

Trade and Political Fragmentation on the Silk Roads: The Economic Effects of Historical Exchange between China and the Muslim East

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Abstract: *The Silk Roads stretched across Eurasia, connecting East and West for centuries. At its height, the network of trade routes enabled merchants to travel from China to the Mediterranean Sea, carrying with them high-value commercial goods, the exchange of which encouraged urban growth and prosperity. We examine the extent to which urban centers thrived or withered as a function of shocks to trade routes, particularly political fragmentation along natural travel paths. We find that political fragmentation along the roads to Aleppo and historic Chang’an — major terminus locations for cross-regional trade—damaged city growth. These conclusions contribute to our understanding of how a premodern international system operated through an examination of exchange between the two most developed world regions of the medieval and early modern periods, China and the Muslim East.*

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The Silk Roads were among the world’s most important historical commercial routes, connecting economic interests in prosperous areas like China and the Middle East for centuries. Commodities traded on these trans-Eurasian routes included silk, coral, pearls, glass, jade, gems, perfumes, and incense. During the medieval and early modern periods, Chinese–Middle Eastern trade was both a reflection and driver of economic prosperity, with scholars suggesting the Silk Roads constituted a cross-regional economy (Buzan and Little 1994) that played a crucial, connecting role in an emerging “world system” (Abu-Lughod 1989).

Scholars focused on historical Silk Roads trade emphasize the costs and dangers associated with overland exchange (e.g., Frankopan 2016; Millward 2007). Scholarship in this vein suggests that political fragmentation may have been a hindrance to gains from cross-cultural

trade. Fragmented authority created opportunities for state actors to demand tolls and taxes from merchants; uncertain political control increased the possibility for brigands to predate on travelers, further raising the cost of exchange. We home in on historical overland trade between China and the Middle East to show the economic effects of political shocks on one measure of economic development—city size. Merchants, including those who traded foreign luxury goods, were among the wealthiest urban dwellers of the medieval and early modern periods. We find that greater political fragmentation on the roads to Aleppo and historic Chang’an (contemporary Xi’an)—major Silk Road terminus points—damaged gains from trade since traders and their agents had to contend with uncertainty and multiple tariffs on their route. These results persist even after controlling for both city and time fixed effects, among other control variables,

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as well as the Chinese tribute system, which created commercial, diplomatic, and security ties between imperial China and smaller, surrounding polities.

The results we present speak to the question of how political fragmentation and jurisdictional uncertainty impact the gains from cooperation. Scholars have long suggested that a well-ordered world is conducive to trade and cross-cultural exchange.¹ Simmons (2005, 843) argues that the question of “who is formally sovereign over what geographical space” is a first-order concern where ambiguity regarding rules and legal protections reduces cross-border transactions. Epstein (2000, 8) finds that jurisdictional fragmentation increased “negotiation, enforcement, and exaction costs” associated with historical trade. For example, fragmentation created potential for actors like the medieval “robber knights” to impose high taxes and tolls on rivers and roads that were located in their territories. Cox (2017, 726) defines the phenomenon more generally as intra-route fragmentation—the split in governing authority along a single shipping route, a situation that leads to overtaxation of the common pool of merchants.² Our analysis provides an empirical assessment of how barriers to trade hindered premodern economic development.

These ideas contrast with research that has suggested political fragmentation—due to competing war-prone states (e.g., Tilly 1992), the effects of feudalism on executive constraint (e.g., Blaydes and Chaney 2013), or the existence of merchants’ exit options (e.g., Cox 2017)—has had positive effects on institutional development in Europe.³ In Asia, political fragmentation (when it did occur) failed to generate forms of executive constraint and may have hindered the ability of societies to benefit from cross-cultural exchange. Our findings contribute to political economy research focused on the historical development of Asia (e.g., Dincecco and Wang 2018; Rosenthal and Wong 2011) and suggest the ways of

¹Empirical evidence suggests that conflict disrupts trade (Anderson and Carter 2001) and there are persistent negative impacts of war on economic welfare (Glick and Taylor 2010).

²Schleifer and Vishny (1993) describe a state road as the most basic of government-produced goods; government officials have the right to restrict access to that good, but when state authority is low, overtaxing via corruption can slow economic development. Dincecco (2010) examines institutional fragmentation and associated proliferation of customs tariffs within states along the Rhine in the eighteenth and nineteenth centuries.

³Schiedel (2019) argues that fragmentation (a term he uses interchangeably with “polycentrism”) was essential for economic development. He writes that in Europe after the fall of the Roman Empire, “enduring polycentrism...sustained development-friendly institutional arrangements, encouraged overseas exploration and expansion, and allowed a culture of innovation and bourgeois values to take hold” (Schiedel 2019, 503).

economic development in Asia followed a different path from that which occurred in Europe.

Most generally, this article speaks to the question of how international systems operate, and it does so in a way that increases our understanding of premodern international systems operating outside of the European context.⁴ Influential scholars in international relations have sought to draw attention to “system effects” in international history, arguing that systems are characterized by forms of interconnectedness where “the fates of the units and their relations with others are strongly influenced by interactions at other places and at earlier periods of time” (Jervis 1997, 17). Theoretical and empirical explorations of these issues have focused on the emergence of the system of sovereign states in Europe (Spruyt 1994) and the effects of the Chinese tributary regime on the international system in the East Asian context (Kang 2013).⁵ We focus on the Silk Roads as an international system—one made up of a variety of interconnected actors including merchants, artisans, and bandits, as well as states and their agents—in order to contribute to scholarly understanding of historical global encounters and their effects.

The Global Economic Order before Western Hegemony

Existing scholarly work suggests the lack of a global economic hegemony before the eighteenth century.⁶ At the start of the early modern period, China was arguably the greatest economic power in the world, with a population of more than 100 million, a productive agricultural sector, and craft industries superior to those found in other parts of Eurasia (Atwell 1998).⁷ As European markets grew in importance, demand increased for Asian perfumes, spices, and silks.⁸ Many of these luxury goods

⁴There is relatively little scholarship that addresses how international systems function, particularly in the past. This intellectual blind spot is more acute for regions outside of Europe, as scholarly conceptions of the international system have been based on the European experience (Buzan and Little 1994).

⁵A growing literature explores the determinants of historical Chinese hegemony in Asia (Lee 2016), as well as sovereign autonomy in the East Asian context (Park 2017).

⁶Abu-Lughod (1989, 364–365) argues that there existed multiple powers in a nonhierarchical, interdependent world economic system during the medieval period.

⁷Frank (1998, 324) writes that until 1700, there was nothing “exceptional” about Europe other than its relative marginality and “correspondingly minor role in the world economy.”

⁸Blaydes and Paik (2016) link Holy Land Crusades to urban growth and associated demand for Eastern commercial products.

traveled through Persia and the Levant, eventually arriving in Aleppo. This section discusses the conditions under which trade routes connected urban areas, including how political fragmentation along travel paths may have hindered the gains from exchange.

Trade, Cities, and Political Order

One key challenge associated with identifying the historical global distribution of economic power relates to measurement. Influenced by scholarship in the field of political economy, we adopt city size as a proxy for economic development in the preindustrial period. De Long and Shleifer (1993, 675) suggest that the population of preindustrial European cities serves as the best available indicator of economic prosperity, since urban areas relied on high levels of agricultural productivity and specialization. Acemoglu et al. (2002) present cross-sectional and time-series evidence suggesting an empirical association between urbanization and income per capita for cities around the world in the preindustrial period. Stasavage (2014) uses city size as a proxy for economic flourishing in premodern Europe.

City population estimates from Africa, Europe, and Asia suggest that between 1100 and 1800 CE, the largest cities in the world were located primarily in China and the Middle East.⁹ Indeed, Eurasia's urban "center of gravity" for much of the last millennium was located in contemporary Iran.¹⁰ By 1800, however, the cities of Northwestern Europe increasingly became among the world's largest, alongside Asian cities. Kupchan (2012, 3) argues that the world's center of influence shifted from Asia and the Mediterranean to Europe by the eighteenth century, with important implications for the ability of the West to use "its power and purpose to anchor a globalized world."

One reason that the Middle East and Central Asia thrived for so long relates to the central location of the region with regard to trade routes. Among the most prominent of these routes were the Silk Roads. The term *Silk Roads* refer to "all the different overland routes leading west out of China through Central Asia to Syria and beyond" (Hansen 2012, 235). Christian (2000, 3) defines the Silk Roads as "the long- and middle-distance land routes by which goods, ideas, and people were exchanged" between regions of Eurasia.

Trade was an important driver of prosperity in urban areas. Merchants engaged in long-distance trade were

among the wealthiest residents of Eurasian cities. Gilbar (2003, 1) argues that long-distance traders were "at the very top of the ladder of the commercial community" given the size and scope of their economic activities as well as their possession of liquid wealth. Frankopan (2016, 144) finds that merchants made fortunes meeting demand for luxury goods from China and India. Court records from fifteenth-century Bursa suggest the city's wealthiest merchants were those involved in the spice or silk trade (Inalcik 1994, 344–45).

