

Regional and Urban Development in Europe*

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Abstract

This chapter provides an overview of the historical economic development of regions, their successes and failures, their advances and retreats, which can help to make place-based policies more effective. We review data and literature on regional and urban development from antiquity to 1914, the year of World War I. We discuss common data sets and sources, and go on to reflect on empirical methods and common challenges. We review the historical urban and regional economic literature on the role of the church, the impact of wars, crises, and events that shaped Europe's cities and regions, then institutions, trade, and finally industrialization. We conclude with an outlook for the future of historical urban and regional economic research.

Keywords: Review, Regional and Urban Development, History, Europe, Persistence

JEL Classification: A33, N01, N13, N93, R10

*Usual Disclaimer.

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1 Introduction

Much of today's political and economic institutions originated in cities. Cities formed the first states and housed the first universities. Historically, they have always been the centres of economic activity, trade, craftsmanship, and innovation. Understanding their origins and long-term development is therefore of vital interest to economic historians, economists, and political scientists. Regions, as small subnational territorial units larger than cities, are also instructive. The study of regions allows us to understand why economic development is very unevenly distributed within countries. Such spatial disparities are inefficient, and it is therefore desirable to have information on policies that effectively mitigate them and promote regional convergence processes. Analyzing the historical economic development of regions, their successes and failures, their advancement and retardation, can help make place-based policies more effective.

We review data and literature on regional and urban development from antiquity to 1914, the year when World War I began, and the so-called long 19th century ended. This is a dynamic and rapidly growing area of research. Therefore, it is not possible to provide a comprehensive overview of all research. We may therefore be forgiven for focussing on a few areas that we consider particularly important for explaining Europe's long-term development and for not being able to address all relevant topics and work within the scope of this review.

The period from antiquity to the end of the long 19th century covers the major events that shaped European economies, from the fall of Rome to the Reformation to the Industrial Revolution. Accordingly, the literature covered in this article is vast, encompassing a wide range of topics, countries, and methodologies. It would be going too far, at the expense of depth and clarity, to include the 20th century here.

Most economic historians work in core European countries and conduct research mainly on these. There is still much to learn about the European periphery. Countries like Britain, Germany, France, Italy or Spain have been studied much more intensively than countries like Russia, Poland, Hungary, or Romania. The task of economic historians in the future will be to make the data on these countries available and to compare their development with that of the European core.

The most general conclusion from our review is that the regional and urban development

of Europe from antiquity to the long 19th century seems to be characterized by a remarkable degree of persistence. The core of today's European economy includes all the regions that, to varying degrees, have been part of the historical core of the European economy since the Middle Ages. Having said that, we also note that even within this core region there have been many setbacks and comebacks, and we also see permanent declines such as that of Spain after 1300. The persistence of shocks and historical developments thus depends on the nature of the shock, its transmission mechanism and its interaction with previous and subsequent developments.

We begin our article with a discussion of data sources and types of data that are being used and may be used in the future. Then there is a discussion of methodological challenges and issues. We then review the literature on the very long-term roots of this development in antiquity, discussing the role of the church, the impact of wars, crises, and events that shaped Europe's cities and regions, the role of major pre-industrial innovations, and then institutions, trade, and finally industrialization. Structuring the literature in this way balances the trade-off between discussing studies that deal with similar issues in different periods and research that deals with different developments in the same period. The church began to play a role in the early Middle Ages and continued to do so until the end of our period of observation. Crises, wars, and epidemics have certainly plagued Europeans throughout history, but the literature usually begins with an analysis of the Black Death in the 14th century and then continues until the Napoleonic Wars. The analysis of major pre-industrial innovations such as the printing press, the mechanical clock, and double-entry bookkeeping, all of which occurred between the 14th and 16th centuries, is therefore next on the list. The discussion of institutions begins with an analysis of urban political institutions in the late medieval and early modern periods and continues through the institutional reforms that occurred as a result of Napoleon. Similarly, the analysis of trade begins in the late Middle Ages, with the Hanseatic League, the Champagne Fairs, the rise of the northern Italian and southern German trading cities, and continues until the first period of globalization in the second half of the nineteenth century. We then discuss the causes and consequences of the European Industrial Revolution in the 19th century. Finally, we conclude with an outlook on the future of historical urban and regional economic research.

2 Data

There are three main types of data with a spatial dimension on which most of the empirical research on historical regional and urban economic development in Europe is based: The most comprehensive source of historical data with a spatial dimension are printed publications of official statistics such as population and occupational censuses, trade registers, patent records, immigration lists, health statistics and the like, but also smaller collections of data on specific regional topics. In recent years, many of these records have already been digitalised and made available through data collections. The availability of digitalised data reflects the activities of the economic history community. Many economic historians work at universities in the European core such as France, Germany, Britain, and Spain. Therefore, for these countries, much more digitalised data is available. Still, data from official statistics, with few exceptions, are only systematically available from the 19th century onwards. A second source of data, especially important for the research on the ancient period, where the data availability is rather limited, is data that can be extracted from maps and atlases showing the location of archaeological sites or the location of streets, trade routes, and other features. The third main sources of data can be found in local archives, e.g., tax and tariff records, church records, legal and official documents, cadaster data on economic transaction from medieval merchants, and much more. In this section, we present the most important sources for historical research on European regional and urban development, broken down by time periods.

2.1 Pre-Historic and Ancient Data

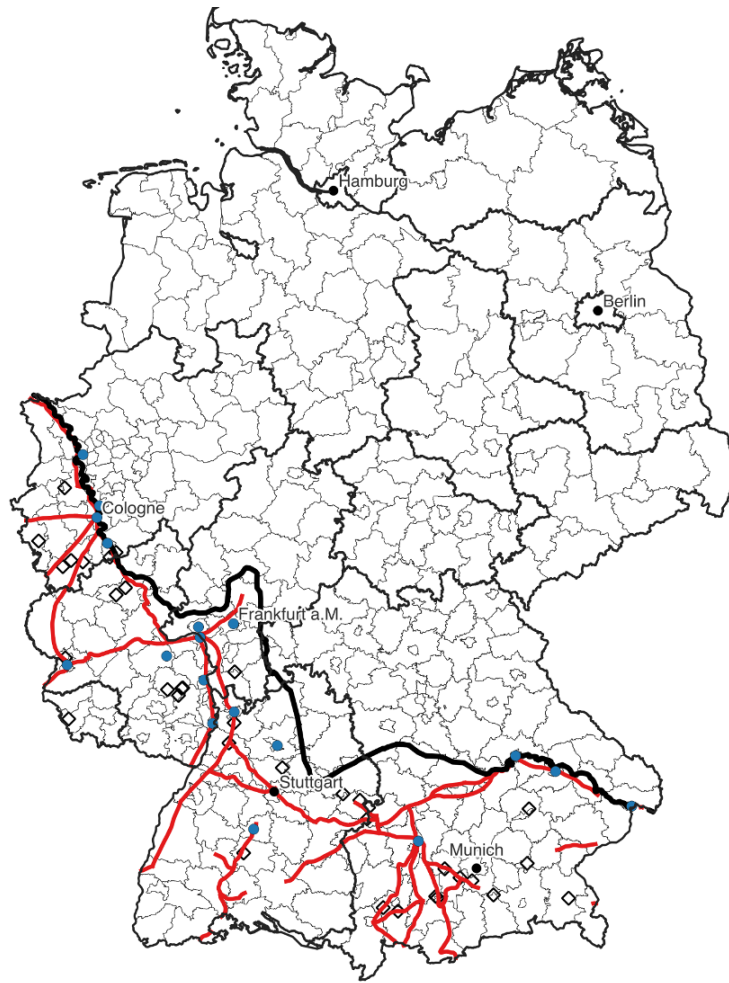
Data sources for prehistoric and ancient periods are generally scarce, and information is often limited and rather general. Most information is available on important settlements, religious and cultural sites, and economic facilities such as markets, harbours, or mines. They are the result of archaeological discoveries and are therefore prone to selection and survival biases, especially if the finds are from very early periods. Archaeological excavations are expensive and, therefore, sites are chosen so that there is a high probability of finding something there. Just because we know that bronze weapons were found in one place does not mean that they were made there.

Additionally, soil quality plays an important role in the choice of excavation sites and objects. There may be places where many objects could have been found, but the soil has

affected the decomposition in such a way that the objects cannot be recovered or identified as human. Such biases will remain and need to be addressed even though archaeologists will make more data available. Especially if improved technology gives economists more data from excavations in the future, the impression could be given that the multiplicity of data and excavation sites will make these biases disappear.

For the Roman Empire, there is data on the location and type of settlements, and on Roman roads, their location, quality, and whether archaeologists are certain or uncertain about their course. The main source of this kind of information is the *Barrington Atlas of the Greek and Roman World* (Talbert 2000), which also contains information on the Iron Age. This atlas has been digitised and is available as a collection of online maps on the website of the *Digital Atlas of Roman and Medieval Civilizations (DARMC)* (McCormick et al. 2013). The boundaries of the Roman Empire and its provinces are also available from *Euratlas-Nüssli*, a company that provides shapefiles of European boundaries, settlements, and geographical features at centennial intervals starting in year one and reaching until 2000 (Nüssli and Nüssli 2008).

The *Pleiades* database is a gazetteer of some 37,000 places and settlements from the Roman and Greek periods. It includes information such as the period and type of settlement. Another valuable source is Lund University's *Digital Atlas of the Roman Empire (DARE)*. More detailed data are available for many European countries and regions from specific archaeological research, for example, information on the location of smaller Celtic settlements in Germany can be found in the monographs on the Celts in Germany by Rieckhoff and Biel (2001) or Menghin (1995). More recently, Flückiger et al. (2022) used geocoded information on more than 246,000 excavated sherds of Roman fine wares from the *Samian Research* database of the *Römisch-Germanisches Zentralmuseum* in Mainz.



