

Markets in late medieval northwestern Europe: The organization of exchange in a commercializing world

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Middle Ages, markets, fairs, transaction costs, weights, measures

The development of a dense network of formal markets authorized and supervised by central or local authorities in late medieval northwestern Europe is closely related to the commercialization that characterized the region in this era. Seen from the perspective of New Institutional Economics, these markets facilitated exchange by reducing transaction costs in more than one way. Firstly, they lowered search costs by attracting concentrations of buyers and sellers. Secondly, they reduced the security costs: as controlled environments for exchange they offered protection to the person and property of buyers and sellers. The legal status of fairs in particular facilitated contract enforcement, promoted a speedy adjudication of commercial conflicts and provided immunity from arbitrary arrests. Finally, markets lowered information costs. They offered systems to promote the transparency of price formation, varying from the regulation of food prices to prohibitions on speculation and auctioning systems; they also allowed for better supervision of product quality, especially of perishable foodstuffs; and they acted as focal points for systems for the control of weights and measures. Thus, late medieval markets answered to what buyers and sellers required: they provided the basic conditions for accessible, transparent and equitable exchange.

Märkte im spätmittelalterlichen Nordwesteuropa. Die Organisation von Austausch in einer sich kommerzialisierenden Welt

Mittelalter, Märkte, Messen, Transaktionskosten, Gewichte, Maße

Die Entstehung von dichten Netzwerken formaler Märkte, die durch zentrale und lokale Autoritäten genehmigt und überwacht wurden, ist im spätmittelalterlichen Nordwesteuropa eng verbunden mit der Kommerzialisierung, welche die Region während dieser Epoche charakterisierte. Aus der Perspektive der New Institutional Economics ermöglichten diese Märkte den Austausch bei einer Reduzierung der Transaktionskosten und dies nicht nur auf eine Art und Weise. Erstens verringerten sie die Suchkosten durch die Konzentration von Käufern und Verkäufern. Zweitens reduzierten sie die Sicherheitskosten: durch das kontrollierte Umfeld des Austauschortes boten sie Sicherheit für einzelne Personen wie auch für den Besitz der Käufer und Verkäufer. Der rechtliche Status der Märkte ermöglichte im besonderen Maße die Durchsetzung von Verträgen, eine schnelle Klärung von kommerziellen Konflikten und die Immunität vor willkürlichen Verhaftungen. Schließlich gewährleisteten Märkte auch die Reduzierung von Informationskosten. Sie boten Systeme an, welche eine transparente Preisbildung förderten. Dies reichte von der Regulierung von Lebensmittelpreisen bis zum Verbot von Spekulation und Auktionssystemen. Sie ermöglichten auch die bessere Überwachung der Produktqualität, besonders bei verderblichen Lebensmitteln. Und sie dienten als Kristallisationspunkt von Kontrollsystemen zu Massen und Gewichten. Somit stellten spätmittelalterliche Märkte das bereit, was Käufer und Verkäufer grundsätzlich benötigten: Bedingungen für einen offenen, transparenten und fairen Austausch.

Introduction

The commercialization of northwestern Europe between the 11th and the 15th centuries was accompanied by the development of a dense network of formal markets: weekly markets and annual fairs held at a specific place and time, supervised by kings, lords or local authorities. Cause and effect are difficult to disentangle. The rise of markets can be seen as the consequence of interrelated processes of urbanization, specialization, and commercialization. It can also be argued, however, that the existence of such organized arrangements for exchange acted as stimuli: they promoted trade, encouraged specialized production, and nurtured the growth of towns (BRITNELL/CAMPBELL 1995; HATCHER/BAILEY 2001, 121-173). This contribution focuses on the second part of this reciprocal relation: the way in which late medieval markets in northwestern Europe – England, the Low Countries and northern France – affected the feasibility and efficiency of exchange. Northwestern Europe witnessed rapid and intense commercialization in this period, which makes it an interesting region for an examination of this subject. Moreover, especially for England, Brabant and Flanders, Holland, and Normandy a wealth of detailed historical research is available (amongst others: BAUTIER 1953; VAN DER WEE 1963; MUSSET 1976; BRITNELL 1993; MASSCHAELE 1997; STABEL 2001; THEILLER 2009; DIJKMAN 2011; DAVIS 2012; GELDERBLOM 2013).

