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### Title

The Great Escape: A Review Essay on Escape from Rome: The Failure of Empire and the Road to Prosperity by Walter Scheidel (Princeton University Press, 2019)

### Permalink

<https://escholarship.org/uc/item/4gg5q63b>

### Journal

Cliodynamics, 11(2)

### Author

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### Publication Date

2020

### DOI

10.21237/C7clio11251633

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## **The Great Escape**

*A Review Essay on Escape from Rome: The Failure of Empire and the Road to Prosperity by Walter Scheidel (Princeton University Press, 2019)*

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### **Why Europe?**

Why did Europe, the northwestern peninsula of the great Afro-Eurasian landmass, enter a rapid phase of development around 1500, which by 1800 (or 1900 at the latest) resulted in its military, technological, economic, and cultural dominance of the world? This event in world history was enormously consequential. It resulted in what the Stanford historian Walter Scheidel calls the Great Escape, which enabled a large proportion of the world population (but sadly not all) to escape poverty, high childhood mortality and endemic disease, ignorance, and oppression. This is such an important question that thousands of articles and books have been written to answer it. *Escape from Rome* is a recent and valuable addition to this debate (full disclosure: Walter Scheidel and I have collaborated on several projects and published a joint article, see Turchin and Scheidel 2009).

Scheidel is one of the rare (but becoming more common) historians who are willing and able to entertain general theories to answer Big Questions. He ruefully acknowledges that his focus on general explanations (including such bugbears as “geographic determinism”), the big picture, and “long-termism” is bound to irritate “microscopically inclined historians.” But his careful (even if verbal and qualitative) theory building coupled with a mass of quantitative data for testing these ideas, presented in tables and maps, amounts to what one could call “verbal cliodynamics” (for cliodynamics, see Turchin 2008). Borrowing a page from evolutionary science, Scheidel distinguishes the questions of *ultimate* causality (which is where geography and ecology play the most important role) and those of *proximate* mechanisms (the interplay of a multitude of cultural, social, institutional, economic, and military factors that are shaped and constrained by geography and ecology). The wealth of historical detail on the proximate causes helps to flesh out the bare bones of the theoretical argument concerning the ultimate causes and is a particularly enjoyable aspect of the book (at least, to those of us who have an “inner historian”).

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*Citation:* Turchin, Peter. 2020. The Great Escape: A Review Essay on *Escape from Rome: The Failure of Empire and the Road to Prosperity* by Walter Scheidel (Princeton University Press, 2019). *Cliodynamics* 11: 77–87.

*Escape from Rome* is a big book (670 pages) and there is much to discuss. In this review essay I focus on just these questions: why Europe was disunited after the fall of the Roman Empire; how this disunity helps us understand the rise of Europe and the Great Escape; and what kinds of methodologies we can use to resolve such questions.

## **The Topography Effect**

The contrast between politically fragmented Europe and perennially centralized China has been often noted. It is worth pointing out, however, that this difference is not quite as black-and-white as it is typically portrayed. Large chunks of Europe (quite comparable in size to Chinese empires) were unified at various times. These polities include not only the Roman Empire, but also the Carolingian Empire, and, more fleetingly, Napoleonic France and the Third Reich. At the other end of Eurasia, China was not always under a centralized state. There were numerous periods of disunity and fragmentation, most notably the three centuries from the collapse of the Han Dynasty to the Sui/Tang unification.

Nevertheless, even though it is not quite as stark as it is often portrayed, the difference between the western and eastern ends of Eurasia is real, and Scheidel brings an impressive array of figures to buttress this conclusion. The starting point of *Escape from Rome* is an observation that two thousand years ago two quite similar political organizations, the Roman Empire and Han China, dominated western and eastern Eurasia, respectively. It was after these empires failed that the “First Great Divergence” came about. In Europe, periods of unification became more fleeting and periods of disunity longer, while in China, on the contrary, periods of fragmentation following recurrent imperial collapse became shorter.

Most authors point to geography to explain this divergence. One of the best-known arguments was popularized by Jared Diamond in *Guns, Germs, and Steel* (Diamond 1997). Diamond noted that China has a smooth coastline, while Europe has an indented coastline, with many peninsulas that were homes to independent countries. According to him, unlike China, Europe is transected by mountain ranges (the Alps, the Pyrenees, the Carpathians) that split it up into different realms. And in Europe major rivers flow radially, while in China the two most important rivers flow parallel to each other. Let us call this the “Topography Effect.”

