



# Historical Methods: A Journal of Quantitative and Interdisciplinary History

ISSN: 0161-5440 (Print) 1940-1906 (Online) Journal homepage: <http://www.tandfonline.com/loi/vhim20>

## A Core-Periphery GIS Model of the Historical Growth and Spread of Islam in China

Karl E. Ryavec & Mark Henderson

To cite this article: Karl E. Ryavec & Mark Henderson (2015) A Core-Periphery GIS Model of the Historical Growth and Spread of Islam in China, *Historical Methods: A Journal of Quantitative and Interdisciplinary History*, 48:2, 103-111, DOI: [10.1080/01615440.2014.996273](https://doi.org/10.1080/01615440.2014.996273)

To link to this article: <https://doi.org/10.1080/01615440.2014.996273>



Published online: 15 Apr 2015.



Submit your article to this journal [↗](#)



Article views: 261



View related articles [↗](#)



View Crossmark data [↗](#)



Citing articles: 1 View citing articles [↗](#)

# A Core-Periphery GIS Model of the Historical Growth and Spread of Islam in China

KARL E. RYAVEC

*School of Social Sciences, Humanities and Arts  
University of California at Merced*

MARK HENDERSON

*Public Policy and Environmental Studies Programs  
Mills College*

**Abstract.** This study presents the methodology and results of a core-periphery GIS model of the historical growth and spread of Islam in China based on a dataset of 1,774 mosques. These sites were organized into data subsets according to their founding dates during five major dynastic periods in Chinese history: Tang/Song, Yuan, Ming, Qing, and Republican. Core areas were identified and mapped based on where mosques clustered during each period. North China was the paramount core region in all periods. Not until the late Qing and Republican periods did the Northwest and Yunnan compare with North China, while coastal China never developed into a core area.

**Keywords:** China, GIS, Hui nationality, Islam, Minzu

Muslims historically settled throughout China starting in the Tang dynasty period (618–907 CE) and formed diverse urban ethnic neighborhoods and rural enclaves. Over the past two decades, a large body of important research on Chinese Muslim ethnic identities and histories has been conducted (Atwill 2005; Gladney 1996; Lipman 1998). However, research on the historical growth and spread of Islam across all of China has been limited, owing to the difficulty of collecting georeferenced data on most Muslim settlements with specific time period attributes indicating when the communities initially developed at different locations. This lack of detailed spatial data also makes comparisons with new forms of Muslim settlement in present-day China difficult.

---

*Address correspondence to Karl E. Ryavec, School of Social Sciences, Humanities and Arts, University of California at Merced, Merced, CA 95343, USA. E-mail: kryavec@ucmerced.edu*  
*Color versions of one or more figures in this article can be found online at [www.tandfonline.com/vhim](http://www.tandfonline.com/vhim).*

This article seeks to improve upon our limited understanding of the spatial and temporal patterns of the growth and spread of Islam across all of China by mapping the locations of historical mosques as indicators of local Muslim community formation. Geographic information systems (GIS) techniques will then be used to identify spatial patterns to the locations of mosques and Muslim communities. Regional systems theory, as previously applied to understanding the spatial patterns of Chinese society by G. William Skinner and others, suggests that agrarian societies and economies can be understood in terms of urban core and rural peripheral zones nested within regional systems of cities and their hinterlands. For Chinese society as a whole, nine regional urban core areas had emerged prior to the advent of mechanized transportation in the late nineteenth century.

Interactions between orthodox, largely Confucian Chinese society and Chinese Muslim communities would have taken place in a socioeconomic landscape structured by these core and peripheral zones. The key research questions of this study are the following: Did the spatial densities of mosque locations form their own distinct core regions over time in China, and if so, where were these cores located? In this article, we identify spatial clusters of mosques in existence at specific points in time from 650 to 1949. Interpreting the evolution of these clusters in the context of China's socioeconomic regional systems, we can identify distinct Chinese Muslim regional religious systems.