The theoretical starting point of this contribution is derived from New Institutional Economics (NIE). Markets, in the perspective of NIE, can be seen as bundles of institutions: rules, practices and customs that influence the behavior of individuals, in this case their decisions to engage in exchange or to refrain from doing so. They do so by affecting transaction costs: the costs – in the widest sense of the word – of exchanging goods (NORTH 1991). Medieval markets are credited with three main contributions towards lowering transaction costs. Firstly, the concentration of exchange in time and place made it easier for buyers and sellers to meet, thus lowering search costs. Secondly, markets reduced what can be summarized as security costs. Because markets were public places supervised by the authorities, they offered, at least partially, protection of the person and property of buyers and sellers. Visitors to the market enjoyed the advantages of trading under fair and equitable conditions, legal enforcement of contracts, and freedom from arbitrary arrests (ARNOUX 2010, 32-33). Finally, medieval markets also reduced information costs. Partly this was because concentration of trade allowed for a better comparison of the quality and value of goods. In addition to this, however, supervised markets also provided systems for regulating weighing and measuring, price formation, and product quality: aspects that engendered trust between buyers and sellers (DAVIS 2011, 81).

Obviously, this does not mean that all trade was conducted through the marketplace: in fact, the majority of transactions probably took place elsewhere. Large-scale transactions between producers and merchants frequently bypassed formal markets, as did peddling or exchange of daily necessities between neighbors. In cases like this the benefits of markets were outweighed by disadvantages such as distance or the constraints imposed by regulation (BRITNELL 2006, 112-114). Nevertheless, the contribution of supervised, formal markets to commercialization in the medieval period was substantial. The next section first outlines the development of the network of weekly markets and annual fairs in medieval northwestern Europe in the late Middle Ages that helped to reduce search costs. Subsequently the contribution of these markets to the other two types of transaction costs mentioned above – security costs and information costs – will be discussed in two consecutive sections. Conclusions follow.

A network of markets

In many parts of Europe the high and late Middle Ages witnessed a marked increase of the number of markets and fairs. Some of these trade venues had important roles in the international trade in luxury products. In the late 12th and early 13th centuries the cycle of consecutive fairs in the Champagne region dominated the long-distance trade in Flemish textiles to markets in Italy (BAUTIER 1953, 105). Similar international fairs existed in the English Midlands (WEDEMEYER MOORE 1985) and in Flanders (VERLINDEN 1963, 134-137). Although the fairs of the Champagne region declined in the 14th century, new international fairs emerged elsewhere, for instance in Chalon, Geneva, Lyons and Frankfurt (VERLINDEN 1963, 137-143). The late Middle Ages also witnessed the rise of many smaller fairs that formed important nodes in the rising interregional trade in specialized agrarian and industrial products such as livestock, dairy products, and various textiles (EPSTEIN 1994). Other late medieval fairs catered for private consumers, providing them with products that were normally not available locally. In the middle of the 15th century the small town of Brielle in Holland, for example, had a fair where consumer items such as shoes, mercery, jewelry, leather belts, plates, and furniture were sold (DIJKMAN 2011, 52).

Weekly markets providing urban consumers with various foodstuffs and locally produced manufactures were common in even the smallest towns. In large cities such retailing markets were held more than once a week, with specific times, or specific spaces, devoted to the trade in specific commodities (STABEL 2001, 808-809). Urban markets also served as central points for the trade in raw materials from producers to local manufacturers. In

Exeter, for instance, a significant part of the sales of hides and skins by butchers and tanners to the town's leather craftsmen took place at the weekly market (KOWALESKI 1995, 306). Some specialized urban markets developed into permanent trade venues for the wholesale trade between local producers and merchants, such as the cloth halls in the Flemish towns. A few cities developed as veritable commercial nodes in international trade: 14th and 15th century Bruges, frequented by merchants from all over Europe, is a prime example of that last category (MURRAY 2005, 216-258).

