# Fuzzy boundaries and three-legged tables. A comment on ecological and spatial dynamics in Bas van Bavel's *Manors and markets*<sup>1</sup>

This essay criticises the book Manors and markets by Bas van Bavel from a spatial and ecological perspective. It argues that the choice of case studies would have profited from a better definition of their socio-economic features. In particular, the borders drawn for Holland seem chosen somewhat at random, with little respect for soil types and changes therein over time. This makes it difficult to follow Van Bavel's thesis regarding the rise or the increase in large urban properties with short-term leases in the sixteenth century. That in turn is a major component of the discussion of to what extent institutional arrangements or other elements such as ecological and geographical change explain regional differences.

#### Introduction

The new socio-economic synthesis of the Middle Ages by Bas van Bavel is a courageous and beautiful attempt to write a comparative study. The thesis is that the regional structures developed in the early and high Middle Ages in the Low Countries exercised an important influence on later developments, resulting in distinct paths of regional development.<sup>2</sup> While I like the comparative approach at the regional level, a comparative study demands a high representative quality of data. The argument for the choice of case studies deserves attention, therefore, and the definition of those case studies is also important. I shall focus particularly on the spatial demarcation and developments due to ecological or geographical change.

## Regions with fuzzy boundaries

In the introduction, the question of 'what is a region' is discussed. Size seems to be an important criterion as follows from this citation:

A crucial aspect in the economic development of the Low Countries is the size of these regions. In many parts of Europe, regions like these would be much larger [...] the most similar are perhaps the 41 farming counties of England

<sup>1.</sup> I thank Dagomar Degroot for his kind linguistic advice.

<sup>2.</sup> B. van Bavel, Manors and markets. Economy and society in Low Countries, 500-1600 (Oxford 2010) 9.

and Wales, [...] 4000 km² on average. Bigger regions are probably found in the north of France and the north of Germany. In some parts of Europe perhaps much smaller micro-landscapes can be found, but their scale is mostly too small to be considered a socio-economic region.<sup>3</sup>

For the English example Van Bavel gives a reference; for the others none at all. Presenting a general claim without evidence and turning that into a starting point for a book is remarkable. A further comparative inquiry into the size of socio-economic regions in the rest of Europe would have been helpful. In the same paragraph Van Bavel states that there were 20-25 of these regions in the Low Countries but does not identify them. He subsequently describes the five 'most conspicuous' ones, which he chooses as the main case studies, yet the reader does not get a chance to discover how this set of five compares to the rest.

Second, the boundaries of the different regions are not very clear. In this respect, Holland is a good example. The socio-economic region Holland is identified politically in table 2.1 as the 'major part of the former county of Holland plus the western part of the Nedersticht'; and with regard to soil quality as 'peat'. The map on page 16 does not help the reader, for the boundaries of Holland are unclear. It is especially ambiguous whether the north of Holland (Noorderkwartier) is considered a part of Holland: is the IJ a border or not? Is it true that the author wants to investigate only the peaty part of the medieval county of Holland, so whatever other soils may exist are not part of the case study? What sort of Holland is this? Does van Bavel mean the early modern Holland that included both modern Noord- and Zuid-Holland? Or is this what the medieval contemporaries saw as Holland, as 'county of Holland' seems to indicate? Then should it be without Kennemerland and West-Friesland, i.e. without current Noord-Holland? Indeed, this is how Van Bavel described the same case study in an earlier work, but there it was named the 'Holland peat lands'.4

Furthermore, how do we know that this Holland entity is a so-called socio-economic region? Van Bavel does not define his criteria for Holland's socio-economic unity, but states only that it was part of a political unity (county) and determined by a certain soil type (peat). However, does that not refer merely to a political-geographic region? How would it make it a socio-economic region? Maybe a socio-economic criterion could comprise market integration, which might be influenced by a particular infrastructure, like transport

<sup>3.</sup> Van Bavel, Manors and markets, 26.

<sup>4.</sup> B. van Bavel, 'People and land: rural population developments and property structures in the Low Countries, ca. 1300-c. 1600', *Continuity and Change* 17:1 (2002) 9-37, 11.

