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# **Apprenticeships and craft guilds in the Netherlands, 1600–1900**

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# Apprenticeships and craft guilds in the Netherlands, 1600–1900

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**Abstract:** Few attempts have been made to systematically examine apprenticeship training between cities or crafts. This paper aims to contribute to such an overview by reviewing key characteristics of Dutch apprenticeships overseen by craft guilds. Data on hundreds of apprenticed adolescents from different crafts and different periods reveals striking similarities in the functioning of apprenticeships throughout the Netherlands. Apprenticeships here were relatively flexible, with agreements varying locally according to preferences of apprentices and masters. While exiting from contracts was easy and widespread, access to apprenticeships was possibly relatively limited due to guild regulations, not all masters engaged in training, and because sons of masters were frequently privileged. After the Dutch guilds were abolished apprenticeships may temporarily have become more accessible, but the institution appears to have declined with the onset of industrialisation.

**Keywords:** Apprenticeship, Training, Craft guilds, Industrialisation.

**JEL Codes:** N33, N83, N63, J24.

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## Introduction

Even with all the importance being assigned to preindustrial human capital formation and labour mobility for economic growth, apprenticeship has remained a surprisingly elusive institution. Although key to preindustrial skill formation, historians still have difficulties in evaluating the nature of apprenticeship training. Central issues are whether apprenticeships should be seen as an efficient institutions for the transmission of skills, and whether they were, periodically or in general, appropriated by craft guilds for rent-seeking purposes.<sup>1</sup> Going back at least to Adam Smith, proponents of the latter interpretation have argued that guilds obstructed access to apprenticeships by for instance excluding certain groups (such as women and immigrants), set arbitrarily long terms, and charged high entrance fees. Early modern skills according to some were so easy that apprenticeships were not needed at all, implying that apprenticeships were rent-seeking by nature. Others have argued on the contrary that guilds were needed to overcome inherent issues of mutual opportunism by enforcing apprenticeship contracts, and that their skill certification enhanced geographical mobility of skills. As a result, the training market has been regarded as quite efficient, possibly explaining the relatively low skill premium in early modern Europe.<sup>2</sup>

As Ogilvie already suggested some years ago, the apprenticeship debate needs more empirical research to move forward.<sup>3</sup> Fortunately, local and countrywide case-studies as well as cross-country comparisons have since become more widely available. Quite some of these have examined particular elements of apprenticeship training, for instance the relation between apprenticeship and citizenship, or the stability of apprenticeship contracts. Several recent findings seems to suggest that apprenticeship contracts were not strictly enforced by guilds, thus questioning their alleged positive contribution to apprenticeship training.<sup>4</sup> Evidence on whether guilds were involved with apprenticeships out of rent-seeking motives is somewhat more mixed.<sup>5</sup> Although these contributions have enhanced our understanding of several key aspects of early modern apprenticeship training, their tendency to focus on particular elements, such as contract enforcement, means that a systematic overview of the institution of apprenticeship as a whole is still largely absent. What did apprenticeship actually mean across different regions of preindustrial Europe, and did it mean the same

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<sup>1</sup> Ogilvie, 'Rehabilitating the guilds', Ogilvie, 'Can we rehabilitate?'; Ogilvie, 'Guilds, efficiency'; Wallis, 'Apprenticeship and training'; Epstein, 'Craft Guilds'; Epstein, 'Craft guilds in the pre-modern economy'; Pfister, 'Craft guilds'; Lucassen, De Moor, and Van Zanden, 'Return of the guilds'; Prak et al., *Craft guilds*.

<sup>2</sup> Van Zanden, 'Skill premium'.

<sup>3</sup> Ogilvie, 'Rehabilitating the guilds', p. 181.

<sup>4</sup> Wallis, 'Apprenticeship and training'; Minns and Wallis, 'Rules and reality'; Schalk, 'From orphan to artisan'.

<sup>5</sup> Prak et al., 'Access to the trade'.

everywhere? By combining regional or local case-studies this question can now for the first time be addressed.

This paper contributes to an overview of apprenticeship training in preindustrial Europe by reviewing craft apprenticeships in the Dutch Republic that were monitored by guilds. Notwithstanding that apprenticeship training was not confined to guild-controlled crafts alone, only apprenticeships at craft guilds have left sufficient traces for a systematic overview for this region.<sup>6</sup> Moreover, apprenticeships monitored by craft guilds were arguably the most significant route for Dutch adolescents seeking apprenticeship training, as most urban crafts were organized in guilds. Furthermore, even under the guilds apprenticeships contracts were first and foremost a private agreement between master and apprentices, with little direct guild involvement, implying that this overview may still be somewhat representative of Dutch apprenticeship training as a whole.

After introducing the Dutch case the paper systematically examines several key elements of apprenticeship training, such as guild regulation, terms, premiums and completion rates. Most findings use novel data on craft apprentices in several Dutch cities. Comparing apprenticeship in different cities demonstrates that preindustrial apprenticeship training in the crafts was remarkably similar across the Dutch Republic. To try and disentangle the link between apprenticeship training and guilds, the paper ends by discussing apprenticeship after the Dutch guilds were abolished around 1820. Apprenticeship did not decline due to the guild abolition, but because of a growing demand for unskilled labour from the last quarter of the nineteenth century.

### *The setting of Dutch apprenticeship*

The decentralized structure of the Dutch Republic is mirrored in the setting of Dutch apprenticeship in the early modern period.<sup>7</sup> Apprenticeship in the Dutch Republic was first and foremost a local, and urban, institution. No central authorities oversaw apprenticeships, but at the local level craft guilds often did. Whenever guilds existed in a certain craft their involvement with apprenticeship usually consisted of four characteristics: registering apprentices, setting the term of the apprenticeship, charging apprenticeship fees, and

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<sup>6</sup> For apprenticeships outside craft guilds see Davids, ‘Apprenticeship and guild control’; Posthumus, *Geschiedenis van de Leidse lakenindustrie*. Dutch municipal orphanages registered apprenticeships of their orphans, but also they were regularly apprenticed at guild-controlled crafts; McCants, *Civic Charity*; Schalk, ‘From orphan to artisan’.

<sup>7</sup> Gelderblom, *Cities of commerce*.

sometimes setting the number of apprentices per master.<sup>8</sup> Guilds also set the rules for the masters' test and the fee for entering the guild (only masters could become guild members). It is important to note that Dutch guilds appear to have registered the process more than they actually tried to oversee it.<sup>9</sup> Guilds did set terms and fees and in some cases limited the number of apprentices, but this is usually where their involvement stopped. These rules set by guilds could vary considerably. Fees and set terms were far from uniform, both between cities and between guilds. Cooper apprentices in Haarlem had to learn twice as long compared to their counterparts in Rotterdam at the end of the seventeenth century, for example.<sup>10</sup>

Although estimates are lacking the vast majority of urban crafts in the Dutch Republic was incorporated in guilds, meaning that apprenticeships in the urban crafts were generally registered by guilds. Davids has nevertheless demonstrated that another (albeit unknown) share of apprentices worked outside guild control.<sup>11</sup> Textile manufacturing, watchmaking, and industrial wind milling in the Zaanstreek, for instance, were not organized in guilds.<sup>12</sup> Moreover, some guilds were more involved with monitoring apprenticeships than others. Guilds of merchants, pedlars, and bargemen often did not regulate apprenticeships. Furthermore, guilds were absent in most villages with fewer than 1,000 inhabitants, so here apprenticeships were without guild monitoring as well.<sup>13</sup> Unfortunately we know very little about apprenticeships in these smaller rural villages. It has also been notoriously difficult to examine apprenticeships outside of guilds because they have left little evidence. Notarial contracts are scarce and possibly biased. Agreements between apprentices and masters were rarely put in writing and have not survived in large numbers.

Although guilds monitored the vast majority of urban craft apprenticeships, these apprenticeships should still be regarded as the outcome of an agreement between a master and an apprentice, or his guardians.<sup>14</sup> While both parties had to make sure their agreement adhered to guild regulations when applicable, the precise content of the agreement was neither uniform nor prescribed by law – as was the case in early modern England. Many variables of the agreement were open and therefore could vary significantly, such as premiums, terms, the boarding of the apprentice, the exact content of training, or penalties in case of early leave. Moreover, apprenticeship terms set by guilds were very likely minimum terms. Many

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<sup>8</sup> Davids, 'Apprenticeship and guild control', p. 67.

<sup>9</sup> Davids, 'Apprenticeship and guild control'.

<sup>10</sup> Tump, *Ambachtelijk geschoold*, p. 88.

<sup>11</sup> Davids, 'Apprenticeship and guild control', pp. 69-70.

<sup>12</sup> On the organisation of Dutch textile manufacturing see Soly, 'Political economy', pp. 64-5.

<sup>13</sup> Lourens and Lucassen, 'Oprichting en ontwikkeling', Bijlage 1.2 and 1.3.