In light of the stated focus and methodological approach of this article, the survey of Islam in China presented here is more than a mere cluster study; instead, it examines how Chinese Muslim society developed in regional

socioeconomic terms in relation to traditional Han Chinese society that was based across nine urban cores. This is a novel approach to the study of how a particular religious tradition developed and spread across China historically. As such, this study makes important theoretical and methodological contributions to how the growth and spread of religious traditions can be compared across cultures and civilizations. In particular, in the case of Islam in China, this study challenges long accepted views that early Muslim communities tended to cluster along coastal and Inner Asian Silk Road routes by instead documenting the initial development during the Yuan period of an Islamic Regional Religious System based on a core region in North China.

### **The Problem: Religious Versus Socioeconomic Regional Systems**

The concept of a Regional Religious System (RRS) was first put forth in an article co-authored by Jiang Wu, Daoqin Tong, and Karl Ryavec (2013) based on spatial analysis and GIS modeling of the distribution of religious sites in Greater China. An RRS is a type of spatial formation in which a group of related or unrelated religious institutions are conditioned by physical, administrative, cultural, or socioeconomic systems, and are highly dependent on regionally and locally distributed variables such as economy, transportation, education, ethnicity, and language, and so forth.

A key methodological problem underlying our focus in this present study is how to construct a GIS-based model of Islamic regional systems through Chinese history. We follow Regional Systems Theory as explored by G. William Skinner in his studies of the traditional Eurasian peasant societies of France, Japan, and especially China (Skinner 1964–65, 1977, 1985). Skinner hypothesized that in Agrarian or Han China there are nine physiographic macroregions formed around major river drainage systems structured economically, politically, and socially by multiple levels of hierarchies of cities, towns, rural market places, and surrounding villages. According to Skinner's theoretical framework, traditional agrarian peasant societies exhibit spatial covariation in key demographic and socioeconomic processes based on where individuals and households are located from urban cores to rural peripheries. These regional systems that condition large-scale socioeconomic processes are based on core areas of urbanization and correspondingly higher levels of population density than in the surrounding peripheries, and a core-periphery continuum is exhibited by a number of socioeconomic variables, such as reliance on markets, rates of migration, and fertility levels. Due to the unavailability of high quality disaggregated historical Chinese socioeconomic data for all of China, Skinner's map of the Qing period macroregions was highly generalized (see Figure 7), and it was only for the

recent PRC period that he was able to construct detailed regional models to test aspects of his theories by utilizing 1990 and 2000 China census data (Skinner, Henderson, and Yuan 2000).

The main focus of this initial survey of Islam in China is to first test the hypothesis whether Chinese Muslim societies were also historically organized in distinct core regions, and if so, how did these cores compare to those of Han China in its entirety? In order to determine if key aspects of Islam in China were conditioned and functioned according to the assumptions of regional systems theory, such as exhibiting core-periphery patterns or not, we will map the historical constructions and resulting clusters of mosques as distinct markers of regional Muslim community formation over time.

Spatial segregation was often integral to historic forms of Chinese social accommodation with Muslims, especially in cities in Northwest China where Muslims were often forced to reside in attached walled Islamic quarters (Gaubatz 1998). According to David H. Kaplan and Steven R. Holloway (2001), segregation is created and maintained by different choices and constraints occurring across dimensions of production, reproduction, and consumption. Spatial outcomes concerning the residential patterns of Muslims in China varied considerably, as this study will document by mapping core areas over time and space. Specifically, the ancestors of the Chinese-speaking Muslims, officially classified as the Hui *minzu* (i.e., nationality) in the 1950s, mostly settled in three core regions of Agrarian China.

Building on current research approaches to a "science of history" (Diamond 1997; Pomeranz 2000), we hypothesize that the growth and spread of Muslim communities across premodern dynastic Chinese territory was not haphazard or random, but largely conditioned by geography. Economic exchange along long distance trade routes (e.g., the overland and maritime Silk Roads), and the political benefit of Muslims to Mongol rulers during the Yuan period (1271–1368) concerned with expanding administrative control over territories with Islamic populations, are key examples of the importance of geography for understanding Islam in China. By the Ming (1368–1644) and Qing (1644–1911) periods, Muslim communities across dynastic Chinese territories had increased such that the emperors in Beijing often sponsored mosque construction projects to promote harmony and trade.