<sup>5.</sup> The weakly founded selection of case studies make it very difficult 'to falsify claims' and contribute to 'reduce the methodology from a comparative study to the juxtaposition

facilities offered by the Old Rhine, the Zuiderzee and adjoining rivers. In that case, how does the author perceive the meaning of the water divide in the peat area between the Rijnland and the Grootwaterschap Woerden, seen of old as a very difficult border to overcome? Besides, why would one want to cut off the clay soils (along the rivers) and sand soils (geestgronden along the dunes) from the peaty grounds? Is there something special that makes the peaty grounds into a socio-economic region? Has that possibly to do with some of the basic questions of the book, relating to specific, regional institutional arrangements, such as the property structures?

One thing is clear. The area considered by Van Bavel's book comprises the entire territory of the Rhineland Regional Water Authorities, the part of Holland between Amsterdam, Haarlem, Den Haag and Gouda. In our analyses of the history of this territory, Milja van Tielhof and I have concluded that the sandy soils along the dunes and the clay soils along the River Rhine formed the backbone of agrarian society. In particular, water levies raised at these soils kept the finances of the regional water authorities intact. This was the fundamental condition for the conservation of the land and the guarantee that the land would continue to remain functional for both agriculture and peat mining (i.e. that it was not flooded by the sea or rising groundwater levels). The symbol for this situation is the low tariff of the levies on the peat soils. In my opinion it was the integrated use of the three types of soil (clay, sand and peat) which was typical for this part of Holland.<sup>6</sup>

### Sweeping the countryside in Holland

In the following, I apply the general points of criticism made above to one strand of the argument: the sweeping changes of the countryside of Holland. In the sixteenth century a transformation occurred in Gelderland, characterised by an enlargement of farms and the transition to short-term leases (tijdpacht). According to Van Bavel, something similar happened in the same period in Holland: 'small peasant farms were gradually replaced by large tenant farms. [...] that really swept away the link between non-agricultural activities in the countryside and small farms and subsistence farming'.<sup>7</sup> This is

of a handful of micro studies', as Jord Hanus states in his contribution to this discussion file

<sup>6.</sup> M. van Tielhof and P.J.E.M. van Dam, Waterstaat in stedenland. Het hoogheemraadschap van Rijnland voor 1857 (Utrecht 2006) 312; P.J.E.M. van Dam and M. van Tielhof, 'Losing land, gaining water. Ecological and financial aspects of regional water management in Rijnland, 1200-1800', Water management, communities, and environment. The Low Countries in comparative perspective, c. 1000-c.1800, special issue of Jaarboek voor Ecologische Geschiedenis (2005-2006) 63-94, 86.

<sup>7.</sup> Van Bavel, Manors and markets, 301.

an interesting statement for we have always wanted to know how the great modernisation and commercialisation of Holland's countryside came into being. This is how it happened:

Wealthy burghers invested in [...] urban debts and in land. They bought many plots of land from peasants, thus turning small-scale peasant property [...] into large-scale burgher property. [...] A new pattern of large land ownership also [my italics PvD] emerged in the newly reclaimed polders, which came into being mainly through investments by wealthy burgers, as happened in the Beijerlanden, the first polder in Holland, reclaimed in 1559. Around the middle of the sixteenth century, 35 percent of the land in Holland was owned by burghers and urban-based institutions [...] This resulted in the rise of large land ownership, a significant increase in the availability of leased land, the emergence of large tenant farms, and a breakthrough to agrarian capitalism in Holland, which took place in the late sixteenth and seventeenth centuries.<sup>8</sup>

In other research there is no evidence for an increase of urban landownership in the sixteenth century.9 In contrast, research by Van Tielhof focusing on peat villages in the Rijnland, the core of Van Bavel's socio-economic region, tells the following story. The distribution of landownership revealed a dramatic development. Properties were reduced to tiny parcels in the course of a few generations, resulting in the proletarisation of the agrarian populace. This proletarisation did not coincide with processes of accumulation of capital and concentration of production. The establishment of large agrarian enterprises was dependent on the reclamation of mires and lakes, and that followed with a substantial time lag. Only very few peat lakes were reclaimed in the sixteenth century and only north of the IJ - thus outside Van Bavel's medieval Holland. Most reclamation in the Rijnland occurred in the eighteenth and nineteenth centuries. Deep underwater peat mining (slagturven) significantly delayed the socio-economic transformation. It meant an enormous intensification of land use.10 The evidence for this statement is derived from four representative peat villages, and it combines statistical data about changes in parcel sizes and distribution over time with research into inheritance practices.11

<sup>8.</sup> Van Bavel, Manors and markets, 259-260.