Yet trade ties could be disrupted, damaging prospects for merchants. Caravan routes could be disturbed by war, political change, and Bedouin incursions (Constable 2010). How did shocks to trade impact the growth of cities in China and the Muslim East? Blaydes and Paik (2019) find that proximity to historical Muslim trade routes was positively associated with urbanization in 1200 but not in 1800. In other words, Middle Eastern and Central Asian cities—long beneficiaries of locational centrality between Europe and Asia—declined as Europeans found alternative routes to the East and opened new trade opportunities in the New World.

In this article, we focus on another disruption to trade—political fragmentation—that damaged economic growth along major land routes connecting Western to Eastern Asia. Why focus on Asia? Beyond the need to decenter world historical studies away from a focus on Europe, there are theoretical and empirical benefits from such an approach. First, as discussed in the previous section, the Eurasian urban center of gravity was located in Asia. The Middle East and China, despite important differences of religion and philosophy, shared historical parallels, including their vulnerability to external actors, such as nomadic tribesmen (Harris 1993, 23). Park (2012, 191) writes that "the history of contact and exchange between China and the Islamic world offers one of the most remarkable cases of pre-European encounter because it involves tremendous wealth, transformative ideas, and great power."

Second, we pick up on threads within the existing literature that suggest China served as the global economic heavyweight with which other cultures sought to trade. According to Frank (1998, 111), China was "unrivaled" in its production of luxury consumer goods. Indeed, China has been described as exhibiting "outstanding absolute and relative productivity in manufactures" (Frank 1998, 127).¹¹ As Europe become wealthier,

⁹See Figure 1 in SI Appendix D.

¹⁰See Table 1 in SI Appendix B.

¹¹India also produced important and valued goods. But given the predominance of sea trade opportunities—and our interest in overland trade—we are focused primarily on trade with China.

there was a strong interest in acquiring Chinese products. Frank (1998, 116–117) goes as far as to argue that “the entire world economic order was Sinocentric” until the eighteenth century.¹²

Even if we take Frank’s position on these issues to be extreme, relatively little scholarship has sought to understand the effects of political fragmentation outside of Europe. Much has been written about the benefits of political fragmentation in Europe, where fragmentation is thought to have created conditions ripe for limited government and, eventually, economic development.¹³ Although an influential literature has suggested that forms of political fragmentation have been directly or indirectly good for economic development (e.g., Blaydes and Chaney 2013; Cox 2017; Tilly 1992), fragmentation also damaged the gains to trade (e.g., Epstein 2000; Simmons 2005).¹⁴ In Asia, growth-promoting institutions, like parliaments, were slow to develop; we consider the conditions that encouraged or discouraged exchange and development outside of Europe. We argue that political fragmentation hindered the exchange of goods, hurting economic prosperity—and that the most appropriate place to test this argument is in premodern Asia, where the effects of fragmentation were not confounded by growth-promoting institutions, as developed in Europe.

Causes and Effects of Political Fragmentation

It is no coincidence that two of the most famous explorers of the medieval period—Ibn Battuta of Tangier and Marco Polo of Venice—made their famous cross-regional travels during the late thirteenth and early fourteenth centuries. In the century after the Mongols created the largest land empire in world history, political stability

¹²Sharman (2019) concurs, arguing that the dominance of European powers over Asian ones starting in the eighteenth century represents a historical anomaly.

¹³Fragmentation is thought to have been a common feature of European history. Schiedel (2019) argues that the emergence of the Roman Empire—Europe’s longest experience with imperial rule—was a historical anomaly. As Rosenthal and Wong (2011) point out, empire under Chinese dominance was the norm in East Asia, on the other hand.

¹⁴Tilly (1992) focuses on the impact of competition between small, war-prone polities on the development of national states. Blaydes and Chaney (2013) argue the decentralized forms of political control associated with feudal institutions had positive impacts on the emergence of executive constraint. Cox (2017) argues that political fragmentation, which provided exit options for merchants, combined with self-governing cities and parliaments to facilitate forms of executive liberty.

in Western Asia facilitated travel of people, goods, and ideas. Their characterizations of long-distance, cross-regional travel suggest the relative safety of their journeys. The most important challenges that they faced were related to extreme weather, not the dangers of travel.

But the movement of travelers, including merchants, might be disrupted for a variety of reasons, many of which were related to political fragmentation. In particular, periods of incomplete or uncertain political control could be highly disruptive to trade. Tribal warfare posed a security threat to traders (Abu-Lughod 1989, 158). According to Curtin (1984, 93–94), “to take a caravan through an uncontrolled nomad country would have been dangerous in the best of circumstances.” In Western China, trade routes were disrupted when border areas became insecure (Cinar, Geusz, and Johnson 2015); in the Caucasus, unrest and political instability made travel “impracticable,” whereas pacification of these regions allowed overland trade routes to be used with regularity (Matthee 1994, 740). According to Harris (1993, 22), “the emergence of small warring kingdoms...made the East-West highway more dangerous and difficult and populations along the route began to decline.”

Beyond that, traversing a number of different polities might lead merchants to incur multiple tolls as a result of political fragmentation. Individual merchants were often required to make payment for safe passage upon entering the territory of another state. As a result, “protection rent and tribute are natural and necessary concepts” for understanding premodern trade (Steensgaard 1973, 17). Long-distance traders who transported goods over land were concerned about being subject to taxes and fees (Frankopan 2016, 220) in addition to “customs duties...(and) extortion” (Steensgaard 1973, 60). Cinar, Geusz, and Johnson (2015) argue that prevailing rates of tax or tariff determined whether trade flourished.¹⁵ While even a fully organized state could not promise safety for travelers, state tax collectors were considered preferable to highway robbers since tax men were more predictable and had a larger interest in maintaining trade into the future (Steensgaard 1973, 62–67).¹⁶

¹⁵Historians have suggested that state-imposed tariffs in Persian cities, for example, varied across polities and could range from 4% in some localities to 16% in other locations (Cinar, Geusz, and Johnson 2015). In Russian areas, merchants were often required to pay transportation taxes as well as an *ad valorem* tax (Matthee 1994, 752).

¹⁶There was also a strong tendency to stick with agreed-upon customs duties and tariffs, especially in Islamic areas (Steensgaard 1973, 62).

Beyond the payment required by “potentates through whose territories” merchant caravans passed, nomadic people whose territories were traversed could also make demands (Goiten 1967, 279). Imperial states, such as the Mughuls and Ottoman, levied more predictable taxes on travelers, but merchants were also concerned with “highway robbers” who demanded payment for serving as an “armed escort” through hinterland areas (Barendse 2000, 217). Traders along the Russian overland routes were concerned about safety, “high tolls and poor security,” all of which could negatively impact trade (Matthee 1994, 752). Peaceful relationships between empires facilitated safe passage in border regions, leading to a flourishing of Middle Eastern trade with Mediterranean areas (Ranjbar and Manesh 2016). The importance and profitability of the Silk Roads “waxed and waned,” at least in part, as a function of stability on the edges of agrarian civilizations of China, India, Iran, and Mesopotamia (Christian 2000, 6).

Phillips and Sharman (2015) argue that large empires, on the other hand, generated systems of authoritative political control that helped to coordinate market activities across long distances. Christian (2000, 6) finds that “when the agrarian civilizations or pastoralist empires dominated large sections of the Silk Roads, merchants traveled more freely, protection costs were lower, and traffic was brisk.” How did states matter in supporting trade? In historical Persia, for example, specialized highway police were stationed at regular intervals along trade routes to maintain order; they were paid a modest, fixed duty per beast of burden that passed (Steensgaard 1973, 68). In some cases, local governors could even be held responsible if a traveler was robbed and stolen goods could not be recovered (Steensgaard 1973, 69). Interior security and a well-functioning toll system contributed to prosperity for the Persian economy (Ranjbar and Manesh 2016).

Scholars have struggled to explain the complex causes of political fragmentation and jurisdictional uncertainty.¹⁷ At times, large imperial units would take control of vast swaths of territory. The process by which large states emerged often involved “consolidating groups into a single confederation” that might spread across the steppe to include new territories and peoples

¹⁷Abramson (2017) provides an account for the formation of states in Europe and associated political fragmentation between 1100 and 1790. He finds small political units tended to proliferate when weather-related shocks aided the growth of towns. The situation in Europe, where cereal production drove economic conditions, contrasts with the Central Asian context. In Central Asia, geographies of desert, plateau, and mountain pasture made livestock production more prominent than cereal production.

(Rogers 2007, 258). Rogers (2012, 206) argues that there is no obvious explanation for when and why successful polities developed and that polities “emerged, existed, and collapsed in ways that often defy conventional understandings.” State formation and collapse, then, can be thought of as caused by a complex set of factors, with a large number of exogenous contingencies (Rogers 2007, 265).¹⁸ Indeed, part of our approach to causal identification relies on an increasing preponderance of archaeological and historical climate science evidence that suggests state formation on the Eurasian steppe was a function of environmental factors.

