When Distance Mattered:
Geographic Scale and the Development of
European Representative Assemblies

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Abstract

Scholars investigating European state development have long placed a heavy emphasis on the role played by representative institutions. The presence of an active representative assembly, it is argued, allowed citizens and rulers to contract over raising revenue and accessing credit. It may also have had implications for economic growth. These arguments have in turn been used to draw broad implications about the causal effect of analogous institutions in other places and other time periods. But if assemblies had such clear efficiency benefits, why did they not become a universal phenomenon in Europe prior to the nineteenth century? I argue that in an era of costly communications and transport, an intensive form of political representative was much easier to sustain in geographically compact polities. This simple fact had important implications for the pattern of European state formation, and it may provide one reason why small states were able to survive despite threats from much larger neighbors. I test several relevant hypotheses using an original data set that provides the first broad view of European representative institutions in the medieval and early modern eras. I combine this with a GIS data set of state boundaries and populations in Europe between 1250 and 1750. The results suggest a strong effect of geographic scale on the format of political representation. The broader implication of this result is to provide a reminder that if institutions help solve contracting problems, ultimately the maintenance of institutions may itself depend on ongoing transactions costs.
1 Introduction

There is broad scholarly agreement that the development of representative political institutions was a critical part of the process of European state formation. Conceding a degree of control to a representative assembly has long been thought to have allowed rulers to raise more tax revenue, something that was critical in an era of incessant warfare. The presence of assemblies also arguably facilitated access to credit. Finally, some would suggest further that the presence of a strong representative assembly helped secure property rights and thus lay a foundation for economic growth. But if a representative assembly was such a useful institution why did strong representative assemblies not become the norm much earlier across the European continent? There may be multiple answers to this question, but I will emphasize one in particular - in an era of difficult communications and travel it was often prohibitively costly for representatives to attend an assembly meeting and nearly impossible for constituents to monitor actions of their representatives in the case that they did attend. This simple fact placed geographically compact polities in an advantageous position with respect to their larger neighbors. In smaller polities it was less costly to sustain an assembly and in particular the type of representative assembly that could meet sufficiently frequently to exert control over expenditure. While prominent work in political science investigates the development of representative institutions and constitutional government in Europe, this question of geographic scale has largely escaped attention within this debate.

The proposition that either democracy or republican government will be more likely to be sustained in small polities is a very old one, and scholars who have subscribed to this argument have emphasized several different mechanisms including the effect of scale on opportunities for participation, on the ability of citizens to know one another, and on the heterogeneity of a

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1 This is an idea that extends back at least as far as Sidgwick (1903) and which has more recently been emphasized by Beard and Lewis (1932), Bates and Lien (1985), Levi (1988), Hoffman and Norberg (1994), Finer (1995), Hoffman and Rosenthal (1997, 2000) and Dincecco (2009).

2 An idea most immediately associated with the work of North and Weingast (1989).

3 This has been emphasized for Europe in general by North and Thomas (1973), Delong and Shleifer (1993), and more recently by Acemoglu, Johnson, and Robinson (2005).

In this paper I make a more specific claim about the ability of members of a polity to sustain a representative assembly that is able to exercise a significant degree of control over expenditure decisions. To develop my argument I propose a simple theoretical framework that draws on two separate insights from the literature on corporate finance. First, actors (firms, state, or other) seeking to raise finance may need to agree to having their future actions be subject to outside control. Second, while the literature on corporate finance emphasizes that control of this type may be useful, it also emphasizes that those who exercise control may find it costly to engage in. This implies then that an institution that allows for outside control will be associated with greater access to finance, but we will only observe this institution in equilibrium if ongoing costs for those who must exercise control are sufficiently low. The question is how important geographic scale was as a source of these ongoing costs in medieval and early modern Europe.

My empirical analysis provides the first broad view of the long-run evolution of representative institutions in Europe prior to the French Revolution. In debates about "size and democracy" scholars frequently refer to lessons provided by ancient polities, such as Athens and Rome, as well as to more recent experience of republics founded in the late eighteenth century. What is often ignored is that the five centuries of European history prior to the French revolution provide another valuable setting in which to consider these issues. Following a period of institutional development in the thirteenth century, Europe throughout these five hundred years was characterized by a bewildering variety of representative assemblies that also varied extensively in the types of prerogatives they enjoyed. While none of these polities could be characterized as democracies, and they were almost inevitably dominated by narrow elites, this early history of representative government certainly still provides an important opportunity to investigate what determines whether a representative assembly can survive and exert a degree of control over an executive.

To test the hypothesis about geographic scale as a determinant of representative institutions I use an original dataset on representative assemblies in 24 European states over the period 5

See Dahl and Tufte (1972) for a concise review of classical debates on size and democracy.
between 1250 and 1800.\textsuperscript{6} For each state in each period (of half century duration) the data set records whether an assembly existed, information about specific prerogatives, and the frequency with which the assembly met. This secondary dataset is derived from information in historical sources covering the experience with representative institutions in individual European states. In order to test propositions about the effect of geographic scale on constitutional control I pair the data on representative institutions with information from a GIS data set recording state boundaries and city populations in Europe over this time period.\textsuperscript{7} I also complement this with data on representative assemblies in French provinces - a test of my hypothesis that relies on geographic variation within a single polity.

I present four specific types of evidence to test my core arguments. The first involves an investigation whether geographically compact polities were more likely to sustain a representative assembly that exercised control over expenditures. As I will argue below, there are firm reasons to believe that this intensive form of political representation could only be maintained if an assembly met frequently, and frequent meetings were less costly in small polities. I use two different measures of geographic scale: (1) the log distance that we would expect a randomly drawn individual to have to travel in order to attend an assembly meeting, and (2) the natural log of a country’s area in square kilometers. My estimates include controls for population size, war frequency, and also several different measures of the level of urbanization. The estimation results for the expenditure prerogative suggest a robust negative correlation, with an implied effect of large magnitude. I am not able to control for polity fixed effects in this estimation because of the very high degree of persistence observed in the expenditure prerogative over time. I am, however, able, to examine whether the correlation continues to hold when excluding certain sub-samples of the data - the smallest states, the largest states, city-states - that might be correlated with unobserved factors driving the result. I also show that the results are not likely to be driven by a problem of reverse causality whereby rulers in states without constraining assemblies were more likely to subsequently expand their territories.

\textsuperscript{6}These data were collected as part of a larger project investigating the joint development of public credit and political representation in Europe between the 13th and the 18th centuries (Stasavage, 2011).

\textsuperscript{7}The state boundaries derive from the Euratlas GIS data set (Nussli, 2003). I have merged this with data on the populations of towns and cities from the data base produced by Bairoch, Batou, and Chevre (1988).
The second type of evidence I present involves a more general investigation of the correlation between geographic scale and three separate assembly characteristics: (1) whether an assembly existed (2) whether it exercised effective veto power over taxation, and (3) whether it exercised control over expenditures. As I will discuss in detail below, while medieval and early modern assemblies in the latter category would need to meet frequently, there is no reason to believe that the exercise of veto power over taxation required frequent meetings. Assemblies often authorized new taxes at infrequent intervals of once every three, four, or even every ten years. If we found that veto power over taxation was also primarily present in small polities, we might then believe that a causal mechanism other than the one I have suggested is driving the results. In practice this does not appear to have been the case; large states were no less likely to have assemblies with veto power over taxation than were their smaller neighbors.

The third type of evidence I present involves a direct test of the relationship between geographic scale and the frequency with which an assembly met. I am able to demonstrate that there exists a negative correlation between geographic scale and the frequency of assembly meetings both when conducting an estimation in levels, as well as when conducting an estimation in first-differences that removes any unobserved factors specific to each polity. I also show that these results are unlikely to be biased by the fact that polities with weak assemblies had a greater tendency to expand.

The fourth and final piece of empirical evidence I present involves the behavior of French provincial assemblies during the Renaissance. While France had a national representative institution, the Estates General, it also had a large number of provincial estates that bargained with French monarchs over taxation. Several interesting conclusions are apparent from this data. As one would expect to be the case if geographic scale influenced the intensity of political representation, the estates of individual French provinces met more frequently than did the Estates General. It can be further demonstrated that estates in smaller French provinces, on average, met more frequently than did those in larger provinces. These results suggest that the principal problem in France may not have been a general weakness of representative institutions; it may instead have been the fact that France was simply too big to sustain an
active national assembly. We can also use the French data as an opportunity to provide an out of sample forecast of my cross polity regressions. As it turns out, the cross-polity estimates are actually an extremely good predictor of the frequency with which French provincial assemblies met. Finally, we can perform one further robustness test of my argument. If we drop the French Estates General from my data set and instead substitute data from thirteen French provincial assemblies to the pooled analysis we obtain almost identical inferences about the correlation between geographic scale and meeting frequency.

