

DID LARGE CITIES EXIST IN THE 17TH CENTURY POLISH-LITHUANIAN COMMONWEALTH? A DEFINITION ATTEMPT

Katarzyna WAGNER

University of Warsaw, Institute of History (Poland)

E-mail: wagner.katarzyna@gmail.com

Abstract: *In this study I have analysed five towns: Poznań, Kraków, Warsaw, Lublin, and Lviv. I aimed to determine whether towns treated as provincial in the Crown would also be characterised by lower economic diversity. The primary question is whether one can talk about large cities in the 17th century Polish-Lithuanian Commonwealth at all? And if so, what factors determined the status of a metropolis?*

Keywords: *Cities, Polish-Lithuanian Commonwealth, 17th century, the Gini coefficient, tenants*

Rezumat: *Au existat orașe mari în secolul al XVII-lea în cadrul Uniunii Polono-Lituaniene? O tentativă de definire. Studiul analizează cinci orașe - Poznań, Cracovia, Varșovia, Lublin și Lviv – pentru a determina dacă orașele tratate ca provinciale în cadrul Regatului au fost caracterizate și de o diversitate economică scăzută. Chestiunea de bază este dacă se poate în general vorbi despre orașe mari în cadrul Uniunii Polono-Lituaniene în secolul al XVII-lea? Și dacă da, ce factori au determinat statutul de metropolă?*

Résumé: *Est-ce que de grandes villes ont été au XVII^e siècle en Union polono-lithuanien? Essayer de définir. Dans cette étude, j'ai analysé cinq villes : Poznan, Cracovie, Varsovie, Lublin et Lviv. J'ai voulu déterminer si, sous la Couronne, des villes alors considérées comme provinciales pouvaient aussi être caractérisées par une plus faible diversité économique. La question de base est de savoir si de manière générale, on peut parler de grandes villes au 17^eme siècle sous la République des Deux Nations ? Si oui, quels facteurs déterminaient le statut d'une métropole ?*

INTRODUCTION

In the post-industrial times, we tend to use the terms „metropolitan” and „big-city” interchangeably, without pondering on their true meaning. Indeed,

there are numerous definitions coined by scholars of contemporary cities, approached from various perspectives, including geography and sociology¹. The elements that are of utmost importance to a historian of the pre-industrial era are those that may help establish whether in case of the 17th century Polish-Lithuanian Commonwealth one should indeed talk about big cities. These are as follows: big cities are visible within the international space; they boast economic, cultural and academic potential². These last traits can surely be applied to defining 17th-century big cities, next to a number of additional factors, typical of the historical epoch in question.

In the mid-1990s, Dutch historian Jan Luiten van Zanden pointed out that the best economically developed regions of Europe had already been more economically diverse even before the Industrial Revolution. The observation was made on the basis of the analysis of a number of Dutch towns and Augsburg. Van Zanden also noted that rural areas were much more homogeneous than towns. He proposed to analyse economic inequalities as a somewhat positive factor foreboding imminent economic development of a given region. The path set out by van Zanden was later followed by, among others, Carole Shammas³ and Guido Alfani⁴.

¹ Stanisław Liszewski indicates that a basic trait of a metropolis is a central urban unit or several units, and a developing external area (region). Bohdan Jałowiecki proves, on the other hand, that the central city is emancipated from the region: „the role of a region is limited to residential and recreational functions [...] „neighbour” [...] is another metropolis, often hundreds if not thousands of kilometres away.” He lists four characteristics of modern-day metropolises, namely: population count (minimum half of million inhabitants), high standard of services and institutions, innovative potential and uniqueness of the place. See: S. Liszewski, *Formy i struktury przestrzenne wielkich skupisk miejskich* [Spatial forms and structures of large agglomerations], in: S. Liszewski (ed.), *Geografia urbanistyczna*, Łódź, 2008, pp. 215-216; B. Jałowiecki, *Metropolie* [Metropolises], Białystok, 1999, p. 29; Idem, *Fragmentacja i prywatyzacja przestrzeni* [Fragmentation and privatisation of space], in: B. Jałowiecki, W. Łukowski (ed.), *Gettoizacja polskiej przestrzeni miejskiej* [Ghettoization of Polish urban space], Warszawa, 2007, p. 64.