*Note:*The Limes Germanicus (Upper-Germanic and Rhaetian Limes) is the solid black line. Red solid lines are major Roman roads. Black diamonds indicate the location of a Roman market or mine. The thinner borders indicate NUTS3 regions (counties); thicker borders indicate Federal States. Blue dots are Roman settlements, black dots are main cities in contemporary Germany that did not exist as major settlements in the Roman era.

Figure 1: Data on Roman Presence and Celtic Settlements for Germany

Figure 1 gives an example of the Roman and pre-Roman data available for Germany. It shows the Roman limes (border of the empire) through Germany (in bold black) and the main Roman roads (in red). Markets or mines from the Roman period are represented by diamonds, and the blue dots are Roman towns and cities. Overlaying the historical data, the thin black borders are the current NUTS 3 regions, and the thicker borders are the

federal states. If one were to overlay the Roman road network with the modern highway network, one would see that they overlap closely. Some modern highways are almost identical to Roman roads, such as the A8 from Karlsruhe to Munich via Stuttgart (Wahl 2017). Finally, there are few atlases, such as Bahn (2000), that provide information on all types of archaeological sites, ruins, and other remains of prehistoric and ancient civilizations, from the Mesolithic to the Romans, Incas, and early Chinese dynasties. This information can also be used to study the very early origins of regional development in Europe.

2.2 Medieval and Early Modern Data Sources

The classic source on premodern urban population, the most common proxy for economic development before the 19th century, is Bairoch, Batou, and Chevre (1988). The book provides urban population figures for European cities for every century between 800 and 1700 (except 1100), and also for 1750 and 1800.¹ Numerous studies of long-term urban development in premodern Europe have made use of this database. Recently, Buringh et al. (2020) presented a database on major church building activities in seven Central European countries between 700 and 1500. They argue convincingly that regional differences in major church building activity are likely to reflect regional differences in economic prosperity. As such, church building activity could be an alternative regional development indicator for the Middle Ages, especially if the database is expanded to more countries. Another alternative source for measures of premodern development is the database of biographies of famous people presented in de la Croix and Licandro (2015). It allows one to identify the locations of centres of science, commerce, art, and politics going back to the year 2450 BC.

In general, there is more and better data for cities than for rural areas. For the German-speaking area, the main source of information on urban history is the “Deutsche Städtebuch” (Keyser and Stoob 1939–1974). It is a collection of encyclopedic articles on the history of all 2,392 places in Germany within the 1937 borders of the German Empire that were granted city rights at some point in their history. Each entry covers the period from its foundation (or first mention) to the 20th century and includes information on the political, economic, and administrative history of the city. The “Deutsche Städtebuch”

1. Recently, Buringh (2021) has presented an updated and expanded version of the Bairoch city population data set, including values for 700 and after 1800 and covering more cities.

is a reliable and - in terms of its information - uniquely comprehensive historical source for the history of German cities.² Several studies on the economic development of pre-modern German cities have relied on the *Deutsches Städtebuch* as an important source of data.³

In addition to these widely used sources, researchers have also relied on handpicked information and project-specific data collections from various sources, such as historical monographs or maps. For example, Dittmar (2011) has measured the early adoption of the printing press using information from the British Library's "Incunabula Short Titel Catalogue", a catalogue of books printed between 1454 and 1500. Data on medieval trading centres are available from Wahl (2016). He consulted numerous individual sources, including maps of trade routes and monographs on medieval trade or the Hanseatic League, to build his database of medieval and early modern trading centres. Data on major outbreaks of the plague can be taken from Biraben (1975) or on Black Death mortality rates from Christakos et al. (2005). There is also comprehensive information on wars and battles (place and year). It is available from several sources, most notably Bradbury (2004). Alfani, Gierok, and Schaff (2022) is an example of a study that combines data from different types of sources and for urban and rural communities. They present a unique, newly assembled dataset on wealth inequality in 105 German localities (of which 76 are rural and 29 urban) between 1300 and 1850, based on tax records from a wide variety of secondary and primary sources.

For data on states and territories, an account of all states of the Holy Roman Empire and their constitutional histories is provided in several volumes of the "Deutsche Verwaltungsgeschichte" (German Administrative History) by Jeserich, Pohl, and von Unruh (1983). Alternatively, researchers can consult written accounts and encyclopaedias on the history of German states, such as Köbler (1988) or Sante (1964). For state borders, the most widely used source is the collection of shapefiles and maps provided by Nüssli and Nüssli (2008). Another source for historical boundaries is the Centennia Atlas, an online atlas. In these maps, the large number of smaller states, which are particularly prevalent in the

2. One shortcoming is that the level of detail of the entries varies considerably between the cities included. For large cities such as Cologne or Berlin, the information is more detailed than for small towns. Thus, working with the *Städtebuch* is not without its challenges when including a large number of different cities.

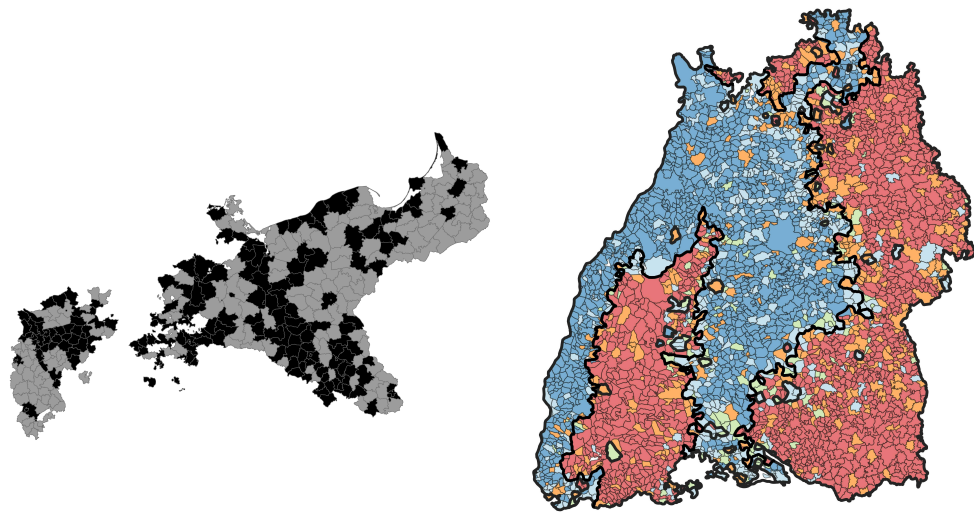
3. The most prominent of these are the studies by Cantoni and Yuchtman (2014) and Dittmar and Meisenzahl (2020), both of which use detailed data on construction activity and market establishment. Wahl (2019) and Becker et al. (2020) use data on political institutions, taxation, and conflict. Becker and Pascali (2019) also derive variables that report the presence of a school and the prevalence of certain local industries.

HRE, are grouped together under a single placeholder state. As a result, scholars have often excluded the rural population from their analysis, which is not ideal given their vast majority. Huning and Wahl (2022b), have digitised detailed maps of the territories of the HRE at seven points in time (from 1150 to 1789) from Wolff (1877) and offer more complete data on historical boundaries in the area of the HRE. Another approach to this problem is to derive state borders from city data, e.g. from the *Deutsches Städtebuch*. To generate historical state borders, in the form of regularly shaped polygons, from information about the territorial affiliation of cities, some researchers build buffer areas of a certain bandwidth (e.g. 5 km) around a city and connect the buffer areas of cities that belonged to the same state in the same period, (e.g., Cantoni, Mohr, and Weigand 2019).

2.3 Sources of the 19th and 20th Century

For the 19th and 20th centuries, researchers can draw on a very large body of official statistics with spatial dimension, some of which have already been digitised, such as iPEHD, the Ifo Prussian Economic History Database (Becker et al. 2014). This data base is probably the most detailed European data base so far. It includes several population, factory, occupation, and school censuses conducted by the Prussian Statistical Office. Thus, it is possible to use regional panel data of Prussian counties that span nearly the whole nineteenth century. Considering that in 1865 the Prussian state stretched from central Europe to far into eastern Europe, this already covers a considerable part of Europe. However, there are numerous other official statistics for other European countries that provide data of similar quality. For France, for example, Dieboldt and Perrin (2017) analyse the key factors that contribute to a better understanding of the socioeconomic context in which the fertility decline in France occurred. To do so, they collect data covering the past 200 years and a wide variety of sources on county level. As already mentioned, most of the national sources were extracted in the countries where most European economic historians work, such as Germany, the UK, France and Sweden. Figure 2 shows two exemplary data sets from studies investigating the developments of the 19th century. Figure 2(a) shows counties with savings banks in Prussia as of 1849 (Lehmann-Hasemeyer and Wahl 2021) and Figure 2(b) shows the spatial distribution of agricultural inheritance traditions in the German federal state of Baden-Württemberg (Huning and Wahl 2021). Data on these inheritance traditions were obtained by a survey of majors in 1950 conducted by the agricultural historian Helmut Röhm. Notable here is not only the small-scale variation,

but also how many municipalities existed in the state back then (more than 3,000), which enables a detailed and reliable empirical analysis. This shows how much more detailed data are available from this period, compared to what is available for earlier periods. Most recently Rosés and Wolf (2018) constructed a regional GDP for 173 European areas in 16 countries based on the NUTS-2 regions, from 1900 to 2015. The data, however, is only available by decade. At the country level, Enflo, Henning, and Schön (2014) and Enflo and Missiaia (2018) have provided estimations of the regional GDP for Sweden, Enflo et al. (2014) for Finland.



