

“Bad Beer and Beer Debts:
Asymmetries of Information, Trade Credit, and Brewers’ Guilds in Early Modern Holland”

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Abstract: This case study of the brewers’ guilds in Haarlem and Rotterdam during the seventeenth century argues that these guilds worked together in conjunction with the town magistrates to develop and enforce rules or property rights that solved negative externalities and collective action problems in financial and product markets. Guild rules were means of resolving conflicts between the brewers by structuring property rights. In Haarlem and Rotterdam, the guilds established the principle of exclusive dealing to eliminate negative inter-brand externalities and to reduce the risks that brewers and the towns faced in over-extending credit to customers and in “dumping” beer. Simultaneously, the brewer’s guild rules realized the limits of exclusive dealing. Thus, guild rules also allowed the restructuring and renegotiation of contracts and regulated the transfer of customers between brewers. As shown in this paper, initial research suggests that guild and municipal authorities enforced these rules during the seventeenth century.

Key words: Asymmetries of Information, Institutions, Property Rights, Early Modern European Credit Markets, Collective Action, Guilds

INTRODUCTION

As in the modern world, principal-agent problems and asymmetries of information played a critical role in shaping trade and exchange in pre-industrial Europe. In his book *The Commercial Revolution*, Lopez for instance argued that medieval merchants overcame such problems in part by developing contracts and systems of credit, innovations that helped propel the growth of the medieval European economy (Lopez, 1976). More recently, Grief (Grief, 2006) and others have examined and debated the roles institutions, including guilds, played in solving problems arising from asymmetrical information and their impact on the economy (Epstein, 1998, 2008; Ogilvie, 1997, 2007, 2008). In late medieval and early modern markets, buyers, for instance, often faced uncertainty about the quality of the goods that had been produced in distant centers. Consequently, producers and traders had incentives to reduce uncertainty about the quality of their wares, including by enforcing craft guilds regulations that set standards for the quality of export goods (Epstein, 1998). By the late sixteenth century, such quality regulations no longer played an important role in reducing information costs for Holland's brewers operating in export markets.

By the seventeenth century, brewers in Holland had long made extensive use of trade credit as a way of controlling problems of asymmetrical information and to expand their market share (Smith, 1987; Petersen and Rajan, 1997). Trade credit reduced the buyer's risk or moral hazard of buying an inferior product, or bad beer, since it gave the buyer a period of time to determine the quality of the beer (Long, Malitz, and Ravid, 1993). In fact, clauses governing the return of bad beer were typically included in contracts between brewers and the distributors. While the extension of trade credit reduced the risks distributors and wholesalers faced and facilitated the expansion of the brewer's markets, the extension of trade credit also increased the brewer's financial risks.

In extending trade credit, brewers also faced moral hazard and potential negative externalities. Moral hazard resulted since she could be certain that a buyer would repay the credit or, in cases when there was a contract, abide by its terms. Yet, the information embedded in the customer's payment history also worked to shed light on her risks. Timely payment was an indicator of sound credit. When a customer missed a series of payments, the brewer could undertake a variety of actions prior to pursuing bankruptcy proceedings, including turning off the tap. For the incumbent brewer, when the customer found a "poaching" brewer who was willing to make a delivery, or turn on the tap, this was a negative externality; it did not take into account all of the incumbent brewer's costs.

In Holland's early modern credit market the inability to determine a customer's total indebtedness posed substantial problems for brewers.¹ Issues in monitoring total indebtedness were not unique to Holland's brewers: London's brewers were not able to overcome similar problems in the eighteenth century and this was also true of New England bankers in the nineteenth century (Mathias, 1959; Lameroux, 1994). When a non-cooperating brewer extended credit to another brewer's customer, this could lead to the

¹ For work on the late medieval early modern credit market in Holland, see Zuiderduijn, 2009 and Zuiderduijn, De Moor, and Van Zanden, 2011.

overextension of credit by the town's brewers since the customer's total indebtedness was unknown. From the point of view of the town's industry, should a customer default who had been granted too much credit, the town's brewers would not be able to recover the full amount of capital they had lent, leading to capital depletion and the transfer of wealth. This created a collective action problem and potential for guild and government intervention (Ostrom, 1990).

This case study of the brewers' guilds in Haarlem and Rotterdam during the seventeenth century argues that these guilds worked together in conjunction with the town magistrates to develop and enforce rules or property rights that solved negative externalities and collective action problems in financial and product markets. In Haarlem and Rotterdam, the guilds established the principle of exclusive dealing to eliminate negative inter-brand externalities and to reduce the risks that brewers and the towns faced in over-extending credit to customers and in "dumping" beer. As shown in this paper, initial research suggests that guild and municipal authorities enforced these rules during the seventeenth century.

