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Abstract

With use of innovative proxies and new annual data, I demonstrate that relatively high legal capacity and regulatory activity of the early-modern Polish parliament was positively associated with deeper commodity market integration. Conversely, the lack of effective law-making, caused by the right of a single delegate to discontinue the parliamentary sessions, fostered market fragmentation. This indicates that early parliamentary regimes might have required legal capacity to harmonize domestic institutions and reduce the transaction costs. The Polish case suggests a hypothesis that the pre-1800 'Little Divergence' between European parliamentary regimes could potentially be partially explained by differences in their capacities.

JEL Codes: N43, N73

Keywords: Legal capacity, market integration, preindustrial economic development, Eastern Europe

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INTRODUCTION

What factors allowed certain regions of Europe to develop their market economies early on and what were the reasons for the relative stagnation of the less successful areas? Specifically, what was the role of the early-modern transition from feudalism to semi-centralised and relatively powerful territorial states in setting the stage for modern economic growth? Political institutions are critical determinants of prosperity (e.g. Acemoglu & Robinson 2012). Many scholars identify the parliamentary form of governance and the rule-of-law as preconditions for the market economy (e.g. North & Weingast 1989). The 'Little Divergence' in pre-1800 economic development between England/Britain, the Netherlands, and the rest of Europe is often linked to the formation of territorial parliamentary regimes in the two successful countries (e.g. Van Zanden et al. 2012; Broadberry and Wallis 2017). The available GDP evidence suggests that both the British Glorious Revolution of 1688 and the Dutch Act of Abjuration of 1581 were followed by long periods of sustained economic growth. However, not all parliamentary regimes prospered. For example, the available GDP evidence shows that both the transition of Poland into a parliamentary republic in the 16th century (this will be discussed in detail) as well as the change from absolutism to a parliamentary form of government in Sweden in 1718, were followed by protracted economic decline (Bolt & Van Zanden 2014; Malinowski & Van Zanden 2017). The fact that not all preindustrial parliamentary regimes succeeded economically demonstrates that the consolidation of power around a parliament is an insufficient condition for sustained economic growth.

Why did some pre-industrial parliamentary regimes prosper while others did not? According to Besley and Persson (2011), a state can promote prosperity only if it possesses (1) legal capacity denoting the authority and infrastructure to create and enforce the law and (2) fiscal capacity representing the means to finance its operations. With this study, I contribute to the growing literature on the role of centralisation and state capacity in promoting economic growth and market development before 1800 (Bonney 1995; O'Brien 2011; Chilosi et al. 2018; Dincecco & Katz 2016; Dimitruk 2018; Epstein 2001; Johnson & Koyama 2017). I complement the earlier studies that predominantly focused on fiscal capacity with an original study of the impact of legal capacity. Specifically, I analyse the role that the Polish Diet played in developing an integrated domestic commodity market.

Early modern Poland is uniquely suited to study the economic impact of the parliamentary regime. In the 16th century, Poland both limited the authority of the king and experienced, in relative terms, a golden age of political centralisation under a strong parliament, the Seym. At the time, the Polish(-Lithuanian) Commonwealth became the biggest state in Europe covering the territories of present-day Poland, Lithuania, Ukraine, Latvia, Estonia, and Belarus. The Seym issued numerous regulations that began to change and unify the dissimilar, historical, regional, economic institutions across this vast country. In the mid-17th century, a constitutional conflict over the mode of royal election led to the introduction of the *liberum veto* - the right of a single delegate to discontinue the Seym's proceedings and nullify its decisions (this will be discussed in detail). The veto was used to prevent any further constitutional change. Moreover, by bribing the delegates to the parliament, Prussia, Austria, and Russia made frequent use of the veto to abort the Seym's sessions and weaken the Polish state. This led to a lack of effective lawmaking at the central level of the state (see the regulatory output in Figure 6). This 'historical experiment' offers a rare opportunity to test if legal capacity and regulatory output of central institutions of governance stimulated pre-1800 market integration. Relying on the research of successful historical England/Britain and the Dutch Republic is insufficient to falsify the hypothesis that strong parliamentary regimes promoted markets.

In this article, I use the historical record to understand how the gradual weakening of the Polish state between the formation of the country's parliamentary system in 1505 to the first partition of the country by its neighbours in 1772 affected the integration of the domestic rye market. I link the relevant literature on state capacity, parliamentarism, and market integration. I propose a model of the relationships between fragmentation, centralisation and market integration, based on Stephen Epstein's (2001) earlier formulation. Epstein provided empirical support for his claim that political centralisation fostered commodity market integration with a study of price volatility. I provide further backing for this hypothesis with a comprehensive study of price convergence. To my knowledge, I am the first to identify a correlation between proxies of legal capacity of central state institutions and grain market integration for as early as the pre-industrial period and trace the relationship for nearly three centuries.

Van Zanden et al. (2012) proposed to proxy the involvement of an early modern parliament by counting how many days it was in session each year. I present new data on the number of days the Polish

Diet was in session each year. I complement this measure of legal capacity with an innovative new index of the Seym's regulatory output based on an original study of its acts. I show that the right of individual delegates to abort the Seym's sessions led to a lack of effective lawmaking. I demonstrate, that the use of vetoes was not driven by the market conditions but linked to the conflict over the mode of royal election. I discuss via which historical mechanisms, when active, the Diet and its regulations promoted market integration and how its inactivity rose the exchange costs. With the use of regression analysis, I identify that both (1) the number of days the Seym was in session and (2) its regulatory output stimulated price convergence. Moreover, I study the individual impact of various types of regulation. I provide evidence that the Seym lowered the exchange costs on the market by harmonising taxes and measures.

THEORETICAL FRAMEWORK

Various studies measured the extent of market integration in preindustrial Europe (e.g. Bateman 2011; Chilosi et al. 2013; Chilosi et al. 2018; Frederico 2012; Malinowski 2016a; Shiue and Keller 2007). The results yield that, after a period of medieval disintegration, markets only became effectively integrated in the 19th century. However, the literature also identifies that there were numerous incidents of greater integration that, due to the lack of significant changes in the modes of land transportation in the early-modern era, cannot be simply explained by technological advancements. This suggests institutions played a crucial role in the process of pre-industrial market integration (Uebele 2013). In this article, I use the Polish case to argue that high legal capacity and regulatory activity of a territorial parliament promoted intra-regional domestic commodity market integration. I set up the theoretical framework in two steps. First, I present a general perspective on the subject – I link three established theoretical viewpoints: (1) the impact of state formation/political centralisation on market integration put forward by Stephen Epstein; (2) the benefits of the parliamentary regime postulated by Douglass North and his followers, and (3) the importance of state capacity propagated, among others, by Tim Basley. Second, I define the exact mechanisms of interest; I put forward a functional model of exchange costs based on Epstein's (2001) earlier formulation (Table 1). The model motivates subsequent empirical analysis.

1) Conceptual framework

In Early Modern Europe, the formation of territorial states gradually replaced the feudal, medieval, political fragmentation with the centralization of authority defined here as the power to give orders, make decisions, and enforce obedience by the central government. The government consolidated the power that used to be held by regional lords and assemblies which led to an increase in taxation and top-down regulation. The central authority had not yet been divided between executive, legislative, and judiciary branches; instead, the power was shared between kings and parliaments and its balance determined whether regimes were more absolutist or parliamentary. The rise of state capacity of the early modern states has been demonstrated by Kamil Kıvanç Kareman and Şevket Pamuk (2010) and recently discussed in detail by Noel Johnson and Mark Koyama (2017).

Did this progressing centralisation and increase in state capacity result in the formation of more integrated domestic markets? According to Epstein (2001, p.30), "th*e principal reason why pre-modern (...) productivity experienced frequent setbacks, was the high level of transaction costs in pre-modern societies due to political fragmentation, coordination failures, and upheaval and warfare".* Epstein (2001, p.32) argued that "*state formation lowered pre-existing seigniorial dues, overcame co-ordination failures (prisoners' dilemmas) between rival feudal and urban monopolies, systematized legal codes, weights and measures, and reduced the ruler's opportunities and incentives to act autocratically as a 'stationary bandit' against his subjects. State formation was thus a major cause - possibly the major cause - of market integration and Smithian growth"*. In the same vein, according to Stephen Broadberry and Joseph Wallis (2017), the creation of uniform impersonal rules by the state was essential for market development. Conversely, weak central authority transferred the power to the local elites who benefited from institutional differences and personalised privileges. Similarly, Johnson and Koyama (2017) argued that centralised and strong governments of early modern France and Prussia managed to suppress the attempts by local elites to extract rents by which they decreased exchange costs on the domestic market. The negative effects of tax predation and political fragmentation were identified by Mark Dincecco (2010). Conversely, Chilosi et al. (2018) demonstrated that the semi-centralised Holy Roman Empire promoted capital market integration better than more fragmented Italian polities. On the other hand, it has been argued that political and institutional fragmentation provided economic actors with

exit options and therefore forced competition between different institutional technologies that fostered their development (compare Tilly 1990; Cox 2017).

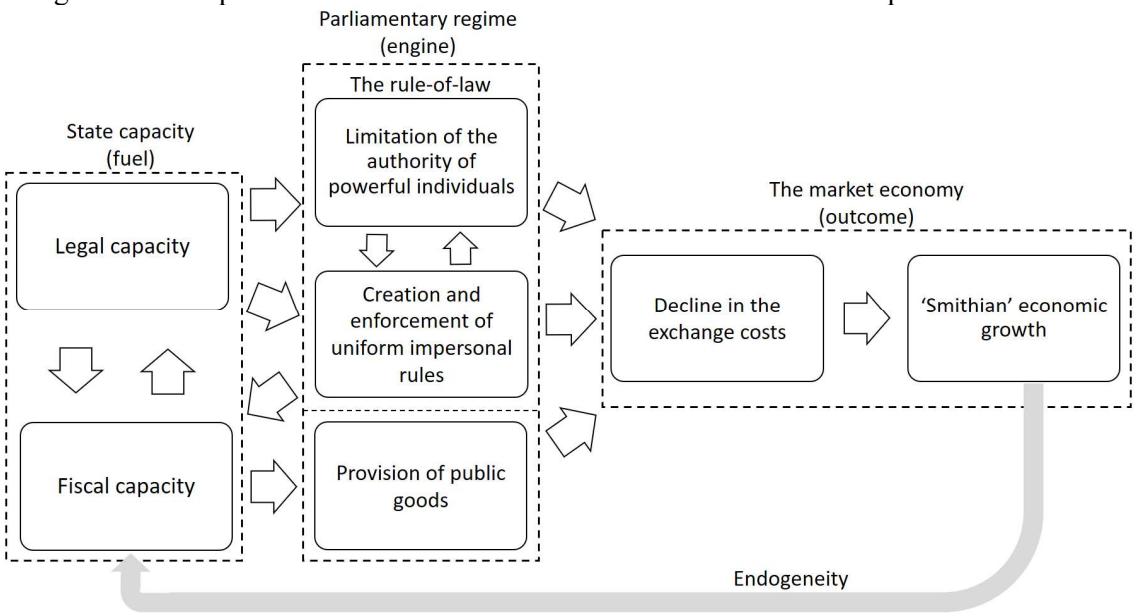
Epstein (2000) argued that both absolutist and parliamentary regimes could achieve centralisation of institutions and harmonisation of laws. The literature advocates that parliamentary regimes that constrained the executive but still provided order are superior to those that left the king unconstrained. According to Douglass North and Barry Weingast (1989), the Glorious Revolution in England (1688) limited the extractive potential of the rulers and fostered protection of property rights that inspired investment and innovation (see also Van Zanden et al. 2012). The authors see impersonal market institutions as a necessary condition for economic development (North & Weingast 1989, p. 831). Daron Acemoglu and James Robinson (2012) argued that parliamentary regimes are generally better at forming inclusive economic institutions. Similarly, Broadberry and Wallis (2017) argued that parliamentary regimes were much more likely to create impersonal rules and promote prosperity than the feudal or absolutist ones that tended to produce more personalised privileges. Furthermore, David Stasavage (2011) demonstrated that parliamentary control led to an increase in fiscal capacity of the state that allowed for better provision of public goods. Dan Bogart (2011) demonstrated that parliamentary supervision encouraged investment in infrastructure that arguably stimulated the development of integrated domestic markets.