The first problem with this explanation is that inland seas and straits do not have to be dividers. The Mediterranean is the best example, as it was hugely important as a conduit for cultivars, genes, ideas, armies, and goods. The Phoenicians and the Greeks spread to the western end of the Mediterranean, with the former taking the southern route and the latter going along the northern coast. The Roman Empire would have been impossible without this Mediterranean connectivity (Horden and Purcell 2000, Manning 2018). The population of Rome itself (around a million

at its imperial height) could be fed only by bringing grain from North Africa and Egypt by sea. Two maps in *Escape from Rome* (Figures 3.5 and 3.6) showing the time costs and financial costs of transfers between Rome and the imperial provinces illustrate this idea graphically. The Baltic Sea, the “Northern Mediterranean,” was similarly a connector, not a divider.

Furthermore, even after the Roman Empire fell, the peninsulas of Europe continued to be well connected by inland and coastal seas and often found themselves within single states. Thus, both Byzantium and its successor, the Ottoman Empire, unified most of the Mediterranean from the Maghreb to Egypt, the Balkans, and Anatolia. The Spanish controlled Italy for many centuries and more recently France conquered Algeria. The situation today, with each peninsula controlled by a separate country, is unusual, historically speaking.

Unlike inland seas, mountain ranges are clearly dividers. However, although Europe is divided by a series of mountain ranges (Pyrenees, Alps, Carpathians) into the northern and Mediterranean parts, north of these ranges the continent is quite flat. The North European Plain runs from Bordeaux in southern France (where it is narrowest) through Germany and Poland to Russia (where it becomes very broad). There are no significant barriers within it to the movement of armies and conquest. As a result, Paris fell to the Russians and to the Germans (on several occasions), while Moscow fell to the Poles, the French, and (nearly) the Germans. Such conquests did not lead to lasting unification, but the reason is not topography.

China is much more cut up by mountains. One of its most important cities, Xian, the capital of the first unifying empire (Qin) and many later ones, is cut off from the rest of China by mountains. In fact, the area around Xian is known as the “Land between Passes,” and some Chinese historians have argued that it served as the unifying center precisely because it is a good defensive base from which to expand. The logic of this argument, of course, is the precise opposite of the Topography Effect hypothesis. Other mountain ranges cut the Sichuan Basin and southern China off from northern China. So, the topography of China is much more complex than that of Europe. The eastern plain of China is indeed flat. But if topography were the most important factor, we would expect that China would be repeatedly unified from the Yangtze valley or the lower Huang He (where it is reliably navigable). As we shall see below, this is not the case.

Contrary to the Topography Effect hypothesis, China was in fact unlucky with the situation of its rivers. Whereas Europe has rivers flowing in all directions, making it easy to travel both east-west and north-south, China is dominated by rivers flowing from west to east. As a result, it is very difficult to move bulk goods in the north-south direction. The Chinese solved this problem with a truly remarkable piece of engineering—the Grand Canal (length = 1,776 km). But it was not

the Canal that made unification possible; it was political unification that made building the Canal possible.

In a recent working paper Fernández-Villaverde and colleagues (2020) developed a dynamic model that explored the effect of topographical features and the location of productive agricultural land on state formation in Eurasia. They found that in their model a core region of high agricultural productivity in eastern China (which they however misname Northern China) plays a central role in China's recurring political unification. However, model-predicted origins of unification cluster along the east coast of China between the mouths of the Yangtze and Liao Rivers. Only 1 out of 49 unification centers is located near Xian in the north-west, even though Xian was historically the most common unification center. Such a major mismatch between model predictions and empirical patterns throws serious doubt on the authors' conclusion that their "fractured-land" hypothesis is supported.

To summarize, in my opinion, the differences in geographic "backbones" of Europe versus China—the configuration of the coastlines, mountain chains, and major rivers—do not help in explaining the contrast between fragmented Europe and united China. Scheidel's conclusion is more generous in that he concedes some explanatory value to the Topography Effect. But he immediately qualifies this concession by pointing out that "it is imperative to expand our analysis beyond coastlines, mountains, rivers, and soils to consider a more specific and arguably even more powerful factor: proximity to the steppe." Here we are in agreement, which should not be surprising as much of the section on "the steppe effect" (pp. 270–81) in the book relies on research by my colleagues and myself (Turchin 2006, 2009, Turchin et al. 2013, Bennett 2020).