Simultaneously, this paper also shows that the brewer's guilds realized the limits of exclusive dealing. As economists have argued, exclusive dealing (or vertical constraint) is a negative externality to competitor seeking to enter a market. In essence, the guild letters allowed indebted customers to break contracts with their existing brewer, provided that they could find another brewer to guarantee their debt. Thus, the guild rules also allowed the restructuring and renegotiation of contracts and regulated the transfer of customers between brewers.

I. BREWING AND BREWERS' GUILDS IN HAARLEM AND ROTTERDAM

In the early seventeenth century, Haarlem and Rotterdam developed into Holland's principal export brewing centers (Yntema, 2009, pp. 270-272; Unger, 2001). Haarlem's export brewing industry began to develop anew in the late 1580s and 1590s. The industry grew rapidly from a handful of breweries in the late sixteenth century to fifty breweries in the mid-seventeenth century, with its export markets concentrated in North Holland, Friesland, and Overijssel. Haarlem's beers were typically sold in other towns as Haarlem beer, including the town's renowned Jopen beer. Thus, all of Haarlem's breweries sold similar "beer styles," even as each firm had their own trademarks.

Rotterdam's brewing industry grew rapidly in the early decades of the seventeenth century. Rotterdam numbered roughly thirty breweries by the 1620s. Exports flowed to the regions that were connected by river transport to Rotterdam, with concentrated in the towns of Holland, Zeeland, and along the Rhine River. Similar to Haarlem, Rotterdam was known for a particular style of beer: a beer that was famous for its sweetness.

In Haarlem and Rotterdam, brewing developed into a capital-intensive industry that was characterized by economies of scale. In contrast to most other early modern industries where there were constant returns to scale, the cost per unit in brewing decline as output increased. Economies of scale allowed brewers in Haarlem and Rotterdam to compete in

export markets across Holland and the Republic. The ability to export, however, required that brewers in Haarlem invested considerable sums not only in brewing facilities, but also in circulating capital needed to finance the trade.

A typical brewery in Haarlem or Rotterdam required an investment of fifteen to twenty thousand guilders for the plant, while the amount invested in financing the trade was somewhat greater. In the mid-seventeenth century, the larger breweries in Rotterdam had extended book credit totaling 60,000 guilders to their customers. The terms under which the trade credit was extended varied: some customers paid the credit off within the normal term, while other brewers debts were secured with collateral. It was not uncommon for distributors to have a loan of several thousand guilders or more. In several exceptional cases, a distributor might owe a brewer 15 or 20 thousand guilders. Brewers also signed contracts to establish franchises to facilitated the sale and distribution of their beers, or owned taverns and inns.

The brewing industry's capital structure set it apart from other industries. Competition between brewers was marked, especially in periods of contracting markets or economic downturn. Under these conditions, the large fixed capital investment and excess capacity would have give brewers an incentive to sell as much as possible to cover their costs, thus putting downward pressure on prices. Even in periods of prosperity, brewers would have been on the lookout to improve their bottom line by gaining new customers and making additional sales. Under these competitive conditions, guild rules were an important means to organize the competition between the brewers through delineating rules and property rights. The articulation of guild rules, however, did not imply that they were enforced.

The brewers' guilds

Brewers in Haarlem and Rotterdam were organized into guilds with traditions dating back to the Middle Ages. While considerable archival evidence documents the actions of the Haarlem brewers' guild from the mid-sixteenth century on, little evidence has survived regarding the activities of the Rotterdam brewers' guild. Especially important for this study, the guild letters organizing and structuring the Haarlem brewers' guild have survived from 1592 along with the revised and augmented letter from 1642.² For Rotterdam, on the other hand, guild letters prior to the renewed and revised 1648 guild letter have been lost.

The Haarlem and Rotterdam guild letters required all brewers in the town to be members of the guild and to be citizens of the town. The entry fees, both for those born in the town and for those who moved in and paid slightly more were not important barriers to entry, amounting to 50 guilders or less. Given the nominal sums of the entry fee in relation to a firm's total capital requirements, guild membership did not constitute a barrier to entry. All those who could raise sufficient capital and organize production could enter the guild.

²The Haarlem guild regulations are found in Gemeentearchief Haarlem, Toegang 1155, Brouwersgilde, number 1.

The letters also determined the selection of the guild leadership and their responsibilities. In both towns, the guild members nominated guild brothers for the position, and the town's burgomasters selected who would serve. To assure continuity, one or two of the guild's leaders who had served in the preceding year would govern the guild with the incoming finders. In addition to advocating and promoting the guild's interests with the town government, the guilds leaders were responsible for organizing the guild meetings and for policing and enforcing all of the guild's regulations.

To what extent did guild regulations control the amount, price or quality of the beer, thus, allowing the guilds to act as a cartel or monopolist? In both towns, there were no rules limiting output. Regulations found in typical craft-guild letters limiting output, including for instance those limiting the number of journeymen or apprentices a master could employ, were not applicable to brewing. Likewise, the letters did not include regulations that limited the price or the quality of the beer that was produced. In periods of exceptionally high grain prices brewers sometimes made agreements limiting price competition, but these quickly fell apart as economic circumstances changed.

