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# **Breaking the piggy bank What can historical and archaeological sources tell us about late-medieval saving behaviour?**

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# Breaking the piggy bank

## What can historical and archaeological sources tell us about late-medieval saving behaviour?

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**Abstract:** Using historical and archeological sources, we study saving behaviour in late-medieval Holland. Historical sources show that well before the Reformation – and the alleged emergence of a ‘Protestant ethic’ – many households from middling groups in society reported savings worth at least several months’ wages of a skilled worker. That these findings must be interpreted as an exponent of saving behaviour – as an economic strategy – is confirmed by an analysis of finds of money boxes: 14th and 15th-century cesspits used by middling-group and elite households usually contain pieces of money boxes. We argue this is particularly strong evidence of late-medieval saving strategies, as money boxes must be considered as ‘self-disciplining’ objects: breaking the piggy bank involved expenses and put a penalty on spending. Individuals used money boxes to foster saving behaviour. We also show that the use of money boxes declined over time: they are no longer found in early-modern cesspits. We formulate two hypotheses to explain long-term shifts in saving behavior: 1) late-medieval socioeconomic conditions were more conducive for small-time saving than those of the early-modern period, 2) in the early-modern Dutch Republic small-time saving was substituted by craft guild insurance schemes.

**Keywords:** medieval history, early-modern history, archaeology, saving, economic strategies, financial history.

**JEL Codes:** D14, N13, N23, Z13.

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**Image 1.** The old beggar warns the two youths not to smash their money box. The money box is archaeologically classified as a r-spa-1 (see figure 4).



Engraving, 1590-1594, Haarlem.

Rijksmuseum Amsterdam, <https://www.rijksmuseum.nl/nl/collectie/RP-P-1921-837>

## 1. Introduction

*Die den spaarpot aan scherven slaat, is zijn penningsken kwijt, eer hij het kent*<sup>1</sup>

*He who breaks the piggy bank, loses his penny, before he knows its value*

Dutch proverb

An engraving from the final years of the sixteenth century shows two youths about to break a piggy bank (image 1). Before they can do this, they are addressed by an old man who advises them to reconsider this: after all, they can only know the true value of their savings when they are old and needy. This engraving accords quite nicely with popular belief about the frugality of the Calvinist Dutch, who are thought to have been thrifty throughout the ages, up to the present day. For instance, following a report published in 2007 claiming that the Dutch national identity is constantly shifting,<sup>2</sup> the national newspaper *NRC* launched a series of articles exploring permanent elements of Dutch national character. After the topics 'cosiness' and 'pillarization', 'frugality' was addressed as a third typical Dutch trait. When the journalist asked an historian at DNB (*Dutch National Bank*) for the reason the Dutch are keener on saving than spending, she explained that:

It is because of John Calvin. Our Calvinist, Protestant roots propagate frugality and being economical. Frugality is traditionally one of our civic virtues, next to devoutness and plainness.<sup>3</sup>

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<sup>1</sup> P.J. Harrebomée, *Spreekwoordenboek der Nederlandsche taal* (Hoevelaken 1990) lemma 'penning'.

<sup>2</sup> The report was commissioned by the Wetenschappelijk Raad voor het Regeringsbeleid: M. Grever and K. Ribbens, *Nationale identiteit en meervoudig verleden* (2007).

<sup>3</sup> *Waarom zijn we zo? Calvin natuurlijk, zegt Van Renselaar van De Nederlandsche Bank. Onze calvinistische, protestantse wortels propageren zuinigheid en soberheid*. 'Spaarzaamheid geldt van oudsher in Nederland als één van de burgerlijke deugden. Samen met godsvrucht, eenvoud en soberheid (J. Bouma, 'Het spaarvarken blijft heilig' (3), 25-08-2008, *NRC Handelsblad*). This opinion finds general favour in the media: see the

The idea that the Dutch were thrifty was reinforced by Max Weber's classic study *Die Protestantische Ethik und der Geist des Kapitalismus* (1905 and 1906).<sup>4</sup> In this work, Weber suggests that the 'asceticism' among protestant groups fostered 'accumulation of capital through ascetic compulsion to save'. He refers to contemporary observations from Holland to claim 'excessive propensity to accumulation'. However, Weber also adds that 'how strong this influence was is not, unfortunately, susceptible of exact statistical demonstration'.<sup>5</sup>

Weber's views have stirred up a debate that goes on to the present day. He was criticized early on, amongst others by R.H. Tawney,<sup>6</sup> and H.M. Robertson.<sup>7</sup> Recent scholarship is equally concerned with either proving or disproving Weber's thesis. Van Hoorn and Maseland report evidence for a Protestant ethic in the twenty-first-century based on an analysis of welfare reported by the unemployed: they show that Protestant jobless suffer more from this than the unemployed from other denominations.<sup>8</sup> On the other hand Nielsen and Delacroix used nineteenth-century data to test whether predominantly Protestant countries were more 'economic'. They did not find much confirmation for Weber's thesis, which they therefore call 'the beloved myth' – the only correlation they found was a propensity to save in Protestant countries.<sup>9</sup>

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discussion in G. Borst, 'Sparen een kwestie van culturele geaardheid?', *Telegraaf*, 25-01-2008 and M. ten Kate, 'Drie keer Calvijn is te veel van het goede', *Financieel Dagblad*, 5-10-2011.

<sup>4</sup> Originally published as: M. Weber, 'Die protestantische Ethik und der "Geist" des Kapitalismus. I', *Archiv für Sozialwissenschaft und Sozialpolitik* 2 (1905); M. Weber, 'Die protestantische Ethik und der "Geist" des Kapitalismus. II Die Berufsidee des asketischen Protestantismus', *Archiv für Sozialwissenschaft und Sozialpolitik* 3 (1905).

<sup>5</sup> M. Weber, *The protestant ethic and the spirit of capitalism* (London 1992) 172-173.

<sup>6</sup> R.H. Tawney, *Religion and the rise of capitalism* (New York 1928).

<sup>7</sup> H.M. Robertson, *Aspects of the rise of economic individualism. A criticism of Max Weber and his school* (Cambridge 1933). A summary of the debate is given in: M. Peltonen, 'The Weber thesis and economic historians', *Max Weber studies* 8 (2008) 79-98 and T. Brailean, P. Aurelian-Petru and C. Sorina, 'Critical perspectives on Weberian ethics', *European journal of science and theology* 7-4 (2011) 47-65,

<sup>8</sup> A. van Hoorn and R. Maseland, 'Does a protestant work ethic exist? Evidence from the well-being effect of unemployment', *Journal of economic behaviour and organization* 91 (2013) 1-12. Another study in support of Weber's thesis is: U. Blum and L. Dudley, 'Religion and economic growth: was Weber right?', *Journal of evolutionary economics* 11 (2001) 207-230. Another study in support of Weber's Protestant is: F. Fukuyama, *Trust. The social virtues and the creation of prosperity* (New York 1995) 43-47.

<sup>9</sup> J. Delacroix and F. Nielsen, 'The beloved myth: Protestantism and the rise of industrial capitalism in nineteenth-century Europe', *Social forces* 80 (2001) 509-553. Other studies arguing against Weber include: S.K. Sanderson, S.B. Abrutyn and K.R. Proctor, 'Testing the protestant ethic with quantitative historical data: a research note', *Social forces* 89 (2011) 905-911; R.D. Hayward and M. Kemmelmeier, 'Weber revisited. A cross-national analysis of religiosity, religious culture, and economic attitudes', *Journal of cross-cultural psychology*

For historians the question whether or not the rise of Protestantism after c. 1500 brought about a Protestant ethic is very relevant: did the Reformation pave the way for the Rise of the West?<sup>10</sup> The difficulty is of course how to investigate ethics before and after the Reformation: studying behavior among religious groups that lived centuries ago is already very complicated, and establishing a link with a Protestant ethic that motivated this behaviour next to impossible.<sup>11</sup> Who is to say that a seventeenth-century Protestant was motivated to start a business venture because he was thrifty, rather than concerned with feeding his family, or gaining social status in the community? This is a difficult question, but also an important one because saving behavior requires a great deal of self-discipline. Indeed, as many economists have demonstrated repeatedly, saving is very difficult because it requires strategic insight and discipline; it is a well-established fact that most individuals have trouble acquiring either. Thus studies from the field of behavioral economics show that individuals are inclined to prefer short-term benefits. This may be due to short-term and long-term decisions being made in different parts of the brain, resulting in inner conflicts everyone is familiar with.<sup>12</sup> The preference of short-term benefits explains why, for instance, many people have trouble saving for old age, and why some states make pensions mandatory and/or have employers automatically enroll their employees in pension plans.<sup>13</sup>

To sum up: saving behavior does not come naturally, and requires discipline. Did a Protestant ethic help converts to find such discipline? To answer this question we present an interdisciplinary study that focuses on savings and saving behavior before and after the Reformation. We study one of Weber's archetypical regions: Holland, the core region of the Calvinist, and economically very

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42 (2011) 1406-1420; D. Cantoni, 'The Economic Effects of the Protestant Reformation: Testing the Weber Hypothesis in the German Lands' (working paper Harvard University 2009).

<sup>10</sup> Weber's cultural explanation is still to be found in several influential books on the Rise of the West, such as D.S. Landes, *The wealth and poverty of nations. Why some are so rich and some so poor* (New York 1998) 174-175 and N. Ferguson, *The cash nexus. Money and power in the modern world 1700-2000* (London 2001) 366.

<sup>11</sup> The underlying idea is that behavior is often guided by the *habitus*: the incomprehensible interaction between economic, social and cultural capital (such as an ethic) that guides human behaviour (L. Fontaine and J. Schlumbohm, 'Household strategies for survival: an introduction', *International review of social history* 45 (2000) 1-17, pp. 6-7).

<sup>12</sup> P. Dolan, M. Hallsworth, D. Halpern, D. King, R. Metcalfe and I. Vlaev, 'Influencing behaviour: the mindspace way', *Journal of economic psychology* 33 (2012) 264-277.

<sup>13</sup> N. Barr, *The economics of the welfare state* (Oxford 2012).

successful, Dutch republic.<sup>14</sup> To study the saving behaviour of its population is not easy: before the nineteenth century the bulk of saving was largely done at home,<sup>15</sup> by hoarding cash, putting this in money boxes, or chests, or by investing in transferable financial instruments. To study such pre-industrial saving behavior we have to take recourse to unconventional sources. We first address the size and social distribution of savings by looking at the small town of Edam and its surroundings, from 1462 to 1563. Edam is one of the few towns where the cash holdings of households are systematically noted down in taxation sources. Furthermore, since these tax registers include all households, both poor and wealthy, they offer excellent possibilities to study the social distribution of savings. Who had savings, how much money did they have, and how did this develop over time (section 2)?