## **The Steppe Effect**

The gist of the argument is as follows. The Great Eurasian Steppe stretches some 7,000 km from Manchuria to Wallachia. After the Eurasian pastoralists developed horse riding around 1000 BCE (Turchin et al. 2016), the steppe became home to nomadic horse archers who, despite their relatively small numbers (in comparison to the neighboring agricultural regions), wielded enormous military power. This power was due to their plentiful supplies of horses, which were the most important military "technology" during the ancient and medieval eras; to their high military participation rate, as all adult men were warriors; and to their riding and archery skills resulting from their nomadic pastoralist way of life. This preponderance of military power, coupled with a perennial need for agricultural products, created a high potential for conflict and warfare on the frontiers where the steppe abutted agrarian regions. In *The Perilous Frontier* Thomas Barfield (1989) advanced a "shadow empires" model, according to which steppe pastoralists formed confede-

rations to obtain the needed products from adjacent agrarian empires by raiding, extortion, or forced trade whose terms favored the steppe dwellers. I added to Barfield's model by arguing that just as the presence of sedentary empires exerted a pressure on the steppe to unify, the causality also flowed in the opposite direction: aggressive imperial confederations in the steppe exerted pressure on farming societies to scale up their polities. This autocatalytic process of mutual causality resulted in a recurrent formation of "mirror empires" on both sides of the steppe frontier (Turchin 2009). In addition to this direct effect, the steppe also exerted an indirect influence that radiated out through Afro-Eurasia. Because cavalry (first horse archers, later supplemented by heavy cavalry) was extremely effective at prosecuting war, agrarian polities eagerly adopted it and used it in wars with their neighbors. As a result, cavalry gradually spread throughout Afro-Eurasia, and later to the New World.

The Steppe Effect explains why the incidence of mega-empires (territorial polities controlling a territory of 1 million km<sup>2</sup> or more) is very high on the steppe frontiers—the contact and conflict zones between nomadic pastoralists and settled agriculturalists. Incidence of mega-empire rapidly declines with distance from the Eurasian Steppe. It also explains why the European states (at least after the fall of the Roman Empire) were an order of magnitude smaller than in China—Western Europe was insulated from the Steppe Effect by eastern Europe (which gave rise to several mega-empires, the most recent of which is Russia). As Scheidel reviews, the Steppe Effect is supported by a number of additional lines of argument. For example, with a single exception, all unifications of China originated in the northwest or north—in other words, from the steppe frontier, areas that due to their climate had much less productive agriculture than, for example, the lush Yangtze delta.

## **Interpolity Competition**

What were the consequences of European disunity for world history? The central argument in *Escape from Rome* is that the most important condition for the breakthroughs to modernity, which took place initially in northwestern Europe (the region of Eurasia that was most insulated from the Steppe Effect), was *competitive fragmentation of power*. Scheidel develops this argument in detail in Part V of the book. He goes through an impressively large list of proximate mechanisms. Intensifying interstate competition fosters innovation, both institutional and technological. It boosts state capacity, economic progress, representative institutions, urban development, and "cultures of knowledge." I will not try here to retell this story, which is very well detailed in *Escape*; instead, I would like to shift from the mass of proximate mechanisms to a more abstract level, that of ultimate causality. In particular, I draw a parallel between Scheidel's central argument and recent develop-

ments in cultural evolution (Richerson and Christiansen 2013), the most relevant of which is Cultural Multilevel Selection (CMLS).

The logic of CMLS, applied to the evolution of western European polities, is simple and quite compelling. Cooperation within a polity imposes costs on all parties. Rulers prefer to wield absolute power over the nobles and commoners, which leads to despotism. Selfish elites oppress commoners but would rather decline contributing resources to the rulers. Commoners just want to survive and are disinclined to pay taxes or provide recruits for wars. Intense interpolity competition, however, compels rulers and their constituencies to cooperate and compromise. Those polities that fail to achieve at least some degree of cooperation are eliminated and replaced with others that are internally more cooperative. This is what happened to early modern Poland-Lithuania, which lost its capacity for internal cooperation and was carved up by its neighbors in a series of “partitions” in the eighteenth century. As time unfolds, the level of intrapolity cooperation needed for survival grows, as only the most cohesive ones survive. This is the essence of CMLS: polity-level beneficial traits can evolve despite their costs for intrapolity constituencies, but only under the conditions of intense interpolity competition (Turchin 2016). Note that “polity-beneficial traits” include not only cooperative social norms and institutions, but also military technologies, economic innovations, prosocial religions, and cultures of knowledge.