<sup>14</sup> Van Eeghen, *De gilden*, p. 20.

apprentices stayed for longer and, more importantly, varying terms.<sup>15</sup> Magistrates were arguably not very preoccupied with overseeing apprenticeships as well, although they sometimes took action in overseeing apprenticeships of poor boys.<sup>16</sup> But even then the actual supervision was generally left to individual municipal orphanages or alms houses, which in a way substituted for parents' supervision.<sup>17</sup>

While guild monitoring has left us with valuable data on apprenticeships, such as their numbers and distribution over masters, the private character of training implies that other important elements of apprenticeship training frequently remain unobserved. Notarial agreements can be used to overcome this issue, but their numbers are relatively limited and usually confined to high-end crafts such as goldsmiths and art painters.<sup>18</sup> Orphanage records, while also perhaps not fully representative, provide an insight into the more common crafts because orphanage regents apprenticed their male orphans at local masters. By combining these sources and the available literature, the remainder of this paper explores several characteristics of Dutch apprenticeship.

### *Extent of apprenticeship*

Because of the local character of apprenticeship there are no overviews on the number of adolescents annually enrolling in training in the Dutch Republic as a whole. Since most contracts were private the best measure we can use are apprenticeship registers kept by guilds. Many guilds administered the number of apprentices in their ledgers. Quite some of these registers are available for different cities. Although more of these registers can be included in future research, Table 1 lists the existing evidence on the number of apprentices enrolling in different crafts for several Dutch cities.

These figures are of course not representative for all craft apprenticeships, but for now they are the best there is to estimate the annual inflow of apprentices in urban guild-controlled crafts. The table demonstrates that the number of apprentices reflects the size of the local craft. Sizeable crafts such as cooping took on relatively many apprentices. It is not surprising that Amsterdam, as largest commercial centre and with its own chamber of the Dutch East India Company, had a large demand for barrels. Haarlem was renowned for its beer manufacturing which resulted in high demand for coopers as well.<sup>19</sup>

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<sup>15</sup> Schalk, 'From orphan to artisan'.

<sup>16</sup> Davids, 'Apprenticeship and guild control', pp. 71-2.

<sup>17</sup> McCants, *Civic charity*.

<sup>18</sup> De Jager, 'Meester, leerjongen, leertijd'.

<sup>19</sup> Unger, 'Technical change', p. 289.

Table 1. Number of apprentices for a selection of crafts and cities.

| City and craft     | Period    | Registered apprentices | Average per decade |
|--------------------|-----------|------------------------|--------------------|
| <i>Amsterdam</i>   |           |                        |                    |
| Coopers            | 1722-1783 | 5,000                  | 806                |
| Pig butchers       | 1787-1799 | 517                    | 398                |
| Pastry bakers      | 1748-1774 | 643                    | 238                |
| Surgeons           | 1597-1665 | 1,456                  | 211                |
| Masons             | 1610-1662 | 700                    | 132                |
| <i>Utrecht</i>     |           |                        |                    |
| Blacksmiths        | 1646-1795 | 4,980                  | 332                |
| Coopers            | 1588-1662 | 1,062                  | 142                |
| Surgeons           | 1740-1799 | 614                    | 102                |
| Goldsmiths         | 1598-1783 | 1,068                  | 57                 |
| Art painters       | 1611-1639 | 105                    | 36                 |
| Linen weavers      | 1611-1710 | 121                    | 12                 |
| <i>Leiden</i>      |           |                        |                    |
| Surgeons           | 1683-1729 | 394                    | 84                 |
| Glass makers       | 1740-1790 | 332                    | 65                 |
| <i>Haarlem</i>     |           |                        |                    |
| Coopers            | 1650-1720 | 1,500                  | 211                |
| <i>Bois-le-Duc</i> |           |                        |                    |
| Goldsmiths         | 1700-1798 | 170                    | 17                 |

Notes: Estimates in italics.

Sources: Stadsarchief Amsterdam (SAA), Archief Gilden, inv. nos. 254, 591, 895, 1349, 1470; Het Utrechts Archief (HUA), Archieven bewaard bij het stadsbestuur I, inv. nos. 105, 124, 131-1; Regionaal Archief Leiden (RAL), Archief Gilden, inv. nos. 351, 524; Slokker, *Ruggengraat*, pp. 61, 75, 223; Tump, *Ambachtelijk geschoold*, p. 86; Gemeentearchief Den Bosch, Archief Gilden, inv. 311.

Except for Bois-le-Duc, the cities listed in Table 1 all had a population of over 25,000 in 1670. In each of these guilds around nineteen apprentices enrolled on average annually. The nine Dutch cities with a population of 25,000 or over knew 296 guilds in total.<sup>20</sup> This could suggest that in the nine biggest Dutch cities about 5,500 adolescents started an apprenticeship every year. Amsterdam and Leiden may nevertheless be somewhat less representative because the former was the largest commercial city and the latter a large textile manufacturer. The average number of annual apprentices in Utrecht, Haarlem and Bois-le-

<sup>20</sup> Lourens and Lucassen, 'Oprichting en ontwikkeling', Bijlage 1.3.

Duc is probably more representative. According to Table 1 twelve apprentices may have enrolled per guild annually on average in these cities. Multiplying this with the number of Dutch guilds - 1,153 around 1670 - gives approximately 13,800 new apprentices per year in the craft guilds of the Dutch Republic combined.<sup>21</sup> As annual variations and regional differences cannot be taken into account, this estimate should evidently be interpreted with care. It is for instance likely that the number of apprentices was at a peak around 1670 and declined when the period of relatively rapid economic growth ended at the end of the seventeenth century.

Assuming that apprentices stayed for four years with a survival rate of c. 60 per cent (see below), the stock of apprentices in urban crafts would have been about 33,120. The total urban population in the Dutch Republic was 837,000 in 1795.<sup>22</sup> Apprentices thus could have made up about four per cent of the urban population of the Dutch Republic. If we repeat the estimate for the city of Utrecht the outcome is five per cent of the total population around 1670. These estimates are not too far off from those of England, where it has been estimated that apprentices made up between two to seven per cent of the urban population (excluding London).<sup>23</sup> The actual number of apprentices likely varied per city, guild, and period, but it seems not too unreasonable to assume that one in every ten male inhabitants in Dutch cities may have been an apprentice. The next paragraphs will examine several central characteristics of their apprenticeships, starting with guild monitoring.

### *Guild bylaws*

Apprentices had to pay a fee to the deans of the guild when enrolling in an apprenticeship regulated by guilds. At times apprentices from outside the city had to pay more. There was too much local and temporal divergence in apprenticeship fees to discern a pattern, although whenever fees did discriminate, they always did so against apprentices from outside the city.<sup>24</sup> For instance, immigrant surgeon apprentices in seventeenth-century Leiden had to pay three *guilders* and local apprentices only half. In the Northern Netherlands sons of masters, or their eldest sons, were often exempt from paying fees.<sup>25</sup> The goldsmiths in eighteenth-century Bois-le-Duc charged nothing for the eldest sons of masters and about fl. 6 to fl. 12 for other

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<sup>21</sup> Using the ratio of apprentices to total urban population gives a comparable outcome since the number of craft guilds correlated with the urban population; Lourens and Lucassen, 'Oprichting en ontwikkeling', p. 57.

<sup>22</sup> De Vries and Van der Woude, *First modern economy*, pp. 857-8.

<sup>23</sup> Humphries, 'English apprenticeship', pp. 79-81.

<sup>24</sup> Lourens and Lucassen, 'Oprichting en ontwikkeling', p. 54; Tump, 'The coopers' guilds', p. 230. An overview of apprenticeship fees in the Northern Netherlands can be found in De Munck and Davids, 'Beyond exclusivism', Table 9.2.

<sup>25</sup> De Munck and Davids, 'Beyond exclusivism', p. 201.



apprentices. Also sons of Leiden surgeon masters were exempt from paying apprenticeship fees at the surgeons' guild. More prestigious guilds do not appear to have charged structurally higher fees.<sup>26</sup> Haarlem silversmith apprentices paid about six guilders in the eighteenth century, but Amsterdam surgeon apprentices only paid one guilder at most.<sup>27</sup> In early modern Utrecht fees of all guilds varied between one to two *guilders*, and only the goldsmiths' guild here charged extra for outsiders.<sup>28</sup>

This diversity makes it difficult to generalise about whether fees like these were used to bar outsiders, as has been assumed in the literature.<sup>29</sup> In late seventeenth-century Zierikzee in the province of Zeeland, the bakers' guild did raise apprenticeship fees to discourage adolescents from enrolling, yet most other Zeeland guilds never used fees to limit the number of apprentices.<sup>30</sup> Apprentices from municipal orphanages or institutions for poor relief were even often exempt from paying these fees. In general, the relatively low nominal fees that most Dutch guilds charged, even for outsiders, were probably by itself insufficient to discourage apprentices.<sup>31</sup> A fee of six guilders was comparable to six skilled daily wages, which seems not unsurmountable. For that reason Tump argued that falls in the number of apprentices in early modern Haarlem were most likely caused by adverse economic conditions, such as war, and not by the level of apprenticeship fees.<sup>32</sup> Moreover, at least in some cases apprenticeship fees were raised not to deter apprenticeship but to alleviate financial problems of the guild.<sup>33</sup> It is further likely that entrance fees for masters, the costs of the masters' test, and the costs of setting up a shop proved a more challenging financial hurdle, as these were much higher than apprenticeship fees.<sup>34</sup> Registering as an apprentice was probably much easier than becoming a master.