² Tadeusz Markowski, Tadeusz Marszał, *Metropolie, obszary metropolitarne, metropolizacja. Problemy i pojęcia podstawowe* [Metropolises, metropolitan areas, metropolization. Problems and basic notions], Warsaw, 2006, pp. 12-13.

³ Carole Shammas, *Constructing a Wealth Distribution from Probate Records*, “Journal of Interdisciplinary History”, 1978, vol. 9, No. 2, pp. 297-307; Idem, *A New Look at Long-Term Trends in Wealth Inequality in the United States*, “The American Historical Review”, 1993, vol. 98, No. 2, pp. 412-431.

⁴ Guido Alfani, *Economic Inequality in Northwestern Italy: A Long-Term View (Fourteenth to Eighteenth Century)*, “The Journal of Economic History”, 2015, vol. 75, No. 4, pp.

Van Zanden's observations prompted me to reflect on the definition of a large town in the context of the Polish-Lithuanian Commonwealth. Naturally, cities such as Warsaw, Kraków, or Poznań – due to their nature and size – cannot be compared to such towns as Amsterdam; nonetheless, van Zanden's research makes it possible to corroborate certain theoretical theses.

We also know that modern legal acts issued by the Polish *Sejm* divided the towns within the Polish-Lithuanian Commonwealth into two categories. In the second half of the 17th century the first category of more sizeable cities comprised, among others, Poznań, Krakow, Lublin, Warsaw and Zamość. The second category included smaller towns. The classification was changing over time and already in the first half of the 18th century only Warsaw was deemed a large city. The basic criterion taken into consideration was the number of inhabitants, however there must have been other factors which determined the classification of a city in the modern era as large, big or small. The primary question is whether one can talk about large cities in the 17th century Polish-Lithuanian Commonwealth at all? And if so, what factors determined the status of a metropolis?

Contemporary scholars have used the term 'metropolis' without making an attempt at a definition of what it really means. Andrzej Klonder⁵ indicated several factors which could be used while assessing the size of cities, amongst them the legal status, occupational structure of the inhabitants (the prevalence of merchants over artisans), as well as urban appearance, type of housing and landscape. The factors proposed by Klonder refer to the difference between small and big cities, but they do not define the characteristic of a large city. Some factors are difficult to assess from the perspective of several centuries, e.g. a city landscape. Therefore,

1058-1096; Idem, *Wealth Inequalities and Population Dynamics in Early Modern Northern Italy*, "Journal of Interdisciplinary History", 2010, vol. XL, No. 4, pp. 513-549; Idem, *The effects of plague on the distribution of property: Ivrea, Northern Italy 1630*, "Population Studies", 2010, vol. 64, No. 1, pp. 61-75.

⁵ Andrzej Klonder, *Quasi civitas. Europejskie kryteria miejskości a rzeczywistość małych miast Rzeczypospolitej w XVI-XVII wieku* [Quasi-civitas. European Criteria of urban space versus the reality of small towns in the Polish-Lithuanian Commonwealth in the 16th-17th cc.], in: Aleksander Jankowski, Jacek Maciejewski (ed.), *Interpretatio rerum gestarum. Studia ofiarowane Profesorowi Januszowi Ostoja-Zagórskiemu w 70. rocznicę urodzin* [Interpretation rerum gestarum. Studies on the Occasion of Professor Janusz Ostoja-Zagórski's 70th Birthday], Bydgoszcz, 2013.

it is crucial to analyse solely these elements which can be described and interpreted on the basis of source material.

In my study, I have analysed five towns: Poznań, Kraków, Warsaw, Lublin, and Lviv. I aimed to determine whether towns treated as provincial in the Crown would also be characterised by lower economic diversity. For this reason, I did not include Gdańsk in my study – it constituted a part of the network formed by Western European cities and was the most European town of the Polish-Lithuanian Commonwealth.

With prior knowledge of the works of van Zanden, Alfani, and Shammass, I decided to go a step further and analyse whether any town of the 17th century Commonwealth could be considered a metropolis; in view of the fact that no definition of a metropolis in the context of Old Poland has been developed, I decided to form my own. In this paper, I will analyse: wealth concentration index, type of buildings, and number and flux of tenants.