(a) Prussian Counties with Savings Bank in 1849 (b) Spatial Distribution of Agricultural Inheritance Traditions in Baden-Württemberg in 1953

Notes: Subfigure (a) shows the borders of Prussian counties as of 1849. Counties shaded in black have at least on Savings bank. Data on the foundation dates of savings banks in Prussia (Lehmann-Hasemeyer and Wahl 2021). In subfigure (b) blue municipalities predominantly apply equal partition, light blue are municipalities with transitional form of equal partition, red is primogeniture, orange represents transitional forms of primogeniture. The green areas represent mixed traditions. The black lines denote the historical borders of the equal partition area based on Röhm (1957).

Figure 2: City Population in European Grid Cells from 800 to 2000

3 Methodology

We have already established that the data for cities is often better than those for regions. But how do we define a city and is it possible to derive one single definition for all peri-

ods and times? Most of the literature follows Bairoch, Batou, and Chevre (1988) and De Vries (1984) and defines a city according to a population threshold, which usually is all places that have more than 5,000 inhabitants. While there are good arguments for why this might be a reasonably good rule of thumb, it remains theoretically and historically unclear whether this definition is valid for all periods and regions and subjects of study. Ploeckl (2017) attempts to derive a definition of cities that is more firmly grounded in economic theory. He defines a city as a place large enough not to be influenced by local agricultural endowments. He applies this approach to the urban system of 19th century Saxony. His findings suggest that the use of a single population threshold can lead to a significant misclassification of settlements as towns, particularly in analyses with a longer time horizon. The definition of a Saxon town changed over the course of the 19th century. For the year 1834, for example, he arrived at a threshold of 3,000 inhabitants instead of 5,000. For 1871 his estimations suggest a threshold of 4,940. Another approach to develop a theory-based definition of a historical city is Cesaretti et al. (2020). They define a place as a city if the urban economy exhibits increasing returns to scale (IRS). They test the existence of IRS in the towns of early Tudor (c. 1450–1670) England and find that the urban economies of all these towns, even the smallest, exhibit IRS. Their conclusion is that there appears to be no size threshold for the existence of agglomeration effects in English cities. In conclusion, while any kind of early agglomeration reflects economic progress, during the process of industrialisation, more and more inhabitants are needed for a place to be considered a city. However, this means that places that were cities from an economic perspective were ignored in the studies that used the 5,000 population threshold. It is possible that the results of these studies would have been quite different if they had included a larger number of places. In any case, the discussion shows that the question of what constitutes a city is not a simple one. The answer depends on the region and the time period.

Using cities as an indicator of economic activity, a second step can be to ask where cities are emerging and where they are not, to learn why certain areas are developing and others are not (Bosker and Buringh 2017; Cermeño and Enflo 2019; Ploeckl 2021)? Bosker and Buringh (2017), for instance study the historical origins of European cities that emerged between 800 and 1800, based on the city population data by Bairoch, Batou, and Chevre (1988). They can show that first-nature geography is the decisive determinant of city location throughout the whole observation period, with location on the coast, a navigable

river, or a Roman road being most important. Therefore, a favourable location for transportation seems to be the key to making a place a city. They found man-made geography to matter too, but overall, its impact is smaller, but becomes more important over time. It affects the probability of a place becoming a city in a nonlinear way, known in the literature as “urban shadow effect”: already existing cities prevent other nearby places from becoming cities, too. The same holds true for cities far from others. Places in a medium distance (20–100km) to existing cities have a higher probability to also develop into a city.⁴ Cermeño and Enflo (2019) study the development of 31 towns founded by the Swedish crown between 1570 and 1800 in an attempt to modernise the country and to develop remote, backward regions far in the north. Before the Industrial Revolution, these cities did not influence the economic prosperity of the regions around them nor did the comparatively worse natural conditions of their location allow them to grow. This changed after industrialisation, when these towns—and their rural hinterland—began to thrive. Thus, using the number of cities in an area as an indicator of economic development is subject to several obstacles. First, one has to carefully think about the appropriate threshold depending on the period and region. Second, one has to make sure that these towns did develop for economic and not for political reasons. If the latter is the case, it may still be correlated with economic success, but one must be careful with the interpretation.

For the identification of causal effects, the cliometric literature on regional and urban development employs the entire spectrum of state-of-the-art econometric methods. In the case of cross-sectional data, this means that usually either a natural experiment (natural disasters, pandemics, wars) is exploited, or an instrumental variable strategy is applied. Recently, more and more papers also exploit randomly drawn borders or idiosyncratic border changes and estimate a spatial Regression Discontinuity Design (RDD) in the spirit of (Dell 2010). If panel data are available, which is the case, for example, when Bairoch, Batou, and Chevre (1988) city population data is used, researchers resort to two-way fixed effects models, or estimate event studies. The typical limitations to quality and availability of historical data make the application of these methods more challenging. In conse-

4. Ploeckl (2017) investigates the determinants of city locations in 19th century Saxony and comes to similar conclusions as Bosker and Buringh (2017). Physical geography, especially agricultural conditions, such as elevation and location on a major river, are important determinants of city location in Saxony. He also finds a significant, yet relatively small, effect of second-nature geography. Unlike Bosker and Buringh (2017) he considers the effect of places that are close to each other (between 500m and 10km) and finds that close proximity to a town positively affects the emergence of towns. This suggests that the effect of second nature geography is even more complex and non-linear than found by Bosker and Buringh (2017).

quence, researchers often combine different methods and present results from, e.g., instrumental variables, event studies, and Propensity Score Matching (PSM). The idea here is that while each method may not be waterproof and the data may not be good enough to rule out pretrends, if all the different methods come to the same conclusion, one can have a certain confidence in the robustness (a prime example of this approach is the paper by Hornung 2015).

Moreover, historical regional and urban economics face the same challenges and methodological issues as regional economics, focussing on contemporary developments. First, when examining variation between relatively small spatial units, the presence of spatial autocorrelation is an important issue. This must be taken into account using methods to adjust standard errors appropriately (Kelly 2019, 2020). Second, a treatment that affects some regions but not others will often affect not only the treated areas, but also nearby areas through spatial spillovers. If this is the case, the estimated treatment effect may be biased. Therefore, researchers need to find a way to exclude such spillovers, for example, by excluding regions that are adjacent to the treated ones. Alternatively, these spillovers can be explicitly estimated to gain insight into their size, significance, and spatial scale. This can be done by including in the regression a dummy variable for neighbouring regions, regions within certain distance bands around the treatment, or distance to the closest treatment itself. See for instance (Berger and Enflo 2017; Braun and Franke 2022; Hornung 2015).

A last issue, which is common to all regional economic research but amplified by the usually larger time-horizon studies of historical studies, is the problem of changing borders of administrative regions and territories. When studying regional development in Prussia using administrative data on county level for example, one has to cope with the continuous dissolution, merger and split-up of counties. This makes the building of a consistent panel data set challenging and can reduce the comparability of the results over time. This is even more problematic, as one often has to work with the assumption that the border changes are endogenous to economic development, as, for example, a split-up of a county could result from large population growth in the decades before, which in turn is an indication of significant economic growth in this period. It is not always possible to fully circumvent this problem; however, the use of time-consistent and arbitrarily defined grid cells is a commonly applied methodology, to avoid the problem of endogenous regional borders (see e.g., Dalgaard et al. 2022; Doucette 2022; Wahl 2017; Bakker et al. 2021). Grid

cells also allow us to exploit very fine-grained spatial variation, e.g., in geographic variables, something that is not always suitable when using administrative data. They also have limitations, as their size is arbitrary and the researcher has to make sure that the results are robust to various grid cell sizes.