Besides entrance fees, another possible barrier to entry were limits on the number of apprentices allowed per master. But also here local differences can be observed. Apprenticeships not regulated by guilds rarely knew limitations on apprentices, as for instance Leiden textile manufacturing demonstrates.<sup>35</sup> Several guilds did limit the number of

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<sup>26</sup> Tump, *Ambachtelijk geschoold*, p. 81; De Munck and Davids, 'Beyond exclusivism', p. 199.

<sup>27</sup> Tump, *Ambachtelijk geschoold*, p. 81; SAA, Archief Gilden, inv. 232, p. 19.

<sup>28</sup> Slokker, *Ruggengraat*, p. 58.

<sup>29</sup> Ogilvie, 'Guilds, efficiency', p. 308.

<sup>30</sup> Remmerswaal, *Een duurzame alliantie*, p. 74.

<sup>31</sup> De Munck and Davids, 'Beyond exclusivism', p. 203. Although there were certainly exceptions to this rule; Panhuysen, *Maatwerk*, pp. 297-299, Bijlage IX.

<sup>32</sup> Tump, *Ambachtelijk geschoold*, pp. 85-86.

<sup>33</sup> Tump, 'The coopers' guilds'.

<sup>34</sup> De Munck and Davids, 'Beyond exclusivism', Table 9.2; Panhuysen, *Maatwerk*, Bijlage IX.

<sup>35</sup> Posthumus, *Geschiedenis*, vol. 3, pp. 355, 613, 701. Only one of six *neringen* set a (relatively high) maximum of four apprentices; Posthumus, *Bronnen*, vol. 5, pp. 301-2.

apprentices a master could train at once, but in other guilds these rules were completely absent. There is no systematic overview available of these local bylaws for Dutch guilds. Whenever these rules were present, such as in the Utrecht carpenters' guild, the number of apprentices was usually limited to one or two simultaneously. In Utrecht, about half of all craft guilds at some point introduced by-laws limiting the number of apprentices.<sup>36</sup> In Leiden most available by-laws also contained clauses restricting the number of apprentices. Surgeons in Amsterdam also limited the number of apprentices per master.<sup>37</sup> Conversely, the guilds of silversmiths and painters in Haarlem and Rotterdam did not limit apprentices per master.<sup>38</sup>

It is difficult to infer whether these rules should be seen as regulating the craft and upholding monopolies, or to ensure training quality instead. Masters with fewer apprentices could theoretically have devoted more time to the training and instruction of individual apprentices. However, high levels of attrition together with apprentices' wages suggest that Dutch apprentices may have mostly learned by doing, with masters investing little time in direct training.<sup>39</sup> In that case limiting apprentices would probably not have increased training quality much.<sup>40</sup> This could imply that limits on the number of apprentices, wherever they were in place, may primarily have served to control the size of the local craft instead of safeguarding training quality. The cloth shearers indeed complained to the Leiden regents in 1766 that these apprenticeship regulations prevented their trade to expand.<sup>41</sup>

Data on Leiden orphans shows that the intake of apprentices indeed increased once the Dutch guilds were abolished around 1820, even though there were no significant changes in the orphanage population. This further suggests that, at least in some cases, guilds may have restricted access to training by limits on the number of apprentices.<sup>42</sup> Also in late eighteenth-century Amsterdam the guild of tailors pursued an active policy of barring outsiders.<sup>43</sup> It might be no coincidence that guilds appear to have become more restrictive once the period of economic progress ended.<sup>44</sup> More data is needed to see whether this link between access to training and guild by-laws holds for other periods and cities. Such data would especially be

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<sup>36</sup> Slokker, *Ruggengraat van de stad*, p. 58.

<sup>37</sup> SAA, Archief Gilden, inv. 232, p. 13.

<sup>38</sup> Tump, *Ambachtelijk geschoold*, pp. 82-3.

<sup>39</sup> Schalk, 'From orphan to artisan'.

<sup>40</sup> Further supportive of this argument is the observation that many Dutch art painters trained quite some apprentices simultaneously without this having noticeably affected training quality; Bok, "Nulla dies sine linie".

<sup>41</sup> Posthumus, *Bronnen*, vol. 6, p. 528.

<sup>42</sup> Schalk, *Splitting the bill*, pp. 71-74.

<sup>43</sup> Panhuysen, 'Amsterdamse en Haarlemse kleermakersgilden', p. 135.

<sup>44</sup> Montias has argued that the Delft painters' guild instead became more protective to protect local painters against the influx of immigrants from the Southern Netherlands; Montias, *Artists and artisans*, p.74.

welcome for the first half of the seventeenth century, as it is likely that guilds were less concerned with limiting apprentices during an economic boom.<sup>45</sup>

### *Premiums*

Besides fees payable to the guild apprentices sometimes paid premiums as well. Guilds never required the payment of premiums, instead they were the result of negotiations between master and apprentice. Premiums, together with training wages, were common throughout all apprenticeships, arguably because they might have been central to the functioning of the agreement in the face of unenforceable contracts. Recent findings suggest that it was nearly impossible for masters to reclaim training investments ex post through cheap labour of the apprentice.<sup>46</sup> Under these conditions it is likely that masters demanded that apprentices paid upfront for any training investments that were not directly covered by apprentices' labour. Although there are few studies on the functioning of Dutch premiums, findings by De Jager do point out that these extra costs were covered by premiums. Vice versa, apprentices may have paid premiums to speed training. De Jager found that premiums at art painters and gold and silversmiths in the seventeenth century were affected by the duration of the contract (the longer the contract the lower the premium); boarding of the apprentice; quality of instruction and materials provided; and the reputation of the master.<sup>47</sup>

Other examples further indicate that premiums may have been used to speed up skill formation. Again, because contracts were difficult to enforce, apprentices had to pay for more instruction by paying higher premiums. Willem vander Kloest in 1696 explicitly paid a premium of six guilders to Leiden surgeon Johannes Lasar to 'reduce the term'.<sup>48</sup> Willem subsequently successfully completed his apprenticeship quicker than usual. Also cooper apprentices from Haarlem have been known to shorten their terms by paying higher premiums.<sup>49</sup> This tendency to pay for more instruction upfront might also explain why premiums appear to have been more common in the prestigious crafts examined by De Jager. Apprentices at painters and goldsmiths could likely not provide as much valuable labour directly because of the relative difficulty of the craft. As their masters could not transfer skills as easily through learning-by-doing they had to invest more time in actual training and instruction, which was paid for by premiums. Conversely, when apprentices were already

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<sup>45</sup> Cf. Prak et al., 'Access to the trade', pp. 9-10.

<sup>46</sup> Wallis, 'Apprenticeship and training'; Minns and Wallis, 'Rules and reality'; Schalk, 'From orphan to artisan'.

<sup>47</sup> De Jager, 'Meester, leerjongen, leertijd'.

<sup>48</sup> RAL, Archief Gilden, inv. 351, fol. 32.

<sup>49</sup> Tump, *Ambachtelijk geschoold*, p. 89.

skilled in the trade they may have paid lower premiums because they were a valuable addition to the workshop. Van Eeghen gives some examples of Amsterdam apprentices who paid less because of their skills.<sup>50</sup> This suggests an inverse relation between the skills of the apprentice and premiums paid. Skilled apprentices may have added relatively more value to the workshop and therefore paid lower premiums.<sup>51</sup>

Boarding apprentices probably needed to pay extra because of the costs of board and keep, especially when their labour was not yet sufficiently valuable to pay for this. Although premiums are rarely listed in guild records, it is telling that apprentices' wages often are listed. By looking at orphans it becomes apparent that wages were presumably paid to non-boarding apprentices only. Apprenticed orphans throughout the Dutch Republic never paid fees and always received wages directly, precisely because they returned to the orphanage every evening. Surviving apprenticeship records demonstrate that also many regular apprentices in cooping and glassmaking received wages from the start instead of paying premiums.<sup>52</sup> The difference with their premium-paying counterparts, appearing in the same ledger, was probably that they were not boarding as well. Since this removed the cost of board and keep their was a margin to pay wages to these apprentices, at the same time reducing the need for premiums. Another notarial contract from 1714 relating to a Utrecht goldsmith apprentice also states that the premium served as compensation for board and keep alone.<sup>53</sup> Moreover, this mechanism would also explain why premiums may have been lower for experienced apprentices, since their labour covered a relatively larger share of the cost of board and keep. For example, a contract from 1706 lists that a boarding apprentice at cloth working in Utrecht had to pay 200 guilders the first year but only 150 the second.<sup>54</sup>

A random sample of 100 Amsterdam cooper contracts from the eighteenth century shows that apprentices who paid premiums had different terms from apprentices who received wages.<sup>55</sup> Of the group that paid a premium 43 per cent agreed to a term of two years, whereas only 21 per cent of wage-receiving apprentices had agreed such a term. Instead, the latter group agreed terms of four years in larger shares (60 versus 42 per cent). Although we cannot measure the aptness and skills of these individual apprentices, it does suggest a trade-off between wages and premiums. Not least because there was not a single apprentice in this guild that paid a premium *and* received a wage. This may hint towards a practice where

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<sup>50</sup> Van Eeghen, *De gilden*, pp. 24, 77.