Next, we move on to the question of strategic behaviour: were the savings we observe in late-medieval Edam simply the consequence of the inability to spend because of a (temporary) lack of supply of goods? Or were these rather the result of households acting strategically in anticipation of future expenses? Section 3 tackles this question by looking at archaeological finds of (shards of) money boxes (image 2). Money boxes served only one purpose: to facilitate strategic saving behaviour. These ceramic objects helped individuals who wanted to save but feared they lacked the discipline. Since breaking money boxes to recover savings involved a penalty (the money boxes being irreparably damaged), these objects served as instruments of self-discipline. They can therefore serve as a proxy for the presence of strategic saving behaviour. We use data from several Dutch towns to map the distribution of money boxes discovered by archaeologists by social group. Thus we are able to gauge the social distribution of saving behaviour. Next we summarize our historical and archaeological evidence in section 4: both types of sources indicate that possession of savings and

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<sup>14</sup> J. de Vries and A. van der Woude, *The first modern economy. Success, failure and perseverance of the Dutch economy, 1500-1815* (Cambridge 1998).

<sup>15</sup> Saving in an institutional setting was quite exceptional in the late middle ages. It was not unheard of though: in late-medieval Florence parents could save for their daughters' dowry by putting their money in a dowry fund, which was managed by the town. This is one of the few examples of an institution allowing households to save, in a profitable manner, in anticipation of future expenses (J. Kirshner and A. Molho, 'The dowry fund and the marriage market in early "quattrocento" Florence', *The journal of modern history* 50 (1978) 403-438).



saving behaviour were very usual before the Reformation. However, after the start of the Reformation in Holland, after 1520, we observe a decline in savings and saving behaviour. To explain this we formulate two hypotheses about the gradual decline of savings and saving behaviour between the fourteenth and eighteenth century. Conclusions follow in section 5.



**Image 2.** Late-medieval moneybox found in Leiden. Also displayed are the Euro coins that fit in this moneybox. We estimate this moneybox could fit c. 20-25 day wages of a skilled labourer around 1500.

The moneybox is in possession of IDDS Archeologie.



## 2. Historical sources: savings in late-medieval Edam

The small town of Edam - situated about 20 kilometers northeast of Amsterdam at the borders of the former Zuiderzee (see image 3) - was part of a highly urbanized region, with a population dependent on a mix of activities. Though agriculture was still important, a substantial and rapidly growing part of the work force was active in fisheries, industries and trade.<sup>16</sup> The economy was characterized by smallholding, which was another typical feature of the economy of Holland: most (rural) households owned small plots of land for pasture and sold their cattle and dairy products on the market.<sup>17</sup> Edam was a typical small town, although it may have been relatively wealthy, as becomes clear on the basis of a government inquiry from 1514 on the revision of tax assessments of towns and villages in the county of Holland.<sup>18</sup>

The sources we use to analyse cash holding among the households of Edam are two registers used by the government to levy taxes among the population. The *verpachtingskohieren* list the assets of households, which were used to assess a distribution key for taxation that was drawn up in the *schotkohieren*. Both sources are available for several years between 1462 and 1563: we have analyzed data from 1462, 1514 and 1563<sup>19</sup> to get an impression of the assets of various wealth groups. It is important to point out here that the first two of these sample years provide insight in the

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<sup>16</sup> These population figures are based on C. Boschma-Aarnoudse, *Tot verbeteringe van de neeringe deser stede: Edam en de Zeevang in de late middeleeuwen en 16e eeuw* (Hilversum 2003) 421-426. On the economic development of Edam idem, p. 367-75 and *passim*.

<sup>17</sup> On the economic history of this region, see A.M. van der Woude, *Het Noorderkwartier. Een regionaal historisch onderzoek in de demografische en economische geschiedenis van westelijk Nederland van de late middeleeuwen tot het begin van de negentiende eeuw* (Wageningen 1972) 362-363, 457-458, 511-513. On the development of the economy of Holland in this period, see J.L. van Zanden, 'Taking the measure of the early modern economy: Historical national accounts for Holland in 1510-1514', *European Review of Economic History* 6 (2002) 131-163; P.C.M. Hoppenbrouwers, 'Mapping an unexplored field. The Brenner debate and the case of Holland', in: P.C.M. Hoppenbrouwers and J.L. van Zanden (eds.), *Peasants into farmers? The transformation of rural economy and society in the Low Countries (middle ages-19th century) in the light of the Brenner debate* (Turnhout 2001) 41-66, pp. 49-50; De Vries and Van der Woude, *The first modern economy*, 236-238.

<sup>18</sup> See T. de Moor and J. Zuiderduijn, 'Preferences of the poor. Market participation and asset management in sixteenth-century Holland', *European review of economic history* 17 (2013) 233-249.

<sup>19</sup> Our sample consists of the first year for which both *verpachtingskohier* and *schotkohier* are available (1462), the final year (1563) and a year in between (1514). These two sources are also available for 1546 and 1553; these have not been sampled for practical reasons. Furthermore, *verpachtingskohieren* are also available for 1506, 1530, and *schotkohieren* for 1476, 1483, 1540, 1549-1555. These do not allow for an analysis of household assets per wealth group (Boschma-Aarnoudse, *Tot verbeteringe*, 401).

situation before Martin Luther formulated his Ninety-Five Theses, in 1517. The following decades, dissenters gradually emerged and in particular in the region to the north and northwest of Amsterdam. Since the 1530s Anabaptists were active in Edam and its surroundings, and in the 1550s the first Calvinists also emerged here. Our final sample year – 1563 – therefore finds Edam and the rest of Holland in the midst of reformatory turmoil.<sup>20</sup>

The most important source we use is the *verpachtingskohieren*. It was drawn up to apportion the taxes rulers levied on the city of Edam and villages in the surrounding countryside, an area called De Zeevang. The local government apportioned payment for every household according to the *schot*, a division of taxes based on estimates of wealth. Usually local authorities based such assessments on landownership or rough estimates, but in 1462 the Edam government decided to take a large number of assets into consideration when it assessed the *schot*. Inhabitants were supposed to have all their assets – varying from houses, land, hereditary tenure, redeemable and life annuities, money, debts, ships, merchandise, animals, to beds – registered when the *verpachtingskohieren* were drawn up, every seven or eight years. An assessor walked through the city and villages and stopped by the houses to interrogate the inhabitants. Therefore the source provides a very detailed report for every household in Edam and the villages in the immediate surroundings. The other sources that can be used are the *schotkohieren*, which give, for the same households in the same years, the amount of the capital tax (the *schot*), which is based on an assessment of the net value of the assets of the household, as registered in the *verpachtingskohieren*.<sup>21</sup>

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<sup>20</sup> H. van Nierop, *Het verraad van het Noorderkwartier. Oorlog, terreur en recht in de Nederlandse opstand* (Amsterdam 1999) 46-55; J.D. Tracy, *Holland under Habsburg rule. The formation of a body politic, 1506-1566* (Berkely etc. 1990) chapter 6.

<sup>21</sup> A detailed analysis of this source is presented in: J.L. van Zanden, J. Zuiderduijn and T. de Moor, 'Small is beautiful. On the efficiency of credit markets in late-medieval Holland', *European review of economic history* 16 (2012) 3-22 and Boschma-Aarnoudse, *Tot verbeteringe*, passim.



**Image 3.** Map of the Northern Low Countries and the towns mentioned in the text.

There are a few potential problems with these sources however: firstly, tax registers based on interviews may yield a biased picture because the taxable community will have done everything possible to appear impoverished in order to escape high taxation. How serious a bias this was is difficult to tell: on the one hand there was much to gain by underreporting, on the other hand, Edam was a small community where people knew about each other, so blatant underreporting would have been detected. Furthermore, it has been suggested that citizens received much in return for paying taxes in terms of public works, and that citizenship was considered a virtue in sixteenth-century

Holland; both which may have enhanced willingness to pay for community taxes and services.<sup>22</sup> A second problem concerns cash holdings: of all goods taxed in Edam coins were probably most easy to hide, so in this respect we also have to assume a bias towards underreporting. These problems notwithstanding, the tax registers of Edam provide excellent possibilities to study the social distribution of cash holding because they include all households, both poor and wealthy. In 1514 the government of Edam explained that:

...whoever comes to live in Edam, even if he [only] rents a bed, is taxed [0,25 lbs.], even if he goes around begging.<sup>23</sup>

Only in a few instances did the town government decide to assess householders at 0 lbs. (in 1563 this was the case for only five out of 1147 householders); the poor were generally set at 0,25 lbs., which means they had to contribute to taxes. Of course, getting the poor to actually pay was difficult, so the town government frequently had to remit taxes, or settle with lower payments.<sup>24</sup> Even householders struggling to meet their obligations were listed in Edam's tax ledgers though, so we are able to tackle the problem many social historians face, namely the underreporting of the poor in taxation sources.

Before we discuss our findings, we should explain what our sources can and cannot tell us about cash holding in Edam. First, our sources do not tell us all that much about the actual coins households kept. Usually the tax assessors expressed cash reported by household in money of account (a fictitious currency used for accounting purposes only).<sup>25</sup> In fact, it is almost always difficult

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<sup>22</sup> J.L. van Zanden and M.R. Prak, 'Towards an economic interpretation of citizenship: The Dutch Republic between medieval communes and modern nation-states', *European review of economic history* 10 (2006) 111-145. However, it should be pointed out that this line of reasoning has mainly been applied to the second half of the sixteenth century: we know that the towns of Holland did not invest much in public works around 1500 (M. Boone en M. van der Heijden, 'Urban finances and public services in the Late Medieval and Early Modern Low Countries', in: A.G. Sánchez and J.M. Carretero Zamora (red.) *El alimento del estado y la salud de la res publica: orígenes, estructura y desarrollo del gasto público en Europa* (Madrid 2013) 341-356).

<sup>23</sup> Boschma-Aarnoudse, *Tot verbeteringe*, 405. The quote is from the *Informacie*, a tax survey of the province of Holland, taken in 1514. Tax assessments in Edam were expressed in pounds and quarters of pounds, which served as a unit of account. In this study we express tax assessments in lbs.

<sup>24</sup> Boschma-Aarnoudse, *Tot verbeteringe*, 404-405.