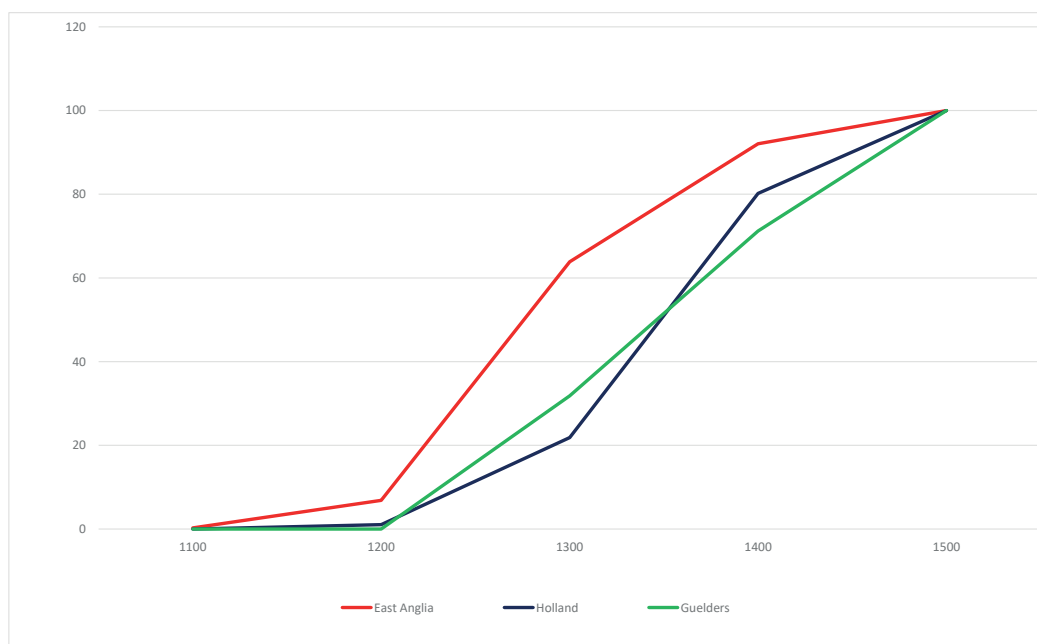
Until the 12th century, in northwestern Europe fairs and markets were often informal gatherings of people, for instance near churches (SAWYER 1986, 670). From the 12th century onward, however, they increasingly came to be seen as formal, public institutions that required the authorization of the ruler. Reviving Carolingian precedents, sovereigns claimed the right to install markets and fairs as a royal prerogative. The license to actually hold the market or fair and enjoy any revenues it might generate – market tolls, fines, levies on weighing and measuring – could be exercised by the king himself, but in many cases was granted to a lord or local community (BRITNELL 1993, 15-19; ARNOUX 2010, 34-35).

The procedure to initiate the issuing of a market license as it evolved over time usually started with a request by the prospective holder of the license, but, at least in England and Normandy, also came to include a formal investigation to prevent new markets and fairs from damaging existing ones. The main factor taken into account was the distance to other markets held on the same day, which should

be at least six miles; another was the expected capacity of the new market to generate new trade. Holders of pre-existing market licenses who felt their interests were not sufficiently protected could take their case to court (MASSCHAELE 1997, 59-67; THEILLER 2005).

Based on information from accounts, charters, and court rolls, historians have been able to trace the formation of a network of markets and fairs in northwestern Europe in the high and late Middle Ages. This network gradually filled out as more and more markets and fairs emerged. The process appears to have been a general one: it has been recorded for England (LETTERS 2013) but also for Normandy (MUSSET 1976; THEILLER 2009), Luxembourg (PAULY 1996), Holland (DIJKMAN 2011, 42-48) and Guelders, in the east of the present-day Netherlands (BENDERS 2001). Pace and timing, however, varied. Options for interregional comparison are largely restricted to fairs, as for this type of trade venue reliable quantitative data are more widely available than for weekly markets. Fig. 1 presents the numbers of fairs first recorded between 1100 and 1500 in three regions: East Anglia in England, and Holland and Guelders in the northern Low Countries.

The rise of fairs took off in East Anglia earlier than it did in Holland or Guelders: in fact, most parts of England witnessed a veritable explosion of new markets and fairs early on, between 1200 and 1350 (BRITNELL 1981). In Holland the entire 14th century was the period when most fairs made their first appearance, while in Guelders the pace of their emergence appears stable throughout the Middle Ages.



◀ Fig. 1. Numbers of fairs first recorded between 1100 and 1500 in East Anglia, Holland and Guelders (index figures, year 1500 = 100) (BENDERS 2001, 664-666; DIJKMAN 2011, 43; LETTERS 2013, tab. 1).

Three interrelated caveats apply. Firstly, the historical sources are usually more reliable for the late than for the high Middle Ages, not only because the quality of registration improved with time but also because the oldest markets and fairs emerged in an era when formal authorization was not a prerequisite. Secondly, variations between regions may not always indicate differences in the level of commercialization but can also reflect different political and social structures. The early peak in the granting of market licenses in England, for instance, is at least partly explained by the fact that here royal jurisdiction over markets and fairs was firmly established at an earlier date than elsewhere. Finally, many medieval markets and fairs, especially those that were established relatively late in time, were short-lived, falling into decay within a few decades or even years after their emergence. Recordings of newly founded markets and fairs therefore have only limited value if their continuity cannot be established, which is not always easy (MASSCHAELE 1994; 1997, 167-173).