SOURCES

Two types of documents are particularly useful for the purpose of determining whether an Early Modern town can be called a metropolis: municipal tax and Swedish contribution registers⁶. Both types of tax were imposed in a similar manner, with higher-level powers determining a lump sum to be paid by the entire town and municipal authorities deciding on tax rates. This meant that municipal authorities had a final say on the amounts to be paid by each taxpayer. Even though these decisions were not always just – suffice to mention that members of the authorities would often exempt themselves from taxes – they nonetheless were a reflection of inequalities existing in the town.

The taxes mentioned above were urban in nature, meaning that they were only imposed on burghers. This group encompassed both real estate owners and their tenants. Occasionally, the registers also incorporated nobility and clergy. These groups were excluded from municipal jurisdiction and thus exempt from paying taxes to the town. In some cities, for instance Kraków or Warsaw, tax

⁶ Warsaw – Archiwum Główne Akt Dawnych w Warszawie [The Central Archives of Historical Records in Warsaw], Warszawa Ekonomiczne (AGAD, WE), no. 832, 1431; Kraków – Archiwum Narodowe [National Archives in Kraków], Akta miasta Krakowa [Municipal Records of Kraków], no. 2607, 2623, 2717, 2649; Poznań – Archiwum Państwowe w Poznaniu [National Archives in Poznań], Akta miasta Poznania [Municipal Records of Poznań], I 1759, I 1765, I 1844, I 1851; Lviv – National Archives of Municipal and Rural Records in Lviv, Municipal Records of Lviv [CDIAUL, AmLw], f. 52, op. 2, nr. 777, 782, 795.

collectors would list all real estate owners in tax registers, including the nobility exempt from taxes, while others, for example in Lviv, registered only burghers in their documents. This state of affairs was also true for clergy, which was also excluded from municipal jurisdiction. Only individual examples of priests paying taxes can be found in source materials, in which cases the clergymen paid for their property as private parties and not as representatives of the Church.

It is possible to compare the registers of the two types of taxes even though they were not drawn up for such a purpose. In both cases, tax collectors sorted data according to individual streets or bigger parts of towns (e.g. quarters in Kraków). The street or quarter name was followed by the first name and surname (or only surname) of the taxpayer and, in some cases, also some additional data, for example the profession of the owner or tenant of a given property. The last information to be included was tax rate.

Works written on the subject of German towns indicate that war damages led to a decrease in the level of wealth inequalities due to the fact that the affluent part of the urban population fell victim to the greed of the occupants. Taking this into account, I could not limit myself to carrying out an analysis based only on the overview of a time frame. This is why my study encompasses the analysis of at least three periods:

1) the situation in the second half of the 1620s or in early 1630s, that is in a peaceful period of the towns' existence, devoid of any turbulent events;

2) the period of the 1650s, before the Swedish "Deluge" (or other events connected to the crisis of mid-17th century, for example the Khmelnytsky Uprising), in order to present the situation of towns on the eve of war, after several dozen years of development;

3) the last point in chronology was a register drawn up in late 17th century. I usually aimed to analyse the latest possible period of time, for instance the last decade of a century.

Wherever possible, registers dating to 1702 were added to the analysis in order to close off the period of the 17th century with a register drawn up before the Great Northern War.

METROPOLISES IN THE 17TH CENTURY COMMONWEALTH?

In the Early Modern Period, a town could be considered a metropolis if it was characterised by the following features:

- a narrow financial elite (high Gini coefficient)
- prevalence of brick buildings

- presence of tenants who leave towns in periods of temporary economic stagnation and return after its end.

First, it needs to be emphasised that the Gini coefficient is a measure of the concentration (disparity) of a random variable. In statistics, the aim of analysing concentration is to determine whether the sum of values is spread evenly between observations in the analysed set of data⁷. Income or movable or immovable property of taxpayers should be used as the analysed variable, but in case of tax registers (for example contribution registers), such information is not available. Nonetheless, it is possible to indirectly obtain information on the concentration of wealth in a given town, since municipal authorities used their own assessment of wealth of individual taxpayers to determine rates of both types of tax.