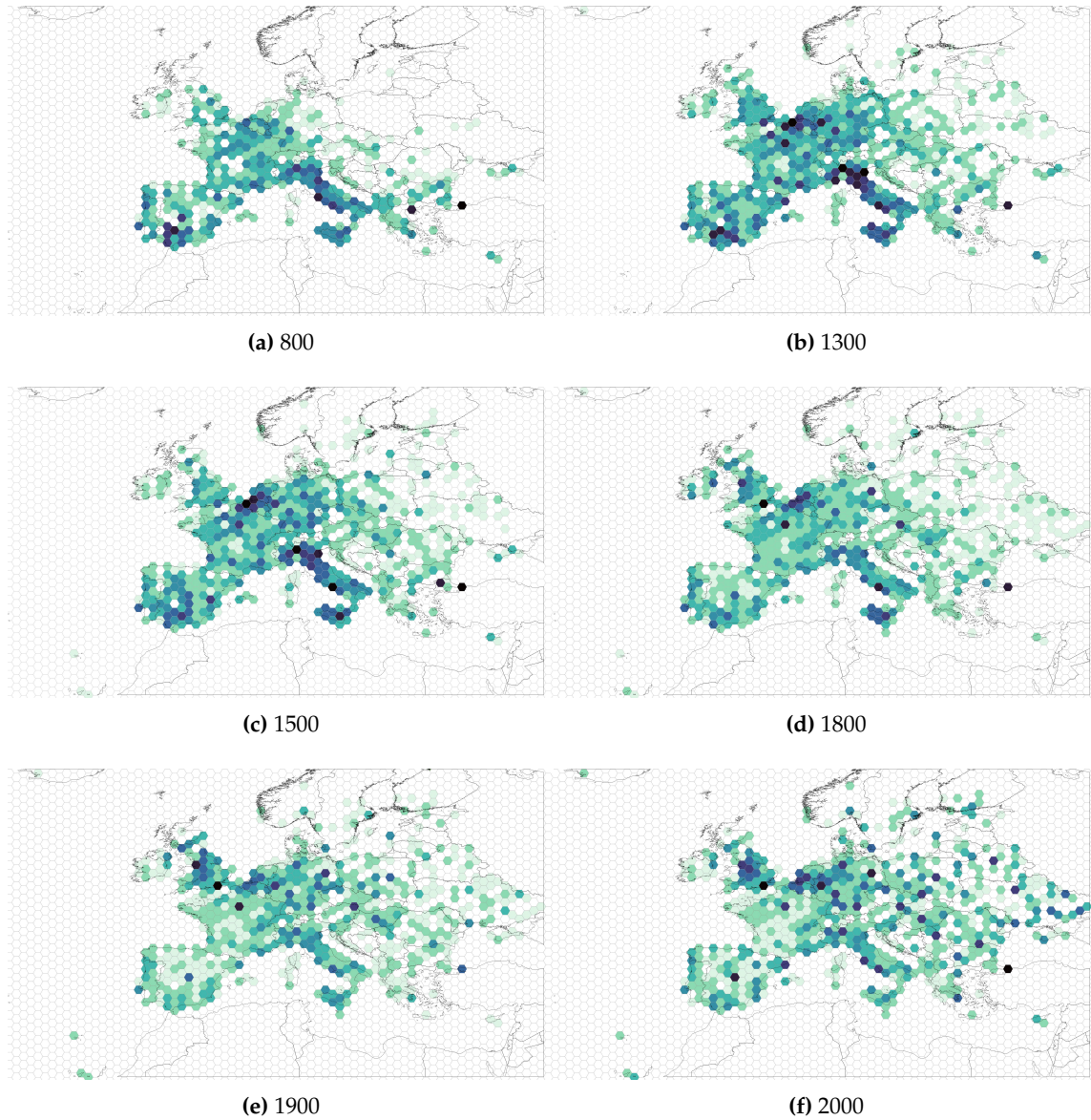
4 From Rome to the EU

To get an idea of the general patterns of regional and urban development in Europe, we built a grid cell data set. We then aggregate the urban population data from Buringh (2021) at this grid level. This gives the level of urbanisation of each grid cell between 800 and 2000.⁵ As noted above, the use of grid cells for such an analysis is very useful because the size and shape of the grid cells remain the same over time and they are all roughly the same size. The urbanisation of each grid cell in 800, 1300, 1500, 1800, 1900 and 2000 is shown in Figure 3, where darker shaded grid cells have more urban population.

Looking at Europe as a whole, there is almost no urbanisation east of the border of the Frankish Empire in 800. Italy and southern Spain stand out as the most urbanised regions in Europe, while northern France and western Germany, the core of the Frankish Empire, show moderate levels of urbanisation. Thus, the urban legacy of the Roman Empire in continental Europe and the Muslim influence in southern Spain are clearly visible. There is almost no urbanisation outside of Roman Europe and east of the Frankish Empire. In the period between 1300 and 1800, we see the decline of the urban network of southern Spain and northern Italy, both after 1500, while the Netherlands remained the most urbanised region in Europe. Interestingly, the core area of urbanisation in German-speaking Europe, which had formed around the old Roman cities on the Rhine, Cologne, and Mainz in the West, expanded in the late Middle Ages to include southern Germany with its successful commercial centres such as Augsburg or Ulm.⁶ By 1800, northern Italy and southern Spain are no longer among the most urbanized areas, while the Low Countries are still the urban core.

5. We choose hexagonal grid cells, which are the current standard. They are easy to compute and resemble most closely the shape of actual states and administrative regions. We created grid cells of $1' \times 1'$ size (at the equator this is roughly equal to 100 km^2). Buringh's data also include information on Russian cities, but we have decided not to include them, as most of Russia is in Asia.

6. Consulting church building activities in Central Europe between 700 and 1500 as alternative measure of regional economic development leads us to similar conclusions (see Buringh et al. 2020).



Note: The figure shows the urban population of 1°×1° hexagonal grid cells in Europe. The darker the grid cell is shaded the larger is its urban population. Grid cells with zero urban population are white. The black lines depict contemporary countries. The underlying data source is Buringh (2021), the currently most comprehensive database of historical European city populations, having data for 2262 cities from 700 to 2000.

Figure 3: City Population in European Grid Cells from 800 to 2000

We also see the rise of England, with much of London and the area around Manchester

and Liverpool in the west showing increasing levels of urbanization. Southern Germany, on the other hand, has fallen back due to the devastation of the Thirty Years' War.

By 1900, the pattern is very similar, but now south and west of England are the urban core of Europe, with the Low Countries and the Rhine and Ruhr regions just behind. This reflects the effects of the industrial revolution and the increasing importance of coal. By 2000, England, the Low Countries and southern and western Germany clearly form the solid core of European urbanisation and economic activity. We also see a skewed spatial distribution of the urban population, with capital cities and large agglomerations such as Madrid, Milan, Munich, Paris, Vienna, etc. standing out from the more rural areas around them. In general, the figure indicates that urban development started in the south and went north and west over the last 1200 years, with the Low Countries always being part of the urban core. We also see that Great Britain became part of the urban core only during the 18th century. This is remarkable as Britain, before its rise, was a peripheral backwater in terms of urbanisation. The core of today's European economy, also known as the "Blue Banana" and stretching from northern Italy through southern and western Germany and the Netherlands to the south of the United Kingdom, encompasses all the regions that have been, to varying degrees, the most urbanized and prosperous since the Middle Ages. This documents the persistence of regional economic development in the broadest sense, although even within this core region there have been many reversals and comebacks. It also shows that economic prosperity has often been highly concentrated in certain areas within countries. Moving away from the country perspective and looking at data at a lower aggregate level is therefore very promising, as we will show in some areas of research.

5 Very Long-Run Roots of Regional Disparities

Some of the regional disparities that we see today have causes that go back a very long way. A small but rapidly growing field is the study of the long-term economic impact of the Roman Empire and other ancient civilisations. The results show that the places close to Roman roads are economically better developed (Dalgaard et al. 2022), that regions with a higher density of Roman roads trade more, due to the lower transport costs (De Benedictis, Licio, and Pinna 2018), and that places that are more highly integrated in the Roman trade network still show stronger economic links today (Flückiger et al. 2022). This

is particularly interesting because the Romans only occupied parts of today's European countries and their impact can therefore explain persistent regional disparities within European countries.

Wahl (2017), for instance studies the impact of the Roman occupation in Germany. He uses a spatial regression discontinuity design around the area of the walled parts of the Roman border through Germany, the Limes Germanicus, to show that the Roman area today has on average an around 10% higher level of luminosity. This measure of nightlight intensity is commonly used as a small-scale measure of economic development. This seems to be due to the fact that today's roads were often built where the Romans had already built a road network. In many cases, the roads today in the south of Germany are identical to Roman roads, or closely follow their course. Therefore, the area settled by the Romans is still characterised by a denser road network. Furthermore, this persistence of the road network can explain why the cities are larger there. As the cities were located on Roman roads, they have been easier to reach, and remained among the political and ecclesiastical centres of medieval and early modern Germany (like, e.g., Cologne or Augsburg). The study by Dalgaard et al. (2022), extends Wahl (2017) work to the entire area controlled by the Romans. It also finds that areas close to Roman roads are significantly better developed today, but only in areas where wheeled vehicles were not abandoned and trade took place via caravan routes. They also advance our knowledge about the mechanism of the persistence of the Roman effect, as they show that it were specifically the early medieval market towns that are responsible for maintaining the Roman effect.

Michaels and Rauch (2018) focus on France and the United Kingdom and find the results to be less clear-cut: The collapse of the Western Roman Empire ended urbanisation in Britain but not in France. When urbanisation started again during the Middle Ages, towns in France were typically founded in old Roman town locations. However, in England, where Roman rule ended much earlier than in France, the urban network of Roman roads did not survive to the same extent, and as a result, new towns were later built near the coast or on rivers. This gave the new, medieval cities a significant advantage over old Roman ones, as access to waterways became an important growth factor for cities only after the Roman Era. Thus, the intensity of the Roman occupation seems to be a decisive factor for its long-run impact on regional disparities.

Flückiger et al. (2022) also find a positive impact of Roman activities. They do not use

roads or towns, but introduce a new data set on Roman trade patterns based on excavated Roman ceramics. They argue that the persistence of the Roman effect is driven by cultural integration because of bilateral convergence in preferences and values. People living in regions that were connected by trade during Roman times are more similar with respect to their attitudes and values than people in regions that were not.

While much of the literature has focused on the long-term legacy of the Romans, there have also been studies of other ancient civilisations. Bakker et al. (2021), for example, study the effect of the first systematic crossing of open seas in the Mediterranean by Phoenicians during the Iron Age. They show that geographically better-connected places were more developed than less connected places. They measure development with the number of archaeological sites or urban settlements in a place. A second study in this area is Chronopoulos et al. (2021) who investigate the legacy of ancient Phoenician, Greek, and Etruscan colonialism in the Mediterranean region on contemporary economic development as proxied by population density and night-light luminosity. They find that the colonised areas show higher present-day economic development. Again, the mechanisms seem to be that ancient colonialism has affected the initial settlement patterns of the Mediterranean region.

Research on Pre-Historic Developments is still very young and leaves many aspects for future exploration; for example, there are many pre-Roman civilisations like the Celts or the Germanic peoples, which also may have left a significant cultural and economic legacy. With more archaeological data becoming available and GIS technology further advancing, it may be interesting to have a closer look at developments in even earlier periods like the Bronze Age. Until now, only very few studies have had a look at the impact of, for example, an early transition to sedentary agriculture on long-run regional prosperity levels.⁷ Among the few existing studies, Olsson and Paik (2020) come to the conclusion that regions within Europe and the Mediterranean (the “Western Agricultural Core”) which experienced an earlier transition to agriculture are nowadays poorer than other areas. They also argue that this was true even before 1500 and likely can be explained by early, hierarchical states with extractive institutions but an initial boost in development.