Towards the end of the Middle Ages in some regions a point of saturation may have been reached; in England the market network – although not necessarily total trade volumes – even showed signs of contraction (BRITNELL 1993, 156-160). In Normandy, after 1400 new market licenses were only granted to trade venues that demonstrably filled a gap in long-distance trade routes (THEILLER 2009, 41-42; 2017, 23). The specialized, regional fairs of the late Middle Ages mentioned earlier fall into the same category: they, too, fulfilled a role in new lines of interregional trade. At the same time, the late Middle Ages saw a marked rise of trade venues other than formal markets: retailing in shops or private houses, catering of travelers at crossroads, or wholesale trade in inns or at quays (DYER 1992; BRITNELL 2006). Although formal markets by no means ceased to exist, the era of their greatest growth had come to an end. But what was it, besides their mitigating effect on search costs, that had made them so popular and successful in the first place?

Security costs

An important element in the explanation is closely related to the status of markets as public institutions that offered the protection of the authorities to buyers and sellers. Here, the ‘peace of the market’ reigned, symbolized by the market cross present in the marketplace (HUVELIN 1897, 345-352). Fairs in particular enjoyed the advantages of a specific legal status that guaranteed the safety of all visitors. This included protection from theft and robbery, but also from a variety of legal setbacks that put the person and property of foreigners at risk. In medieval Europe

the legal position of foreigners was usually weaker than that of locals. In English towns, for instance, foreign merchants encountered various obstacles: they might be forced to sell part of their goods to locals, faced restrictions regarding the duration of their stay, and needed pledges to vouch for their respectability (DAVIS 2012, 159). In addition, merchants faced the consequences of what in the academic literature has been termed a community responsibility system (GREIF 2006, 318-338). Although scholarly opinions differ on the exact role of this system and its relation to individual liability, there is general agreement that under certain conditions merchants could be held responsible for fellow guildsmen or townsmen that did not honor their obligations or pay their debts (BOERNER/RITSCHL 2002).

The legal regime of the fair solved these problems in two ways. First, fairs formed islands of immunity: the sovereign guaranteed fairgoers freedom from harassment and encumbrances, including arrests and confiscations because of previously contracted debts, for the duration of the fair and the time it took to reach it and return home again. A case in point is 13th century England, where the king frequently provided royal safe-conducts to foreign merchants visiting the international fairs of that country (WEDEMEYER MOORE 1985, 159-160). Such privileges were not restricted to international fairs: visitors of less important fairs enjoyed them as well. To which extent they also applied to weekly markets, however, is less clear. In principle, weekly markets were also public institutions that enjoyed the sovereign’s protection (HUVELIN 1897, 338-345). It has been claimed that freedom from confiscation for previously contracted debts was restricted to fairs alone (VAN HOUTTE 1953, 180), but some weekly markets – those of ‘s Hertogenbosch (Brabant) and Amsterdam among them – were also advertised as being ‘free’: they too offered immunity from arbitrary arrests (DIJKMAN 2011, 39).

The actual keeping of law and order was usually left to the license holders: the lords or communities that organized the fair. They used various means to this end. The bishop of Winchester, for instance, employed guards to maintain order at the fair grounds and to watch over a wooded stretch of the road from London, while the count of the Champagne region refused subjects of neighboring lords who did not protect the safety of passing merchants access to his fairs (WEDEMEYER MOORE 1985, 160, 286-287). The urban authorities of the cities in the southern Low Countries used a similar strategy; they relied on the pressure exerted on local lords by merchant communities faced with the prospect of exclusion from the fairs of Bruges or Antwerp (GELDERBLUM 2013, 143).

Secondly, fairs also offered adjudication of justice in a manner suited to the needs of buyers and sellers. Both at the Champagne fairs and at



the English fairs special courts were installed for this purpose. The *lex mercatoria* applied by these courts varied in substance, but offered a common framework of procedural rules to ensure a speedy resolution of commercial conflicts (BASILE *et al.* 1998, 179-185). Proceedings at the fair courts were quick and efficient: for the duration of the fair the court was almost permanently busy hearing witnesses and passing justice on a variety of cases, including conflicts about sales and contracts, to allow traders to conclude their legal business before they had to take to the road again (WEDEMAYER MOORE 1985, 165-166). At the Champagne fairs it became customary to have all contracts entered into at the fairs registered by the *gardes de foire*. Originally functionaries of the count of the Champagne region, the *gardes* soon assumed responsibility for the enforcement of these contracts throughout Europe. Kings, lords and urban governments were pressured into cooperating through the same mechanism described earlier: if they did not, their subjects or burgesses would no longer be given access to the fairs (BAUTIER 1953, 118-126). In the Low Countries, special fair courts did not exist: the regular

urban courts also administered justice at the fairs. They too, however, adopted procedures suited to the needs of the visitors of the fair, including the registration of contracts entered into at the fair and the financial obligations ensuing from them (GELDERBLOM 2013, 88-89).