With the fall of China's Qing, or Manchu, dynasty in 1911, modern notions of Chinese nation-building and classifying peoples were formulated in Sun Yatsen's *San Min Chu I* ("The Three Principles of the People") theoretical framework (Sun 1924). Sun Yatsen classified all the peoples in lands integrated, however loosely, into the former Qing dynastic empire as Han, Manchu, Tibetan, Mongol, and Hui or Muslim. From a geographical point of view, this project was highly problematic because the Chinese-

speaking peoples professing faith in different forms of Buddhism, Daoism, and Confucianism had never before been designated as members of a single national identity (Gladney 2004). Even the term Han was a 2,000-year-old name for a past empire resurrected to justify a majority nation-building discourse. Similarly, the Chinese Muslims lived in a wide variety of cultural and political circumstances and in many different relationships to the Chinese state. Also, the Chinese term Hui (or earlier Huihui and Huijiaotu) for Muslims, like Han, has no neutral or precise referents. It was largely a geographical “default category” of Chinese political theorists and policymakers (Lipman 1998). Of the ten Muslim *minzu* eventually recognized by the People’s Republic of China after its founding in 1949 (and with significant Stalinist influence as to how to define a nationality), the Hui are the only group not occupying an ancestral land and speaking their own language. They are scattered across China in urban Muslim neighborhoods and rural “ethnic islands.” Until recently, there have been no detailed cartographic data readily available to model settlement patterns, assess trajectories of historical development, and identify contemporary change in their spatial distribution.

These historical patterns of Muslim settlement in China are salient in regard to the study of the permanence of segregation, whether it facilitates identity maintenance, and whether segregation itself empowers or marginalizes the Hui and other ethnic groups. The regional systems approach in this research project studies the development and contemporary geographical patterns of Muslim communities in China by focusing on specific urban neighborhoods and rural towns and villages as indicated by historical mosque foundings as key charters of Muslim identity, and not merely according to official Chinese historiography in which national histories of various *minzu* are tied to official discourses of a China-wide narrative of multi-nationalism (Benite 2004).

## Sources

The names, locations, dates of founding, and much additional information about many historical mosques in China were compiled during the 1990s by teams of Chinese scholars working from archival sources in each province of China and edited by Jianwei Wu (1995) in the *Zhongguo Qingzhensi Zonglan (Compendium of Mosques in China)* and in a 2008 supplemental volume, *Zhongguo Qingzhensi Zonglan Shibian (Supplemental Compendium of Mosques in China)*. The 1995 volume documented 1,030 mosques, and the supplemental volume documented an additional 744 mosques.

These volumes are based on an earlier dataset that was included in an almanac of mosques produced in the 1980s and not on any sort of complete *in situ* survey of all the mosques in China. There are obvious biases toward the Chinese-speaking areas of Agrarian China, while mosques

in Xinjiang are clearly underrepresented with only large Hui mosques and a few famous Uyghur mosques included. Also, peripheral regions of Agrarian China with significant Hui Muslim settlement, particularly southern Gansu, Yunnan, and coastal China, are also underrepresented.

Another problem further limiting the accuracy of these sources is that mainly mosques that functioned as such in the 1980s are included. If a Muslim community was present in a certain era but subsequently dispersed, it is possible that these sources would miss out on mosques that no longer exist. For those mosques that did exist in the 1980s, the specific dates of the mosques’ founding are taken mostly from local lore; these dates may not be supported by documentary evidence, but there are few alternative sources that could corroborate the stories told in the mosque communities about their origins. In other cases, the Wu volumes include some former mosques that are now famous historical sites managed by local bureaus of cultural relics, and the mosques’ dates of operation are taken from bureau records. These are more likely to be found in major cities. It is open to speculation whether either the local or bureau sources are reasonably accurate or systematically biased (say, toward exaggerating the age of a mosque to make it seem more important).

Despite these limitations with the sources, we base the merits for constructing this GIS model to better elucidate the historical geography of the growth and spread of Islam in China on two reasons. First, there are no better quality data available at this time for digitizing into a GIS with a reasonable amount of time and effort. Second, while many mosques ceased to exist for various reasons over the course of time (such as due to migration, political persecution, or war), the overall regional patterns of location and time constructed may still be logically expected to reveal broad core-periphery patterns of growth, at least in the Chinese-speaking areas best represented in the data. If the founding date of a mosque here or there is exaggerated, it would not markedly affect our analysis at the scale of broad regions and historical periods.