<sup>51</sup> Cf. Minns and Wallis, 'Price of human capital'.

<sup>52</sup> See also Reith, 'Apprentices as wage earners'.

<sup>53</sup> HUA, Notarieel Archief, U083b034, deed no. 46

<sup>54</sup> HUA, Notarieel Archief, U093a050, deed no. 60.

<sup>55</sup> SAA, Archief Gilden, inv. 895. \*\*\* Sample to be expanded \*\*\*

apprentices paid for extra training or other benefits such as boarding. Apprentices who were unable or unwilling to pay a premium may have boarded in smaller numbers, and compensated masters through performing relatively more labour during their apprenticeship, at the costs of serving longer terms.

Paying for extras upfront would have exposed apprentices to the risk of losing their training investment when the contract was breached. For that reason some apprentices, as the example above illustrates, sometimes paid their premiums in different instalments. However, this did not eliminate the risk altogether. Conducting a contract before a notary may have provided another safeguard, and at least provided formal evidence when the case went to court. As of yet evidence on legal action of apprentices is missing. It would be interesting to examine if apprentices resorted to courts when they stood to lose their premium in case of losing their premiums.

### *Terms*

After paying fees and potential premiums the apprenticeship could finally begin. Unfortunately what actually happened on the shop floor is difficult to tell. It is most likely that apprentices in the crafts provided relatively simple chores at the beginning and gradually moved towards more skilled work. As indicated, unenforceability meant that masters in the crafts probably provided little direct training, and perhaps some more to apprentices that paid premiums. Apprentices instead picked up skills through imitation and learning-by-doing. As a result, the training period was prolonged whenever no premiums were paid to speed up skill formation. Terms were also likely affected by capability of the apprentice, the time spent on menial work versus learning-by-doing, and possibly by the skills of the master. Terms served by different apprentices in the Dutch Republic could therefore vary, and were not necessarily related to the terms set by guilds. The latter should be seen as minimum terms.

It is already difficult to tabulate terms set by guilds, not least because they varied per city, guild, and were at times altered. Terms set by guilds nevertheless rarely exceeded five years, and were often much shorter. Surgeon apprentices from Leiden had to serve five years, but the Haarlem and coopers' guild and the Amsterdam pig butchers' guild only required terms of two years.<sup>56</sup> In seventeenth-century Utrecht terms were set by 22 out of 27 guilds, and only three of these set terms exceeding two years (glass makers, goldsmiths, and lace workers).<sup>57</sup> In Bois-le-Duc fourteen guilds had terms of two years, there were four guilds with

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<sup>56</sup> RAL, Archief Gilden, inv. 311; Tump, *Ambachtelijk geschoold*, p. 88; SAA, Archief Gilden, inv. 1470.

<sup>57</sup> Slokker, *Ruggengraat van de stad*, p. 58.

terms of three years, and only two guilds required four years.<sup>58</sup> Although in some guilds the minimum terms were longer for outsiders, Tump demonstrated that in practice several outsiders served the terms set for locals.<sup>59</sup>

Most guilds or masters likely issued a *leerbrief* after apprentices completed these minimum terms. It is therefore probable that apprentices wishing to enter the craft adhered to these minimum terms, because this proof of completion was usually required to become journeyman. However, many apprentices probably stayed for longer terms than those set by guilds. Seeing the short terms by guilds it is conceivable that apprentices needed more time to actually master the craft. Moreover, as the premiums suggested, actual terms were also affected by the distribution of working and training during the term. Dependent on the content of their contracts apprentices at the same master therefore could serve varying terms.

Measuring these actual terms is complicated by the fact that most Dutch guilds did not keep records of journeymen. Local apprentices only appear in the records again when they aspired to become master, which certainly was not an option for many apprentices. The move from apprentice to journeyman that is needed to measure apprenticeship terms is therefore rarely observable. Contracts are also an indirect measure for terms. Early exits seem to have been common in Dutch apprenticeships (see below), meaning that contractual terms may not reflect actual terms.

These contracts can nevertheless give an indication of the terms agreed upon between masters and apprentices at the start of an apprenticeship. When combined with apprenticeship wages it is possible to single out the terms inexperienced non-boarding apprentices were considered to serve to learn the craft. A group of over 550 starting apprentices at the Amsterdam coopers' guild between 1722 and 1785 on average agreed to a term of 3.75 years (median of 4).<sup>60</sup> About 30 glass making apprentices in eighteenth-century Leiden agreed to comparable terms of 3.74 years on average.<sup>61</sup>

Apprenticeships of Dutch orphans can be used to get an insight into actual terms served. These apprenticeships related to relatively common crafts, and were by and large comparable to those of regular apprentices.<sup>62</sup> Often orphans appeared alongside regular apprentices in guild records, and their terms were not affected by the time spent at the orphanage. Figure 1 gives the distribution of terms served by orphans from eighteenth-century

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<sup>58</sup> Essink, *Inventaris*, p. 6.

<sup>59</sup> Tump, *Ambachtelijk geschoold*, p. 89.

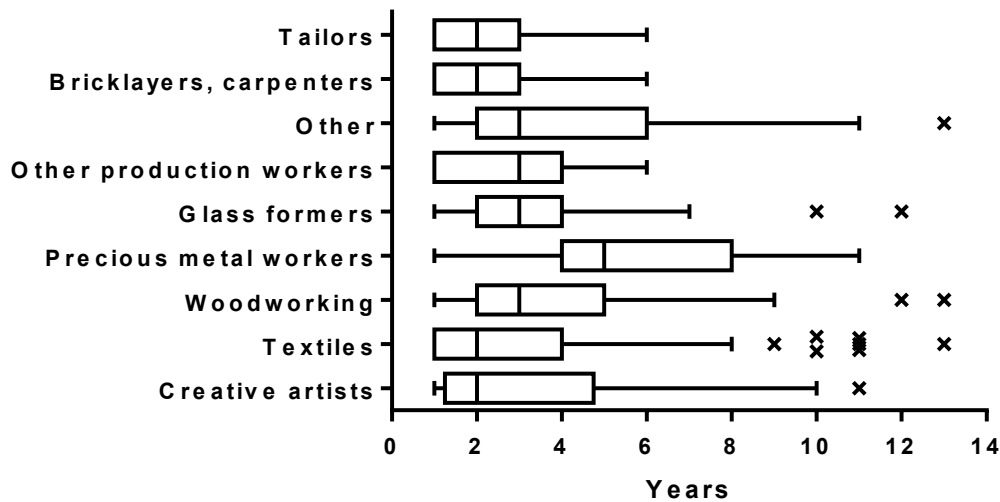
<sup>60</sup> SAA, Archief Gilden, inv. 895. Beginning apprentices are identified by a starting wage of twelve *stuivers* at most.

<sup>61</sup> RAL, Archief Gilden, inv. 524.

<sup>62</sup> Schalk, 'From orphan to artisan'.

Leiden and Utrecht, grouped per occupational group. Note that these are not contracts but actual terms served by individual orphans. In total the sample contains 428 observations.

*Figure 1. Distribution of terms served by apprenticed orphans from Leiden (1754-82) and Utrecht (1779-93)*



*Notes:* The vertical line within the box represents the median term. The areas right and left of the median within the box represent 25 per cent of all observations, and every line outside the box another 25 per cent. An absent line or a condensed boxplot means that the variation in terms is limited or skewed. X's are outliers.

*Sources:* RAL, Archief Heilige Geest, inv. 3855, inv. 3390; HUA, Archief Gereformeerd Burgerweeshuis, inv. 769-2, inv. 723-1.

The figure shows that terms within the same craft could vary substantially. The short terms of one year mostly relate to orphans that dropped-out or moved masters. Almost half of all orphans moved to another master or craft and thus did not complete their training at one master. We do not know if regular apprentices were as mobile, but some data suggests that around 12 per cent of regular apprentices moved masters *within* the guild alone, while another share dropped out. Consequently, it is possible that also within regular apprentices there were large varieties in actual apprenticeship terms. In any case, the figure demonstrates that a significant share of terms was substantially longer than the two to three years required by most guilds. Quite some apprentices even stayed for prolonged periods of more than five years. This seems to suggest that it could take quite some time to master a craft, or that chances to move towards a position to journeymen were limited for orphans. When orphans from Leiden stayed within one craft throughout their apprenticeship their average term towards successful completion was 6.5 years (with a standard deviation of 3.4). In Utrecht these average terms to completion were only 4.5 years (with a standard deviation of 2.5). It is

difficult to determine a reason for this variance, but it demonstrates that terms were highly diverse.

