Freedom and Decline: Polish state formation and rye market disintegration, 1500-1772.[1]

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Abstract

We investigate a link between state formation and market development in pre-industrial Poland. We argue that constraining executive in the late 16th century contributed to a paralysis of the Parliament in the late 17th century. The Polish republican model failed because of economic inequality within the landed nobility. The weakening of the position of the king upset the balance between the major coalitions of power. The uncontested elite used its influence to accumulate land and gain special property rights. This process accelerated during the wars of the middle of the 17th century. The elite translated economic inequality into political dominance by becoming patrons of the impoverished nobles. In time, magnates managed to build their private semi-independent states. They influenced local representative institutions to elect their clients as the delegates to Parliament in order to corrupt the only remaining central institution capable of constraining their rent-seeking practices. Political devolution brought about coordination failures that resolved in a disintegration of the rye market. Polish rye markets remained disintegrated in the 18th century -a period of an overall improvement in the market conditions in Western Europe. This dissimilarity can be regarded as one of the reasons behind economic underdevelopment of Eastern Europe.

Keywords

Market Integration, Coordination failures, Centralisation, Rent-seeking, Poland, Eastern Europe.

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INTRODUCTION

Understanding the relationship between the distribution of political power and the development of an economy is one of the core topics in economic history. According to Epstein (2000), the changes in the organisation of the relations of power within and between polities were crucial factors in explaining instances of economic growth and contraction in preindustrial Europe. According to his model, economic growth at the time was primarily Smithian and therefore dependent on market conditions – in particular market integration. Furthermore, his model proposes that early modern market conditions were dependent on jurisdictional consolidation of a mosaic of polities inherited from the Middle Ages. Through the early modern period, most of the European states consolidated and centralised under absolutistic or parliamentary regimes (Epstein 2000; Van Zanden et al. 2012). Epstein argued that this development lowered transaction costs between the sub-regions within these countries. This is because centralisation mitigated the coordination failures and therefore allowed for implementation of uniform measurement, monetary, and legal systems. We use the Polish experience to validate Epstein's model. We advance evidence that – when it was in power - the Parliament indeed mitigated transaction costs. Subsequently, we argue that the Polish rye market disintegrated in the 17th century as a result of a paralysis of this central institution.

Epstein's interpretation of the link between state formation and development fits into a larger debate about the institutional roots of European economic growth before the Industrial Revolution. By stressing the importance of political centralisation, Epstein criticises earlier contributions by North (and others), which focus on the constraints of the executive by parliaments as the fundamental institutional precondition for early growth (North 1982; 1990 North and Weingast 1989). Others[2] confirmed the hypothesis that the rise of parliaments – at the expense of kings – was beneficial for urbanisation. The empirical support for Epstein's idea that a strong king can also be good for an economy was based not on changes in occupational structure but on decrease in price volatility across European markets. Subsequent empirical studies of domestic market conditions across preindustrial Western European countries established deepening market integration in the periods of political consolidation, especially in the late Middle Ages and the 18th century (Bateman 2011; Federico 2012), regardless of whether a country centralised under a parliament or an absolutistic ruler.

This paper seeks to find where the Polish experience fits into this debate. At about 1569, the Polish-Lithuanian Commonwealth was arguably one of the most successful states of Europe, covering an enormous landmass – 865,000 km^2 – inhabited by 8 million people. By comparison, France, the largest state of Western Europe, was about 600,000 square km in size. Much like the other territorial states, it was a rather hybrid construction, in the sense that all the major political decisions had to be unanimously agreed on by the king, the Senate and the Parliament. But whereas in other parts of Europe these hybrid monarchies gradually consolidated into more centralised and unified entities, a reverse process of political fragmentation and re-feudalisation

[2] DeLong and Shleifer (1993), Acemoglu et al. (2005), Van Zanden et al. (2012).

happened in Poland. The country first constrained its king in the late 16th century only to face a paralysis of the Parliament in the late 17th century. Due to the imperfectness of the central institutions, the power dispersed between local political units. This eventually resulted in three Polish partitions (1772, 1793, and 1795), after which the state was absorbed by its neighbours, Russia, Austria, and Prussia.

The first question that we address is why the process of centralisation failed in the Polish case, and why centrifugal forces started to dominate, leading to the disappearance of the state that began in 1772. Is Poland the classic example of the failure of the 'republican model' in which the king is controlled/monitored by a strong parliament? Epstein focused on the political crisis of the mid-17th century as the crucial turning point, when political and market fragmentation set in. Around that time, the Parliament was paralysed by a practice of nullifying its decisions by a single delegate: *liberum veto*. We argue that the crucial change that led to the collapse of the Parliament occurred earlier: around the 1570s, when the Parliament decided that the king would be truly elective, began to scrutinise his use of the royal domain, and stripped him of his judiciary powers. These decisions changed the political equilibrium between the king, the Parliament and the magnates fundamentally, and put the Polish state on a different trajectory than other European monarchies (with the exception of the Holy Roman Empire, where a similar decision had been made in 1257 with similar long-term consequences). After Mączak (1982; 1987), we argue that the uncontested elite used its influence to accumulate land and gain special property rights. This process accelerated during the wars of the middle of the 17th century. Mączak (1982) and Bardach (1957) argued that the elite translated economic inequality into political dominance by becoming patrons of the impoverished nobles. In time, magnates managed to build their private semi-independent states. They influenced local representative institutions to elect their clients as the delegates to the Parliament in order to corrupt the only remaining central institution capable of constraining their rent-seeking practices.

Next, we explore the economic consequences of the institutional changes at the level of the state. Epstein's claim that Polish decentralisation affected market conditions has never been empirically investigated. Until now, the only empirical inquiry into Polish market integration was conducted by Baten and Wallush (2005); the scholars investigated only the 18th century and, in line with Epstein's supposition, identified low levels of market integration. Nonetheless, since the study was limited only to the period of political fragmentation, we do not know if we can interpret these findings as a continuation of previous market disintegration or whether the preindustrial Polish markets had never been previously integrated. We tests these ideas more rigorously, making use of the available data on rye prices in various parts of Poland during the early modern period.

POLISH UNDERDEVELOPMENT

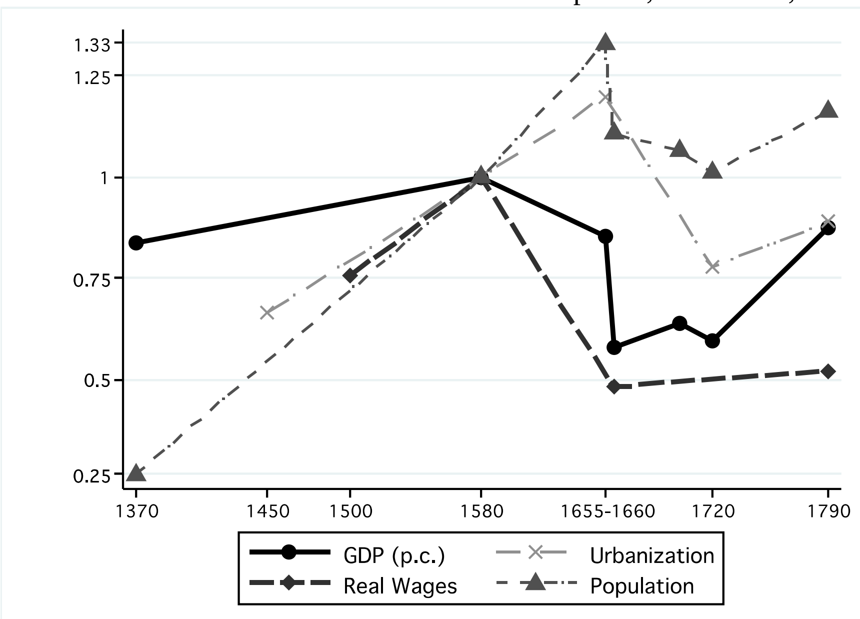
Here we present various metrics of economic growth in Poland and outline Epstein's model about the link between political centralisation, market integration, and growth.

The Kingdom of Poland was a union of numerous historical counties formally ruled by a common king. After 1569 it was in real union with the Grand Duchy of

Lithuania. Political power in the country was held by the landed nobility that accounted for less than ten percent of the population (Kula 1951). Polish cities and peasants had hardly any political representation. The nobility used its superior position to supress the growth of the cities and enserf the peasant population. As a result, Poland remained an agricultural society with numerous institutions typical for the feudal era (Bardach 1957).