Furthermore, elimination of uncooperative and dysfunctional polities is only one mechanism of CMLS, if the most powerful. Equally important, and perhaps more common in action, is selective imitation of successful polities. This was most clearly visible in the realm of military innovations. Under the conditions of intense interstate warfare following the Military Revolution of the fifteenth and sixteenth centuries (Roberts 1956), new models of firearms and cannon, innovations in tactics and drill, and developments in fortification and siege warfare were eagerly sought after and copied. Similar processes were involved in other realms—economics, finance, technology, and science, of which many examples are discussed in *Escape from Rome*.

Interpolity competition is a special case of a more general process, cultural group selection, which is still a controversial subject among evolutionary scientists (see the programmatic article by Richerson et al. 2016 and the commentaries on it). Curiously, however, the mechanism of cultural group selection is the core of many theories in economics, archaeology, and other social sciences, although they do not use this particular term. Examples include the “creative destruction” of Joseph Schumpeter, “peer-polity interactions,” first introduced by Morton Fried (1967) and later formalized by Renfrew and Cherry (1986), and, of course, the central argument in *Escape from Rome*.

## **How Do We Study Unique Events in History?**

The final question that I would like to address here is a methodological one. Scholars have now advanced dozens of theories explaining why the breakthrough to modernity happened in Europe. Many of these explanations stress European polycentrism, as Scheidel notes, but not all. Some emphasize demography, such as Gregory Clark's (2007) idea that as the more successful individuals outbred the less successful, genetic traits that favored hard work, literacy, and numeracy spread through the European population, eventually triggering the Great Escape. As Scheidel notes (and I concur), "this idiosyncratic approach has not stood up well to peer criticism" (see also Hoyer and Manning 2018). Other demographic explanations stress the so-called northwestern European marriage pattern and the role of the Black Death. Features of geography other than topography or the distance from the steppe have also been prominently featured in some alternative theories. Some point to the abundance of coal in England, others to the relative accessibility of the New World across the Atlantic, compared to the much broader Pacific. This list can be multiplied.

The essence of science is that it requires that theories should be amenable to empirical tests. Thus, an idiosyncratic explanation that is entirely based on a unique feature of Europe may be true or false, but it is not a scientific one because it is untestable. There are an infinite number of features that uniquely apply to Europe, and we have no basis to decide which are relevant, and which are not. To apply the scientific method to the question "Why Europe?" we must consider general theories that apply beyond early modern Europe.

Analyses that are confined to single cases ... cannot deal effectively with factors that are largely or completely held constant within the boundaries of the case ... This is the reason why going beyond the boundaries of a single case can put into question seemingly well-established causal accounts and generate new problems and insights (Jürgen Kocka 2009, quoted in *Escape from Rome*, p. 22).

One tactic that Scheidel uses is counterfactual reasoning, in which the likely historical consequences of varying explanatory features are discussed. This has generated considerable discussion (for example, Koyama 2020). I agree that counterfactuals have a tremendous potential in historical sciences, in which we cannot do controlled experiments. However, Scheidel's use of this approach shows the limits of "verbal cliodynamics." In my opinion, counterfactuals can be done only on the basis of explicit mathematical models. I return to this question in the concluding section.

Where *Escape from Rome* shines is in the application of a less formal comparative method. Scheidel's empirical evaluation of the hypotheses explaining

disunited Europe goes well beyond the contrast between Europe and China (which the great majority of previous scholarship had limited itself to) and ranges broadly across Eurasia. For example, China was not the only world region of recurrent “imperiogenesis” (a term I suggested in Turchin 2006). As Mark Altaweel and Andrea Squitieri write in *Revolutionizing a World: From Small States to Universalism in the Pre-Islamic Near East* (2018), following the collapse of the Neo-Assyrian Empire, “not only did the region not fragment politically, but also states became even larger and, even after their scale reached a peak in the Achaemenid period or even in that of Alexander’s empire, for millennia empires continued to be large, often spanning large parts of Eurasia.” In South Asia, which was connected in the northwest to the Great Steppe by a belt of open shrubland, imperiogenesis was less continuous, but still impressive.