Overall, it seems that parts of today’s regional disparities find its roots in early civilizations, which influenced the development path of European regions over the last 2,000

7. There is a sizable literature on the effects of the Neolithic revolution on development, but most of the studies in this area are cross-country studies on global scale (e.g., Putterman 2008).

years. Often the reason is that societies tend to use what previous societies have built or established such as roads or cities. However, this does not mean that the fortunes of regions are completely determined by these early developments. There are varying degrees of persistence, still reversal of fortunes, and a large share of heterogeneity in the effects. Whether there is persistence or not does depend on the particular circumstances and the interaction of the ancient legacies with later shocks and developments. Moreover, ancient cultures did not only have a positive development effect, as some regions experienced setbacks because of being locked in on dynamically suboptimal development paths like the Roman cities in France. To understand these lasting impacts, future research on the legacy of ancient civilisations on European regions should extend our knowledge on the channels. This could also be "soft factors" such as cultural integration. Again, the analysis of small spatial unit data holds great promise for identifying and understanding mechanisms.

6 The Role of the Church

One of the most productive areas of historical regional economic research is broadly concerned with the influence of the Church, or more broadly religion, on economic and social outcomes. This includes activities of church affiliated institutions like monastic orders, mostly of the orders founded during the Middle Ages and connected to the Cluniac reforms.

textciteAkcomak2016, for example study the economic effects of "Brethren of Common Life" a religious community/order founded by Geert Groote in the Netherlands in the late 14th century. They were a nonmonastic order put under the umbrella of "Modern Devotion" a kind of early reform movement within the Catholic Church. Groote had similar ideas to Luther and the other Protestant Reformers some decades later. For example, he was motivated by frustration with the moral decline of the Catholic Church and viewed religion as a private matter, which led him to conclude that everyone should be educated enough to read the Bible and other religious books – the same ideas that Luther later developed. It follows that where the "Brethren of the Common Life" were present, the accumulation of human capital was stimulated, and literacy rates and book production increased significantly. In a related study, Andersen et al. (2017) hypothesize that what Max Weber called the "Protestant work ethic" had pre-Reformation roots

in the Catholic Cistercian Order. They show that English counties more exposed to the Cistercians experienced faster productivity growth from the 13th century onwards and, importantly, that this effect did not disappear after the last Cistercian monasteries were dissolved in the first half of the 16th century. They also provide evidence that the values Weber ascribes to Protestants (appreciation of hard work and thrift) are significantly more prevalent in the European regions where the Cistercians were located. Finally, with special emphasis on the role of the Church in the formation of states, Møller and Doucette (2022) addresses the relationship between the state and the Church in pre-modern Europe. The authors are amongst the first to point to a direct relationship between the presence of the Catholic mendicant order of the Dominicans and the rise of urban self-government in Europe.

The effects of official Catholic Church policies, such as the prohibition of cousin marriage, are another part of this literature. Schulz (2022) argues that this prohibition dissolved the clan-based kin networks that dominated the political and social sphere in late antiquity. In doing so, it enabled the social changes necessary for the emergence of participatory urban political institutions in the later Middle Ages.⁸ Cantoni and Yuchtman (2014) exploit variation in the foundation of universities in the 14th century using a conflict within the Roman Catholic Church; the Great Western Schism, between 1378 and 1417. This was a period in which two popes existed, one residing in Avignon and supported primarily by the French king and the “traditional” pope in Rome supported by the Holy Roman Emperors. One of the consequences of the schism was that new universities were founded in the German lands, since the main university for the education of the clergy was in Paris, and therefore did not support the Roman pope. Thus, the universities of Cologne, Erfurt, and Heidelberg were founded during the schism and with the approval of the Roman pope. The authors show that these newly founded universities played a crucial role in the commercial revolution that took place in the HRE during the late Middle Ages.

The largest part of this strand of research is dealing with the numerous consequences of the Protestant reformation. The recent literature starts with Becker and Woessmann (2009)’s empirical reassessment of Max Weber’s famous argument that Protestant areas are more prosperous because of the Protestant spirit and work ethic. They find that Protestant areas are currently and were historically better developed than Catholic ones. However, they also conclude that this has more to do with the superior human capital

8. This is an argument that is also made by Mitterauer (2004).

in Protestant regions due to Luther's desire that everyone should know how to read the Bible. A study by Cantoni (2015) of the long-term development of Protestant and Catholic cities in the German states concludes that the effect of Protestantism on city development is negligible. Consequently, the positive development effect of Protestantism through human capital channels is primarily important for the development of rural areas. Cantoni (2012) studies the determinants of adoption and diffusion of Protestantism and finds that strategic considerations and neighbourhood interactions, next to Distance to Wittenberg, played a major role in this process (for a review on the causes and consequences of the Protestant Reformation the reader is referred to Becker, Pfaff, and Rubin 2016). Among these papers, there are several linking Protestantism to other fundamental developments of the late Middle Ages, especially to the Printing press. The literature argued that the printing press helped in the dissemination of the Protestant idea and therefore was conducive to the success of the Reformation; on the other hand, the Reformation also led to an increasing demand for books helping to accelerate the diffusion of printing technology (see e.g., Boerner, Rubin, and Severgnini 2021; Dittmar and Seabold 2023; Rubin 2014). Heldring, A., and Vollmer (2021) study the dissolution of monasteries and the secularisation of church property as a consequence of the reformation. Cantoni, Dittmar, and Yuchtman (2018) show that the religious competition created by the rise of Protestantism together with the dissolution of church property in Protestant regions led to an economically unprecedented reallocation of resources from religious to secular purposes. The dissolution of previous church property meant a tremendous inflow of wealth for the secular rulers who acquired this property. They used their newly gained assets to build, e.g., palaces and administrative buildings instead of churches and cathedrals. From this literature, one can conclude the Reformation was of crucial importance for the secularisation of western Europe. The religious competition between Protestants and the Catholic Church was also a major factor in the explosion of witch trials in the German lands during this period (Leeson and Russ 2018). Moreover, Iyigun (2008), shows that part of the success of the Protestant Reformation and the failure of the Counter-Reformation is due to the imminent threat of Ottoman invasion that the Catholic emperors faced several times during the period from 1520 to 1650. He can show that there is a negative relationship between the incidence of military conflicts between Catholic and Protestant territories when the Ottomans increased their military activities in Europe. This provides compelling evidence for the hypothesis that military and political competition with the periphery strongly influenced the political and social development of Europe in the early modern period. An-

other noteworthy study in this context is the one by Blaydes and Paik (2016). They study the consequences of the Holy Land Crusades during the 11th to 13th century for the formation of European states. They find that regions with more Holy Land crusaders experienced an increase in political stability, institutional development, and urbanisation—the latter as a result of rising trade and capital accumulation.

Johnson and Koyama (2017) study the role of Jewish communities. Their results suggest that cities in Europe with Jewish communities grew faster than cities without Jewish communities over the period between 1400 and 1850. The underlying cause is not religion, though, but their ability to exploit increases in market access. This fits the findings of Becker and Woessmann (2009) that Protestantism itself did not have a positive impact on city development, but the fact that more protestants were able to read and write. To sum up the literature on role of the religion, one can conclude that the church had a profound impact on economic development of institutions and actors in premodern Europe. Especially the Protestant Reformation might be rightfully considered as the single most decisive event in European history, with significant consequences on all kinds of development. Religion always was, and still is, a source of conflict, repression, and instability. In this context, it is noteworthy that a significant part of the positive development effects can be attributed to the loss of political and economic power of the Catholic Church.

7 Crises, Conflicts and Epidemics

Early societies can explain some of the regional differences we see today, but it is as unfortunate as it is inevitable that the history of Europe has been marked by a succession of countless wars, conflicts, and natural disasters that have also determined the fate of the affected regions.

Part of the research focusses on the impact of the plague, one of the most terrible and significant catastrophes in human history, which ravaged Europe between 1346 and 1353, killing about 25 million people, or about one-third of the entire European population. Other catastrophic events, notably the early modern “witch hunts” and the systematic violence against Jews, have also received attention in the literature. Often, one catastrophe was followed by another. The heydays of witch hunting in Europe, for example, fall into the period of the Catholic Counter-Reformation movement and coincide with the Thirty Year’s War, which over three decades caused the death of between 3 and 9 million peo-

ple and depopulated large parts the south-west of Germany (Leeson and Russ 2018). The Thirty Years War also led to the severe outbreaks of the plague and other diseases. There is further convincing evidence for a positive relationship between climate extremes and the outbreak of conflicts, and persecutions of witches and Jews (e.g., Anderson, Johnson, and Koyama 2017; Behringer 1999).⁹

The literature has shown that the Black Death epidemics had far-reaching consequences for the subsequent social and economic development of Europe.¹⁰ The Black Death caused a large negative population shock that affected urban areas differently than the countryside. It also promoted urbanisation and increased wages in cities, weakened central authority and local rulers, and ultimately the feudal system (Voigtländer and Voth 2013; Gingerich and Vogler 2021). Börner and Severgnini (2014), use the spread of Black Death as a proxy for the 14th trade patterns. They find that remote cities and cities at higher altitudes trade less and were also less affected by the plague. Jedwab, Johnson, and Koyama (2019) is an in-depth study of the consequences of the Black Death on short- and long-term urban development, based on a data set of plague mortality rates for 274 cities in Europe. They show that the average city regained its preplague population within 200 years, but that there is significant heterogeneity in urban recovery, leading to local divergences in economic development. A high degree of integration into the European trading network helped a city's rapid and successful recovery. They also point out that the Black Death led to the subsequent creation of cities in areas that had previously been remote and rural. The Black Death permanently changed the spatial distribution of cities and the overall level of economic activity. Hence, they agree with Voigtländer and Voth (2013) who study the interaction of wars, plague and urbanisation in overcoming the Malthusian trap, that the Black Death significantly contributed positively to the long-term growth in Europe. Siuda