My empirical tests provide a strong indication that geographic scale was a critical factor determining whether a state could sustain a representative institution that would facilitate access to finance. There do, however, remain other possible explanations that I cannot adequately test with the data at my disposal. For these we can nonetheless refer to other forms of evidence. For example, one might suggest that larger polities found it more difficult to maintain strong representative assemblies because they had more heterogeneous populations. Without denying the importance of this preference heterogeneity mechanism in many contexts, it would seem difficult to use this to account for the observed correlation between size and constitutional control in medieval and early modern Europe. Large polities like France were heterogeneous, and in France the persistence of regional sentiment may well have hindered the operation of the French Estates General. But the smallest European polities - the city-states - were also very heterogeneous in terms of the wealth holdings of their citizens. All available evidence on wealth and income inequality in medieval European cities shows extremely high levels of inequality.\footnote{See the comparative evidence presented in Sussman (2008) who collected earnings data showing a gini coefficient of 0.75 in Paris in 1292.} Within city-states inequalities in wealth were a continual source of violent protest. The Republic of Genoa experienced 54 major revolts in the two hundred years between 1259 and 1528 (Epstein, 1996). This is a frequency of conflict which belies the idea that the maintenance of active representative institutions during this period was dependent on the existence of a stable civic culture.

The remainder of this paper is organized as follows. Sections 2 and 3 present the historical background and lay out the assumptions underlying the hypothesis that geographic scale will
determine the format of political representation. Section 4 next presents the data on geography scale and representative assemblies that I will use to test the argument. Sections 5 and 6 present the estimation results regarding assembly prerogatives and meeting frequency. Section 7 presents the analysis of French provincial assemblies. Section 8 then considers reverse causality and other endogeneity concerns. Section 9 concludes.

2 Scale and Representation in Early Modern Europe

Representative assemblies were a widespread feature of rule in medieval and early modern Europe. While the English parliamentary experience is the most frequently studied, it is now recognized that a very large number of European states had representative assemblies that often enjoyed significant prerogatives. Here I briefly summarize what is believed about the functions of assemblies and how geographic scale may have influenced the format of political representation. I then develop three explicit testable predictions of my argument in addition to identifying several potential confounding factors.

Functions of representative assemblies

What was the effect of having a representative assembly on a state’s ability to raise finance for war? It has been observed that the per capita tax burden was significantly higher in Great Britain (after 1688) and in the Dutch Republic, two states with strong representative assemblies, when compared with Castile and France, two states for which it is generally argued that assemblies exerted less of a constraint on executive actions. One potential problem with using these outcomes to infer a causal effect of representative assemblies is that Great Britain and Holland may have had higher per capita tax burdens for other reasons. If there is a fixed cost to a public good like defense, then in a smaller polity the per capita cost of this good will logically be higher. Also, a representative assembly and a higher tax burden may each be outcomes that depend on the willingness of a political elite to agree to finance.

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9 For surveys see Bisson (1973), de Lagarde (1939), Lousse (1937), Blockmans (1978, 1997), and Tracy (1994).
What is needed then is an explanation of why, holding constant exogenous influences on the willingness of a political elite to contribute, the presence of a representative assembly would actually increase the ability of an executive to raise finance.

One possible reason why an assembly might have an effect on the ability to raise finance is if it could exercise control over how finance was utilized. While many European assemblies had the right to consent to or refuse new taxes, in practice those that gained the greatest reputations for delivering revenues also enjoyed this further prerogative. With some simplification, we can divide European assemblies into two broad types. In a first category there were assemblies that had the power to consent to or refuse taxation but which did not exercise any subsequent control over how taxes were spent. Examples of this pattern would be the Cortes of Castile or (during certain periods) the French Estates General. In a second category there were those assemblies that could refuse or accept new taxation but which also exerted a degree of direct control over expenditures. This control involved two features: (1) regular auditing to ascertain the state of public finances, and (2) frequent intervention in decisions regarding not only taxation but also spending and debt. This second type of assembly was a characteristic of the city-states of Europe as well as of a select few other polities. In my sample these include the Dutch Republic, Great Britain (after 1688), the Estates of Saxony, and the Estates of Brandenburg (prior to 1650). But if assemblies of this type were more effective in raising finance then it raises a question - why did they exist in some places but not others?

The importance of geographic scale

While previous political economy work has emphasized the impact of giving a representative assembly a control right over finance, it has proceeded under the implicit assumption that once granted, it was relatively costless for an assembly to exercise this right. This might be a viable assumption for some polities in Europe during this period, but it is not tenable for others given the high travel and communications costs that prevailed. Spufford (2002 ch.4) suggests that following the collapse of Roman empire, the European road network continued to deteriorate and reached its nadir during the twelfth century. From this point a series of
small improvements occurred, but it was not until the eighteenth century - the end of the period considered in this study - that major improvements involving paved roads took place in many countries. As one striking example, Spufford notes that there was no bridge across the Rhine at Cologne from the collapse of the Roman built bridge until a railway bridge was built in the same location during the nineteenth century. In this context of difficult transport and communication there was an obvious difference in size between self-governing cities, other small polities, and large territorial states. In France during medieval times it regularly took travelers two weeks to travel from the Mediterranean coast to Paris (Reyerson, 1997). In contrast, in Holland none of the cities that had voting rights in the Estates of Holland during the sixteenth century lay more than a day’s travel time from the Hague (Tracy, 1990). In small city-states the barriers of geographic scale were lower still.

There are some historians who have emphasized that in Europe before the nineteenth century costs of travel and communication were a very significant barrier to maintaining an active representative assembly. The work of Wim Blockmans (1976, 1978, 1997) has been particularly important in this regard. Blockmans emphasizes how representative assemblies in small European regions, such as Flanders, tended to meet with a high degree of frequency whereas assemblies in large polities like France tended to meet less frequently; they sometimes suffered from chronic absenteeism, and there is direct evidence that their members complained about travel costs.\(^{11}\) The observation by Blockmans that geographic scale was an obstacle to organizing meetings of the French Estates General parallels that of a number of other historians.\(^{12}\) His observation also fits with the contrast observed by other historians between the Cortes of Castile and the Estates of Holland. Both assemblies maintained a practice where representatives were bound by strict mandates from their constituents. In Holland this proved to be no obstacle to the functioning of the Estates because representatives could continuously refer back to their home cities. In a polity the size of Castile this was simply not feasible.

James Tracy (2002) has argued that "The parliaments of the separate Low Countries provinces

\(^{11}\)See his discussion of the Estates General of 1468 (Blockmans 1997). Rystad (1987 pp.94-95) presents evidence on complaints of Swedish towns involving the high costs of sending representatives to the Swedish Estates.

\(^{12}\)See Fawtier (1953) for an early example, as well as Guenee (1968).
met more frequently than in any other part of Europe; this is certainly because of the fact that
distances were not so great as in large kingdoms like Naples and Castile". The numerous
city-states of medieval and early modern Europe provide the strongest contrast to far flung
polities like Castile or France where assemblies met infrequently. In city-states it was common
to have town councils meet every week, and there are clear indications of how small size could
facilitate their frequent meetings. City councils could often be convened by a town crier or by
a simple device like sounding a bell. The city council of fourteenth century Siena was known
as the Council of the Bell for precisely this reason (Bowsky, 1981).

The problem of geographic scale was arguably crucial not only because it raised costs for
representatives, but also because it raised costs for citizens of monitoring the actions of their
representatives when and if they did attend an assembly. The historical evidence I have cited
so far supports the notion that there could be significant costs to attending a representative
assembly. For an individual town that needs to send a representative to an assembly meeting,
funding costs of travel could prove prohibitive. But if this was the only obstacle to sustaining
an assembly, then it would seem to suggest several solutions. The size of constituencies could
be enlarged to reduce per capita costs of sending a representative. An assembly might also
be structured so that it met for longer periods at more infrequent intervals so as to minimize
travel costs. Finally, an assembly could also delegate authority to a standing committee
of a limited number of representatives. There is evidence that decisions like these led to
assemblies being effectively "captured" by executives. Individual towns or constituencies
found it increasingly difficult to monitor the actions of their representatives. The end result
then was that geographic scale still posed an important constraint on the ability to sustain
constitutional control of an executive.