The next event we can trace is the actual time it required for regular apprentices to become master. This was apparently also fairly similar between several guilds, as can be seen in Table 2. Although these terms obscure the division between apprentices and journeymen, they do give an indication of the time involved to become skilled and wealthy enough to set up a workshop. Remarkably, in all guilds sons of masters took somewhat longer before becoming master themselves. Perhaps they could only begin their own shop after their father had deceased, whereas non-master sons may have been able to start earlier. The terms seem more or less in line with the apprenticeship terms, especially since standard deviations towards master status were around four to five years in all guilds. The route from apprentice to master could therefore take anywhere between five to more than twenty years, although a period of eight to twelve years was probably most common. For Leiden surgeon apprentices the average age of becoming master was 23.4 between 1700 and 1729 (median age 23). Since these apprentices started around the age of 14.5 and had an average term of 3.6, they had worked as journeymen for approximately five years before setting up their own shop.

*Table 2. Years from beginning of the apprenticeship to taking a masters' test.*

| City and guild   | Period    | Regular apprentices | Sons of masters | Observations |             |
|------------------|-----------|---------------------|-----------------|--------------|-------------|
|                  |           |                     |                 | Regular      | Master sons |
| <i>Amsterdam</i> |           |                     |                 |              |             |
| Pig butchers     | 1787-1799 | 8.3                 | 11.6            | 25           | 30          |
| <i>Utrecht</i>   |           |                     |                 |              |             |
| Coopers          | 1588-1662 | 10.6                | 13.1            | 84           | 20          |
| Surgeons         | 1740-1793 | 10                  | 14.9            |              |             |
| <i>Leiden</i>    |           |                     |                 |              |             |
| Surgeons         | 1683-1729 | 8.2                 | 11.4            | 42           | 7           |
| Weighted mean    |           | 9.6                 | 12.3            |              |             |

*Notes:* Sons of masters are identified as having a similar surname as guild masters, except for Leiden where they are identified by apprenticeship fees.

*Sources:* See Table 1.

### *Completion rates*

Becoming a master or even journeyman was nevertheless not at all apparent for Dutch craft apprentices. By looking at guild records it is possible to infer how many apprentices successfully completed their terms or became masters in the guild. It is important to restate



that these were two separate events. Apprenticeship completion meant obtaining the *leerbrieff* and thus qualifying as journeyman. The *leerbrieff* could be used to gain access to journeyman positions in other cities as well.<sup>63</sup> Becoming a master entailed that a journeyman had acquired sufficient capital to set up his own shop and pay the entrance fee, and that he was skilled enough to qualify for the masters' test. The costs of all this are not examined here, but could be significant.

Comparing the number of registered apprentices to the number of registered masters' test clearly demonstrates that many apprentices never became masters. In the Utrecht goldsmiths' guild there were 1,068 registered apprentices to 431 registered masters' test between 1598 and 1783, or 2.5 apprentices for every test.<sup>64</sup> It is perceivable that a share of these tests even related to journeymen that had completed their apprenticeship in another city and moved to Utrecht. It is unknown what happened to the 60 per cent of apprentices that did not take a test. Perhaps they moved to apprenticeships in other crafts (many apprenticed orphans at least did so), they may have dropped out, or they could have migrated. It is also possible that these apprentices continued to work in the same craft as journeymen and simply never became master at all. At the Utrecht coopers' guild there were 250 tests to 1,062 apprentices.

Also in more prestigious crafts apprentices dropped-out somewhere in the stage towards becoming a master. Of all 29 apprentices of the well-known Dutch painter Abraham Bloemaert, who was also known for his teaching skills, only fifteen became professional painters. Of the other fourteen apprentices four died, another four went into other trades (two as goldsmiths, one as cloth merchant, and one in the military), while the remaining six apprentices could not be traced down.<sup>65</sup>

The *leerbrieven* that can be used to measure apprenticeship completion, and thus the qualification as journeyman, are largely missing at the archives. So far lists on *leerbrieven* have been found for three guilds: the Amsterdam pig butchers' (1787-1811), the Amsterdam pastry bakers' (1748-1776), and the Leiden surgeons' (1683-1729).<sup>66</sup> Although these crafts and periods of observation quite differ, in every guild a considerable share of apprentices did not complete their term. Surgeon apprentices had the highest completion rates, but even in this relative prestigious craft about forty per cent of apprentices dropped-out. At the pastry bakers' only half of apprentices obtained their *leerbrieff*. At 32 per cent this share was even

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<sup>63</sup> Plomp, 'Het leerlingwezen in Den Haag', p. 16.

<sup>64</sup> HUA, Archieven bewaard bij het stadsbestuur, inv. 130, inv. 131-1.

<sup>65</sup> Prak, 'Paintings, journeymen painters and painters'. See also Montias, *Artists and artisans*.

<sup>66</sup> Crowston, Lemerrier, Schalk, and Wallis, 'Rates of failure', pp. 30-1.

lower for pig butchers' apprentices.<sup>67</sup> These findings are corroborated by apprenticeships lists from other guilds, which also show that attrition was high. The timing of new apprentices at Leiden glassmaking masters suggests that at least 16 per cent of regular contracts were terminated early. Also at least 22 per cent of apprenticeship contracts of Leiden orphans were breached. Because annual rolling-over was common this share was probably higher.

It is difficult to infer why so many apprentices dropped out, but talent, further honing of skills, and mismatching may have mattered. Apprentices probably weighted their options within a certain trade when deciding whether to stay here or move on towards another trade. Aptness for the craft may have played a role in deciding whether to stay or leave. This can be observed for Leiden orphans.<sup>68</sup> Here it seems that talented apprentices in some cases moved to crafts that were related to their previous apprenticeship. For instance, orphan Jan van Kampen moved from chair making to cabinet making, and receive an increased wage during this second apprenticeship (from 26 to 28 *stuivers* a week). Apparently he could use the skills he had picked up during his first apprenticeship directly, and thus he may have moved to master a somewhat more difficult craft. Moving masters within the same craft also occurred because apprentices wanted to further hone their skills, as is evidenced by their pay scales. Like Van Kampen, orphans who moved to another master within the same craft nearly always received an increase in their wages.

Conversely, quite some apprenticed orphans moved to altogether different craft sectors after leaving their first master, and subsequently experienced a setback in their wages. When orphan Elias Dionet in 1770 after six years left his candle making apprenticeship for an apprenticeship at chair making, his wage dropped from 22 to 10 *stuivers*. It is telling that these orphans never completed an apprenticeship in larger numbers. Of all orphaned apprentices that moved within a sector 80 per cent completed their apprenticeship successfully, compared to 58 per cent of orphans who had moved between sectors. The latter group moved crafts probably because they were not fit for these apprenticeships or because they did not like their craft. Many of these apprentices were therefore likely altogether relatively less talented or motivated, explaining why a larger share of them dropped out. This further suggests that talent or aptness goes a long way in explaining apprenticeship completion. Talented apprenticed exhibited upward career mobility and higher completion rates, and lesser talented orphans were filtered out gradually. Nevertheless, ties to local

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<sup>67</sup> The pig butchers' did not consistently record the fate of all apprentices, but it is likely that unknown observations did not receive their *leerbrief*.

<sup>68</sup> Schalk, 'From orphan to artisan'.

masters may also have mattered. As demonstrated below, in all crafts significantly higher probabilities of becoming master are observed for sons of masters.

Mobility over different crafts is difficult to observe for regular apprentices, but guild records indicate that these apprentices at times moved masters within the guild. Many guild regulations stipulated that it was allowed for masters to transfer their apprentice to another master, as long as this was registered at the deans – sometimes in combination with a fee payable by masters or apprentices. For some of the guilds from the sample we can trace how many apprentices moved masters at least once within the guild. This share varied from 8.6 per cent at the Amsterdam pastry bakers' guild to 14.1 per cent at the Amsterdam pig butchers' guild. The Utrecht guild of coopers and the Leiden guild of surgeons fell between these shares, with 11.4 and 11.7 per cent of their apprentices moving masters respectively. Interestingly, also here moving masters did not significantly affect completion, signifying that moving masters within a guild may not have been given in solely by masters wanting to get rid of unfit apprentices.

These findings demonstrate that Dutch apprenticeship was not a rigid system where apprentices were locked in their indentures. Instead, they could, and did, in many cases exit from their agreements and switch masters. Also masters could easily get rid of apprentices when the arrangement did not work out. It is difficult to infer what the consequences of this flexible system were for skill formation. On the one hand apprentices and masters faced quite some uncertainty and a prolonged training period, because apprentices' labour mitigated issues of enforceability. Nevertheless, this flexible system may also have allowed for better matching of apprentices to suitable crafts and masters. More research into the subsequent careers of exiting apprentices would help to assess this more closely.