<sup>25</sup> For moneys of account see: P. Spufford, *Money and its use in medieval Europe* (Cambridge 1988) 411-414.

to distinguish between coins and money of account. The only exception may be the householder Geert Cupers, who in 1514 reported a few guilders (*enckele guldenen*). The vagueness of the amount stated suggests Geert was talking about actual coins; it is unlikely the tax assessors would have used such an imprecise description after they had done the math and expressed Geert's cash holdings in money of account.<sup>26</sup> For the rest, almost all cash holdings were expressed in Rhenish guilders (Rg): the money of account indicating a unit of forty *groten* (the gros, an actual silver coin). A few exceptions are visible in 1462, when we encounter the moneys of account *lions d'or*,<sup>27</sup> *lewen*,<sup>28</sup> *Philips schilt*.<sup>29</sup> In 1514 we encounter *Philippus gulden*,<sup>30</sup> *Carolusgulden*,<sup>31</sup> *gulden current gelt*,<sup>32</sup> *rijns gulden current*.<sup>33</sup> The latter two may refer to coins, or to moneys of account. And in 1563 householders reported *Philippus gulden*,<sup>34</sup> *Carolusgulden*.<sup>35</sup> Did these sums actually consist of the coins Lions d'or, Philippus guilder, or Carolus guilder? Or were they expressed in a money of account that differed from the much more usual Rhenish guilder? If the latter were true, why would the tax assessors not stick to one money of account?

Second, householders sometimes mentioned the combined value of cash and merchandise, making it impossible to get a clear idea of the size of the savings. They would refer to 'money and merchandise', 'money and timber', etc. In table 1 such reports have been included in the number of households reporting cash (N), but they have been omitted in the average and total value. This caused a sharp decrease in average and value for 1514 and 1563, but not for 1462. These findings suggest we have to be careful interpreting these figures.

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<sup>26</sup> Waterlands Archief, Stad Edam (WA, SE) inv. nr. 237, f. 243v.

<sup>27</sup> WA, SE inv. nr. 237 f. 12, 29.

<sup>28</sup> WA, SE inv. nr. 237 f. 21.

<sup>29</sup> WA, SE inv. nr. 237 f. 20v.

<sup>30</sup> WA, SE inv. nr. 237 f. 166v, 167v., 185v, 190, 192v etc.

<sup>31</sup> WA, SE inv. nr. 237 f. 167v, 168v, 170v. etc.

<sup>32</sup> WA, SE inv. nr. 237 f. 219.

<sup>33</sup> WA, SE inv. nr. 237 f. 222v.

<sup>34</sup> WA, SE inv. nr. 238 f. 48.

<sup>35</sup> WA, SE inv. nr. 238 f. 47.

Our data show that cash holdings were quite common in Edam in 1462: 350 out of 789 households reported cash, or 44,4% (figure 1). This percentage declined over time, to 26,0% in 1514, and 12,7% in 1563. To enhance our view we have also included data of the poor neighbourhood in the outskirts (called Oorgat), and the villages in the surroundings of Edam (table 1). In 1462 in the poor neighbourhood the percentage of households reporting cash was 22,8% (31 out of 136 households) and in the villages surrounding Edam this was 26,6 (76 out of 286 households). Over time cash holding continued to be most usual in town, less so in the villages, while the share of the neighbourhood Oorgat decimated to 0,6% in 1563.

The average sums of savings in Edam are presented in figure 2. They are in the range of less than 100 to more than 200 Rg., but the median sums are often lower, in the range of 50-120 guilders, which indicates a few outliers weigh heavily on the averages. To put these sums in context, it may be useful to express them in day wages of a skilled labourer. The median for 1462, 45 guilders, accords with c. 160 day wages of a master mason, in 1514 this was c. 180 day wages, and in 1563 it was c. 200 day wages. Altogether, median savings in Edam amounted to c. 65-75% of a year's wage.<sup>36</sup> Unsurprisingly, the size of savings in the poor neighbourhood Oorgat and the villages was generally lower (see table 1). Before we continue we have to ask ourselves how credible these outcomes are. How likely is it that up to a quarter of the households in Edam and its surroundings had savings close to a year's wages? To check this we have compared the Edam averages to data from probate inventories: official lists of property recorded after an individual had passed away – usually in the presence of a notary public.<sup>37</sup> Table 2 gives the value of cash found in the homes of seven residents of towns in Holland (Leiden and Amsterdam) as stated in probate inventories. Our examples date from the 1580s and 1590s, so a few decades after our final observation, 1563, but can still give us an

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<sup>36</sup> Wages based on L. Noordegraaf, *Hollands welvaren? Levensstandaard in Holland 1450-1650* (Bergen 1985) 68 (day wages of a master mason in Haarlem; day wages elsewhere in Holland were usually at the same level). According to Noordegraaf, a master mason could on average expect to work between 245 days before 1540, and 260 days between 1540 and 1570 (*Ibidem*, 59-60).

<sup>37</sup> Cf. the survey of this source by H. Deneweth, 'A fine balance. Household finance and the financial strategies of Antwerp households', *Tijdschrift voor sociale en economische geschiedenis* 8-4 (2011) 15-43.



impression of the sums people kept at home at the end of the Middle Ages. Sums range from around one hundred guilders, such as reported after the tanner (*leertouwer*) Jan Dirczoen had passed away. He possessed 136 guilders (the equivalent of 180 day wages of a skilled labourer). The cash holdings of this ordinary craftsman are close to the median of 120 guilders observed in Edam in 1563. To give some other examples: the widow Catharina van Hoochstraten possessed more than 79 guilders (the equivalent of c. 90 day wages of a skilled labourer). The cloth merchant (*wantsnijder*) Joost Jacobsz. possessed 1326 guilders, the equivalent of more than 1750 day wages of a skilled labourer.<sup>38</sup> And the apple saleswoman Liesbeth Arys, the councillor Jan van Brouhoven, and the medician Marten Koster all even had much more cash. One earlier observation (1494) comes from Deventer, in Oversticht in the east of the Netherlands, where more than 28 Rg. was reported after the passing away of Derick van Ghoy. We may conclude that the average and median cash sums reported in Edam seem perfectly credible when compared to the cash sums reported in (almost) contemporary probate inventories. Also, considering that individuals in Leiden and Amsterdam easily held several thousands of guilders worth of cash, the total cash reported in Edam, Oorgat and the villages of de Zeevang, in 1563, which was c. 25.000 guilders (table 1), does not seem excessively high either.

This leaves us with the question where this money came from. In 110 cases we know something of the origins of the money reported (table 3). The majority was somehow linked to commerce and industry (63), Another important origin was inheritance and dowry (30). Unsurprisingly, the cash sums we can link to a commercial or industrial environment were relatively large, even reaching more than 1000 guilders on average in 1563 (the median was 800, which is still a very large sum). Inheritances and dowries were also quite sizeable in 1563, but not so much in 1462 and 1514, and the same goes for money coming from sales of real estate. The category 'other' contains *ommeslagen*: this term probably refers to damages received in lawsuits. Altogether four householders reported money they received this way. Among those households both reporting cash

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<sup>38</sup> Jan Dirczoen's 136 guilders (1590) was worth c. 160 day wages of a master, Joost Jacobsz. 1326 guilders (1585) c. 1900 day wages of a master (J. de Vries and A. van der Woude, *The first modern economy. Success, failure, and perseverance of the Dutch economy, 1500-1815* (Cambridge 1998) 610-611.

holdings, and explaining whence their money came, we can see two main groups: people involved in commerce (textiles, rye, tar, flax, ashes are mentioned) and industry (shipbuilding is frequently mentioned). The most elaborate reports come from goldsmiths: David Wijntsz. reported 400 guilders worth of silver in his cash register and in his business.<sup>39</sup> His brother (?) Jan Wijntsz., also a goldsmith, reported 700 guilders worth 'in his stall and in money'.<sup>40</sup>

A next step in our analysis is to determine who held cash in Edam. To determine social distribution we use tax assessments as an indicator of wealth – and hence social standing. Tax assessments ranged from 0 lbs. to 32,75 lbs., the latter for the wealthiest inhabitants of Edam, a man called Pieter Gael, in 1563. Setting benchmarks distinguishing poor from middling groups is always a bit arbitrary. It is clear that householders set at 0 or 0,25 lbs. were poor, for their lack of assets. One of the many poor in Edam was a householder named Ariaen mit een hant (literally: Ariaen with one hand). In 1563, he owned a 'small house' – which is likely to have been little more than a shed – and three beds, and was therefore assessed at 0,25 lbs. His poverty is furthermore confirmed by the fact he was entitled to poor relief in 1581, when he received bread from the town government.<sup>41</sup> In her analysis of Edam's taxation sources, Boschma-Aarnoudse explains that a tax assessment of 0,25 lbs. generally included a house, beds, perhaps some small savings and a cow. Land, which was of course a valuable asset in a largely agrarian society, had a relatively strong impact on tax assessments; based on an analysis of landownership of households, and their tax assessments, Boschma-Aarnoudse concludes that the benchmark for landownership lay at 0,25-0,375 lbs.<sup>42</sup> Many smallholders were nevertheless poor: in Edam we encounter many small plots of land that only sufficed to feed a cow, and even smaller plots only sufficed for keeping one calf.<sup>43</sup> Many of these plots had been divided by

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<sup>39</sup> The term used is *meesterije*, which probably refers to the workshop of a professional (cf. master in a guild system).

<sup>40</sup> The term used is *craem*, referring to a stall this goldsmith would have operated in the market place.

<sup>41</sup> Waterlands Archief Purmerend, Weeshuizen te Edam: Burgerweeshuis, Armenweeshuis en Protestants Weeshuis, 1558-1965 (1970), inv. nr. 16.

<sup>42</sup> Boschma-Aarnoudse, *Tot verbeteringe*, 406.

<sup>43</sup> In the sources these plots are called *coeven* (plot of land large enough for one cow) and *calfven* (plot of land large enough for one calf). Other plots could apparently only be used for cutting reeds (*rietlanden*).

inheritance, and no longer sufficed to take care of a cow or calf. Such smallholders were active in small-scale livestock farming aimed at dairy production, bringing butter and cheese to the market, where they bought grain imported from abroad. Clearly, few of them would have been self-sufficient. They had to rely on additional income to make a living, and just like landless residents, they were vulnerable.