While agreements on output, price, and quality are lacking in the letters, the brewers undertook a broad range of activities to promote their collective wellbeing. The guilds institutionalized rituals and practices that helped to promote greater commonality and trust among the brewers, including dinners and the practice of attending a guild-brother or guild-sister's funeral. While the rules structuring guild organization, e.g., the appointment of the headmen, were consistent over time, particular guild rules were augmented and modified as guild members and town authorities found necessary. This too was the case with the rules that structured competition between the brewers for their customers.

II. MORAL HAZARD, NEGATIVE EXTERNALITIES, AND PROPERTY RIGHTS

The regulations governing the brewers' mutual interactions with customers and the surety of the debt a customer owed a brewer were the most extensive of all rules in the Haarlem and Rotterdam letters. The contemporary concern with these issues suggests that it was important to the guild members and town authorities to establish rules that provided clarity and reduced conflict. Given that brewing was a capital-intensive industry subject to increasing returns to scale, competition between brewers for customers and ensuing conflicts were common. As I will argue below, the primary aim of the regulations was to reduce negative externalities and to increase the town's surplus. While the guild letters set the rules for the resolution of conflicts between the brewers, it did not eliminate competition between them.

Following Cheung's (1992) definition of property rights, the rules resolving the conflicts that arise from competition between brewers are property rights. Further, according to Cheung, "Given a set of property right constraints, the criteria of determining winners and losers will emerge, and these criteria will change when the rules are altered. If

the criteria are changed, the winner/loser distribution will also change” (Cheung, 1992, p. 49). Three important sets of questions arise:³

- a. Which rules or property rights did the brewers’ guilds establish governing credit and customers and who benefitted from these rules?
- b. How did the guild rules change over time and what was the impact of these changes?
- c. How were the rules monitored and were they enforced?

This section analyzes the ways in which the guild rules (or property rights) resolved the conflicts (or competition) between brewers for customers and the modification of rules over time, while the following section examines how they were enforced.

The 1592 Haarlem guild letter

The 1592 guild letter established that brewers had exclusive delivery rights to their customers. As the letter’s ninth article stated:

No one of the brewers or brewsters may attract or approach any of their guild-brothers or guild-sister’s beer-sellers, tavern-keepers, beer distributors, or customers (inside of Haarlem or residing in other cities or lands) and deliver beer to the same, or win them as customers, in any manner whatsoever.

In short, each brewer had the right of exclusive delivery. Yet, this was not the end. Competition between brewers, including the drive to expand business or to keep the business going, led them to search for new customers. The guild rule thus allowed an incumbent brewer to order another brewer, or “poaching” brewer, to cease delivery to their customer in the presence of “two good men” or one of the guild’s finders. If the poaching brewer delivered beer to that customer again after having been warned, the poaching brewer was required to give the incumbent brewer “contentment and certainty” for the customer’s debt within fourteen days.

In effect, the guild rules allowed a customer to make a new contract with another Haarlem brewer, provided the brewer guaranteed the customer’s debt with the incumbent brewer, even in the face of the principle of exclusive dealing.⁴ In providing the incumbent brewer with surety, the poaching brewer was to do this with “the knowledge and under the seal of the Schepenen [Aldermen] of Haarlem.” If the debt was less than 30 guilders, the second brewer had to settle up the entire amount within six months. However, it was more than 30 guilders, one-third of the debt had to be paid every seventeen weeks. If the first brewer had agreed with the customer that the debt would be repaid under different terms, the second brewer could pay off the debt according to this schedule.

Why did the guild letter establish the principle of exclusive dealing and at the same time permit customers and other brewers to break this contract? The reasoning the

³ Among other questions, there is also the question of origins, which falls beyond the scope of this paper.

⁴ In fact, in the 1592 letter, there was no fine for taking over another brewer’s customer. However, if the second brewer failed to provide the surety within the specified period, then he/she would be fined 20 guilders.

brewers' guild and town government used in formulating these rules is unknown. Exclusive trading, however, had several important advantages for the brewer and the town's welfare given the industry's structure and the limits of early modern financial markets. One advantage of exclusive dealing was that since brewing was a capital-intensive industry, the steady demand generated by exclusive deliveries was important for the rational planning of production and financial survival of the firm. So too, the steady supply of beer was beneficial to customer, especially for large-scale distributors and suppliers. Another argument for exclusive dealing is that promoted the growth of the brewer's market share, in part because sellers, including inns and taverns, had incentives to promote the brewer's beers. Finally, exclusive trade also can eliminate an externality when two or more manufactures provide a good or service to a retailer, a main focus of the Haarlem guild letter and this paper.

