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Brewing in Wolbórz

From the Middle Ages to the Early 17th Century

Introduction

Wolbórz, a small town in Łódź Province near Piotrków Trybunalski, is one of the oldest municipalities in Poland. The first mention of Wolbórz is found in sources from 1136;¹ however, if we accept that at least some records from the 12th century Mogilno Falsification are derived from previous, non-extant monastic documents, its existence was confirmed as early as 1065.² Until the mid-12th century, Wolbórz was the seat of a castellania (*kasztelaństwo*), and it was acquired by the Włocławek bishopric between 1136 and 1148.³ The municipality became the centre of vast lands referred to as the 'Wolbórz estate', however in 1273, the bishops, intending to support the growth of the estate, managed to obtain authorisation from Leszek the Black to grant a town privilege to Wolbórz.⁴ The town remained the property of the bishops up to the time when the Wolbórz estate was confiscated by the government in 1818.⁵

Wolbórz's gradual economic decline, which started in the second half of the 18th century and gained momentum in the following century, precipitated the revocation of town privileges in 1870. The town did not regain its municipal rights until 1 January 2011.⁶ Wolbórz's 140-year-long rural status contributed to the loss of its urban characteristics. Today, the town's architecture hardly shows any traces of its history as a nexus of craft and commerce in the Old Polish period. Although Wolbórz never functioned as a supraregional trade and craft manufacture centre,

¹ Rosin R. 1975, p. 14.

² Wilk-Woś Z. 2016, p. 13.

³ Zajączkowski S. 1966, p. 10.

⁴ Żmudzki P. 2000, p. 164 et al.

⁵ *Wolbórz* 1893, p. 824.

⁶ Journal of Laws 2010, No. 138, item 929.

it became an important economic hub for the region.⁷ The crafts which played an important role in the town's history included shoemaking, furriery, smithery, tailoring, capmaking and, most importantly, clothmaking. In the 15th and 16th centuries, in Wolbórz and elsewhere, these crafts were absorbed by the guild system.⁸

Beer production was of enormous significance for the mediaeval and early modern economy of Wolbórz. Like in other Polish cities, it was not subject to the guild system, with every townsman having the right to make and sell beer. The importance of brewing in the economic life of Wolbórz was simply due to the fact that beer was a staple beverage of the mediaeval and early modern society. Nonetheless, rather than become a subject of research, it was only incidentally mentioned when discussing the history of Wolbórz. Relevant issues such as production volume and organisation were omitted.

The present study aims to explore this hitherto neglected area. Two types of sources form the basis for studying the brewing industry in mediaeval and early modern Wolbórz. The first group includes 16th century tax records of Sieradz Voivodeship or, more specifically, records concerning excise on alcoholic beverages (*czopowe*). Although *czopowe* was not a permanent tax, it was collected quite regularly, thanks to which we can retrace the changes in production output and, thus, determine the position of Wolbórz in the ranking of other beermaking centres in the Kingdom of Poland. There are ten surviving *czopowe* registers from the fiscal years 1530/1531, 1534/1535, 1535/1536, 1552/1553, 1553/1554, 1564/1565, 1565/1566, 1576/1577, 1577/1578 and 1578/1579. Aside from them, there is also one extant fragment of register from the tax year 1537/1538, comprising data for the first quarter only. All those registers record the total tax paid in each quarter of the fiscal year or, as is the case for registers from the 1670s, the total amount collected throughout the year. Among the excise registers listed above, one set of records from the fiscal year 1552/1553 stands out, as it contains a list of names of Wolbórz beer makers together with the number of batches brewed by each of them, in addition to tax revenue in consecutive quarters.

The second type of sources used in the preparation of this study includes inventory lists of the property of Włocławek bishopric in the years 1534, 1582, 1598, 1604, 1610, 1623 and 1674. They contain information on the quantity of raw materials used in beer production, brewing principles, prices, fees and levies, as well as the duties and number of beer makers. In addition to these sources, this study was also based on legal documents such as privileges and ordinances issued by bishops for Wolbórz, as well as brief auxiliary sources.

⁷ Stolarczyk T. 2016, pp. 26-30.

⁸ Warda A., Warda K. 2016, p. 105.

Legal bases of beer production in Wolbórz

Because beer was the most common and essential beverage for daily life in mediæval and early modern Poland, it is likely that the inhabitants of Wolbórz were brewing it from the town's earliest years. Notably, the Gniezno Bull of 1136 mentions Wolbórz in connection with a tavern established in the settlement – the primary place where beer was sold.⁹ It is therefore highly probable that, as elsewhere in Poland, local residents paid a levy to the town in the form of a portion of the beer they produced, which was then transferred to the tavern keeper.¹⁰ It is also conceivable that ducal brewers operated in Wolbórz, producing beer from grain collected as dues from the local population.¹¹ These assumptions, however, must remain hypothetical: no surviving sources directly reference beer production or consumption in Wolbórz during this early period, and the argument relies on broader knowledge of the contemporary economic system.

Without doubt, the conferment of town privileges on Wolbórz and the establishment of a commune based on the Środa Law led to a dramatic shift in the organisation of production. The relevant privileges were granted by Leszek II Duke of Sieradz in 1273.¹² The document, however, does not contain any records on brewing. Instead, it relieves the residents of Wolbórz, Żarnowica, Psary, Młynary, Kuznocin and Świątniki from the burdens of the ducal law, removes the towns from the jurisdiction of the masters of the duke's mint, allows them to be incorporated based on German law and allows Wolbórz to be surrounded with a defensive wall.¹³ As such, therefore, it is not an incorporation charter but, rather, a document expressing consent for incorporation or issued in confirmation of the incorporation. Although the legal framework arising from the incorporation was set in an act restoring the town privileges of Wolbórz issued in 1433 by King Władysław Jagiełło, the deed did not discuss matters pertaining to beer production or distribution.

Ryszard Rosin was right in pointing out that both the 1273 privilege and the 1433 act provided for matters between the monarchs and the proprietors/residents, hence their focus on the law and the system. The rights and obligations of the townspeople, their interactions with the administrator (*wójt*) of the town and socio-economic relations were regulated in separate privileges.¹⁴ The fact that such

⁹ CDMP 1840, p. 3.

¹⁰ Bobrzyński M. 1888, p. 6.

¹¹ *Ibidem*, p. 5.

¹² CDP 1848, p. 85 et seq.

¹³ *Ibidem*.

¹⁴ Rosin R. 1975, p. 42.

documents did not survive contributed to a false claim that the inhabitants of mediaeval Wolbórz did not hold any rights to make and sell beer freely. According to Stefan Siniarski, the author of Wolbórz chronology up to 1982, Wolbórz residents were conferred propination rights as late as 1518. At that point, the quantity of malt used for making a single batch of beer was also defined.¹⁵ However, the protracted absence of propination rights would have been contrary to German law, which detailed the matters related to the production and serving of beer. The development of brewing in mediaeval cities was closely linked to the introduction of a new legal system, as noted by Stanisław Kutrzeba in his late 19th century work.¹⁶ The *iux braxandi et propinandi* conferred on the townspeople as part of incorporation was one of the key economic privileges which significantly contributed to the growth and expansion of mediaeval cities.¹⁷

Nevertheless, the fact that the inhabitants of Wolbórz obtained the propination privilege following the town's incorporation is confirmed by more than the practices of German law. Further evidence comes in the form of a transaction dated 26 February 1357 between Maciej Bishop of Włocławek and a Piotrków townsman named Krumczo (Kruczo), who purchased the office of the administrator of Wolbórz for 70 Toruń *grzywnas* (regional units of monetary account).¹⁸ The document details the subject of transaction, listing the remuneration and rights of the administrator and, more importantly, the obligations of townspeople, i.e. the duty to pay rent on the plots, gardens, stalls, craft workshops and taverns in their possession. The document does not specify a fee for the licence to sell beverages; it merely states that the fee should be equal to the one paid by the inhabitants of Środa Śląska.¹⁹ Consequently, matters related to permissions to sell beverages and, presumably, brewing, were provided for in detail in the same manner as in other towns incorporated according to Środa law. Siniarski's claim concerning the conferment of propination rights for the residents of Wolbórz as late as the first half of the 16th century was founded on a misinterpretation of an article by Rev. Justyn Gryglewski, the first professional researcher of the town's history. In the article, the priest wrote about a document issued in 1518 by Bishop Maciej Drzewicki, wherein the hierarch allocated space for new urban development in Wolbórz. After examining this issue, Gryglewski noted that the town had already been granted propination rights.²⁰ Siniarski, however, mistakenly assumed that Gryglewski

¹⁵ Siniarski S. 1984, p. 31.

¹⁶ Kutrzeba S. 1898, p. 38.