There are two ways in which the calculations can be carried out. In their simplified version, we can calculate the sum paid by the wealthiest 5 per cent or 10 per cent of the town's inhabitants and assume that the remaining amount should be distributed among the other 90-95 per cent of the population. A more advanced option is to calculate the Gini coefficient, whose graphical representation is the so-called Lorenz curve. The Gini coefficient represents the distribution on the entire scale, and not only among the wealthiest or poorest 5-10 per cent.

The value of the Gini coefficient can range from 0 to 1. Both extreme values cannot be reached in a real set of data, since 0 expresses completely even distribution of the sum of values among individual observations, which means that all members of a given community have the same income or wealth. The value of 1, on the other hand, expresses completely uneven distribution, where one person accumulates the entire income (wealth). In practice, values below 0.2 are treated as lack of concentration, 0.2-0.4 as weak concentration, 0.4-0.6 as medium concentration, 0.6-0.8 as strong concentration, and above 0.8 as very strong concentration⁸. In 2013, Bulgaria had the highest Gini coefficient among all member states of the EU – 0.354; the country with the lowest value of the measure was Iceland – 0.242. At that time, Denmark had the coefficient of 0.275, and Sweden –

⁷ Michał Kopczyński, *Podstawy statystyki. Podręcznik dla humanistów* [Introduction to Statistics. Manual for Non-Scientific Minds], Warszawa, 2005, pp. 55-59.

⁸ M. Kopczyński, *Podstawy statystyki*, p. 58.

0.249. The value of the coefficient for Poland was 0.307, which placed it slightly above the average value in the entire EU (0.305)⁹.

Table 1. The Gini coefficient in 17th-century Polish cities

Warszawa		Kraków		Lwów		Poznań		Lublin	
Year	Gini	Year	Gini	Year	Gini	Year	Gini	Year	Gini
1655	0.642	1635	0.717	1636	0.286	1626	0.378	1627	0.379
1656	0.575	1653	0.676	1665	0.418	1651	0.367	1654	0.382
-	-	1692	0.580	-	-	1675	0.387	1670	0.397
1702	0.662	-	-	1702	0.604	1702	0.358	-	-
1703	0.664	-	-	-	-			-	-
1704	0.573	-	-	-	-	-	-	-	-

Source: own elaboration based on *Archiwum Główne Akt Dawnych w Warszawie [The Central Archives of Historical Records in Warsaw], Warszawa Ekonomiczne (AGAD, WE), no. 832, 1431; Kraków – Archiwum Narodowe [National Archives in Kraków], Akta miasta Krakowa [Municipal Records of Kraków], no. 2607, 2623, 2717, 2649; Poznań – Archiwum Państwowe w Poznaniu [National Archives in Poznań], Akta miasta Poznania [Municipal Records of Poznań], I 1759, I 1765, I 1844, I 1851; Lviv – National Archives of Municipal and Rural Records in Lviv, Municipal Records of Lviv [CDIAUL, AmLw], f. 52, op. 2, nr 777, 782, 795*

High Gini coefficients could only be observed in case of Kraków and Warsaw (0.6-0.7). Another feature characteristic for metropolitan centres, connected to wealth concentration index, is a brief decrease of Gini coefficient in times of crisis, with the coefficient growing back following stabilisation, when most of the wealth is once again concentrated in the hands of the wealthiest townsmen. Such an observation can be made in case of Warsaw. Thanks to its systematic development, the residential town of the king was better suited to deal with transient problems than, for example, Kraków whose predicament changed after the departure of the royal court (which served as a consumer of various goods) to Warsaw.

Another important factor in the search for metropolises was the type of buildings prevalent in the town. The Swedish “Deluge” is usually treated

⁹ EU Statistics on Income and Living Conditions (EU-SILC) in 2013. Note for the press conference on 23 December 2014], GUS http://stat.gov.pl/download/gfx/portalinformacyjny/pl/defaultaktualnosci/5486/7/5/1/euro_badanie_dochodow_i_warunkow_zycia_-eu-silc-_w_2013.pdf [accessed: 14 III 2016]

as a turning point, separating the 17th century into pre-crisis and post-crisis periods, but in case of the analysed towns – as far as the area within the city walls is concerned – the negative influence of the occupation is not reflected in tax registers. The tendency to replace wooden buildings with brick constructions can be observed in all the towns in question.