As will be apparent from the maps presented in this study, core areas are seen to develop in places like the North China plain and Loess Plateau where population, agriculture, and trade routes are known to have clustered and converged. If these data were of such poor geographic quality meriting ignoring them, we would then expect to see random and haphazard spatial patterns. Indeed, even in the case of temporal patterns, the mosques exhibit steady rates of growth despite some founding dates based on local lore and not supported by archival documents or tablets.

## Methodology

The locations of 1,774 mosques listed in the *Zhongguo Qingzhensi Zonglan (Compendium of Mosques in China)* and the supplemental volume *Zhongguo Qingzhensi*

*Zonglan Shibian (Supplemental Compendium of Mosques in China)* were georeferenced to the city district (*qu*) level, urban town (*zhen*), or rural township (*xiang*), and where possible, to urban neighborhoods (*jiedao*) within cities, and villages (*cun*) within towns and townships, as defined in the China 2000 census. Each mosque was coded by the level of precision to which it was mapped, indicating which level was the best available location match.

The year of the initial establishment of each mosque was noted, as well as recorded dates when mosques were destroyed or reestablished, enabling us to analyze the pattern of mosques as local centers of Muslim society at any point in time over fourteen centuries of Chinese history.

For this article, we organized the mosques into groups according to five eras, corresponding to major dynastic periods in Chinese history. GIS maps were produced showing mosques that had been constructed before (and not destroyed before) the beginning of each era, or else constructed during that era. These maps were then converted to a raster (grid) format, in which each grid cell represented a 5 × 5 kilometer area of the Earth's surface. A value was first assigned to each grid cell representing the number of mosques within that area; any cell that included one mosque was given a value of 1, while cells encompassing the locations of more mosques were given values of 2 or more, accordingly.

To begin to identify clusters of mosques at a broader scale, we then performed a Focal Sum operation, in which grid cells were assigned values based on the number of mosques within a certain distance. Based on this operation, cells within 150 kilometers of a single mosque would be assigned a value of 1; if there were more mosques within that radius, higher values would be assigned. In this way, every grid cell covering the current territorial extent of China was assigned a value that suggests the density of mosques in a regional context for each of the five historical eras.

To identify "core" areas, we applied a "natural breaks" algorithm (based on Jenks 1977) to the range of grid cell values for each historical era. The algorithm determined five ranges of values for each era, based on the minimum, maximum, and distribution of values. (Because there were fewer mosques in earlier eras, the values and ranges differed for each era.) We designated the highest two of the five ranges of grid values as the "core" for each era. The cores shown on the maps below, then, represent zones where there are substantially more than the average number of mosques within 150 kilometers compared with the rest of China during that historical period.

## Findings

### *The Tang and Song Periods*

Chinese Muslims trace their roots to trading communities active in China between the Tang (618–907) and Song

(960–1279) dynasties (Bai 2003). At this time, Arabs and Persians were respectively called Dashi and Bosi in Chinese. Written and material sources of Chinese Muslim history for the pre-Mongol period are fragmentary, consisting mainly of ceramic shards, brief accounts of China in early Muslim travel literature, and scant allusions to Muslims in the imperial historical record (Garnaut 2006).

The first recorded mosques in China were established in Kunming and Taiyuan in 632 and 635 CE, during the Tang dynasty (Figure 1).<sup>1</sup> By the end of the Song dynasty in 1279, about two dozen mosques had been established for which records remain. Of the twenty-eight mosques documented during this early period, thirteen were founded during the Tang dynasty, and fifteen during the Song dynasty. Most of these were in major cities linked to the long-distance trading networks. Although there were two mosques in Xi'an, no part of China had a sizable concentration of mosques in the Tang or Song periods, but a proto-core is discernible forming in and around the Northern Song capital city of Kaifeng in the present-day province of Henan. Our GIS analysis shows a small cluster of mosques there that may be seen as the beginning of a core region that would later stretch north to Beijing.