¹⁷ Gawlas S. 2015, p. 21.

¹⁸ DKiM 1888, p. 251.

¹⁹ Ibidem, p. 252.

²⁰ Gryglewski J. 1872, p. 67.

was still referring to the 1518 privilege when addressing the licence to sell alcoholic beverages.

According to the 1534 property inventory of the Włocławek bishopric, the licence fee paid by the townspeople to the town's proprietor for the right to sell beer was 1 grosz.²¹ Even though the inventory quoted the fee paid by townspeople for keeping 'taverns', the term should be understood in a broader context and associated not only with a point of sale but, rather, with brewing facilities. Sławomir Dryja and Stanisław Sławiński very accurately noticed that in the Middle Ages and the early modern period, brewing and tavern services were usually provided by one establishment, i.e. a place where beer was made and distributed at the same time.²² An inventory record of Wolbórz property from 1604 validates the claim that the term 'tavern' (Polish: *szynk*) was interpreted as one of such businesses. Unlike in 1534, when recording rent revenue, the accountant reported that the townspeople paid it "on brewing, making beer, 1 grosz per year" rather than on serving beverages.²³ In the inventory for 1610 "the levy is collected from each [i.e. townsman] in the amount of one grosz."²⁴ A similar wording appeared in the inventory for 1674, in which we find that "each brewer pays one gr[osz]."²⁵ The levy was always paid on the feast of St. Martin.²⁶

The above does not exhaust the list of brewer's obligations towards the town's owners. As in other towns, inhabitants of Wolbórz were bound by the so-called 'mill duty' (Polish: *mlewo*), which meant that the malt they made could be crushed only in a mill belonging to the bishops of Włocławek. Pursuant to regulations in force in Wolbórz, brewers supplied malt to the mill in barrels. The malt was measured before and after crushing, then transferred back to the barrels, on which the castle mark was placed.²⁷ The marking was a confirmation that the brewer had fulfilled their milling duty. Some townspeople would bypass this requirement in an attempt to keep their production costs low. To this end, they used two methods: the first one involved crushing the malt in other mills; another option was to buy a ready-made crushed malt.²⁸ Eliminating such practices posed a considerable challenge. In 1674 the bishops announced that the "townsfolk must not grind [malt] in other mills without the castle's permission lest they forfeit their malt."²⁹ Still, the warnings were of little avail, as in 1713 there

²¹ *Inwentarz* 1902, p. 62.

²² Dryja S., Sławiński S. 2018, pp. 216-220.

²³ *Inwentarze* 1957, p. 35.

²⁴ ADW, DBKP, ref. 11/5, sheet 4v.

²⁵ *Ibidem*, p. 261.

²⁶ *Inwentarz* 1953, p. 83.

²⁷ *Inwentarze* 1957, p. 261.

²⁸ MHDW 1896, p. 41.

²⁹ *Inwentarze* 1957, p. 285.

were still complaints about townspeople avoiding crushing malt in the allocated mills.³⁰ Penalties for this became severe: not only did those who shunned their mill duty have their malt confiscated but also they were kept in jail for a week.³¹ Brewers were permitted to crush their malt in another mill only at the consent of the episcopal authority, having surrendered the prescribed quantity of malt. The provisions of the regulation of 1713 imply that obtaining the consent was not problematic. It was issued to those beer makers who wished to start brewing sooner or in the event of hindrances to crushing malt in the bishop's mill.³² One cannot say for certain when Wolbórz townspeople were given such a possibility; it is not mentioned in sources from the 16th or the first half of the 17th century. The changes presumably took place in the second half of the 17th century, as indicated in the above passage from an inventory of 1674 concerning the ban on malt crushing outside the malt mill without prior consent of the town's owners.³³ At that time, exemptions might have been motivated either by the said mill having been damaged in the fire of 1671, during which one millwheel was lost, inevitably lowering the capacity. The malt mill was situated on the Moszczanka river near the episcopal castle. According to the inventory of 1674, it was located next to a fortified tower erected south of the entrance gate leading to the town.³⁴ In the 16th and early 17th centuries, the mill had two millwheels,³⁵ with only one wheel remaining in the second half of the 17th century.³⁶ The timeline in which the mill had been built is unknown. Although it had probably existed by the Middle Ages,³⁷ it was first mentioned in a tax register of 1511.³⁸

³⁰ MHDW 1896, p. 41.

³¹ *Ibidem*.

³² *Ibidem*, p. 42.

³³ *Inwentarze* 1957, p. 285.

³⁴ *Ibidem*, p. 254.

³⁵ ADW, DBKP, ref. 11/5, sheet 3v.; *Inwentarz* 1902, p. 60.

³⁶ *Inwentarze* 1957, p. 285.

³⁷ The first mentions of the mills in Wolbórz date to the 14th century. In a document from 26 February 1357, we find information about a mill erected by Piotr, former administrator (*wójt*) of the town of Wolbórz. Under the sale agreement, the mill was meant to become property of the new administrator who took office of the administrator of Wolbórz – a Piotrków townsman named Krumczo, who was granted the right to expand the mill by adding the desired number of wheels, both for milling cereal and fulling cloth. He was also authorised to transfer the mill to another location, as long as it did not harm the town's proprietor and dwellers, cf. DKiM. 1888, p. 252 et seq. The other mill in Wolbórz is referred to in a lease contract of 29 November 1377. Built on the Moszczanka river, it was leased to a miller named Jakub, son of Radosław from Piotrków, cf. Majewski M.Ł. 2020, p. 540. In the 16th century, the total number of mills in Wolbórz increased to seven. It is impossible to determine which one was the subject of the 1377 deed of lease, since as many as four of them were situated on the Moszczanka, see Rosin R. 1975, p. 48.

³⁸ AGAD, ASK I, ref. 25, sheet 21v.

A brewer bringing malt to a mill was obliged to hand over to the town's owner half a *korzec* (an old unit of measure) for every quantity of malt required to make a single beer batch.³⁹ Ryszard Rosin reports that in the 16th century the levy was replaced by a rent in the amount of 1 florin in cash.⁴⁰ However, sources seem to contradict his claim. According to the inventory records of 1604, 1610 and 1674, townspeople making beer continued to surrender the measure due to the bishops in malt rather than in cash.⁴¹ Also, the 1598 inventory, on which Rosin relies, mentions that the levy was paid in kind.⁴² The researcher misinterpreted an admittedly confusing record on income generated by brewers from beer production.⁴³

The late 16th/early 17th century saw a change in the quantity of malt left as levy in the mill. The inventory of 1604 mentions that two measures of malt should be left by each beer maker for every beer batch brewed from this malt. This does not mean that the levy was doubled, i.e. increased to one *korzec*, as its amount was defined as 3 quarters in the local measurement system.⁴⁴ Krzysztof Boroda found that in the Wolbórz system one *korzec* equalled 73 litres of wheat,⁴⁵ which means that the amount of malt surrendered in the mill as levy for crushing or grinding was approx. 36½ litres in the 16th century and approx. 54.75 litres in the 17th century. The reasons for raising the levy in the early 17th century are unknown but one may suspect that it was due to an increase in the quantity of malt soaked for every batch of beer.⁴⁶ The levy was reduced in the second half of the 17th century. According to data from 1674, the Wolbórz townspeople were obliged to surrender only a single quarter, but the change was not permanent.⁴⁷ It was ushered in as a form of relief for the residents affected by a great fire which broke out on 16 May 1671. The disaster claimed 200 houses and it took several years for the town to recover. In 1674 there were 100 buildings in Wolbórz, which implies a rather slow pace of reconstruction.⁴⁸

³⁹ *Inwentarz* 1953, p. 83.

⁴⁰ Rosin R. 1975, p. 52.

⁴¹ ADW, DBKP, ref. 11/5, sheet 3v., *Inwentarze* 1957, pp. 35, 261.

⁴² *Inwentarz* 1950, p. 94.

⁴³ The record which we find in the inventory of 1598 is not entirely clear, as it cites the number of brewers and hypothetical production volume, assuming that each brewer made beer regularly, every two weeks, and underestimates the price for a single batch, which was set at 1 florin. As such, this provision appears puzzling, since the inventory contains information on income derived from the Wolbórz estate by the owners of the town, whereas revenue on beer sales belonged to the brewer.

⁴⁴ *Inwentarze* 1957, p. 35.

⁴⁵ Boroda K. 2023, p. 123.

⁴⁶ *Inwentarze* 1957, p. 35.

⁴⁷ *Ibidem*, p. 261.

⁴⁸ *Ibidem*.