9. There are quite some papers studying the historical patterns and long-term persistence of antisemitism in Europe. Becker and Pascali (2019), for example, show that antisemitism increased in areas that became Protestant during the Reformation. The argument is that in the Protestant regions, Jews lost their advantage in the moneylending sector, as Protestants lifted the Catholic usury ban and had higher literacy rates. Consequently, Jews had to compete with the Christian majority in the moneylending sector, and this resulted in an increase in antisemitism. Voigtländer and Voth (2012) document a remarkable persistence in antisemitism in Germany. They show that locations that saw scapegoat pogroms of Jews during the Black Death also reported more violence against Jews in the 1920s and 1930s, more anti-Semitic attitudes, and votes for the NSDAP. Remarkably, they also show that anti-Semitic attitudes are not as persistent in cities with high levels of trade and immigration. This provides support for an incentive-based explanation of anti-Semitic attitudes, as well as for the "contact hypothesis".

10. For a review of the economic consequences of the Black Death, the reader is referred to Jedwab, Johnson, and Koyama (2022).

and Sunde (2021) study the impact of the Black Death on the timing of the demographic transition between German regions. In a similar spirit to Jedwab, Johnson, and Koyama (2019) and Voigtländer and Voth (2013), they find that areas with greater exposure to the plague experienced the demographic transition earlier and might also have industrialised earlier.

With respect to the role of wars and armed conflicts for historical regional and urban development in Europe, the literature comes to different conclusions. A starting point of this research area is Philip T. Hoffman's seminal book "Why Did Europe Conquer the World", where he argued that European countries were able to dominate and conquer much of the world due to the high frequency of conflicts in Europe and the resulting advances in technologies and state capacity (Hoffman 2015). On the one hand, Dinuccio and Gaetano Onorato (2016) show a significant positive relationship between conflict exposure and urban growth throughout Europe in the period 800 to 1799. Wars caused people to flee the countryside and seek shelter in walled cities, which were difficult to conquer and therefore less affected by war. On the other hand, both Oto-Peralías and Romero-Ávila (2017) and Schaff (2022) find that, at least within Europe, wars and conflicts were rarely a "great leveler" that led to a reduction in inequality. Schaff (2022) combines the novel data set on inequality in 75 premodern German cities and territories compiled by Alfani, Gierok, and Schaff (2022) with data on 700 conflicts between 1400 and 1800 to show that many ordinary conflicts increased rather than decreased economic inequality, with the exception of the Thirty Years' War, which was indeed a "great equalizer." He argues that the Thirty Years' War was different because it was so devastating that the effect of inequality-reducing destruction of capital offset that of inequality-enhancing extraction. His results are also consistent with those of Alfani, Gierok, and Schaff (2022), who find that the Black Death reduced inequality until about 1450, then inequality rose again until the Thirty Years' War and the plague of 1627-1629 reduced inequality until it began to rise again from 1700.

Overall, while crises, wars, and epidemics have been very damaging to affected regions in the short term, these regions appear to have performed better in the long term than regions that were not as affected. Recent work has also argued that, despite the economic consequences, exposure to conflict can have a lasting effect on people's attitudes and preferences. Ochsner and Roesel (2019), for instance show that places affected by the Turkish besiege of Vienna and its hinterland in 1529 and 1683, still remember those violent events

and, consequently, had higher voting shares for the far-right Austrian party FPÖ in the mid-2000s, when their leader Jörg Haider ran a campaign based on anti-Turkish resentments. On the contrary, Huning and Wahl (2022a) show that there is a negative relationship between historical levels of political instability and the formation of regional identity in Germany.

8 Pre-Industrial Innovations

Even before the Industrial Revolution, technological, agricultural, and scientific innovations had begun to influence regional development in Europe. Since one of these important technological innovations was the printing press, there is a close overlap with the literature on Protestantism discussed above, since it played a profound role in the adoption and spread of Protestantism (e.g., Rubin 2014). Dittmar (2011) showed that cities that adopted the printing press early (before 1500) enjoyed a long-lasting growth advantage due to higher levels of human capital and forward and backward linkages within the industrial sector. More books were produced, and knowledge related to business, such as arithmetic, existed and spread more easily in printing cities, fostering trade and commerce. Media markets also developed in early printing cities, as did the paper industry that provided the raw materials for books.

Another important innovation was the public mechanical clock, which was introduced in Europe first at the end of the 13th century. Boerner and Severgnini (2019) find that early adopters of it had a growth advantage of around 30 percentage points between 1500 and 1700. Clocks can be considered not only a technological sensation and the most “high-tech” product of the Middle Ages, they are raised productivity. It enabled a much better coordination, division of labour, and monitoring of the production process, resulting in a change in working culture and discipline. The fact that all kinds of business activities were now easier to frame and measure is decisive here. This is not only true for merchants and their business activities, but also for market times, administrative meetings, or school schedules. Boerner, Rubin, and Severgnini (2021) look at 741 premodern European cities and study the connection between invention and adoption of public mechanical clocks, the printing press, and the spread of the Reformation. It argues theoretically and shows empirically that places that introduced public clocks had a higher probability of introducing the printing press and also of adopting Protestantism. The link between mechanical

clocks and the printing press exists because the upper-tail human capital, technical know-how, and mechanical skills required to build clocks made the adoption of printing easier and less costly.

With respect to agriculture, two innovations have received the most attention in the literature, the introduction of the heavy plough around the year 1000 and the introduction of the potato in the late 18th and 19th century. Fertile clay soils showed higher urbanisation levels after the heavy plough was adopted around the year 1000 (Andersen et al. 2017).

Berger (2019) has a closer look at effects of the introduction of the potato for economic development and population growth in Sweden. He calculates that the potato at least doubled agricultural output per acre and significantly raised the living standards of laborers. When he exploits regional variation in potato suitability among Swedish regions, he can show that regions with more land suitable for growing potatoes had a much faster rate of population growth in the 19th century. He argues that this potato-induced population growth, which accounts for around 10% of the total population growth between 1800 and 1850, was primarily the result of relative increases in fertility, but that there were no long-run effects on incomes per capita. This confirms the global cross-country evidence provided by Nunn and Qian (2011) of a significant positive developmental effect of the introduction of the potato in the Old World. This makes the potato one of the most important crops, and the introduction of the potato a crucial event for the later industrial take-off of Europe.

Scholars also studied the effect of organisational innovations, which is here exemplified with double-entry bookkeeping by merchants in late medieval northern Italy from where it spread slowly to Northern Europe after the publication of Luca Pacioli's mathematical textbook "Summa de arithmetica, geometria, proportioni et proportionalità". This book contained the first detailed description of the double-entry bookkeeping system and was printed in 1494 in Venice. Gleeson-White (2011) presents a detailed account of how double-entry bookkeeping was invented, spread, and finally took over the commercial world, gave rise to modern business, capitalism, and the industrial revolution. Double-entry bookkeeping tells us many important lessons. First, again, it was Renaissance Italy where it was developed. This is yet another example of the ingenuity of science and commerce at that time. Second, it shows how fundamentally science, especially mathematics,

but also engineering and commerce, were already intertwined in the Middle Ages.

9 Institutions and state capacity

We have learnt that ancient societies and exogenous shocks such as crises, pandemics, conflicts, and others influenced the fate of the European regions in the long-run. They did this in part by shaping institutions. The large variety of different political institutions in Europe allows economic historians, but also economists and political scientists, to study the effects of different institutional settings on economic development. An interesting question here is, for example, whether political institutions that gave citizens more rights and allowed them to participate in the political process had a positive impact on economic development. Using data from the “Deutsches Städtebuch”, Becker et al. (2020), finds that for the period between 1290 and 1710, exposure to conflict leads to more representative and elected city councils, the development of local fiscal and taxing capacity, while interestingly, public spending is reallocated from military to civilian purposes. Wahl (2019) also examines political institutions in the cities of the German lands in the Middle Ages and finds that the participatory nature of urban political institutions did not play an important role in the development of these cities in the long-run. Stasavage (2014) takes a more general approach and studies the effect of city autonomy on economic development for 173 cities in Belgium, France, Germany, Italy, and the Netherlands in the same period. He finds that autonomous cities develop significantly better for the first 160 years after their independence, but then they begin to do worse. He explains this with the double-edged nature of the merchant and guild-based government of autonomous cities. On the one hand, these cities implemented a more economically friendly policy and secured property rights. On the other hand, guilds also built market entry barriers that were harmful to innovation and trade. Although the positive effect of secure property rights is initially larger, the negative effect of entry barriers becomes dominant after a while.¹¹ There is also a large body of research dealing with the impact of craft guilds. It controversially debates whether they were good institutions that guaranteed quality and intellectual property rights, organised apprenticeships and pursued an economy friendly economic policy, or whether they were harmful institutions erecting all types of market

11. Wahl (2019) conducts a similar analysis and finds that the initially insignificant or positive effect of participative political institutions becomes negative or zero over time. He traces this back to a process of institutional sclerosis, as outlined in Olson (1982).

entry barriers, monopolised urban markets, acted as cartels, discriminated against non-members, and engaged in rent-seeking. The positive view of the craft guilds was most prominently advocated by Stephen R. Epstein in a series of seminal publications (e.g., S. R. Epstein 1998, 2004). The negative view of guilds, on the other hand, was propagated most influentially by Sheilagh Ogilvie and co-authors (Ogilvie 2004, 2007, 2011, 2014). For a while, no consensus existed in the literature until more recent works like Wahl (2019) and in particular the book by Ogilvie (2019) provide more compelling evidence in favour of the more negative view of the guilds. Ogilvie's book is remarkable for its analysis of a very detailed data set on a wide range of political and economic activities of craft guilds in Europe. Not only is this an exemplary data collection effort, but it also demonstrates that there is sufficient data on craft guilds to allow for in-depth analysis of such complex, multifaceted institutions.