One of the main reasons early Muslim trading communities settled in key cities like Kaifeng was because Muslim import-export firms maintained residences or representatives in these cities and dealt in a vast variety of commodities (Lipman 1998). Though official Chinese historiography defined much of this trade in the guise of "tribute," most contemporary scholarship surmises that the commercial functions of these tribute missions were known and expected among both Chinese and foreign Muslims. Also, some Muslim traders learned Chinese, intermarried,

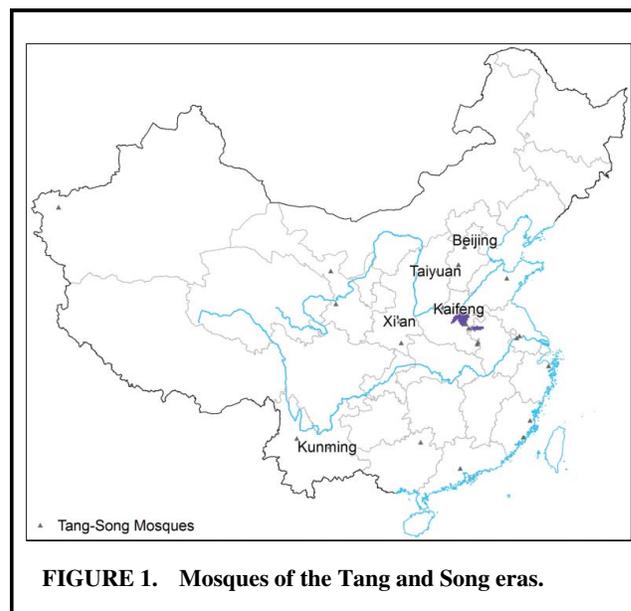


FIGURE 1. Mosques of the Tang and Song eras.

and settled down for their entire lives. Perhaps the free lodging, entertainment, and benevolent gifts provided by the Song court at Kaifeng partly explain why this area witnessed the highest levels of early Muslim settlement in China.

### The Yuan Period

The Yuan dynasty (Figure 2) brought an upsurge in the establishment of mosques, with a growing concentration along the Grand Canal and other trade corridors leading south from the Yuan capital at Dadu (present-day Beijing). Mosques existed in all the major cities of the interior North China Plain, forming the first Muslim core region in China. Increasing concentrations can also be observed in northwest China (along the present-day Gansu-Qinghai border) and in the southwest (specifically Yunnan province).

An important factor in the growth of Islam during the Yuan period was the establishment by the Mongols of the *semu guan* (officials of various categories) to prevent their newly subdued Chinese subjects from governing themselves (Endicott-West 1989). The majority of the *semu guan* were central and west Asian Muslims (Lipman 1998). This governing trend helps to explain the growth of mosques in northwest China where the main branch of the Silk Road entered through the Gansu Corridor, a crucial transportation link with central Asia.

Similarly, the growth of Islam in Yunnan in southwest China resulted, in part, from the appointment of a Muslim to the high office of *darughaci* (provincial commander). Many historians date the establishment of a permanent Muslim presence in southwest China to the tenure of Sayyid Ajall Shams ad-Din (Ch. Sai Dianchi), a Muslim from

Bukhara, as governor of Yunnan in 1274 (Atwill 2005). He supported the construction of at least two mosques, permitted Islamic education, and sanctioned the open practice of the Islamic faith. Similar to the relative location advantage of Muslim centers in northwest China with trade access to Tibet, China, and Central Asia, the Muslim Yunnanese also benefited from residing in a central location vis-à-vis Tibet, China, Burma, and Thailand.

Based on the above mentioned advantageous political and trade factors for Muslims under the Yuan dynasty, it is somewhat surprising to see that north China became the largest Muslim core area and not northwest or southwest China. However, on closer examination, the role of the Muslim *semu guan*, including not only commerce but also tax farming, would indicate more material support for Muslim community formation in the more prosperous and agriculturally richer parts of China like we may assume the north China plain to have been in this period. Unfortunately, we do not have a robust enough regional systems model of Agrarian China to measure the relative sizes of different core areas for specific periods. Instead, we can only speculate based on the significantly larger growth and size of the Yuan period Muslim core in north China that this region presented a number of favorable factors supporting early Muslim settlements with their mosques and that these factors far outweighed those in northwest and southwest China.