Another levy imposed on brewers was the '*czopowe*' (excise on alcoholic beverages), paid to the royal treasury. Its rate was announced in legal acts issued by the *sejm* (parliament). In theory, the calculation was based on every barrel of beverage. In reality, however, the legislator, being aware of the common practice employed in various centres, was allowed to charge the tax on a single batch.⁴⁹ In Wolbórz, the tax changed on multiple occasions throughout the 16th century. In the first half of the century, by way of the *czopowe*, Wolbórz brewers presumably paid 5 gr 6 den for every beer batch to the royal treasury.⁵⁰ Starting from the mid-16th century, the rate was only 3 gr for a single batch,⁵¹ only to be doubled in 1563.⁵² The 1578 fiscal reform brought about changes in determining the amount of the tax. Afterwards, it was set at of the value of the beverage brewed.⁵³

From the Middle Ages, in addition to levies, municipal regulations also provided for other brewing-related matters, the most significant of which was defining the quantity of raw materials to be used in beer production, as well as the sequence of the brewing process. According to Rev. Justyn Gryglewski, town laws imposed an obligation on Wolbórz brewers to make a single batch of beer from 5 *korzec* of malt.⁵⁴ Although Gryglewski's study belongs to popular science literature and lacks critical references, it is undoubtedly based on sources. Nonetheless, it does not contain any evidence supporting the researcher's claim about using five *korzec* of malt to make a single batch of beer. As reported in the inventory of 1582, in Wolbórz 8 *korzec* of malt were used to brew a single batch of beer.⁵⁵ The inventory of 1604 cites a different quantity, stating that the local brewers "should soak 9 *korzec* to make beer."⁵⁶ In fact, this discrepancy is only apparent. The greater quantity of malt used at the beginning of the 17th century reflects a transformation that occurred in the brewing of wheat beer. Whereas earlier it had been brewed exclusively from wheat, by the turn of the 17th century a certain proportion of barley malt was also being added. According to the opinion expressed in the second half of the 17th century by the Polish economist Jakub Kazimierz Haur, this practice increased the lightness and mildness of the beer, thereby improving its flavour qualities.⁵⁷ Although we do not know the proportion of barley malt to wheat malt used

⁴⁹ Boroda K. 2016, p. 76.

⁵⁰ AGAD, ASK I, ref. 26, sheet 234v.

⁵¹ AGAD, ASK I, ref. 25, sheet 222v.

⁵² Boroda K. 2016, p. 77 et seq.

⁵³ Ibidem, p. 78.

⁵⁴ Gryglewski J. 1872, p. 67.

⁵⁵ *Inwentarz* 1953, p. 83.

⁵⁶ *Inwentarze* 1957, p. 35.

⁵⁷ Haur J.K. 1675, p. 19.

for brewing wheat beer in Wolbórz in the early 17th century, it is most likely that the ratio was 8:1, meaning that for a single brewing batch the brewer used eight *korzec* of wheat malt and one *korzec* of barley malt.

The regulations concerning the amount of raw material used in production changed in the second half of the 17th century, which was attributed to the crisis of the urban economy. According to data from 1674, six *korzec* of malt were used for a single batch.⁵⁸ Thus, the quantity was similar to that mentioned by Gryglewski in the second half of the 19th century. Gryglewski was a rather meticulous researcher, which raises the question of where he might have obtained information about an even smaller quantity of malt used per batch. It turns out that the measure indicated by Gryglewski was not the result of his mistake or a typographical error. The ordinance for the town of Wolbórz issued on 15 July 1713 by Bishop Konstanty Felicjan Szaniawski defines the sizes of malt measures to be surrendered by townsmen for the privilege of crushing malt in the episcopal mill. The amount of the levy depended on the quantity of crushed malt, and it was established that the largest, half-*korzec* measure was to be collected for the total amount of malt, that is, the quantity used for a single brewing batch. In the ordinance, the total quantity of malt was set at five *korzec*.⁵⁹ However, these provisions – introduced during a period of decline in brewing production – should not be projected onto the realities of the 16th century, which represented the 'golden age' in the history of beer. The reduction in the amount of raw material used per brewing batch in the second half of the 17th and the early 18th centuries was associated with efforts to reduce production costs and maintain profitability.

In a mediaeval and early modern town, the concern of guild and municipal authorities was to ensure equal earning opportunities for all craftsmen. In order to prevent brewers from competing with one another, the schedule of beer brewing was regulated by municipal ordinances, or – where brewing guilds existed – by guild statutes. Information about how this system was organised in Wolbórz is found in the inventory from 1598. Beer production took place every week, but an individual brewer was permitted to brew only once every two weeks.⁶⁰

⁵⁸ *Inwentarze* 1957, p. 261.

⁵⁹ MHDW 1896, p. 42.

⁶⁰ *Inwentarz* 1950, p. 93.

Beer production volumes in 16th century Wolbórz

Sixteenth-century fiscal sources, with the exception of the excise register for the financial year 1552/1553, do not contain data regarding the quantity of beer produced in Wolbórz. Nevertheless, the scale of production can be estimated on the basis of the tax rate levied per brewing batch. The total amount of the tax paid by the townspeople of Wolbórz to the royal treasury also offers some insight into the town's relative position among other brewing centres of Poland.

Table 1. The amount of tax on beer production (*czopowe*) in subsequent tax years, in *grosz*

Fiscal year	Total tax
1530/1531	4377
1534/1535	4554
1535/1536	4158
1552/1553	2244
1553/1554	1326
1564/1565	6150
1565/1566	2808
1576/1577	2670
1577/1578	5052
1578/1579	13097

Applying Krzysztof Boroda's classification of brewing centres according to the amount of excise (*czopowe*) paid, it may be concluded that, throughout the 16th century, Wolbórz – depending on the specific year – belonged to the category of very small or small production centres.⁶¹ This classification implies a level of output sufficient to meet the town's own consumption needs and to supply a limited local market extending to the surrounding villages.⁶² Wolbórz may be categorised as a small brewing centre on the basis of excise revenues from the 1530s, as well as from the fiscal years 1564/1565 and 1577/1578. During the first of these periods, brewers in Wolbórz paid over 4,000 grosz⁶³ in excise tax to the royal treasury,

⁶¹ Boroda K. 2016, p. 522 et seq.

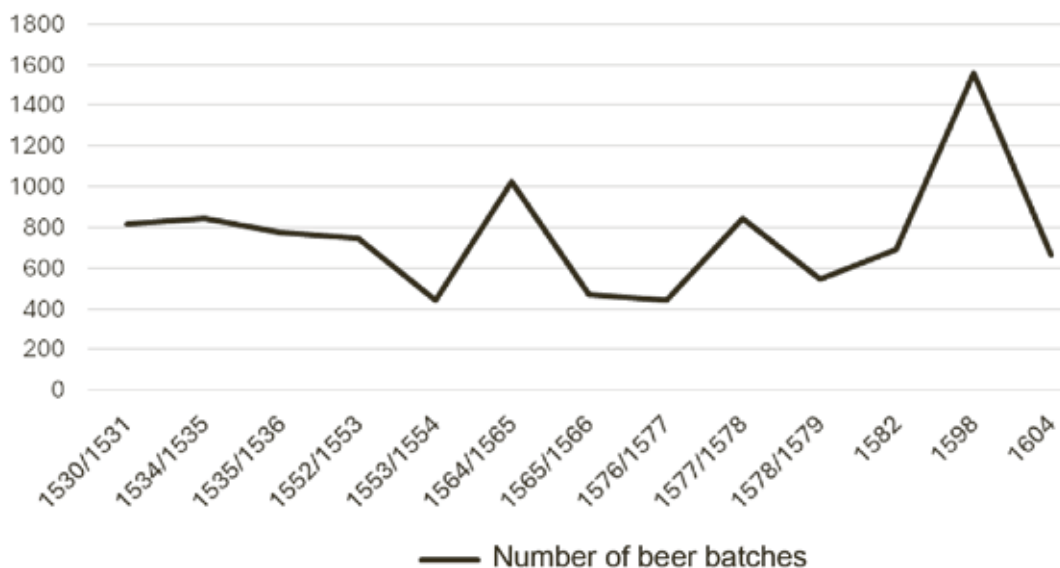
⁶² Ibidem, p. 523.

⁶³ AGAD, ASK I, ref. 24, sheet 543v.; ref. 26, sheet 32v., 34, 35v., 37; ref. 79, sheet 127-127v. The question of the production volume in 1538 is yet to be answered. In the first quarter of the fiscal

while in the latter two accounting periods the payments amounted to over 6,000 and 5,000 grosz respectively.⁶⁴ Conversely, Wolbórz functioned as a very small brewing centre in the fiscal years 1552/1553, 1553/1554, 1565/1566, and 1576/1577, although in 1552/1553 the excise revenues approached the lower threshold, thus qualifying the town as a small production centre (tab. 1).⁶⁵

In the fiscal year 1578/1579, a different system for calculating the excise tax was in force; consequently, the seemingly impressive revenue of 13,097 grosz recorded for that period, when compared with previous accounting years, is in fact misleading. A comparison of production volumes expressed in brewing batches reveals that, in the fiscal year 1578/1579, beer production remained at a low level, comparable to the quantities produced in preceding tax periods.