One factor that might have worked against the negative effects of political fragmentation was the Chinese system of tribute. Zhang (2013) describes the tribute system as embodying institutions and norms that dominated China’s relations with the non-Chinese world until the nineteenth century. By providing stability and security, Chinese regional hegemony may have operated in a way consistent with hegemonic stability theory, which suggests that a hegemonic distribution of power can have positive effects on trade openness (e.g., Krasner 1976). Other scholars, however, have suggested that premodern China was not able to create an open trade order (Shu 2012) and that the application of a tributary-system model to historical international relations is problematic (Van Lieu 2017). For example, Perdue (2015) contends that arguments that suggest a systematic Chinese tributary system are misleading given the multiple and complex relationships of trade, diplomacy, and ritual between China and other Asian polities. Our empirical analysis provides evidence testing the effects of changes in tribute status on urban growth.

Trade Shocks and Prosperity on the Silk Roads

Between 200 BCE and the beginning of the Common Era, overland trade between China and the eastern Mediterranean polities of the Middle East became a regular occurrence (Curtin 1984, 90). In fact, the very origins of the Silk Roads have been associated with periods when Eurasia was characterized by a small number of large land empires. The emergence of long-distance Eurasian trade was temporally linked to the Han Dynasty’s unification of China as well as Han extension of political control into

¹⁸Similarly, Schiedel (2019, 272) argues that on the Central Asian steppe, both “the scale and intensity of imperiogenesis were profoundly shaped by ecological features.”

the Xinjiang region. In Western Asia, the Roman Empire extended political control across the Mediterranean. The timing associated with the growth of these trade routes suggests a linkage between consolidation of political control in China and the Mediterranean basin. Thus, while the location of the Silk Roads may have been determined by geographic features, such as “mountain passes, valleys, and springs of water in the desert” (Hansen 2012, 235), the robustness of trade connecting urban areas may have been a function of political factors. In this section, we review some of the existing qualitative evidence regarding how forms of political stability and imperial consolidation impacted cross-cultural exchange in the premodern period. If our main conjecture is correct, we should see supportive evidence reflected in the historical literature.

Imperial Consolidation and Silk Road Development

Historians have argued that the Silk Roads enjoyed a “golden age” during the Tang Dynasty (618–907 CE), a period that coincided with the Arab conquests and the first two centuries of Islam. Scholars of the early Islamic period have suggested that the advent of Islam was an important force associated with interregional trade (Hodgson 1974, 65). It was during this period that trade became “increasingly determinative of the fate of any given region” and mercantile and bourgeoisie interests strengthened relative to agrarian classes (Hodgson 1974, 65). The Tang Dynasty maintained military and commercial connections with Central Asian polities as far west as Persia (Benite 2011).

During this time, trade linking the Middle East and China was economically significant, with implications for the growth and development of major urban centers. Caravans of horses and camels traveled from Mesopotamia to the Iranian plateau and then eastward toward the Oxus, after which point routes passed through Kabul and Kashgar (Lombard 1975, 218).

Political stability associated with large empires created the security zones under which trade might prosper. Curtin (1984, 91) argues that the “Tang Dynasty in China and the Abbasid Caliphate of Baghdad... provided imperial umbrellas over most of the trade routes between China and Mediterranean.” These favorable conditions, associated with the power of contemporaneously large empires, made it relatively easy for long-distance traders to move across vast areas (Curtin 1984, 105). Under the “long reach of Tang control to the west,” many Middle Eastern and European travelers were able to visit China (Curtin 1984, 105). Foreign merchants trans-

formed small oasis settlements across Central Asia into larger towns and cities (von Glahn 2016, 197).¹⁹

The Mongol Empire and Overland Trade

The land conquests of the Mongols served as a common shock to both the eastern and western parts of Asia. For the Mongols, the rich societies of China, Iran, Iraq, and Anatolia were appealing targets of attack, whereas “little-known, fragmented Europe” was relatively peripheral (Sinor 1999, 40). Although much has been written about the destructive aspects of Mongol rule, historians are increasingly painting a more complex picture of the economic impact of the Mongol invasions. Some cities never recovered from the destruction during the conquests, but others saw relatively rapid rebounds in their population (Soucek 2000, 114). Manz (2011) describes both the destructive elements of the Mongol conquests as well as the new opportunities introduced for artisans and merchants.

One of the most important positive externalities associated with the creation of the Mongol Empire was the establishment of political order over regions that supported overland trade. Curtin (1984, 120) writes that “the new rulers united so much of Asia that travelers could move securely under a single authority from the shores of the Black Sea to China.” The Mongols built shelters every 20 or 30 miles along roads to assist transport animals as well as to provide guides who specialized in navigating difficult terrains (Weatherford 2004, 220). During this period, Anatolia became more connected to long-distance commercial relations coming from Central and East Asia (Meloy 2011). According to Abu-Lughod (1989, 154), the Mongols created “an environment that facilitated land transit with less risk and lower protective rent.” Benite (2011) argues that during this time period, larger numbers of merchants were coming to China than ever before, with many of them from the Islamic world.

Scholars have argued that Mongol rulers “ordered and patronized” economic exchange (Allsen 2001, 191). Manz (2011) suggests that trade was of major interest to Mongol leaders who directly engaged in trade through commercial partnerships. Caravaners were “prime beneficiaries of the Pax Mongolica” as the formation of a pan-Asian Mongol Empire supported overland, East–West trade (von Glahn 2016, 283). One scholar summarizes these effects in the following way: “Mongol leaders protected foreign travellers and merchants; established a

¹⁹Schafer (1963) describes the ways in which foreign trade flourished during this period as a result of the relative security of routes and a growing interest in exotic tradeable goods.

wide network of relay stations...across their great contiguous land empire; and granted other specific privileges to merchants as well as to religious men, who were often entrepreneurs...medieval writers living during this time reported that these measures were effective in facilitating trade and commerce” (Enkhbold 2019, 532).

The breakup of the Mongol Empire may have also hindered forms of economic exchange. Genghis Khan’s efforts to divide the empire into parts to pass on to his sons planted the seeds of political instability (Millward 2007, 61). Subsequent internecine conflict among rival Mongol khanates encouraged a greater interest in maritime trade (von Glahn 2016, 283). This reflected a more generalized pattern that during times of political instability in Central Asia, merchants tended to turn to sea routes instead of overland trade (Schottenhammer 2015).

Empirical Analysis

Thus far, we have discussed a number of factors that might impact the gains from cross-cultural, overland trade, including disruptions associated with the rise and fall of land empires in Central Asia. Yet the factors that could influence political stability in Central Asia may be difficult to predict. In this section, we explore how factors that were disruptive to trade—beyond city-specific or time-specific effects—may have impacted prosperity along the Silk Roads.

Determining Historical Travel Paths

One challenge associated with measuring the economic impact of trade and shocks to trade is that sources describe the location of the Silk Roads in different ways. We do not attempt to introduce a set of definitive Silk Road corridors or claim to add specific route locations that have hitherto not been described in the existing literature. Our aim is, instead, to establish a link between the cost and ease of travel on the Silk Roads and economic prosperity. For this purpose, we find it useful to look for evidence of how natural travel paths may have been carved, and whether these paths correlate with subsequent changes in economic development. Building on existing work in geography, we suggest that these paths were not endogenous to the Silk Road trade; that is, the path of travel was not chosen with trade or commerce in mind. Rather, we rely on natural geographic features to simulate the route using the strategies described in Frachetti et al. (2017; henceforth Frachetti). In doing so, we extend their original study from a particular zone within Inner Asia to a broader Asian sample.

In particular, Frachetti designs a GIS algorithm to simulate and identify routes taken by nomads for seasonal travel. This exercise in identifying nomadic travel paths is focused on highland areas at elevations from 750 to 4,000 meters. According to Frachetti, high elevation pathways were an essential part of Silk Road networks, but they developed differently from those in lowland regions, with the latter being predicted by terrain-based “least cost” travel algorithms on the basis of “ease of travel” and “connecting dots” between known Silk Road locations.²⁰ As a result, the herding paths that predict Silk Road routes plausibly circumvent endogeneity concerns since existing patterns of urbanization did not impact pastoralists as they sought the best available land for animal grazing. The top panel of Figure 1 shows different characterizations of historical Silk Roads by Hansen (2012) as well as Silk Road Historical Geography Information Open Platform;²¹ the bottom panel shows an extension of the Frachetti strategy for identifying nomadic corridors, when we use the same approach and extend the coverage to the highlands (750–4,000 meter range) in Asia.²²

Our empirical analysis assesses whether disruption in the Silk Roads, proxied by the historical nomadic migration corridors in the highlands and least-cost routes in low-lying areas, can explain changes in economic development. Our proxy for economic development is urban population for 85 East, West, and Central Asian cities for the years 1100 to 1800 CE, on the 50-year interval. Our data set excludes South and Southeast Asia since trade in those regions was more likely to occur via sea routes rather than the overland routes that are the focus of this analysis. Our data come from Chandler and Fox (1974) and contain all the cities appearing at least once on any of the lists for the world’s largest cities across these time periods.²³ Why operationalize economic growth and trade-related prosperity with city size? Beyond the existing literature in economics endorsing such an approach, qualitative historical analysis also draws links between