Guiso, Sapienza, and Zingales (2016) show that Italian cities with medieval self-government had higher levels of social capital than Italian cities without self-government. They also show that the effect is stronger the longer and more intense the period of self-government was. They trace this effect back to the fact that the historical experience of self-government lead to the emergence of strong self-efficacy beliefs among the citizens of these town. These beliefs were transmitted over generations and are still prevalent among contemporary urban residents. This study is influential not only because it was one of the first to study the long-term effects of urban self-government, but also because it was one of the first to be interested in the determinants of social capital.

Similarly, Becker et al. (2016) find that those parts of contemporary Poland that were historically part of the Habsburg Empire show a higher trust in the state and its bureaucracy and also lower levels of corruption. This is because unlike the parts which belonged to Prussia and Russia since the end of the 18th century, the administration that Austria implemented there was of superior quality and effectiveness. This led to a higher trust and less corruption in the past which persisted until today—where the historical borders are long gone.

In addition to political institutions, the importance of economic institutions and institutional frameworks has also been a focus of research. In a seminal article, Acemoglu et al. (2011) provide evidence that the institutional changes induced by the French had a positive impact on the development of the affected region, especially in the second half

of the 19th century. This was, for instance, the removal of the legal and economic barriers protecting oligarchies and the established principle of equality before the law. Donges, Meier, and Rui (2022) use a similar setting. They find that the number of patents per capita in counties with the longest French occupation was more than double that in unoccupied counties. Buggle (2016) shows the positive impact of the Napoleonic reforms on the contemporary social capital of a region. Dohmen (2022) documents the positive effect of one of the reforms introduced by the French, namely the introduction of freedom of trade, on the industrialisation of Germany.

More recently, researchers have begun to learn more about the effects of cultural institutions. Huning and Wahl (2021), for instance argue that agricultural inheritance traditions severely influenced the development of German counties. In some areas, the inherited land was to be shared or divided equally among children, while in others the land was ruled to be indivisible. Sometimes one can observe a mixture of both. They show that areas of equal partition were no obstacle to economic growth as commonly thought, but instead fostered the establishment of a low-wage low-skill industry. Moreover, they show that these effects last until today (see also Bartels, Jäger, and Obergruber 2020). Using the same data as Huning and Wahl (2021), Hager and Hilbig (2019) show profound long-term effects of equal partition on regional patterns of socio-economic inequality. According to their findings, equal partition municipalities show to be more gender equal, have fewer aristocrats in the elite, developed pro-egalitarian preferences and had, historically, also more wealth equality. Institutions affect growth in the long-run and change slowly. They can therefore explain regional differences well.

In this section, we have discussed some of the vast literature on this topic. The difficulty common to all studies of institutional effects is figuring out which institutions were crucial and whether there is a causal effect or whether the institutions themselves were created by growth. It turns out that participatory economic institutions such as trade freedom are important and that political institutions have heterogeneous effects. In addition, there are many social institutions that can explain why some areas have developed better than others.

10 Europe trades, therefore she is?

We discussed Flückiger et al. (2022)'s suggestion that the persistence of the Roman effect is driven by cultural integration induced by trade when discussing the long-term roots of today's inequalities above. Countries and regions tend to trade more when they are more similar to each other, while trade itself tends to make trading partners more similar. Since the Romans expanded their trade network, there has been considerable trade between European partners. After the end of the Roman Empire, there was much less trade, which then increased again in the Middle Ages. The reemergence of trade during the Middle Ages is connected to the rise of Hanseatic League, the large trading companies in the southern German Imperial cities (like Augsburg or Ulm) and the Italian city states, as well as the famous Champagne trade fairs in France. Edwards and Ogilvie (2012) provide a detailed descriptive analysis of the institutional arrangements that made the fairs successful and also the reasons for the decline in the late 13th century. They conclude that the contract enforcement of the fairs was provided by public institutions and that, in general, the success or failure of the fairs was determined by the policies of the public authorities regulating the fairs. Wahl (2016) identified major centres of medieval trade in Central Europe like important members of the Hanseatic League, the Italian merchant republic, or the southern German Imperial cities from various different sources. His results show that trading cities grew larger during and after the Middle Ages and that regions with such centres are still more developed and industrialised today. These results further support the thesis that trade was among the most important factors in long-term urban development and the persistence of agglomeration patterns.

Marczinek, Maurer, and Rauch (2022), show that for centuries after the dissolution of the Hanseatic League in 1669, trade within the former Hanseatic network can be predicted by a standard gravity framework. The identity of the merchants, however is also a crucial factor, as trade between former Hanseatic merchants continues to exceed the theoretically predicted figures for the next nearly 200 years. Their paper highlights the role of cultural ties and identity in the formation and persistence of networks. Gomtsyan (2022) also studies trade in the 18th century Baltic sea area—the area that previously was dominated by the Hanseatic League. He begins with the observation that in the 18th century, due to trade imbalances caused by high demand for raw materials, half of the ships sailing from Britain to the Baltic countries carried no cargo. He further shows that ships from

large British cities were more likely to have nonempty sails and carried a greater variety of goods. He argues that the denser and better developed networks of merchants from large cities facilitated the flow of information and increased the efficiency of matching. This study, like the other by Marczinek et al. (2022), shows how cliometrics can be used to shed new light on more specific, microlevel problems such as matching efficiency in trading ports.

Federico, Schulze, and Volckart (2021) use wheat prices from more than 580 locations on the continent to learn more about the long-run trends of market integration in Europe, from the Black Death to World War I. They find a pronounced, positive long-term trend and some significant structural breaks. From the 16th century onwards, the Holy Roman Empire (HRE) fell behind England and the Dutch Republic, which only had a small lead during the medieval period. Boerner and Volckart (2011) offer a detailed account on currencies in medieval Germany and investigate the effect of intercity currency unions. These significantly reduced the spread between gold and silver, suggesting that currency unions lead to better integration of the markets of the participating cities. Their study is among the many within this strand of research that uses spreads between different metals because of their high value-to-weight ratio. This makes them easier to transport than bulkier goods, and their commonly accepted usage as money makes them a valid measure of financial integration. Chilos, Schulze, and Volckart (2018) consider the effect of the HRE on market integration. They use data from urban annuities and show that the capital markets north of the Alps were much better integrated than those to the south and that this effect can be attributed to the institutional framework of the Empire.

The first wave of globalisation in the 19th Century with its increasing trade in basic goods brought about dramatic changes within countries (see for instance Findlay and O'Rourke (2009)). It affected the structure of the economies, politics and social welfare in the years to come. More recently, researchers have increasingly abandoned the country perspective in favour of smaller regional entities to understand how the big changes have affected individual regions and cities. Juhász (2018), for instance has shown that even in the early 19th Century (1803-1815) before globalization was in full swing, regions in the French Empire that were cut off from trade with the British Empire due to the Napoleonic Wars increased capacity in mechanized cotton spinning to a larger extent than regions that remained more exposed to trade. She also shows that this has had a very lasting impact on the fate of the regions, providing causal evidence that even temporary trade

protection can shape the economic structure of a region in the long-term. Later around 1870, when globalisation was in full swing, Europe's agriculture faced huge adaptation processes, since it faced a massive entry of producers from land-abundant countries such as the United States and Russia. In Germany, for instance, large parts in the East with large estates that were originally net exporters of rye now faced price drops of up to 70 percent (O'Rourke 1997). On the other hand, some regions with industrial centers benefitted from the great specialisation in the world economy. Lehmann (2010) has studied the reaction of German voters at the level of voting districts. Her results show that voters were well aware of these effects. In constituencies that were most harmed by the rising competition tended to vote for protectionist parties in the general election in 1877 and 1878 and voters in districts that were dominated by sectors that benefitted from rising globalisation preferred free trade supporting parties. A similar awareness of the effect could be observed in Sweden in 1887, also based on an analysis of the voting decisions at the level of constituencies (Lehmann and Volckart 2011). Trade has shaped Europe and its regions more than any other factor. Trade relations have existed in Europe for many centuries. Similarity between trading partners invigorates trade, but trade also makes partners more similar, which in turn invigorates trade.

11 The Industrial Take Off

Many Economic Historians have dedicated their time to understand the causes of industrialisation. Here, too, it is useful to move away from a national perspective, as the industrial upturn was mostly concentrated in individual cities and/or regions. Therefore, focussing on smaller regional units has been very helpful in implementing appropriate strategies to identify the causal factors of the industrial take-off. Most of them have already been discussed at the country level, but here doubts about their true causality remain due to potential problems of data comparability and omitted variable bias.