Fig. 1. The number of beer batches produced in subsequent financial years



By the second half of the 16th century, the inhabitants of Wolbórz had brewed around 800 batches of beer. Although the volumes dropped in the second half of the 16th century, abrupt peaks in the years 1564/1565, 1577/1578 and, primarily, in 1598 are still noticeable.

year, brewers paid 1536 grosz, which was much more than in any other quarter in the 1530s, see AGAD, ASK I, ref. 24, sheet 549.

⁶⁴ AGAD, ASK I, ref. 25, sheet 274, 796.

⁶⁵ Ibidem, sheet 220-222v., 746v.; ref. 26, sheet 417v, 419v, 421v, 423, 852v.

An increase in beer production in the tax year 1564/1565 could be explained, at least partly, by the assembly of landed nobility (*sejm*) in nearby Piotrków. However, one should also bear in mind that strong fluctuations in beer production volume were typical of the economy of the period, a phenomenon unrelated to the overall economic situation.⁶⁶ Having said this, the quantity of beer brewed in 1598 raises certain doubts. The inventory of Włocławek bishopric property for that year estimates the value of a single batch of beer as 1 florin, based on an underestimated price; because the annual number of brews was 1560, the total value of production was reported as 1560 florins.⁶⁷ In fact, the volume provided in the inventory of 1598 seems to be merely hypothetical. Episcopal administrators cited the number of brewers operating in the town, claiming that each of them is permitted to brew beer every two weeks. At that rate, it was assumed that each of them made 26 batches per year, which, given the number of brewers in the town (60), should yield 1560 batches.⁶⁸ Presumably, the officials failed to include numerous instances in which beer makers simply did not use the opportunity and refrained from brewing. Brewers were active to a varying extent, as confirmed in the excise register of 1552/1553, listing the names of every taxpayer and the quantity of beer brewed. Individual brewers in Wolbórz made 1 to 40 batches per year.⁶⁹ Townspeople like Sroczka, Szaczek, Rewka and Michałowa made only a batch each, and started brewing in the first quarter of the year.⁷⁰ Among brewers with a higher output, we too find a number of those who made beer only in one quarter of the fiscal year. For example, Parzklisyna and Joachim made, respectively, 14 and 13 batches – all of which in the first quarter.⁷¹ Wieczkowa followed suit in the second quarter, making 12 batches, after which she stopped, whereas Jeleń and Turczynkowa did not make any beer until the last quarter (when each of them brewed 10 batches).⁷² Naturally, examples are manifold. It is unreasonable to assume that the situation changed in 1598, and exactly the same quantity of beer reported for every brewer in the inventory is implausible.

Unfortunately, one cannot ascertain the actual beer production volume in late 16th-century Wolbórz. Obviously, it cannot be ruled out that it equalled or approximated the figure cited in the inventory, although it seems rather unlikely. Even if we consider this quantity realistic, several years later the production output reverted

⁶⁶ Boroda K. 2016, p. 531.

⁶⁷ *Inwentarz* 1950, p. 93.

⁶⁸ *Ibidem*.

⁶⁹ AGAD, ASK I, ref. 25, sheet 222v.-225.

⁷⁰ *Ibidem*, sheet 222v.-223.

⁷¹ *Ibidem*, sheet 222v.

⁷² *Ibidem*, sheet 224, 225.

to the level reported for the 1580s. Inventories from 1582 and 1604 do not contain any information on the quantity of beer brewed. Still, this figure can be estimated on the basis of the quantity of malt surrendered by the brewers in the mills. Firstly, this allows us to calculate the quantity of crushed malt; then, thanks to the knowledge of the volume of raw material soaked for a single batch, as well as beer production volume. In 1582, a total of 692 batches were brewed in Wolbórz; a little more than two decades later, this number was 667. Whether the same production level was maintained in the following years remains unknown.

At this point, we should also note the estimated quantity of beer produced in the fiscal year 1578/1579. Aside from beer, total excise collected that tax year included excise for ardent spirits and mead. Undoubtedly, beer was the main beverage produced in Wolbórz. In the 16th century, distillation of spirits was of marginal significance to the town's economy. In 1552/1553, the townspeople of Wolbórz paid 2244 grosz of tax for brewing beer; the corresponding amount for spirits was a mere 240 grosz.⁷³ The situation remained identical in the subsequent decades. In the fiscal year 1577/1578, brewing tax revenue in Wolbórz equalled 5052 grosz but the tax collected for distilling spirits was only 540 grosz.⁷⁴ Mead was even less significant: in the tax year 1577/1578 the townspeople of Wolbórz filled only 4 barrels with the drink.⁷⁵

Focusing exclusively on the number of batches made in Wolbórz, however, does not reveal the full scale of beer production. Therefore, an attempt to express the volume in the contemporary measurement system appears necessary. This task is far from easy due to the non-linear measures used in Poland in the analysed period. For Wolbórz, challenges to estimating production volume in litres include mainly missing records of the number of beer barrels in a single batch. The 1617 articles of the Wolbórz guild of tavern-keepers set the enrolment fee at “[...] three Barrels of Beer of which each Barrel is to contain half a Tun [...]”⁷⁶ A tun (*stagiew*) was a large-sized barrel of capacity up to 800 litres. The fact that beer in Wolbórz was transferred to such barrels is confirmed in records from the 1582 register of income and expenditure of the Wolbórz estate, wherein the said units of measure are referred to as the ‘Wolbórz tun’.⁷⁷ A mention of the manor levy (*prowent*) paid by Wolbórz beer makers in 1598 appears to validate the claim that a tun was equal to the volume of a single batch. The register states that one batch contained

⁷³ Ibidem, sheet 225v.

⁷⁴ Ibidem, sheet 274.

⁷⁵ Ibidem.

⁷⁶ APPT, CW, ref. 1, p. 6.

⁷⁷ *Inwentarz* 1953, p. 158.

a quantity of beer whose value could be estimated at 1 florin.⁷⁸ Other records of the period suggest that the price for one Wolbórz tun of beer was 1 florin and 18 grosz.⁷⁹ However, the difference between the value of one tun and a batch was only apparent, as the estimations of the value of a batch in 1598 made it clear that the price was underestimated.⁸⁰ Interestingly, the cost of a single tun of beer was identical to the amount paid for the so-called 'large tun' (*duża stągiew*), i.e. 800 litres, in nearby Piotrków.⁸¹ It is likely that the tun mentioned in sources discussing the brewing industry in Piotrków, valued at 48 grosz, was actually identical to the Wolbórz tun. Given that local measurement systems developed under the influence of the dominant economic centre⁸² like Piotrków (which functioned as the local centre in terms of beer production), we may assume, with a high probability, that Wolbórz adopted the measure used in Piotrków.

Obviously, the Wolbórz tun was not the only vessel in which beer was sold in the town. 17th century descriptions of the castle brewery seem to confirm this assumption. In 1610, it was mentioned that the castle had tuns and barrels;⁸³ descriptions dating to 1623 and 1674 make it even clearer, with the former stating that there were "eleven tuns and twenty-five beer barrels."⁸⁴ According to the latter description, in 1674 the brewery was in possession of "seven tuns and 13 beer barrels."⁸⁵ These records imply that a smaller, more convenient container was commonly used in preference to the tun. Like in Piotrków, a *sęd* (a unit of measure smaller than a hogshead), a unit also known in the episcopal city, might have been the basic unit of measure in Wolbórz.⁸⁶ If this conjecture is correct, we should assume that a typical beer barrel used in Wolbórz contained 200 litres of beer. Assuming that the volume of a batch of beer in Wolbórz equalled 800 litres, beer production quantities were as follows (tab. 2):

⁷⁸ *Inwentarz* 1950, p. 93.

⁷⁹ *Inwentarz* 1953, p. 158.

⁸⁰ *Inwentarz* 1950, p. 93.

⁸¹ Majewski M.Ł. 2022, p. 88.

⁸² Dryja S., Sławiński S. 2018, p. 154.

⁸³ ADW, DBKP, ref. 11/5, sheet 3v.

⁸⁴ *Inwentarze* 1957, p. 169.

⁸⁵ *Ibidem*, p. 259.

⁸⁶ *Inwentarz* 1953, p. 163 et seq.