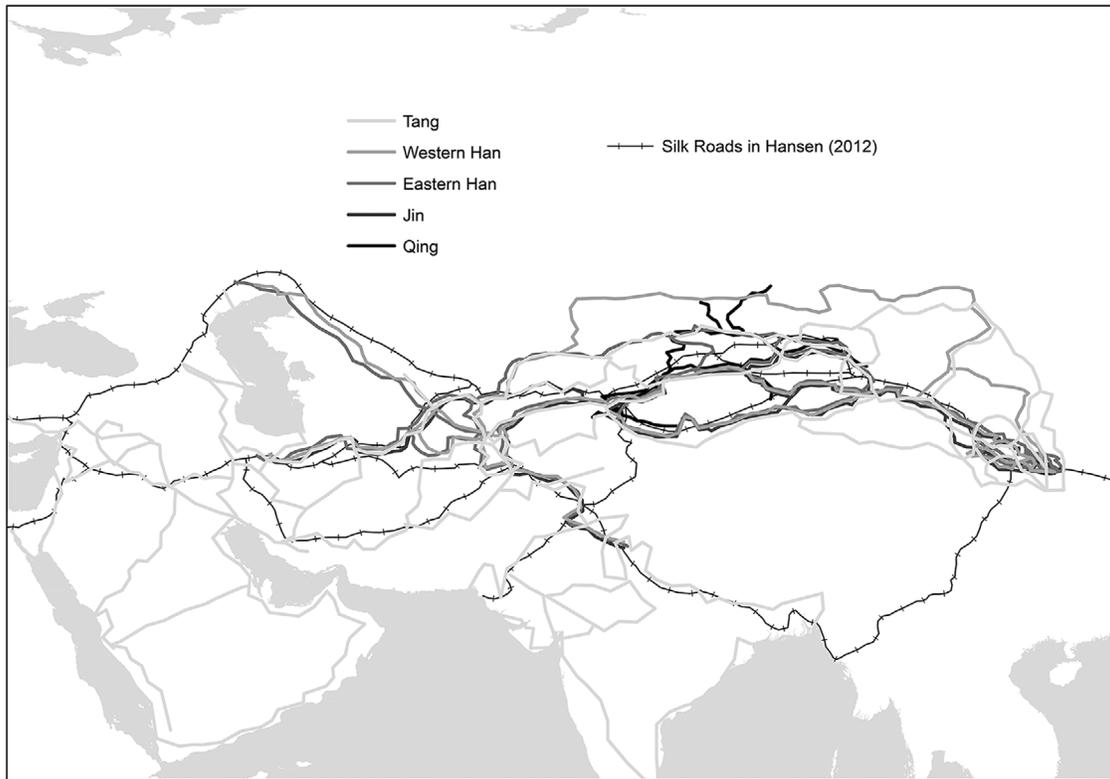
²⁰In higher-elevation regions, pastoralists migrated with their animals to highland pastures in the summer and traveled back to the lowlands during the winter to maximize food available for their herds. Using seasonal pasture quality and annual herding “flow accumulation” across highlands in Asia, Frachetti creates a link between nomadic mobility and Silk Roads. When generating the flow model, the authors do not include Silk Road routes or site locations as part of the algorithmic input.

²¹See www.srhgis.com.

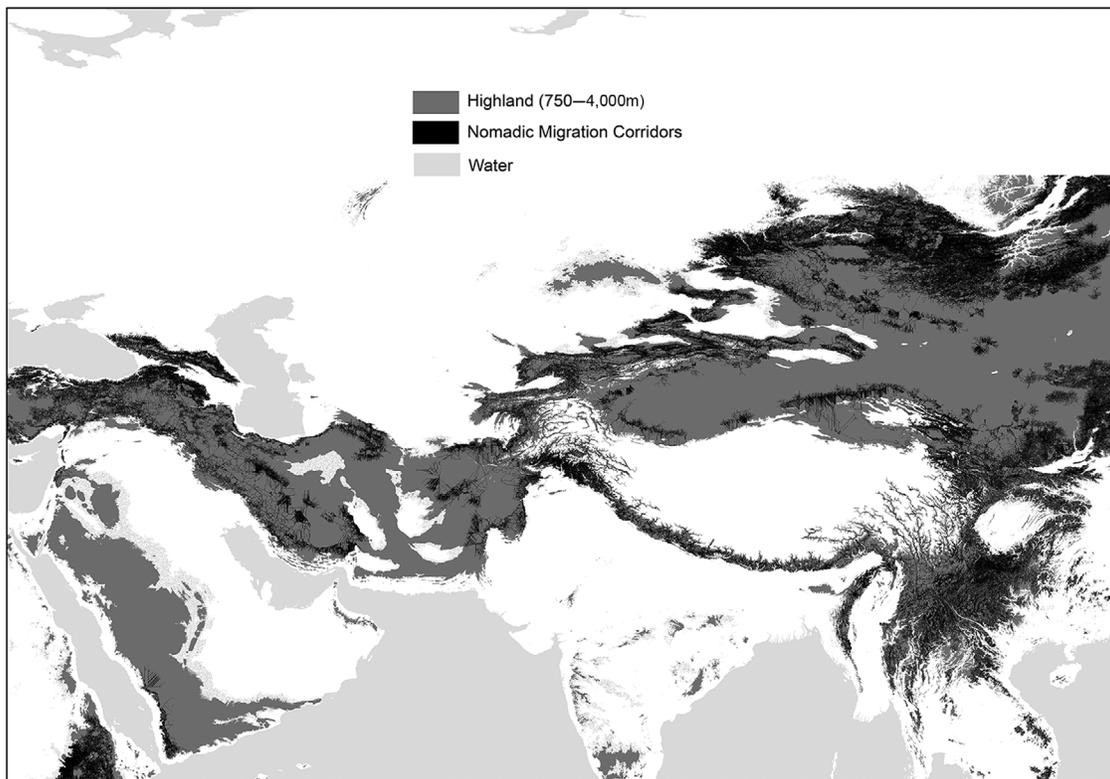
²²The geographical extent of our analysis spans 25 to 135 degrees longitude, and 25 to 56 degrees latitude.

²³SI Appendix A provides further description of the city population interval data.

FIGURE 1 Silk Roads Mapped (Top) and Highlands and Nomadic Corridors (Bottom)



Silk Roads in Dynasties
Source: Silk Road Historical Geography Information Open Platform (www.srhgis.com).



Source: Frachetti et al. (2017).

overland Eurasian trade and city growth. For example, Lary (2012, 51) argues that trade supported merchants who settled in the cities of Central Asia. Commercial markets created dense networks of exchange that reflected forms of product specialization (Wong 1997, 20). Christian (2000, 9) writes that “the urban geography of the Silk Roads...points to the importance of the trans-ecological routes,” with important cities, like Kashgar and Bukhara, located on major trade paths.

For our empirical analysis, we simulate Silk Road pathways between each city in our sample and the two Silk Road end points: Aleppo and historic Chang’an. Chang’an represented a major terminus of overland trade routes in the East (Allsen 2001, 13); Aleppo was an “emporium” for Asian goods in the West (Inalcik 1994, 57) and a long-standing destination of overland caravans. In Figure 2, we show the nomadic migration corridors that form the basis for our Silk Road proxy, as well as the cities in our sample. The simulated pathways connecting each city with Aleppo and Chang’an are also represented on the map. A foundational assumption of our project is that deviations from these natural travel paths are costly for merchants.²⁴

Measuring Political Fragmentation

Our main explanatory variable is the degree of political fragmentation merchants faced on the natural travel paths associated with the Silk Roads. To assess whether traders encountered different states along their travel paths, we utilize a set of maps from GeaCron, a geotemporal database that provides state boundaries around the globe for different time periods.²⁵ Based on these maps, we obtain our main explanatory variable of interest: the number of times each path crosses different states to Chang’an and to Aleppo. This variable measures the extent of political fragmentation that one would have observed when traveling on the Silk Roads toward the East and the West. We also gather information on whether the departure city was part of a polity identified in GeaCron as well as whether it served as a capital city.²⁶

It is significant that we code for how many nonstate territories merchants would have traversed on natural