At the end of the Middle Ages the comparative advantage of the special legal status of fairs began to fade as other mechanisms to ensure the security of merchants developed. In Holland, urban governments started to object to the special legal regime imposed during the fair because, as the authorities in Alkmaar claimed in 1345, it left the town 'lawless'. What they probably meant was that the immunity offered to fairgoers was abused by people who tried to evade honoring their obligations and paying their debts. The count of Holland apparently acknowledged the validity of the argument and granted Alkmaar the right to apply the regular urban laws instead (DIJKMAN 2011, 39-40). In England the special status of fairs was eroded in other ways. The *Carta mercatoria* issued by Edward I in 1303 allowed foreign merchants freedom of trade and speedy justice, not just during fairs but at all times, placing them on an equal

▲ Fig. 2. Fair scene, early 15th century (Thomas III de Saluce, *Le Chevallier Errant*, BnF Mss Français 12559, f. 167r).

footing with citizens (BARRON 2004, 93). However, anti-alien feelings resurfaced from the late 14th century onward, fueled by animosity over the export of English wool, culminating in the hosting laws of the late 1430s that assigned all foreign merchants to an English merchant who was to keep a close eye on their commercial activities. Only the Germans Hanse and a few other privileged groups under the king's protection were exempted (BOLTON 2017).

The most marked development of new modes of accommodating the needs of foreign merchants on a permanent basis took place in the large international trade centers of the southern Low Countries. In the 13th century, the count of Flanders offered privileges to merchant communities frequenting Bruges, including protection from confiscation of their goods. In the 14th century hostellers offered a variety of services to alien merchants: besides offering lodgings, they provided storage capacity and brokerage services, and stood surety for their guests. When in the 15th century foreign merchants settled permanently in Bruges, some merchant communities (or 'nations') were allowed to establish their own compound in that city. They were also given the legal privilege to adjudicate commercial conflicts between community members themselves, based on the laws and customs of their home country. Consuls appointed for this purpose by the merchants or their ruler served as judges in lawsuits, but also performed services such as recording contracts. In 15th and 16th century Antwerp similar facilities were made available; in fact, the duke of Brabant and the city authorities made deliberate attempts to lure the merchants of the German Hansa, the English Merchant Adventurers and merchants from various Italian cities away from Bruges by offering them privileges that reinforced their legal position (GELDERBLOM 2013, 22-23, 49-51, 109-117).

Under certain conditions the immunity offered by periodic fairs and markets continued to be of value. In the late 15th and early 16th centuries, many towns and villages in Holland experienced serious financial problems. As a result, travelers from indebted communities risked arrest for the debts of their town or village. This in turn gave rise to the issuance of a series of explicit safe conducts of visitors to fairs and also to weekly markets (DIJKMAN 2011, 40-41). Admittedly, these were extraordinary circumstances. On the whole, on the issue of security the advantages of formal markets – certainly of fairs, and perhaps also of weekly markets – over alternative trade venues diminished as at the end of the Middle Ages new mechanisms for the protection of the person and property of buyers and sellers developed. What, then, about that other contribution markets made to lowering transaction costs: their impact on the costs of obtaining reliable information on quality, quantity and price?

Information costs

In part, late medieval markets – and in fact modern markets as well, at least until very recently – owed their information advantage to the concentration of buyers and sellers in one place. The congregation of customers and traders in a busy market place made it easier for both parties to inspect and compare the wares on offer, assess their value and perhaps also the trustworthiness of the other party, and settle on a suitable price to be paid or asked. Price formation in particular was a function of formal markets that also benefited informal trade outside the marketplace (BLONDÉ *et al.* 2006, 15). Medieval markets, however, also contributed to lowering information costs in another way, which was, again, related to their position as controlled trade environments: they offered mechanisms for price regulation, quality control, and reliable systems of weighing and measuring.

Price regulation and product quality

Prices were only rarely set at fixed levels in the absolute sense of the word. Not just merchants, but also the general public and even medieval theologians acknowledged and accepted that prices moved up and down with demand and supply (DAVIS 2012, 223-224). In various ways, however, authorities attempted to restrict profiteering and mitigate price extremes, especially of basic food stuffs. Very common were regulations aimed at preventing regular price formation mechanisms being thwarted or corrupted: prohibitions on actions such as intercepting goods on their way to the market (a form of collusion between buyer and seller), or buying with the intention to resell at a higher price, can be found in many parts of medieval Europe (DAVIS 2018). Other rules focused on stabilizing market prices throughout the day or week. In the towns and cities of 14th and 15th century England, local officials set prices for grain and fish when the market opened, perhaps after negotiations with the traders of these products. The price they arrived at was binding for the remainder of the day (BRITNELL 1996). Similarly, in Leiden and Delft (Holland) grain merchants were obliged to sell their grain during the week for the price it had fetched on the Saturday market (UNGER 1916, 59-60).