Table 2. Beer production volume (in litres) in subsequent financial years

Year	Beer quantity (litres)
1530/1531	651,520
1534/1535	677,840
1535/1536	618,800
1552/1553	598,400
1553/1554	353,600
1564/1565	820,000
1565/1566	374,400
1576/1577	356,000
1577/1578	673,600
1578/1579	436,400
1582	553,600
1598	1,248,000
1604	533,600

Beer production volumes expressed in litres allow us to estimate beer consumption in Wolbórz throughout the 16th century. The exact town population figures are unknown, and the number of inhabitants can be estimated on the basis of the number of houses. Relevant records for 1534 and 1604 are available. Taking this data into account when studying the history of mediaeval Wobrórz, Ryszard Rosin, estimated that in the early 1530s there were 325 families living in the town.⁸⁷ Exactly 70 years later, the inventory of the Wolbórz estate property reports the receipt of rent from 400 houses.⁸⁸ Applying the conversion factor of 6 persons per one homestead, the population of Wolbórz can be estimated at ca. 1950 in 1534 and ca. 2400 in the early 17th century. Therefore, the mean annual population increase in Wolbórz was 6.43 (tab. 3).

⁸⁷ Rosin R. 1975, p. 53.

⁸⁸ *Inwentarze* 1957, p. 35.

Table 3. The population of Wolborz over the years

Year	Residents
1531	1931
1534	1950
1536	1963
1553	2072
1554	2079
1565	2149
1566	2156
1577	2226
1578	2233
1579	2239
1582	2259
1598	2362
1604	2400

In this period, in line with Krzysztof Boroda's calculation, the average person drank about 300 litres of beer per year.⁸⁹ Accordingly, in the 16th century, Wolbórz residents consumed nearly 580,000 to 720,000 litres of beer (tab. 4).

Table 4. Beer production and consumption in Wolborz in subsequent years, assuming a consumption of 300 litres per capita

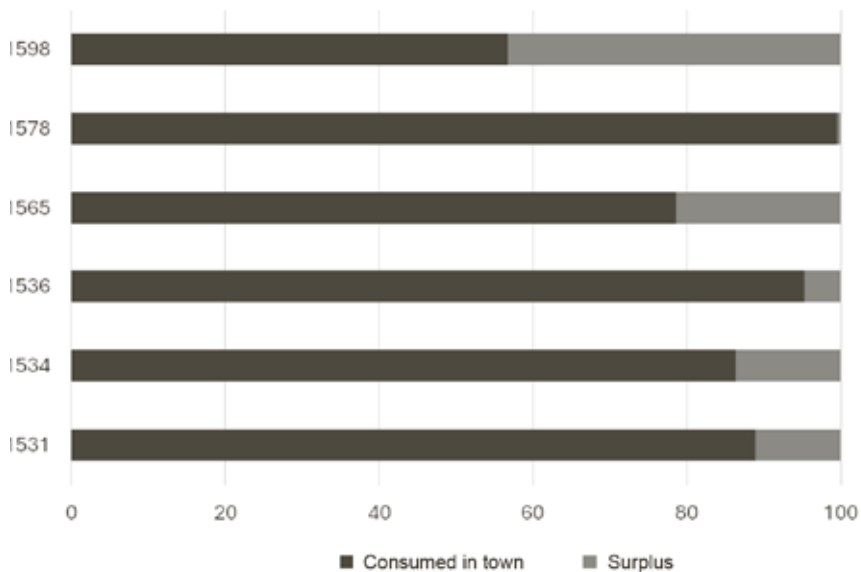
Year	Beer production	Consumed by residents	Surplus/Shortage (expected)
1531	651,520	579,300	72,220
1534	677,840	585,000	92,840
1536	618,800	588,900	29,900

⁸⁹ Boroda K. 2016, p. 547. Higher daily consumption estimates for beer were cited by Andrzej Wyczański, who ascertained the quantity at 1.2 litre, and Maria Dembińska, by whose estimates the daily consumption of beer was 1.5-2 litres, see Wyczański A. 1969, p.106; Dembińska M. 1999, p. 80. I accept Krzysztof Boroda's estimate as more accurate, as the researcher allowed for a slightly lower beer consumption by women and children.

Year	Beer production	Consumed by residents	Surplus/Shortage (expected)
1553	598,400	621,600	-23,200
1554	353,600	623,700	-270,100
1565	820,000	644,700	175,300
1566	374,400	646,800	-272,400
1577	356,000	667,800	-311,800
1578	673,600	669,900	3,700
1579	436,400	671,700	-235,300
1582	553,600	677,700	-124,100
1598	1,248,000	708,600	539,400
1604	533,600	720,000	-186,400

The above data allows us to conclude that the majority of beer made in Wolbórz was drunk by its inhabitants. Any surplus was limited, ranging from 0.5% to less than 14% of the entire output. 1565 and 1598 were exceptional in that the surplus was respectively 21.4% and a staggering 43.2%, assuming that the data from 1598 is plausible. Even the high surplus in those years does not alter the fact that production was aimed at satisfying local needs (fig. 2).

Fig. 2. Beer production in selected years



It is worth comparing the above figures with their equivalents for Piotrków, back then the leading producer of beer in the Sieradz Voivodeship. In 1531-1579, most beer brewed in the voivodeship's largest city was meant to be sold. In the 1530s, the surplus ranged from 58.4% up to 68.9%. In the second half of the century, it fluctuated from 62.3% to 70%, to even exceed 80% of production in 1579.⁹⁰

Furthermore, at that time Piotrków did not face any beer shortages like the ones in Wolbórz in the years 1553-1554, 1566, 1577, 1579, 1582 and 1604 – a problem which occurred rather frequently. Inevitably, shortages were supplemented by bringing beer from other locations. Some beer could be brought from manors in the vicinity of Wolbórz. The 1582 inventory of the property of the Wolbórz estate mentions the sale of beer made in the manors in Łaznów, Popielawy, Grabica and Szczukwin.⁹¹ Without a doubt, 'imported beers' included mainly beverages externally sourced in other cities of the Kingdom and Silesia. Sources mention beer brought to Wolbórz from Piątek, Piotrków⁹² and Wrocław but fail to specify any quantities. An exception is the reference from 1577 concerning a fee paid by Wolbórz for the sale of Wrocław beer. A payment of 3 florins and 12 grosz was made for this purpose, and since the rate was set at 6 grosz per barrel, it is known that local innkeepers dispensed 17 barrels of this beer.⁹³ The capacity of a single barrel amounted to 220 litres,⁹⁴ which indicates that in 1577 a total of 3,740 litres of Wrocław beer reached the Wolbórz market. Its import thus compensated only slightly for production shortages, which in that year amounted to approximately 311,800 litres.

Among imported beers, those from Piotrków most likely predominated owing to the short distance between the two centres and the high quality of the product. Beverages transported from more distant localities commanded higher prices. While a tun of Wolbórz beer cost 48 grosz, the same quantity of Piotrków beer in Wolbórz required a payment of approximately 50-52 grosz.⁹⁵ This does not mean, however, that shortages in local production necessarily forced townspeople to purchase the more expensive imported beer. It should be noted that the tax sources on which our analysis is based concern only the production of full-strength beer intended for sale, whereas brewing for personal use or the production of lower-quality beverages was exempt from taxation.⁹⁶

⁹⁰ Majewski M.Ł. 2022, p. 92, 97 et al.

⁹¹ *Inwentarz* 1953, p. 158 et seq.

⁹² *Ibidem*, pp. 163-165.

⁹³ AGAD, ASK I, ref. 25, sheet 274.

⁹⁴ Okólska H. 2002, p. 49.

⁹⁵ Majewski M.Ł. 2022, p. 265.

⁹⁶ Boroda K. 2016, p. 524.

Little is known about the varietal differentiation of beer produced in Wolbórz. Based on references to the measurement of malt levied at the mill, it is evident that wheat beer, barley beer, and possibly, especially in the later period, wheat and barley beer was produced in the town.⁹⁷ Among these, wheat beer was clearly dominant, as is best illustrated by the quantity of each type of malt processed in the episcopal mill. In 1582, brewers left in the mill a total of 346 *korzec* of malt as a form of rent.⁹⁸ This allows us to estimate that during the year millers processed 5536 *korzec* of this raw material, of which wheat malt constituted as much as 81.9 per cent. From this, 567 batches of beer were produced, while barley malt yielded only 125 batches. The disproportions between the quantities of wheat and barley beer produced in Wolbórz were not exceptional, since they reflected tendencies present throughout the Polish-Lithuanian Commonwealth. In the vast majority of regions (with the exception of Royal Prussia), wheat beer enjoyed considerably greater popularity, clearly dominating over barley beer production.⁹⁹ It is nevertheless worth noting that barley beer in Wolbórz was brewed to meet the needs of the episcopal court, the administrators of the Wolbórz estates, and craftsmen employed on the manorial farms.¹⁰⁰ The surviving sources do not provide a clear answer as to whether the proportions between the production of the two types of beer were reversed during the 17th century. Such a shift occurred in nearby Piotrków, where during the crisis of the brewing industry and the associated efforts to reduce production costs, barley displaced wheat in the mid-seventeenth century, becoming the principal grain used for beer production.¹⁰¹

Demand for raw materials used in beer production

Approximate beer production volumes for Wolbórz provide a basis for attempts at estimating demand for raw materials used in brewing. Given that 8 *korzec* of malt were used to make a single beer batch in 16th century Wolbórz and the amount increased to 9 in the early 17th century, we arrive at the following malt production figures (tab. 5):

⁹⁷ *Inwentarz* 1953, p. 145.