The idea that the centralisation of power around a parliament should lead to economic development has been criticised, among other reasons, because a parliament could be used to create extractive rents for the elite (Barro 1997; North et al. 2009; Ogilvie & Carus 2014).[1] Moreover, Besley and Persson (2011) argue that governments can influence the economy only if they have the legal and fiscal capacity to act. Differences in the degree of state capacity and interest of the elites may therefore partially explain why certain parliamentary regimes managed to integrate their domestic market and

[1] The Seym was used to create country-wide rents for the nobility (e.g. tax exemptions or the sole right to own the land). However, the nobility was interested in the free, inexpensive, effective movement of grain from their land, across the country, to major ports and cities (Rybarski 2015). At the same time, the local elites had an incentive to free-ride on the free (commodity) market by creating local rents (e.g. tolls, see subsequent section). The market faced a 'tragedy of the commons'; by following their individual interest individual landowners opposed the common interest of the nobility. Concerning Polish grain trade, like in the Epstein's model, the opposition was between individual, regional, rent-seeking particularism and central universalism.

promote growth while others did not (see Johnson & Koyama 2017). Figure 1 proposes a convenient summary of the aforementioned key ideas.

Figure 1: Conceptual framework based on the core theoretical relationships in the literature.



2) The model

Table 1 lists a selection of factors influencing the exchange costs on intra-regional domestic grain market (see Van Tielhof 2002 and Epstein 2001 for similar attempts to model the exchange costs). The selection has two purposes. First, it clarifies how high legal capacity of central state institutions promoted market integration. This effort is based on the Epstein's (2001) model of the feudal economy (term coined by the author). Table 1 lists the general theoretical mechanisms proposed by Epstein (2001). I discuss specific historical examples of these mechanisms in a subsequent section. Second, Table 1 also lists a selection of other factors affecting commodity market integration based on the relevant literature (e.g. Bochove 2008; Malinowski 2016a; Rybarski 2015; Van Tielhof 2002). The selection will motivate the inclusion of control variables into the empirical models (see the methodology section).

Following the convention, exchange costs are arbitrarily divided into (1) transportation costs, such as costs relating to physically moving the goods, and (2) transaction costs, i.e. costs of organising the exchange. Additionally, Table 1 also lists the factors that affect the nominal cost of exchange due to changes in (3) the value of the means of exchange. Specifically, these are the changes to the (a) purchasing power (e.g. inflation) and (b) the silver content of the currency (see Malinowski 2016c for

discussion of these factors in Poland; subsequent empirical analysis will focus on silver rather than nominal prices). I divide the factors affecting the costs into five main groups: fixed, exogenous, market-driven, resulting from the high legal capacity of central state institutions, and resulting from their low capacity. The control variables will be based on these first three groups of factors. The last two groups are the focus of this article and are based on Epstein (2001). This simple model does not account for all possible determinants of exchange costs due to the complexity of this core issue in the economics literature (e.g. Greif 2000).

Table 1: Selected factors influencing the exchange costs on the intra-regional domestic grain market.

Types of factors influencing exchange costs	Transportation costs	Transaction costs	Value of currency
Fixed	Distance	Differences in language and culture	
Exogenous	Climate/weather Interstate warfare		
Market forces	Wages Cost of capital goods	Interest rates Storage	Purchasing power
High legal capacity of central state institutions (factors that lower the costs)	State monopoly on tariffs (e.g. tolls) Safer trade routes Trade access and well-maintained infrastructure	Standardized measures and moneys Uniform taxation Inter-regional contract enforcement Uniform regulations	More stable silver content of the currency
Low legal capacity of central state institutions, fragmentation, and rent-seeking by regional elites (factors that increase the costs)	Unconstrained and privately-collected tariffs (e.g. tolls) Domestic armed conflict	Maintaining dissimilar and traditional measures and moneys Dissimilar and fragmented taxation Risk of predation by the local elite Personal privileges for the local elite	Declining silver content of the currency

Regarding the fixed factors, I distinguish between (1) the physical distance that a good had to be moved and (2) differences/similarities in languages and culture between localities that either facilitated or hampered the exchange. Regarding the exogenous factors, I highlight the importance of (3) climate and weather conditions that, among others, affected the agricultural output/economies of scale and the quality of the trade routes (e.g. prevalence of mud or snow) and (4) interstate warfare. For simplicity, I assume that, especially in the short term, the likelihood of a country being involved in a trade-disrupting,

interstate, military conflict was independent of the country's legal and fiscal capacity but driven by exogenous international politics (compare Tilly 1990).[2]

Regarding the market forces, I build on the general factors discussed by Van Tielhof (2002) and Bochove (2008) in their respective studies of the trade. In particular, I assume that transportation costs mainly depended on the (5) wages that were paid to the people who handled the grain and the (6) costs of capital goods such as the cart, raft, or horses used in transportation.[3] Moreover, transaction costs were influenced by the (7) cost of obtaining credit and the (8) cost of storage.[4] Lastly, the value of the currency was influenced by (9) its purchasing power (for discussion see Van Tielhof 2002).

The last two groups of factors concern the role of centralisation/fragmentation and state capacity. Based on North (1981), Epstein (2001) argued that the exchange costs were a function of the clarity of the 'rules-of-the-game'. Ineffective central governance shifted the power to the regional level and promoted feudal-type jurisdictional fragmentation that encouraged regional rent-seeking and institutional differentiation. According to Epstein (2001, p.32), *"the cost of trade was defined mainly by institutional regulation and tariffs."* Regarding transportation costs, the high legal capacity of central state institutions lowered the exchange costs by monopolising the right to collect tariffs. This opposed the incentive of regional landowning elites to, for example, introduce tolls on their private land. Moreover, according to Epstein, strong central institutions promoted and provided safety on roads. First, by rising taxation and empowering officials, the state defended the merchants against bandits. Second, by introducing order and clear relations of power, the state prevented armed domestic conflict between regional (war)lords that plighted the medieval period.[5] Third, having an overarching perspective on the domestic trade-network, the central state institutions supported development of intra-regional trade

[2] Most wars fought by Poland were an extension of foreign dynastic politics and were related to succession crises (Gierowski 2001). Moreover, in general, the Polish nobility believed that low military spending would discourage a preventive invasion (Bardach 1957). However, it was the period of weaker capacity in the 17th and 18th centuries that featured the most destructive attacks. Similarly, higher state capacity in the 16th century was also associated with frequent military campaigns (see online appendix). In sum, both weak and strong capacity coincided with interstate warfare. The assumption of exogeneity of the interstate warfare is a strong one. To relax this assumption, in a robustness test, I limit the sample to the years of peace.

[3] I assume stable or no costs of feeding the draft animals because these can be fed from the transported grain.

[4] North and Weingast (1989) argued that interest rates proxy the quality of institutions. Epstein (2000) demonstrated that the rates formed irrespectively of the type of governance. For simplicity, I assume that, in the short term, the costs of borrowing were driven by the supply of and demand for capital.

[5] In the Polish context, these were local armed conflicts between nobles over land (pol. zajazd), that were prevalent in the 17th and 18th centuries, i.e. at the time of re-feudalisation and state failure (see the next section; Gierowski 2001).

infrastructure (e.g. building bridges and establishing trade roads) that could not be accomplished by individual regional elites constrained by their regional interest and jurisdiction (see a subsequent section for specific examples of the aforementioned types of policies).

Lastly, according to Epstein, active central state institutions lowered the transaction costs by unifying the tax codes and measures. A single currency backed by a strong centralised state countered the monetary confusion caused by different regions pursuing independent monetary policies and using different historical moneys. Moreover, Epstein argued that centralisation promoted the protection of property rights and contract enforcement across regions; while jurisdictional fragmentation increased the scope of discrimination or exclusion of foreigners when enforcing inter-regional contracts, uniform judiciary systems of a strong centralised state promoted equality against the law (see next section for specific examples). The high legal capacity of the state also arguably supported the courts' effectiveness (compare Besley & Persson 2011). Furthermore, fragmentation enabled regional elites to use their local influence to create rents and obtain personal privileges (see Broadberry & Wallis 2017; North et al. 2009). In Poland, the strengthening of serfdom in the 17th and 18th century, i.e. the lack of legal protection of the peasants by the state against the landlords that resulted in higher rents, is a classical example of this process (Malinowski 2016b). Lastly, according to Van Zanden et al. 2012 and Elgin et al. (2014), strong parliaments promoted trade by stabilising the silver content of the currency.