#### *Apprentices versus masters*

Since many apprentices dropped out already during their apprenticeship, it is not surprising that the share of apprentices becoming masters was quite low in many guilds. By linking full names of apprentices to those taking the masters' test, we can move beyond ratios and give some actual shares of apprentices becoming masters. At the Utrecht coopers' guild ten per cent of apprentices registered between 1588 and 1662 took a masters' test (see Table 3). The share of all registered apprentices to all masters' test is 22 per cent, so quite some tests indeed related to journeymen who had migrated to Utrecht from other cities. At the Leiden (1683-1729) and Utrecht (1740-99) surgeons' guilds these shares were 14.4 and 8.7 per cent of registered apprentices respectively. Of the Amsterdam pig butchers' apprentices 10.6 per cent

took a masters' test. These shares should be interpreted as lower bound estimates because of mismatching, and because it is possible that a share of apprentices took their test in another city. At both surgeons' guilds full names are spelled in such a standardized manner that mismatching is altogether unlikely.

The decision to become master within a trade was likely easier if an apprentice was related to a master in the same guild. Although sons of master took somewhat longer to become master (Table 2), they did become masters in higher shares than apprentices without these ties. At the Leiden surgeons' guild about 22 per cent of masters' son apprentices took a master test, compared to 16 per cent of local apprentices. Of all apprentices from outside Leiden only four per cent became master. Sons of Utrecht cooper masters were almost five times more likely to become master compared to apprentices that were not related to masters.

*Table 3. Number of apprentices taking their masters' test at the Utrecht coopers' guild.*

| Period    | Apprentices | Of which becomes master | %  |
|-----------|-------------|-------------------------|----|
| 1588-99   | 111         | 14                      | 13 |
| 1600-09   | 99          | 15                      | 15 |
| 1610-19   | 149         | 21                      | 14 |
| 1620-29   | 134         | 14                      | 10 |
| 1630-39   | 171         | 17                      | 10 |
| 1640-49   | 168         | 12                      | 7  |
| 1650-62   | 230         | 11                      | 5  |
| 1588-1662 | 1,062       | 104                     | 10 |

*Source:* HUA, Archieven stadsbestuur I, inv. 124.

Although the share of apprentices becoming master varied per guild, in general a large share of apprentices in several guilds did not become master in the same city even after completing their apprenticeship. At the Leiden surgeons' guild 394 apprentices started an apprenticeship between 1683 and 1729, of which 237 completed their terms. Of this group only 57 went on to become master in Leiden. Thus, in this guild one in four locally qualified journeymen took their masters' test. Approximately one in three journeymen at the Amsterdam pig butchers' guild became master.

If this ratio can be considered widespread, then local crafts may have demonstrated a pyramid-shaped hierarchical distribution, with a broad base of apprentices and a relatively small number of masters. That the number of masters was smaller than the number of

journeymen and apprentices seems reasonable. However, it is unlikely that every master had two to three journeymen working for him, as these estimates would suggest. For instance, at the Amsterdam blacksmiths' guild only one-fourth of masters had more than one journeyman in 1794.<sup>69</sup> In total this guild counted 101 masters and 142 journeymen in this year. These figures indicate that a substantial share of the journeymen that never entered the guild records as masters likely left the trade altogether, or migrated to another city, instead of working as a journeymen at the local guild. Unfortunately very little is known about these tramping journeymen in the Dutch Republic.<sup>70</sup>

The pyramid-shaped distribution within guilds may have been further toned down because many masters did not take on apprentices. Even at guilds that limited the number of apprentices there seems to have been a large share of masters that never provided training at all. At some guilds, especially art painters, particular masters were renowned for their training qualities and were therefore quite popular among apprentices.<sup>71</sup> It is difficult to infer whether non-training masters simply did not want to take on apprentices, or whether the supply of training exceeded demand. Masters that provided training nevertheless appear to have done so almost incessantly in many cases, taking on a new apprentice as soon as the former had left. Moreover, masters that provided little training in most cases only apprenticed their sons. This could be interpreted as a market where demand exceeded supply, because training masters could always directly take on new apprentices. These masters were at times possibly limited in taking apprentices through bylaws that limited the number of apprentices per master.

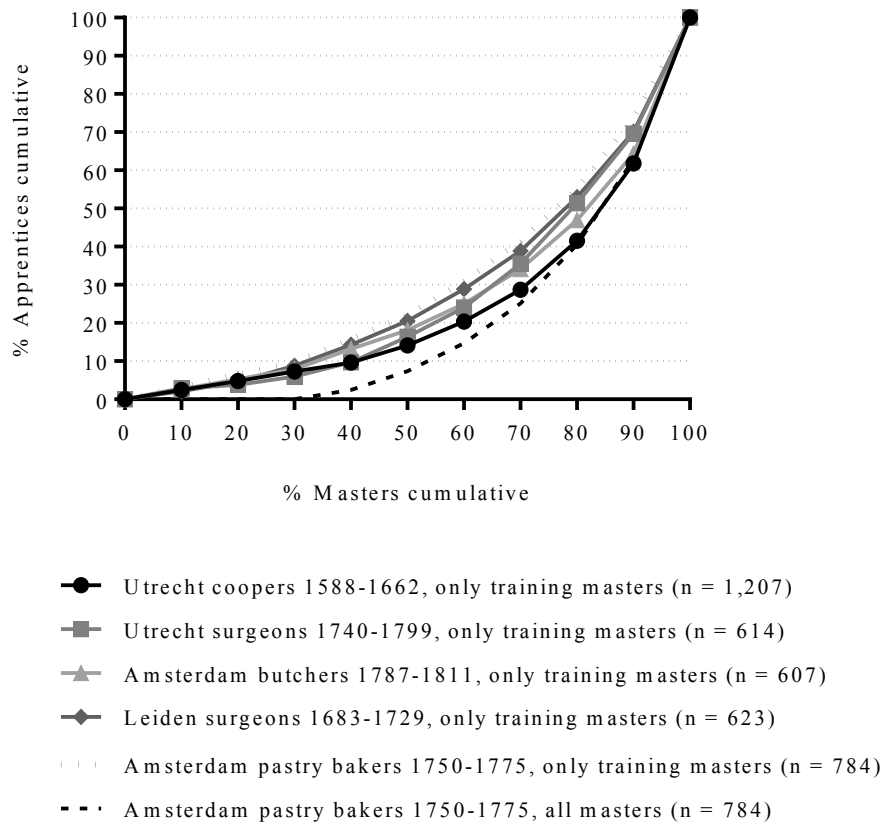
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<sup>69</sup> SAA, Archief Gilden, inv. 1494.

<sup>70</sup> Lucassen and Lucassen, 'The mobility transition revisited', pp. 363-64.

<sup>71</sup> Bok, 'Nulla dies sine linie'.

Figure 2. Distribution of apprentices over masters for different Dutch guilds.



Notes: The number of observations is in some cases different from Table 1 because some apprentices may have been apprenticed at multiple masters.

Sources: See Table 1.

As a result, the distribution of apprentices over different masters was quite skewed for all observed guilds, even though these masters generally adhered to these by-laws limiting the number of apprentices. Notwithstanding that for most guilds only masters that at some point provided training are included, still a small share of masters was responsible for most of the training. This can be seen in Figure 2. As with most other findings so far the results are quite similar across guilds. When all masters are included, as is possible only for the Amsterdam pastry bakers, the line understandably becomes even more skewed. At this guild 30 per cent of masters did not provide any training at all between 1750 and 1775. Seeing the similar distribution of apprentices at other guilds it is possible that also at these guilds quite some masters did not engage in training. In all observed guilds twenty per cent of (training) masters were responsible for taking on approximately 50 per cent of apprentices. As indicated above, it is not possible to tell whether the remainder did not want to take on apprentices or whether

demand for training was limited, although the almost absent intervals between apprentices at training masters can be interpreted as support of the first explanation.

### *Dutch apprenticeship after the guilds*<sup>72</sup>

After a long political struggle the Dutch guilds were in practice abolished around 1820. How did this affect apprenticeship training? Evidence on orphan apprenticeships indicates that the functioning of contracts did not change significantly.<sup>73</sup> Apprenticed orphans in Leiden around the 1850s served comparable terms as before and completed their apprenticeships in the same numbers. Also apprenticeships of Utrecht orphans around the 1860s orphans were very comparable to orphan apprenticeships earlier monitored by guilds. Completion rates of orphan apprenticeships both in Leiden and Utrecht were not much different between the eighteenth and first half of the nineteenth century, and also the number of masters during an apprenticeship career did not significantly change. This suggests that apprenticeship did not become more uncertain after guild monitoring disappeared.

What did change, however, was the diversity of crafts both groups were apprenticed at. It seems that nineteenth-century adolescents had much more craft apprenticeships to choose from. Especially in Leiden orphans were apprenticed at a broader range of crafts than they had been during the guilds. Also the number of apprentices per master had changed. Several masters now took on more apprentices than they had been allowed by previous guilds regulations. When these regulations had disappeared several masters in Leiden and Utrecht responded by apprenticing more adolescents simultaneously. Both developments suggest that access to training may indeed have been limited by guilds. Since guild records were of one the few entries into craft apprenticeships, their disappearance also means that there is little material on regular apprentices in the nineteenth century to compare these findings with.