Equally important are those regions of Eurasia that were insulated from the Steppe influences, or in the “protected zone” as Victor Lieberman has called it (incidentally, the magisterial two-volume *Strange Parallels* is a worthy precursor to *Escape*, see Lieberman 2003, 2010). In addition to western Europe, the protected zone includes Southeast Asia and southern India, regions that were similar to Europe in their lack of recurrent imperiogenesis on a large scale.

Scheidel uses a similar approach in evaluating the empirical adequacy of the idea that interpolity competition breeds institutional innovation and commercial development. Here he focuses on the periods when China was disunited. He quotes Jean Baechler: “Each time China was politically divided, capitalism flourished.” The Warring States period (after the fragmentation of Western Zhou and before the Qin unification) “was marked by seminal creativity, from the rebuilding of state structures to the Hundred Schools of Thought,” which included Confucianism, Taoism, Legalism, Mohism, and others. In *Firearms: A Global History to 1700* Kenneth Chase (2003) similarly noted that the development of gunpowder weapons in China was feverish during the fragmentation periods but ran to a standstill under unified regimes. Going beyond the case studies discussed by Scheidel, I would add that competition within peer-polity systems is often associated with rapid innovation. In addition to early modern Western Europe and the already mentioned Warring States in China, other examples of peer-polity systems include Classical Greece, Central Europe in the early Iron Age, medieval northern Italy, and the medieval-early modern Hanseatic League. In *The Creation of Inequality* Kent Flannery and Joyce Marcus (2012), following their review of four historical and two archaeological examples of the evolution of early states, concluded that in each case such states arose in the landscape of competing chiefdoms. Apparently, “competition among chiefs ... was one of the engines driving the process.”

## Where Do We Go from Here?

My overall assessment of *Escape from Rome* is, thus, very positive. I am persuaded by the arguments and data that Scheidel brings to buttress his two central theses, that competitive fragmentation of power was the decisive factor in the rapid development of early modern Europe, and that this fragmentation itself was ultimately a result of the relative isolation of this region from steppe military pressure. This book is a brilliant example of the power of the comparative method in resolving Big Questions in history.

This does not mean that we are done. Many open questions remain. For example, I am not convinced that *intrapolity* fragmentation of power (as opposed to *interpolity* competition) between the rulers, elites, the church, and cities, which eventually led to more democratic forms of governance (as it is often argued), was an important factor in early modern European development. A group of archaeologists recently challenged the (often) automatic assumption that democracy was a uniquely European development and that despotic rule characterized most premodern states (Blanton et al. 2020, see also Stasavage 2020). And as I indicated above, I remain unconvinced that local topography has explanatory value for European disunity or Chinese unity.

As I see it, the way forward for resolving such issues is very much along the lines that Scheidel uses in *Escape from Rome* but taking it further than any single scholar can do. First, we need to use the comparative method on a truly massive scale, ideally using all knowledge about past societies that historians, archaeologists, and other scholars collectively possess. A single scholar, no matter how knowledgeable, cannot encompass this huge stock of information. As we suggested, what is needed is a collaboration of many scholars and scientists who contribute to large historical databases (Turchin et al. 2015).

Second, we need to supplement verbal counterfactual reasoning by explicit mathematical models that rigorously connect theoretical assumptions to quantitative predictions. Again, this is not something that a single modeler can do. There are too many special questions and alternative modeling approaches. Rather, what is needed is a collective effort by multiple crews of modelers who ask similar questions and use a shared pool of historical data to parameterize and empirically test their models. Such efforts have already begun (e.g., Turchin et al. 2013, Bennett 2015, 2020, Ko et al. 2018, 2020, Fernández-Villaverde et al. 2020), but we need to apply this methodology on a massive scale. Ultimately, the best way forward to resolving Big Questions in history, a discipline in which we cannot use controlled experiments, is merging Big Data approaches with Complexity Science models. The prospects for such an empirical-theoretical synthesis are bright.

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