The brewers right to exclusive dealing in the 1592 letter (and later letters) aimed to eliminate the negative externalities involved when two brewers delivered beer to the same customer and to secure the incumbent brewer's capital. For brewers, the extension of trade credit was fundamental to the continued operation of the firm. As indicated above, the extension of (trade) credit helped finance the growth of the industry: it greased the wheels of exchange. Trade credit reduced the moral hazard a buyer faced: it gave the buyer time in which to ascertain the quality of the beer. Likewise, trade credit gave the brewer information about market conditions, and more importantly, information regarding the customer's financial situation. When a second non-cooperating brewer also delivered beer, this negatively impacted the incumbent's financial dealings. It made it more difficult to monitor the customer's financial status and it reduced the incumbent brewer's leverage over the customer. Turning off the tap was no longer a viable strategy and the costs of collecting the debt could be expected to rise.

The extension of credit by a non-cooperating brewer further complicated the situation of the first brewer. In addition to increasing the costs of monitoring the customer's debt, the incumbent brewer could no longer determine the customer's total indebtedness. The further extension of credit also increased the risk of default (insofar as total debt is an indicator of the likelihood of default). From the incumbent's point of view, the poaching brewer reduced the amount of debt the incumbent could potentially recover if the customer defaulted. In Haarlem, where the extension of trade credit to buyers was widespread and regularly amounted to several thousand guilders per customer, this posed serious issues for all brewers, since all brewers were incumbent brewers and subject to the potential costs of poaching. Under such conditions, it is likely that each brewer would desire the right to exclusive dealings with their customers.

From the town's collective point of view, that is from the point of view of increasing the town's surplus, exclusive dealing limited two potentially serious impediments to the town's welfare: 1) the overextension of credit to customers outside of the town and 2) the negative consequences of dumping. With fifty brewers in Haarlem, intense competition between non-cooperating brewers could lead to the town's industry extending too much credit in export markets. Since non-cooperating brewers could not determine a customer's total indebtedness, the extension of credit by a poaching brewer to

an incumbent brewer's customer might result in too much credit being extended to the customer.⁵ Should a customer who had been granted too much credit default, the town's brewers would not be able to recover the full amount of the capital they had lent. From the point of view of the town's capital stock, the overextension of credit by the poaching brewer increased the risk of capital depletion and the transfer of wealth.

The rules on delivering beer to another brewer's customer also promoted the industry's collective wellbeing by limiting the amount of beer a brewer could or would "dump" to other brewers' customers. Operating in a capital intensive industry, when brewers had excess capacity or beer was on the verge of spoiling, brewers may have been tempted to sell beer to another brewer's customer below the prevailing price, thus cutting into the other brewer's business and reducing their income. Dumping put further downward pressure on prices and industry profits. For the industry as a whole, it was beneficial to reduce this practice. The requirement to take over the debt of a customer after the second delivery reduced the possibilities of dumping, since the "poaching" brewer had to assess the customer's creditworthiness and decide if extending credit to this customer was the best allocation of his resources.⁶

Of course, not all customers with a financial tie to a brewer would have been tempted to take delivery from another brewer. Long-term relationships often worked to the advantage of distributors and wholesalers. Remaining with the same brewer allowed distributors to take advantage of the reputation and beer characteristics associated with the brewer's trademark. In periods of downturn, brewers could also take steps to help tie distributors over who fell behind by altering credit terms and extending further credit. Distributors who took delivery from another brewer undermined the relationship with their supplier. A distributor would most likely take such a step when they were financially pressed and getting closer to bankruptcy or the buyer desired to change brewers and obtain beer from a "better" brewer or more credit with which to expand their business.

The guild letter did not give Haarlem's brewers timeless, single-handed control over a customer. Customers without debt were able to take delivery from another brewer straightaway. However, when a customer owed money to a brewer, the customer had to pay the debt before switching brewers. If the customer did not have the means, then the customer had to find another brewer to guarantee their debt with the incumbent brewer. Thus, the guild letter did not per se limit a customer's ability to acquire Haarlem beer on the basis of one brewer's judgment of their creditworthiness, which may have restricted the town's overall output and led to innumerable conflicts between brewers. Rather, when one brewer was willing to extend (more) credit or deliver beer under a different set of conditions than the first brewer, it ordered the way in which outstanding debts were assumed and the switching of the customer between the brewers.

⁵ Under these conditions, brewers may also decide to lend less than the optimal amounts to customers due to the uncertainty of recovering their debts. This too would reduce industry profits.

⁶ Other considerations would include what kind of retaliation a "harmed" brewer might undertake and the impact of taking on the customer in this way on their reputation.

Insofar as all brewers are competitors seeking to expand firm where profitable, exclusive dealing is a disadvantage. From the point of view of competing brewers, an incumbent brewer's exclusive right was a negative externality. As economic circumstances change, including the characteristics of the producing and supply firms, renegotiation could be beneficial for the customer. It allowed for the redistribution of the surplus generated between the brewer and the supplier. It also allowed customers to switch to brewers who would supply more credit. In this way, the ability to renegotiate contracts with suppliers in Haarlem worked to promote competition.