It is important to stress that other than possibly enhanced access, it appears that before industrialisation Dutch masters and apprentices operated in a training market that functioned very similar compared to a century before. The incentive structure of both parties had arguably changed little. Both had sufficient reasons to partake in training, and as a result enforcement was not deemed necessary. Orphanage records are silent about any disputes arising after the disappearance of the guilds. The literature on the abolition of the Dutch guilds, makes little mention of their disappearance having affected the regulation of

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<sup>72</sup> This paragraph is largely derived from Schalk, *Splitting the bill*, chapter 3.

<sup>73</sup> Schalk, 'From orphan to artisan'.

apprenticeship training.<sup>74</sup> Guilds' complaints mostly concerned issues about the disappearance of ways to evaluate product quality.<sup>75</sup> These remarks can be interpreted as guilds being mostly concerned about losing the monopoly. Also politicians were not worried about a decline of apprenticeship after the guilds. A search on digitalized Dutch parliamentary debates between 1810 and 1850 using different key words relating to guilds and apprenticeship shows that neither guilds, their proponents, nor politicians perceived of a link between the abolition of the guilds and a possible decline of apprenticeship.<sup>76</sup>

At the dawn of Dutch industrialisation this relatively unregulated and unmonitored vocational training market nevertheless encountered some problems. It appears that the incentive structure for both masters and apprentices may have been altered by the growing demand for unskilled labour and an increasing division of labour. Supposedly the first change caused demand for apprentices to decline, while the latter reduced incentives for masters to provide training. During the guilds apprentices may have accepted harsh working conditions and long terms because after completion they gained certificated access to a relatively closed labour market with the prospect of higher wages. With skill certification being absent after the guilds apprenticeships no longer were the only route towards skilled work, possibly lowering the pay-off of apprenticeships. Moreover, masters may have had lesser need for apprentices because of an increasing division of labour and a deskilling of the general workforce. This caused masters to refrain from training and using apprentices as cheap labourers instead, thus further lowering the attractiveness of apprenticeship training.<sup>77</sup> As a result, apprenticeship may have declined when the Dutch economy industrialised around the 1870s.

There is little data available to test these assumptions. Formal firm-level apprenticeships in any case seem to have been rare.<sup>78</sup> Only some larger firms such as electrical company Philips, machine factory Stork, and some railway companies offered formal firm-level apprenticeships around the end of the nineteenth century.<sup>79</sup> Since few third parties monitored or regulated training, apprenticeships probably should be seen as relatively informal on-the-job training.<sup>80</sup> A Vocational Training Act regulating apprenticeships was only

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<sup>74</sup> Wiskerke, *Afschaffing der gilden*; Davids, 'Apprenticeship and guild control', p. 78.

<sup>75</sup> Prak, *Republikeinse veelheid*, pp. 98-100, 279-284.

<sup>76</sup> Accessible at [www.statengeneraaldigitaal.nl](http://www.statengeneraaldigitaal.nl).

<sup>77</sup> It has also been argued that the relatively open labour market may have caused masters or journeymen to refrain from training because they feared to 'glut their trade'; Snell, 'The apprenticeship system', p. 317.

<sup>78</sup> Meppelink, *Technisch vakonderwijs*, pp. 86-91.

<sup>79</sup> Groot, *Fabricage van verschillen*; Beets, *Tachtig jaar Stork*; Dehing, *Eene soort van dynastie*, pp. 49-52.

<sup>80</sup> Anderson, 'The long road to collective skill formation', p. 112.



introduced in 1919.<sup>81</sup> However, as late as 1928 only the metal industry knew an industry-wide apprenticeship system, where about 2,000 apprentices were trained.<sup>82</sup>

One party that did monitor apprenticeships before 1919 were, again, municipal orphanages. As they had done before, orphanages continued to register the training of orphans and to collect wages, in order to ensure orphans learned a trade – and thus were able to leave to orphanage at majority. For the Amsterdam *Diaconieweeshuis der Hervormde Gemeente* a register is available that lists on-the-job training of all male orphans during the years 1887-1902.<sup>83</sup> The register gives the name of the employer; his craft; the orphans he employed; the period of employment; and the reason for termination of the employment. As such it provides a very detailed look into on-the-job training of Dutch adolescents during industrialisation. In total on-the-job training of 327 Amsterdam orphans is known, composing over 1,400 placements at local employers. Indeed it seems that relations between orphans and their bosses had become more insecure, at least in Amsterdam.

Figure 3 gives the distribution of terms spent at each employer per craft. The figure captures about 70 per cent of all orphan placements. On-the-job training at the building industry (especially at carpentry) occurred most, followed by tailoring and forging. The figure shows that the majority of all placements had a very short term. More often than not the median term was as short as four to seven months within specific crafts. Only around twenty per cent of placements lasted longer than one year. In the manual crafts, and in retail, on-the-job training was characterized by very short training periods. It is telling that 62 per cent of these placements fell between a couple of days to six months at most. With an overall median term of five months (and a mode of only three months), Amsterdam orphans had much shorter terms compared to their Leiden and Utrecht counterparts in the first half of the nineteenth century.

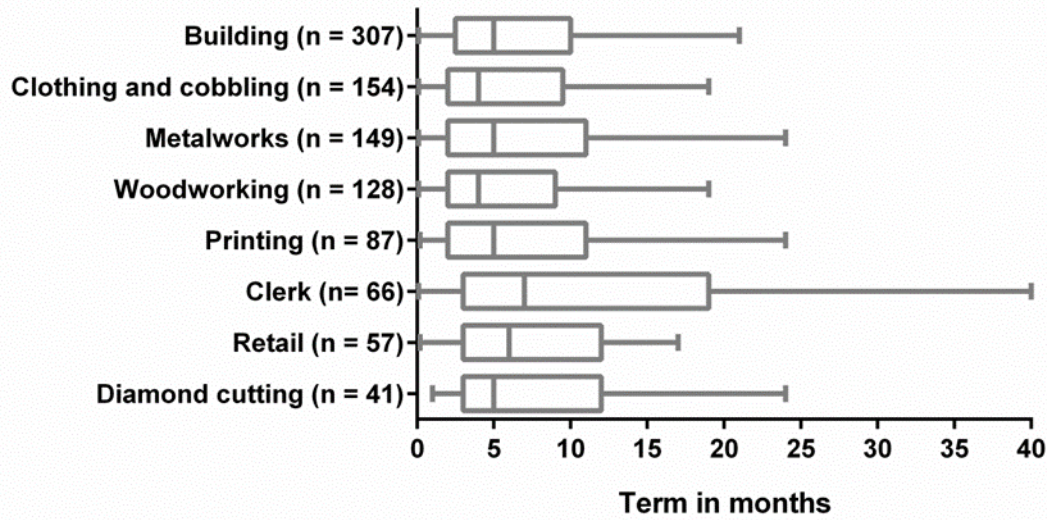
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<sup>81</sup> Trampusch, ‘Co-evolution of skills and welfare in coordinated market economies?’, p. 202.

<sup>82</sup> *De Ingenieur; T. Technische Economie*, Nr. 49 (1928) [Bijlage], 66-9.

<sup>83</sup> SAA, *Diaconieweeshuis der Hervormde Gemeente*, inv. 1006.

Figure 3: Distribution of terms of Amsterdam orphans, 1887-1902.

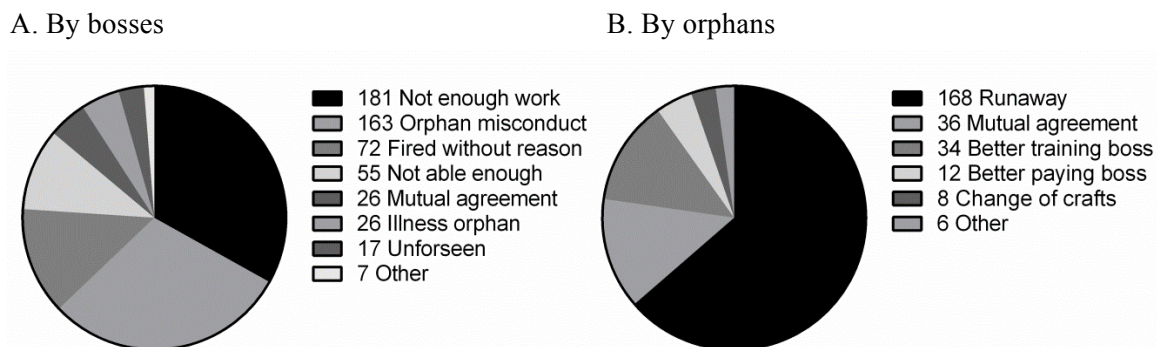


Source: Schalk, *Splitting the bill*, p. 91.

