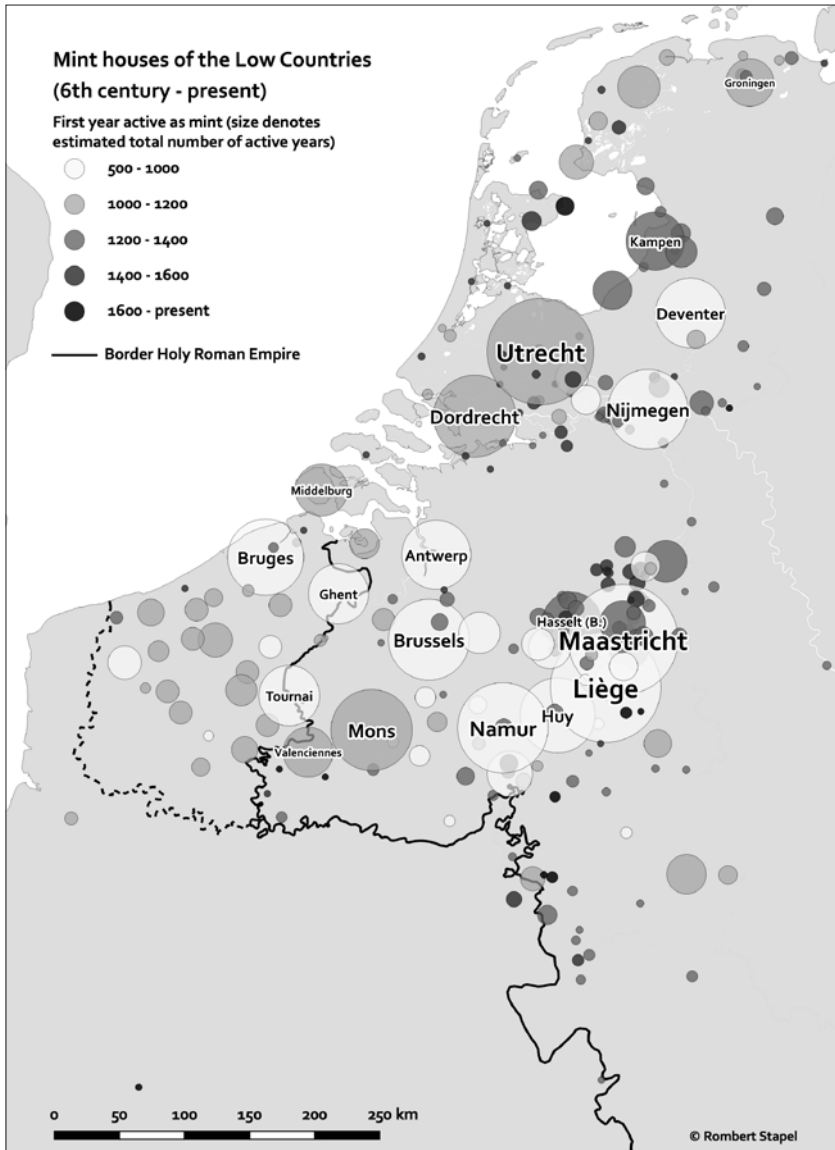
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Appendix 1 Mint houses minting for one of the Low Countries (sixth century-present)



* All mint houses that were active for over 300 years are labelled. Outside the geographic scope of this map are the mint houses of Auxonne, Birmingham, Denver, Dôle, Durlach, Günzburg, Philadelphia, Saint Petersburg, San Francisco, Stuttgart, and Warsaw. The dataset, with references to sources, is available for download at: R.J. Stapel, *Mint Houses of the Low Countries (IISH Dataverse 2017)* <http://hdl.handle.net/10622/MLVN7A> (accessed 14 December 2017); It is not yet aligned to a recent other list: 'Muntplaatsen', in: E.J.A. van Beek ed., *Encyclopedie van munten en papiergeld (2017)* <http://wiki.muntenenpapiergeld.nl/index.php?title=Muntplaatsen> (accessed 28 December 2017).

Appendix 2 Coin production records included in the dataset

Mint house	Number of records	Quantity of minted coins (x 1000)	Earliest record included	Latest record included
Ghent	401	238.364	1334	1584
Bruges	794	246.432	1349	1754
Mechelen	74	36.724	1357	1494
Leuven	87	32.766	1375	1474
Vilvoorde	9	2.598	1392	1417
Valkenburg	6	2.073	1396	1399
Limburg	2	94	1405	1405
Maastricht	288	52.060	1418	1632
Brussels	1787	10.225.306	1420	2001
Namur	109	30.989	1421	1712
Dordrecht	434	361.850	1425	1806
Valenciennes	20	2.567	1433	1467
Auxonne	2	70	1439	1452
The Hague	1	95	1454	1455
Antwerp	1343	351.228	1474	1814
Nijmegen	124	24.035	1474	1691
Luxembourg	44	2.664	1502	1644
Leeuwarden	36	11.797	1527	1714
Kampen	114	50.399	1529	1796
Hasselt (NL)	1	9	1562	1565
Utrecht	1276	11.899.664	1571	2001
Leiden	2	29	1574	1574
Breda	6	722	1577	1627
Groningen	7	526	1577	1691
Mons	32	2.525	1577	1587
Tournai	280	48.334	1578	1664
Middelburg	184	100.147	1580	1798
's-Hertogenbosch	92	15.124	1581	1624
Arras	19	658	1582	1641
Ieper	1	1	1583	1583
Harderwijk	205	91.217	1584	1802

Mint house	Number of records	Quantity of minted coins (x 1000)	Earliest record included	Latest record included
Mechelen or Antwerp	1	2	1584	1585
Hoorn	77	44.498	1597	1791
Enkhuizen	79	56.754	1606	1802
Dôle	25	91	1611	1665
Enkhuizen or Hoorn	4	3.948	1616	1623
Zwolle	66	10.465	1616	1710
Deventer	77	13.846	1617	1708
Medemblik	52	30.068	1655	1781
Amsterdam	2	1.444	1672	1673
Zutphen	7	1.336	1686	1692
Günzburg	3	2.756	1790	1790
Saint Petersburg	23	25.400	1800	1849
Warsaw	1	156	1831	1831
Paris	5	3.900	1855	1865
Utrecht or Brussels	2	1.200	1901	1908
Philadelphia	9	498.060	1943	1945
Denver	2	25.400	1944	1945
San Francisco	1	64.040	1944	1944

Source: <https://datasets.socialhistory.org/dataverse/coinproduction/>.