⁹⁸ *Ibidem*, p. 143 et seq.

⁹⁹ In the 16th century, in certain cities, e.g. Krakow, the use of barley or other cereal for making beer was strictly prohibited, see Dryja S. 2011, p. 5.

¹⁰⁰ *Inwentarz* 1953, p. 145.

¹⁰¹ Majewski M.Ł. 2022, p. 129.

Table 5. The quantity of malt used in production in each year, in *korzec* and (after conversion) in tonnes

Year	Malt quantity	
	In <i>korzec</i>	In tons ¹⁰²
1530/1531	6515.2	294.88
1534/1535	6778.4	306.79
1535/1536	6188	279.07
1552/1553	5984	270.86
1553/1554	3536	160
1564/1565	8200	371.13
1565/1566	3744	169.45
1576/1577	3560	161.13
1577/1578	6736	304.87
1578/1579	4364	197.51
1582*	4536	205.5
1598	12480	564.84
1604	6003	271.50

* Only wheat malt was included.

The above data enables us to estimate the demand for grain used in malt production. Since the grain increases its size in the malting process, based on Krzysztof Boroda's publication I assumed that 2 *korzec* of wheat malt were made from 1.5 *korzec* of wheat (tab. 6).

Table 6. The quantity of wheat used for production in each year, in *korzec* and (after conversion) in tonnes

Year	Wheat quantity	
	In <i>korzec</i>	In tons ¹⁰³
1530/1531	4886.4	278.24
1534/1535	5083.8	288.74
1535/1536	4641	264.16
1552/1553	4488	255.87

¹⁰² Wheat malt density was assumed as approx. 0.62 kg/l.

¹⁰³ Wheat density was assumed as approx. 0.78 kg/l.

Year	Wheat quantity	
	In <i>korzec</i>	In tons ¹⁰³
1553/1554	2652	151.01
1564/1565	6150	350.96
1565/1566	2808	159.89
1576/1577	2670	152.04
1577/1578	5052	287.86
1578/1579	3273	186.23
1582	3402	193.71
1598	9360	533.96
1604	4502.25	227.82

Like malt, hops were another indispensable ingredient used in beer production. The 1582 income and expenditure records for the Wolbórz estate report costs related to brewing a certain quantity of beer in Łaznów, Popielawy, Grabica and Szczukwin manors. A note dated 1 November 1582 reads that it took 6.5 *korzec* of hops to make 32 tuns of beer, whereas on 10 December 5 *korzec* of hops were used to make 25.5 tuns of beer.¹⁰⁴ The aforementioned records suggest that brewing a single batch of beer in Wolbórz required approx. 0.2 *korzec* of hops (tab. 7).

Table 7. The quantity of hops used in production in each year, in *korzec* and (after conversion) in kilograms

Year	Hop quantity	
	In <i>korzec</i>	In kilograms ¹⁰⁵
1530/1531	162.88	1664.35
1534/1535	196.46	1732.02
1535/1536	154.7	1580.19
1552/1553	149.6	1528.91
1553/1554	88.4	903.45
1564/1565	205	2095.10
1565/1566	93.6	955.19
1576/1577	89	909.58
1577/1578	168.4	1721.05

¹⁰⁴ *Inwentarz* 1953, p. 158 et seq.

¹⁰⁵ Dry hop density was assumed as 140 g/l.

Year	Hop quantity	
	In <i>korzec</i>	In kilograms ¹⁰⁵
1578/1579	109.1	114.99
1582	138.4	1114.45
1598	312	3188.64
1604	133.4	1364.75

Estimated hops consumption figures for beer production in Wolbórz presented above are, however, incomplete, as they refer to the raw material after drying, a process during which it loses a significant proportion of its mass. Nevertheless, the quantity of hop cones used in production may be estimated on the assumption that 1 kilogram of dried hops was obtained from approximately 4.5 to 5 kilograms of the fresh plant. The following figures illustrate its use by Wolbórz brewers (tab. 8):

Table 8. The quantity of fresh hops used in production in each year, in *korzec* and (after conversion) in kilograms

Year	Fresh hop quantity (kilograms)
1530/1531	7489.58 – 8321.75
1534/1535	7794.09 – 8660.10
1535/1536	7110.88 – 7900.95
1552/1553	6880.10 – 7644.55
1553/1554	4065.53 – 4517.25
1564/1565	9428.96 – 10475.5
1565/1566	4298.35 – 4775.95
1576/1577	4093.10 – 4547.90
1577/1578	7744.73 – 8605.25
1578/1579	5017.46 – 5574.95
1582	6365.03 – 7072.25
1598	14348.88 – 15943.2
1604	6141.38 – 6823.75

It transpires that throughout the 16th century, Wolbórz brewers used 160 to nearly 565 tons of malt made from, respectively, 151 to nearly 534 tons of wheat and from approx. 903 to approx. 3188 kg of dry hop cones, i.e. from over 4065-4517 to nearly 14,348-15,943 kg of fresh hops. In reality, however, the maximum

quantity of the raw materials used in beermaking, estimated on the basis of the number of batches brewed in 1598, must have been lower, as the beer production volume reported in the property inventory of the Wolbórz estate was of declarative character and conceivably much lower, perhaps approximating those in 1598 and 1604. For this reason, it should be assumed that the greatest consumption of raw materials was cited in the tax year 1564/1565, when the beer production output was the highest.

An estimate of the production cost of a single batch of beer

Estimating the cost and potential profits of beer production is a subject extremely rarely discussed, one of the reasons being the absence of sources which enable preparing a statistical study.¹⁰⁶ For Wolbórz, an estimate of the production cost of a single batch of beer is possible on the basis of data from 1582. A register of income derived from the Wolbórz estate in that year contains several mentions of the sale of wheat, together with price per *korzec*. The amount varied by season. In the first half, that is, in the period preceding new harvest, price per 1 *korzec* ranged from 30 to 33 grosz. After the harvest, the price for a single *korzec* went down to 24-26 grosz, only to go up to 30 grosz at the end of the year.¹⁰⁷ Therefore, a single *korzec* of wheat could be purchased for 31.5 grosz on average in the first half and for 25 grosz in the second half of the year. As Wolbórz brewers made beer from 8 *korzec* of malt, they needed 6 *korzec* of wheat per batch. Considering the mean *per korzec* price in the first half of the year, this entailed spending 189 grosz in the first and 150 grosz in the second half of the year. The amount to be spent was higher when buying ready-made malt. The price of one *korzec* of this raw material, equal to 40 grosz, was listed only in a note of 1 August 1582; it is thus impossible to determine the prices of malt over the year.¹⁰⁸ The price of another raw material required in beer production, i.e. hops, was 24 grosz per 1 *korzec*.¹⁰⁹ Making a single beer batch meant using about 0.2 *korzec*; consequently, in order to buy the required amount of hops one had to spend 4.8 grosz (ca. 4 grosz and 14 denar). This did not exhaust the list of expenses, as beer makers had to also buy the straw necessary in the filtration process and the wood for lighting up fire under brew kettles. Their prices in Wolbórz are unknown. Hence, estimated

¹⁰⁶ Dryja S. 2021, p. 40.

¹⁰⁷ *Inwentarz* 1953, p. 158 et seq.

¹⁰⁸ *Ibidem*, p. 158.

¹⁰⁹ *Ibidem*, p. 158 et seq.

prices were assumed in the analyses of the cost of making a single batch of beer in nearby Piotrków. According to the Piotrków price list, a brewer had to pay 1.2 grosz for straw and ca. 2.9 grosz for wood.¹¹⁰ Further expenses also included tax burdens imposed on beer makers such as the beer brewing tax and the excise levy (*czopowe*) (tab. 9).