Figure 1 presents various metrics of Polish economic growth from the late Middle Ages until the partitions and depicts both the sub-periods of prosperity and decline. There is ample evidence that suggests that the country continued to develop through the late Middle Ages and the first half of the 16th century. The metrics of economic growth indicate a rapid decline of the Polish economy around the first half of the 17th century. The GDP evidence suggest that the growth pattern collapsed at a tipping point around the 1580s. Conversely, the population and urbanisation estimates date the decline at the mid-17th century. According to the indicators, there was little or no economic recovery until the middle or possibly even the end of the 18th century. According to Malanima (2009) and Malinowski (2013) – who analysed urbanisation levels and weighted real wages respectively – Poland began to lag behind Western Europe in the 17th century.

Figure 1: Indexed metrics of Polish economic development, 1370-1790, 1580 = 1.



Note: 1580 as the reference point: GDP p.c. = 832 2004-USDollars; Weighted real wages in the subsistence ratios = 1.93; Population = 8 million; Urbanisation = 9 percent.
Sources: (Wójtowicz 2006; Malinowski 2013)

Economic historians have been looking for a model that would provide an explanation for these instances of economic growth and contraction. The classical Malthusian model commonly used to explain the Western European experience does not prove as useful when it comes to the Polish case. Figure 1 yields that there was no correlation between population and per capita income levels. Furthermore, it has been stated that Poland suffered from pressing labour scarcity and an abundance of uncultivated land rather than the low marginal returns on productivity that supposedly hunted the West (Domar 1970).

Epstein developed an alternative model of pre-industrial economy that could explain the Polish growth patterns. According to the author, economic growth in early modern Europe was primarily Smithian and therefore dependent on low transaction costs. After North (1990) he argued that the transaction costs are a function of the clarity of the 'rules of the game'. Convergence in institutions makes the 'terms and conditions' of an exchange clearer and lowers the transaction costs. Uniform monetary, legal, and measurement systems ease the interaction between the trade partners. According to Epstein, there are two main problems that prevent implementation of universal framework of rules and institutions: coordination failures and prisoner dilemmas. They both stem from the problem of vested interests of the individual polities, rent-seeking tendencies of the elites, and possible speculative gains to be made on institutional differences.

According to Epstein, centralisation of sovereignty can help enforce convergence of institutions. The author argued that political centralisation deprives local elites of jurisdictional power and displaces rent-seeking from the local to the 'national' arena. This makes rent-seeking more transparent and therefore hard to implement. Transparency also mitigates the prisoner's dilemma problem. Furthermore, political centralisation reduces the costs of coordination allowing for concerted decisions and policies. This results in convergence of legal, monetary and measurement systems that lowers transaction costs.

According to Epstein, progressing territorial unification under a common king at the turn of the modern era lowered transaction costs. The author also speculated that the collapse of the Polish political institutions in the mid-17th century brought about market disintegration. This coincided with the contraction of the Polish economy. The remarks about Poland were, however, only anecdotal as Epstein did not provide any in-depth description, analysis or exemplification of the phenomena in question. We fill this gap and validate Epstein's model. We argue that political fragmentation brought about disintegration of the rye market. Assuming that market conditions are crucial for growth, these changes could have been the root causes of the economic contraction in Poland around the 17th century and the subsequent underdevelopment of the country.

BALANCE OF POWER IN THE TIME OF HYBRID MONARCHY

In the first half of the 16th century, Poland developed a centralised political system that allowed for country-wide coordination by balancing the interests of three major coalitions of power: the king, the magnates (Senate), and the nobility (Parliament). The system is known as hybrid monarchy because it encompassed both monarchic and parliamentarian institutions equally. The interactions between the coalitions of power as well as between the individual counties composing the country were framed within a system of power-checks that prevented a domination of one group of interest over the other two. The Polish Parliament formed in 1493. After 1505, no new laws and taxes could be validated without the unanimous consent of the king, the Senate, and the

Parliament. Here we model the Polish political system around the first half of the 16th century.

Political institutions are design to vocalise and balance conflicting interests. In a rural society the political status is dependent on the size of the landholdings. In Poland there were three major coalitions of power, namely: (1) the king, (2) the rich and powerful landed nobility (magnates), (3) the rank-and-file landed nobility. Only these groups had political rights. The cities were not an important political player and – with minor exceptions – could only observe the parliamentary proceedings. The majority of peasants was enserfed and deprived of formal political representation.

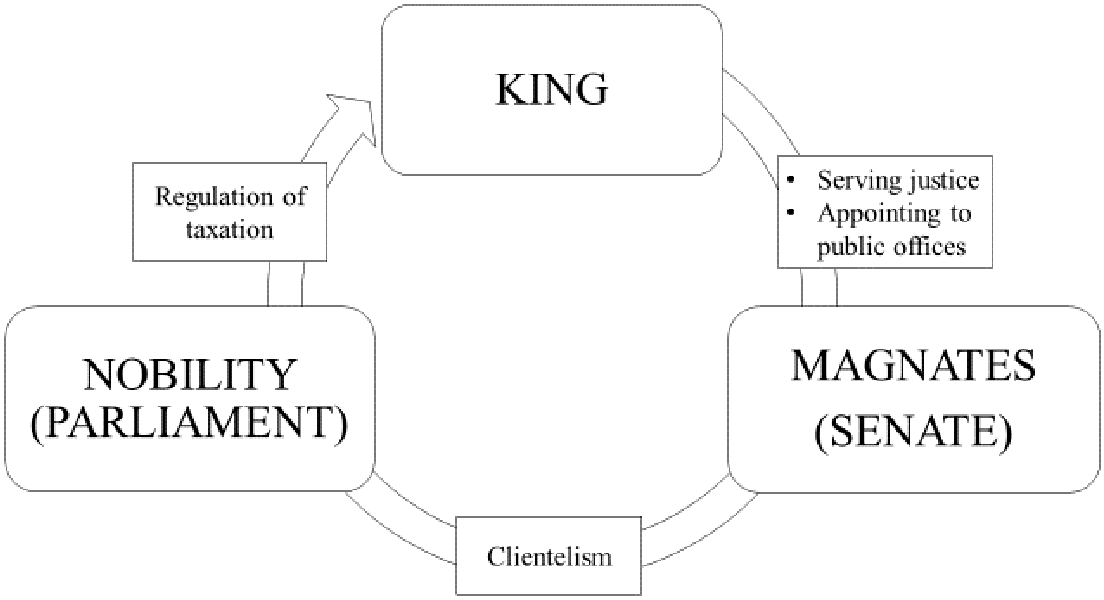
New Institutional Economics (hereafter NIE) models the basic incentives of the opposing factions. According to the underlying assumptions of NIE, the two crucial aspects that motivate players' actions are: (a) the urge to maximise income by extorting wealth from politically inferior groups via rent-seeking; and (b) the willingness to constrain politically superior groups to protect oneself from being extorted (North 1990).

NIE portrays kings as 'mafia bosses' that use their political power to impose more taxation (North 1990). Similarly, the magnates are motivated to seek privileges at the disadvantage of the rest of the nobility, which, in turn, is interested in intensifying serfdom. In this multilateral scenario, this top-down chain of taxation and rent-seeking induces a bottom up opposition and willingness to constrain the 'higher power'. The enserfed peasants would like to oppose the nobility, but lack political representation. The magnates oppose the king in the Senate whereas the nobility consolidates around the Parliament.

The NIE model was tailored to explain the Western European experience and accounts only for two – not three – main opposing political forces, due to a fundamental difference between the Western and Eastern European political traditions. According to Anderson (1974), the Western political institutions stemmed from the feudal environment with a relatively clear pyramid of social relations with a patrimonial ruler at the top, who is opposed by the rest of the society. In Andersons' view, in the East, the feudal pyramid has not evolved fully and therefore Poland developed a more despotic political system. Polish kings were powerful magnates endowed with special political prerogatives, rather than the source of all wealth and power like in the fully developed feudal Western system.

Figure 2 presents the system of power checks between the major coalitions of power in Poland in the first half of the 16th century. To begin with, the king was equipped with a range of prerogatives that allowed him to oppose the magnates. The monarch was the supreme judge responsible for safeguarding the social order. Furthermore, the king could appoint individuals to public offices. One of the most important offices was that of the supervisor of a part of the state's domain: *starosta*. It granted the holder a right to a share of the income from royal demesnes, towns, and villages located in a region. By holding rights to incomes from numerous parts of the royal domain, a nobleman could increase his economic and political power. King's benefited greatly from assigning the public offices, as it forced the magnates to compete with each other for his support.