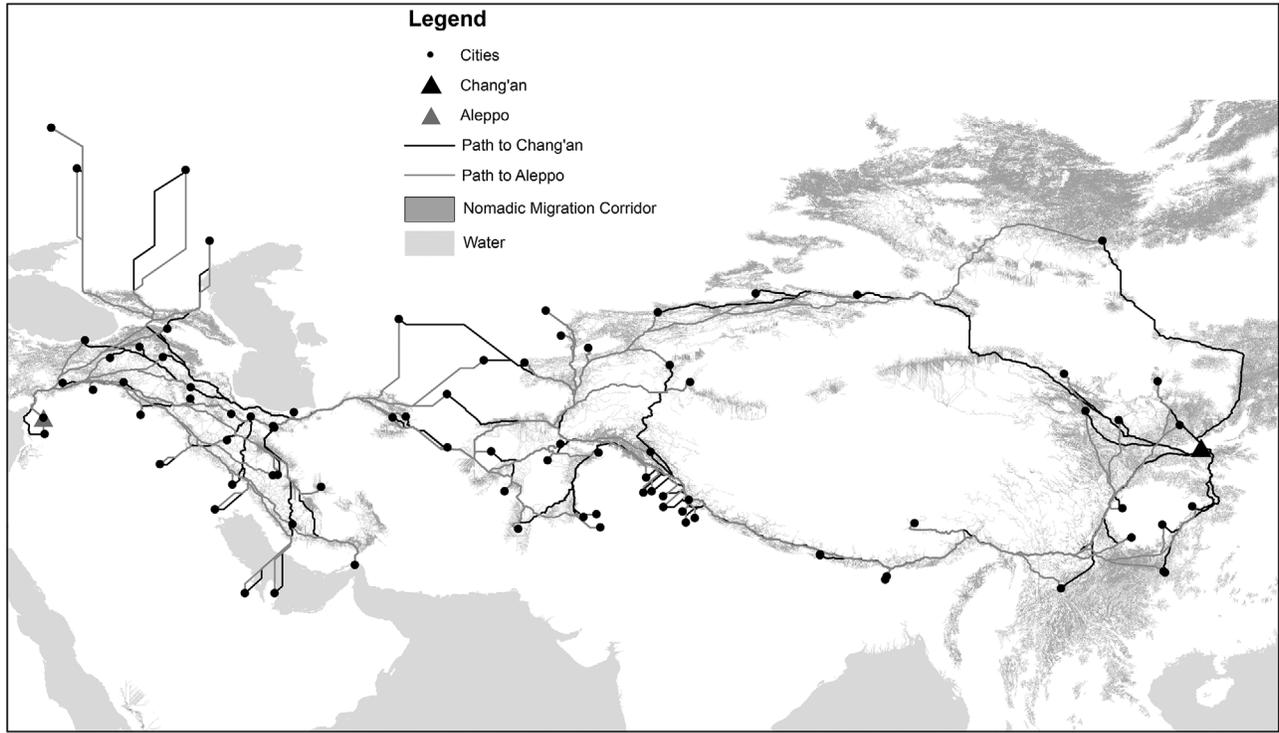
travel paths. Identifying areas outside of the purview of state control, or the number of “nonstate” territories on the path, allows us to include an additional dimension in our analysis, as travelers in ungoverned areas may have been subject to predation by bandits and nomads. In other words, the mere presence of a state entity should be associated with more security. As discussed, states sought to secure and maintain trade routes by building roads and armed fortresses at stopping points on major routes as well as constructing rest houses to serve merchants and pilgrims (Hanna 1998, 23). In some cases, sophisticated administrative systems with educated bureaucracies eased trade by validating the quality of goods at market and maintaining an extensive road system (Frankopan 2016, 4). Muslim rulers in Central Asia, Persia, and South Asia invested in the maintenance and improvement of trade routes by repairing overland roads, providing security for caravans, and quieting tribal peoples who sometimes obstructed commercial traffic (Levi 2011).

A concern that could be raised about our strategy for measuring political fragmentation is that we fail to take into account the endogenous formation of states; in other words, maybe Eurasian land empires were created to encompass profitable trade routes? One advantage of focusing on East, Central, and West Asian cities is that state formation on the Eurasian steppe has come to increasingly be understood as a function of exogenous climatic factors, at least in part because nomadic statecraft has been shown to be sensitive to environmental conditions. This may particularly be the case since there are important links between forms of political authority in Central Asia and transport technologies that support pastoral cultures, especially reliance on horses (Honeychurch 2014). For example, the sudden rise of Genghis Khan was totally unexpected according to historians (Soucek 2000, 103). Scientists specializing in climate change, however, have found that the timing of the Mongol rise was closely linked to climate anomalies since unusually wet weather was associated with a proliferation of grasses to feed horses as the Mongols moved across the Eurasian steppe (Pederson et al. 2014). Additional studies in climate science suggest that the Mongol withdrawal from Hungary in 1242 may also have been a function of unanticipated climatic conditions (Buntgen and Di Cosmo 2016). This perspective is consistent with scholars who have observed that the process by which Eurasian land empires have formed is relatively unpredictable (Rogers 2007, 2012), suggesting the importance of exogenous conditions. Although this strategy does not fully address concerns that state formation may have been endogenous to economic factors,

²⁴Historians have suggested that for many sections of the route, there did not exist good secondary options. For example, for traders departing China along the edge of the Gobi Desert (“beyond the Jade Gate”), there did not exist attractive alternative travel paths (Schafer 1963, 13).

²⁵See geacron.com for details on how these data were collected.

²⁶For coding whether the cities in our data were capital cities, we utilize city data from Pierskall, Schultz, and Wibbels (2017).

FIGURE 2 Natural Travel Paths as a Proxy for Silk Roads


our empirical analyses also include a wide-ranging set of control variables to further isolate the effects of political fragmentation on trade-driven growth.

Figure 3 provides a stylized illustration of our argument and empirical strategy. Merchants from City A seek trade opportunities that allow them to deliver goods to Aleppo and Chang'an. In order for those merchants to engage in commerce, they may need to traverse a number of polities to arrive at their destination. They may also traverse nonstate territories, as well as tributary states under Chinese rule. In this illustration, the solid lines represent independent polities while dotted lines represent independent polities that fall under the Chinese imperial tribute system. The number of state and nonstate territories traversed included a large stochastic component related to how exogenous weather and environmental conditions impacted the creation of land empires on the Eurasian steppe.

Empirical Strategy

To estimate the impact of political fragmentation on economic prosperity in premodern Asia, we use interval data with population estimates for each city and a generalized maximum log-likelihood interval model to obtain coef-

ficient value estimates.²⁷ The following equation reflects a panel regression approach and can be specified as

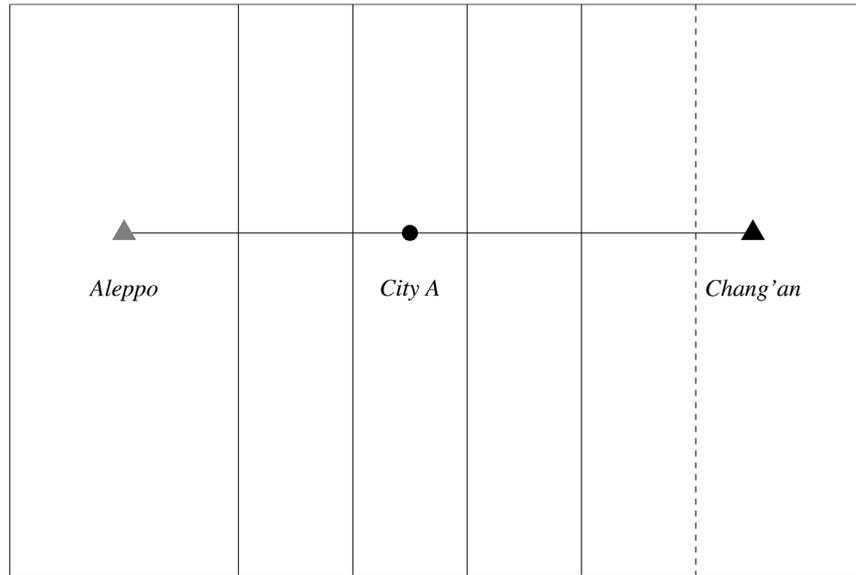
$$\begin{aligned}
 \text{Pop}_{it} = & \beta_0 + \beta_1 \text{Path2Chang'an}_{it} + \beta_2 \text{Path2Aleppo}_{it} + \\
 & + X_{it} \Phi + \sum_{j=1150}^{j=1800} Z_j^i \Gamma_j^i \Theta_j \\
 & + \sum_c \gamma I_c^i + \sum_{j=1150}^{j=1800} \rho_j I_j^i + \varepsilon_{it}, \quad (1)
 \end{aligned}$$

where Pop_{it} is the natural log of city population of city i in year t , $\text{Path2Chang'an}_{it}$ and Path2Aleppo_{it} are our political fragmentation variables, and X_{it} is a vector of time-varying control variables including the number of nonstate territories crossed en route to Chang'an and Aleppo, the capital status and state rule existence of city i in time t . This vector also includes city i 's "urban potential" to account for potential population spillover from neighboring cities.²⁸

²⁷The coefficient estimates from the interval model can be interpreted in the same way as the ordinary least squares estimation; see SI Appendix A for an explanation and Blaydes and Paik (2019) for more details on specifying the log-likelihood function.

²⁸Urban potential for city i in time t is calculated as the sum of the population of every other city in our data set in time t , divided by its geodesic distance to city i .

FIGURE 3 Stylized Illustration of the Argument Regarding the Effects of Crossing Jurisdictions on the Costs of Trade



Note: The solid lines represent divisions between independent polities. The dotted line represents independent polities that fall under the Chinese imperial tribute system.

Additionally, $\sum_{j=1150}^{j=1800} Z_t^j \Theta_j$ are the city-specific geographic characteristics interacted with time-period fixed effects. Given that city location and their surroundings are paramount to trade and city sizes, these are meant to capture any time-differential effects of geographic variables that determine both the city’s access to the Silk Roads and urbanization. They include the distance to the nearest natural migration corridor in the highlands (as simulated in our analysis), distance to the nearest coast, and longitude and latitude, as well as the elevation mean and standard deviation. Finally, $\sum_c \gamma I_i^c$ and $\sum_{j=1150}^{j=1800} \rho_j I_t^j$ are the city and time-period fixed effects, respectively.