THE CASE OF OLD POLAND

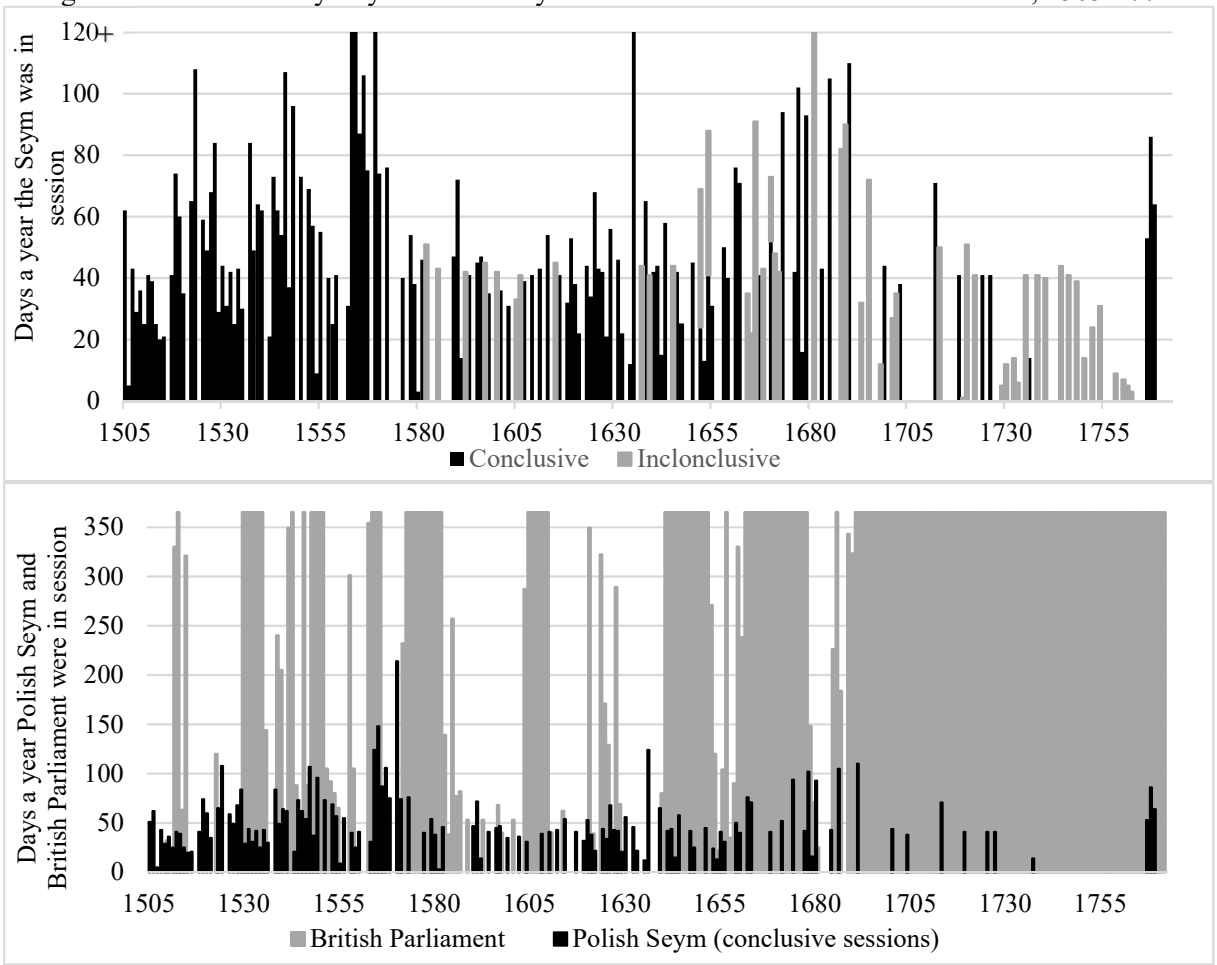
Until 1573, Poland was ruled by hereditary kings. Already in the late middle ages, the prerogatives of the king were gradually limited by a range of privileges given to the nobility, *Szlachta*, the political ancestors of feudal knights who accounted for around ten percent of the population (Jędruch 1998, p.24). In 1355 and 1374, kings Kazimierz and Louis the Hungarian promised not to levy any new taxes without the nobility's consent. This resulted in the creation of only marginal permanent taxes; it also inspired the development of regional representative bodies, Dietines, known as Seymiks, originally assembling to give the required consent to taxation. These evolved into institutions of direct democracy, albeit with no universal franchise, where all male adult nobles who were willing to participate met to make

decisions regarding their lands by majority voting. After 1454, when issuing any new laws, not only imposing taxes, kings had to consult the Dietines (Bardach 1957).

The increasingly federal character of the state and the privileges given to the nobility led to the formation of the Seym, to which, from 1468 onwards, the Dietines elected delegates. The oldest historical record of the Seym, composed of the hereditary King, the appointive Senate and elective House of Delegates, dates back to 1493. After 1505, no law binding the whole country could be passed without the explicit unanimous approval of the three parts of the Seym. It marked the formation of the system of Estate Monarchy, not dissimilar to the one built around the Parliament in England, the Estates General in France, the Cortes in Spain, the Snêm in Bohemia, and the Riksdag in Sweden, with the difference that in many other European countries the rulers retained some legal autonomy and could issue, for example, edicts without the need of the assemblies to legalize all their initiatives. In Poland, the king could only propose and veto legislation. Because he could not rule by decree, the ruler needed the Diet, of which he was an integral part, to exercise influence. The bills agreed on by the House of Delegates and Senate became legal acts only after the king gave the royal assent to all of them jointly at the end of the Seym's session. Laws agreed on centrally were valid on the local level, however, the principal of regional self-governance allowed the Seymiks to issue their own bylaws next to the central laws. If a session of the Seym ended prematurely, it failed to produce any legally binding acts; in such cases, the Seymiks had to issue their own consent to the issues independently.

In 1572, King Zygmunt the Second died without an heir – this led to a succession crisis. In 1573, it was decided that each new king of Poland (who was also a grand duke of Lithuania) would be elected in a universal election by all the Szlachta; any domestic or foreign nobleman could be elected. This effectively abolished hereditary successions in Poland and turned the Estate Monarchy into a Republic with the elective kings serving as a lifelong chief magistrate. Upon the elections, every new king had to agree on a set of basic principles known as the Cardinal Laws or Golden Liberties that were effectively, *avant la lettre*, the constitution of the Republic. They stipulated that the king would: (1) respect all the privileges given to the nobility, (2) summon the Seym regularly, (3) be constantly audited by the representatives of the Senate, (4) be abolished should he fail to observe the laws of the Republic and threaten the freedom of the nobility.

Figure 2: Number of days a year Polish Seym and British Parliament were in session, 1505-1772.



Source: Poland: Konopczyński (1948). The author reported the date of the opening and closing of each individual session of the Seym. Sessions related to royal election procedure are not included. Britain: Van Zanden et al. 2012. See online appendix[6].

Van Zanden et al. (2012) proposed to proxy the involvement of an early modern parliament by counting how many days it was in session each year.[7] The authors used this method to study the British Parliament. In the context of most Western European countries that retained the power of the rulers to perform some forms of legal actions independently, parliamentary activity captures the bargaining between the ruler and his subjects. However, in the Polish context where the King, Senate, and House of Delegates were complementaries, parliamentary activity represents the state's capacity to take legal action. Figure 2 shows new data on the number of days between the opening and closing of the Seym's

[6] Online appendix is available upon request.

[7] Van Zanden et al. (2012) also constructed indexes of activity based on how often a parliament met each century. They set the Polish index at zero because they argued, after Marongiu 1968, p.88, that the Seym did not meet their definition of a parliament, which was only valid if it represented the cities. As the cities were represented in the Seym, for discussion see Jędruch 1998, p.90, the values for Poland should be revised. A revised index would be 78/82, 41/59 and 17/39 meetings (only concluding/all) in the 16th, 17th, and 18th centuries respectively.

sessions each year. It distinguishes between the conclusive sessions that produced acts and the ones that were discontinued before the royal assent.

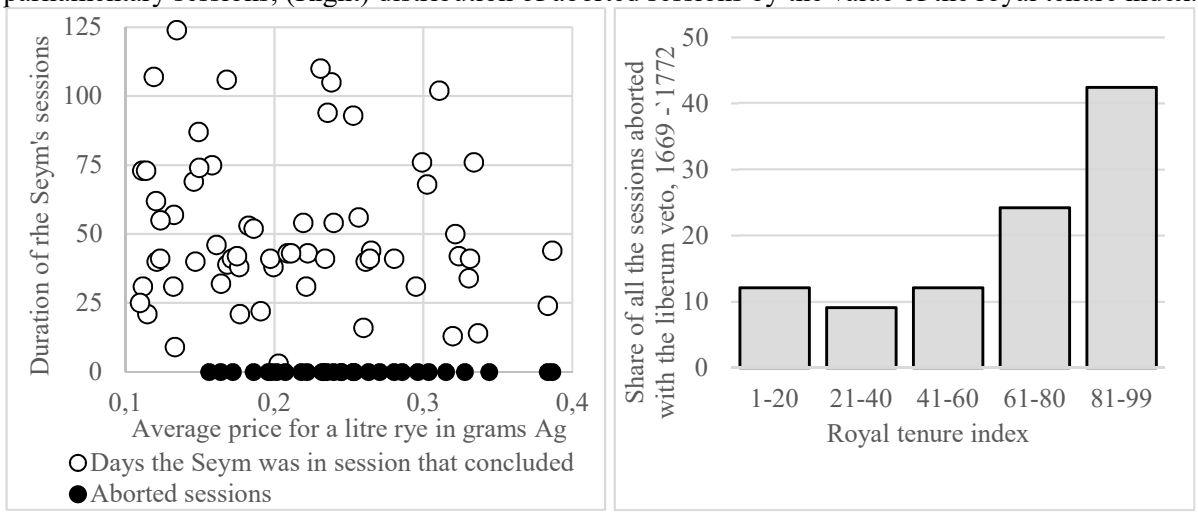
Figure 2 demonstrates that the 16th century was the golden age of Polish parliamentarism. At the time of the formation of the parliamentary system, the Seym's operations were frequent and conclusive. However, even then the British Parliament was visibly more active. On the other hand, after the second half of the 17th century, most of the sessions of the Seym become inconclusive. Conversely, in the 18th century, the British Parliament was permanently in session. This petrification of the Seym was a result of the introduction of the rule of unanimity of the decisions of the House of Delegates.

This legal change in the operation of the Seym was a result of a major constitutional crisis. In the mid-17th century, Poland was struggling with a Kozak uprising, a war with Russia, a Swedish invasion, and Turkish incursions. To ensure more political stability, the progressive party associated with the king, and dominated by the mid-income nobility, proposed that the new kings would be elected before the death of the incumbent. This inspired opposition of the conservatives, primarily the magnates and their clients, who saw the proposal as a threat to the Golden Liberties. To block the possibility of a constitutional change, they insisted on the right of a single deputy to discontinue the parliamentary proceedings before the royal assent and effectively nullify its decisions – *liberum veto*. The first use of this practice took place in 1652 and inspired major political and constitutional conflict between the conservative republicans and progressive royalists that escalated into a civil war in 1663. The conflict ended with the victory of the conservative faction, abdication of the king, and the introduction of the liberum veto into the Cardinal Laws in 1669. The liberum veto was used both by Polish conservatives who wanted to prevent the constitutional change and by the foreign agents that bribed the delegates to the Seym to weaken the Polish state. For example, in the period 1697 to 1763, 28 sessions were terminated. Prussia and France were credited with having caused seven disruptions each, while Russia sponsored 11 vetoes (Jędruch 1998, p.156). Termination of the session was therefore largely unrelated to domestic market conditions but was driven by politics.