Over time, new arrangements developed that gave a wider berth to free price formation on the condition that this happened in public and in a controlled environment. A good example is provided by the sea fish auctions that emerged in the coastal towns and villages of medieval Holland and Flanders in the late Middle Ages. Regulations from 15th century Brielle – the fair of this small fishing town in Holland has already been mentioned – specify the procedures for the auctioning of herring, salted and packed in barrels at sea, in some detail. The auctioning system used was a descending

price auction: the price was lowered in steps until one of the bidders claimed the transaction by calling out 'mine!' Fishermen were expected to publicly auction at least half of the catch. All sales were registered, and selling at a lower price than the value determined at the auction was not allowed (DE JAGER 1901, 160-166). This suggests the interests of fishermen and shipowners prevailed over those of their customers. In contrast, in England the auctioning of fish was seen as opposed to the goals of a public policy aimed at protecting consumers (BRITNELL 1996, 11).

Another aspect of the role of markets in reducing information costs was their contribution to quality control. For industrial products, especially in export industries, guilds were instrumental in reducing the considerable information asymmetry between producers and buyers in distant places by setting and maintaining quality standards, often in the shape of urban trademarks. These trademarks were enforced through inspections of workshops but also of the finished products offered for sale (PFISTER 2008, 26). The buyers of perishable foodstuffs and prepared food were usually locals, but they too were in need of reliable information on the products they bought. One point of concern was the possibility of fraud: there were many ways in which goods of inferior quality could be offered as first choice products to unsuspecting buyers. A second concern regarded foodstuffs that presented health risks, with fresh fish and meat as main suspects. Urban authorities tried to tackle such risks by setting rules, but that alone was insufficient: actual supervision and enforcement were needed. This, of course, was much easier to organize when trade was concentrated in one place. In late 14th and early 15th century Exeter, for instance, the meat trade was concentrated at a designated market place, the Fleshfold. Its two wardens, elected every year together with the other urban officials, supervised slaughtering and carried out inspections of butchers' shops and of the meat offered for sale. Offenses – and there appear to have been quite a few – were brought before the local court (KOWALESKI 1995, 188).

Weighing and measuring

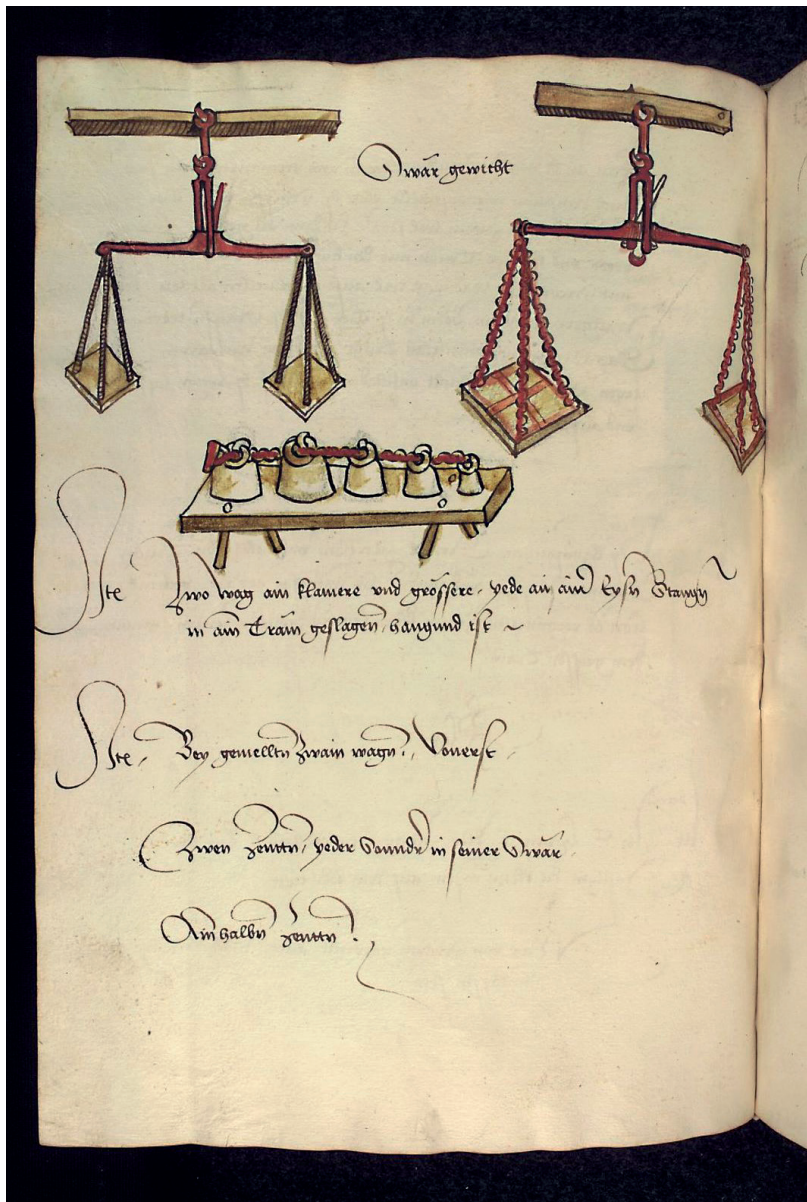
Perhaps the most conspicuous element of medieval trade regulation was the control exerted over weighing and measuring. Dependable systems of weighing and measuring ensured reliable information on quantities sold and purchased and were thus able to create trust between buyers and sellers. It is hardly surprising, then, that various aspects of metrological control stand out in the medieval sources. It should be added that regulation of weights and measures was not exclusively linked to formal markets: standards, once set, applied everywhere, at least theoretically. For the daily operation of markets, however, metrological control was of great importance.