Table 9. An estimate of the production cost of a single batch of beer in *grosz*

Raw materials and materials	Price	Percentage of total
Wheat	150	90.8
Hops	4.8	2.9
Straw	1.2	0.7
Wood	2.9	1.8
Excise	5.3	3.2
Brewery rent	1	0.6
Total	165.2	100.0

On the list below, we may notice the staggering production costs. Taking into account the mean post-harvest (i.e. lower) price per 1 *korzec* of wheat, the price alone exceeded the value of one batch of beer. Therefore, the brewer had to spend 3.5 times more than what the beer he or she made was worth. Production would be entirely unprofitable were it not for the fact that its costs were actually much lower. Ryszard Rosin was right to point out that farming was a significant source of livelihood for townspeople in Wolbórz.¹¹¹ The local beer makers presumably used mostly the malt made from wheat sourced in fields owned by the brewers themselves, which allowed them to significantly reduce costs, even if the plots of arable land owned by the townspeople were insufficient, making it necessary to purchase at least some grain or ready-made malt for production purposes. Records of rent paid by the Wolbórz townspeople in 1534 reveal that approx. 1/3 owners of houses (or their spouses) where beer was brewed owned some land in the town.¹¹² Conversely, producers who did not grow their own crops were able to obtain wheat from townspeople who cultivated the land – in exchange for part of the malt or beer made from the grain.¹¹³

¹¹⁰ Majewski M.Ł. 2022, p. 112.

¹¹¹ Rosin R. 1975, p. 50.

¹¹² *Inwentarz* 1902, pp. 65-67.

¹¹³ Kiryk F. 2003, p. 144 et seq.

Producers and breweries

Because sources crucial for understanding the history of mediaeval and early modern Wolbórz such as the municipal chancellery records concerning brewers and the enterprises they operated did not survive to the present day, our knowledge of these matters remains limited. The number of producers or breweries active in Wolbórz in the 16th century is known only for the years 1534, 1552/1553 and 1598. The most detailed information is derived from the first two of these periods.

The 1534 inventory of the property of the Włocławek bishopric contains a tax register from Wolbórz, listing taxpayers by name, together with the street in which they resided and the type of property from which they rendered dues. Not only does this allow us to ascertain the names of Wolbórz brewers of the period, but also to determine with precision the location of the breweries they operated. By contrast, the excise register from the fiscal year 1552/1553, although lacking information on the precise location of individual establishments, records each brewer by name along with the number of batches of beer they produced. Such details are entirely absent from references dating from the end of the 16th century: in the description of revenues from the Wolbórz estate complex of 1598, only the total number of producers active in the town is given.

In 1534, there were 61 breweries operating in the town, meaning that beer was brewed in almost one-quarter of all households.¹¹⁴ This was not an insignificant proportion, yet completely incomparable with centres in which beer production constituted an important element of the urban economy. For example, in nearby Piotrków, according to data from the late 1560s and early 1570s, breweries ran at approximately 84 to over 90% of households (tab. 10).¹¹⁵

Table 10. The number of houses and the number of breweries in the market square and on the streets

Street	Houses	Breweries	Percentage of breweries relative to the number of houses
Market square	23	9	39.1
Św. Krzyża	24	8	33.3
Kozia	34	4	11.8

¹¹⁴ *Inwentarz* 1902, pp. 61-65, 67.

¹¹⁵ Majewski M.Ł. 2022, p. 70.

Street	Houses	Breweries	Percentage of breweries relative to the number of houses
Chorzączka	70	18	25.7
Łazienna	13	-	-
Rzeźnicza	32	9	28.1
Szpitalna	23	9	39.1
Przedmieście Bogusławskie	16	1	6.2
Opposite the river	14	1	7.1
Mierziączka	14	2	14.3
Total	263	61	23.2

The highest number of breweries in Wolbórz operated in Chorzączka, Reźnicza, Szpitalna, Św. Krzyża streets and in the Market Square.¹¹⁶ Production was concentrated in the central part of the town, playing a definitely minor role in its peripheral areas. As a rule, the number of brewing and tavern establishments in Wolbórz corresponded to the number of active beer makers. The tax register mentions townsmen Wołek and Małek twice; what we do not know, however, is whether they worked separately or they both owned two inns located in two different parts of Wolbórz.¹¹⁷ The latter hypothesis is supported by the absence of any additional information allowing us to make a distinction between the two taxpayers. On the other hand, such a distinction might not have been necessary, as records referred to the owners of properties located in different streets. Overall, about 60 townspeople brewed beer in Wolbórz in 1534, which constituted only 3.1% of the town's inhabitants. The number of beer makers remained roughly on the same level until the end of the 16th century. In the tax year 1552/1553, 64 townspeople paid the excise levy,¹¹⁸ while the inventory of 1598 mentions 60 brewers active in the town.¹¹⁹ Apart from breweries run by townspeople, Wolbórz also had a castle brewery, making beer for the court, as well as a municipal brewery. Only the latter had some significance for the production in the town. However, its output remains unknown. The brewery was situated on Chorzączka street and paid 6 grosz of rent per year.¹²⁰

¹¹⁶ *Inwentarz* 1902, pp. 62-65.

¹¹⁷ *Ibidem*, pp. 62, 66-67. A townsman called Wołek was named as the owner of a property in the Wolbórz Market Square and Świętego Krzyża Street; another one called Małek was identified as the owner of a house in Rzeźnicza and Szpitalna streets.

¹¹⁸ AGAD, ASK I, ref. 25, sheet 222v-225.

¹¹⁹ *Inwentarz* 1950, p. 93.

¹²⁰ *Inwentarz* 1902, p. 63.

How many years the business operated is unknown today. It must have still existed in 1582, when investment was made in the form of hoops for beer tuns.¹²¹

In the register of 1552/1553, Wolbórz beer makers were usually small brewers who made 1 to 11 batches per year. We may thus conclude that approx. 60% of brewers listed in the register brewed less often than every five weeks and that beer production was merely an additional source of income. The group of beer makers who brewed 12 to 25 batches per year, on average once or twice a month, was half that size.¹²² As noted by Krzysztof Boroda, for the latter group, brewing was a source of livelihood, albeit not the only one.¹²³ Finally, the number of brewers making 26 to 51 batches, for whom production was one of the main sources of income, was small, making up about 10% of the total number of beer producers.¹²⁴ The above proportions were characteristic not only for Wolbórz, but also for other, smaller towns such as Rzgów, Brzeźnica and Radomsko. This distinguished Wolbórz and the other three towns from Piotrków – a city which dominated beer production in the voivodeship – where only large and very large brewers accounted for a total of 47% of producers, and smaller brewers with an output of 11 beer batches per year were of minor significance.¹²⁵

Unfortunately, even a partial presentation of the vocational structure of Wolbórz brewers on the basis of existing sources is impossible. This group presumably included both merchants and craftsmen. The tax register of 1534 lists 11 townspeople who paid tax on the workshop they owned in addition to tax on serving alcohol.¹²⁶ Obviously, the figure does not correspond to the total number of Wolbórz craftsmen who doubled as brewers, since beer was also made by those craftsmen who did not own a workshop. We may thus identify the owners of these establishments with master craftsmen, yet we are unable to ascertain their profession. A blacksmith from Smardzewice made beer in the market square in Wolbórz, whereas a knifer ran his brewery on Szpitalna street.¹²⁷

The lack of municipal or guild documents also prevents us from identifying the social rank of the beer makers listed in both registers. The *wójt* (administrator) of Wolbórz was mentioned in the 1534 register, which proves that representatives of local government were also active in the trade.¹²⁸

¹²¹ *Inwentarz* 1953, p. 163.

¹²² Majewski M.Ł. 2022, p. 107.

¹²³ Boroda K. 2016, p. 105.

¹²⁴ Majewski M.Ł. 2022, p. 107.

¹²⁵ *Ibidem*, p. 105.

¹²⁶ *Inwentarz* 1902, pp. 62-65, 67.

¹²⁷ *Ibidem*, pp. 62, 67.

¹²⁸ *Ibidem*, p. 63.