Moving Toward Testable Predictions

The above discussion has used historical observations to suggest that maintaining a certain type
of representative assembly - one that could exert control over expenditure - could deliver in-

\[13\] See also the comparable comments of Koenigsberger (1992) on geography and its effect on representative
assembly behavior in Castile and Holland.
creased access to war finance, but this institution might only be sustainable in a geographically compact polity. Before proceeding with the empirical evidence, it is also useful to examine the problem in a more abstract setting in order to make explicit the mechanisms in operation and the assumptions upon which any predictions are based. To do this we can draw on two basic insights from the literature on corporate finance. First, when investors are uncertain about their preferences over future alternative actions, and they also know that these preferences may not coincide with those who manage a firm, then managers of the firm may need to cede a degree of control over future decisions in order to attract finance.\footnote{This is commonly known as conceding a control right. For a canonical model see Aghion and Bolton (1992) and Tirole (2006 ch.10) for a textbook illustration.} Second, in order to effectively exercise control, outside investors will need to regularly monitor, and monitoring is costly to engage in because it involves effort that could be used for other purposes.

Now consider one scenario that draws on the above two observations and applies them in a pre-modern European context.\footnote{In the online appendix to this paper I present this game formally. It is important to emphasize that this represents only one set of assumptions under which my argument about geographic scale would hold. It would also be likely to hold in other moral hazard models, such as that proposed by Cox (2010).} An executive (either a monarch or ruling magistrate) seeks to obtain war finance, either to defend against a threat or to pursue a possible opportunity. The executive shares a common interest with a representative citizen in not having his polity lose a military conflict, but he also enjoys an additional private benefit from the pursuit of military activities in the form of personal prestige or "ego-rents".\footnote{See Downs and Rocke (1994) for an important early example where the public relies on an executive to make decisions regarding defense, but the executive may be subject to "adventurism". Rosenthal (1998) presents a model specifically tailored to the early modern European context.} In this scenario the executive needs to obtain consent from the representative citizen to obtain finance.\footnote{In the pre-modern European context this assumption can be easily motivated by the fact that without tax bureaucracies executives often relied on local elites to collect taxes as well as to reduce the risk of revolt.} In this model the optimal level of war finance from the point of view of the representative citizen is not known in advance of the citizen’s decision whether to consent to a given level of taxation. The optimal level depends on a state variable that is realized only after the citizen’s decision, and even then it is not publicly observed. The state variable can be taken to represent features such as the immediacy of a military threat (or opportunity) or the situation regarding finances. The combination of an unobserved state variable with the executive’s incentive to obtain as
much war finance as possible creates a moral hazard problem. The moral hazard problem can be addressed if the citizen first agrees to a notional level of war finance (a set of taxes), but the executive gives the citizen a control right allowing the citizen to authorize or refuse expenditures. The final assumption in the model is that the citizen must pay an exogenously specified monitoring cost in order to observe the realization of the state variable. If the citizen cannot observe the state variable, there is no benefit from exercising control over expenditures.

Under the above set of assumptions, we will observe that any factor that increases exogenous monitoring costs will make it less likely that we observe a representative assembly that exercises control over expenditures. Since the executive’s moral hazard problem remains unsolved in this case, it also implies that citizens will be less likely to consent to a high level of taxation. I have suggested that in pre-modern Europe, geographic scale was an important determinant of exogenous monitoring costs. We can use the above framework to produce three empirically testable predictions.

(1) Assemblies in large polities will be less likely to exercise a prerogative to control expenditures.

(2) Assemblies in large polities will tend to meet less frequently. This is a complementary way to test the same argument, because effective monitoring will require frequent meetings.

(3) The prerogative to consent to or refuse taxation will not depend on exogenous monitoring costs, and therefore we should not observe a correlation between geographic scale and the presence of this prerogative.

Confounding Factors

The theoretical mechanism proposed above provides one reason why we might expect to observe a correlation between geographic scale and the format of political representation. However, there are several reasons why we might expect to observe such a correlation even if geographic scale did not matter in the way I have suggested.

A first possibility is that small polities may have had more active representative assemblies because they were at greater risk of invasion, and so their rulers may have had a greater
incentive to concede control to an assembly in order to raise war finance. I will attempt to control for this possibility in my statistical tests (albeit imperfectly) by including a measure of war frequency as an independent variable in my regressions. However, it is entirely plausible that the effect of external risk would actually operate in the opposite direction; as long as a population fears the effect of invasion, then the higher the level of external risk, the greater the likelihood that it would agree to increased taxation even without the concession that a representative assembly could then control spending. Were this the case it would imply a bias against finding in favor of my core hypothesis.\(^{18}\)

A second possibility is that small polities, by virtue of having small populations, faced higher per capita costs of defense, and per capita costs influenced the format of political representation. If citizens agreed to higher tax rates in order to meet these costs, they should then also logically be more willing to bear the substantial cost of maintaining a representative assembly in order to ensure that their taxes were used to greatest advantage.\(^{19}\) I will attempt to control for this possibility by using data on overall population sizes in my statistical tests. However, it should also be pointed out that as with external risk, the effect of per capita defence costs should logically be more ambiguous than the above argument implies. The reason is that higher per capita defence costs might make citizens less willing to consent to taxation in the first place.

A third possibility is that small polities in Europe also tended to be more heavily urbanized, and there are reasons to believe that urbanized, commercial societies might have a greater need for an active representative assembly that could help to regulate commerce.\(^{20}\) In my statistical tests I will deal with this possibility in multiple ways, examining whether any results are robust to the exclusion of city-states and to the inclusion of the best available controls for urbanization.

A fourth possibility involves reverse causality; the format of political representation might

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\(^{18}\)The formal model in the online appendix considers this issue more extensively.

\(^{19}\)The formal version of the argument in the online appendix develops this argument more explicitly.

\(^{20}\)One of the major themes in scholarly work on European state formation has been that the initial pattern of urbanization heavily influenced the pattern of state formation. Some suggest that zones of heavy initial urbanization were obstacles to the development of large states focused on coercion. See Roklan (1973, 1975), Blockmans and Tilly (1994), and Tilly (1990).
determine subsequent changes in geographic scale. In particular, it might be the case that
executives unconstrained by representative assemblies are more likely to pursue military ad-
ventures that result in territorial expansion, raising the cost of maintaining an assembly in
future periods.\textsuperscript{21} I will explicitly consider this possibility at the end of this paper, finding,
based on one empirical test, that there is no evidence for "reverse causality" of this form.

3 Systematic Evidence on Scale and Representation

There have so far been only limited attempts to compile systematic quantitative evidence on the
development of representative assemblies in Europe prior to 1800. This is unfortunate given the
broad variety of assemblies that existed during this period and the potential insights that could
be drawn from their experience. Among political historians there is actually a significant body
of work produced during the post-war period on the structure, prerogatives, and functioning
of representative assemblies in medieval and early modern Europe. I have drawn on this
work to compile a data set on the existence, prerogatives, and functioning of representative
assemblies in a broad sample of European polities. The sources used are as follows.\textsuperscript{22} Given
the difficulties of interpretation and the varying precision of the information on which they
are based, it is certain that my data are characterized by substantial measurement error. But
however imperfect this data set may be, it is also the case that it provides us with a broad
picture of the evolution of representative institutions in Europe of the sort that has not existed
previously.

\textsuperscript{21}This is simply another variant of the argument made by Alesina and Spolaore (2003) that dictators will
prefer larger countries because of the rents that accrue.

\textsuperscript{22}For reasons of space the bibliographic references to each of these sources is listed in the appendix to this
Major (1960), Dumont and Timbal (1966), Mousnier (1966), and Soule (1965). Genoa: Epstein (1996) and
The sample of countries included in the representative institutions data set includes most large states in Europe as well as a number of smaller states including small principalities, kingdoms, and city-states. Among this latter category the experience of Italian city-states is the best known, but there were also autonomous cities in other parts of Europe, particularly in the Low Countries, parts of Germany, and Switzerland. For the purposes of the present paper, however, I have been obliged to exclude most of these autonomous cities from the subsequent analysis because of insufficient GIS data about their exact geographic scale.\footnote{The appendix reports an analysis adding these cities with proxies for their geographic scale.}

Prerogatives of representative assemblies

I have focused on three separate questions involving the presence and prerogatives of a representative assembly. For each state for each period I have coded a "yes" or "no" response based on the sources listed in footnote 19.

1. \textit{Is there a representative assembly?} This condition is satisfied if there is a collective body at the level of the state that met with some regularity and had at least a consultative role in decision-making.

2. \textit{Is there a representative assembly the consent of which is sought in order to levy taxes?} This is a more restrictive classification for representative institutions. In many cases assemblies had the right to veto certain taxes but not others. The above question is coded "yes" for those cases where this prerogative applied to a large share of a country’s taxation.