The analysis of the property count in selected towns (considering the same area in specific points of time) suggests that Lublin was most stable – the number of properties there remained within the range of 251-256. In Krakow and Poznań, the number of properties fell by 19% and 11% respectively, while in Warsaw a slight rise of 6% was noted. In Lvov, a fall by 9% was followed by a rise of 31% in relation to the previous census. Reduction of the number of properties in censuses resulted in smaller number of properties falling under the urban jurisdiction (the nobility and the clergy buying off or taking over plots of land; in Krakow, the property belonging to the Krakow Academy), that is those from which the *schoss* was collected¹⁰. In Warsaw, a building boom of sorts was noted following the Swedish Deluge, whereas Lvov – following the mid-century crisis – was recovering from the period of stagnation within the building industry.

The scale of the phenomenon was smallest in Poznań (where it emerged as early as first half of the 17th century) and Lublin (second half of the 17th century). Warsaw experienced a period of dynamic urban development caused, among others, by political factors, while Lviv had to be rebuilt.

Chart no. 1 (see next page) depicts disparities in the cost of brick and daily income of bricklayers in selected locations in the 17th century. In 17th-century Warsaw, the price of bricks fluctuated. Until the end of 1630s, thousand bricks cost between 390 and 450 groshen. Between 1641 and 1651, prices increased to over 500 groshen; right before the Deluge prices dropped, only to rise again following the end of warfare, and to remain at around 500-600 groshen until the end of the century. The Deluge triggered an increase in prices of building materials requisite for post-war reconstruction, which seems to be in consonance with the expected response of the “stock market” by a rise of demand for a product. Meanwhile, daily income of bricklayers in both towns remained at a similar level throughout the 17th century – increase from 23 to c. 40 groshen occurred in Warsaw in the 1640s and the price re-

¹⁰ Schoss – standard property tax paid by burghers to the State Treasury in historic Poland.

mained at that level till the end of the century. The year 1670 was an exception: an increase to 67 and 102 groshen was noted; simultaneously in Krakow the daily wage of a bricklayer was stable in the course of an almost entire

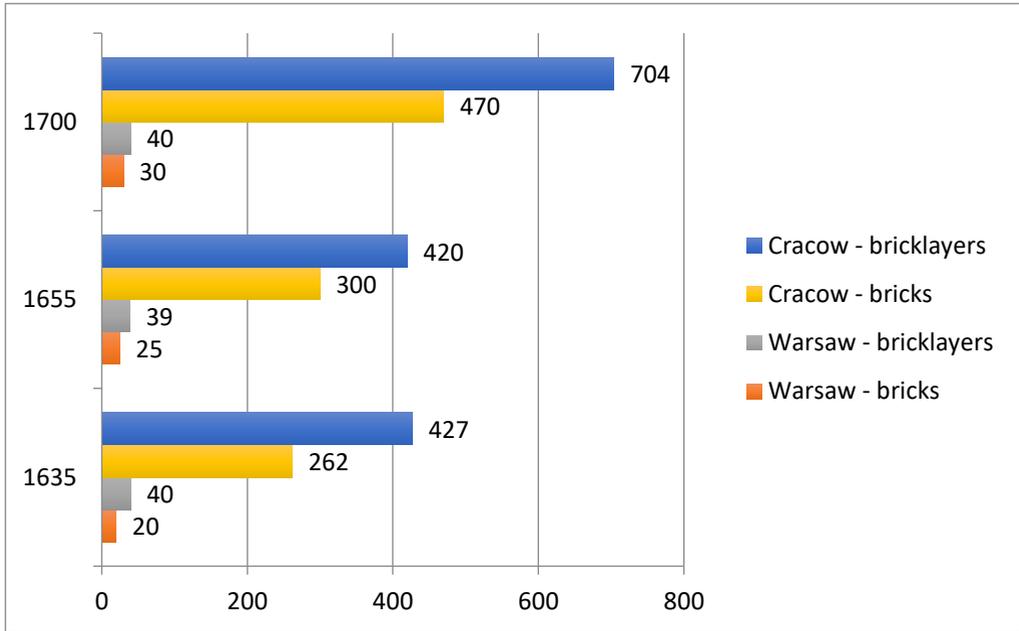


Chart 1. Costs of bricks and the salary of bricklayers in Krakow and Warsaw

Source: own elaboration based on Władysław Adamczyk, *Ceny w Warszawie...* [Prices in Warsaw...], pp. 61, 78; Edward Tomaszewski, *Ceny w Krakowie 1601-1795* [Prices in Krakow 1601-1795], Lwów-Warszawa 1934, pp. 178-179, 215.

century, which in turned stabilized the costs of renovation and reconstruction of war inflicted damage¹¹. The discrepancy of prices and wages fluctuation suggests that Warsaw boasted a buoyant job market which attracted qualified builders. Had it been any other way, the wages should have risen quite significantly.