In this study, we distinguish four social groups: lowering (up to 0,25 lbs.) lowering middling (>0,25-1 lbs.) middling (>1-4 lbs.) and elite (>4 lbs.).<sup>44</sup> Their cash holdings are processed in table 4. The number of households for which we could link both tax records we use (*verpachtingskohieren* and *schotkohieren*) is very low for 1462: only 36 out of 1162 (3,1%). This is mainly due to the ordering of the households in the two sources not being the same,<sup>45</sup> and furthermore due to the usual problems we encounter in linking names for a time period when patronymics were still very familiar: our sources abound with householders called Jan Pieters, Pieter Jans etc. However, figures improve for 1514 (819 out of 1408; 58,2%) and 1563 (1559 out of 1823; 85,5%). As a result, these latter years provide reliable data with respect to the cash holdings of wealth groups. In 1514 among the two lowering categories (0,25 lbs. and >0,25-1 lbs.) resp. 4,0% and 15,6% declared cash. Average sums were resp. 47,6 guilders and 49,9 guilders. Moving up the socioeconomic ladder, 30,5 % of the households from middling groups (>1-4 lbs.) reported cash – the average sum was 91,5 guilders. Of the elite (>4 lbs.) 35,7% admitted to possessing cash, on average declaring 160 guilders. In 1563 the percentage of cash holders had declined in all four wealth categories.<sup>46</sup> Average sums increased though: middling group and elite cash holders on average held more than 250 guilders. Inflation can only explain part of this development;<sup>47</sup> economic growth between 1514 and 1563, in Edam but also

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<sup>44</sup> Cf. De Moor and Zijderduijn, 'Preferences'.

<sup>45</sup> Boschma-Aarnoudse, *Tot verbetering*, 404.

<sup>46</sup> Zijderduijn and De Moor, 'Saving, spending, or investing', suggests this was due to more people investing in financial instruments.

<sup>47</sup> Average cash sums for middling and elite groups in 1514 were worth resp. 2,1 and 3,7 *last* rhye, and in 1563 resp. 4,5 and 4,7 *last* rhye (one *last* = c. 2160 kg). Increases in average cash holdings expressed in rhye were resp. 114% and 27%, whereas increases in cash holdings expressed in guilders were resp. 187% and 72%.

elsewhere in Holland, probably accounts for the rest of the increase in average cash holdings.<sup>48</sup> The bottom line of this exercise is that in the sixteenth century a substantial part of elite, middling, and even lower middling groups held cash savings worth around a year's wages of a master.<sup>49</sup>

These are minimum figures. As explained we have to take into account the serious possibility of underreporting: of the assets taxed in Edam, cash holdings were probably most easy to hide from the tax collectors. Usually money would already have been stored someplace safe and out of sight, and more importantly, there was no way for the authorities to estimate a household's savings.<sup>50</sup> In fact, it is a bit remarkable to find out that so many householders were so honest to declare cash holdings at all during a visit by the tax collector. On the other hand we should not close our eyes to the possibility that the majority of households not declaring any cash holdings did *indeed* have no large sums of money around the premises. For lowering groups struggling to make ends meet, saving must have been very difficult – the fact that we encounter people with cash in these groups is already quite surprising.

A considerable proportion of the population reported cash to tax assessors. Their number was largest in 1462, when 350 out of 1162 households in Edam had money around the house, a remarkable 30,1%. This proportion declined over time: in Edam hoarding cash was much more common in the fifteenth century than in the sixteenth. As said, this may be due to increased participation in financial markets over time.<sup>51</sup> We are unaware of the social distribution of the cash holdings in 1462 (due to problems linking our two main sources) but it is likely the pattern was about

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<sup>48</sup> See Van Zanden and van Leeuwen's estimates of growth of Holland's GDP in this period (J.L. van Zanden and B. van Leeuwen, 'Persistent but not consistent: the growth of national income in Holland, 1347-1807, *Explorations in economic history* 49 (2012) 119-131).

<sup>49</sup> The average cash holdings reported by the >0,25-1 lbs. wealth group, 49,9 guilders in 1514 and 130 guilders in 1563, were worth resp. c. 250 and c. 300 day wages of a master.

<sup>50</sup> Authorities had ample ways to keep track of households' real estate and capital market investments though. Other assets that were taxed, such as cattle and beds, were less easy to hide as money. See: J.L. van Zanden, J. Zijderduijn and T. de Moor, 'Small is beautiful. On the efficiency of credit markets in late-medieval Holland', *European review of economic history* 16 (2012) 3-23.

<sup>51</sup> Zijderduijn and De Moor, 'Spending, saving or investing?'. It should be noted that possibilities for deposit banking did not emerge in Holland until the seventeenth century. Investing in financial instruments may thus have caused problems with respect to liquidity – although these could be circumvented by means of a secondary market where financial instruments could be resold to third parties.

the same as in 1514 and 1563: c. 5-10% of the households from lowering groups possessing cash, and c. 20-30% from middling groups and the elite. This is in itself not very surprising, but again, it begs the question whether archeological findings can confirm this pattern.

Average sums were considerable, so it may be assumed that many of the cash-holding households required a safe place for their coins. Burying them in the ground was one way to prevent theft, but keeping coins in a strongbox, or hiding them around the house was also possible.<sup>52</sup> We do not know a great deal about how people in Edam kept their money – the goldsmith David Wijntsz., who kept his money in his cash register, is the only one explaining how he did this – but our historical sources do not tell whether the rest of the population used money boxes, strongboxes, or simply hid money around the house. This leaves open the question of saving behaviour. As explained, the cash savings reported in Edam may either have been *accidental* or *intentional*. The latter would have been an expression of saving behaviour, of a strategy aimed at dealing with future expenses. Our sources from Edam cannot tell us much about whether people had such intentions; to find out about this we have to turn to different sources.

### **3. Archaeological sources: money boxes in cesspits**

To study late-medieval saving behaviour, we will now turn our attention to money boxes. These objects served only one purpose: to store coins and – and this is most important – they did this in such a way there was a premium on tapping into such stored coins, since this meant breaking the money box and thus incurring expenses. The money box must thus be regarded as a helpful tool for people struggling to find the self-discipline to save: their existence is a sign of strategic behaviour, and their social distribution can help us understand which wealth groups showed such behaviour.

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<sup>52</sup> Thera Wijzenbeek, in her study of probate inventories in eighteenth-century Delft, mentions apart from money boxes, purses and money boxes the practice of hiding money around the house (T. Wijzenbeek-Olthuis, *Achter de gevels van Delft. Bezit en bestaan van rijk en arm in een periode van achteruitgang (1700-1800)* (Hilversum 1987) 131).

Probate inventories – records of the possessions of a deceased person – might seem a first place to look for money boxes. However, of 1067 probate inventories from 1625 to 1809, from various towns in the Netherlands, only eleven mention a money box (1%).<sup>53</sup> Cash is mentioned more often in probate inventories, stored in bags, pots or tobacco boxes; this was probably current money, comparable with cash in a wallet. What are we to make of the low number of money boxes in probate inventories – a source known to be biased toward the same middling groups and elites that frequently reported savings in late-medieval Edam? Does their almost complete absence indicate that savings were quite usual, but saving behaviour was rare? We believe this was not the case. The almost complete absence of money boxes from probate inventories must be rather due to a peculiarity: assessors taking an inventory of the possessions of a deceased individual had to break money boxes to see how much money was inside. Since the damaged money boxes were useless and had no value they were not included in the probate inventory and thrown away.<sup>54</sup>

In this section we have picked up the pieces. These are to be found in cesspits, which were cylindrical chambers used by households as an on-site sanitation system. Used to throw away household waste, cesspits were usually emptied every six years or even more often,<sup>55</sup> up until the moment when the residents decided to stop have a new cesspit dug. Archaeological analysis of cesspits thus provides insight in the waste a household produced during several years. We use the percentage of cesspits containing money boxes as a proxy for saving behaviour. Our data come from the *Dutch Classification System for Late Medieval and Post-Medieval Ceramics and Glass*, better known as the ‘Deventer System’, named after Deventer, the town where the first assemblage was

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<sup>53</sup> Retrieved from [www.boedelbank.nl](http://www.boedelbank.nl). Sample taken from Doesburg (N=282, 1636-1808), Oirschot (N=396, 1645-1809) and Weesp and Weesperkarspel (N=389, 1625-1789), entered only the first part of the word money box, (“spaar” instead of “sparpot”).

<sup>54</sup> The eleven money boxes mentioned in probate inventories were probably empty. It was therefore not necessary to break them, and this way they ended up in the inventories rather than being thrown away.

<sup>55</sup> R.M.R. van Oosten, *De stad, het vuil en de beerput. Een archeologisch-historische studie naar de opkomst, verbreiding en neergang van de beerput in stedelijke context (13<sup>de</sup> to 18<sup>de</sup> eeuw)* (PhD diss. Groningen 2014) 137.



described using this system in 1989.<sup>56</sup> It entails the labelling of every (excavated) item or fragment with an identifying code composed of three elements: fabric, function and type. Thus, a red ware money box of type number 1 is catalogued as such r-spa-1. Money boxes are quite easy to be recognized by archaeologists, even when they are incomplete, because of their characteristic bowl shape and foot. Most late-medieval money boxes are onion shaped; those shaped like a pig, a cock or another animal are a minority that furthermore only emerged after the late middle ages (see figure 4).

In order to analyse the money boxes, we have used the c. 40 available publications from 1989 up to 2010 using the Dutch Classification System to create a database. In addition some older publications in which the Dutch Registration System was not yet used were added and given an identification code. The resulting database contains more than 2,000 assemblages and more than 90,000 numbers of vessels.<sup>57</sup> Among these, c. 150 money boxes from 21 towns in the Netherlands are known; figure 3 shows all the available types.

Most of the towns supply just a few money boxes, except for Dordrecht (75 money boxes), Leiden (13) and Haarlem (13). We have selected these towns for the sample we use here, and have added Alkmaar (2), in the North of the province of Holland (see image 2). The assemblages of archaeological finds we base our sample on meet the following three requirements:

- assemblages were no pottery wasters, but represent consumption assemblages
- ceramics were quantified by using Minimum Number of Vessels
- the assemblages have a duration of less than 150 years

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<sup>56</sup> Clevis/Kottman 1989. This classification method became more popular after the publication of *Cities in sherds* in 1999, see: R.M.R. van Oosten, '(Een pleidooi tegen het ) "zeiken" over het Deventer systeem. Eenheid en verscheidenheid in het pispotten vormenspectrum', in: R. van Genabeek, E. Nijhof, F. Schipper and J. Treling (eds.) *Putten uit het Bossche verleden. Vriendenbundel voor Hans Janssen ter gelegenheid van zijn afscheid als stadsarcheoloog van 's-Hertogenbosch* (Alphen aan de Maas) 221-234. See also the website: [www.archeologie-spa.nl](http://www.archeologie-spa.nl).

<sup>57</sup> This database is designed by Van Oosten and is named SHARED, DANS easy-dataset:60482.