To illustrate this point, Figure 3 shows that there was no correlation between the duration of the Seym's sessions and the average contemporaneous silver price of rye - an indicator of the market conditions. Moreover, there was no correlation between the duration of the Seym's sessions and the

contemporaneous rye price gaps – an indicator of the exchange costs (see online appendix). Furthermore, Figure 3 also plots the price of grain in the years the sessions were aborted. The results indicate that the sessions were discontinued at any price level. This is confirmed by a binary logistic (logit) regression that does not identify a relationship between the rye price (or the size of the price gap) and the chance of the veto being used (see online appendix).

Figure 3: (Left) relationship between the average price of rye and the contemporaneous duration of parliamentary sessions; (Right) distribution of aborted sessions by the value of the royal tenure index.



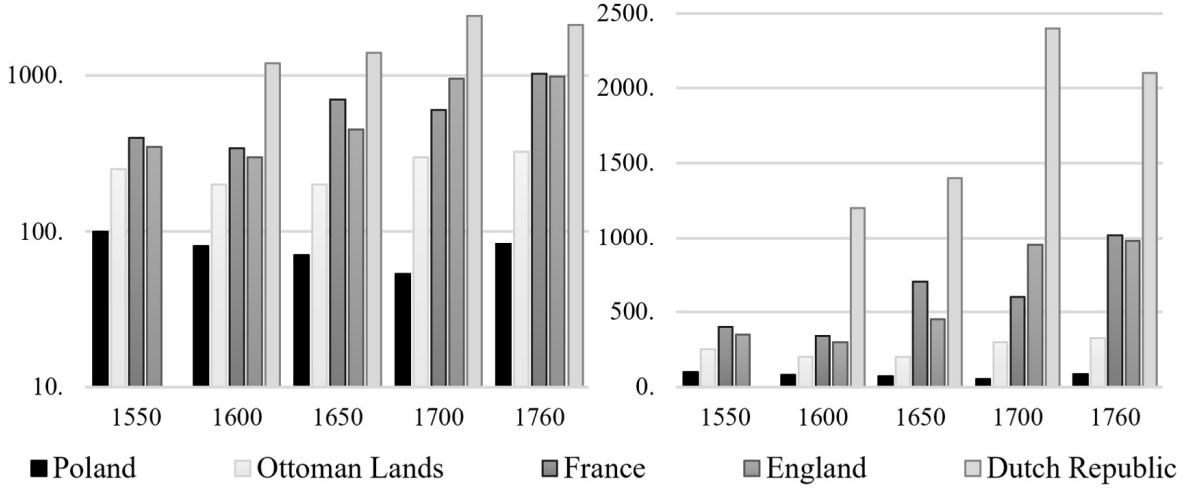
Note: The royal tenure index excludes the years of both death (100) and election (0). See online appendix. Based on silver rye prices in Cracow, Gdansk, Lviv, Lublin, and Warsaw (Malinowski 2016a).

The use of the veto was linked to the constitutional conflict. To demonstrate this, I constructed a *royal tenure index* ranging from zero in the year the king was elected to 100 in the year he died. For each year, the index equals the ratio of the number of years the king had already been in the office to the total duration of his entire reign (times 100). For example, for the 3rd year of a ten-year reign (from election till death), the index is 30. Approaching elections rekindled the constitutional conflict and provoked the veto. Figure 3 plots the distribution of all the vetoes and yields that they occurred more often when the royal tenure index was high. A binary logistic (logit) regression identifies that an increase in the index by one point was associated with a significant increase in the chance of the veto being used (see online appendix). In online appendix, I use the royal tenure index to successfully instrument parliamentary activity (compare Jones & Olken 2005).

The inability of the parliament to conclude many of its sessions led to the petrification of the government. The king could not, as it was to a varying degree in the case in the absolutist countries,

serve justice, rule by decree, or collect new unauthorised taxes. This resulted in the decline in both the legal and fiscal capacity of the state. Figure 4 denotes revenue of the central government in a range of countries and depicts that, after the 16th century, Poland not only began to lag behind other European states that were becoming increasingly centralised but also collected fewer funds in absolute terms.

Figure 4: The fiscal capacity of the Polish state in a European perspective, central state revenue per capita, logarithmic and linear scale, centigrams of silver, 1550-1760.



Source: Values for Poland in 1600, 1650, 1700, and 1760 see online appendix. Values for Poland in 1550 and as well as other countries were taken from Karaman and Pamuk (2010).

The weakening of the Seym resulted in a shift of power from the central to the regional level that retained its effective means of independent self-governance. The episode after the mid-17th century is known in the historiography as the 'Period of the Rule of the Seymiks'. By 1600, there were 74 of these regional assemblies in the country representing 118 lands and counties (Jędruch 1998, p.26; see Figure 5). Since 1573, dietines had already begun electing their own tax collectors, and since 1613, raising their own taxes next to the agreed central taxes. After 1681, central taxes paid by the lands for military purposes that constituted the lion share of the state's budget were no longer collected by the Seym but were raised and spent at the regional level. Seymiks served as regional courts, and in times of no effective central leadership, regulated the economic policy of their lands. Of importance were the so-called economic Seymiks that assembled annually to deal with the distribution of national tax assessments, voting and the collection of local taxes, as well as the approval of local expenditures (Jędruch 1998, p.43). Seymiks were dominated by unchallenged local magnates. This resulted in re-feudalisation (Bardach 1957).

Figure 2 shows a revival in the Seym's activity in the 1760s. This increase was related to a political programme to repair the country led by the progressive party and the last king Stanislaw August Poniatowski. The attempts to heal the political system alerted the neighbouring powers. Russia, Austria, and Prussia used the weakness of the Polish state to partition the country and gradually incorporate its parts into their own more centralised states between 1772 and 1795.

Figure 5: Areas controlled by different regional assemblies, Seymiks, within Polish-Lithuanian Commonwealth in the 17th century and the location of the six studied Polish cities.

Note: Courtesy of Jakub Brodacki. Poland in grey. 1) Gdańsk; 2) Cracow; 3) Lublin; 4) Lviv; 5) Warszawa; 6) Koenigsberg

REGULATORY ACTIVITY OF THE SEYM

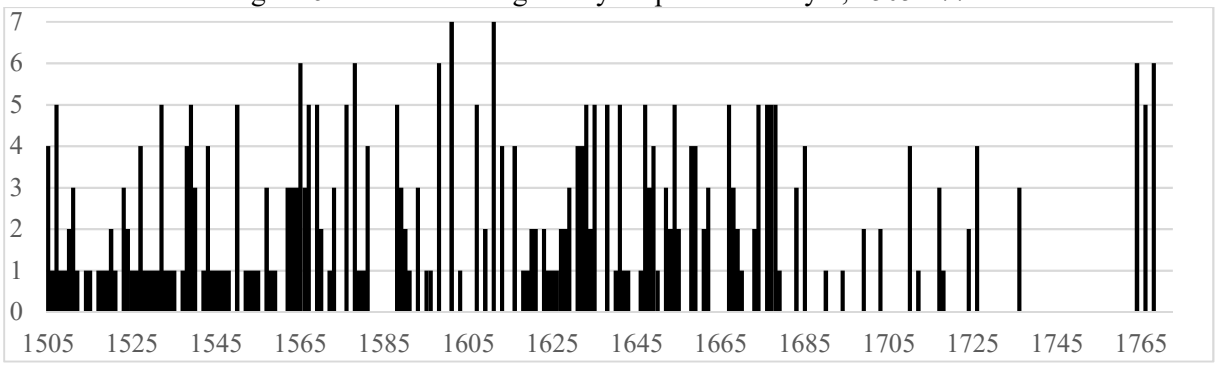
How did the Seym impact the exchange costs outlined in Table 1? When the Diet was in session it was responsible for serving justice, enforcing existing laws, and constructing new ones. The index of parliamentary activity from Figure 2 represents the potential to pass new acts and the degree as to which the state was able to serve justice and enforce laws (legal capacity). The Seym was the highest court in the country monitoring the state's officials and other powerful individuals.[8] Moreover, it elected parliamentary commissioners that travelled around the country to enforce the Seym's regulations, such as the toll sizes. These courts and commissioners were only active when the parliament was in session (Rybarski 1939). Therefore, in principle, longer sessions potentially enforced the laws better. Conversely, termination of its sessions upset the operations of the court and the commissioners.

[8] Next to the Seym there was also the Tribunal- an appeal court in cases concerning the nobility.

To demonstrate the impact of the Seym on institutional harmonisation, I compliment the index of legal capacity (Figure 2), with an original measure of the Seym's regulatory output. I investigate the acts of the Seym from 1505 to 1772 published in their compilation (Ohryzko 1859-89). I am interested in the laws that were relevant to the economy. I group the regulations imposed by the Seym into eight areas of regulatory activity that stand out in the source material, i.e. laws regulating, unifying, standardising, and/or promoting: (1) uniform taxation, (2) tolls, (3) trade infrastructure, (4) measures, (5) trade access, (6) monetary policy, (7) contract enforcement, and (8) courts' operations. I study only the impersonal laws that applied across the country. I do not analyse laws that gave personal, city-specific, or regional privileges. The details regarding the creation of the underlying dataset are available in online appendix. The index of regulatory output ranges from zero, i.e. no regulatory activity, to eight – the Seym's acts regulating at least one aspect of all the above-mentioned areas.

Figure 6 shows the index of regulatory output. It depicts the regulatory crisis since the late 17th century and the revival of the Seym in the 1760s. The index correlates well with the index of parliamentary activity/legal capacity in Figure 2. The Pearson's correlation coefficient of the two indexes is 0.52. This is mostly because the Seym could not create new laws when it was not in session or when the session was aborted. The index of regulatory output is heterogeneous. For clarification, I discuss individual areas of regulatory activity and provide examples of specific regulations.

Figure 6: Index of the regulatory output of the Seym, 1505-1772.



Note: See online appendix.

1) Uniform taxation

The Seym was of paramount importance for developing a coherent tax policy as it was originally formed to consent to any new taxation. Poland was a domain state with zero-base budgeting and marginal permanent taxes (Filipczak-Kocur 1995). For this reason, to ensure a stable influx of funds, taxes had

to be agreed on repeatedly. Each concluding Seym issued a general tax, *uniwersał poborowy,* which set general tax rates. In the years when the uniwersał was not published, the king had to approach every Seymik independently to validate the central tax. Different levels of taxation between the lands accepting and refusing the tax increased the exchange costs. Conversely, publishing the uniwersał instantly (next year when the tax was enacted) promoted similar taxation and market integration.

2) Regulation of toll collection

Since 1576, the king was not allowed to levy and regulate tolls without the Seym's consent. When the parliament was active, it frequently issued laws stipulating the punishments for the illegal collection of private tolls (acts of 1589, 1601, 1607) and regulated the exact procedure of farming the relevant incomes (acts of 1538, 1569, 1589, 1736). Furthermore, in 1601, the Seym regulated how people can appeal from unjustly collected tolls. The lack of parliamentary regulation resulted in less control over tax farmers and encouraged local landlords to create illegal private tolls.