3. \textit{Is there a representative assembly that directly controls decisions regarding spending?} Representative assemblies with the most extensive financial privileges played a direct role in monitoring and making spending decisions.

A summary of the evidence I have collected is presented in Table 1 though this summary table cannot track all changes in institutions over time. A quick glance at Table 1 reveals...
an interesting feature of the data - it is striking how the prerogative to control spending was present almost exclusively in small states such as city-states or principalities. In contrast, it does not appear that there was as strong a relationship between state size and presence of the prerogative that an assembly could consent to or refuse new tax levies.

**The intensity of political representation**

My data on meeting frequency is drawn from a wide variety of secondary sources, all of which are listed in footnote 19. The quality of this information varies from one polity to the next. In some cases, such as France or England, we have a complete listing of meetings by national representative institutions. In other cases the evidence is much more approximative. The data are nonetheless useful for addressing broad variation in the intensity of representative activity. I have coded a measure of the frequency of assembly meetings that ranges from 0 (no meetings) to 1, which represents a meeting taking place at least once a year. Since some representative assemblies actually met more frequently than once a year, this measure is artificially censored. I have opted for this approach because of the difficulty of measuring activity at intra-annual frequencies. The data, which are presented in summary form in Table 1, show significant variation in meeting frequencies across states with assemblies in smaller states on average meeting more frequently. There was also significant variation in meeting frequencies over time in some states, though this is not reflected in the Table 1 averages.

**Geographic scale**

I have suggested that geographic scale was an obstacle to maintaining an intensive form of political representation in medieval and early modern Europe. In order to empirically evaluate this argument we need to establish which geographical measures are most relevant and where we might find data covering such an early time period. The theoretical framework developed above takes the case of a representative citizen facing an exogenous cost of monitoring an executive. As an empirical measure, we might ideally want to know the expected cost for a randomly drawn constituent to attend an assembly. Being able to establish this quantity
would require knowing a polity’s boundaries and the geographic distribution of all members of its population. Not surprisingly, we lack complete data of this sort for Europe during this period. We can, however, make use of two proxy measures.

My first measure of geographic scale is the natural log of the distance (as the crow flies) that we would expect a randomly drawn urban citizen to have to travel to an assembly if it were held in a country’s capital city. In what follows I will refer to this measure as the polity scale. This will be a good proxy for my ideal measure (the distance for a randomly drawn citizen to travel) to the extent that the geographical distribution of the urban population is reflective of the geographic distribution of a country’s rural population.

My second measure of geographic scale is the natural log of a polity’s area in square kilometers. The greater the extent to which a polity’s population is uniformly distributed across its territory, the more accurate this measure will be as a proxy.

Country averages for the polity scale measure and area in square kilometers are presented in Table 1. These provide a good idea of the cross-country variation in these measures, but of course this presentation averages over away variation over time. A closer inspection of variation in log area over time shows that there is in fact very little in the data. If we regress the measure of log area on a set of country dummies we observe that fully 93% of the variation is accounted for exclusively by cross country variation. In contrast, a regression of the polity scale on a set of dummy variables for each polity produced an r-squared of 0.75.

The use of each of my geographic scale measures as a proxy for travel costs is based upon the implicit assumption that travel occurred on a route approximating a straight line from the location in question to a country’s capital. But it should be acknowledged that in some cases this will be misleading. Natural obstacles, such as mountain ranges, could oblige individuals to follow a more circuitous route. Alternatively, features, such as navigable rivers, could have dramatically reduced travel costs. This is particularly important given that throughout the period considered in this paper, travel by water was much speedier than travel by land, and important scholarly accounts have emphasized how access to and the development of
water transport influenced the process of state formation.\footnote{See in particular Fox (1971) and Bendix (1980).} Unfortunately, modifying my two geographic scale measures to take account of the availability of water transport would be a very large task indeed. The Euratlas GIS data set records the locations of rivers, but we would also need to know whether (and when) they were navigable, and in which direction, because a navigable river would not necessarily provide a quick route to the location of an assembly. It may be easier to proxy for the availability of water transport by sea by distinguishing between coastal and landlocked polities, as I will discuss below. Given the difficulty in constructing a measure of access to water transport (particularly by river), it is important to consider how my statistical results might be biased by a failure to control for the availability of water transport. If polities covering a large area had numerous opportunities for water transport, whereas smaller polities did not, say because they were located in mountainous regions, then we would be less likely to believe that a finding in support of my hypotheses actually reflects the influence of monitoring costs. It is worth noting that existing discussions of the subject do not suggest such a pattern. So, for example, Koenigsberger (1992) emphasizes how small geographic scale and access to water transport went hand in hand in facilitating an intensive form of political representation in Holland, whereas in Castile an extensive land mass combined with limited access to water transport to prevent more frequent meetings of the Cortes.

In addition to providing several measures of geographic scale, the combined GIS data set of polity boundaries and urban populations also allows for constructing two different urbanization measures that will be useful as control variables in my analysis. The first variable \textit{regional urbanization} is the percentage of the population living in towns or cities.\footnote{This is drawn from Bairoch, Batou, and Chevre (1988 p.259).} Unfortunately, it is only possible to measure this variable for regions corresponding to modern country boundaries, because we lack estimates of the total population (urban + rural) for some polities in my data set. This can nonetheless serve as a proxy measure for urbanization across broad regions.

I also make use of a second urbanization measure - \textit{urban potential}. Based on the measure proposed by Jan de Vries (1984) in his important study of urbanization in pre-industrial Europe, the urban potential of an individual city is simply the total population of all cities in
the data set weighted by the distance of each of these cities from the city in question.\textsuperscript{26} This gives a sense of whether a city is located within an urbanized region where there are numerous other large cities or whether it is indeed located in a much more sparsely populated zone. To get a measure of *urban potential* specific to each of my twenty four polities I then take the average of the urban potential values for each city within a polity.

### 4 Estimates for Assembly Prerogatives

I have hypothesized that geographic scale should place limitations on the ability of a polity to sustain a representative assembly that exercises a control right over expenditures. I have also hypothesized that geographic scale should pose less of a constraint on the ability to maintain an assembly with the prerogative of consenting to new taxation. In the medieval and early modern periods exercise of the first prerogative necessitated frequent meetings while exercise of the second did not.

**Control of expenditure**

I will test the first of the two hypotheses by using a pooled specification of the following form where \( y \) is a binary variable indicating whether a a control right over expenditure is present.

\[
\Pr(y_{it} = 1) = F(\alpha + \beta S_{it} + \gamma X_{it} + \theta G(T_t) + \varepsilon_{it})
\]  

(1)

In this specification the probability of observing that there is an assembly with control of expenditures is modeled as a function of \( S \), a measure of geographic scale (either the *polity scale* or *log area*) that has coefficient \( \beta \), a matrix of controls \( X \) with coefficient vector \( \gamma \), and finally a function of time \( G(T_t) \). I will estimate the equation using a logit model, including a cubic function of time in order to control for common time effects in the sample.\textsuperscript{27} Within the

\textsuperscript{26}Formally urban potential for city \( j \) is equal to \( \sum_{k=1}^{N} \frac{\text{pop}_k}{\text{distance}_{jk}} \).

\textsuperscript{27}This follows the suggestion of Carter and Signorino (2010) who in the case of a logit or probit specification detail the reasons for preferring this choice over a more flexible specification including period dummies.
set of controls I will use two specific measures of urbanization: *regional urbanization* and *urban potential*, each of which has been described in detail above. These are important to the extent we believe that more commercialized polities would have a greater need for maintaining active representative assemblies that could regulate commerce. The set of controls also includes the total population of a polity living within towns and cities - *urban population*. This is used as the best available proxy for a polity’s total population. Its inclusion is based on the possibility that polities with larger populations will face smaller per capita costs of raising an army, and this might influence incentives to establish and maintain a representative assembly that exercises control over expenditures. Unfortunately, estimates of total population exist for only a small sub-section of my sample countries.\(^{28}\) The final control variable included in \(X\) is the number of years in each fifty year period in which a given state is at war. This is an imperfect proxy for what we would ideally like to measure - exogenous risk.\(^{29}\)

While the specification above includes controls for unobserved time effects, it does not control for unobserved country effects. This choice is dictated by the fact that almost all of the observed variation in the spending prerogative occurs between countries and not within countries over time. As a second best strategy, I will also run the estimation while excluding several different sub-samples of the data - excluding the smallest states, excluding the largest states, and excluding city-states. The idea here is that certain types of states may have had other unobserved features that are not controlled for in my regressions.