We begin with a simple exercise. In Dordrecht archaeologists have excavated 61 cesspits dating from 1300-1600: in how many of these were pieces of money boxes found? The proportions are given in figure 5: 54% of the 14<sup>th</sup>-century cesspits contained at least one piece of a money box, 50% of the 15<sup>th</sup>-century cesspits, and 33% of the 16<sup>th</sup>-century cesspits. Assuming the excavated cesspits were representative for middling and elite groups in Dordrecht, money boxes seem to have been very common. To put it differently one-in-three and one-in-two cesspits excavated in Dordrecht shows evidence of the consumption of money boxes, which is quite revealing. It confirms that saving behaviour was not at all unusual in late-medieval Holland, and also supports the observation of a gradual decline of saving over time in the historical sources of Edam.

As a next step in our analysis, we look at the social background of the users of money boxes. Archaeologists distinguish between more and less expensive cesspits. Those in Dordrecht were either made of bricks, planking, and barrels or were unlined; the used material is an indication for the wealth of the household. Thus, quadrangular (large and deep) brick built cesspits constitute the foundations of a staircase turret and are known from merchant houses at the main street of Dordrecht, while timber lined cesspits and unlined cesspits are found in the periphery of the town. Again, setting benchmarks distinguishing elites, middling groups and poor is a bit arbitrary, also with respect to cesspits. Figure 6 provides a breakdown of brick, wood and unlined cesspits per century. Of the relatively expensive brick cesspits the majority contained pieces of money boxes, up to 70% in the 15<sup>th</sup> century. Wooden cesspits, which were less expensive, have been excavated less often. Still, three out of eight 14<sup>th</sup>-century wooden cesspits contained pieces of money boxes (37,5%). None of this type were discovered from the 15<sup>th</sup> century, and of seven 16<sup>th</sup>-century wooden cesspits only one contained pieces of a money box (14,7%). Of the cheap untiled cesspits that must certainly be linked to middling or lowering middling groups 50% of those from the 14<sup>th</sup>-century contained pieces of money boxes, and 40% of those from the 15<sup>th</sup> century. This is all in line with the historical evidence: wealthy households were more likely to save than less wealthy households, in general saving was not at all unusual, and saving declined between c. 1450 and 1550. In addition to the historical evidence,

the archaeological evidence demonstrates the use of money boxes, and hence of the widespread practice of saving behaviour as an economic strategy.

What happened after 1600? The sample from Dordrecht covering c. 1300-1850 and does not contain pieces of money boxes among the c. 800 red ware ceramics from after 1600. In the other three towns – Haarlem, Leiden and Alkmaar – among more than 1100 red ware ceramics only 3 money boxes were retrieved (in Haarlem). The gradual disappearance of money boxes from households is visible in figures 7 and 8, respectively showing the pieces of money boxes expressed as a percentage of red ware found in cesspits in the four towns, and in absolute numbers. Both figures indicate a sharp decline after 1600, and the disappearance of money boxes after 1650. The figure also shows the development of the number of pieces of red ware found in cesspits in the four towns: finds of red ware also declined but remained on a level well above 250.

#### **4. Interpretation**

The decline of saving puts into question Weber's idea of a Protestant ethic – an idea that has been criticized much, but also continues to hold considerable sway. Our archaeological findings indicate that in Holland saving behaviour with the help of money boxes was already very common in towns of the fourteenth century – at a time when the Church of Rome ruled supreme – but became less common over time. This image also emerges from historical sources: a considerable number of households in Edam, its poor outskirts, and the surrounding countryside, reported savings in 1462, but this number diminished over time. Three years prior to the Iconoclasm of 1566, the unofficial start of the Dutch revolt that led to Protestantism becoming the official religion in Holland, it seems that savings were at a late-medieval low. In this respect it is also worthwhile to point out that the iconoclasm did not pass by Edam, but that the town rather appears to have been a centre of

dissenters.<sup>58</sup> Before the beginning of the Dutch Revolt dissenting ideas had taken firm root among the population of Edam – without bringing about a return to the levels of savings observed in the fifteenth century. Unfortunately historical sources do not provide much insight in the popularity of saving in the Dutch Republic; archaeological sources, however, indicate a continuation of the downward trend in the use of money boxes for saving in the early-modern period.

What are we to make of these findings? We discuss two possible explanations: early-modern people either saved less than their medieval predecessors, or they saved in a different way. There are reasons to believe early-modern people saved less: the sixteenth century was characterized by increased cost of living, with prices rising faster than wages. This so-called ‘price revolution’ must have reduced possibilities to save for large parts of middling groups.<sup>59</sup> We also know that the share of middling groups in the population declined: during its golden age Holland experienced increasing inequality, gradually reducing the middling-group households that earlier had had the capacity to save.<sup>60</sup> As a result of these two developments, saving became a strategy open to a smaller group. Perhaps this is in part what we observe in Edam, where the number of people with savings declined between 1514 and 1563, but where the average reported savings in 1563 had increased markedly. With respect to Weber’s Protestant ethic, the irony is that even if the devout Calvinists of the Dutch Republic were much more inclined to save than their Catholic ancestors, macroeconomic developments reduced their possibilities to put this to practise: the seventeenth and eighteenth

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<sup>58</sup> Boschma-Aarnoudse, *Tot verbeteringe*, 304-305.

<sup>59</sup> Robert C. Allen, ‘The Great Divergence in European Wages and Prices from the Middle Ages to the First World War,’ *Explorations in Economic History* 38 (2001) 411-447.

<sup>60</sup> For the sixteenth century: B.J.P. van Bavel, ‘Rural Development, Landownership and Tenurial Right in Holland (14<sup>th</sup>-17<sup>th</sup> centuries) in: O. Gelderblom (red.) *The political economy of the Dutch Republic* (Londen 2009) 167-198; P.C.M. Hoppenbrouwers, ‘Mapping an unexplored field. The Brenner debate and the case of Holland. In P.C.M. Hoppenbrouwers and J.L. van Zanden (red.), *Peasants into farmers? The transformation of rural economy and society in the Low Countries (middle ages-19th century) in the light of the Brenner debate* (Turnhout 2001) 41-66 For the later period: L. Soltow and J.L. van Zanden, *Income and wealth inequality in the Netherlands 16th-20th century* (Amsterdam 1998); J.L. van Zanden, ‘Tracing the beginning of the Kuznets-curve. Western Europe during the early modern period’, *The economic history review* 48 (1995) 643-664.

centuries simply were not a great time for small-time savers. Their prospects only improved after the French Revolution, when per capita income increased.<sup>61</sup>

Another reason why saving may have become more difficult over time was recently suggested by Jan Lucassen: a severe shortage of small change in the Dutch Republic between 1650 and 1700, and 1750 and 1800.<sup>62</sup> Similar ‘money scarcities’ have been suggested for the late-medieval period, and also for the pre-modern period in general,<sup>63</sup> although recent authors have also downplayed this ‘problem of small change’.<sup>64</sup> If Lucassen is right in identifying a shortage of small change during a considerable part of the early-modern period, this must have had an effect on possibilities for middling groups to save using money boxes: middling-group saving requires a good supply of small change. Combining price revolution, inequality, and money scarcities may lead to the following hypothesis with respect to the decline of saving: in the fifteenth century short supply of small change led to a slow but steady decline of saving among middling groups, and in the sixteenth and seventeenth centuries this decline continued, albeit but now due to the price revolution and increasing inequality. Finally, a combination of inequality and money scarcities decimated small-time saving in the later seventeenth and eighteenth centuries. To be sure: future research is definitely required to test this hypothesis, in particular with respect to the early modern period. For now our only direct evidence indicating a continuing decline of saving in the early-modern period is the disappearance of money boxes from cesspits. Additional evidence comes from the sample of probate inventories we discussed earlier, indicating money boxes in only 1% of the estates – but as

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<sup>61</sup> H. Deneweth, O. Gelderblom and J. Jonker, ‘Microfinance and the decline of poverty. Evidence from the nineteenth-century Netherlands’, *Center for Global Economic History working paper* 39 (2013); <http://www.cgeh.nl/working-paper-series/>).

<sup>62</sup> J. Lucassen, ‘Deep monetization: the case of the Netherlands 1200-1940’, *Tijdschrift voor sociale en economische geschiedenis* 3 (2014) 73-122.

<sup>63</sup> T.J. Sargent and F.R. Velde, *The Big Problem of Small Change* (Princeton 2002); 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. For shortages of petty currency in early-modern England see: C. Muldrew, *The Economy of Obligation. The Culture of Credit and Social Relations in Early Modern England* (New York 1998).

<sup>64</sup> Oliver Volckart, ‘“The Big Problem of the Petty Coins”, and How it Could be Solved in the Late Middle Ages’, *Working Papers* no. 107/08 London School of Economics (2008) <http://eprints.lse.ac.uk/22310/1/WP107.pdf> retrieved 8 March 2013); Lucassen, ‘Deep monetization’.

explained above, this may well be due to piggy banks being broken during the winding up of an estate.

Then there is the question of whether small-time saving declined altogether or people saved in another way, not by using money boxes as they had apparently done before. How early-modern people saved is difficult to assess though. Some craft guilds allowed their members to save, by making mandatory contributions to insurance funds that were designed to help out members in case of sickness, invalidity due to old age, and to assist their widows in case members passed away.<sup>65</sup> Such funds may have helped guild members to set aside money, albeit for very specific purposes, and with no way to recover it at will. Since craft guild membership peaked at 70% of the householders in Amsterdam, around 1700, and 75% of the householders in Utrecht around 1650,<sup>66</sup> it could be that craft guild insurance functioned as an alternative for earlier types of small-time saving – provided the latter was mainly aimed at saving for sickness, old age, and widowhood.

In the nineteenth century small-time saving re-emerged. After craft guilds had disappeared, labouring classes began to use the so-called *huisbusjesspaarsysteem* that resembles the ‘self-disciplining’ character of late-medieval ceramic money boxes. The *huisbusje* was a steel money box, which could not be opened by the saving labourer, but only by a bank employee who held the key (image 4). Financial historian Gerard Borst calls ‘the idea to withhold the saver the key’ downright ‘brilliant’.<sup>67</sup> Indeed, the idea of having to go to the bank, ask a bank employee for the key, perhaps getting awkward questions, surely made savers think twice about squandering their savings. The *huisbusje* helped to self-discipline the saver in a different, yet also quite similar way as the ceramic money box did in the late middle ages. This brings us to a second hypothesis to be tested by future research: early-modern craft guild insurance funds substituted small-time saving using money boxes,

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<sup>65</sup> M.H.D. van Leeuwen, ‘Guilds and middle-class welfare, 1550-1800: provisions for burial, sickness, old age, and widowhood’, *The Economic History Review* 65 (2012) 61-90.