3) Safer roads and better trade infrastructure

The Seym secured the roads by issuing regulation. For example, the acts of 1507 and 1609 instructed the local officials to protect merchants travelling on the official trade routes and punish the criminals who disturbed them. The Seym also commissioned bridges (e.g. acts of 1633 and 1635) and promoted maintenance of roads. For example, in 1539, it instructed that the trade roads had to be clear and wide enough to fit carts and oxen. Moreover, in 1576, to increase access, the Seym stipulated that people travelling to reach a market or a main road via private land could not be stopped or charged a fee.

However, the Seym also set trade routes to the advantage of individual cities. The Diet repeatedly confirmed these privileges (e.g. act of 1649). The laws also stipulated that it was illegal to use roads other than the official trade routes (e.g. act of 1712). This limited freedom; however, clearly defined trade routes arguably allowed the state's officials to protect them.

4) Standardization of measures

The Seym repeatedly instructed the lands to standardise measures (acts of 1550, 1565, 1588, 1598, 1601, 1611, 1616, 1631, and 1635). In 1764, on a wave of political reforms, a parliamentary act ordered

unification of all the measures in the country. These central regulations were gradually implemented locally. A bylaw passed by the Seymik of the Land of Dobrzyn offers a convenient demonstration:

'*Korzec* [the tool used to measure the volume of grain] *has to be just.* […] *Korzec in all towns of the Land of Dobrzyn, i.e. Dobrzyn, Lipń, Bobrowniki, Nieszqw, Skąpe, Rypno, Gorzno, has to be as instructed by the parliamentary act of His Majesty the King so that there would be the same measurement throughout.*' (Kluczycki 1887, p.29)

These regulations had an effect. Stanisław Mielczarski (1962) studied sizes of the korzec in Poland in the 16th century; according to his findings, the country was divided into several trade regions using the same measures of volume. Mielczarski demonstrated that, at the time of high parliamentary activity, these regions broadened thus making the economy more institutionally integrated. The repetition of the acts instructing the lands to standardize the measures is indicative of their incomplete implementation. Nonetheless, the acts incentivised standardisation that was not stimulated otherwise.

5) Access to the grain trade

The landed nobility needed to sell its agricultural produce. It wanted the grain to easily reach ports and cities. Nobles believed it was below their social standing to engage in the trade. To allow the others to move the grain for them, the policies of the Seym consistently supported the free movement of grain (Rybarski 2015). For example, in 1567, the Seym declared the freedom of trade, i.e. that everyone had a right to trade in every commodity that was already on the territory of the country. In 1576, the Seym prohibited trade monopolies and instructed the king to protect the freedom of the commodity market. In 1565, foreign merchants were granted the protection of the state. This furthered the access.

6) Effective monetary policy

The king was not allowed to issue coin without the Seym's approval. The Seym regulated (a) the official exchange rate between silver and gold, (b) the use of foreign currency (e.g. acts of, 1588, 1598, 1601, 1620, and 1628), and (c) the standard of the Polish coins (e.g. acts of 1564, 1567, and 1569). Table 2 presents the development of the monetary system. Minting privileges were given to individual masters who were expected to hold to the Seym's instructions rather than free-ride on the system by putting less

metal into coins than indicated by the official seigniorage. They faced the prisoner dilemma problem, as they did not know if the other mints were also going to uphold the regulations. The silver value of the coins was the highest in the early 16th century. Polish financial historians identified examples of manipulations of the silver content to the benefit of the mint-masters in the 17th century. For example, according to Adam Dylewski (2012), the Seym was too weak to discipline the free-riders and the increase in the number of mints can be interpreted as a sign of handing away rents/personal privileges. The crisis escalated during the personal union with Saxony in the first half of the 18th century, when it was decided that Polish money would be minted abroad, in other words, outside the Seym's control.

Table 2: Gradual collapse and a brief recovery of the Polish early modern monetary system.

King	No. of Polish mints during reign	Average silver content of one Grosz during reign	Average silver content of one English Pence during reign	Dates of Polish monetary reforms	No. of different types of legal coins according to the reforms
Zygmunt I (1506-1548)	6	0.99g	0.62g	1521, 1535	10
Stefan Batory (1576-1586)	8	0.89g	0.48g	1580	10
Zygmunt III (1587-1632)	17	0.42g	0.46g	1623	21
Jan Kazimierz (1648-1668)	14	0.34g	0.46g	1650	14
August III (1733-1763)	Minted in Saxony	0.13g	0.46g	1736	16
Stanisław August (1764-1795)	2	0.12g	0.46g	1766	11

Source: Dylewski 2012; Hoszowski 1928, 1934; Allen 2001.

Table 2 shows that the silver content of the currency in Poland dropped much more significantly than in England/Britain that enjoyed a more active Diet. This supports Van Zanden et al. (2012) claim that active parliaments promoted more stable currencies. Moreover, the 16th century was the period which had the least variation in types of monies, which meant that the policymakers kept the system relatively simple and transparent. The increase in the number of different types of monies in the 17th century shows the difficulties with balancing the vested interest of different lands eager to use their historical coins (Dylewski 2012). The issue of the monetary confusion was successfully addressed by the Seym only during its revival in the 1760s.

7) Contract enforcement & 8) 'courts' operations'

Regarding 'contract enforcement', among others, the Seym regulated creditor-lender relations. For example, in 1505, it stipulated that debt obligations without a written contract could be nullified with a testimony. This encouraged formalisation of contracts. In 1540, the Seym decided that merchants had a right to demand repayment of the debts from the nobility. This furthered the equality against the law. In 1543, it stipulated that the debtor cannot postpone repayment of the debt longer than a day in case of a small sum and six weeks in case of a large one. This clarified the exact obligations. Regarding 'courts' operations', the Seym regulated the functioning of the courts and selection of the judges. Without regulation, these policies gravitated towards dissimilar local customs.

METHODOLOGY AND SOURCES

Building on the established literature, I assume that markets become more integrated if the exchange costs decrease and prices converge (see Federico 2012). I link the process to the, so-called, law-of-one-price that states that price in location '*i*' is equal or lower than the price in location '*j*' plus the cost of trade between locations '*i*' and '*j*'. The law-of-one-price is demonstrated by Equation 1:

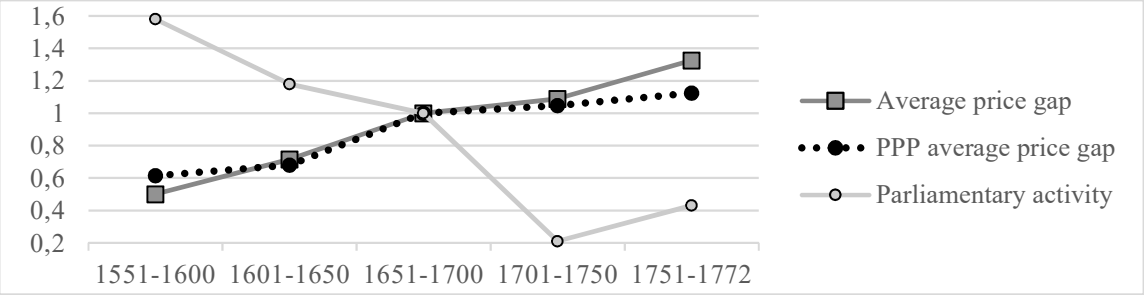
$$P_{i-j} = |\text{Price}_{i,t} - \text{Price}_{j,t}| \leq \text{Exchange_costs}_{i\text{-}j,t} \quad (1)$$

The law states that any rise in the price gap '*P*' between cities '*i*' and '*j*' above the exchange costs is expected to have been utilised by an instant arbitrage performed by the grain merchants (Van Bochove 2008; Federico 2012; Malinowski 2016a). A decrease in the price gap is associated with a decline in the trade costs between the two cities. While price convergence signifies integration, an increase in the price gap should proxy fragmentation (see previous studies that used this intuition in Federico 2012). Using the law as the workhorse of the analysis, I test the hypothesis that legal capacity and regulatory output of the Seym influenced the integration of the domestic market with the use of the regression analysis. Building directly on the law-of-one-price, I analyse absolute silver price gaps between different city pairs (compare Persson 2004). In a robustness test, I also study price ratios, an alternative approach to

measuring price convergence (e.g. Bateman 2011).[9] I investigate rye, the most traded grain with an unregulated price on the market (Wyczański 1969).

The price gap data is based on annual silver prices of 100 litres of rye in six Polish cities: Gdansk, Warsaw, Cracow, Lublin, Lviv, and Koenigsberg (15 city pairs). I also use a control group of four cities located in The Holy Roman Empire of the German Nation: Augsburg, Leipzig, Munich, and Breslau (6 city pairs). These foreign cities were not affected by the Seym but shared similar geographical conditions with the neighbouring Polish cities. This exposed them to the same pan-European trends in prices. The price data has been taken from a compilation of price and wage data made by Malinowski (2016a; 2016c) and Allen (2001). The information about the dataset is available in online appendix.

Figure 7: Long-term correlation of the average rye price gap and parliamentary activity in Poland.



Note: Indexed values. Based on silver rye prices in Cracow, Gdansk, Lviv, Lublin, and Warsaw (Malinowski 2016a). Purchasing Power Parity (PPP) obtained by dividing the average silver price gap by a consumer price index based on the bare-bones basket (Malinowski 2016c). Parliamentary activity based on Figure 2.

Figure 7 presents the long-term correlation between the development of the average silver rye price gap between Polish cities (see online appendix) and the index of parliamentary activity. It shows that the price gaps formed a new higher level during the period of Seym's inaction. Figure 7 yields that the exchange costs were about 40 percentage points lower when the Seym was more active.

To diagnose as to what extent the Seym's operations correlated with changes in the price gap, I estimate three linear regression equations based on three empirical strategies: (A) a difference-in-difference, (B) a study of annual levels, and (C) an analysis of year-on-year changes - first differences.

[9] Poland experienced periods of sustained upward and downward trends in both nominal and silver rye prices (Malinowski 2016c). Following Table 1 and the logic of the low-of-one-price, the exchange costs are assumed to be independent of the lowest rye price on the market. An increase in rye prices at a time of stable exchange costs would lower the price ratio. To avoid the proxy/measure of the exchange costs being driven by the trends in rye prices I focus the analysis on silver absolute price gaps rather than ratios. The drawback of this method is that the results may be vulnerable to changes in the silver value and shifts in the silver content off the currency. Thus, I control for the CPI and silver content of the currency. As a robustness test, I also look at the price ratios.