Figure 2: The model of checks and balances between main coalitions of power in Poland in the first half of the 16th century.



Most magnate families had their representatives in the Senate. This institution allowed the elite to coordinate and vocalise their opposition against the king. The Senate was composed of five major central ministers, the bishops, and major public officials. According to Bardach (1957), the king traded seats in the Senate for political favours. All the senators were appointed by the king or – as in case of the bishops – due to royal recommendation. Appointment constituted recognition of the economic and political power of an individual.

Magnates could oppose the king primarily via indirect impact on the royal income from taxation. The taxes had to be agreed on by the third coalition of power: the nobility. It gave its consent during parliamentary sessions. The Parliament was composed of elected representatives of individual Dietines. Its decisions had to be unanimous. Dietines were formal gatherings of the nobility from within each county. At the peak of Polish territorial expansion there were about 70 such meeting sites in the country. Dietines made decisions by majority voting. All the landed nobility in a region had a right to actively participate in a Dietine. Magnates could influence the decisions made during such meetings. According to Mączak (1982), the Polish political system was based on clientelism – trading political favours for economic gains. Due to their wealth, magnates could systematically control the decisions made by the nobility. According to Mączak, service for a local magnate was the only career opportunity for a poor noble. Patrons provided their clients with credit and offices on their private estates. Their houses provided the local nobility with 'public goods' like culture and education. In exchange they expected their clients to do their bidding at the Dietines. The greater the inequality within the nobility the more nobles were in need of a patron and the firmer the influence of the magnates over their clients.

In sum, the system of the hybrid monarchy provided the country with central institutions that coordinated the interests of both the major coalitions of power and the individual counties. The system of power-checks ensured that none of the interest groups would dominate the others. The magnates were partially constrained by the king, as they depended on being appointed by him to public offices. The king was constrained by the Parliament, whose consent was needed to agree on any additional taxation. Lastly, the Parliament was constrained by the magnates who – due to the cliental relations – held a firm grip on the Dietines that elected and instructed the members of Parliament.

THE LIMITATION OF THE POWER OF THE KING

Here we describe how the king was constrained and how it upset the system of power-checks.

Public offices given by the king were the major source of income for the magnates. They used it to influence the nobility. Nobles were interested in limiting the accumulation of political power in the hands of few elite families. This gave birth to the 'Law-execution movement' inside Parliament around the 1530s. It was the embodiment of the republican ideology in Poland. The movement primarily postulated more transparency as well as codification and reinstatement – execution – of all the previously announced but poorly implemented laws. It was aimed primarily against the magnates, who were using their political influence over the king to hold several public offices simultaneously and take profit from the state domain without a legal claim. Parliament also wished to secure its position vis-à-vis the king in an era of rising absolutistic tendencies around Europe. The movement successfully implemented its programme between the 1560s and 1570s. It constrained the magnates ever so slightly. It only prohibited holding numerous public offices[3] and ordered audits of the rights to the income from the state's domain. The majority of these changes weakened the position of the king.

The nobility negotiated its own judiciary system independent from the king. In the early 16th century, the king could act as a supreme judge only during parliamentary sessions. In 1518 the king declared that all the subjects in private domains of the nobility were no longer protected by the royal court. This made the landlords the sovereigns in their own domains. Furthermore, in 1578 Tribunals of nobles and clergymen were installed. They were created to facilitate the enforcement of laws. They were composed of 27 judges, elected annually by the Dietines and therefore dependent on the support of regional magnates. The Tribunals shifted the majority of cases from the royal and parliamentarian jurisdictions, which continued to act together as the Supreme Court only in cases involving murder, possible imprisonment, or confiscation of all the wealth of a nobleman. This effectively cut most of the remaining judiciary power of the king.

One of the main aims of the movement was the reform of royal income primarily from the state's domain. The rights to supervise the domain were revisited and a special

[3] They could still have numerous *starosties*.

fund based on a quarter of the income from the state's land was established to finance a permanent army. The existence of a standing army was supposed to decrease a further need for taxation. However, the Polish military force consisted of few thousand soldiers. This was insufficient to defend the biggest country in Europe. Moreover, Parliament begun to supervise the appointments of the supervisors of the royal domain. By doing so, it took the last remaining major political tool from the king's hand.

As a result the king's powers to raise revenue were limited. Next to small fixed taxation[4] the king could not borrow any money without the permission of Parliament. Polish kings lacked assets that could be used as collateral, with only a few minor exceptions of mines and unique sets of land controlled directly by the king: *Economias*. According to Mączak (1982), the king's finances were also limited due to the underdevelopment of the Polish urban sector. In Western countries, the urban sector was one of the main creditors of the executive. In Poland this base for public debt was limited. This made the central budget dependent on one-off taxes that had to be repeatedly and unanimously agreed upon by Parliament.[5]

In 1572 Zygmunt the Second – the last King from the Jagiellonian dynasty that had ruled Poland from 1386 – died. He left no legal heir. This led to a succession crisis. Thus far, the kings had been elected from within the same dynasty. In 1573 it was decided that each new king would be elected in a universal election by all the nobility that was willing to participate in the process. Every foreign or domestic noble could become a king. This effectively abolished hereditary successions in Poland within the same dynasty.

Furthermore, upon the election every new king had to agree on a set of basic principles known – after the first elected king Henryk Walezy – as the Articuli Henrici Regnis. The articles were, *avant la lettre,* the constitution of the Commonwealth and the best token of the weakening position of the king. They stipulated – among other provisions – that the king would: 1) respect all the previously given privileges of the nobility; 2) have to summon the Parliament at least once every second year; 3) be constantly audited by the representatives of the Senate; 4) be abolished, should he fail to observe the laws of the Commonwealth and threaten the freedom of the nobility. This set of basic rules defined the political structure of the country that did not change until the partitions. They were known, among several others, as the Golden Liberties.

The fact that the monarchy was elective and that the nobility had a right to abolish the king diminished the political influence of the throne even further. According to Bardach (1957), the balance of power between the king and the Senate, which was based on the system of trading offices for political favours, was upset in the new situation. Since the contracts between the king and the senators he appointed were informal, each new monarch lost the political capital built by his predecessors. At the

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[4] The king had a right to two Grosze from one łan of cultivated land annually. This tax was installed in the 14th century. This tax has never been revalorised. As a result, due to progressing inflation, the stable income of the king diminished with time making him dependent on one-off taxes for which the Parliament's consent was required.

same time, he had to keep all the previously appointed senators, which made them largely independent. Furthermore, the authority of the king weakened as he became effectively only an appointed supervisor of the state rather than a hereditary ruler. This made the Dietines more reluctant to follow royal recommendations when instructing their delegates to Parliament. Moreover, since the appointment to the public offices was scrutinised by Parliament, the elite had less incentive to compete for royal support. Lastly, with little judiciary powers the king could not discipline the magnates who quickly took control over the Tribunals.

Kings tried to negotiate more power. Each time it resulted in opposition of the nobility and twice led to a civil war (1605-6 and 1666). These power-plays were always lost by the royalists. In 1668 King Jan Kazimierz abdicated because he believed that his powers were too limited to rule and safeguard the country.

THE FALL OF THE PARLIAMENT

Here we analyse the origins of a paralysis of the Polish Parliament that occurred in the second half of the 17th century. The Polish republican model failed because of economic inequality within the landed nobility. The weakening of the position of the king upset the balance between the major coalitions of power. The uncontested elite used its influence to accumulate land and gain special property rights. This process accelerated during the wars of the middle of the 17th century. The elite translated economic inequality into political dominance by becoming patrons of the impoverished nobles. In time, magnates managed to build their private semi-independent states. They influenced local representative institutions to elect their clients as the delegates to Parliament in order to corrupt the only remaining central institution capable of constraining their rent-seeking practices.

According to Stiglitz (2012), inequality between the constituencies can lead to abuse of the representative system, which moves away from creating laws that balance the interest of the general public towards creating rents for the richest elite. The author pointed at two phenomena that can facilitate the process. The rich can 'take over' if (a) the constituencies are separated from the representative institutions and (b) if the elite manages to endorse an ideology that justifies and facilitates the inequality. Moreover, Epstein (2000) pointed at two complementary weaknesses of the representative institutions. Firstly, there is always the possibility that the representatives will favour the interest of their direct electorate rather than the interest of the society at large. Secondly, representative institutions can undo positive changes and demolish beneficial institutions should they decide to do so. The concerns of Stiglitz and Epstein link to the Polish experience.