<sup>9.</sup> Compare how Tim Soens interprets our view as published in Van Tielhof and Van Dam, Waterstaat in stedenland in: T. Soens (ed.), 'Threatened by the sea, condemned by man? Flood risk and environmental inequalities along the North Sea Coast (1200-1800 AD),' in: G. Massard-Guilbaud and R. Rodger (eds.), Environmental and social inequalities in the city. Historical perspectives (Cambridge 2011) 91-111.

<sup>10.</sup> M. van Tielhof, 'Turfwinning en proletarisering in Rijnland 1530-1670,' Tijdschrift voor Sociale en Economische Geschiedenis 2:4 (2005) 95-120, 120-121.

<sup>11.</sup> Van Tielhof, 'Turfwinning', 114-116.

One might question how Van Bavel could arrive at outcomes which are so different from those of Van Tielhof. What we need to find in his Holland south of the IJ is evidence for a general increase in short-term leases and the concentration of agrarian properties. Discovering a rise of large, short-term lease property would be even better, and finding an increase of large urban property with short-term leases would be best of all. We also need to uncover a causal chain in which large, urban short-term lease (farmed) property increased to the detriment of small, not-leased (peasant-owned) property.

In his study *Transitie en continuïteit*, Van Bavel compares four miniregions, and one of them, the Land van Culemborg, represents the typical socio-economic characteristics of the Holland-Utrecht peat region. His conclusion is that the urban property in Holland increased from 1580 onwards because all criteria were met. Before that, changes were *cyclic*. In the article 'Rural development and landownership in Holland c. 1400-1650', Van Bavel aims to add more evidence for the increase of urban property in the countryside in three ways: first, an analysis of a set of fiscal records of some fifty villages in Holland, dating from 1560 (the so-called *Tiende Penning*); second, a survey of urban property in new polders; and third, the history of lease right. I have to resort to this article because *Manors and markets* does not provide further evidence for the thesis about the increase of urban property in the countryside, nor does it provide substantial quantitative evidence like tables or graphs for any other theses.

In the first set of evidence, Van Bavel counts the property distribution by social group for the central and south areas of Holland (between the sea arm IJ and River Lek; and south of the Lek) as follows. For the central area he finds 25 percent of the land owned by individual burghers and 16 percent by urban institutions; for the south this is 19 and 9 percent, respectively.<sup>15</sup> In *Manors and markets* he presents the average as 35 percent.<sup>16</sup> However, the total land covered by this case study of fifty villages is only 13 percent of the surface of Holland, and he provides no information about the selection of villages, and therefore about how representative the data are. Are these villages selected because their fiscal records happen to be published by a variety of authors as note 52 suggests (at random)? And what about the proximity to cities, a factor that has a high explanatory value for villages with high percentages of urban

<sup>12.</sup> B.J.P. van Bavel, Transitie en continuïteit. De bezitsverhoudingen en de plattelandseconomie in het westelijke gedeelte van het Gelderse rivierengebied ca. 1300-ca. 1570 (Hilversum 1999).

<sup>13.</sup> Van Bavel, Transitie en continuïteit, 431 and 646.

<sup>14.</sup> Bas van Bavel, 'Rural development and landownership in Holland c. 1400-1650', in:

O. Gelderblom (ed.), The political economy of the Dutch Republic (Aldershot 2009) 167-196.

<sup>15.</sup> Van Bavel, 'Rural development', Table 1.

<sup>16.</sup> Van Bavel, Manors and markets, 260.

ownership?<sup>17</sup> Is it possible that records of these villages are better preserved and have been published for that reason or selected for this case study, rather than the levies of villages with low urban property?

Furthermore, apart from many real peat villages (villages situated on peat soil, I would say), other villages as well are included (Wassenaar on sandy *geestgrond*, Capelle aan den IJssel on river clay, many villages on the Hollands isles and in Delfland on young sea clay such as Kethel). In some cases there may be doubt about the soil quality, because some villages may be on border lines, and the curious feature of Holland is that the soil changes over time: peat layers evaporate (oxidise) or disappear through peat mining in the central area, clay layers deposited by sea and rivers come to the surface, or clay is added once more through floods, in particular in the south of Holland, both on the mainland and on the large river isles (*waarden*) in the late Middle Ages. Here it would have been very helpful to have a map showing where the selected villages were situated.