The Haarlem 1642 guild letter

Fifty years later, in 1642, a new and revised guild letter considerably amplified and extended the rules governing a brewer's exclusivity vis-à-vis an indebted customer and the transfer of customers between the town's brewers to a number of new situations. The 1642 letter reiterated the core provision of the 1592 letter granting brewers exclusive delivery. Indeed, the opening of the (tenth) article forbidding brewers to deliver beer to or approach another brewer's customer are word for word the same as in the 1592 letter cited above, but now required that a fine of 50 guilders be paid for this offense. The 1642 made two other important modifications: first, if the second brewer went ahead and made another delivery, he was required to give surety passed before a notary for the customer's debt to the incumbent brewer within fourteen days. Second, this article explicitly introduced the stipulation that the customer remained jointly liable for the payment of the debt until it was fully paid, despite the second brewer's note.

Several new detailed articles were added to 1642 letter that addressed situations not addressed in the 1592 letter, presumably in an effort to put an end to conflicts that had arisen between the brewers in situations where there was ambiguity. Thus, the letter explicitly allowed a brewer who was owed money by a customer to prohibit another brewer from delivering beer to her customer when:

1. she decided to stop delivering beer to the customer;
2. the customer had stopped doing business with her;
3. or she had died or stopped brewing.

In all of these situations, an argument might be made that the business relationship between the brewer and the customer had been terminated and that other brewers could start delivery. The letter, however, indicates that the brewer's claim for the debt defined the relationship as ongoing in the above cases. The clarification of the rule thus favored those who held existing debt and required the new brewer to assume liability for the customer's debt if they made a delivery after the injunction.

The 1642 letter also regulated a number of situations involving the extension of credit that are less closely related to the core provisions of the 1592 letter. It expanded the scope of the 1592 guild letter in four areas:

1. it extend the rule by which a brewer could interdict a second brewer from supplying a customer to situations in which yet another (or third) brewer made deliveries;

2. it determined a brewer's responsibility for a customer's debt when two or more brewers had jointly delivered beer to a single customer;
3. it established the timeframe in which a brewer had to decide which customers with a financial tie to take on as his customers when he acquired a brewery;
4. and, it regulated the poaching brewer's responsibility in settling the financial claims a customers had vis-à-vis the incumbent brewer.

These clarifications and extensions of the guild letter reflect both the intense competition between the town's brewers for customers as the industry expanded and matured in the second quarter of the seventeenth century. The modifications of the letter, however, do not alter or change the core provisions of the 1592 letter. Aside from a change to the letter's tenth article, the letter governing the brewing industry remained unchanged for the remainder of the seventeenth century.

The Rotterdam 1648 guild letter

The first existing ordinance for the Rotterdam's brewers' guild dates from 1648. Although earlier letters have been lost, the Rotterdam brewer's guild was active since at least the early seventeenth century. In 1648 a renewed and amplified letter was approved by the Rotterdam *gerecht*. According to the letter's preamble, the *gerecht* had amplified and altered the existing letter due to "the daily increasing number of considerable complaints" that some "gain-seeking persons" among the common brewers "had introduced a number of ... new and indirect means... sinisterly attracting" the business of their guild brothers. Further, these practices threatened the "very foundation" of one of the town's principal industries and without the *gerecht*'s timely intervention, these practices "would bring the [industry] to ruin."

While the earlier guild letter is lost, it is clear from the language of the 1648 letter and other archival evidence in Rotterdam that rules granting brewers exclusive dealings and regulating the transfer of customers had been in place earlier. The rules regulating the competition between brewers for customers accounted for roughly two-thirds of the text of the letter. Similar to the Haarlem letters, the 1648 Rotterdam letter forbade brewers from attracting the customers of another Rotterdam brewer anywhere and by any means (direct or indirect) as long as the brewer was owed money. When a brewer discovered that another brewer was delivering beer to one of his customers, the incumbent brewer was to go to the guild's servant (who had taken an oath to practice the procedures outlined in the guild letter and whose testimony would be considered fully trustworthy by the *gerecht*) and have him deliver a writ to the poaching brewer, which was to detail the amount of the debt and any surety the brewer had for debt.⁷ The writ or injunction fully informed the poaching brewer of the extent of his liability should he take the customer over through making another delivery. If the brewer did so, he had one month to provide the incumbent brewer with surety. As in Haarlem, the Rotterdam letter also spelled out the terms within

⁷ Since it was also possible that the first brewer did not know which brewer was delivering beer to his customer –it was also possible for the brewer to have the guild servant deliver an "interdiction" to all of the brewers or any other person in their brewery to cease delivery.