Table 3 reports logit estimates of equation (5) with standard errors adjusted to allow for arbitrary within-polity correlation of errors.\(^{30}\) For each of the two geographic scale measures I

\(^{28}\)For those countries for which we do have estimates we can see that there is an apparent correlation between geographic scale and total population. Angus Maddison (2009) estimates that there were roughly one million people in the Netherlands in 1500 and almost 7 million in Spain. However, the correlation between geographic scale and population was far from perfect. Large and sparsely populated polities like Denmark and Sweden are estimated to have had populations of only six hundred thousand and five hundred and fifty thousand respectively. Importantly, we do not observe that the large and sparsely populated states in my sample had intensive forms of political representation.

\(^{29}\)The number of years in which a country was at war was collected from the study by Woods and Baltzly (1915), who provide information on wars in ten of my sample countries. This is still significantly less than half the sample, however, so the estimates where war prevalence is included as a control should be considered with this in mind. It is also the case that the pattern of missing data created here is certainly not random. In investigating the prevalence of war, Woods and Baltzly focused almost exclusively on territorial states of decent size, ignoring most small states and completely ignoring city-states.

\(^{30}\)The use of clustered standard errors here is particularly important given the absence of controls for polity
report six different specifications. The first controls only for common time effects. The three subsequent specifications exclude alternative sub-samples of the data to examine whether the results are influenced by a particular set of countries.\textsuperscript{31} The final specifications then consider whether the estimate of $\beta$ in equation 5 is robust to the inclusion of different control variables.

Considering first the specifications using $\log\text{area}$, we can see that the coefficient on this variable is negative and statistically significant in the base specification in column 1. In terms of predicted probabilities, if we consider the base specification in the first column of Table 3, then a polity at the 25th percentile of the scale distribution (a polity of approximately thirty thousand square kilometers) would be estimated to have a 0.42 chance of having an assembly that exercised a control right over expenditure. At the 50th percentile of the distribution this estimated probability would drop to 0.20, and at the 75th percentile it would drop to 0.04. The specifications in columns 2, 3, and 4 exclude different sub-samples of the data. When excluding the smallest quartile of polities we observe that the coefficient on $\log\text{area}$ is now slightly smaller than in the base specification, but it remains statistically significant ($p=0.03$). When excluding the largest quartile of polities, we observe that the coefficient on $\log\text{area}$ is highly significant and only slightly smaller in magnitude than in the base specification. In column 4 excluding the 5 city states from the sample also produces a negative and statistically significant coefficient on $\log\text{area}$.\textsuperscript{32} The final two estimates in columns 5 and 6 consider whether the correlation between $\log\text{area}$ and the presence of a spending prerogative is robust to the inclusion of control variables for population, urbanization, and war incidence. None of the control variables are statistically significant, and their inclusion does not significantly attenuate the coefficient on $\log\text{area}$. Unreported estimates in which the urbanization and population controls were entered separately instead of collectively produced very similar results. The regressions in Table 3 suggest a robust negative correlation between the $\log\text{area}$ of a polity and the probability that it will have an assembly that exercises a control right with regard to

\textsuperscript{31}In section 2 of the appendix to this paper I also report regressions on separate sub-samples for the north and south of Europe, with the Alps and the Pyrenees as a dividing line. The relationship between geographic scale and the presence of a spending prerogative was very similar in the two sub-samples.

\textsuperscript{32}Cologne, Siena, Florence, Genoa, and Venice.
expenditures. While this result is strongest when including city-states and the smallest states more generally in the estimation, there is little to suggest here that the correlation is driven exclusively by these polities.

When we turn to the specifications that use the polity scale variable, we continue to observe a negative correlation between geographic scale and the presence of an assembly that exercises a control right over expenditures. In the base specification in column 7 the coefficient on polity scale is negative and highly significant. In terms of predicted probabilities, at the 25th percentile of the size distribution the estimated probability of having an assembly with control of expenditures is 0.38; at the median of the size distribution this probability drops to 0.20, and at the 75th percentile it drops to 0.09. Turning to the specifications in columns 8 through 10, which consider different sub-samples of the data, we continue to observe a negative and statistically significant coefficient on polity scale when excluding the smallest quartile of polities. When excluding the largest quartile of polities the coefficient on polity scale is close to statistical significance (p=0.08). However, when we exclude city-states from the sample we observe that coefficient on the polity scale measure is no longer statistically significant. Finally, estimates in columns 11 and 12 consider whether any correlation between the polity scale measure and the presence of an expenditure prerogative is robust to the addition of control variables. The addition of controls for urbanization and population in column 11 leaves the result little changed. When using war years as a control (in column 12) the coefficient on the polity scale variable is substantially smaller, and it is no longer statistically significant, but the inclusion of this variable results in a reduction in the sample size by almost two thirds.

I referred above to the fact that my two measures of geographic scale are imperfect proxies for travel costs because, among other reasons, they do not take into account the availability of water transport. Dealing with this question effectively for river transport would present a considerable challenge. For the case of water transport by sea we can at least use a crude proxy for the availability of this form of transport by distinguishing between polities whose capitals were oceanic ports, as opposed to inland cities. I re-estimated the specifications in columns 1 and 7 from Table 3 and found that after taking account of this distinction the estimated
coefficient on \textit{log area} was larger.\textsuperscript{33} The estimated coefficient for \textit{policy scale} remained very similar to that in the original estimation. This is at least some evidence that failing to control for access to water transport has not led me to falsely conclude that geographic scale mattered for the form of political representation.

What overall conclusion can we draw from the regressions in Table 3? There is consistent evidence of a negative correlation between geographic scale and an intensive form of political representation in which a representative assembly controls expenditure. But does this then imply a causal effect of scale on representation? It might be the case that small polities had other features that were more important in determining the format of political representation. In these regressions I have controlled for one such possibility, that small polities were more heavily urbanized. I have also shown that the relationship between scale and representation holds if one excludes the smallest or largest states in the sample, so any unobserved features common to them are not driving the observed result. Finally, I have provided some evidence that the negative correlation between scale and representation is robust to the exclusion of the five city-states from the sample of twenty four countries. In addition to the possibility that unobserved factors are biasing my estimates, there also exists the possibility of reverse causality. In order to give this issue a more complete treatment, I will first proceed with my other core estimation results before returning to the issue of reverse causality in section 8.

\textbf{Generalized Estimation of Assembly Prerogatives}

So far I have focused on one specific prerogative of a representative assembly - the exercise of a control right over expenditures. I have done so because I have suggested that such a prerogative could only be exercised if an assembly met frequently, and the costs of meeting frequently would be increasing in the geographic scale of a polity. But my data set also records other features of political representation - whether any type of assembly existed, and whether an assembly had veto power over taxation - a prerogative that could be sustained even in an assembly that met infrequently. If the causal mechanism that I have proposed in this paper is

\textsuperscript{33}When including a dummy for polities with oceanic ports as capitals and an interaction between this variable and \textit{log area}, the coefficient on \textit{log area} was -1.41 with a standard error of 0.58.
to hold, we would expect to not observe as strong a negative correlation between the presence of these other prerogatives and geographic scale. To examine this possibility we can repeat the specifications in Table 3 with a different dependent variable - the presence or absence of an assembly with veto power over taxation. The results in some specifications show a negative and statistically significant coefficient on geographic scale, but the implied magnitude of this effect is small (see the appendix for full details).