On average, a merchant’s path intersects with five polities to get to Aleppo and five on the path to Chang’an.²⁹ There exists a great deal of variation for cities across time, however. For example, in our sample, the maximum number of polities crossed is 16 on the path to Aleppo and 17 to Chang’an. Our main findings are reported in columns 1–4 of Table 1 and suggest that the number of polities crossed to get to Aleppo and Chang’an (i.e., political fragmentation in both directions) has consistently negative effects on city size. This is true after controlling for city and time fixed effects as well as the time-varying impacts of geography. Both

²⁹See Table 2 in SI Appendix B for summary statistics of our variables.

variables are statistically significant when we control for the number of nonstate territories on the paths, the capital status and an indicator for state rule existence. From a substantive perspective, every additional polity crossed to get to Aleppo is associated with a 12 to 14% decrease in city population, whereas for the polities crossed to get to Chang’an, a 5 to 9% decrease in city population is observed, depending on the regression specification. We also find that while being a capital city consistently has a positive association with city size, being located in a nonstate territory has the opposite effect on city population.³⁰

Columns 5–8 of Table 1 present an alternative way to test the idea that political fragmentation reduced the gains from cross-regional trade. Rather than considering the number of polities crossed to either Aleppo or Chang’an, the economic prospects for a particular city may be a function of fragmentation on the entire East–West trade artery. In other words, the health of the *entire route* may matter for garnering trade-related gains, and, as a result, fragmentation on the two segments should not be considered to be independent from one another. In this set of specifications, the explanatory variable of

³⁰Our goal is not to make a causal argument regarding the effect of capital city status on city size. Although it is possible that capital status may have been determined by unforeseen factors, rather than endogenously driven by city size, we mainly include capital status to control for alternative channels associated with city size.

TABLE 1 Effect of Fragmented Polities on City Size

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Polities to Aleppo	-0.133*	-0.122 [†]	-0.127*	-0.149*				
	(0.066)	(0.066)	(0.060)	(0.062)				
Polities to Chang'an	-0.054	-0.052	-0.083 [†]	-0.098*				
	(0.052)	(0.050)	(0.043)	(0.043)				
Nonstate territories to Aleppo		-0.319 [†]	-0.198	-0.136				
		(0.173)	(0.145)	(0.152)				
Nonstate territories to Chang'an		0.052	0.007	0.085				
		(0.154)	(0.147)	(0.156)				
Polities crossed					-0.120*	-0.111 [†]	-0.111*	-0.128*
					(0.057)	(0.058)	(0.053)	(0.054)
Nonstate territories crossed						0.051	0.041	0.077
						(0.185)	(0.181)	(0.182)
Capital city			0.773**	0.755**			0.782**	0.769**
			(0.147)	(0.143)			(0.148)	(0.146)
In nonstate territory				-0.698*				-0.609*
				(0.302)				(0.274)
N	1,275	1,275	1,275	1,275	1,275	1,275	1,275	1,275
Urban Potential	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Geography × Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
City Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Note: Robust standard errors are clustered at the city level and reported in parentheses.

[†]p < .1, *p < .05, **p < .01.

interest is the total number of polities crossed. We find that a larger number of polities crossed on the combined trade path is associated with lower city population. Every additional polity crossed is associated with an 11 to 12% decrease in city population after controlling for capital city status and nonstate territories crossed. That is, the results we report are similar to those found in the first four columns of Table 1.

Our empirical strategy rests on the assumption that deviations from the travel paths that we have identified are costly to merchants who view these paths as preferred travel routes. The topography of Central Asia—with large natural barriers like the Taklamakan and Gobi Deserts—make large deviations unlikely, yet, nonetheless, we also validate our main findings using the travel paths identified in Hansen (2012) instead of the paths we have simulated. Using the routes identified by Hansen to generate our key independent variable—rather than our simulated Silk Road routes—we find the results to be similar to our main findings as reported in Table 1.³¹

Next, we include variables related to forms of hierarchy and hegemony within the Asian political sphere

through an investigation of the effects of the Chinese tributary system. Kang (2010, 591) writes that the East Asian tributary order was an “enduring, stable, and hierarchic system, with China clearly the hegemon” and a “viable and recognized international system with military, cultural, and economic dimensions that all intersected to create a...stable security system.” In return for recognizing the legitimacy of Chinese preeminence in regional affairs, China became responsible for maintaining order in the region (Wang 2013, 213). We test the impact of crossing Chinese tributary states by including the number of polities on the paths classified as tributary states as additional control variables. We also include an indicator for whether the city is inside a tributary state.

Table 2 reports these results. While scholars have argued that tributary practice and exchanges may have facilitated trade in a number of ways, we find crossing tributary states was also negatively associated with city size. With a full complement of control variables included, we find that crossing tributary states when heading to Aleppo to be more damaging than when heading to Chang'an; this suggests that the tribute system may have spurred less damaging effects for those traveling toward Chang'an and, thus, closer to China. The main results

³¹See Table 3 in SI Appendix B.

TABLE 2 Effect of Fragmented Polities on City Size, including Chinese Tributary State Control Variables

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Polities to Aleppo	-0.149*	-0.098 [†]	-0.150*	-0.098 [†]				
	(0.062)	(0.055)	(0.062)	(0.054)				
Polities to Chang'an	-0.098*	-0.082 [†]	-0.090*	-0.082*				
	(0.043)	(0.043)	(0.043)	(0.041)				
Nonstate territories to Aleppo	-0.136	-0.136	-0.113	-0.136				
	(0.152)	(0.156)	(0.157)	(0.156)				
Nonstate territories to Chang'an	0.085	0.126	0.107	0.126				
	(0.156)	(0.168)	(0.155)	(0.168)				
Tributaries to Aleppo		-0.423*		-0.424*				
		(0.174)		(0.188)				
Tributaries to Chang'an		-0.154		-0.154				
		(0.159)		(0.181)				
Polities crossed					-0.128*	-0.082	-0.124*	-0.088 [†]
					(0.054)	(0.052)	(0.054)	(0.052)
Nonstate territories crossed					0.077	0.138	0.098	0.140
					(0.182)	(0.187)	(0.180)	(0.185)
Tributaries crossed						-0.526 [†]		-0.427
						(0.289)		(0.285)
Capital city	0.755**	0.784**	0.770**	0.784**	0.769**	0.792**	0.783**	0.796**
	(0.143)	(0.142)	(0.140)	(0.142)	(0.146)	(0.149)	(0.143)	(0.146)
In nonstate territory	-0.698*	-0.649*	-0.699*	-0.649*	-0.609*	-0.583*	-0.598*	-0.583*
	(0.302)	(0.288)	(0.301)	(0.288)	(0.274)	(0.266)	(0.273)	(0.266)
In tributary state			-0.301 [†]	0.001			-0.304*	-0.182
			(0.158)	(0.168)			(0.153)	(0.139)
N	1,275	1,275	1,275	1,275	1,275	1,275	1,275	1,275
Urban Potential	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Geography × Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
City Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Note: Robust standard errors are clustered at the city level and reported in parentheses.

[†]p < .1, *p < .05, **p < .01.

on polities crossed to Aleppo and Chang'an, respectively (columns 1–4), as well as total polities crossed (columns 5–8), show similar effects as reported in Table 1, suggesting that after controlling for tributary state status, the main effects persist.

State Capacity and Political Stability as Additional Considerations

States during this historical era were vastly different entities than the ones that we observe today. As a result, one potential concern that could be raised about our existing analysis relates to omitted variable bias associated with differential levels of state capacity. Our operationaliza-

tion of state capacity seeks to identify the extent to which there was a state presence along each route. Relative to a situation of “statelessness,” state presence should be associated with greater stability and the rule of law. Our operationalization of state capacity seeks to capture the difference between the extent to which each natural travel path experienced state (versus nonstate) rule.

This measure does not capture a particular location's history of state control, however. To take this type of different data into account, we calculate the extent to which each route connecting cities in our data to Chang'an and Aleppo overlapped with polities that existed 100 years earlier. To do this, we divide the segment length by the total route length to derive a fraction for each city and year. This measure allows us to identify the proportion of

TABLE 3 Effect of Political Fragmentation on City Size, including State Capacity and Stability Control Variables

	(1)	(2)	(3)	(4)
Polities to Aleppo	-0.205** (0.066)		-0.225** (0.079)	
Polities to Chang'an	-0.154* (0.065)		-0.075 (0.064)	
Nonstate territories to Aleppo	-0.081 (0.186)		-0.093 (0.197)	
Nonstate territories to Chang'an	0.062 (0.172)		0.106 (0.169)	
Polities crossed		-0.232** (0.059)		-0.129* (0.059)
Nonstate territories crossed		0.094 (0.198)		0.076 (0.192)
Historical state capacity to Aleppo	2.709* (1.229)		2.860* (1.355)	
Historical state capacity to Chang'an	0.145 (0.842)		0.059 (0.795)	
Historical state capacity (total polities crossed)		1.651 (2.326)		0.872 (2.133)
Local stability to Aleppo			-0.023 (0.266)	
Local stability to Chang'an			0.314 (0.411)	
Distant stability from Aleppo			-0.739 (0.676)	
Distant stability from Chang'an			0.816 [†] (0.471)	
Local stability (to Aleppo/Chang'an)				1.029* (0.517)
Distant stability (from Aleppo/Chang'an)				1.324 (1.371)
N	1,105	1,105	1,105	1,105
Urban Potential	Yes	Yes	Yes	Yes
Geography × Year	Yes	Yes	Yes	Yes
City Fixed Effects	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes
Capital city status	Yes	Yes	Yes	Yes
Nonstate territory status	Yes	Yes	Yes	Yes

Note: Robust standard errors are clustered at the city level and reported in parentheses.