Based on the observation of the agricultural revolution in Great Britain, early improvements in agricultural productivity are seen as important prerequisites for successful industrialisation. In this view, the politically imposed liberal agrarian reforms that created the institutional framework for free labour and private land ownership, such as the British enclosures, were crucial for increasing agricultural productivity (see, for example, Allen 1982). Kopsidis and Wolf (2012) have questioned the direction of this effect, showing for

Prussian counties that agriculture reacted to, rather than shaped, urban and industrial development. Given that the Prussian state in 1865 stretched from central Europe well into eastern Europe and given the wide variation in soil quality and institutional legacies, it is likely that their findings can be generalised beyond Prussia.

Industrialisation often began in places where natural resources such as coal were easily accessible. Crafts and Mulatu (2006), Crafts and Wolf (2014) and Gutberlet (2014) found evidence that coal was important for the location of the industry within Britain and Germany of the late nineteenth century. On the contrary, Wolf (2007) finds no evidence that mineral endowments explained the location of fuel-intensive industries in interwar Poland; and Martinez-Galarraga (2012) argues that mineral endowments affected the location of mineral-intensive industries in Spain in 1913, but not in other years. However, all these studies only consider industry location within one single country. Fernihough and O'Rourke (2021) have revisited the question based on Bairoch, Batou, and Chevre (1988)s panel of European cities between 1300 and 1900. They used the proximity to coal fields to study to what extent city growth during the Industrial Revolution depended on coal. Instrumenting their proximity to coal measure with a variable that measures the proximity of cities to Carboniferous-era geological strata, they convincingly show that after 1750 cities closer to coalfields grew substantially faster than those further away.

Others have argued that the spread of education and ideas was the most important. Again, based on data on Prussian cities and counties, Becker, Hornung, and Woessmann (2011) show that basic education is significantly associated with non-textile industrialisation in both phases of the Industrial Revolution. For France, Squicciarini and Voigtländer (2016) used data on purchasers of the *Encyclopedie* in mid-18th century France to identify the location of knowledge elites. They could show that these locations experienced more rapid city growth after the onset of industrialisation. Another possibility of increasing human capital was to attract skilled migrants. Hornung (2014) investigates the long-run effects of the immigration of skilled Huguenot workers from France to Prussia in 1685. He finds significant and positive long-term effects of Huguenot immigration on the productivity levels in textile factories. This study shows the economic value of openness, religious tolerance, and high-skilled migration. It also reminds us that, although much of regional economics is concerned with different characteristics of places, these characteristics are not fixed in time as the people voluntarily or involuntarily moved around and brought their mind-set, skills, and ideas with them.

The age of enlightenment set the last corner stone necessary for escaping the Malthusian trap, for transitioning to the modern world: it put rationality and science on the forefront of thinking and thereby generated the intellectual underpinnings of the modern world. Although most of the fruits of the enlightenment were only reaped during the 19th century, it already began to show its effects especially in France, the intellectual leader of this era, and Germany, the country of the most influential thinker of the enlightenment, Immanuel Kant. Consequently, the recently emerging literature on the effects of the enlightenment currently focusses on these two. Squicciarini and Voigtländer (2015) investigate closer the role of upper-tail human capital, as opposed to human capital as such in the process of industrialization. To do so, they look at mid-18th century France and consider the relationship between the local presence of knowledge elites and city growth. The presence of knowledge elite is proxied by the city-level subscriber density of the famous “Great Encyclopédie” of Diderot and d’Alembert, a compendium of all human knowledge of the time which was derived from empirical observation. They find that Encyclopédie subscriber density to be strongly related to city growth during the period of French industrialisation because it raised productivity in innovative industrial technology (which they have measured with patents from the 1840s). Diebolt, Menard, and Perrin (2017) have studied the relationship between fertility and education based on French county data. First, they found that the causality between fertility and education runs only from fertility to education. Later, they added that for stable long-term growth in particularly matters that parents educate their girls, implying that early education influenced fertility (Diebolt, Le Chapelain, and Menard 2021).

Cinnirella and Streb (2017) address the role of human capital in innovative activities using rich Prussian data in the late nineteenth century, too. Fritsch and Wyrwich (2014) and Fritsch, Obschonka, and Wyrwich (2019) have also attempted to study entrepreneurial activity on a regional level using the share of self-employed people from the German occupation census. They could show that they were clustered in certain regions and were correlated with entrepreneurial clusters today. Stuetzer et al. (2016), on the other hand, show for Britain that innovative regions in the 19th century, often became areas of lower entrepreneurial activity in that region in the long-run. This is mainly driven by the type of industries that were established. The heavy industry that was most important during industrialisation became costly in the modern age, when it was an outdated technology.

Some of the differences in regional development can certainly be attributed to the impact of transport infrastructure such as railroads and roads, but also harbours and access to rivers such as the Rhine. Railroads, as one of the most important innovations of the 19th century, have been repeatedly identified as the technology that shaped growth during the Industrial Revolution (Fishlow 1965; Fremdling 1977; Hornung 2015). Recent research has clouded the previous consistently positive assessment. Berger and Enflo (2017), for instance show that the initial decision to connect a certain city to a railroad net can have long-lasting negative effects for neighbouring cities because the resulting growth of the connected city mainly reflects a relocation of economic activity. Over the twentieth century, they find little evidence of convergence in town populations, despite the railroad network expanding further to connect nearly all towns. Braun and Franke (2022) underline these findings with their study of railway expansion in southern Germany. They show that the growth-enhancing effect of the railway was much greater in the larger and more industrial parishes at the beginning. The heterogeneity in the impact of the railway increased economic disparities within Württemberg and potentially contributed to the states relatively sluggish overall growth.

Alvarez-Palau, Diez-Minguela, and Marti-Henneberg (2021) have explored the relationship between railroad integration and regional development based on a data set consisting of 291 spatial units of the European periphery between 1870 and 1910, the period with the second wave of railroad construction in Europe. However, the results fit well with the previous findings. Overall, the authors find a positive but modest impact on the growth of per capita GDP in Europe. Railways seemed to have had a significantly greater influence on regions located in countries on the northern periphery of Europe than in other outlying areas. In the regions on the southern periphery, the expansion of the railroad network failed to homogenise the diffusion of economic development and tended to further benefit the regions that had already industrialised. In general, railways can have a positive impact, but it depends on the cities that get connected. Expanding the railway network alone is not sufficient to support a poor region in catching up. Recently, Heblich, Redding, and Sturm (2020) have attempted to understand the effects of infrastructure on even lower geographical units. In the case of London, they show that with the emergence of railways and subways, people started moving to the suburbs and commuting to their place of work in the city centres. As a result, employment and residence locations became increasingly segregated.

Access to regional private banks, public banks, such as savings banks and credit cooperatives, and access to regional stock markets are also likely to be important for regional development, especially in remote areas where capital demand is not large enough to attract larger banks. Heblich and Trew (2019) exploit employment data from 10,528 parishes across England and Wales to establish a causal role for banking access in the spread of the Industrial Revolution during the period 1817-1881. Moreover, they show that banking access stimulated urbanisation. For Germany, Lehmann-Hasemeyer and Wahl (2021) show that the foundation of public savings banks in rural areas positively influenced city growth (see also Proettel 2022). The proximity to a regional stock exchange may also have had a positive impact on a region. At least the findings of Lehmann-Hasemeyer and Streb (2016) suggest this conclusion by showing that the Berlin stock exchange was an important hub for innovative start-ups. Smaller stock markets were less important to innovative companies than Berlin, but still attracted numerous smaller innovative firms (Lehmann-Hasemeyer and Streb 2021). As OCR techniques improve, it becomes increasingly easy to obtain large amounts of data on small regional units. This will make it easier in the future to understand the causes of industrialisation at the regional level.

12 Conclusion and Outlook

Our review of European regional and urban development from antiquity to the long 19th century showed that, if we look only at countries, development appears to be remarkably continuous. Although we observe some ups and downs, the current European heartland has always been the most developed part of Europe. This pattern of pronounced persistence, but also of change due to a few very significant shocks such as the Black Death or the Reformation, requires that future cliometric research focus even more on the mechanisms and channels that lead to these persistent regional disparities.

The review also makes clear that there is still much to learn about the European periphery. Some countries like Great Britain, Germany, France or Spain have been studied way more intensively than countries like Russia, Poland, Hungary or Romania. Research in the last 10 years with its focus on smaller regional entities away from the country perspective has provided very interesting insights. Regions, counties, cities, and even city districts developed very heterogeneously. This is partly due to the fact that most exogenous shocks did not hit particular countries but geographical units. This has also proven to be very useful

in implementing suitable identification strategies to clearly identify causal drivers of economic development. Most importantly, however, based on lower levels of aggregation, we learnt that exogenous shocks like wars, globalisation and deglobalisation, economic crises, or natural disasters often changed the fate of the regions and areas for a very long time. Thus, the apparent persistence often conceals different developments at lower levels of aggregation.

To understand regional disparities today and also to implement suitable policies to help poorer regions and cities catch up, it is necessary to learn about the long-run sources of these disparities. The further improvement of the technical possibilities to digitise large data sets from different types of sources will provide excellent opportunities for economists and economic historians to extract these data and learn more about the past in the years to come. More data are also needed to learn more about the historical development of rural areas, about which we do not know much before the 19th century, although in the past the majority of people lived in rural villages.

More and better data are also needed to gain more insights on the effects of several aspects in which regional economic research began to be interested only very recently but on which research is growing fast, like regional identities, cultures, and traditions, but also start-up activities and very early developments.

Like most empirical economics, this literature tends to favour internal validity over external validity and thus often examines a very clean empirical framework, but also one in which the area under study is small and/or the treatment under study is a one-time shock. While this approach has been very fruitful and has many merits, it gives the impression that history consists of a series of unrelated, random, and local shocks. Although this is true, in order to understand the long-term temporal evolution of regional and urban development, it seems necessary to also consider a more general perspective in order to identify more systematic historical patterns.

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