### The Ming Period

The number of mosques more than tripled in the Ming period (Figure 3), with construction spreading out from the major cities. North China and northwest China continued to develop mosques at a faster rate than other regions,

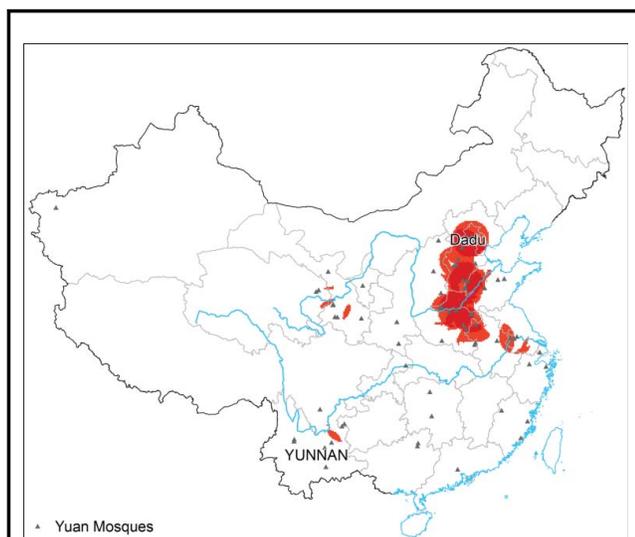


FIGURE 2. Mosques of the Yuan era.

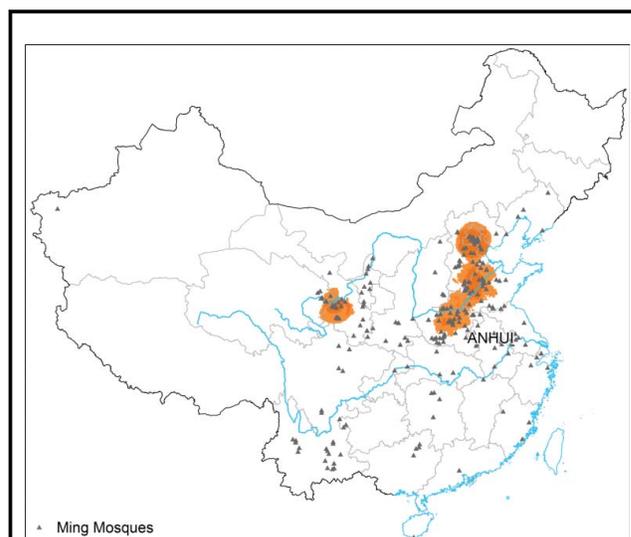


FIGURE 3. Mosques of the Ming era.

solidifying their positions as regional cores of Chinese Muslim society. Nearly every region saw a substantial increase, with mosques becoming a common part of the landscape in the Yungui and Lower Yangzi regions as well. Only along the Southeast Coast and Lingnan were mosques still largely confined to a few major cities, a pattern that would remain into the twentieth century.

The Ming founder, Zhu Yuanzhang, organized a rebel movement to drive the Mongols out of China in the 1360s. Many Muslims chose to stay and fight on the side of the indigenes. According to Lipman (1998, 38), Zhu's commanders included former *semu* unambiguously claimed as Muslims by Sino-Muslim scholars. Many of these men hailed from Anhui, several northern areas of which were systemically part of the North China Muslim core region of the former Yuan period. In this sense, the ascendancy of the leading Muslim core area in North China during the Yuan period led to the formation of an RRS that worked to further integrate Chinese Muslims into Chinese society during the Ming period because it was in a central Han macroregion, not a peripheral one. From the Ming period onward, despite official attempts to acculturate resident "aliens" into Confucian traditions and other aspects of sinification, the Hui and other Chinese Muslims lived as integral parts of Chinese society yet maintained different cultural traditions while residing in segregated spaces within larger RRSs. However, examples of more acculturated Muslims are found in the lower Yangzi region where some Muslim families wrote Confucian-style clan genealogies to honor their ancestors in the Chinese mode (Lipman 1998, 46). Here, we can see the effects of sinification greatest within such core areas of Han China, while at the same time, the functioning of Muslim RRSs worked to counter the full effects of such acculturation processes.