<sup>66</sup> P. Lourens and J. Lucassen. ‘Ambachtsgilden binnen een handelskapitalistische stad: aanzetten voor een analyse van Amsterdam rond 1700’, *NEHA-Jaarboek* 61 (1998) 121-159, 145; N. Slokker, *Ruggengraat van de stad. De betekenis van gilden in Utrecht, 1528-1818* (Amsterdam 2010) 55-56.

<sup>67</sup> G. Borst, ‘Arm als de luizen. Sparen in vooroorlogs Nederland’, *Juist. Flanderijn over markt en maatschappij* (mei 2011) 6-9, pp. 9.



but when craft guilds disappeared after the French revolution, labouring classes returned to *huisbusjes*.



**Image 4.** *Huisbusje* issued by the Amsterdam savings bank

Source: <http://www.geheugenvanoost.nl/74235/nl/heerlijke-gedachten-22>

## 5. Conclusion

Our historical analysis demonstrates that a considerable proportion of the late-medieval population of the town of Edam held savings. This proportion declined over time, in spite of the emergence of adherents of early reformatory movements in Edam after 1530. Our archaeological analysis shows that it makes sense to link these savings to saving behaviour: an economic strategy where an individual sets a saving target, and uses a money box as an instrument of self-disciplining. The archaeological evidence – presence of money boxes in cesspits – follows the historical evidence quite

nicely: initially a large proportion of cesspits contained pieces of money boxes, but this declined in the fifteenth and sixteenth centuries. The archaeological evidence furthermore shows that money boxes had disappeared from cesspits in the early-modern period, when Holland had become the centre of the Calvinist Dutch Republic.

We have formulated two hypotheses to explain this long-term decline of savings and saving behaviour: the first states that adverse socioeconomic and monetary developments reduced the scope for small-time saving in the early-modern period. This hypothesis points towards the importance of external conditions such as standard of living, income inequality and availability of money as important conditions for bringing about saving behaviour. Perhaps Protestants wanted to be thrifty, but many of them lacked the means to save. Our evidence rather suggests that the true champions of saving behaviour were the late-medieval adherents to the Church of Rome, and not the Protestants that gradually emerged in sixteenth-century Holland.

Our second hypothesis states that the mandatory insurance schemes of craft guilds reduced the need for small-time saving using money boxes that was so common in the later middle ages. We should point out though that such insurance schemes do not provide much evidence for participants' religiously motivated inclination to save: contribution was enforced by the craft guilds' directors and not done at the initiative of guild members. If we are correct in linking the decline of small-time saving to substitution by mandatory insurance schemes, this would also suggest that the former was also informed by concerns about unemployment, sickness, old age and burial costs – the risks craft guilds insured.

In this paper we have presented a methodology to investigate historical saving behaviour. The latter is often regarded as an exponent of what sociologists call 'the process of civilizing', which is often believed to have taken place after c. 1600. It is believed to have contributed to 'modernization' through 'the imposition of external norms and controls on behaviour and affect and

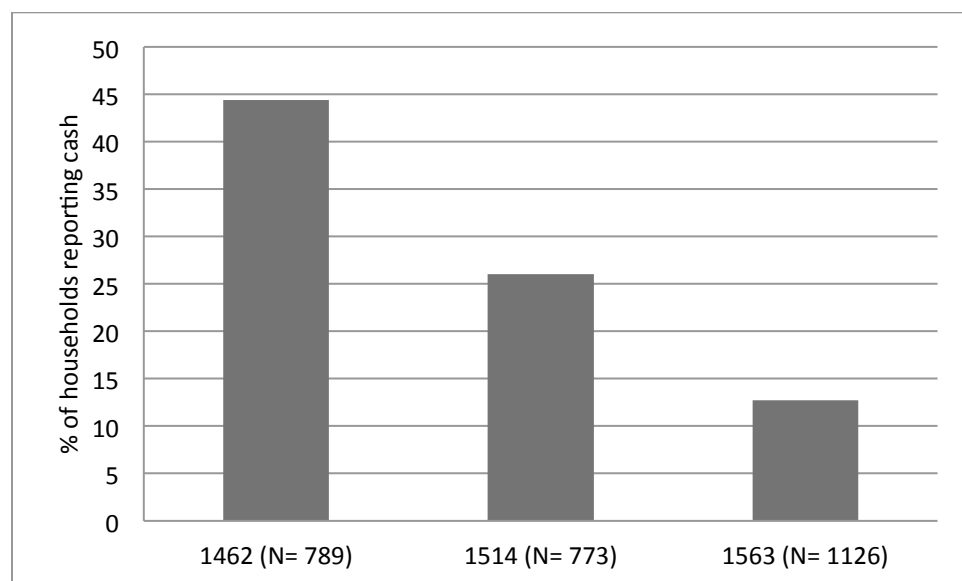
their gradual internalization within the individual psyche'.<sup>68</sup> The evidence presented in this paper concerning Holland suggests there is no reason to believe that 'civilization' brought about by the Reformation caused the people of Holland to increase their savings or saving behaviour. In fact, our evidence suggests that the late-medieval population was already 'disciplined' with respect to household finances: many people managed to set money aside, and many used money boxes to achieve saving targets. The image that appears is one of continuity rather than of abrupt change: of a late-medieval population well aware of the importance of saving, but also aware of its own human shortcomings, and therefore using self-disciplining instruments that are not so different from those used in later centuries.<sup>69</sup>

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<sup>68</sup> P.S. Gorski, *The disciplinary revolution. Calvinism and the rise of the state in early modern Europe* (Chicago 2003) 30.

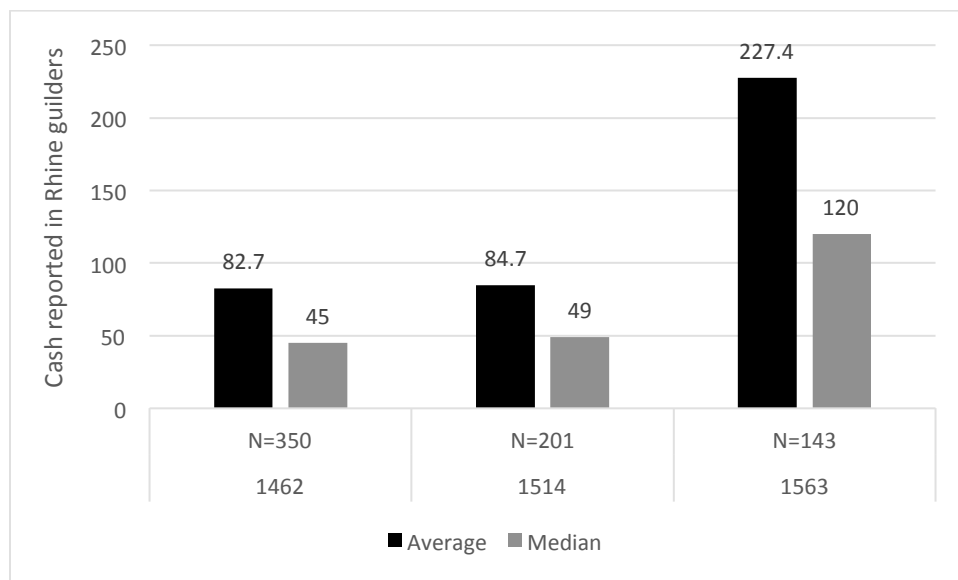
<sup>69</sup> The idea of saving as a universal human necessity that was not restricted to a certain age was also formulated by Deirdre McCloskey (D. McCloskey, D., 'The prehistory of American thrift' in: J.J. Yates and J. Davison Hunter (eds.) *Thrift and thriving in America. Capitalism and moral orders from the puritans to the present* (Oxford 2011) 61-87).

**Figure. 1. % of households in Edam reporting cash. N= total number of households**



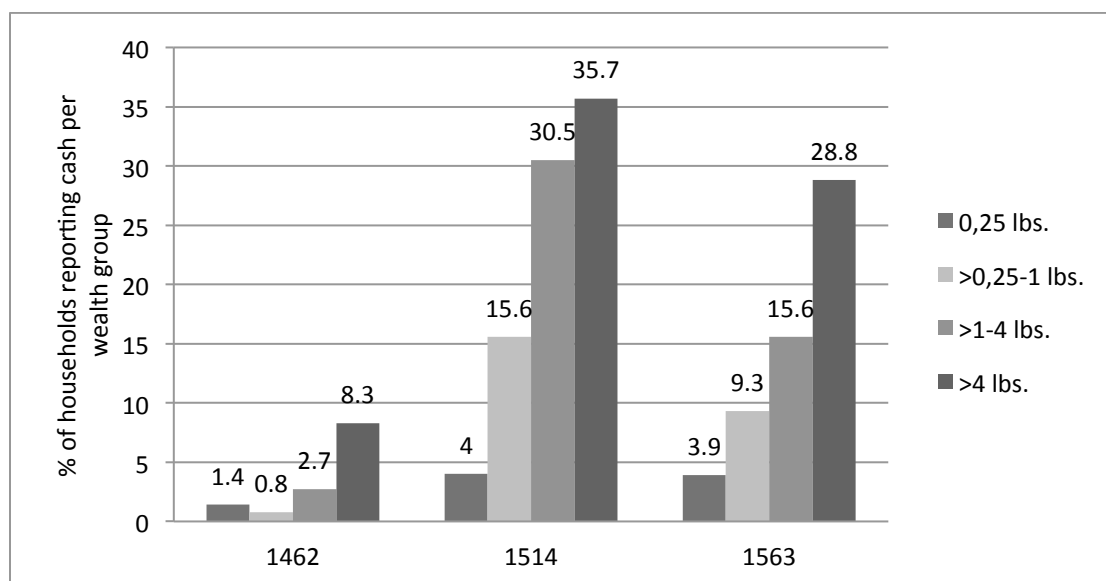
Source: Waterlands archief, Stad Edam, inv. nrs. 237-239.

**Figure 2. Cash reported in Edam in Rhine guilders in 1462, 1514 and 1563. N= number of households that reported cash.**



Source: Waterlands archief, Stad Edam, inv. nrs. 237-239.