The rise of inequality within the nobility and its impact on the political structure of the country has been studied in detail by Mączak (1982). The original income dissimilarities that existed in the late Middle Ages were widened by the appointment of the contemporary elite to public offices. These inequalities widened during the rise in demand for Polish grain in the 16th century. Mączak argued that, due to significant costs of transportation on land, market access was available only to the big producers trading in bulk quantities.

Furthermore, in 1569 the territories of present-day Ukraine were moved from Lithuania and incorporated into Poland. This allowed the richest Polish magnates to purchase vast amounts of land in Ukraine very cheaply. This contributed immensely to the long-term evolution of inequality. This incorporation also upset the balance between the king and the magnates further, as there was hardly any state's domain within Ukraine.

The process of land concentration was greatly accelerated by certain property right privileges given to selected magnate families. Traditionally, the land of a deceased landowner had to be divided among his sons. This was aimed at the protection of the poorest heirs at the cost of decreased concentration as land ownership was a condition of full political rights (Bardach 1957). Selected magnate families used their political impact to influence Parliament to grant those privileges to form an Ordynacja, i.e. a legally protected set of landholdings that could not be separated. This gave them considerable economic advantage vis-à-vis the rest of the nobility. This rent-seeking practice of translating political power into economic gains through manipulation of property rights was possible as the power to make decisions regarding property rights was taken from the king and moved to the Parliament, which was under indirect control of the magnates (Bardach 1957).

According to Mączak (1987), inequality separated the nobility from the representative institutions. Due to the high costs of participation – one had to travel long distances to and spend a long time at a Dietine – only rich nobles and clients of the magnates could afford to attend the political meetings. Additionally, he argued that the magnates were largely successful in promoting the ideology of anarchy among the nobility. 'Poland depends on the lack of governance' (*nierządem Polska stoi*) was one popular slogan. It was widely believed that a weak king and marginal taxation were the essence of this freedom. It was argued that the army should be weak in order not to provoke any conflict. According to the mainstream ideology, the grim possibility of absolutism, not wars, was the main threat to be avoided; according to Gierowski (2001), the concept of 'freedom' was fetishised. Moreover, the fact that the contemporary policies benefited the magnates and induced inequality was not commonly articulated in contemporary debates. The issue of the ideology of anarchy in Poland was studied in detail by numerous scholars.[6]

There is a broad consensus in Polish historiography that economic inequality within the nobility rose in the 17th and the 18th century.[7] Numerous scholars advanced empirical evidence to prove the growing imbalance.[8] Land concentration in hands of most prominent magnate families has been investigated in great detail.[9] There has been, however, no coherent long-term study of the phenomenon based on a uniform methodology. To fill this gap we juxtapose Gini and land-concentration indices based

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[6]See: Kloczkowski 2009.

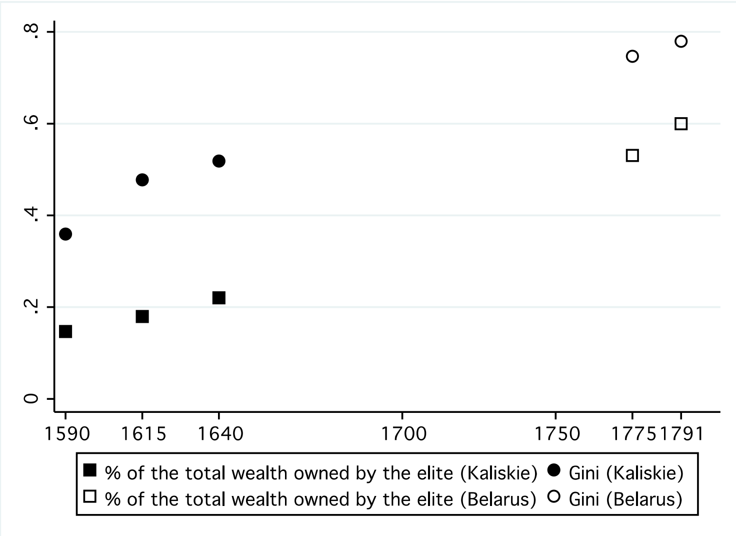
[7]See: Bardach 1957; Gierowski 2001.

[8] For example: Mączak 1987; Pośpiech 1989; Kozlowskij 1972.

[9] See: Zielińska 1977.

on two period-and-region specific studies of land ownership (see appendix). Figure 3 confirms the supposition that the Polish landed elite was gradually becoming more unequal. It shows growth in inequality within the discrete regions over time. It also suggests an increase in such inequality between the 1640s and the 18th century. This rise could have been caused by differences in original conditions between the two studied regions (see appendix). This issue requires further empirical investigation.

Figure 3: Wealth inequality among the landed nobility in two regions within the Polish-Lithuenian Commonwealth, 1590-1791.

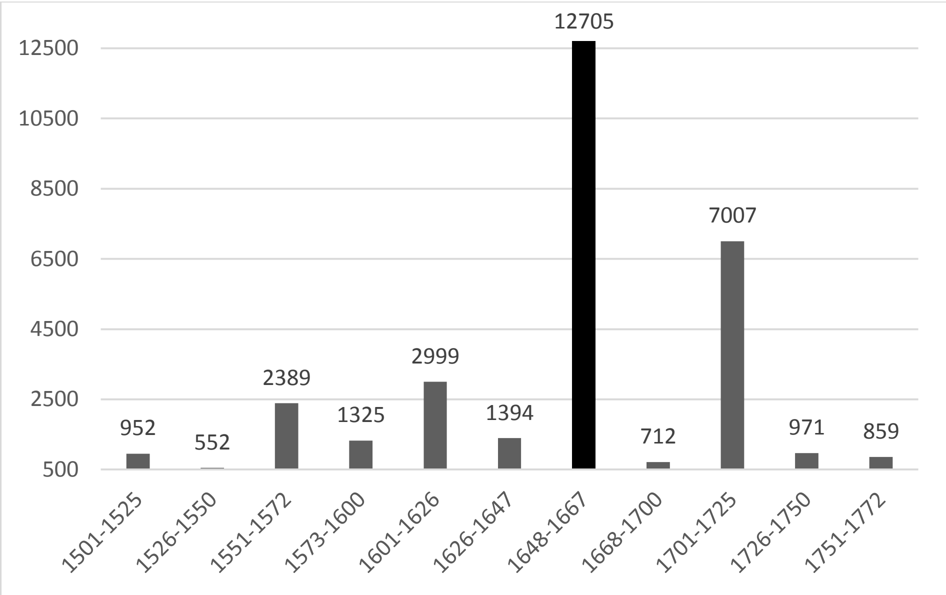


Sources: See appendix.

According to Mączak (1985) and Bardach (1957), growing economic inequality resulted in strengthening of clientalism in Poland. In the 17th and 18th century, the magnates filled their private courts with clients. One of their main purposes was to travel to the Dietines wearing the signs of their patrons and promoting their political interest. Moreover, the most powerful families not only have their clients elected to Parliament, but also secured appointments of their clients to Senate. This signifies that the inequality was so great that it brought the dependability even to the highest echelon of the political elite. There is no empirical study of the relative number of the clients to the 'independent' nobles.

Land accumulation reinforced by special property rights privileges led to creation of vast semi-independent domains owned by individual magnates. Within these entities most of the land was under the direct control of one family. Furthermore, the magnates often bought rights to hereditary supervision of the state's property located within their domains. They imposed their own laws and appointed their own officials next to the state officials who were proposed to the king by the Dietines. Due to the cliental system reinforced by the burgeoning inequality, the magnates had control over the decisions made by the Dietines. This provided them with unchallenged political control on the local level. These regions were known as duchies (*księstwa*) or countries (*państwa*) and their rulers were even sometimes given a title from the holy roman emperor. There were numerous major political entities like this inside Poland.[10] This process – together with a parallel increase in surplus extraction from the peasants by the landlords – is known as the re-feudalisation of Poland. There was no formal division of the country into smaller political units. The domains existed parallel to the Polish state. The late 17th and the 18th century are known in Polish historiography as the period of 'Magnate oligarchy'. On the central level, the country was practically ruled by several families who were chiefly interested in securing their local interests. They used Dietines – that were filled with their clients- to execute their local power.