As in the Yuan period, the north China Muslim core continued to be the largest one in China under the Ming. Further limiting possible connections with Muslim lands in central and west Asia, the Ming state focused its frontier security and revenue enhancement on controlling and limiting trade and communication with foreign areas. This policy may have contributed to the arrested growth of the southwest Muslim core that showed signs of takeoff in the Yuan period but declined in the Ming relative to other Muslim cores. Also, the northwest Muslim core grew more slowly than it otherwise may have in the absence of such economic policies. At least, when looking ahead to later periods and the absence of such policies, the northwest Muslim core expanded considerably, as too did the southwest Muslim core. It would appear that Ming policy succeeded most fully in the southeast, where Muslim communities continued to be isolated in coastal port cities after the closing of the Arab-Persian sea trade by the mid-Ming.

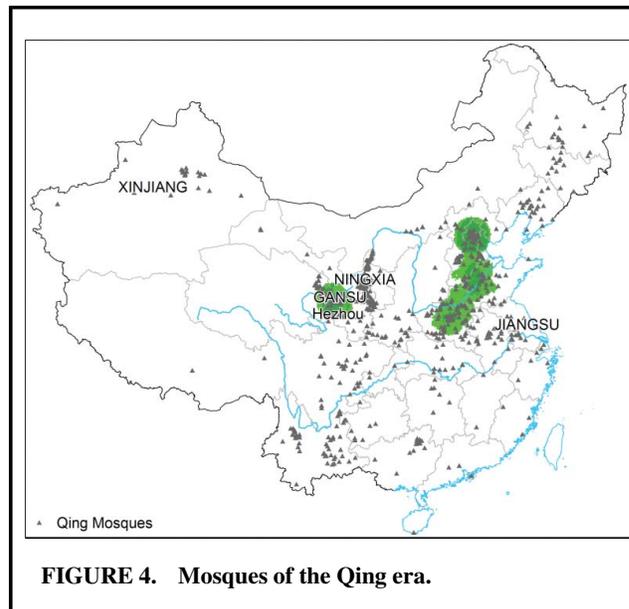


FIGURE 4. Mosques of the Qing era.

### The Qing Period

The Qing period saw a further intensification of the spatial patterns of mosque establishments seen in the Ming (Figure 4), with the total number of mosques increasing threefold again over this period. The north China corridor and the northwest China core regions still dominate, but also evident is a cluster of mosques taking shape in present-day Ningxia (the present-day PRC autonomous region of the Hui Muslim ethnic group, just east of the northwest China core).

In the cultural sphere, a notable event during the Qing period was the growth and spread of Sufism into China from its introduction via the Tarim Basin and Gansu Corridor. The earliest Sufi tradition was the Qubrawiyya (Ch. Kubulinye) founded in Hezhou (known as China's "Little Mecca") during the Ming period around 1470 by a Muslim from central Asia who adopted the Chinese name Zhang Puji. In fact, Hezhou may be seen as a central node in the northwest Muslim core of both the Ming and Qing periods. The Sufi orders (or brotherhoods, solidarities) are called *Menhuan* in Chinese. The early Qubrawiyya tradition and the three Qing period traditions of the Qadiriyya (Ch. Gadelinye), Jahriyya (Ch. Zhehelinye), and Khufiyya (Ch. Hufuye) comprise the four main Chinese *Menhuan*. Their followers are mainly found in northwest China. The only notable exceptions are the banqiao division of the Zhehelinye with some religious centers in Xinjiang and Jiangsu, and some followers of the Gadelinye in Sichuan (Murato et al. 2009; Tong 2000).

To these main Chinese Sufi traditions may be added three early twentieth-century traditions: the Xidaotang (literally "West Dao Hall," known as the "Chinese school of Islam"

emphasizing Chinese language Islamic literature, Chinese education, and commerce), Ikhwan (Ch. Yihewani), and Salfiyah (Ch. Saleifeiye; also known in the West as Wahabiyye). Also, while the Xidaotang have their central mosque in Lintan in Gansu, the Yihewani and Saleifeiye have no centralized mosques, though the followers of all three of these minor and later Sufi traditions are also mainly found in northwest China.