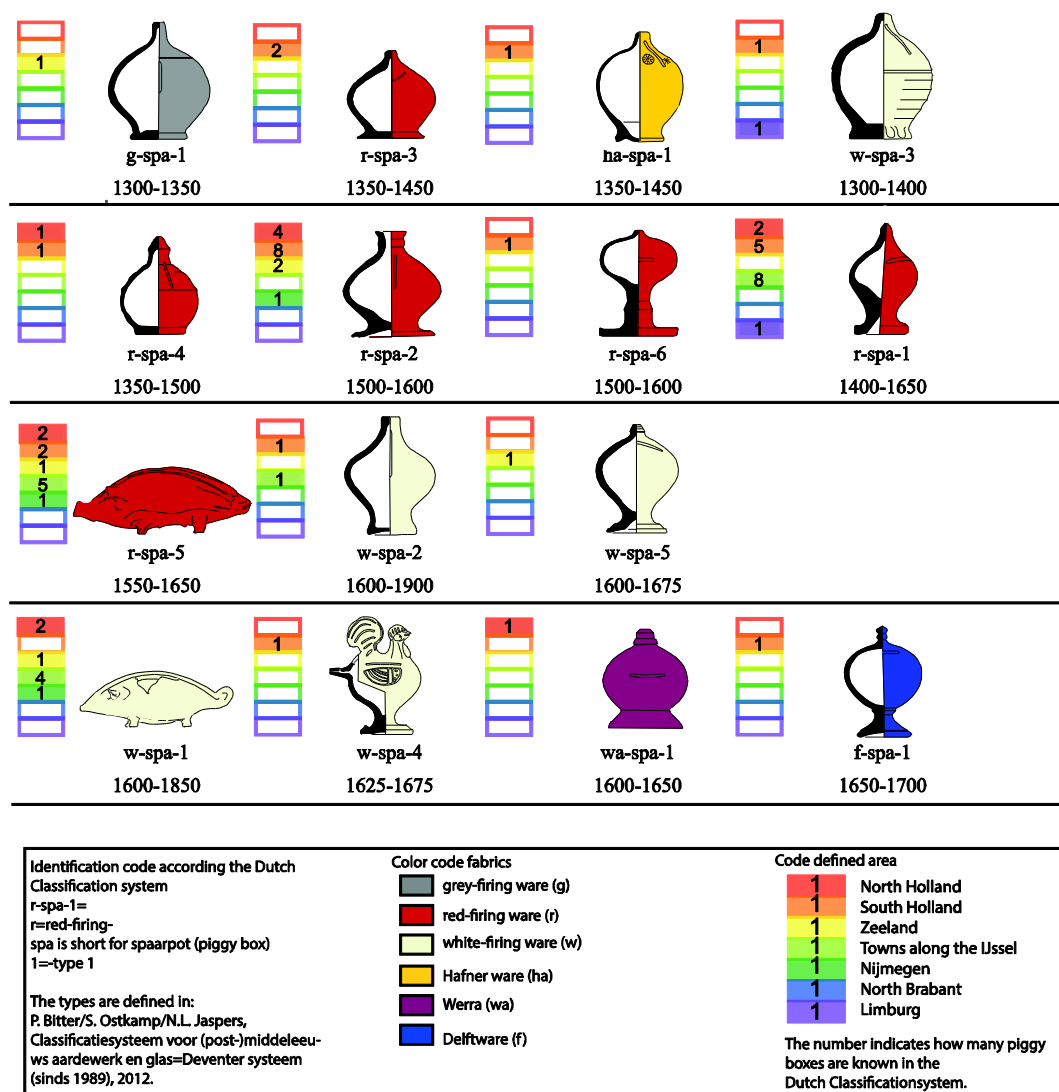
**Figure 3. % of households reporting cash per wealth group**



Source: Waterlands archief, Stad Edam, inv. nrs. 237-239.

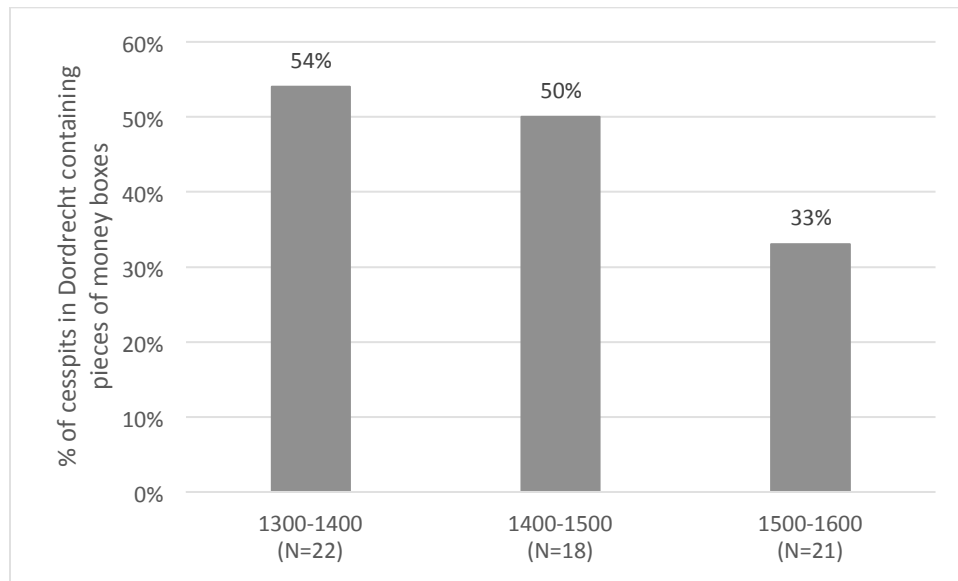


Figure 4. Types of money boxes found in The Netherlands



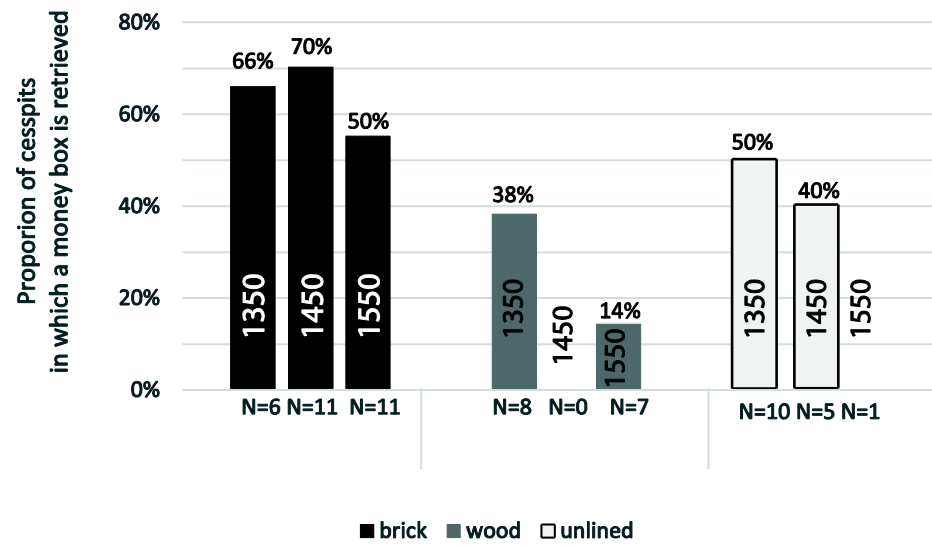
Illustrations by Leo den Hollander.

**Figure 5. % of cesspits in Dordrecht containing money boxes.**



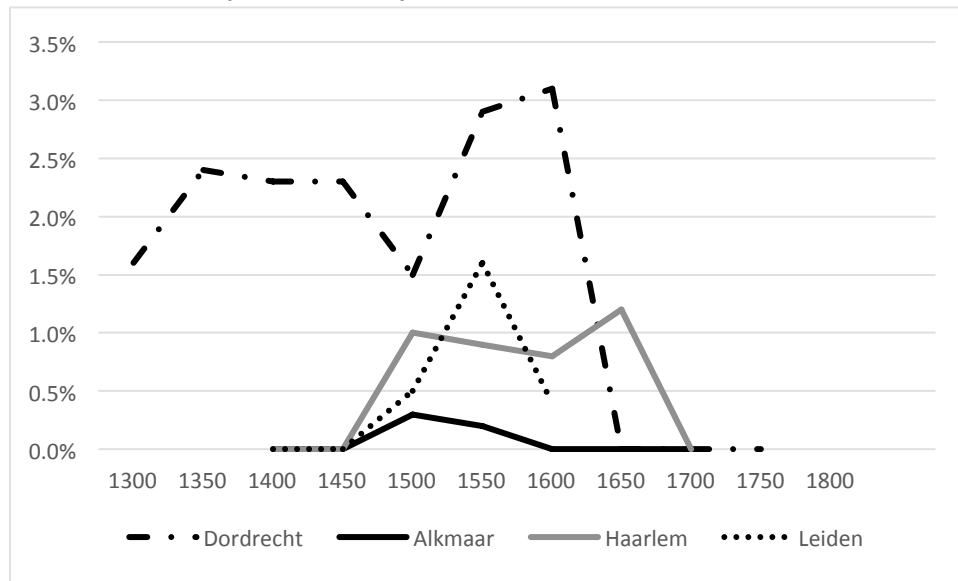
The data can be found in Appendix 1.

Figure 6. Proportion of cesspits in each category in which a money box is retrieved.



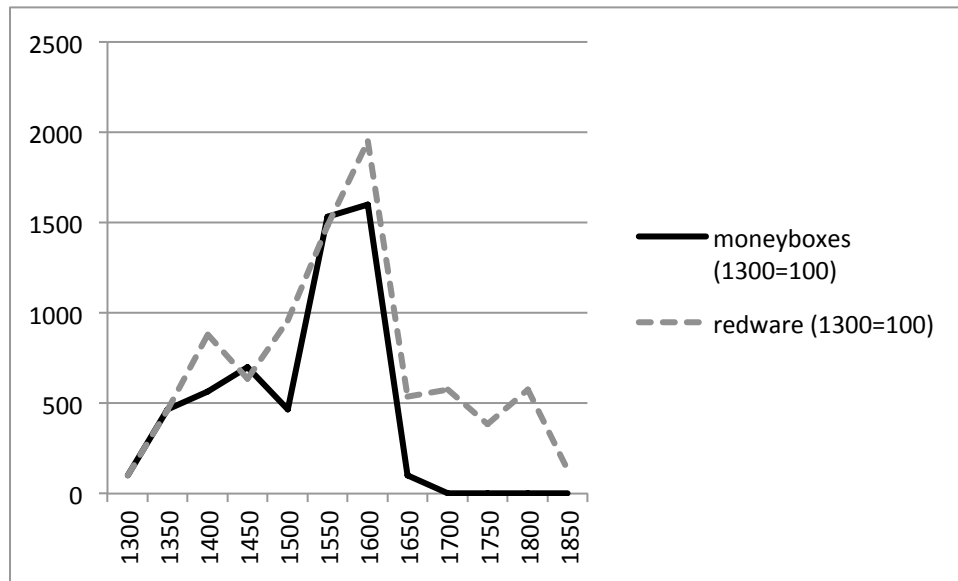
The data can be found in Appendix 1.