The last element characteristic of a metropolis was the presence of tenants in the town. Initially, a burgher house was to be inhabited by one family only; however, already since the 16th century, this ceased to be the

¹¹ Władysław Adamczyk, *Ceny w Warszawie...* [Prices in Warsaw...], pp. 61, 78; Edward Tomaszewski, *Ceny w Krakowie 1601-1795* [Prices in Krakow 1601-1795], Lwów-Warszawa, 1934, pp. 178-179, 215.

rule, especially in larger towns. Tenant density in burgher houses was linked with the increase in both the population count and the demand for lodgings, especially in Warsaw, Krakow and Poznań. To begin with, additional space was organized at the rear of buildings or on upper floors. With time, hallways which usually housed an artisan workshop or a small store¹² were divided. At times, a decision to add one storey in order to expand the living quarters was made, while the more impoverished sector of the population would rent basements or buildings at the very rear of the plot (thus far used as utility rooms). Subsequently, properties were divided between two or three owners which resulted in tenement houses being further transformed into multi-family buildings¹³.

It could therefore be deduced that the owners did not perceive properties as impartible or one-family; instead, they rented several rooms in order to gain additional income which in turn could have been used to cover the cost of building's renovation. Both in the 17th and 18th centuries, higher rent (and, accordingly, higher tax) was paid by tenants renting rooms in masonry burgher houses rather than wooden houses. Property location had a significant impact on the amount due for rent – buildings situated at the town's main square were most expensive, followed by tenement houses located along busy thoroughfares. Further from the market square and located along a less busy street meant both lower rent and lower tax¹⁴. At the same time, the lower the rent, the more impoverished citizens occupied the lodgings. In Poznań it was noted that a higher number

¹² *Warszawa w latach 1526-1795* [Warsaw in Years 1526-1795], pp. 106-107; Józef Jamroz, *Mieszczkańska kamienica krakowska wiek XIII-XV* [Krakow Burgher House, the 13th-15th Centuries], Kraków, 1983, pp. 148-153; W. Grabski, *Wybrane zagadnienia z urbanistyki średniowiecznego Krakowa* [Selected Issues of Medieval Krakow's Urban Planning], "Biuletyn Krakowski", 1961, vol. 6, pp. 77-85; Idem, *Ze studiów nad zabudową mieszkalną średniowiecznego Krakowa* [From the Studies on the Residential Sprawl of Medieval Krakow], "Teki Komisji Urbanistyki i Architektury", 1968, vol. 2, pp. 187-205; Idem, *Średniowieczna kamienica krakowska. Zależności między typem działki a rozplanowaniem* [Medieval tenement house in Krakow. Type of plot of land versus planning], "Teki Komisji Urbanistyki i Architektury", 1970, vol. 4, pp. 163-179; *Dzieje Poznania* [History of Poznan], vol. 1, pp. 478-479.

¹³ *Warszawa w latach 1526-1795* [Warsaw in Years 1526-1795], p. 107.

¹⁴ Teresa Zielińska, *Szlacheccy właściciele nieruchomości w miastach XVIII w.* [Nobility Owners of Properties in the 18th c. Cities], Warszawa-Łódź 1987, pp. 51-52.

of tenants resided along busy streets, as it was much easier to find work, most often within the area of commerce or crafts.