Figure 4: Annual war casualties in wars fought by Poland and/or Lithuania in selected periods, 1500-1772.



Note: Based on Brecke 2012. The used database reports the beginning, the ending, the number of participating adversaries and the number of casualties in military conficts. We divide the total number of casualties in a war fought by Poland and/or Lithuania by the duration of a conflict to measure the average annual death tool. We divide the number of casualties by the number of conflicting adversaries minus one to account for the scale of the conflict. There are gaps in the inforation on the number of casualties. They underepresent only minor conflicts and therfore do not distort the main trends.

We argue that the centrifugal forces accelerated during the wars of the mid-17th century. Figure 4 plots that the devastation brought by the Ukrainian uprising (1648-1657), a war with Russia (1657-1667), and Swedish Deluge (1655-1660) was unprecedented. It suggests that the decisions to constrain the executive and base the royal and therefore the central defence budget on the state's domain were taken in a period of a relative

[10] For example: Duchies (*księstwo*) Kopylsko-Słuckie, Zasławskie, Zbaraskie, Wiśniowieckie, Koreckie, Czartoryskie, Czetwertyńskie, Koszyrskie, Koszyrskie na Niesuchojeżach, Nieświeskie, Ołyckie, Birżańskie, Dubienińskie, Kleckie, and Łubiniowskie; County (*hrabstwo*) Szkłowskie; Ordynations Zamojska, Pińczowska, and Rydzyńska; Countries (*państwo*) Żywieckie and Żółkiewskie.

peace. This might have made the policymakers undervalue the importance of military spending and state capacity. At the time, defence was based on: (a) the state army that was only few thousand man strong; (b) the general mobilisation of the nobility (*pospolite ruszenie*); (c) and privateers paid by one-off taxes. The latter had to be agreed on and collected during the military operations. Furthermore, due to the unanimity of the Parliament, all the Dietines representing different geopolitical interest had to show solidarity. Dietines in the safe areas had an incentive to believe that the tiny standing army and *pospolite ruszenie* would be enough to safeguard the country and veto any new taxation.

The regions under direct threat could not wait for the central institutions to solve their inefficiencies. Dietines began to raise their own taxes and mobilise their own forces. This resulted in a gradual shift of the collection of tax money from the central to the local level. It was a clear symptom of decentralisation. The process began in 1572 when the tax collectors began to be chosen on the local rather than the central level. This increased the political importance of the Dietines. Originally, in order to begin its proceedings they had to be summoned by the king. In the 17th and the 18th century they often did not conclude their proceedings. As a result they did not need the king's permission to convene the next year (*prelongajca obrad*). The historiography calls the 17th century the 'period of the rule of the Dietines' (*okres rządów sejmikowych*). This process, induced by warfare, changed the Dietines into a tool used by the magnates to execute their local power independently of the king and the Parliament. Some of their prerogatives were limited at the beginning of the 18th century.

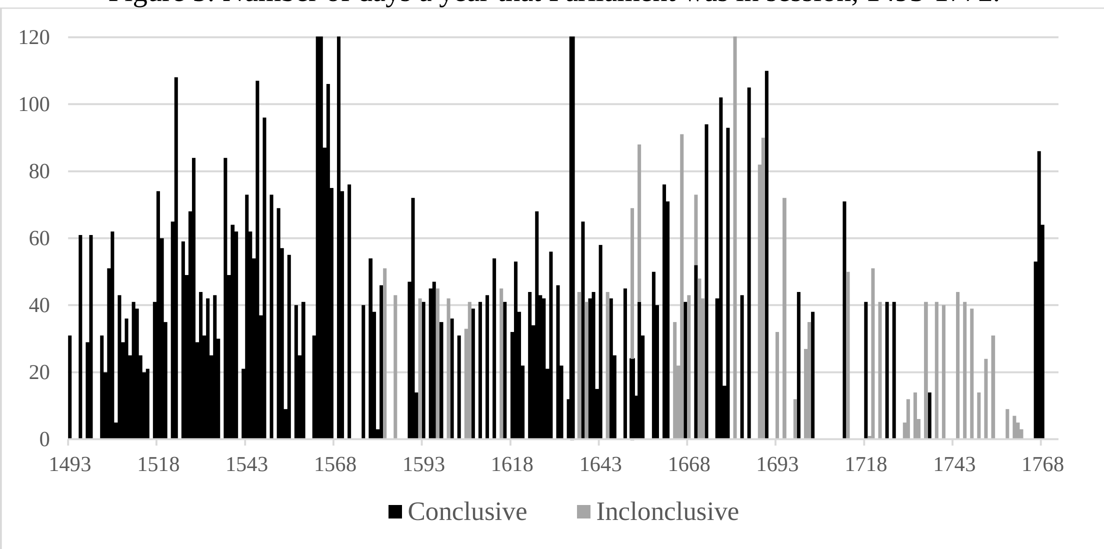
Furthermore, Mączak (1982), with use of data on trade in land, demonstrated that the wars contributed greatly to the increase in inequality. He argued that the magnates who possessed many landed estates had a high chance of surviving the wars with some of their holdings untouched. As a result, they could recover after a calamity much easier than the owners with only few holdings. This allowed magnates to provide the poorest nobles with loans issued against their devastated estates. This gradually shifted the land from the poorest to the richest landowners.

With the king constrained, the only institutions left to supervise the magnates were the Tribunals and the Parliament. Magnates were interested in limiting any supervision over their private quasi states. Due to their construction, Tribunals were prone to political corruption. Because the judges were elected on the local level each year, the Tribunals were run by agents of the magnates, who protected the vested interests of their patrons in order to secure their re-election. In order to constrain Parliament, the magnates twisted the traditional rule of unanimity. In the 16th century the rule was treated loosely. The situation changed in the 1650s and 60s when a practice known as *liberum veto* was formed. This legal practice allowed a Member of Parliament – typically a client of a magnate – to terminate its proceedings. It is noteworthy that the first use of this practice in 1652 is attributed to Władysław Siciński who is believed to have been a client of one of the richest magnate families - Radziwiłowie. All the decisions of the Parliament were drafted as one bill. No law could be made separately. For this reason, one delegate could easily nullify the outcome of weeks of proceedings. Magnates used this tool to stop Parliament from making decisions on the national level.

The delegates were given instructions by the Dietines – who were under the influence of the magnates – that they ought to discontinue the proceedings should the discussions in Parliament diverge from the desired outcome.

Liberum veto paralysed the Parliament and deprived it of political influence. Van Zanden et al. (2012) proposed to proxy the impact of a parliament by counting how many days it was in session each year. According to the authors, the longer the proceedings, the greater the involvement of a parliament in a country's politics. We use this intuition to measure the changes in the influence of the Polish Parliament over time. Figure 5 yields the number of days between the opening and closing of a parliamentary session. It shows that the first three quarters of the 16th century were the golden years of Polish parliamentarianism. The increase in activity around the 1560s was related to the actions of the Law-execution movement. According to Mączak (1982) – after 1573 when most of the agenda of the movement was completed – the group failed to establish itself as a permanent force on the political arena. It suffered a deep crisis as its leaders were invited to join the Senate. This resulted in the visible drop in the parliamentarian activity in the 1580s. The 1670s marked the beginning of the collapse of the Parliament. Between 1669 and 1762, only about 24 of 60 parliamentary sessions were conclusive. The 1760s show a spike in parliamentarian activity. This increase was related to a political programme to repair the country led by the last king – Stanisław August Poniatowski – who was elected in 1764. The attempts to heal the political system alerted the neighbouring powers. Russia, Austria, and Prussia made use of the Polish political fragmentation and incorporated parts of the country to their own increasingly more centralised states between 1772 and 1795.

Figure 5: Number of days a year that Parliament was in session, 1493-1772.



Note: Based on Konopczyński (1948) who provides the date of the opening and closing of each individual parliamentary session. Sessions related to the election procedure are not included.

Following Mączak (1982; 1987), we propose a counter-factual argument that had the king been stronger, he could possibly have partially limited the growth in the inequality and thus prevent the fall of the Parliament. For example, he could have followed the

French model and sold the rents and offices to the benefit of the state. Furthermore, had he kept his judiciary prerogatives he could have disciplined the magnates. Moreover, had he been given more financial liberty and a free hand regarding the disposition of the incomes from the state domain, he could have followed the English model, became the patron of all the patrons and used the clientele system to his advantage. Lastly, had the king not been elective and therefore possessed more authority, he could have better coordinated the vested interests of individual Dietines and build multi-generational political relations between the throne and the local officials. He could have also organised the defence of the country better and thus made the wars of the 17th century less devastating.