[†]p < .1, *p < .05, **p < .01.

the trade route from each city to Aleppo or Chang'an that experienced state presence 100 years earlier where the main assumption is that a history of state presence is positively associated with later state capacity. The results presented in columns 1 and 2 in Table 3 suggest that after controlling for this measure of historical state capacity, the number of polities crossed to Aleppo and Chang'an

(as well as total polities crossed) remains negative and statistically significant.³²

³²We recognize, however, that this is not the only possible proxy measure for state capacity and present another alternative operationalization in the supporting information. In SI Appendix C, we measure state capacity using a distance-decay model where we argue state capacity declines with distance from cities. The results

In addition to being concerned with historical state capacity, one might also be interested in disentangling the impact of localized political stability from the number of polity crossings to Aleppo and Chang'an. Although our regression specifications include a number of fixed effects (city, time, and geographic features interacted with a time trend), we may also want to account for the way that political fragmentation impacted local conditions and associated city size. For example, localized instability has the potential to damage city growth as residents flee the area, but it might also lead to increased city size if people in the periphery seek "safe harbor" behind city walls (e.g., Dincecco and Onorato 2016). These dynamics would be independent of trade and not captured by the fixed effects specification that we have proposed.

In order to take into account localized political conditions, we measure the distance to the first polity crossing from each city toward Aleppo and Chang'an, respectively, and divide that value by the total route length. Larger distances, all else equal, suggest more localized political stability, whereas smaller distances suggest a lower degree of local political control. We might also be interested in seeing whether faraway political stability also matters for city size. Instability close to Silk Road endpoints might also damage city size, as it may be very costly for long-distance traders to bring their goods to market; distant stability is measured as the distance to the first polity crossing *from* Aleppo and Chang'an on the route to each city in the data set, divided by route length. We are interested in seeing whether our main variables of interest are robust, even after controlling for these forms of stability.³³

These variables have a range from 0 to 1, where 0 means the city is located in a nonstate territory and 1 means the entire trade route is contained in the same polity. In Table 3, columns 3 and 4, we include these proxy variables for local and faraway, or distant, conditions, in addition to our state capacity controls, for both separate and combined travel paths. We find that the negative relationship between polity crossing and city size remains consistent. We also find that cities benefited when the polities they belonged to exerted greater control over the combined local trade routes to Chang'an and Aleppo (column 4). In other words, local stability may matter for city growth, at least in some specifications, but even after taking this variable into account, political fragmentation on natural travel paths continues to be negatively associated with city size.

using the distance-based capacity measure show consistent findings (Table 4 in SI Appendix C).

³³Figure 2 in SI Appendix D presents a stylized illustration of localized versus faraway polity crossings.

Conclusions

While some of the most prominent works on historical development have focused on the origins of states and state institutions, scholars have increasingly drawn attention to the importance of transnational and global dynamics (Go and Lawson 2017, 8), including forms of premodern, proto-globalization. Cross-regional trade routes like the Silk Roads connected economic interests between prosperous regions of the world for centuries.

Observers have long suggested that "the Silk Road was at its strongest when it was dominated by a few powerful dynasties" and that "political stability across wide areas enabled commerce to thrive" (Ibbotson 2017). Yet, empirical evidence for such conjectures has been largely unavailable. Our analysis represents an attempt to quantitatively interrogate the effects of fragmented political authority in premodern Asia. We find that the benefits of cross-cultural exchange are diminished as a result of shocks to political stability on trade routes. Political fragmentation along likely routes is associated with smaller city size, even after controlling for city and time fixed effects and the inclusion of a variety of control variables, including Chinese imperial tributary state status.

Our focus on prosperity in premodern Asia does not tackle the question of why Europe pulled ahead of other world regions economically, but it does allow us to understand more about variation in economic development before the "rise of the West." Epstein (2000, 39) points out that whereas scholars have commonly viewed all preindustrial economies as equally stagnant, "regional diversity has become *the* central question of recent research." This article represents our scholarly contribution to answering this question and offers evidence that premodern forms of globalization flourished during historical periods characterized by large land empires in Eurasia.

References

- Abramson, Scott. 2017. "The Economic Origins of the Territorial State." *International Organization* 71(1): 97–130.
- Abu-Lughod, Janet. 1989. *Before European Hegemony: The World System A.D. 1250–1350*. Oxford: Oxford University Press.
- Acemoglu, Daron, Simon Johnson, and James Robinson. 2002. "Reversal of Fortune: Geography and Institutions in the Making of the Modern World Income Distribution." *Quarterly Journal of Economics* 117(4): 1231–1294.
- Allsen, Thomas. 2001. *Culture and Conquest in Mongol Eurasia*. New York: Cambridge University Press.

- Anderton, Charles, and John Carter. 2001. "The Impact of War on Trade: An Interrupted Times-Series Study." *Journal of Peace Research* 38(4): 445–457.
- Atwell, William. 1998. "Ming China and the Emerging World Economy." In *The Ming Dynasty, Part 2: 1368–1644*, ed. Denis Twitchett and Frederick Mote, 376–416. Cambridge History of China. Cambridge: Cambridge University Press.
- Barendse, R. J. 2000. "Trade and State in the Arabian Seas: A Survey from the Fifteenth to the Eighteenth Century." *Journal of World History* 11(2): 173–225.
- Benite, Zvi. 2011. "Follow the White Camel: Islam in China to 1800." In *New Cambridge History of Islam*, ed. David O. Morgan and Anthony Reid, 409–426. New York: Cambridge University Press.
- Blaydes, Lisa, and Eric Chaney. 2013. "The Feudal Revolution and Europe's Rise: Political Divergence of the Christian West and the Muslim World before 1500 CE." *American Political Science Review* 107(1): 16–34.
- Blaydes, Lisa, and Christopher Paik. 2016. "The Impact of Holy Land Crusades on State Formation: War Mobilization, Trade Integration and Political Development in Medieval Europe." *International Organization* 70(3): 551–86.
- Blaydes, Lisa, and Christopher Paik. 2019. "Muslim Trade and City Growth before the 19th Century: Comparative Urbanization in Europe, the Middle East and Central Asia." *British Journal of Political Science* 1–24.
- Buntgen, Ulf, and Nicola Di Cosmo. 2016. "Climatic and Environmental Aspects of the Mongol Withdrawal from Hungary in 1242 CE." *Scientific Reports* 6: 1–9.
- Buzan, Barry, and Richard Little. 1994. "The Idea of 'International System'." *International Political Science Review* 15(3): 231–55.
- Chandler, Tertius, and Gerald Fox. 1974. *3000 Years of Urban Growth*. New York: Academic Press.
- Christian, David. 2000. "Silk Roads or Steppe Roads: The Silk Roads in World History." *Journal of World History* 11(1): 1–26.
- Cinar, E. Mine, Katherine Geusz, and Joseph Johnson. 2015. "Historical Perspectives on Trade and Risk on the Silk Road, Middle East and China." *Topics in Middle Eastern and African Economies* 17(2).
- Constable, Olivia. 2010. "Muslim Trade in the Late Medieval Mediterranean World." In *The New Cambridge History of Islam*, ed. Maribel Fierro, 632–47. Cambridge: Cambridge University Press.
- Cox, Gary. 2017. "Political Institutions, Economic Liberty, and the Great Divergence." *Journal of Economic History* 77(3): 724–55.
- Curtin, Philip. 1984. *Cross-Cultural Trade in World History*. New York: Cambridge University Press.
- De Long, Bradford, and Andrei Shleifer. 1993. "Princes and Merchants: European City Growth before the Industrial Revolution." *Journal of Law and Economics* 36(2): 671–702.
- Dincecco, Mark. 2010. "Fragmented Authority from Ancien Régime to Modernity: A Quantitative Analysis." *Journal of Institutional Economics* 6(3): 305–28.
- Dincecco, Mark, and Massimiliano Onorato. 2016. *From Warfare to Wealth: The Military Origins of Urban Prosperity in Europe*. New York: Cambridge University Press.
- Dincecco, Mark, and Yuhua Wang. 2018. "Violent Conflict and Political Development over the Long Run: China versus Europe." *Annual Review of Political Science* 21: 341–58.
- Enkhbold, Enerelt. 2019. "The Role of the *Ortoq* in the Mongol Empire in Forming Business Partnerships." *Central Asian Survey* 38(4): 531–47.
- Epstein, S. R. 2000. *Freedom and Growth: The Rise of States and Markets in Europe, 1300–1750*. London: Routledge.
- Frachetti, Michael, C. Evan Smith, Cynthia M. Traub, and Tim Williams. 2017. "Nomadic Ecology Shaped the Highland Geography of Asia's Silk Roads." *Nature* 543(7644): 193–98.
- Frank, Andre Gunder. 1998. *ReORIENT: Global Economy in the Asian Age*. Berkeley: University of California Press.
- Frankopan, Peter. 2016. *The Silk Roads: A New History of the World*. New York: Alfred Knopf.
- Gilbar, Gad. 2003. "The Muslim Big Merchant-Entrepreneurs of the Middle East, 1860–1914." *Die Welt des Islams* 43(1): 1–36.
- Glick, Reuven, and Alan Taylor. 2010. "Collateral Damage: Trade Disruption and the Economic Impact of War." *Review of Economics and Statistics* 92(1): 102–27.
- Go, Julian, and George Lawson. 2017. "For a Global Historical Sociology." *Global Historical Sociology*, ed. Julian Go and George Lawson, 1–34. New York: Cambridge University.
- Goiten, S. D. 1967. *A Mediterranean Society: The Jewish Communities of the Arab World as Portrayed in the Documents of the Cairo Geniza*. Berkeley: University of California Press.
- Hanna, Nelly. 1998. *Making Big Money in 1600: The Life and Times of Isma'il Abu Taqiyya, Egyptian Merchant*. Syracuse: Syracuse University Press.
- Hansen, Valerie. 2012. *The Silk Road: A New History*. New York: Oxford University Press.
- Harris, Lillian. 1993. *China Considers the Middle East*. London: I.B. Tauris.
- Hodgson, Marshall G. 1974. *The Venture of Islam: Conscience and History in a World Civilization*. Chicago: University of Chicago Press.
- Honeychurch, William. 2014. *Inner Asia and the Spatial Politics of Empire: Archaeology, Mobility, and Culture Contact*. New York: Springer.
- Ibbotson, Sophie. 2017. "On the Silk Road." *Asian Geographic*, May 24. <https://www.asiangeo.com/heritage/on-the-silk-road/>.
- Inalcik, Halil. 1994. *An Economic and Social History of the Ottoman Empire, Volume 1*. New York: Cambridge University Press.
- Jervis, Robert. 1997. *System Effects: Complexity in Political and Social Life*. Princeton, NJ: Princeton University Press.
- Kang, David. 2010. "Hierarchy and Legitimacy in International Systems: The Tribute System in Early Modern East Asia." *Security Studies* 19(4): 591–622.
- Kang, David. 2013. "International Relations Theory and East Asian History: An Overview." *Journal of East Asian Studies* 13(2): 181–205.
- Krasner, Stephen. 1976. "State Power and the Structure of International Trade." *World Politics* 28(3): 317–47.