Other than these uncertainties, there is no evidence that the urban property in the so-called peat villages gradually increased. Van Bavel has no evidence for continuity between 1560 and the data from the end of the sixteenth century onwards. The cyclical argument of *Transitie en continuïteit* remains valid. It may well be that extreme tax pressure in the middle of the sixteenth century induced some temporary increase of urban property in some villages. Or perhaps some religious institutions happened to sell off some parcels; after all, incidences of this kind are known for the 1540s. <sup>18</sup> This continued after the dissolution of these institutions at the end of the century.

In this respect, it is of interest that the 35 percent mean represents very large differences. Some villages had no or very little urban ownership, some a great deal. These urban properties may have had a special function for citizens, like peat mining or gardening for private consumption, rather than being a good investment in market-oriented large farms. In addition, Van Bavel presents a few examples of very large farms owned by citizens, but there is no way to tell how representative they are; in fact, they may have been rare exceptions, and there may have been equally large properties of locals.

In the second (small) set of evidence about the increase of urban landownership, Van Bavel focuses on the new polders. Here only two polders dated to the sixteenth century appear, Beijerlanden (1557) in the south of Holland and Wieringerwaard (1597-1610) in the very north of Holland. The other evidence is from the famous seventeenth-century lake reclamations (*droogmakerijen*) in the Noorderkwartier, north of the IJ, like the Beemster polder. This is all very interesting evidence, for indeed the participation of urban investors was high.

<sup>17.</sup> Van Bavel, Transitie en continuïteit, 370, 522.

<sup>18.</sup> C.L.E. Cornelisse, 'Het verveningsbeleid van de abdijen in de late middeleeuweri', *Holland* 36 (2004) 181-204,193, 201.

The thorough financial analyses by Han van Zwet of these northern reclamations confirms this high urban participation.<sup>19</sup> Yet of all these examples, only the Beijerlanden polder can be used for Van Bavel's argument for the increase of urban property in his sixteenth-century Holland, and that is exactly what he does in *Manors and markets*.<sup>20</sup>

However, within the limits he sets for his book, the Beijerlanden polder is exceptional. It cannot sustain his argument. The high participation of citizens in the Beijerland polder does not reflect a general increase of urban property in the peat area (because there is no evidence for a general increase), and the data for the Beijerlanden polder do not constitute that desirable increase either, because the Beijerlanden polder was no longer part of the peat area at the time of reclamation. In contrast, the polder was entirely covered by clay when it was reclaimed in the sixteenth century, the result of decades of sedimentation after the dikes had broken and the land was abandoned.

The high percentage of urban investors in the Beijerland polder was special, but not necessarily unusually so when set in its own geographical region. I presume something similar happened on the other river isles (*waarden*) like the Zwijndrechtse Waard, Riederwaard and Krimpenerwaard, which were submerged for a long time in the late Middle Ages, following a sustained period of agricultural decline, and were reclaimed again afterwards because they became very fertile again as a result of sedimentation.<sup>21</sup> For instance, in the case of the fifteenth-century polder Nieuw-Reijerwaard, one of the first reclamations of the submerged Riederwaard, strong indications exist that the burghers of Dordrecht were involved.<sup>22</sup> One may wonder to what extent

<sup>19.</sup> Han van Zwet, Lofwaerdighe dijckagies en miserabele polders. Een financiële analyse van landaanwinnngsprojecten in Hollands Noorderkwartier, 1597-1643 (Hilversum 2009) 414-458. It includes much new material on the Schermer. For the early sixteenth-century reclamations, the thesis of Van Zwet is that the prime character of the urban investors is not economic (urban) but political (The Hague as government seat). The reclaimers chose investors who could help them to get the necessary licenses and overcome conflicts with other interest groups such as towns.

<sup>20.</sup> Van Bavel, Manors and markets, 261.

<sup>21.</sup> P.J.E.M. van Dam, 'Schijven en beuken balken. Een sociaal-ecologische transformatie in de Riederwaard,' in: B. Wouda (ed.), Ingelanden als uitbaters. Sociaal-economische studies naar Oud- en Nieuw-Reijerwaard, een polder op een Zuid-Holland eiland (Hilversum 2003) 11-44. Also substantial reclaimed accretions (gorsen) contributed to the high fertility of the islands, like Voorne and the Riederwaard: M. Damen, 'Charity against the odds. Margaret of York and the Isle of Voorne (1477-1503)', in: D. Eichberger, A. Legaré and W. Hüsken (eds.), Women at the Burgundian Court: presence and influence (Turnhout 2010) 58; B. Wouda, 'Rentabiliteit van buitengronden. De ingelanden van de Zuidpolder op IJsselmonde als investeerders en aandeelhouders,' Themanummer De Nieuwe Waterstaat, Holland 36 (2004) 279-303.