POLITICAL DECENTRALISATION AND COORDINATION FAILURES

Here we demonstrate that the crisis of the Polish central political institutions coincided with a decrease in the quality of market institutions.

As discussed, in the first part of the 16th century Poland had relatively well functioning political institutions capable of coordinating the diverse interests of various counties and coalitions of power. This corresponded with a period of institutional integration. The first major example of such unification is the codification of laws. In the late Middle Ages the law was mostly traditional and hence depended on interpretation that could have been different in various parts of the Kingdom. The beginning of the 16th century brought about a gradual codification of laws in Poland. In 1505 there was the first popular written edition of laws known as Łaski's Codification, which was used as a popular hand-book of Polish laws. It has never been recognised as a legal document. In 1523 there was an official codification of the rules of the judiciary conduct known as the *Formula Processus*. The process of codification in Poland ended when the Law-execution movement ignited the conflict between the major coalitions of power. Simultaneously there were three great codifications in Lithuania that were intended to integrate it to the Polish system: 1529, 1566, and 1588. There have been no further major codifications in the Kingdom after the first half of the 16th century.

Another example of institutional convergence and subsequent divergence comes from the monetary policy of the country. Minting policies were dependent on coordination failures heavily driven by prisoner dilemmas. Transaction costs multiply when there are numerous different coins and the exchange rate between them is uncertain. In order to mitigate these costs, political entities introduce a fixed exchange rate between the coins. The main obstacle in enforcing such a union is the free-rider problem.

Poland had a uniform monetary system. The minting was not centralised, rather the minting privileges were given to individual mint-masters and cities that were expected to hold to instructions. Money in early modern Poland was by design not fiat but based on the content of silver or gold. The country regulated the official exchange rate between gold and silver coins. The state was raising revenue by using less bullion to coin the money than its face value.

In a unified monetary system the size of the seignorage should be the same. This ensures that all the coins are interchangeable. Individual mints can be tempted to use the common market value of the coins as the face value, but take profit by decreasing the real silver or gold content: the free-rider problem. Individual mints can hold to the official regulations, but they do not know if other mints will do the same: the prisoner dilemma problem. For this reason unified monetary systems are unsustainable without a central control over whether all the mints follow uniform minting instructions.

Table 1 presents the evolution of the Polish monetary system. In the 16th century there was the least amount of mints and individual types of moneys. It means that the policymakers were able to keep the system relatively simple and transparent. Furthermore, the silver value of the coins was the highest. After 1580 we can observe an increase in the number of mints and types of monies as well as a decrease in the silver content. The increase in the number of mints can be interpreted as a by-product of the policy of handing away rents by Parliament, which was officially controlling the mints. The increase in the number of different types of monies shows the difficulties with balancing the vested interest of different regions willing to use their own coins. Polish financial historians identified numerous examples of manipulations with the size of the signoraggio to the benefit of a mint-master in the 17th century. It has been often noted that Parliament was too weak to discipline the free-riders (Bogucka 1976; Dylewski 2012).

Table 1: Gradual collapse of the Polish early modern monetary system.

	No. of mints during a reign	Date of a reform	Silver content in one Grosz (estimated)	Nr of different coins according to a reform
Zygmunt I (1506-1548)	6	1521-1535	.99g	10
Zygmunt II (1548-1572)	8			
Stefan Batory (1576-1586)	8	1580	.89g	10
Zygmunt III (1587-1632)	17	1623	.42g	21
Jan Kazimierz (1648-1668)	14	1650	.34g	14
August III (1733-1763)	Minted in Saxony	1749-1762	.13g	16
Stanisław August (1764-1795)		1766	.12g	11

Source: Dylewski (2012); Hoszowski (1928; 1934)

The increase in the plurality of mints, the abundance of different editions of the same coin characterised by different silver content, and finally the lavishness of different monies all resulted in a monetary confusion in the 17th and 18th centuries. Officially, the exchange rate between all the coins was clearly defined by a system regulating the official relation of each of the coins to the money of account and a fixed relation between the gold and silver monies. However, the market did not trade the monies according to their face values. The country did not develop any system of mitigating information asymmetries and imperfections regarding the relative values of the coins. There was neither financial journalism nor a bank that would keep the suspect coins and issue alternative money with a clear agio.

The severity of the monetary confusion in the 17^{th} and 18^{th} centuries was studied by Bogucka (1976). She argued that the same coins had different and unpredictable – for a common user – values in different parts of the country. According to Bogucka, only a few people knew the 'real' relative values of the coins, which allowed such people to make fortunes on speculation. This is a clear indication that the markets were segmented. The crisis worsened when a copper-based money was introduced to cover military spending in the mid-17^{th} century. The copper money had the same face value as the silver money, which worsened the confusion. It was essentially a fiat money alien to the bimetal system. Additionally, the silver content in the money of account was changed to mask this shift. Gdańsk refused to use the undervalued money to protect its long distance trade. The crisis escalated during the personal union with Saxony in the first half of the 18^{th} century, when it was decided that Polish money would be minted abroad, i.e. outside of any control of the Parliament. The issue of the copper money and the monetary confusion were addressed only as late as in the 1760s.

MARKET DISINTEGRATION

Here we perform an empirical analysis of annual rye price data. We show that the Polish rye market disintegrated in the middle of the 17^{th} century. We demonstrate that the Parliament had a statistically significant and beneficial impact on price convergence.

Epstein (2000) proposes to proxy the changes in the overall transaction costs with a study of market integration. The concept is defined differently across the literature. We equalise market integration with price convergence and operationalise it with the use of the so-called Law-of-One-Price (Jacks 2004).

$$Price_{a,t} = Price_{b,t} + Transaction\_Costs_t \quad (1)$$

The model states that the price in a relatively dearer market is equal to the price in a relatively cheaper market plus the transaction costs. Therefore, we equate the price gap with the transaction costs in order to proxy the latter. By definition, the lower the price gap the more integrated the market. The underlying assumption that allows us to equate the price gap with the transaction costs is that of the efficiency of the market. Any rise of the price gap above the transaction costs is expected to be utilised by an arbitrage (Jacks 2004).

There are two other main concurrent definitions of integration present in the literature. Firstly, some authors – for example, Cournot in 1838 – view market integration as a state of perfect convergence of prices. This approach has been deemed on numerous occasions as too abstract and was accused of neglecting the universal restraints of time and space (Jacks 2004). On the other hand, scholars equated the integration with convergence of the price gap down to the level of transaction costs. This approach has several practical shortcomings. To begin with, its empirical application requires detailed data on the historical transaction costs, which is hard to come by. Furthermore, even if the price gap is fairly high, the markets can be regarded as well integrated, which defeats the very spirit of the concept. Moreover, if the transaction costs and the price gap simultaneously decrease, according to this approach, such a development would not be considered as indicative of progressing integration (Federico 2010).

Van Bochove (2008) pointed at a crucial problem with the use of a decrease in the price gap as an indicator of dwindling transaction costs. The author noted that markets that do not interact could independently have similar levels of prices. Furthermore, disintegration can potentially result in a shift in prices on the discrete markets to the new equilibria dictated by their regional configurations of supply and demand. Such a shift can result in narrowing of the price gap and create a false impression of a decrease in the transaction cost. Furthermore, the two discrete markets can still be indirectly co-dependent via a third market.

We investigate the changes in the degree of market integration by estimation of the aggregated silver price-gap based on all the price gaps between seven studied cities: Warsaw, Cracow, Lwów, Lublin, Konigsberg, Gdańsk, and Wrocław (see appendix). In total we investigate 21 individual series. Table 2 presents the summary statistics of the annual rye price data.

Table 2: Descriptive statistics of the annual rye price data.

	Years	Coverage (%)	Mean	SD
Gdańsk	1501-1772	.83	.27	.11
Cracow	1504-1772	.55	.07	.04
Konigsberg	1700-1772	.93	.23	.09
Lublin	1570-1772	.2	.33	.18
Lwów	1519-1772	.28	.27	.16
Warsaw	1526-1772	.27	.17	.1
Wrocław	1509-1618 & 1696-1772	.87	.3	.19

Note: Prices in grams of silver for one kg of rye.

Source: See the appendix.