- Kupchan, Charles. 2012. *No One's World: The West, the Rising Rest, and the Coming Global Turn*. New York: Oxford University Press.
- Lary, Diana. 2012. *Chinese Migrations: The Movement of People, Goods, and Ideas over Four Millennia*. New York: Rowman & Littlefield.
- Lee, Ji-Young. 2016. *China's Hegemony: Four Hundred Years of East Asian Domination*. New York: Columbia University Press.
- Levi, Scott. 2011. "Commercial Structures." In *New Cambridge History of Islam*, 561–581. New York: Cambridge University Press.
- Lombard, Maurice. 1975. *The Golden Age of Islam*. New York: Elsevier.
- Manz, Beatrice. 2011. "The Rule of the Infidels: The Mongols and the Islamic World." *New Cambridge History of Islam*. New York: Cambridge University Press.
- Matthee, Rudi. 1994. "Anti-Ottoman Politics and Transit Rights: The Seventeenth-Century Trade in Silk between Safavid Iran and Muscovy." *Cahiers du Monde Russe* 35(4): 739–61.
- Meloy, John. 2011. "Overland Trade in the Western Islamic World." *New Cambridge History of Islam*. New York: Cambridge University Press.
- Millward, James. 2007. *Eurasian Crossroads: A History of Xinjiang*. New York: Columbia University Press.
- Park, Hyunhee. 2012. *Mapping the Chinese and the Islamic Worlds: Cross-Cultural Exchange in Pre-Modern Asia*. New York: Cambridge University Press.
- Park, Seo-Hyun. 2017. *Sovereignty and Status in East Asian International Relations*. New York: Cambridge University Press.
- Pederson, Neil, Amy E. Hessler, Nachin Baatarbileg, Kevin J. Anchukaitis, and Nicola Di Cosmo. 2014. "Pluvials, Droughts, the Mongol Empire, and Modern Mongolia." *Proceedings of the National Academy of Sciences* 111(12): 4375–4379.
- Perdue, Peter. 2015. "The Tenacious Tributary System." *Journal of Contemporary China* 24(96): 1002–14.
- Phillips, Andrew, and Jason Sharman. 2015. *International Order in Diversity: War, Trade and Rule in the Indian Ocean*. New York: Cambridge University Press.
- Pierskalla, Jan, Anna Schultz, and Erik Wibbels. 2017. "Order, Distance, and Local Development over the Long-Run." *Quarterly Journal of Political Science* 12(4): 375–404.
- Ranjbar, Mohammed, and Reza Manesh. 2016. "New Routes to Iran's International Trade in the Safavid Era." *Ancient Asia* 7: 8.
- Rogers, J. Daniel. 2007. "The Contingencies of State Formation in Eastern Inner Asia." *Asian Perspectives* 46(2): 249–74.
- Rogers, J. Daniel. 2012. "Inner Asian States and Empires: Theories and Synthesis." *Journal of Archaeological Research* 20(3): 205–56.
- Rosenthal, Jean-Laurent, and Bin Wong. 2011. *Before and Beyond Divergence: The Politics of Economic Change in China and Europe*. Cambridge, MA: Harvard University Press.
- Schafer, Edward. 1963. *The Golden Peaches of Samarkand: A Study of Tang Exotics*. Berkeley: University of California Press.
- Scheidel, Walter. 2019. *Escape from Rome: The Failure of Empire and the Road to Prosperity*. Princeton, NJ: Princeton University Press.
- Schottenhammer, Angela. 2015. "China's Emergence as a Maritime Power." In *Sung China, 960–1279 AD, Part 2*, ed. John W. Chaffee and Denis Twitchett, 437–525. Cambridge: Cambridge University Press.
- Sharman, Jason. 2019. *Empires of the Weak: The Real Story of European Expansion and the Creation of the New World Order*. Princeton, NJ: Princeton University Press.
- Shleifer, Andrei, and Robert Vishny. 1993. "Corruption." *Quarterly Journal of Economics* 108(3): 599–617.
- Shu, Min. 2012. "Hegemon and Instability: Pre-Colonial Southeast Asia under the Tribute System." *Waseda Institute for Advanced Study Research Bulletin* 4: 45–62.
- Simmons, Beth. 2005. "Rules over Real Estate: Trade, Territorial Conflict and International Borders as Institution." *Journal of Conflict Resolution* 49(6): 823–48.
- Sinor, Denis. 1999. "The Mongols in the West." *Journal of Asian History* 33(1): 1–44.
- Soucek, Svat. 2000. *A History of Inner Asia*. New York: Cambridge University Press.
- Spruyt, Hendrik. 1994. *The Sovereign State and Its Competitors*. Princeton, NJ: Princeton University Press.
- Stasavage, David. 2014. "Was Weber Right? The Role of Urban Autonomy in Europe's Rise." *American Political Science Review* 108(2): 337–54.
- Steensgaard, Niels. 1973. *The Asian Trade Revolution of the Seventeenth Century: The East India Companies and the Decline of the Caravan Trade*. Chicago: University of Chicago Press.
- Tilly, Charles. 1992. *Coercion, Capital, and European States, AD 990–1992*. Oxford: Blackwell.
- Van Lieu, Joshua. 2017. "The Tributary System and the Persistence of Late Victorian Knowledge." *Harvard Journal of Asiatic Studies* 77(1): 73–92.
- von Glahn, Richard. 2016. *The Economic History of China: From Antiquity to the Nineteenth Century*. New York: Cambridge University Press.
- Wang, Yuan-kang. 2013. "Explaining the Tribute System: Power, Confucianism, and War in Medieval East Asia." *Journal of East Asian Studies*: 207–232.
- Weatherford, Jack. 2004. *Genghis Khan and the Making of the Modern World*. New York: Crown.
- Wong, Bin. 1997. *China Transformed: Historical Change and the Limits of European Experience*. Ithaca, NJ: Cornell University Press.
- Zhang, Yongjin. 2013. "The Tribute System." *Oxford Bibliographies*.

Supporting Information

Additional supporting information may be found online in the Supporting Information section at the end of the article.

Appendix A: Description of City Population and Interval Regression

Appendix B: Tables

Appendix C: Alternative Measure of State Capacity

Appendix D: Figures