I also conducted a more generalized test of the relationship between geographic scale and the different types of political representation observed in medieval and early modern Europe. To do this I used my assemblies data set to construct a variable denoted \textit{representation} with the following four values: 0 if a polity had no assembly, 1 if a polity had an assembly but which lacked tax and spending prerogatives, 2 if the polity had an assembly with veto power over taxation but not control of spending, and 3 if the assembly had control of both taxation and spending.\footnote{All observed assemblies that exercised a control right over expenditures also had veto power over taxation, so the data can be arranged in this form of scale.} I then used a multinomial logit model to estimate the following equation while setting the base category to 0. As with the Table 3 regressions, the specifications also included a cubic function of time, and all standard errors are clustered to allow for arbitrary intra-polity correlation.

\[
\Pr(\text{representation} = j) = F(\alpha + \beta S_{it} + \gamma X_{it} + \theta G(T_t) + \epsilon_{it})
\]  

(2)

In order to make the multinomial logit results as easy to interpret as possible, in Table 4 I present predicted probabilities from the estimates while relegating the raw regression coefficients to the technical appendix to this paper. Each line of Table 4 shows the predicted probability that an assembly will fall into a specific category, given a certain specified geographic scale. The predicted probabilities here are from a specification that does not include urbanization or population, but the results of such a specification (shown in detail in section 3 of the appendix) were very similar. Geographic scale is specified at different percentiles of the sample distribution for \textit{polity scale} and \textit{log area}. The results continue to suggest a neg-
ative and significant correlation between geographic scale and the presence of an expenditure prerogative. The implied magnitude of this effect is also quite large and consistent with the results obtained previously using a binary logit estimation.\textsuperscript{35}

What do the estimation results imply about the relationship between geographic scale and other types of assemblies? In the multinomial logit model by construction the probabilities of an assembly fitting into each of the four categories must sum to one. This then implies that if the probability of observing an assembly with an expenditure prerogative declines as scale increases, then some combination of the other three probabilities must be increasing in geographic scale. Interestingly, across the two sets of estimates (that is using either \textit{polity scale} or \textit{log area}) there is relatively little evidence that the probability of not having an assembly (\textit{representation}=0) or of having an assembly with no prerogatives (\textit{representation}=1) increases substantially with geographic scale. We instead observe that it is the probability of having an assembly with veto power over taxation (\textit{representation}=2) that is estimated to increase as a country gets larger. This result does not contradict my core theoretical argument to the extent that an assembly with veto power over taxation could be sustained with infrequent meetings. It should also be cautioned that this result about scale and veto power over taxation does not appear particularly robust to alternative modeling choices. If we exclude from the sample all cases where there was an assembly with control of expenditure, and we then use a binary logit model to estimate the probability of observing an assembly with veto power over taxation, we do not observe a statistically significant correlation between this prerogative and geographic scale.\textsuperscript{36}

\textsuperscript{35}I also estimated equation 6 while excluding the five city-states from the sample. The pattern of results was very similar to that observed in the Table 3 estimates - the correlation between log area and the presence of a spending prerogative remained robust, whereas the correlation with the \textit{polity scale} measure did not.

\textsuperscript{36}Despite the uncertainty over this result, it would be interesting for future work to consider what factors might produce a positive correlation between geographic scale and an assembly with veto power. It might be the case that as the geographic scale of a polity increases, citizens find it more costly to maintain an intensive form of political representation in which they monitor public finances and control expenditures, but simultaneously, as scale increases rulers might find that they have a greater need to obtain consent and cooperation from citizens (or more specifically local elites) in order to collect revenues. As a result, we might be more likely to observe the granting of veto power to an assembly.
5 Estimates for Meeting Frequency

I have argued above that in order to exercise certain prerogatives, such as a control right over expenditures, then an assembly would need to meet frequently, but the possibility to meet frequently was constrained by geographic scale. In this section, I extend the analysis by directly testing the prediction that assemblies in large states will meet less frequently. There are two important reasons for this additional test. The first reason is that in a context where there is an inevitable degree of measurement error in my data, an indication of how frequently an assembly met provides us with an alternative method of proxying for the degree of actual control exerted over expenditures. There may be cases where I have inaccurately classified an expenditure prerogative for a given polity, but data on meeting frequency may be more reliable, or the reverse may also be the case. The second reason is that even if there was absolutely no measurement error in either my prerogatives or frequency measures, for the purposes of this paper it would still be very useful to investigate the correlates of meeting frequency. If the presence of a control right over expenditure is the ultimate outcome in which we are most interested, but it does not exhibit significant within polity variation, then it could be useful to examine the correlates of a feature like meeting frequency if frequent meetings were a necessary condition for maintaining a control right. In theoretical terms if an assembly is to engage in activities such as monitoring public finances (verifying the state of the world) and taking corrective actions, it seems implausible that this could occur with infrequent meetings. Empirically, my data set strongly suggests that frequent meetings were necessary to sustain control of expenditures. There is only one example in the data of a polity where an assembly had a control right over expenditure, but it met less frequently than once a year (Saxony).

In order to investigate the correlates of meeting frequency, I use the data described above that for each state for each fifty year period record the estimated frequency with which an assembly met, with values ranging from 0 (implying there was no assembly) to at least once per year (coded as 1). I use the same set of control variables as in the Table 3 and Table 4 regressions, although in this case the shift from logit estimation to OLS estimation allows me
to use a more general specification for common time effects by including period dummies in the regression.\textsuperscript{37} The fact that meeting frequency exhibits significant within polity variation also allows me to adopt a specification that controls for unobserved country effects.\textsuperscript{38} I estimate equation (7) in both levels and first differences using my two alternative measures of geographic scale. In the estimation in levels the estimate of $\beta$ is potentially biased by the presence of the polity fixed effect $u_i$. The alternative procedure of first differencing the data removes this polity fixed effect but at the potential cost of reducing the degree of variation in my key variables of interest.

$$Frequenc_{it} = \alpha + \beta S_{it} + \gamma X_{it} + \theta G(T_t) + u_i + \varepsilon_{it} \quad (3)$$

Table 5 reports twelve different specifications of equation (7) with standard errors clustered by polity. I consider first the estimates using the log area measure of geographic scale. In the base specification (column 1) when estimating in levels we observe a negative and highly significant correlation with meeting frequency. The magnitude of this implied effect is also relatively large. An assembly in a polity at the 25th percentile of the size distribution is estimated to meet in more than one year in two (frequency=0.55). A polity at the 75th percentile of the distribution is estimated to meet less than once every three years (frequency=0.30). This result remains little changed when including the urbanization and population controls in the regression. The implied effect of scale is actually significantly larger in the specification that includes a control for war frequency, though it should again be emphasized that the inclusion of this variable may introduce bias by excluding a substantial number of sample observations.

When we move to the specifications in columns 4, 5, and 6, which are first difference estimations, the coefficient on log area remains negative, though it is not statistically significant.

\textsuperscript{37}Given that the measure of meeting frequency is censored at 1, tobit estimation might seem a preferable alternative here. The problem then posed is that if I attempt to control for polity fixed effects in my analysis the tobit estimator is known to exhibit very significant bias in the presence of these fixed effects. In section 4 of the appendix I present tobit estimates of equation 7 that do not control for polity fixed effects.

\textsuperscript{38}A regression of the variable frequency on a set of polity dummies produces an r-squared of 0.74. This still indicates a great deal of persistence in the data, but it is nonetheless significantly less than in the case of the spending prerogative.
at conventional levels (p-values range from .08 to .10). This is not particularly surprising. Given the high degree of persistence in the log area measure, there is relatively little variation remaining after first differencing the data, and so the estimates are considerably less precise.

If we turn to the specifications that use the polity scale measure we continue to see a negative correlation between scale and meeting frequency, and in this case the correlation is statistically significant in both the levels and first differences specifications. In the base specification in levels (column 7) an assembly in a polity at the 25th percentile of the scale distribution would be estimated to meet more than once every two years (frequency=0.54) whereas an assembly in a polity at the 75th percentile of the scale distribution would be estimated to meet only once every three years (frequency=0.35). In the specification in levels that includes the urbanization and population controls (column 8) the coefficient on polity scale is no longer statistically significant, but nor are the coefficients on the control variables. In column 9 we again observe a larger implied effect of geographic scale in the specification that includes war frequency as a control (the p-value on the coefficient is 0.10).

When we consider the specifications using polity scale that are estimated in first differences we see that the coefficient on this variable is negative and statistically significant in all three specifications. In the specification without controls the coefficient on polity scale is now smaller than in the estimation conducted in levels. In the two specifications including controls the polity scale coefficient is actually larger when estimating in first differences. While the results do vary from specification to specification, this suggests that at least in the case of this dependent variable and this scale measure, failure to control for polity fixed effects is not a substantial source of bias for my estimates.

As I have done with the estimates of assembly prerogatives, as one crude way of considering the effect of access to water transport, I also re-estimated the two base specifications in Table 5 (columns 1 and 7) while including a dummy variable for polities whose capital was an oceanic port, in addition to an interaction term between this dummy variable and the relevant geographic scale measure. For both the log area and the polity scale measures estimated
coefficients were slightly smaller in magnitude than in the base specification.\textsuperscript{39}

As a final step in the analysis, we might also want to ask a more basic question - within the data, which changes in the polity scale variable appear to be producing the negative correlation between changes in \textit{polity scale} and changes in meeting frequency? Changes in the \textit{polity scale} measure could have been driven by increases in territory size, but they might also have been driven by changes in the distribution of the urban population within a fixed territory. In practice we observe several cases of countries that expanded their size during the sixteenth and seventeenth centuries and which had assemblies that began to meet less frequently. Prussia, Piedmont, and the Kingdom of Naples are examples of this phenomenon. There were also instances where a country shrunk in size, such as Poland in the first half of the sixteenth century, and its assembly began to meet more frequently. Finally, in England there was a nearly 50\% significant reduction in the \textit{polity scale} measure between 1500 and 1600, tied mainly to the rapid growth of London. This change immediately preceded a sharp increase in the frequency of parliamentary meetings.