Just as the right to establish fairs and markets, the right to set and enforce weights and measures was considered to be a royal prerogative. Again, however, the ability of sovereigns to actually exert this right depended to a significant extent on power. In the early Middle Ages both the Carolingian rulers on the continent and their Anglo-Saxon counterparts in England had promulgated laws prescribing the use of uniform, well-defined weights in their lands, but in both cases it is unlikely these laws were generally observed (KULA 1986, 161-163; BRITNELL 1993, 25). Sources from the 11th and 12th centuries suggest that by then local customary measures were commonly used: grain purchases made in Norwich and Abingdon by officials of the king of England in the late 12th century, for instance, were expressed in the local measures of these towns instead of in the national measures (BRITNELL 1993, 25).

In most parts of Europe renewed attempts to install central control and harmonize weights and measures only took place in the 15th and 16th centuries, and even then their success was limited (KULA 1986, 116-117). Common, however, was the voluntary adoption of the weights and measures used in important commercial centers (DIJKMAN 2011, 218-219). In the late medieval towns of Brabant, for instance, weights based on the Cologne mark, and later also the mark of Troy (or Paris), were widely used (VAN DER WEE 1963, 72-74) and in Holland

▲ Fig. 3. *The sale of mutton, late 14th century* (*Tacuinum sanitatis, Bibliotheca Casanatense Ms. 4182, f. 138*).



▲ Fig. 4. Balances and weights, Germany, 1485 (*Zeughausinventar von Landshut* (U. Besznitzer), Heidelberg University Library, *Cod. Pal. germ.* 130, p. 057v - CC-BY-SA 3.0).

many towns adopted the grain measures of either Delft or Amsterdam, both important grain trade centers, for the wholesale trade in grain (DIJKMAN 2011, 213). Only in Angevin England national standards for weights and measures were introduced from the early 13th century onward, bearing testimony to the early rise of a strong central state. Yet even here the introduction was a complicated and time-consuming process, taking the better part of two centuries. Moreover, even in England uniformity remained incomplete, as is demonstrated by the fact that in Exeter and in Winchester grain bushels were in use that were significantly larger than the statutory bushel (BEVERIDGE 1928, 526; 1965, 12-17).

Whether weights and measures were set locally or nationally, their enforcement was to a significant extent a local responsibility. Even in England royal officials shared this task with lords or boroughs (DAVIS 2012, 193). As standard weights and measures

applied everywhere, their enforcement, too, was not restricted to the formal market – even though, as will be shown, the local marketplace does appear to have acted as a focal point. Enforcement relied on a combination of mechanisms. The first step was the availability of reliable prototypes. In England, from the late 13th century onward standard weights and measures marked with the king's seal were distributed over the country to serve as benchmarks (DAVIS 2012, 191-193). On the continent, providing prototypes was the responsibility of the local authorities. In Antwerp, the city had copper weights fabricated in 1400-1401, probably to replace the stone weights used previously. In 1441 a specimen of the urban grain measure was displayed in public in front of town hall: not coincidentally also the location of the city's main marketplace (VAN DER WEE 1963, 67).