which the customer's debt was to be paid and specified that the poaching brewer's guarantee did not free the customer from their responsibility for the debt as long as it was unpaid.⁸

Just as in Haarlem, the Rotterdam guild letter reduced an incumbent brewer's moral hazard through instituting exclusive dealing, while also allowing the renegotiation of exclusive dealing by regulating the transfer of customers between brewers. Yet, as in Haarlem, at least some brewers sought ways to get around the guild rules. As the 1648 Rotterdam letter puts it, some brewers in the town had devised "sinister" means to poach customers from their guild brothers. These brewers had adopted the practice of delivering beer to "factors" who then delivered the beer to another guild-member's customer. These brewers apparently argued that they were not breaking the rules since they had not made the delivery, but an independent party had. The guild letter, however, squarely took aim at this practice, forbidding it since the factors, who included the brewer's children, brothers, sisters, cousins, nieces and nephews among others, could not have gotten beer on their own. In putting an end to this "bad" practice, the guild letter imposed a considerable sanction: the brewer had to pay a fine of 1200 guilders and their brewer had to be shut down for six weeks.

In Rotterdam the letter also prescribed the procedure that was to be followed when two brewers delivered beer to the same customer who owed each of the brewers money. The letter delineated two paths that could be followed when a second "poaching" brewer, who was owed a 'substantial' sum of money, decided to stop delivering beer to such a customer. First, the incumbent brewer could buy the second brewer out by guaranteeing the customer's debt. Second, the brewers could compete guilder for guilder for repayment of their debts by foreclosing on the customer. If this path was taken, both brewers, however, had priority in reclaiming their debt to the extent that they had a note for what they were owed.

Negative externalities, property rights, and the surplus

The guild letters in Haarlem and Rotterdam specified how the competition between brewers for customers was organized. In other words, the letters specified the brewers' property rights. In principle, the letters sought to eliminate negative inter-brand externalities by granting each brewer exclusive dealing with their customers when the customer owed them money. This principle limited the moral hazard a brewer faced in recovering their debts. The rules resolving potential conflicts about debt when two brewers delivered beer to the same customer aimed to the same effect. The letters also resolved collection action problems by limiting the possibilities for the dissipation of the brewers' capital through excessive lending due to the inability to monitor a customer's total indebtedness and by limiting the incidence of dumping.

The guild letters in Haarlem and Rotterdam also permitted a customer to switch and renegotiate a contract with one of the town's brewers. In cases where the customer had no debt, this was not an issue. In cases where a brewer was owed money, the specification of

⁸ The letter also outlines a rule for when a customer owed both brewers a substantial sum of money.

the rules reduced the incumbent's moral hazard and reduced switching costs by specifying how the incumbent brewer's debts were to be guaranteed and the period of time in which they would be paid back. A customer's ability to switch brewers eliminated the potential negative consequences of vertical constraint for the customer as well as the negative externality of exclusive dealing for the other brewers in the town. In other words, when switching occurred, both parties presumably found it beneficial. For the town, the ability to switch allowed for competition between the brewers, while the specification of how switching was to take place reduced switching costs.

III. THE ENFORCEMENT OF GUILD RULES IN HAARLEM AND ROTTERDAM

To what extent were the rules regarding the competition between brewers for customers actually monitored, complied with, and enforced in the seventeenth century? Evidence from Haarlem and Rotterdam shows that guild rules on exclusive dealing were enforced over long periods of time in both towns. While the extent to which the rules were enforced can, of course, not be demonstrated, the long-term enforcement shows that these articles were not dead letters.

Haarlem

Data collected from ongoing research from a sample of sources in Haarlem shows that guild rules regulating the competition between brewers for customers was enforced between 1642 and 1693. While they were enforced for more than 50 years, it is not yet clear how "systematic" the enforcement was of the rules. Ideally it would be desirable to have systematic records spanning the period of the cases brought before the finders from the time a brewer detected a violation through to its resolution, including decisions reached by the guild and courts. Unfortunately, the surviving records are neither systematic nor complete.

Table 1 records data drawn from Haarlem guild records regarding the enforcement of the rules concerning the delivering of beer by a brewer after an injunction had been issued. This sample is drawn from two journals recording guild decisions. The table includes both cases where the guild's leaders passed a sentence and where they helped to mediate an agreement between the two parties. From these records, it is apparent that the guild decisions were reached on the basis of written evidence and oral testimony provided by the two parties. Aside from the decision that the brewer who broke the rules had to pay the other brewer what he was owed by the customer, the details of the particular cases are not recorded in detail. The increased incidence of enforcement following the publication of the 1642 letter and the 1650 revision suggest that there was a learning curve among the brewers in relation to the enforcement of the guild rules.