In order to estimate the aggregated price gap we use a method proposed by Bateman (2011). We calculate price gaps from the Law-of-One-Price directly, separately for every city-pair and for every year. We regress the gaps on a set of period dummies. This allows us to gauge the changes in the aggregated levels over time, while controlling for pair-specific fixed effects. The coefficient next to a period dummy indicates the average level of the aggregated price gap at the time. This operation mitigates the problems of: a) missing observations; b) short-term volatility in the estimates; c) pair-specific transaction costs. Whereas Bateman used so-called 'iceberg transaction costs', i.e. the ratio between the prices, this study honours the Law-of-One-Price and uses the difference.

$$\text{Transaction\_Costs}_{i,t} = \text{Set\_of\_Period\_Dummies} + \text{Set\_of\_City\_Pair\_Dummies} + e_{i,t} \qquad (2)$$

The price gap from Equation 1 and used in Equation 2 is represented in grams of silver. In order to account for changes in the purchasing power of silver over time, we divide the aggregated price gaps estimated by Equation 2 by the corresponding aggregated costs of the consumption basket. We estimate the consumption prices via use of a similar regression. We denote the transaction costs in the purchasing power parity grams of silver (hereafter PPP). The annual data on prices of consumption basket from a range of Polish cities were taken from Malinowski (2013).

The results of regression analysis indicate a progressing increase in the aggregated price gap in Poland. Regressions with and without a constant yield nearly identical results. The values for the 1501-1550 period are not statistically significant. This was probably caused by a scarcity of information in that period. Excluding this doubtful 16th century, the biggest increase in the gap occurred between the first and second half of the 17th century. The constant increase in the size of the absolute gap was accompanied by a decrease in the purchasing power of silver.

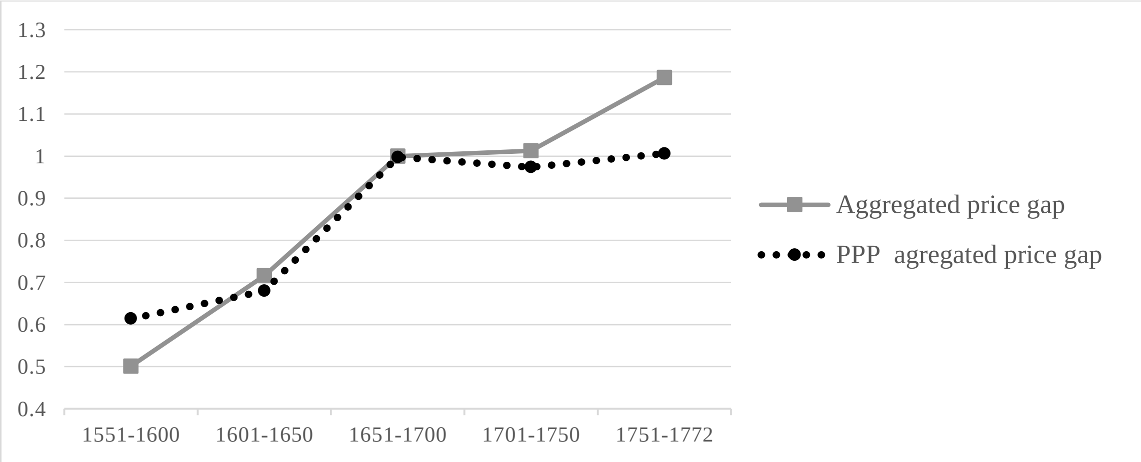
Table 3: Identification of the trends in aggregated rye price gap and consumer prices with use of regression analysis.

	Aggregated price gap	Aggregated price gap	Aggregated consumer basket	Aggregated consumer basket
1500-1550	19.2 (0.66)		62.8*** (0.00)	
1551-1600	67.6* (0.095)	48.5*** (0.00)	99.5*** (0.00)	36.5*** (0.00)
1601-1650	96.5** (0.018)	77.3*** (0.00)	128.4*** (0.00)	65.5*** (0.00)
1651-1700	135.0*** (0.00)	115.9*** (0.00)	122.3*** (0.00)	59.4*** (0.00)
1701-1750	136.7*** (0.00)	117.5*** (0.00)	126.9*** (0.00)	64.0*** (0.00)
1751-1772	160.2*** (0.00)	141.0*** (0.00)	143.9*** (0.00)	81.1*** (0.00)
Constant		19.2 (0.66)		62.9*** (0.00)
City-pair dummy	Yes	Yes	Yes	Yes
No.	790	790	1186	1186
R2	0.68	0.3	0.93	0.56

Note: The gap is based on the differences between the prices for 100 kg of rye – denoted in grams of silver – between each of the seven studied cities. The consumer basket is also noted in grams of silver and is based on bare-bones baskets from Warsaw, Cracow, Lwów, Lublin, and Gdańsk. Analysis is based on pooled OLS models. P-values are based on heteroscedasticity robust standard-errors reported in parentheses. *, **, and *** denote significance at 10, 5, and 1 percent levels respectively.

Figure 6 presents indexed aggregated rye price data. The values denoted in the purchasing power parity terms exemplify two equilibria. According to the results, the rye market in Poland was relatively better integrated at the turn of the 16th century. The values for the periods 1551-1600 and 1601-1650 were on nearly the same level. The market disintegrated in the second half of the 17th century. Between 1651 and 1700 the transaction costs established a new and higher equilibrium that they maintained until the end of the studied period. Supplementary studies of: (a) the coefficient of variation of the cross-section of all the price series; (b) the aggregated coefficient of variation of all the individual price series; (c) the aggregated conditional volatility of rye prices all show the disintegration (not included in this study, available upon request).

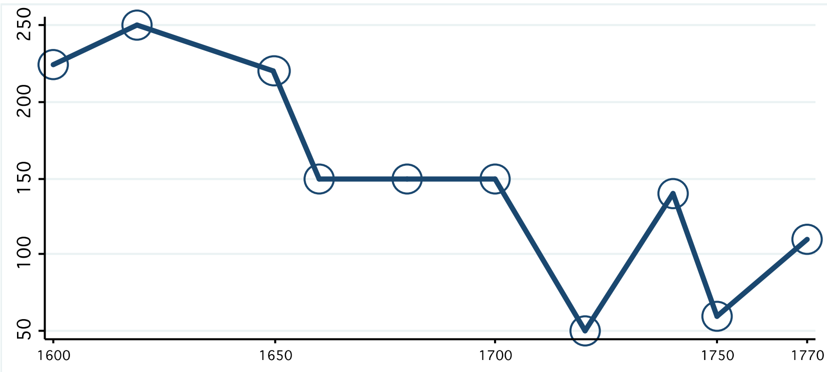
Figure 6: A change in the transaction costs on the Polish rye market from a lower to a higher equlibrium, 1551-1772.



Source: Table 3

Figure 7 confirms the trends in market integration operationalised by changes in the price gap with the data on trade. The Figure depicts the volume of grain traded on the Vistula river, the back-bone of the Polish economy. It shows that – in line with the price evidence – the first half of the 17th century was relatively prosperous. Trade on the Vistula contracted after the middle of the 17th century and did not recover before the partitions. This coincided with the decline of the Polish economy presented in Figure 1.

Figure 7: Volume of trade in wheat, rye, oats, and barley on the Vistula, in selected years between 1600 and1770, thousands of tons.



Source: Jankowiak-Konik (2011)

According to Epstein's model, transaction costs – proxied by the price gap – are influenced by the effectiveness of the central political institutions. Figure 6 demonstrated that the Polish rye market disintegrated at the time of the ossification of Parliament. We prove the relation between the parliamentarian activity and the price gap empirically. We analyse the impact of the duration of the parliamentary proceedings in the previous year on the size of the transaction costs in the next year.[11] We use panel data analysis to investigate all 21 individual price gap series. We control for other alternative drivers of price convergence like: (a) changes in temperature to – partially – account for the quality of the harvests and the impact of the climate cooling in the 17th century[12]; (b) war casualties to measure the impact of warfare on the market[13]; (c) political stability proxied by how many years the current king had been in the office; (d) access of both of the paired cities to a navigable river; (e) expectations regarding the future proxied by the last year's transaction costs; (f) interest rates[14]. All the price gaps have already been deflated by the distance between the trading cities in order to account for the transportation costs.

Table 4: Descriptive statistics of the used data.