6 Evidence From French Provincial Assemblies

My focus in this paper involves the effect of geographic scale on representation at the level of an independent polity. But if there is an effect of scale on representation at the national level, then we might logically also expect to see a similar result for assemblies meeting in sub-national jurisdictions. France provides an important opportunity to explore this possibility. In addition to having a national representative institution, the Estates General, it also had a substantial number of provincial estates. There is some evidence on the frequency with which these assemblies met, and we can also construct measures of the geographic scale of these provinces. Examination of this evidence will serve several important purposes. First, we can use this evidence to assess an out of sample forecast from the Table 5 estimates. Based on these estimates, we have predictions for how frequently an assembly would meet given a polity’s size.

\textsuperscript{39}The estimated coefficient on the \textit{polity scale} variable was -.051 with a standard error of .019, and the coefficient on \textit{log area} was -.052 with a standard error of .027.
Does the French provincial evidence demonstrate that these forecasts are accurate? Second, we can investigate whether there is a statistically significant correlation between scale and representation within the French provincial sample. Finally, we can consider the following possibility. Say that we substitute the French provincial data for the data on the French Estates General used in the rest of this paper. Does this change our inferences regarding the effect of scale on representation? This final analysis is particularly helpful to the extent there is any uncertainty about the appropriate level of focus for representative institutions. For example, the Holy Roman Empire had an imperial diet, but rather than include this in my 24 polity sample, I have instead included several polities that were constituent parts of this loosely held empire. One might potentially make a similar argument for France.

Though space constraints prevent a more complete historical discussion of France’s provincial estates, it will nonetheless be useful to very briefly describe how they emerged, what functions they fulfilled, and to what extent they retained authority in the face of a steady advance of monarchical authority. It is widely acknowledged that during the Renaissance, a great many French provinces had active, estates based assemblies that tended to local affairs while also serving as the critical venue within which the crown would negotiate with local elites regarding taxation. J. Russell Major (1960) in his classic study *Representative Institutions in Renaissance France, 1421-1559,* insisted on the fact that when it came to consultation over taxation, the provincial estates actually played a more significant role than did the Estates General itself. Other authors have suggested why this may have been the case; in a polity on the scale of France and in an era of high transport and communication costs, it was much easier for French kings to have their agents negotiate with individual provincial assemblies than it would have been to sustain frequent meetings of the Estates General. However, there were also natural limitations on the fiscal control functions that could be accomplished by a provincial assembly. A provincial assembly could, if this privilege was granted, exercise veto power over taxes collected within its region. What it could not do was exercise effective surveillance and control over royal expenditures to the extent that these were spread over a vast territory.

\[\text{\textsuperscript{40}}\text{See in particular Fawtier (1953) and Guenee (1968) on this point.}\]
The issue of what happened to the French provincial estates after the Renaissance has been an issue of debate since the nineteenth century. The traditional view, expressed by observers such as Tocqueville, is that during the sixteenth, seventeenth, and eighteenth centuries the provincial estates gradually fell victim to steadily encroaching royal power. As the administrative capabilities of the monarchy grew, it could levy impositions without need for prior consultation, or so the argument goes. But recently, careful historical work has demonstrated how numerous provincial estates retained influence right up until 1789, and the reason they did so is that the crown continued to need them to aid in levying taxes.\textsuperscript{41} There is also evidence that French monarchs were able to use the provincial estates as intermediaries through which they would borrow funds (Potter and Rosenthal, 1997).

My goal in this section is not to form an overall judgement regarding France’s provincial estates. I will instead focus on a more narrow question - does available evidence allow us to judge whether geographic scale was a factor in determining how frequently French provincial assemblies met? No comprehensive data set exists on this topic, but we can make use of a list of meeting frequencies for thirteen French provincial assemblies in the fifteenth century that was constructed by Wim Blockmans (1976) using a number of different nineteenth and early twentieth century sources. In order to facilitate comparison with my cross country data, I have artificially censored the frequency measures for French provinces to take a maximum of 1.\textsuperscript{42} I have also been able to use the Euratlas GIS data base to provide an estimate of the area in square kilometers for the majority of each of these provinces. For the remaining cases I have produced an estimate based on the size of current regions. Individually, the French provinces cover areas ranging from seven to seventy thousand square kilometers, or between roughly the 10th percentile and the 50th percentile of the size distribution in my cross-country data set. The meeting frequencies and geographic scale for each French province are shown in Figure 1.

We can conduct three different analyses using the French provincial data. The first analysis is to consider an out of sample forecast of my cross polity regressions. To do this I ran a cross-

\textsuperscript{41}See the historiographical essay in Swann (2003 ch.1) as well as Legay (2001).
\textsuperscript{42}Full details of the data and analysis with uncensored data are presented in section 5 of the appendix.
sectional regression of meeting frequency on log area using the 1450-1500 time period from my cross-country data set. The result of this regression is reported in the first column of Table 6. Using this estimate we can then produce a forecast of meeting frequency for each of the thirteen French provinces based on their log area. This forecast is represented by the trend line in Figure 1. As can be seen, for a number of provinces there is quite a striking correspondence between the forecast from the cross-polity regression and the actual meeting frequencies. There are only two major outliers; these were the Estates of Brittany and Normandy that met much more frequently than the expectation based on their large size.

A second analysis we can conduct is to investigate the relationship between scale and representation within the sample of thirteen French provinces, excluding any information or prediction from the cross-country sample. In an OLS regression of meeting frequency on log area the coefficient on log area is negative and approximately of the same magnitude (-.068) as that seen in my cross-polity regressions, but in this small sample of thirteen observations it has a relatively large standard error (.085) and is not statistically significant. Repeating the regression after excluding Brittany and Normandy as outliers results in a much stronger relationship. After this change, the coefficient on log area is -0.25, its standard error is only 0.05, and the r-squared of the regression is 0.65.

As a final step, we can conduct an experiment where we replace the observation for the French Estates General in the cross-polity sample with all thirteen observations for the different French provincial Estates (including Normandy and Brittany). We can then examine the relationship between meeting frequency and log area in the new sample of thirty-three observations. The estimate of this equation is shown in the second column of Table 6. As can be seen, the results are strikingly close to those obtained when considering only cross-polity evidence including the French Estates General. This is further powerful evidence in favor of the link between geographic scale and the intensity of political representation.

Several important conclusions can be drawn from the French provincial evidence. For one, we observe a relationship between scale and representation even when looking at units within a single country, an investigation that does not involve a comparison between tiny city-states.
and much larger entities. We can further conclude that very large polities often described as having weak representative institutions may have in fact had strong assemblies, but just not at the national level. Rather than suffering from a general weakness representative institutions, the more fundamental problem may have been that France was simply too big to sustain an active assembly at the national level.

7 Endogeneity Concerns

The estimates in sections 4, 5 and 6 have demonstrated that there is a strong negative correlation between geographic scale and the intensity of political representation. There are two concerns one might have before suggesting that this result is causal: (1) both scale and representation may have been caused by an omitted factor, or (2) political institutions may have determined geographic scale. So far I have provided significant evidence regarding the first possibility, and here I will briefly summarize that evidence. I will then present the results of several additional tests that can allow us to make judgements about the issue of reverse causality.

A first possibility is that both scale and representation may have been determined by an omitted factor. So, for example, if a number of the smallest states in my sample were city-states, these polities may have had other characteristics that led them to maintain active representative assemblies and to not expand their territories. If the political elite of a city-state was concentrated on commerce, they may have needed an active representative assembly to regulate commercial affairs, and they may have concentrated on trade rather than territorial expansion. There are potential prima facie problems with this type of argument. It is known that the Italian city-states in my sample did engage in territorial expansion, though this was less characteristic of city-states north of the Alps. In addition, the evidence I have presented strongly suggests that the correlation between scale and representation was not driven by a only one type of polity. We can see this first by noting that the correlation remains consistent when including controls for urbanization. We also have evidence that it remains robust when
excluding the smallest quartile of states from the sample or when excluding city-states. In the paper I have also presented evidence from first difference estimates that remove unobserved and fixed country effects from the data. Finally, the evidence on French assemblies shows us that even within a single polity, we continue to observe that within smaller territories, representative assemblies tended to meet more frequently. Overall, the evidence against this form of endogeneity bias appears strong even if it may not be incontrovertible.