Table 1: Cases Brought Before the Haarlem Brewers' Guild For "Poaching," 1642-1693⁹

| Date | Brewery (Brewer) | Brewery (Brewer) | Source |
|------------------|--------------------------------|--------------------------------|---------------|
| 15 November 1642 | Jan van Meeckeren | Jan Vijanen | Bg 2 |
| 14 March 1643 | Aechien Dircke (Scheepgen) | Wouter Backer | Bg 2 |
| 20 June 1643 | Dirck van Dyck | Bartel van Brienen | Bg 2 |
| 4 July 1643 | Aechein Dirckx (Scheepgen) | Knyertgen Claesdr (Vijffhoeck) | Bg 2 |
| 3 October 1643 | Gerrit Symensz Tetrode (Engel) | Jan van Vyanen | Bg 2 |
| 4 June 1644 | Dirck van Dijck | Bruin Dircksz | Bg 6 |
| 8 July 1645 | Pieter de Ketelaer | Nicalaes Noppen | Bg 6 |
| 19 Jan 1647 | Symonssz van Tetroode | Claes van Dijck | Bg 6 |
| 30 March 1647 | Jan Aerens Vijanen | Gerret Schouten de Jonge | Bg 6 |
| 24 June 1651 | Schooneens | Heyndrick Hendricksz | Bg 6 |
| 23 Sept 1651 | Jeronimus Haringh | Rogier Bon | Bg 6 |
| 24 Jan 1665 | Gerrit Gerritsz Schoute | Pieter Le Febre (Trompet) | Bg 2 |
| 29 Aug 1665 | Gerrit Woesthoff (Passer) | Laurens Hassen (Lelyen) | Bg 2 |
| 29 July 1673 | Pieter le Febre (Trompet) | Pieter van Leent (Son) | Bg 2 |
| 24 January 1693 | Wouter Graef (de Passer) | Johannes Braems (Hoefyser) | Bg 2 |

While this sample based on ongoing research is limited, it nonetheless shows that the brewers' guild enforced its rules for more than fifty years following the publication of the 1642 guild letter.

Rotterdam

The process of monitoring and enforcing the guild rules in Rotterdam was also embedded in the formal early modern legal institutions: the guild, the town court, and the provincial appeals courts. As in Haarlem, brewers in Rotterdam were responsible for monitoring infractions of the exclusive and bringing this to the attention of the guild's headmen. Unfortunately, the surviving evidence from the Rotterdam brewers' guild is almost completely lacking for the seventeenth century. There is no guild record regarding the cases that were brought to the guild's attention, the process by which conflicts were mediated, or the total number of infractions. Likewise, there is also no evidence on what kind of evidence the guild required before it issued a writ. Yet, it is quite likely that some kind of official evidence was required.

Evidence drawn from the sentences passed by the Rotterdam *Gerecht* shows that the guild ordinances granting brewers exclusive dealing and ordering the transfer of debts between brewers were enforced in Rotterdam. The court's sentences start in 1602 and run through the seventeenth century. As show in Table 2, the earliest case involving the brewers' regulations on customer's debt dates from 1638. This shows that the regulations were enforced prior to the augmented guild letter that was published in 1648.

⁹ The data are drawn from the Gemeentearchief Haarlem, Toegang 1155, Brouwersgilde, numbers 2 and 6.

Table 2. Cases Brought Before the Rotterdam *Gerecht* for “Poaching,” 1638-1656¹⁰

| Date | Brewer One (Brewery) | Brewer Two (Brewery) |
|------------------|---------------------------------------|---|
| 22 December 1638 | Maria van Zanten (Werelt) | Ardriaen Fransz Pieck (Hollandsche Thuyn) |
| 7 February 1641 | Anthonij Nijssen (Twee Witte Paerden) | Anthonij van Aeckeren (Drie Aeckeren) |
| 21 November 1645 | Anthonij van Aeckeren (Drie Aeckeren) | Samuel de Back and Dirck Laeckens |
| 6 July 1646 | Nicolaes Arckenbout (Posthoorn) | Adriaen Fransz Pieck (de Croon) |
| 18 Dec 1647 | Maria van Santen (Werelt) | Anthonij van Aeckeren (Drie Aeckeren) |
| 7 Aug 1648 | Jan Blom (Vosch) | Joris Francken Crooswijck (Hasewint) |
| 29 April 1649 | Adriaen Fransz Pieck (de Croon) | Jacob Paets (Druijff) |
| 17 June 1649 | Jan Blom (Vosch) | Samuel de Back (Zeeuse Wapen) |
| 5 Nov 1649 | Claes Claessz de Jonghe (Ancker) | Joris Francken Crooswijck (Hasewint) |
| 10 Aug 1650 | Adriaen Fransz Pieck (de Croon) | Jacob Paets (Druijff) |
| 24 April 1651 | Samuel de Back (Bacq) (Zeeuse Wapen) | Oliver Couwijn (Hollantse Tuijn) |
| 15 July 1654 | Samuel de Back (Zeeuse Wapen) | Oliver Couwijn (Hollantse Tuijn) |
| 23 October 1655 | Johan Blom (Vosch) | Oliver Couwijn (Hollantse Tuijn) |
| 6 March 1656 | Johan van Wasserhoven (3 Ringen) | Nicolaes Vogel (Hollantse Tuijn) |