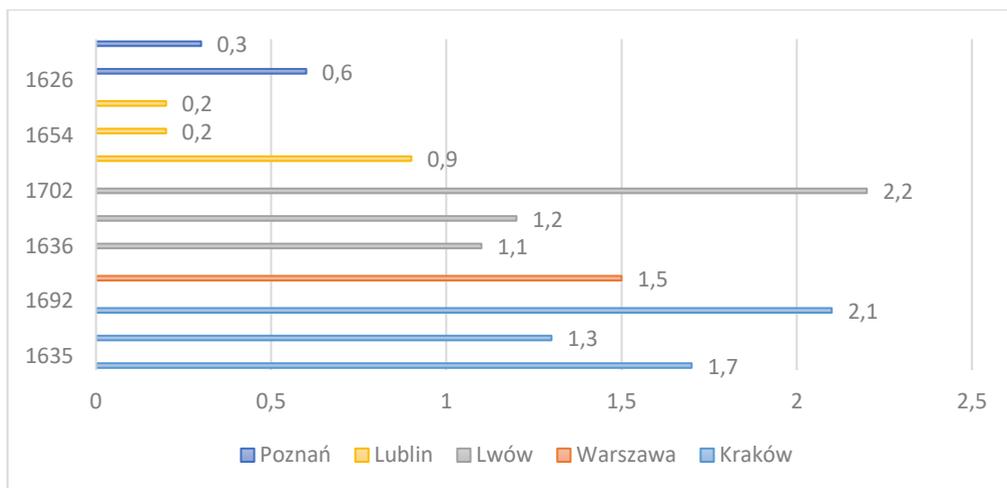


Chart 2. The average number of tenants per house in years 1626-1702

Source: the same as table 1.

Assuming that high number of tenants in the city and in individual properties is a reflection of the urban centre's wealth and good economic situation, then all five towns analysed in this work had a lot of potential for growth. Naturally, the number of tenants fell in all towns in the mid-17th century, however this was caused by factors beyond the control of burghers, for example epidemics or the "Deluge" (as well as the Muscovite threat). This was nonetheless a purely transient event, with the reaction of tenants in its aftermath constituting a telling insight into the condition of a given urban centre. Krakow and Warsaw were inhabited by a higher number of tenants which meant that the average number of tenants renting properties was higher as well. Within the urban areas included in the research, the average equalled between 1.7 tenant per house in 1635 in Krakow, through 1.3 tenant in 1653 and 2.1 tenant in 1692. In the early 18th century in Warsaw, the number of tenants per house equalled 1.5. Lvov oscillated around alike values: 1.1 tenant (1636), 1.2 tenant (1665) and 2.2 tenant (1702). In Lublin and Poznań the situation was altogether different. In Lublin in the first half of the century, the average number of tenants per tenement house was more than one (1.4); however, in the subsequent years the value oscillated near the average. In Poznań, on the other hand,

the number of tenants remained below one (0.8). What is vital in light of the present research is that the results may serve as the basis for dividing towns into larger and more vital centres of artisan industry and commercial exchange and towns of marginal importance. Tenants not returning to town was a bad omen for a town – it pointed to some deeper changes the town was undergoing, for example the loss of economic significance. This is why bigger towns, where political factors played a major role, were able to quickly recover from a crisis.

CONCLUSIONS

Tax registers helped create a definition of a 17th century metropolis. The research shows that a large city is a town where there is a narrow financial elite (high Gini coefficient), most buildings are made of brick, and where there are tenants of property who leave the town during periods of temporary economic stagnation and return after its end.

In consonance with the studies carried out to date, in the 17th century Warsaw was the only town which possessed big-city characteristics. The impulse which boosted the economic situation and triggered transformation within the city was granting it the honour of housing plenary *sejms*, and - since 1572 - also electoral *sejms*. Eventually, the royal court was moved from Krakow to Warsaw. Thus, Warsaw grew to be the most important political centre in the Polish-Lithuanian Commonwealth. Moreover, along with the royal court, a large number of noble families, artisans and artists working for the court followed suit. Political transformation fuelled the city's economic, spatial and cultural growth. In the course of the first half of the century, Krakow also possessed similar traits. Despite ceasing to be the King's residence, until the mid-17th century crisis, Krakow coped really well with the minor maelstroms of history that came its way.

The issue of metropolises undoubtedly needs to be researched further in order to develop a wider range of non-economic factors contributing to the definition. Nonetheless, it is certain that tax registers paved the way for such research, with their analysis leading to the conclusion that the influence of wars taking place in the mid-17th century on the condition of large cities of the Crown is largely overestimated.