**Figure 7. The proportion of money boxes in the ceramic sample in Dordrecht, Alkmaar, Haarlem and Leiden in the pre-industrial period**



The data can be found in Appendix 2.

**Figure 8. Pieces of ceramic money boxes and all pieces of red ware retrieved from cesspits in Dordrecht, Haarlem, Leiden and Alkmaar (1300=100).**



Data: see Appendix 2.

**Table 1. Cash reported in Edam 1462, 1514, 1563, in Rhenish guilders of 40 gr.**

	N households	N households reporting cash (%)	Average/ median	Value
<b>1462</b>				
Edam	789	350 (44,4%)	82,7/ 45	27.959
Oorgat	136	31 (22,8%)	59,6/ 30	1.849
Villages	286	76 (26,6%)	45,1/ 23	3.382
<b>Total</b>	1075	457 (42,5%)		
<b>1514</b>				
Edam	773	201 (26,0%)	84,7/ 49	13.376
Oorgat	138	2 (1,5%)	28,5/ 28,5	57
Villages	362	58 (16,0%)	55,4/ 35,5	3.214
<b>Total</b>	1135	261 (23,0%)		
<b>1563</b>				
Edam	1126	143 (12,7%)	227,4/ 120	22.508
Oorgat	183	1 (0,6%)	120/ 120	120
Villages	587	31 (5,3%)	71,7/ 70	2.223
<b>Total</b>	1713	166 (10,2%)		

1462: in 'average' and 'value' categories excluded are 13 combinations of money and other assets

(such as 'money and merchandise'); 1514: excluded are 48 combinations of money and other assets;

1563: excluded are 46 combinations of money and other assets. Grand total of values (including other assets) were as follows: 1462: 29625 Rg.; 1514: 27345 Rg; 1563: 59682 Rg.

**Table 2. Value of cash reported in probate inventories**

Year	Name	Profession	Residence	Value
1494	Derick van Ghoir		Deventer	>28 guilders
1591	Catharina van Hoochstraten		Leiden	>79 guilders
1583	Pouwels Adriaensz.	Merchant/ shopkeeper	Leiden	670 guilders
1586	Liesbeth Arys	Apple saleswoman	Amsterdam	2088 guilders
1585	Joost Jacobsz.	<i>Wantsnijder</i>	Leiden	1326 guilders
1590	Jan Dirczoen	<i>Leertouwer</i>	Leiden	136 guilders
1588	Jan van Brouhoven	Councillor <i>Hof van Holland</i>	Leiden	4728 guilders
1594	Marten Koster	Medician	Amsterdam	3747 guilders

Sources: B. Dubbe, *Huusraet. Het stedelijk woonhuis in de Bourgondische tijd* (Hoorn 2012) 221; H.E.

van Gelder, *Gegevens betreffende roerend en onroerend bezit in de Nederlanden in de 16<sup>e</sup> eeuw. Deel 1. Adel, boeren, handel en verkeer* (The Hague 1972), 238, 436, 529, 592; H.E. van Gelder, *Gegevens betreffende roerend en onroerend bezit in de Nederlanden in de 16<sup>e</sup> eeuw. Deel 2. Industrie* (The Hague 1973) 83, 218, 256.

**Table 3. Origins of cash holdings reported in Edam**

	<b>1462</b>		<b>1514</b>		<b>1563</b>	
	<b>N</b>	<b>Av. (Rg.)</b>	<b>N</b>	<b>Av. (Rg.)</b>	<b>N</b>	<b>Av. (Rg.)</b>
Commerce	7	124,1	35	345,5	21	1079
Sale real estate	2	22	9	45,2	2	330
Inheritance/dowry	6	63,7	7	44,4	17	254,6
Other	-	-	3	511,3	1	800
Unknown	442	76,2	155	85,6	135	250,8

Commerce: also included mentioning of cash in combination with merchandise

Inheritance: also included 'coming from NN goods'

Other: also included 'ommeslach' (damages received after civil procedure)



**Table 4. Cash holdings in Edam per wealth group**

	N (cash and merchandise)	% all	Av. sum	Total sum
<b>1462</b>				
0,25	3 (0)	1,4	36,7	110
>0,25-1	3 (0)	0,8	19,3	58
>1-4	9 (1)	2,7	98,9	791
>4	3 (0)	8,3	220,0	660
<b>1514</b>				
0,25	25 (1)	4,0	47,6	1143
>0,25-1	79 (7)	15,6	49,9	3593
>1-4	75 (22)	30,5	91,5	4847
>4	10 (5)	35,7	160	800
<b>1563</b>				
0,25	33 (2)	3,9	101,6	3150
>0,25-1	52 (9)	9,3	130,0	5589,5
>1-4	56 (18)	15,6	262,6	9977
>4	17 (7)	28,8	274,5	2745

Wealth groups: 0,25 lbs.; >0,25-1 lbs.; >1-4 lbs.; >4 lbs.

Average sum and total sum: excluded are combinations of cash and merchandise

## Appendix 1

	Type of cesspit	Cesspits <u>with</u> and without money boxes	Percentage
1300-1400	Bs-vier (5)/bs-rond (1)	<u>128</u> , <u>133</u> , <u>166</u> , S50, S218, <u>127</u> = 4 out of 6	66%
	Ht-vier (8)/ Ht-rond (0)	120, <u>122</u> , 124, 125, <u>136</u> , <u>138</u> , 148, 152= <u>3</u> out of 8	38%
	<i>beerputkuilen</i>	<u>115</u> , <u>131</u> , <u>134</u> , <u>137</u> , 145, 146, <u>147</u> , 149, 150, 151= <u>5</u> out of 10	50%
	<b>Total</b>	<b><u>12</u> out of 22</b>	<b>55%</b>
1400-1500	Bs-vier (11) Bs-rond (0)	100, 104, <u>105</u> , <u>108</u> , 109, <u>129</u> <sup>70</sup> , 132, 143, <u>165</u> , <u>167</u> , <u>172</u> , S215= <u>7</u> out of 11	70%
	Ht-rond (0) Ht-vier (0)	None	-
	<i>beerputkuilen</i>	103, 106, 109, <u>116</u> , <u>117</u> = <u>2</u> out of 5	40%
	<b>Total 1500-1600</b>	<b><u>9</u> out of 18</b>	<b>50%</b>
1500-1600	Bs-vier/bs-rond	101, <u>107</u> , <u>111</u> , 130, 158, <u>164</u> , 168. 170, 171, 173, 175= <u>6</u> out of 11	55%
	Ht-rond (5) Ht-vier (2)	<u>102</u> , 123, 139, 140, 142, 144, 157= <u>1</u> out of 7	14%

<sup>70</sup> Volgens Bartels 1999, 443 moet vondstcomplex 129 een ronde tonput zijn gelegen in de Heer Heyman Suysstraat, uit de tekening p. 378 blijkt echter dat 129 een rechthoekige (bakstenen?) beerkelder is.

	<i>beerputkuilen</i>	176=1	0%
	Type unknown	153, 154=2	nvt
	<b>Total</b>	<b><u>7</u> out of 21</b>	<b>33%</b>
	<b>Total</b>	<b><u>28</u> out of 61</b>	<b>46%</b>

Sources:

Types of cesspits: Van Oosten, *Het vuil*, 65.

Finds in cesspits: Bartels, M., 1999: *Steden in scherven: vondsten uit beerputten in Deventer, Dordrecht, Nijmegen en Tiel (1250-1900)/Cities in sherds. Finds from cesspits in Deventer, Dordrecht, Nijmegen and Tiel (1250-1900)*, Zwolle/Amersfoort; M.C. Dorst, 'Rijke stinkerds. Over de herkenbaarheid van een hogere materiële welstand in de laat-middeleeuwse afvalcomplexen', *Westerheem* 60-5 (2011) 236-250, S215, S218; T.L. Hos, *Wouw ververijen! Onderzoeksgebied Elfhuizen. Een bureauonderzoek en een definitieve opgraving in de binnenstad van Dordrecht*, Dordrecht Ondergrond (2008) 3; H. Sarfatij, *Archeologie van een Deltastad. Opgravingen in de binnenstad van Dordrecht* (Utrecht 2007) 101-176.

## Appendix 2

	Dordrecht			Alkmaar (A), Haarlem (H), Leiden (L)		
Period	Number of piggy banks	Redware	%	Number of piggy banks	Redwa re	%
c. 1300 <sup>1</sup>	3	190	1,6%	0	A:0	n.v.t.
				0	H:4	n.v.t.
				0	L:2	n.v.t.
c. 1350 <sup>2</sup>	14	594	2,4%	0	A: 4	n.v.t.
				0	H: 4	n.v.t.
				0	L: 0	n.v.t.
c. 1400 <sup>1</sup>	17	734	2,3%	0	A: 109	0%
				0	H: 97	0%
				0	L: 43	0%
c. 1450 <sup>2</sup>	21	894	2,3%	0	A: 45	0%
				0	H: 93	0%
				0	L:156	0%
c. 1500 <sup>1</sup>	8	538	1,5%	1	A: 326	0,3%

				1	H: 103	1,0%
				4	L: 834	0,5%
c. 1550 <sup>2</sup>	39	1354	2,9%	1	A: 506	0,2%
				5	H: 529	0,9%
				1	L: 61	1,6%
c. 1600 <sup>1</sup>	38	1229	3,1%	0	A: 474	0,0%
				8	H: 934	0,8%
				2	L: 566	0,4%
c. 1650 <sup>2</sup>	0	180	0%	0	A: 195	0%
				3	H: 648	1,2%
				0	L:0	n.v.t.
c. 1700 <sup>1</sup>	0	716	0%	0	A: 62	0%
				0	H: 294	0%
				0	L: 0	n.v.t.
c. 1750 <sup>2</sup>	0	609	0%	0	A: 43	0%
				0	H:98	0%
				0	L:0	0%
c. 1800 <sup>1</sup>	0	10	n.v.t.	0	A: 181	0%

				0	H: 26	n.v.t
				0	L: 3	n.v.t.
c. 1850 <sup>2</sup>	0	10	n.v.t.	0	A: 150	0%
				0	H:0	0%
				0	L:0	n.v.t.
Total 1:	66	3417	1,9%	16	4058	0,4%
Total 2:	74	3641	2,0%	10	2532	0,4%