Though I have just documented the reasons why my statistical results are robust to a number of different potential omitted variables, it is worth considering one further possibility explicitly. One can draw a distinction within medieval and early modern Europe between small polities that were formed as part of a bottom up process whereby groups asserted their independence from some overarching authority, as opposed to larger polities formed by an accretion of conquered territories. It is worth considering what exogenous features allowed "bottom up" polities to form in some places but not others. This is a question that is of inherent interest. It is also relevant to the extent that these exogenous features may have subsequently directly favored the maintenance of an intensive form of political representation. Say it was the case that for some idiosyncratic reason individuals in one area had a high level of trust in one another. We would expect such a community to more easily overcome barriers to collective action to establish its independence. We might well also expect such a community to find it easier to subsequently maintain an active representative assembly. Were this the case we might then inaccurately conclude that it was small geographic scale, instead of a high initial level of trust, that allowed for maintenance of an intensive form of political representation. This potential endogeneity critique would apply most directly to the city-states within my sample, but I have already shown that my statistical results are generally robust to excluding city-states from my regressions. There is also another important feature to note here; the appearance of city-states was rarely purely a bottom up process, as it was instead also favored by a prior collapse of princely authority. Elsewhere (Stasavage, 2011) I have argued that the development of the majority of Europe’s city-states in a central band running from northern Italy to the Low Countries was attributable to the specific manner
in which the Carolingian empire collapsed during the middle of the ninth century. To the extent that city-state development was influenced by this external factor, it would minimize the potential bias in my estimates induced by the fact that these polities emerged only in localities that had certain special characteristics.

The second major possibility of bias in my estimates would involve reverse causality. Existing theoretical work suggests that leaders who are less institutionally constrained will prefer and be able to expand their territories so as to garner more rents. There might also be a more static version of this account. Perhaps at some initial point in time different types of political regimes emerged - a republican variant where cities asserted their autonomy and a monarchical/absolutist variant where large states were formed by conquest, and after that point leaders sought to maintain their size. The evidence I have presented on changes in scale and changes in meeting frequency argues against this more static variant - a constant effect of initial conditions would be removed by the first differencing procedure. In addition, the French evidence also argues against this particular form of reverse causality, because France did actually have active assemblies despite being a large monarchy. The problem was that France could not sustain a similar intensity of representation at the national level. Finally, this argument about states inheriting absolutism or republicanism as a result of the manner in which they were born also seems contradicted by one further piece of evidence; if the argument were to hold we would also expect to observe that large states had weak assemblies across all dimensions, including with regard to veto power over taxation, but this was clearly not the case.

We can also consider an additional way to examine the possibility of reverse causality by examining the dynamic relationship between geographic scale and the format of political representation. If the contemporaneous correlation between geographic scale and political representation is being driven by the fact that the latter causes the former, then using the time structure of the data, we might well expect to observe that the correlation of current political regime with future geographic scale is even stronger. To test this possibility, Angrist and Pischke (2009) recommend estimating an equation of the following form where $R$ denotes
a measure of political representation (either the presence of a prerogative or frequency of meetings). If the coefficient $\beta_2$ is statistically significant, then this could be consistent with the interpretation that my main results might exhibit a bias due to reverse causality.

\[ R_{it} = \alpha + \beta_1 S_{it} + \beta_2 S_{it+1} + \gamma X_{it} + \theta G(T_t) + u_i + \varepsilon_{it} \]  

(4)

I performed the test described above for each of the first difference specifications in Table 5 in which the polity scale measure was used (full results are shown in the appendix). The coefficient $\beta_2$ was actually positive in all cases, though it was not statistically significant (with p-values ranging from .14 to .15 in the regressions using the polity scale measure). This suggests that if anything, a high frequency of assembly meetings appears to have been associated with an increase in future geographic scale - the exact opposite of the reverse causality hypothesis. I also used the same test to examine (in a logit setting) whether my estimates in Table 3 regarding a spending prerogative might be biased by reverse causality and found that the coefficient $\beta_2$ was never statistically significant while the $\beta_1$ coefficient remained significant.

What can we conclude from this analysis? Once we control for current geographic scale there is essentially no indication that polities with weaker representative assemblies tended to grow at a faster rate than those with assemblies that met frequently and which exercised control over expenditure.

8 Conclusion

In this paper I have argued that for a significant part of European history, geographic scale posed a serious constraint on the possibility of maintaining an active representative assembly. It did so because in larger polities individuals found it more costly to attend meetings of an assembly and, equally importantly, because constituents found it more costly to monitor their representatives. Geographic scale thus played a critical role in determining the type of political institutions that could be sustained. My conclusions have implications both for the specific process of European state formation, as well as for our more general understanding of
the functioning of democratic institutions. For Europe, it has long been suggested that the development of representative institutions was a critical part of state formation, and a major reason for this involved the role that representative institutions played in allowing sovereigns to raise finance for war. My study demonstrates that while an institution, such as a representative assembly, may indeed have helped to reduce transactions costs between sovereigns and citizens, the maintenance of an active assembly was itself dependent on ongoing transactions costs. In light of my evidence, it also would be particularly interesting to ask whether the emergence of active representative assemblies in large polities beginning in the late eighteenth century was dependent on improvements in communications and travel technologies. These changes would have lowered costs of traveling to an assembly, and equally importantly, they would have lowered costs for constituents seeking to monitor their representatives. Today, in wealthy countries modern technologies make it possible to sustain active representative assemblies even in large polities, but there are still certainly areas of the globe where geographic scale is relevant for the reasons considered in this article. Existing work, such as that by Herbst (2000) has analyzed how scale hinders attempts by African governments to "broadcast" their power, but it might also consider how scale also hinders attempts by citizens to constrain rulers. In the end, irrespective of whether we are considering a context in which distance still matters, or one in which modern technologies have made it less relevant, the specific empirical findings of this article help contribute to a more general message. Accountability does not just depend on the formal establishment of an institution; it also depends critically on the ongoing costs that individuals face in collecting, processing, and acting on information.
References


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Table 1: **Descriptive Statistics on Representative Assemblies.** "Assembly" refers to whether a representative assembly existed. "Taxes" records whether an assembly’s consent was required for levying new taxes. "Spending" records whether an assembly had a prerogative over expenditures. "Frequency" refers to the number of meetings in a fifty year period, divided by fifty. The measure is averaged across the sample years (1250-1800), and it is censored at a maximum of 1. "Polity scale" refers to the average of the polity scale measure in kilometers over the period 1250-1800. See text for description of measurement of the polity scale.
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Table 3: Logit estimates of probability of having an assembly with prerogative to monitor and make expenditure decisions. Heteroskedastic consistent standard errors clustered to allow arbitrary within-country correlation. Estimates include a cubic function of time but time coefficients are not reported.
Table 4: Predicted Probabilities from Multinomial Logit Estimates of Assembly Prerogatives

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The table reports predicted probabilities and their associated standard errors based on estimates of equation 4 excluding controls. The base outcome is no representative assembly. Each scale variable is considered at the 10th, 25th, 50th, 75th, and 90th percentiles of the sample distribution. Full results of these estimates with raw coefficients are reported in the appendix.
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<td>(.103)</td>
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<td>(.116)</td>
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<td>(.006)</td>
<td>(.004)</td>
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<tr>
<td>R²</td>
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<td>.27</td>
<td>.46</td>
<td>.06</td>
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<td>.13</td>
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Table 5: **OLS Estimates of Meeting Frequency.** Estimates reported alternatively in levels and in first-differences. Heteroskedastic standard errors clustered to adjust for arbitrary within country correlation. Period dummies included in all estimates but not reported.
Figure 1: Meeting Frequency of French Provincial Estates: Graph shows meeting frequency of French provincial estates in the fifteenth century as collected by Blockmans (1976). Trend line represents fitted value from regression in column 1 of Table 6.

<table>
<thead>
<tr>
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<th>Countries only (including French Estates General)</th>
<th>Countries and French provinces (excluding French Estates General)</th>
</tr>
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<tr>
<td>ln(area)</td>
<td>-.107 (0.035)</td>
<td>-.106 (.032)</td>
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<td>constant</td>
<td>1.78 (0.41)</td>
<td>1.81 0.34</td>
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<td>.337</td>
<td>.333</td>
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<td>21</td>
<td>33</td>
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Table 6: Meeting Frequency Estimates OLS estimates with heteroskedastic consistent standard errors. The "countries only" estimate is based on the 1450-1500 time period. The "countries and French provinces" estimate adds French provinces while removing the French Estates General.