<sup>22.</sup> B. Wouda, Een stijgende stand met zinkend land. Waterbeheersingssystemen in polder Nieuw-Reijderwaard 1441-1880 (Hilversum 2009) 32; L.J. Pons, 'Passen en meten. De land-

urban investment was also important in the polders in the adjoining isles of Zeeland, just south of Holland, both in and before the sixteenth century. The recent study *Geld in het water* by Cornelis Dekker and Roland Baetens shows how burghers of Antwerp and Mechelen invested in the reclamation of Zuid-Beveland in the decades following the submersion of 1530 and subsequent years.<sup>23</sup> Hence, investing in new polders on submerged isles in the delta is not a special phenomenon of or restricted to Van Bavel's Holland, and most examples cited here are outside his area. To summarise, I am not convinced that in the sixteenth century the percentage of large urban property in the countryside in Van Bavel's peat Holland increased because his main evidence is based on the clay soils and on a special part of Holland.

However, I gladly agree with his argument in Manors and markets that something very interesting happened to the institutional arrangements regarding lease rights in sixteenth-century Holland, the third piece of evidence he presents for his thesis. The authorities reduced the insecurity of the land and lease market.<sup>24</sup> Part of the primarily qualitative evidence for this is also found in the article mentioned above. I find both his description of this change and its explanation convincing. The security for the property owner increased because written lease contracts became obligatory, and the end of the contract period became clearer and more automatic, as part of that contract. No further action on the part of the landlord was necessary to terminate the lease. Claims to re-letting (nahuur) and inheritance of leases were also prohibited, and selling and leasing through public bids were ordered. New norms about such practices were issued from 1515 onwards by the Estates of Holland. From the middle of the sixteenth century, according to Van Bavel, the authorities which enforced these new norms through verdicts were the Court of Holland (Hofvan Holland) and the Great Council (Grote Raad). They can be interpreted as Habsburg institutions, influenced by a modern bureaucratic mentality, which was fed by a revival of Roman law. To this I can add that the domanial administration strove to set a good example. The Holland Chamber of Accounts endorsed a policy aimed at public auctions of domanial rights, including fishing rights, from the end of the fifteenth century onwards. A special officer to oversee the auctions was appointed in 1502.25 Van Bavel's tax argument is valid as well. The Habsburg Empire was in constant need of

inrichting bij de herdijking van de polders Oud- en Nieuwe-Reijerwaard in respectievelijk 1404/05 en 1442/34,' in: Wouda, *Ingelanden als uitbaters*, 71-112; F. Keverling Buisman, 'Ongehoorzame ingelanden. Tiendprocessen in de Reijerwaardse polders in de vijftiende en zestiende eeuw,' in: Wouda, *Ingelanden als uitbaters*, 71-112, 120.

<sup>23.</sup> Cornelis Dekker and Roland Baetens, Geld in het water. Antwerps en Mechels kapitaal in Zuid-Beveland na de stormvloeden in de  $16^e$  eeuw (Hilversum 2010) 219-248.

<sup>24.</sup> Van Bavel, Manors and markets, 169-170.

<sup>25.</sup> P.J.E.M. van Dam, Vissen in veenmeren.De sluisvisserij op aal tussen Haarlem en Amsterdam en de ecologische transformatie in Rijnland 1440-1530 (Hilversum 1998) 198, 203, 211.

money in order to finance its large wars, and so the taxation mechanisms had to become more effective. As a result, measures of centralisation and standardisation were introduced at the beginning of the sixteenth century. Old taxes and levies were raised at new rates, as we discovered in our own research for the water levies, and new taxes were introduced.<sup>26</sup>

My analysis leads to the conclusion that in order to comprehend the differences between Van Bavel and other scholars, a major clue is discerning between qualitative and quantitative changes, and being precise about changing spatial demarcations. From the first quarter of the sixteenth century onwards, institutional arrangements that secured property rights and favoured short-term leases improved. We do not know figures about how and where the number of short-lease contracts increased, but the court verdicts applied to all of Holland. This is a strong qualitative statement. In Holland south of the Lek, the increase in the size of lease properties did occur to the detriment of small peasant properties and the increase of urban landownership, but primarily on clay soils, mostly on relatively new, fertile grounds deposited on old, sunken peat soils. Yet this quantitative development had already started before the sixteenth century. Hence for this region in the sixteenth century, it may well have been reinforced by the qualitative changes regarding lease arrangements. One may wonder what came first: the need for new arrangements demanded by entrepreneurs on the new soils ('from below') or the application of more modern laws ('from above'), as mentioned above?