The sentences passed by the court shows a spurt of cases around the time that the guild letter was modified in 1648. There were three cases before the court in the three years preceding the publication of the 1648 letter, which corroborates the letter’s claim that new practices were occurring and that the old letter was no longer be fully observed. In the year following the publication of the letter, three cases came before the court. As in Haarlem, there appears to have been a learning curve as the enforcement of the law was institutionalized. In the following years, the number of cases before the court tapered off and, the four cases between 1651 and 1656 all involved the same brewery, the Hollantse Tuijn.

IV. CONCLUSION

This analysis of the brewers’ guild letters in Haarlem and Rotterdam during the seventeenth century has shown that guilds and towns established property rights to limit the impact of moral hazard in lending on the town’s brewers, while at the same time they allowed customers to switch between brewers. The use of trade credit (and other forms of credit) was crucial to the success and growth of export brewing in these towns. It allowed for the expansion of the industry by greasing the wheels of commerce. Trade credit reduced the buyer’s moral hazard. For the brewer trade credit was a double edge sword: it was the lifeblood of the firm, but it needed to be managed carefully and protected. The guild rules protected the brewer’s property from the negative externalities that competition from another brewer could entail. Over the course of the seventeenth century, modifications to the existing rules were added that helped to maintain the letter’s aims. The data samples included in Tables 1 and 2 show that the guild rules were enforced for at least thirty years in Rotterdam and fifty years in Haarlem.

This paper broadens our understanding of the role of guilds in structuring competition and in their ability to overcome collective action problems. This case study of export brewing in Haarlem and Rotterdam shows that the brewers and town government structured and enforced rules that limited an incumbent brewer’s financial risk from poaching, but at the same time allowed for competition between the brewers. By requiring

¹⁰ Data drawn from Gemeentearchief Rotterdam, Toegang 15, College van Schepenen van Rotterdam, numbers 468 and 469.

the poaching brewer to guarantee the customer's debt after the second delivery, the guild rules worked to limit downward pressure on prices, which benefited the industry. By limiting the ability of non-competing brewers to deliver beer and extend credit to another brewer's customer, the guild rules also worked to protect the town's overall stock of capital. At the same time, by allowing for the transferability of customers and risk between brewers, the rules governing the industry also regulated and organized switching and limited the transaction costs involved. This promoted competition in the market.

In recent debates on the aims and impact of guild organization in the literature, Oglivie (2008) has emphasized the rent-seeking nature of guilds, while Epstein (2008) has depicted guild as primarily cost sharing institutions. As shown above, the brewers' guilds fees as such did not limit entry, although due to the structure of the industry, considerable capital investment was required. Likewise, the brewers' regulations contained no output restrictions or minimum price regulations. Such agreements were unlikely in the brewing industry. The divergence of interests (or the costs of agreeing on and organizing such agreements) was simply too high for brewers given the heterogeneity of their firms and skills.

The aim of this paper is not to resolve debates on the nature of guilds based on a case study of Holland's brewing industry. Rather, the aims of this paper are more modest. This paper aims to understand the aims and impact of the brewers' regulations in export producing towns. As stated above, most of the text in the letters addressed issues related to guaranteeing the brewer's debt and trade credit. The guilds and the town magistrates established and enforced rules that solved collective action problems that reduced a brewer's moral hazard in lending money in the early modern credit market. The brewers' guilds did this through enacting the principle of exclusive delivery, which eliminated the problems associated with inter-brand externalities in the financial market.

The brewing industry's growth was predicated on economies of scale in production, on the production of a brand-name beer, and on competition in the market. The question for the brewers and the town's burgomasters was how to balance individual initiative with collective well-being in a market where financial institutions and the ability to ascertain creditworthiness was limited. This paper has argued that the brewers and towns sought to accomplish this by combining two seemingly contradictory impulses and rules. On the one hand, the letters granted brewers exclusive delivery to their customers, reducing negative inter-brand externalities and making it easier for a brewer to recoup money they had lent. On the other hand, the letters allowed customers to switch suppliers, provided the new brewer guaranteed and, if necessary, paid the debt the switching customer owed the incumbent brewer. The guild rules allowed for individual entrepreneurial talent without limiting individual initiative through production limits, while at the same limiting the negative externalities that both the infringement and practice of exclusive trade entailed.

ARCHIVAL SOURCES

Gemeentearchief Haarlem, Toegang 1155, Brouwersgilde, numbers 1, 2 and 6.
Gemeentearchief Rotterdam, Toegang 15, College van Schepenen van Rotterdam, numbers 468 and 469.

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