Equation 2 employs the difference-in-difference method. It analyses both Poland and the Empire that shared similar geography but followed different trajectories of political development. The Holy Roman Empire was a confederation; The Golden Bull of 1356 cemented the largely independent rule of the dukes over their respective territories and limited the authority of the Emperor. Moreover, the Imperial Diet, Reichstag, was formed in the late 15th century and, initially, it had a relatively limited impact on the Empire. However, in 1648, The Peace of Westphalia bound the Emperor to accept all decisions made by the Reichstag. Armed with this prerogative, the Imperial Diet was permanently in session since 1663 until 1806, i.e. the dissolution of the Empire. This signified a relative increase in centralisation. The impact of the Empire on market integration has been recently analysed by Chilosi et al. (2018).

Equation 2 features three types of differences: (A) the difference in rye price gaps between pairs of either strictly Imperial or Polish cities, (B) the difference in rye price gaps before and after the 1660s, i.e. the introduction of the liberum veto in 1669 and the beginning of Reichstag's supremacy in 1663, and (C) the difference-in-difference. Since opposite political changes happened at the same time in Poland and The Holy Roman Empire, the difference-in-difference captures the market effect of the Seym's failure to act vis-à-vis both (1) its own past good performance and (2) the contemporaneous straightening of the Reichstag. Therefore, the difference-in-difference measures the average effect of the gap in legal capacity between the failed Seym and the successful Reichstag on the exchange costs. If identified it proves the studied effect of parliamentary (in)action on market integration. Equation 2 is:

$$LnP_{i-j,t} = \alpha + \beta_1 POL_{i-j} + \beta_2 POST_1660s_t + \beta_3 POL_POST_1660s_{i-j,t} + \\ + \sum_{m=4}^{8} \beta_m C_{i-j,t} + \sum_{n=9}^{14} \beta_n D_t + \sum_{o=15}^{35} \beta_o \theta_{i-j} + \beta_{36}\delta_t + \varepsilon_{i-j,t} \quad (2)$$

where: 'α' is the intercept; '*i-j*' indicates a pair of cities '*i*' and '*j*'; '*t*' indicates year; '$LnP_{i-j,t}$' the natural logarithm of the absolute silver price gap between a pair of cities '*i-j*' in year '*t*'. I use the logarithm to mitigate the effect of outliers. 'POL_{i-j}' is a dummy variable equal one if both '*i*' and '*j*' are located in Poland and zero if they are located in the Empire (there are no international pairs); '$POST_1660s_t$' is a dummy variable equal one if '*t*' is after 1669 and zero if it is before 1660 (the 1660s are excluded from the analysis); '$POL_POST_1660s_{i-j,t}$' is a dummy variable equal one for the records concerning Polish price gaps observed after the 1660s and zero otherwise; '$C_{i-j,t}$' are control variables; 'D_t' are time-period

dummies/fixed effects; 'θ_{i-j}' are city-pair dummies/fixed effects (one Polish and one Imperial pair are dropped to avoid collinearity); 'δ_t' is the annual time trend; and 'ε' the error-term. The time-period dummies differentiate between six sub-periods - 1505-1550, 1551-1600 … 1751-1772 (the first period is dropped to avoid collinearity). The control variables stem from the discussion of the factors relevant for the exchange costs identified in Table 1, i.e. 'distance', 'differences in language and culture', 'warfare', 'climate', 'wages', 'cost of capital goods', 'interest rates', 'storage', and 'purchasing power of the currency'. City-pair dummies/fixed effects 'θ_{i-j}' account for the fixed factors, i.e. 'distance' and 'differences in language and culture'. The control variables '$C_{i-j,t}$' account for all the exogenous and market factors listed in Table 1. These are: (1) 'warfare' proxied by the number of people killed in military conflicts involving Poland or The Holy Roman Empire depending on the city pair (data from Brecke 2012, see online appendix); (2) 'climate' proxied by the difference to the long-term mean temperature (data from Büntgen et al. 2013, same for the Empire and Poland); (3) 'wages' proxied by the average daily silver wage of unskilled labourers in both cities in a pair (Malinowski 2016c; Allen 2001; when city-specific wage data is missing, I analyse the average wage in the country); (4) 'interest rates' proxied by the rates of return on investment (that also captures the 'cost of capital goods' and 'storage', see McCloskey & Nash 1984 on the relationship between interest rates and storage; data from Hoszowski 1928, 1934; Chilosi et al. 2018; Huang et al. Forthcoming;); (5) 'purchasing power of the currency' proxied by the average consumer price index (hereafter CPI) in Poland and the Empire (based on the 'respectability basket' featuring bread not rye; data from Allen 2001).[10] Factors pertaining to the change in the legal capacity of the central state institutions are captured by 'POLAND_POST_1660s'. Equations 2 to 4 do not account for the silver value of the currency due to its dependence on state capacity that may result in collinearity (see Table 1; changes in the silver value are accounted for in a robustness test). Because the inactivity of the Seym after 1669 should have increased the exchange costs, the hypothesis is that β_3 is positive and statistically significant.

[10] Here, 'currency' is silver – the base of Polish (bi)metallic monetary system. The nominal price gap information was converted into their silver equivalent. The CPI is based on silver prices (Allen 2001). Controlling for the CPI captures the effect of the changes in the purchasing power/value of silver. Sharp changes in the silver-content of the money of account created shocks to the silver prices. I control for these rare rapid changes in a robustness test.

Equation 3 complements the difference-in-difference specification. It uses the annual measures of the Seym's legal capacity and regulatory output. It replaces the difference-in-difference approach with the interaction-term approach. Moreover, while Equation 2 focuses on the long-term, general, before-and-after impact of state failure, Equations 3 (and 4) focus on the immediate impact. Equation 3 studies the annual levels of either legal capacity or regulatory output. The logic of the model is that the Seym's actions should only have had an impact on transaction costs within Poland and not in the Empire. To capture this, I interact the measures of the Seym's activity with the 'POL' dummy. Equation 3 is:

$$LnP_{i-j,t} = \alpha + \gamma_1 S_{t-1} + \gamma_2 S_{t-1} * POL_{i-j} + \gamma_3 POL_{i-j} + \\ + \sum_{\mathrm{m}=4}^{8} \gamma_m C_{i-j,t} + \sum_{n=9}^{14} \gamma_n D_t + \sum_{\mathrm{o}=15}^{35} \gamma_o \theta_{i-j} + \gamma_{36} \delta_t + \varepsilon_{i-j,t} \quad (3)$$

where the variable of interest 'S_{t-1}' is either the legal capacity (Figure 2), i.e. parliamentary activity denoted as the number of days the Seym was in session that concluded, or the regulatory output representing the number of areas of economic activity that were regulated in new acts (Figure 6). As regulatory output is a form of parliamentary activity they are never estimated in the same equation. Equally, because the grain prices come mostly from the first quarter of the year (Adamczyk 1935), so before any session would conclude, and because parliamentary acts needed to be printed, distributed and acknowledged by the Dietines before they could be implemented, Equations 3 (and 4) look at the lag of 'S'. Because the higher activity of the Seym should have lowered the exchange costs, the hypothesis is that γ_2 is negative and statistically significant.

Grain prices are typically autocorrelated. This can be mitigated by differencing the data (Van Bochove 2008). A pooled-OLS regression of '$LnP_{i-j,t}$' on '$LnP_{i-j,t-1}$' identifies serial autocorrelation (regressions based on all 21 city pairs, P-value 0.00). For this reason, Equation 4 employs first differences. It models what drove the year-on-year changes in price gaps. The model assumes that the change in the price gap between '*t-1*' and '*t*' was dependent on Seym's action at time '*t-1*' and changes in: war intensity, wages, temperature, interest rates, and the CPI. As a robustness, I test if substitution of 'S_{t-1}' with 'ΔS_{t-1}' affects the results. Equation 4 is:

$$\Delta \mathrm{Ln}P_{i-j,t} = \alpha + \varphi_1 S_{t-1} + \varphi_2 S_{t-1} * POL_{i-j} + \sum_{\mathrm{m}=4}^{8} \varphi_m \Delta C_{i-j,t} + \varepsilon_{i-j,t} \quad (4)$$

This equation is used to study either both the Imperial and Polish or only the Polish city pairs. As in the case of Equation 3, 'S_{t-1}' is proxied by either (a) parliamentary activity/legal capacity or (b) regulatory output. I also proxy 'S_{t-1}' with (c) a set of eight dummy variables each capturing the effect of regulating one specific area of regulatory activity (see online appendix). This is estimated by analysing all eight areas both jointly (one regression) and separately (eight regressions). When studying individual regulations, to avoid having to include multiple interaction terms, the sample will be restricted to Poland.

To ensure that price gaps are independent, I analyse only pairs that do not share a city. For Poland, the main sample of three independent city pairs is Gdansk-Cracow, Koenigsberg-Lviv, and Warsaw-Lublin. For the Empire, the selected pairs are Munich-Augsburg and Breslau-Leipzig. This selection maximises the number of data points. For robustness, I study all the city pairs (1) jointly, (2) separately, and (3) look at different combinations of independent city pairs (see online appendix). The standard errors are clustered around both the city pairs and individual years.

Table 3: Descriptive statistics of the used data.

	Levels; all 21 pairs			FD; 5 main Polish and Imperial pairs			FD; 3 main Polish pairs		
	N	Mean	SD	N	Mean	SD	N	Mean	SD
Ln price gap	1645	3.09	1.64	364	0.02	0.85	144	0.1	0.57
Parliamentary activity (lag)	1645	18.48	32.39	364	15.28 (level)	28.9 (level)	144	13.66 (level)	28.59 (level)
Regulatory output (lag)	1645	1.46	2.51	364	1.36 (level)	2.43 (level)	144	1.16 (level)	2.27 (level)
War casualties	1645	29.14	53.23	364	-1.9	31.5	144	-1.59	36.46
Interest rates	1645	5.28	0.94	364	-0.002	0.35	144	-0.02	0.39
Temperature	1645	-1.12	0.94	363	-0.034	0.87	144	0.02	0.88
Wage	1645	1.66	0.58	364	0.008	0.11	144	-0.01	0.14

Does the analysis face the problem of endogeneity? As discussed, the use of the liberum veto, the main driver of the volatility of the indexes of parliamentary activity/legal capacity and regulatory output, was related to constitutional and international issues and was not caused by changes in the exchange costs. The use of a lag of Seym's operations already mitigates the problem as it is unlikely that future exchange costs influenced the past political decisions. Nonetheless, for robustness, I instrument the studied measures of Seym's activity with the exogenous royal tenure index (see online appendix).

Was the relationship between transaction costs and regulation spurious? It is conceivable that a boom in grain output and/or trade, possibly could have, at the same time, both (A) decrease the exchange costs, due to the economies of scale and (B) put pressure on the Seym to regulate the trade, thus creating

a spurious relationship between the two. This was not the case. As discussed, Figure 3 demonstrated that the Seym's activity was not dependent on contemporaneous average grain prices - an indicator of market conditions. Moreover, contemporaneous price gaps and the Seym's activity were also not correlated (see online appendix; note Equations 3 and 4 investigate the impact of the lag of the Seym's activity on the price gaps not a contemporaneous relationship). To rule out the possibility of a spurious relationship, Equations 2 to 4 control for the temperature that proxies the grain output. I also perform a robustness test where I control for the volume of grain exports (data: Biernat 1962).