Figure 4 takes a closer look at the reasons that were given for termination of agreements, and demonstrates that these short terms were given in by insecurity for both employer and adolescent. These reasons point towards a training market where adolescents could lose their job at any moment and where bosses were continuously unsure whether adolescent workers would return the next day. In 61 per cent of the cases the boss took the initiative for ending the agreement, and 30 per cent of agreements ended on behalf of the orphan. The remaining nine per cent can be ascribed to the regents removing an orphan from his boss. Although this share varied from craft to craft, in general bosses in all crafts took the lead in ending placements. Orphans did run away from smiths in relatively large numbers, perhaps because the work was physically demanding.<sup>84</sup>

<sup>84</sup> Giele, *De arbeidsenquête van 1887, vol. 1: Amsterdam*, response no. 1334.

Figure 4. Reasons for terminating on-the-job training of Amsterdam orphans (n = 886).



Source: Schalk, *Splitting the bill*, p. 92.

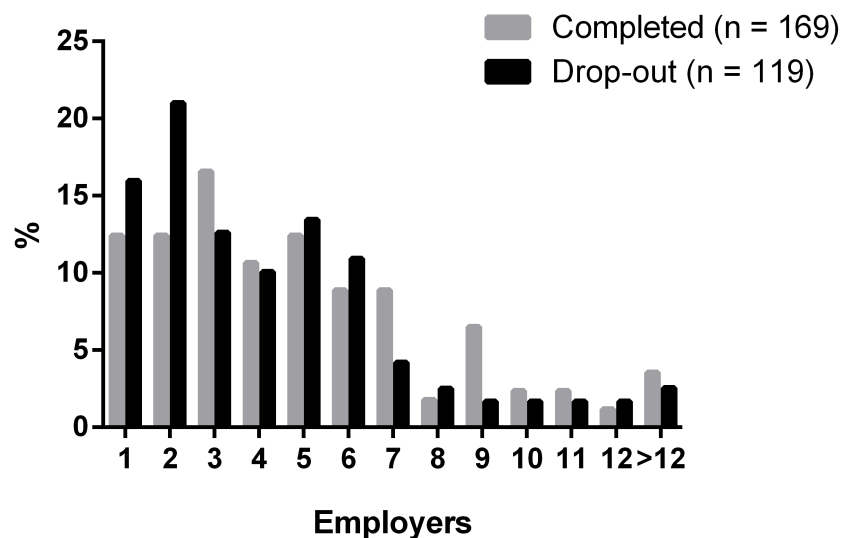
Ending on-the-job training with mutual agreement occurred only in eight per cent of all cases. Orphan Buckert, for instance, began on-the-job training at a carpenter in 1890. When he left the orphanage in 1895 he had visited no less than sixteen employers in carpentry. In every case Buckert was fired not because he was unwilling or misbehaving, but simply because the carpenter temporarily had not enough work. Although he was eventually capable of becoming a carpenter himself, this was despite and not because of this large number of employers. Bosses also seem to have been unsatisfied by the conduct of many orphans, although it is difficult to establish if orphans were indeed troublemakers or if the boss was just looking for a reason to fire him. In some cases misconduct is obvious. Van Heusden, for instance, was fired in 1891 because he had stolen money from grocer Mulder.<sup>85</sup> Even missing a day's work because of illness was enough for some bosses to fire an orphan. Bosses nevertheless also faced insecurity because orphans ran away regularly. Orphans could, and did, leave at any moment. Securing better training or better pay was for instance a reason for orphans to quit termination, but mostly orphans simply did not return without reason.

Because time spent at every employer was short and insecure, orphans had to visit multiple bosses to become skilled. The relatively well-behaving orphan Lansmig received no coppersmith training from his first two employers, and was fired from his fourth employer because he was ill. Because his skill formation as a result had been slow, the next brazier fired him because he was not skilled enough. As can be seen in Figure 5, it was far from an exception to have several employers during the period of on-the-job training while living at the orphanage. This number had increased dramatically when compared to Leiden and Utrecht

<sup>85</sup> SAA, Diaconieweeshuis der Hervormde Gemeente, inv. 1006, fol. 33.

orphans that were apprenticed before industrialisation had set in. Because skill formation was difficult several orphans proved unable to leave the orphanage. In December 1897 some orphans complained at the regents that their earnings were too low to provide for themselves. The regents decided that in the future not only age but also weekly earnings should be considered when deciding to discharge orphans.<sup>86</sup> Apparently on-the-job training resulted in too little skill formation, and hence in low wages.

Figure 5. Number of employers during on-the-job training of Amsterdam orphans.



Source: Schalk, *Splitting the bill*, p. 93.

Even when private parties such as orphanages tried to promote training, by the end of the nineteenth century skill formation in the Dutch craft sector was mostly left by chance and perseverance. Only the really adamant and motivated adolescent had a chance of making it as a skilled worker. Moreover, even after training they had limited options to signal their skills to other employers. ‘These days, boys can no longer learn their craft at bosses’, an inspector of secondary education lamented in 1890.<sup>87</sup> A lengthy contribution in the journal of the Dutch Society to Advance Industry in 1891 criticized the condition of Dutch on-the-job training in detail: ‘Nowadays boys leave one boss after the other with the greatest triviality. [...] The boss continuously fears that the boy will leave him to use his acquired skills at another boss. Bosses therefore slow down training by putting boys to work at specialised repetitive tasks, so

<sup>86</sup> SAA, Diaconieweeshuis der Hervormde Gemeente, inv. 1006, minutes of 16 December 1897.

<sup>87</sup> *Arbeidsenquête 1890: Tweede afdeling: Zwolle, Deventer, Kampen*, response no. 1607.

that they bring in the highest profits'.<sup>88</sup> This had apparently caused an abundant supply of mediocre workers to the detriment of skilled workers.<sup>89</sup> Incidental remarks from labour reports further indicate that these conditions were not at all exclusive to orphans.

The decline of apprenticeship was possibly countered by the establishment of vocational evening and daytime schools, which were founded in ever larger numbers from the end of the nineteenth century. Educational and occupational data from Dutch conscripts suggests that these schools did not directly result in higher wages compared to workers trained on-the-job. Nevertheless, vocational degrees did significantly increase the probability of landing a job as a skilled worker, while lowering the chances of becoming an unskilled worker.<sup>90</sup> Thus, the absence of skill certification may indeed have been one of the reasons behind the decline of apprenticeship training in the last quarter of the nineteenth century.

## **Conclusion**

This paper has reviewed the available data on Dutch apprenticeship training in the crafts that were monitored by guilds until 1820. At least during the preindustrial period apprenticeship training in the crafts looked more or less similar throughout the cities of The Netherlands. Everywhere contracts were the outcome of individual agreements between masters and adolescents. They could be heterogeneous as a result, even within the same craft or at one individual master. Terms could for instance vary according to the skills of the apprentice, his contribution to the workshop, and the premiums paid. Nevertheless, in all crafts the functioning of apprenticeship was very similar, with relatively flexible agreements between masters and apprentices. Guild by-laws concerning apprenticeship did vary per craft, but Dutch craft guilds in general only regulated a few elements of apprenticeship training: apprenticeship fees, (minimum) terms, and at times the number of apprentices per master.<sup>91</sup> Most other aspects of the apprenticeship were open to negotiation between masters and apprentices.

Apprenticeship contracts were not only flexible but also quite uncertain. In many guilds large shares of apprentices dropped out during different stages of training, never to become master. Nearly always sons of masters were most successful in completing their apprenticeships and subsequently becoming masters. In many guilds sons of masters were

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<sup>88</sup> *Orgaan der Nederlandsche Maatschappij ter bevordering van Nijverheid*, vol. 2 (1891), p. 97.

<sup>89</sup> *Orgaan der Nederlandsche Maatschappij ter bevordering van Nijverheid*, vol. 2 (1891), p. 96.

<sup>90</sup> Schalk, *Splitting the bill*, pp. 102-14.

<sup>91</sup> Guilds could also set fees and regulations concerning the masters' test, but these fall beyond the scope of this paper.

exempt from guild bylaws regulating apprenticeships. These guild by-laws may have affected access to training for non-masters' sons, although this likely varied per guild and per period. The distribution of apprentices in any case demonstrates that most early modern craft training in The Netherlands was done by a relatively minor share of masters, possibly affecting access to training as well.

During the nineteenth century apprenticeship training survived the abolition of the guilds, yet it came under pressure during industrialisation. Possibly, an increasing division of labour coupled with deskilling put further strain on the incentive structure that earlier had allowed apprenticeship training to function. Together with an absence of skill certification and relatively open labour markets, both parties may have had fewer reasons to partake in training once industrialisation took off. At least in Amsterdam, on-the-job training became fraught with insecurity, making it harder and harder to become skilled. Eventually vocational schools became available in larger numbers to put skill formation on a more secure footing. Dutch apprenticeship only structurally revived after the Second World War, when apprenticeship training and formal schooling became complements instead of substitutes.<sup>92</sup>

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<sup>92</sup> Slaman, Marchand, and Schalk, *Kansen in het Koninkrijk*, pp. 144-157.

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