The next stage was the regular inspection of all weights and measures used by traders. Weights and measures that conformed to the standards were marked as such by stamping or sealing them; the ones that were found lacking were confiscated and destroyed. In Dordrecht (Holland) the first reference to such an inspection dates from the late 13th century (DIJKMAN 2011, 227). English sources explain the proceedings in more detail. The local courts of 14th and 15th century Clare and Newmarket, two small market towns in Suffolk, frequently discussed cases related to the use of false or unsealed weights or measures. The owners were usually fined only modestly, although serious offenses received a less lenient treatment (DAVIS 2012, 331-334).

Even if weights and measures themselves were in good order, more was needed to ensure the reliability of the information on quantities bought and sold. In several cases additional instructions were given regarding the procedures of weighing and measuring. In Amsterdam, for instance, urban ordinances of the early 15th century provide detailed instructions on the measuring of salt. The salt measure had to be placed firmly on a horizontal surface, once it was filled it had to be leveled with a strickle (the straightness of which had to be checked on a daily basis), and subsequently it had to be emptied by turning it upside down carefully and completely (BREEN 1902, 19-20; DIJKMAN 2011, 201, 225). Weighing techniques also required special attention. The use of the *auncel*, a one-legged weighing instrument comparable to the Roman *statera*, was frowned upon as it could easily be tampered with. In England the *auncel* was officially banned in the middle of the 14th century, although some traders apparently continued to use it for small goods even in the 15th century (DAVIS 2012, 195, 334).

This takes us to the next step in the series of efforts made to guarantee the reliability of weighing and measuring: the introduction of public facilities and officials. Public balances were gradually installed in towns everywhere in northwestern Europe, usually on or near the marketplace. In England, this



▲ Fig. 5. *Auncel being used for weighing wool, 1547 (Der furnembsten, notwendigen, den ganzen Architectur (Walther Hermann Ryff), Sächsische Landesbibliothek, Staats- und Universitätsbibliothek Dresden, Optica.31, f. 333r. Deutsche Fotothek record ID 88960212).*

was reinforced by national legislation: from 1429 onwards a public balance was compulsory for all towns, boroughs and cities (DAVIS 2012, 192). On the continent the initiative lay with the local authorities, but they do not appear to have been negligent or backward in this respect: in Holland, at least, even small towns such as Monnickendam and IJsselstein had a public balance by the end of the fourteenth or the beginning of the 15th century (VAN MIERIS 1753, 390; FRUIN 1892, 38-40).

In continental towns and cities, balances were usually operated by urban officials. Many towns also employed sworn officials for measuring, at least for important sectors of wholesale trade. The measuring of salt in 15th century Amsterdam, mentioned earlier, was done by sworn measurers, as was the measuring of grain. The Amsterdam measurers were united in a guild that participated in the responsibility of maintaining and verifying standards (DIJKMAN 2011, 228). In English towns, urban weighers and measurers are not as much in evidence, possibly because of the greater role of royal officials, certainly in port towns (ZUPKO 1977, 59-64). Urban measurers for corn and salt did operate in early 14th century London, however; around that time the city moreover acquired the right to appoint the officials handling the king's balances (ZUPKO 1977, 62-63; BARRON 2004, 39).

As with security, the advantages of formal markets regarding metrological control faded over time as general mechanisms for the supervision of weights and measures took shape. The market, however, did serve as focal point: at the marketplace prototypes were displayed and facilities such as a public balance were established.

Conclusions

Between the eleventh and the 15th century, northwestern Europe witnessed the emergence of an increasingly dense network of formal markets: places that formed supervised, controlled environments for exchange of commodities. By no means all trade was conducted through these formal markets: expressed in volumes or monetary value, exchange in others settings must have been at least as important. Nevertheless formal markets fulfilled an important role in the process of commercialization that characterized medieval northwestern Europe. They not only lowered the costs of finding interested buyers or sellers, but also helped to reduce transaction costs in two other ways.

Firstly, formal markets, exactly because they were public, supervised places, reduced security costs by offering protection to the person and property of

all who did business there. This is especially clear in the case of fairs; however, the special legal status of fairs became less important as towards the end of the Middle Ages alternative mechanisms for contract enforcement and the adjudication of foreign traders developed.

Secondly, formal markets, again based on their character as controlled environments for exchange, lowered information costs by providing arrangements for the control of prices, product quality, and weights and measures. While for quality and price control the formal market appears to have retained its central position, it partly lost that role for metrological control. Partly, since important elements such as the display of prototypes and the location of the public balance remained connected to the marketplace. It was what medieval buyers and sellers expected: markets were, after all, supposed to be controlled places of exchange, supervised by the authorities in the interest of the general public.

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