Table 4: Results of the regression analysis based on Equations 2 and 3.

	I	II	III	IV	V	VI	VII	VIII
Dependent	$LnP_{i-j,t}$	$LnP_{i-j,t}$	$LnP_{i-j,t}$	$LnP_{i-j,t}$	$LnP_{i-j,t}$	$LnP_{i-j,t}$	$LnP_{i-j,t}$	$LnP_{i-j,t}$
Post1660s (dummy)	0.049 (0.47)	-0.279 (0.24)	0.514* (0.07)	-0.534** (0.04)				
Poland (dummy)	2.41*** (0.00)	0.84*** (0.00)	2.991*** (0.00)	3.484*** (0.00)	2.161*** (0.00)	3.72*** (0.00)	1.962*** (0.00)	3.47*** (0.00)
Poland post 1660s (dummy)	0.217* (0.08)	0.408* (0.08)	1.573*** (0.00)	0.887*** (0.00)				
Parliamentary activity (lag)					0.003*** (0.00)	0.002 (0.16)		
Parliamentary activity (lag) * Poland (dummy)					-0.008*** (0.00)	-0.007*** (0.00)		
Regulatory output (lag)							0.004 (0.78)	-0.003 (0.88)
Regulatory output (lag) * Poland (dummy)							-0.09*** (0.00)	-0.06** (0.05)
CPI			0.103*** (0.00)	0.099*** (0.00)	0.07** (0.02)	0.08*** (0.00)	0.06** (0.03)	0.079*** (0.00)
War casualties			-0.001 (0.46)	-0.003*** (0.00)	0 (0.76)	-0.002*** (0.00)	0 (0.67)	-0.002*** (0.00)
Temperature			0.028 (0.35)	0.036 (0.38)	0.025 (0.44)	0.032 (0.43)	0.025 (0.42)	0.035 (0.38)
Interest rates			0.012 (0.88)	0.141 (0.2)	0.19** (0.02)	0.26** (0.02)	0.231*** (0.00)	0.287*** (0.00)
Wages			0.183** (0.03)	0.083 (0.39)	-0.07 (0.46)	-0.03 (0.71)	-0.073 (0.46)	-0.03 (0.69)
Time trend			0.003 (0.46)	0.003 (0.29)	0.06** (0.04)	0.004 (0.15)	0.007** (0.03)	0.004* (0.09)
City-pair fixed effects	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time-period fixed effects	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
City-pair clusters	No	Yes	Yes	No	Yes	No	Yes	No
Year clusters	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sample	All 21 pairs & no 1660s	All 21 pairs & no 1660s	All 21 pairs & no 1660s	5 indep. pairs & no 1660s	All 21 pairs	5 indep. pairs	All 21 pairs	5 indep. pairs
N	1610	1610	1610	456	1645	509	1645	509
R^2	0.59	0.69	0.71	0.8	0.7	0.8	0.69	0.8

Note: OLS regressions. P-values based on heteroscedasticity robust standard errors in brackets. *, **, *** denote significance at the 10, 5, and 1 percent level respectively. For the selected independent pairs see the text.

RESULTS OF THE EMPIRICAL ANALYSIS

1) Difference-in-difference and annual levels specifications (Equations 2 and 3)

Table 4 shows the results of the analysis of pairs of both Polish and Imperial cities based on Equations 2 and 3. Specifications I to IV show the results of estimation of Equation 2. The interaction term '*Poland post 1660s*' shows the average, general, long-term, before-and-after, relative impact of the petrification of the Seym by the veto. Specification I analyses all 21 Polish and Imperial city pairs. It does not account for any control variables or city-pair and time-period fixed effects. It identifies that the petrification of the Seym increased the exchange costs. Specifications II and III subsequently incorporate city-pair and time-period fixed effects and the control variables. They both identify a strong and statistically significant effect. Specification IV limits the sample to the selected three Polish and two Imperial independent city pairs. This more robust specification identifies a statistically significant effect. This evidence indicates that, in Poland, at the time of state failure, exchange costs were higher and the market was relatively more disintegrated.

Specifications V to VIII analyse the immediate (next year) impact of the Seym's operations on price gaps in Poland and the Empire. '*Parliamentary activity (lag) * Poland (dummy)*' captures the impact of the Seym's activity/legal capacity on Polish domestic rye market. Specification V analyses all 21 Polish and Imperial city pairs. It controls for both city-pair and time-period fixed effects, as well as, the full set of control variables. It identifies that each additional day the Seym was in an unabridged session had a negative and statistically significant effect on the size of the price gaps. Specification VI analyses the selected three Polish and two Imperial independent city pairs. This more robust specification identifies that the Seym's activity impacted only the city pairs located within Poland. This log-level specification suggests that one additional day in session lowered next year's exchange costs by 0.7%. Since the average unabridged session was around 50 days long, a typical concluding Seym lowered the exchange costs by about 35%. This broadly corresponds with the difference in the average exchange costs, between periods of an active and inactive Seym, demonstrated in Figure 7. Specifications VII and VIII conduct a corresponding analysis of the regulatory output. They both identify that the regulatory activity was associated with a decline in the exchange costs and that the acts of the Seym impacted only the Polish market. These two log-level specifications suggest that regulation

of each additional area lowered the next year exchange costs by nine or six percent respectively. Since the average session regulated three areas of economic activity, a typical concluding Seym lowered the next year exchange costs by about 27 or 18%. These numbers intend to demonstrate the scale of the effect and may over or underestimate the actual values due to, among others, the measurement error. The results of this analysis based on levels identifies that both the Seym's activity/legal capacity and regulatory output had a significant effect on lowering the exchange costs on the Polish rye market.

Table 5: Results of the regression analysis based on Equation 4.

	IX	X	XI	XII	XIII	XIV	XV	XVI	XVII
Dependent	$\Delta LnP_{i-j,t}$	$\Delta LnP_{i-j,t}$	$\Delta LnP_{i-j,t}$	$\Delta LnP_{i-j,t}$	$\Delta LnP_{i-j,t}$	$\Delta LnP_{i-j,t}$	$\Delta LnP_{i-j,t}$	$\Delta P_i/P_{j_t}$	$\Delta LnP_{i-j,t}$
Parliamentary activity (lag)	-0.001 (0.23)	-0.006*** (0.00)	-0.005** (0.05)			-0.009*** (0.00)	-0.006*** (0.00)	-0.01** (0.05)	-0.007*** (0.00)
Parliamentary activity (lag) * Poland (dummy)	-0.003** (0.05)								
Regulatory output (lag)				-0.086*** (0.00)					
ΔParliamentary activity (lag)					-0.005*** (0.00)				
ΔCPI	0.13*** (0.00)	1.66 (0.18)	0.67 (0.62)	0.666 (0.648)	0.489*** (0.00)	0.15 (0.92)	2.265* (0.08)	9.41*** (0.01)	-0.74 (0.67)
ΔWar casualties	0.001 (0.2)	0 (0.52)	0 (0.65)	-0.001 (0.13)	0 (0.49)	0 (0.92)	0.001 (0.51)	0.006*** (0.00)	Omitted
ΔTemperature	0 (0.97)	0.02 (0.55)	-0.007 (0.87)	0.008 (0.86)	-0.02 (0.65)	-0.006 (0.89)	0.027 (0.7)	0.146 (0.28)	0.048 (0.34)
ΔInterest rates	0.05 (0.63)	0.101 (0.32)	-0.06 (0.53)	-0.08 (0.37)	-0.064 (0.5)	-0.12 (0.6)	0.038 (0.83)	0.135 (0.56)	-0.37** (0.02)
ΔWages	-0.03 (0.9)	-0.239 (0.27)	-0.008 (0.98)	0.118 (0.72)	0.031 (0.92)	-0.09 (0.81)	0.14 (0.5)	-2.87*** (0.00)	0.04 (0.88)
ΔSilver content of the Grosz						-7.65 (0.53)			
ΔGrain exports						-0.005 (0.27)			
City-pair clusters	Yes	Yes	No	No	No	No	Yes	No	No
Year clusters	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sample	All 21 pairs	All 15 Polish pairs	3 indep. Polish pairs	3 indep. Polish pairs	3 indep. Polish pairs	3 indep. Polish pairs	3 indep. Polish pairs & $Parl._{t-1} > 0$	3 indep. Polish pairs	3 indep. Polish pairs & no war
N	1260	562	144	144	144	144	88	144	85
R^2	0.06	0.08	0.1	0.07	0.11	0.11	0.08	0.12	0.17

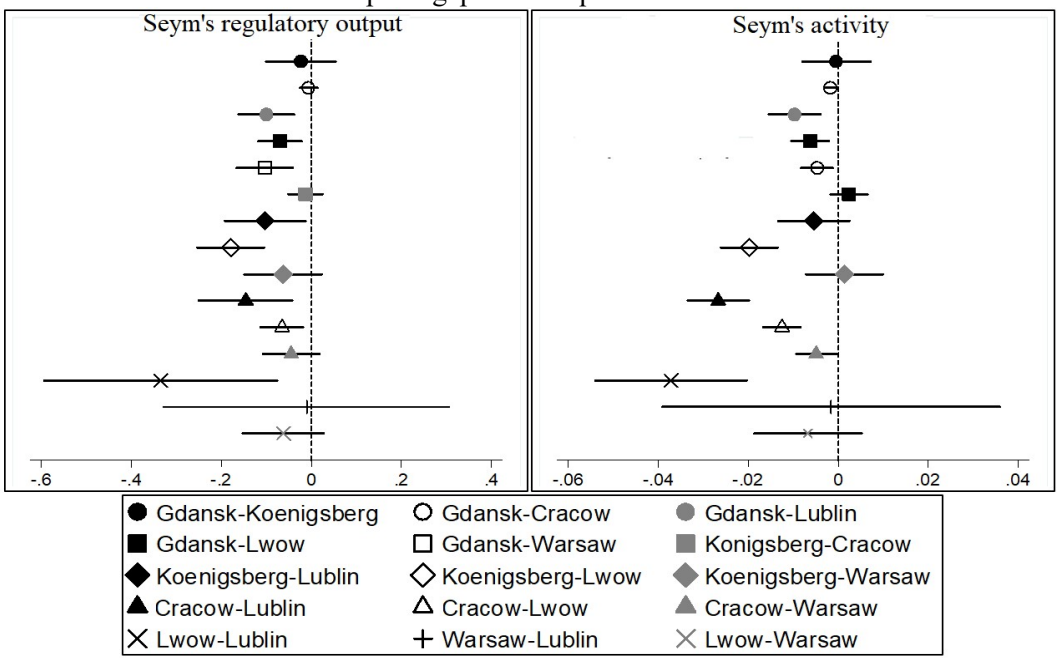
Note: OLS regressions. P-values based on heteroscedasticity robust standard errors in brackets. *, **, *** denote significance at the 10, 5, and 1 percent level respectively. For the selected independent pairs see the text.