	Mean	SD	Min	Max
Share of a year that the parliament was in session	.047	.085	0	0.58
Rye price gap (log)	.12	.098	0	.723
Surface temperature anomaly	-1.067	.9	-3.687	1.159
War casualties (log)	1.72	1.82	0	4.82
Interest rates	6.26	.469	5	8.33
Years the current king had been in office	14.9	10.02	0	44

Table 5 presents the results of the regression analysis. All the specifications show that the activity of the Parliament affected the next year's transaction costs. A prolongation of a parliamentary session by additional one percent of the year – 3.6 days – decreased the next year's transaction costs by six to 10 percent on average. This result is highly significant also in a first difference specification, which mitigates the autocorrelation problem typical for time series analysis (not included). Since we investigate the effects of the political actions undertaken the previous year, we can expect this relation to be exogenous. Furthermore, an increase in temperature by one degree Celsius increases the gap by around six percentiles. This signifies that the climate cooling in the 17th century probably did not cause the disintegration. Moreover, according to the results, wars could have fostered price convergence. The impact of warfare on the price gap was negative even if we use a dummy variable equalled to one for the years with an ongoing conflict instead of the number of casualties. Most probably, the wars created uniform shocks to the prices for agricultural products throughout the country that created an illusion of a decrease in the transaction costs. Additionally, the wars could have upset the physical trade in goods and hence the arbitrage. Due to inefficiency, the

[11] Data based on Figure 5. Duration of the parliamentarian proceedings represented in the regressions as a share of a whole year.
[12] Data based on Büntgen et al. 2013. Represented as a surface temperature anomaly: departure from a reference value of a long-term average.
[13] Data based on Brecke 2012. See Figure 4.
[14] Average value for every year based on observations from Gdańsk, Cracow, Warsaw and Lwow. Hoszowski 1928; 1934; Furtak 1935; Adamczyk 1935; 1938; Siegel 1936; Pelc 1935; 1937.

price gap in such times of war could have been much different than the transaction costs. Furthermore, the price gap from the previous year, which proxies the expectations on the market, explains only one third of the transaction costs. This was primarily caused by volatility of the price levels on the individual markets induced by the unpredictability of harvest. Lastly, an increase of the interest rate by one percent resulted in a corresponding increase in the transaction costs. Van Zanden (2004) postulated that low interest rates are indicative of well-functioning institutions. Therefore, the last result also reinforces the causal connection between sound institutions and low transaction costs.

Table 5: Regression analysis of the impact of parliamentarian activity on price convergence.

Transaction costs	I	II	III	IV	V	VI	VI
Parliamentarian activity in the previous year	-.104*** (0.00)	-.105*** (0.00)	-.103*** (0.00)	-.103*** (0.00)	-.064** (0.05)	-.079*** (0.00)	-.082*** (0.00)
Access to a navigable river		-.039** (0.012)	-.04*** (0.009)	-.04*** (0.008)	-.034** (.026)	-.032*** (0.00)	-.035*** (0.008)
Temperature in the previous summer			.006** (0.04)	.007** (0.03)	.005* (0.071)	.006*** (0.004)	.006*** (0.003)
War casualties in the previous year				-.003* (0.08)	-.003* (0.069)	-.002 (0.194)	-.002 (0.333)
Transaction costs in the previous year					.339*** (0.00)	.375*** (0.00)	.368*** (0.00)
Years the current king had been in office						.000 (0.736)	.000 (0.372)
Interest rate							.013** (0.034)
Time trend	Yes	Yes	Yes	Yes	Yes	Yes	Yes
City-pair dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Current king dummy	No	No	No	No	No	Yes	Yes
N.	790	790	790	790	473	473	473
R2	0.44	0.44	0.44	0.44	0.53	0.59	0.59

Note: Based on panel-data random-effects analysis. P-values based on heteroscedasticity robust standard-errors reported in parentheses. *, **, and *** denote significance at 10, 5, and 1 percent levels respectively.

CONCLUSION

Currently the main debates on the drivers of pre-industrial economic growth analyse political institutions or investigate trends in market conditions. We link the two phenomena together. We demonstrate that the paralysis of the central institutions in Poland resolved in coordination failures and a rise in the transaction costs. The evidence suggests that the fact that Western European states centralised whereas German and Polish lands failed to do so can be one of the causes of the economic underdevelopment of Eastern Europe.

Furthermore, we problematise the prevalent theorem that constraint on a king should result in the rise of a strong parliament and an environment conducive to growth. After Mączak, we demonstrate that the Polish republican model failed due to economic inequality. Without a strong king, the magnates were able to shape property rights to their advantage and accumulate land. The elite translated economic inequality into political dominance by becoming patrons of the impoverished nobles. In time, magnates managed to build their private semi-independent states. They influenced local representative institutions to elect their clients as the delegates to Parliament in order to corrupt the only remaining central institution capable of constraining their rent-seeking practices.

Furthermore, the absence of a coalition of cities on the political arena can be seen as one of the fundamental preconditions for the failure of the Parliament. Strong cities could have: (a) possibly counterbalanced the magnates; (b) favoured institutional convergence for the sake of trade; (c) supported the king with more credit. Moreover, a strong urban sector could have provided impoverished nobles with an alternative to becoming clients of magnates. Therefore, they could have limited the basis of the political domination of the elites. Understanding why the political influence of the cities in the late Middle Ages remained marginal can be potentially crucial for explaining the trajectory of the economic development of the country in the modern era. The roots of this weakness have not been yet sufficiently explained.

APPENDIX 1

The basic unit of observation is a series of annual retail rye prices in a specific market. Rye was chosen for this study as it was the most commonly traded grain on the domestic market. Furthermore, next to beer, it was the most basic source of calories for the population (Wyczański 1969). The study uses price series for Gdańsk, Konigsberg, Warsaw, Cracow, Lublin, Wrocław, and Lwów. Konigsberg was located in the Ducal Prussia, which was a fief of the Polish king after 1525. Wrocław was located in the historical region of Silesia, which had been a part of the domain of the Polish King back in the 11th century. At that time, it was considered one of the main capitals of the Kingdom. In 1335 it became part of the Czech domain and in 1526 it was claimed by the Habsburgs. Subsequently, in 1742 the city was assimilated by Prussia. According to Wolański (1961), in spite of the border, Wrocław remained in close economic ties with Poland. Furthermore, Warsaw was incorporated into the Polish Kingdom in 1526. Lwów had been located in the Grand Duchy of Lithuania until 1569 when it became a part of the Polish Kingdom. All the other cities were continuously located in Poland between 1500 and 1772.

Annual grain price data for Gdańsk, Cracow, Warsaw, Cracow, Lublin and Wrocław – the latter only until 1618 – have been collected from paperback editions (Hoszowski 1928; 1934; Furtak 1935; Adamczyk 1935; 1938; Siegel 1936; Pelc 1935; 1937) and standardised to a uniform measure of a price in grams of silver for one litre by the Global Price and Income History Group. Prices for Wrocław for the 18th century were taken from David Jacks' webpage and standardised by this paper (see Appendix 2). When computing the annual price, the authors constructed a mean of all the seasonal values provided in the original paperback editions. Because there were hardly ever all the observations for all the seasons available, the year-by-year volatility in the series is biased by the seasonal volatility.

APPENDIX 2

The rye price data for Wrocław 1696-1772 required standardisation. The data were taken from: http://www.sfu.ca/~djacks/data/prices/Poland/index.html. It was presented in silbergroschen per Berliner Scheffel. 1 Spesieztaler = 30 silbergroschen. In the late 17th century the taler contained 25.9839 g fine silver. From 1740 onward 1 taler = 19.4879 g fine silver. In 1750 Prussia debased the taler further to 16.7039 g and kept the level till the end of the studied period. The silver content in the period 1756-1763 is unclear and was left out from the data. One Berliner Scheffel = 62.3 litre. (Praun 1784; Ebeling & Brodhagen 1789, p. 490; Engel 1855).

APPENDIX 3

Here we explain the data used in Figure 3. Pośpiech (1989) gathered information on the number of villages owned by the nobility in the Kalisz region in the Polonia Mayor province between 1580 and 1655. The author grouped the nobility into four different categories and showed shifts in the total number of villages belonging to each category. The categories were defined by the size of their wealth. Moreover, Kozlowskij (1972) gathered information on the number of houses/families 'owned' by – also – four different categories of the nobility in present-day Belarus for the years 1775 and 1791. Both authors also provide us with the sizes of all four income groups. The two regions of the country are hardly comparable. Kaliskie is located in the relatively more developed Polonia Mayor, whereas Belarus is located at the eastern – and underdeveloped – border of the Kingdom.

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