In central Holland, and in particular between the IJ and the border between Rijnland and Schieland/Delfland (the 'The Hague line'), there is insufficient evidence for an increase in large urban lease properties to the detriment of small peasant properties. In contrast, there is sound evidence that in the villages situated on peat soils, quantitative changes only occurred after 1600, mostly even after 1700, primarily because in the seventeenth century the very few new polders (*droogmakerijen*) were very small. Summarising the differences: Van Bavel's model of sweeping change in sixteenth-century peat Holland is mainly based on part of the clay Holland south of the Lek (Beijerlanden), and the model of a persisting peasant property structure proposed by Van Tielhof is based on peat Holland between The Hague line and the IJ (Rijnland). The analysis of the mixed clay and peat area in between does not provide enough support for his model. As a result, Van Bavel's claim for an increase of large urban property with a short-term lease in Holland is not convincing.

<sup>26.</sup> Van Tielhof and Van Dam, Waterstaat in stedenland, 99-105.

#### Conclusion

My fuzzy boundary judgment applies not only to the synthesising level of the book *Manors and markets*, but also to Van Bavel's earlier research on Holland on which the book is firmly based. As a result, the book resembles a stack of three-legged tables, a set of conclusions and hypotheses resting on a precarious foundation. The next question should be: so what? Many historians make models with varying sorts of evidence. Modeling where the evidence is scant is the very trademark of great scholars. The proof of my critique is in applying it to the central argument of the book *Manors and markets*. How does the acrobats' balancing affect the conclusions of the book? The conclusion fitting the preceding analysis is: 'Holland experienced the biggest change since it developed from a very egalitarian society of free, small-scale producers in the 13th and 14th centuries to the most polarised, capitalist society in the 16th and 17th century.'27 This is also phrased as:

The most conspicuous of these regions [where institutional frameworks of factor markets stimulated rapid growth, PvD] was Holland. The relatively equal distribution of property, both in town and countryside, and the fairly even spread of power and the near absence of feudal elements allowed for flexible, accessible, and secure markets for capital, labour, land, and goods. [...] This region offered the institutional framework that was most favourable to specialisation, investment, and growth through its thriving markets.<sup>28</sup>

In the final argument, the growth of urban landownership that promoted the new form of short-term lease on the lease market is apparently no longer important. Instead, it is the relatively equal distribution of property, both in town and the countryside, the even spread of power, and the near absence of feudal elements which were the real causes of such market changes. I hope Van Bavel means that the former argument with regard to the spread of bourgeois landownership in Holland offers the interior or regional explanation of the lease market, whereas the new argument in the conclusion is the comparative argument. Otherwise, I am lost here. It would have been helpful if Van Bavel had put some more chronological references in his concluding remarks.

At the end of this contribution, I want to emphasise once more that this is an excellent book. Although I do not agree with all logical strands of the argument, and I primarily discussed landownership in Holland, the book deserves high praise for its intelligence, complexity and nuance, and of course for the enormous amount of work that it represents. It is delightful food for thought

<sup>27.</sup> Van Bavel, Manors and markets, 394.

<sup>28.</sup> Van Bavel, Manors and markets, 402.

for medieval historians of many kinds. The theses are daring and stimulate deep thinking and new questions. At least one new empirical and quantitative PhD project might result from it: how did lease contracts change in the sixteenth century? Maybe the series of lease contracts can be reconstructed from notary archives, which are better indexed by the year.

Finally, I would like to challenge Van Bavel regarding his ecological footprint as an historian. How can he incorporate soil changes as an agency of historical change into his institutional economic modeling? For instance, how does he account for geographic or ecological change as an element of the 'otherness' of Holland, as part of its regional specificity? Which European region can boast that large areas have renewed their soil in the Late Middle Ages? How did that improve the strength of institutions?

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