2) First differences (Equation 4); individual city pairs and specific areas of regulation

Table 5 analyses the year-on-year changes in price gaps. They all control for the full set of control variables. Specification IX analyses all 21 Polish and Imperial city pairs. It identifies that each additional day the Seym was in an unabridged session at time '*t-1*' lowered the exchange costs between time '*t-1*' and '*t*', and that the Seym only impacted the exchange costs within Poland.

Thus far all the samples included the control group of Imperial city pairs. All the subsequent specifications focus the analysis on the first differences of the price gaps between the Polish cities. Specifications X and XI analyse the impact of Seym's activity/legal capacity at time '*t-1*'. They analyse all the 15 Polish city pairs and only the three selected independent pairs respectively. They both identify that each additional day in an unabridged session was associated with a subsequent decline in the exchange costs. The size of the effect is comparable with that identified in Specification VI. Specification XII studies the selected three independent Polish city pairs. It analyses the impact of the Seym's regulatory output and identifies a similar (in size) impact as Specifications VII and VIII that investigate levels.

Figure 8: Standard confidence intervals of coefficients based on the analysis of the individual city-pair price gaps with Equation 4.



The results of the analysis based on all the Polish city pairs holds if I exclude, one at a time, each city pair. The results also hold if I analyse different sets of independent city pairs (see online appendix). To demonstrate this point clearly, Figure 8 shows the coefficients of interest obtained from estimation of either the impact of Seym's regulatory output or activity with Equation 4 for each Polish city pair separately (30 regressions). It shows that the relationship between parliamentary activity and regulatory output in the previous year and the year-on-year decline in the exchange costs was consistent across the

city pairs. The seemingly unrelated regression procedure identifies that, for both activity and output, these individual coefficients are jointly statistically different to zero (P-value 0.00).

The index of regulatory output groups eight different areas of regulation. I also study the individual impact of regulating each area of regulation. I study eight dummy variables, each equal one if the corresponding area was regulated by at least one new act and zero otherwise (see online appendix). I use Equation 4 to analyse the impact of regulating each area separately (eight regressions). I also analyse the eight series jointly with one regression. I base this analysis on the sample of three independent Polish city pairs. This selection and the first-differences specification combined ensure that the price gap data are independent both across pairs and years.

Figure 9: Standard confidence intervals of the impact of regulating each of the eight individual areas of regulation, analysis based on the three independent Polish price-gap series with Equation 4.

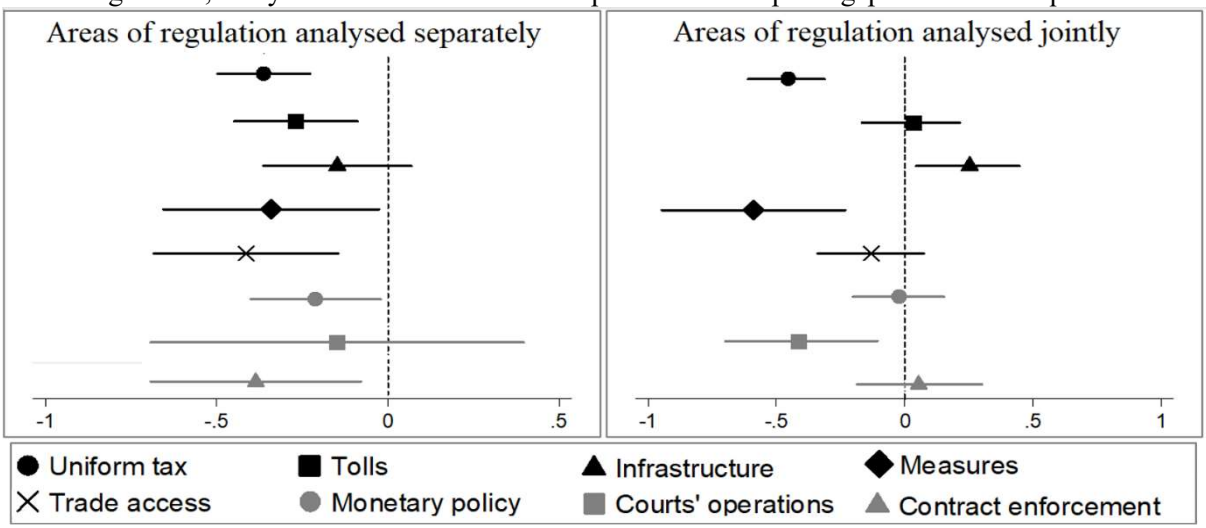


Figure 9 shows the results of the analysis. The separate one-by-one analysis of the specific areas of regulation (eight regressions) indicates that regulation of all the areas besides ‘infrastructure’ and ‘court’s operations’ had a statistically significant and negative effect. However, because every concluding session of the Seym issued the general tax, it is useful to disentangle the impacts of different types of regulation. Figure 9 shows the result of a regression specification that accounts for all the types of regulation (one regression). This specification identifies that regulation of the ‘general tax’, ‘measures’, and ‘court’s operations’ were associated with a decline in the exchange costs on the rye market. The combined evidence from both the separate and joint studies of different regulations suggests

that the Polish state supported the formation of an integrated domestic market, at least, by enforcing uniform taxation levels and fostering standardisation of measures.[11]

3) Robustness tests

Specifications XIII to XVII in Table 5 perform several robustness tests. They are based on the first-differences specification and study the three independent Polish city pairs. This ensures that the price gap data are independent both across pairs and years. Specification XIII tests if the substitution of '*Parliamentary activity (lag)*' for 'Δ*Parliamentary activity (lag)*' affects the results. I identify that a change in the number of days the Seym was in session between '*t-2*' and '*t-1*' impacted the change in the exchange costs between '*t-1*' and '*t*'. Specification XIV controls for the silver content of the currency and the size of the grain exports. It identifies a statistically significant impact of legal capacity. Specification XV addresses the issue that, due to the long periods of parliamentary inactivity, the Seym's activity was disproportionally often equal zero. It restricts the sample to the years directly after concluding sessions (the Seym met and concluded at '*t-1*'). It identifies the effect of interest. Specification XVI studies changes in price ratios (higher price divided by lower price) rather than the absolute price gaps. It also identifies the effect of interest. Lastly, the war casualties measure does not account for the exact locations of military conflicts that may affect the city pairs differently. To mitigate this problem, Specification XVII narrows the sample to the years that both '*t*' and '*t-1*' were the years of peace. Additional robustness tests are available in online appendix. This includes a test that accounts for the direction of warfare, as well as, a set of 2SLS regressions with the index of royal tenure used as an exogenous instrument. All the results identify that state failure had a negative effect on market integration while an active parliament fostered the development of an integrated domestic market.

CONCLUSION

Economic history's literature on the role of the state in the long-term economic development of preindustrial Europe is divided into two opposing streams. The first argues that constraining

[11] Figure 9 identifies that, when studied jointly with the other areas of regulation, regulation of 'infrastructure' correlated with an increase in the exchange costs. As discussed, the Seym set and confirmed the trade routes to the benefit of the most important cities. This, arguably, forced merchants' travel plans and increased the costs.

governments helped avoid harmful predation, while the second demonstrates that strong governments often played a crucial role in setting up institutions crucial for well-operating markets. These two points of view rarely speak to one another. The case of the British Glorious Revolution led to the conventional knowledge that, in principle, constraining the ruler should promote economic growth. The Polish case problematizes this by demonstrating that constraining the monarch had negative political and economic consequences. The Polish king had too few prerogatives to oppose centrifugal forces and bind the country together in the absence of a well-functioning parliament. The power vacuum was filled by regional lords that effectively divided the country into various zones of influence. *Inter alia*, the lack of control allowed them to raise tenurial rents and sharpen serfdom in the country. This demonstrates that limiting the king and forming a parliamentary regime was not a sufficient condition to initiate sustainable economic growth; it at least had to be accompanied by mechanisms preventing the regional elites from hijacking the extractive power.

Initially, in the 16th century, this was ensured by a central territorial parliament representing the interest of the landed nobility. The Seym favoured the lowering of transaction costs on the grain market to allow the nobility to export the grain cheaply. To this end, the Seym issued numerous regulations that harmonised economic institutions and fostered market integration. However, the constitutional conflict, foreign intervention, and the particular interest of the richest of the nobles, magnates, to ensure their unsupervised regional influence gradually broke the Seym and resulted in political fragmentation (possibly even re-feudalisation) that eventually led to market fragmentation.

Moreover, the findings suggest that the market economy does not form spontaneously but requires state institutions. This article identifies a positive correlation between the legal capacity of the state, regulatory output, and commodity market integration. Furthermore, (a) Besley and Persson's theory, (b) Epstein's model, (c) the outlined specific historical mechanisms, (d) the expected exogeneity of the past parliamentary operations and the liberum veto, and (e) the implementation of an instrumental variable all warrant a serious consideration of a causal link between parliamentary operations and formation of a domestic commodity market. If correct, the link has important implications for our understanding of the long-term growth patterns in early modern Europe.

According to the recent GDP figures, Poland experienced economic growth in the 16th century, followed by a decline in the 17th century and stagnation in the 18th century (Malinowski & Van Zanden 2017). This corresponds with the identified trends in political and market development. The link suggests that the crisis of the central state institutions could be one of the causes of the economic decline of the country via its impact on the domestic market. Conversely, England and the Netherlands were the economic winners of the early modern period. According to Dincecco (2009), these economies managed to find the right balance between a limitation on the executive and territorial consolidation which allowed them to reach high levels of fiscal capacity of the state. The results of this article suggest that if the fiscal capacity was complemented by the legal one, high governmental involvement in the formation of domestic commodity market might have been one of the reasons of the economic rise of the North Sea Region. Furthermore, the differences in political developments between the East and West of Europe might have contributed to the historical origins of what is known as the Little Divergence in living standards within Europe.

To prove this hypothesis, one would have to develop standardised and comparable proxies of market integration and legal capacity of the state. There have been few attempts to conduct cross-sectional studies of market development across early-modern Europe, but they suffer from the problem of standardisation (Federico 2012). Regarding measuring legal capacity, Van Zanden et al. (2012) constructed the index of parliamentary activity for a range of European countries. However, because the power in the West was often exercised by both the ruler and the representative institutions, a coherent picture also requires inexistent systematic accounts of the legal action of the rulers. Preindustrial Poland, due to the unique complementarity of its political institutions, provides a valuable insight into the relationship between states and markets, but much remains to be done to fully understand the road historical European states took to develop their domestic markets and promote economic growth.

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