Worthy of note is that the brewing craft in Wolbórz was characterised by a high degree of feminisation. In 1534, women made up 14.8% of beer makers, but nearly two decades later this ratio increased to 36%. Their proportion in production was far from marginal, as confirmed by the fact that women constituted over 62% of large brewers who made 26 to 51 batches annually in the fiscal year 1552/1553. Suffice it to say that the largest brewer in Wolbórz at that time was a woman named Szklarka (perhaps a glazier's widow), who made as many as 40 beer batches.¹²⁹ Another woman, Małkowa, was second in the ranking, with 36 batches; she was the widow of a man referred to as Małek in the register of 1534.¹³⁰ Women also comprised a substantial proportion of medium-sized (31.2%) and small-scale producers (33.3%). Overall, during the fiscal year, the townswomen of Wolbórz made 312 batches of beer, which corresponds to 41.7% of total production. There were also many female brewers hired by malthouses and breweries as craftswomen directly handling malt and beermaking. The accounts of the Wolbórz estate of April, May and July 1582 contain a record of remuneration for a female brewer for making malt and beer in the archbishop's brewery. At that time, an unnamed woman brewed 11 batches of beer and 2 *korzec* of wheat malt for the owners of the town. For her work, she charged 4 grosz on one *korzec* of malt and 3 grosz for brewing each batch.¹³¹ Interestingly, compensation paid to female beer makers in Wolbórz did not deviate from that of their male counterparts.¹³²

There are no surviving descriptions of breweries or malthouses situated on townspeople's plots of land. Their appearance, however, did not differ from other beermaking facilities in other cities of the Kingdom. They usually took the form of a wooden building in the rear part of the plot, next to other utility buildings.¹³³ The only available description of a historical Wolbórz brewery is that of the castle brewery. Still, it would be unreasonable to extrapolate its description to the establishments owned by townspeople, because the episcopal brewery was a brickwork structure erected in 1610 at the latest (presumably in place of some older brewery), which also served as the castle's bakery.¹³⁴ For safety reasons, breweries were covered in clay to prevent them from quickly catching fire, which could happen any time due to the drying of malt or boiling of wort. Although the structure was made of bricks, the interior of the episcopal brewery was also covered with clay.¹³⁵

¹²⁹ AGAD, ASK I, ref. 25, sheet 222v, 224-225.

¹³⁰ Ibidem, sheet 223, 224-225.

¹³¹ *Inwentarz* 1953, pp. 162, 164.

¹³² Ibidem, p. 162.

¹³³ Majewski M.Ł. 2022, p. 66.

¹³⁴ ADW, DBKP, ref. 11/5, sheet 3v.

¹³⁵ Ibidem, sheet 4.

At the heart of every brewery was its equipment, the most expensive investment for a townsman or townswoman who wished to make beer. Essential equipment in each brewery included two wooden tuns (a mash tun and a lauter tun), a brew kettle, a trench drain and smaller vessels (stirrers, tubs, pitchers, chutes, etc.).¹³⁶ According to a 1674 description of the episcopal brewery – built to replace the old one, destroyed in the great fire in 1671 – its equipment contained two tuns, a kettle, two tubs, two pails, two buckets, two chutes, a funnel, four stirrers, a trench drain, two shovels, a hop basket, a pitcher and a set of barrels.¹³⁷

Undoubtedly, the purchase of the brew kettle was the costliest investment. It is therefore not surprising that once worn down, its replacement was a priority, entailing a substantial outlay. In 1582, the owners of Wolbórz paid no less than 1 florin for the repair of the brew kettle in the castle brewery.¹³⁸

The chutes referred to in the descriptions of the episcopal brewery transported water in and out of the brewing house. The sources do not mention the type of water used for making beer in Wolbórz. It can be assumed that brewers simply used well water, although it is also likely that water flowed in from the river or water reservoirs. This is implied in a description from 1623, which states that chutes transported water to the episcopal brewery from a nearby pond.¹³⁹

Beer prices in Wolbórz

A deed of sale of the Wolbórz administrator's office, dated 26 February 1357, stated that setting food and beverage prices, including beer prices, was a responsibility of the towns' administrator (*wójt*). However, he would make that decision together with the town council rather than on his own. The next step was to submit the price list to the town's owners or their authorised representative for approval. The deed made it clear that both the administrator and the councillors, when setting the prices, should act in the town's best interest.¹⁴⁰

Based on extant sources, retracing the process of setting beer prices in mediaeval Wolbórz is impossible. No information on the qualities of the drink made in that period is available; as for later centuries, there are only several mentions of accounts from 1582. Still, the only data they contain includes prices for a single tun of beer, i.e. the price of one batch.

¹³⁶ Dryja S. 2011, p. 7.

¹³⁷ *Inwentarze* 1957, p. 259.

¹³⁸ *Inwentarz* 1953, p. 161.

¹³⁹ *Inwentarze* 1957, p. 169.

¹⁴⁰ DKiM 1888, p. 252.

With regard to the beer made in Wolbórz, the price of a single tun was recorded only on two occasions, namely 1 October and 10 December 1582. In the former case, it was 48 grosz, in the latter 40 grosz. However, no reason is given for the difference.¹⁴¹ It is likely that the price per one tun did not change until the end of the 16th century. In 1598 it was estimated that brewers made 1 florin on a single batch, with the caveat that the figure was likely to be underestimated. Therefore, the cost of a tun of Wolbórz beer ranged, as before, from 40 to 48 grosz.¹⁴²

In addition to local beer prices, the income and expenditure register of 1582 mentions six prices of 'imported beer'. Five of them refer to the Piotrków beer and one to the beer brought from Piątek in Łęczyca Voivodeship (tab. 11).

Table 11. The price of "imported beer" sold in Wolborz in 1582

Date	Beer type	Quantity	Price per tun (in grosz)
20 April	Piotrkowskie	tun	50
20 April	Piątkowskie	barrel	30
6 July	Piotrkowskie	tun	52
20 July	Piotrkowskie	<i>sęd</i>	19
31 July	Piotrkowskie	<i>sęd</i>	14
8 August	Piotrkowskie	<i>sęd</i>	16

As the purchase of Piotrków beer was recorded only once, it would be difficult to follow its prices over an extended period.¹⁴³ The price for a tun of Piotrków beer was approximately 50-52 grosz.¹⁴⁴ The basic size of barrels in which beer was sold in Piotrków (and presumably in Wolbórz) was *sęd* (roughly equivalent to a hogs-head). In July and August 1582, the price for this quantity of Piotrków beer varied from 14 to 19 grosz,¹⁴⁵ but from the price paid per tun allows we conclude that the spring price of a single *sęd* was lower. A tun contained four *sęds*; given that the price of a single tun in 1582 ranged from 50 to 52 grosz, one *sęd* must have been worth 12.5 to 13 grosz. No information is available today on the prices of other imported beers, e.g. Wrocław beer, during the analysed period.

¹⁴¹ *Inwentarz* 1953, p. 158 et seq.

¹⁴² *Inwentarz* 1950, p. 93.

¹⁴³ *Inwentarz* 1953, p. 163.

¹⁴⁴ *Ibidem*, p. 163 et seq.

¹⁴⁵ *Ibidem*, p. 164 et seq.

Conclusion

Since beer was the staple beverage drunk in the Middle Ages and the early modern period, its production was an important task for the inhabitants of cities and towns like Wolbórz. Nevertheless, in Wolbórz brewing never became a significant component of the town's economy. Beer production was mainly intended to satisfy the needs of residents, even if the output was often highly insufficient. Whatever tiny surplus remained was sold in the town's close proximity. Given that production volume data for 1598 was declarative, Wolbórz brewers managed to make more than 1000 batches of beer only in the fiscal year 1564/1565. In the first half of the 16th century the output was in the region of 800 batches and started falling by the middle of the century.

It appears that brewing did not thrive in Wolbórz for reasons related to geographic conditions, i.e. the proximity of Piotrków, which at that point was the biggest beer manufacturer in the region, with its local beverage renowned for high quality and distributed in other towns. The Wolbórz brewing market, too, fell under the influence of the beer made in Piotrków. The situation might have started to change in the first half of the 17th century, when the brewing industry in Piotrków was struck by a severe crisis. An absence of sources makes it impossible to answer the question whether production declined dramatically in Wolbórz, as it did in Piotrków and other European cities. Paradoxically, the loss of Piotrków's dominant status created an opportunity for Wolbórz brewers to grow their production. It seems that they took advantage of the situation, at least to some extent. In the second half of the 17th century Wolbórz beer was marketed in Piotrków, something that was unthinkable back in the 16th century.¹⁴⁶

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¹⁴⁶ Majewski M.Ł. 2022, p. 263.

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Abstract

This article surveys the history of brewing in Wolbórz from the Middle Ages to the early 17th century, drawing primarily on handwritten and printed sources such as the tax registers and property inventories of the bishops of Włocławek. The author discusses the legal

bases of the functioning of the local brewing craft in the 16th century, the demand for raw materials, estimated beer production costs and the activity of producers. The number and locations of breweries, as well as historical beer prices, are also analysed. The key findings imply that Wolbórz was a small production centre of limited, local significance. Beer was made mainly for internal consumption purposes – to meet the demands of the town's dwellers. The brewers were self-sufficient in terms of the supply of raw materials, which further testifies to the local and non-specialised nature of their operations.

Keywords: Wolbórz, brewing craft, breweries, beer