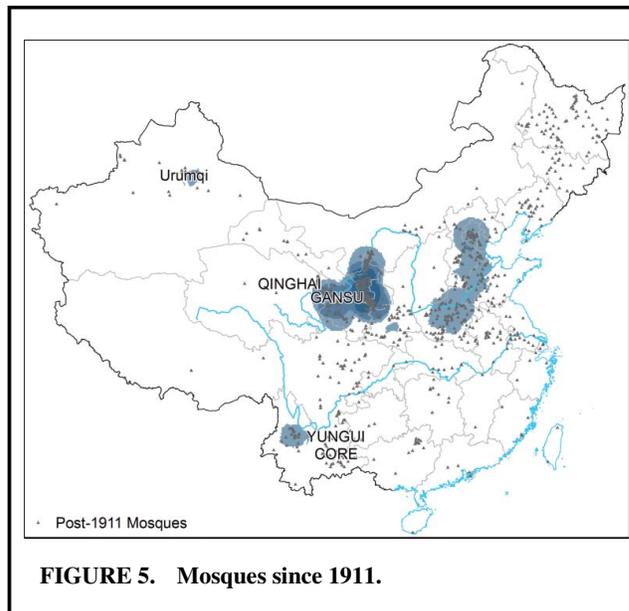
Prior to the development of these Sufi traditions, the earliest form of Islam in China consisted of the Gedimu tradition, and it came to be considered the traditional Chinese form of Islam. It remains strong in north-central and eastern China, precisely where the earliest and largest of the Muslim core regions of China developed up through the Qing period. The traditional Gedimu mosque structure consists of one Imam, one Akhund, and one caller for prayer. This method is called the “three Zhangjiao” system.

Given how the physical and cultural geography of China historically interrelated with the growth and development of Islam, it is reasonable to speculate that one factor affecting the spread of Sufi solidarities was the need among northwest China’s Muslim communities for socio-religious systems to connect disparate core and peripheral areas between central Asia and China. Specifically, the northwest China Muslim core region of both the Ming and Qing periods was much smaller than that of north-central China and may have contributed to the need for socio-religious networks offered by the Sufis to help connect followers scattered across peripheral areas in northwest China. Other factors include the increasing violence in Chinese society after the Qianlong period, combined with the noted corruption of Qing officialdom. These factors likely also increased the need of Muslim minority communities to increase and strengthen their own social and economic networks.

### *The Republican Period*

By the fall of the Qing dynasty in 1911, the northwest China core had expanded to unite with the Ningxia cluster, overtaking the north China corridor as the preeminent center of Chinese Muslim society (Figure 5). Over 400 more mosques were established in the Republican Period of 1912–49, a faster rate than in any of the dynastic eras. Clusters of mosques also appear in the Yungui core of southwest China and in inner Asia around the city of Urumqi.

Politically, this period was significantly different from the previous dynastic periods as a time when regionalism and warlordism dominated China, especially in interior regions far from the Colonial port cities. In this context, it is possible that local Muslim warlords, such as the powerful Ma Bufang (1903–75) military governor of the Gansu-Qinghai region, redirected resources to the building of mosques among other endeavors. Certainly, large areas of Muslim settlement in northwest China were free from centralized Chinese control during this period, and while times



**FIGURE 5. Mosques since 1911.**

were difficult, the available data nonetheless show higher levels of mosque constructions than during previous periods. Other factors that might help to explain this trend, such as the arrival of New World crops and declines in the death rate due to the medical revolution, may also be applied to the Qing period, making it difficult to ascertain how northwest China overtook north China to become the largest Muslim core region of China by this time. Clearly, further research is needed, and these spatial data offer new insights into this development.

### **Conclusions: Regional Trajectories of Growth in Muslim Cores**

Although many modern geographies of Islam in China consider the northwest, Yunnan, and coastal China as important centers, these regions did not experience significant growth in Muslim communities to compare with that of north China until the late Qing and Republican periods. Since the introduction of Islam into China during the Tang and Song periods, the core area of Muslim settlement developed from a proto-core along the lower Yellow River into a major core region extending up to the later capital city of Beijing. During the Yuan period, a few proto-cores of Muslim settlement appeared in parts of northwest and southwest China. By the Ming and Qing periods, one core Islamic region about one-third the size of the north China core developed in Gansu in northwest China. Ningxia, located along the great bend of the Yellow River in northwest China, although considered today one of China’s main cultural centers of Islam, did not develop into an Islamic core region until the post-dynastic Republican period.

When the cumulative number of mosques founded by both historical period and macroregion are taken into

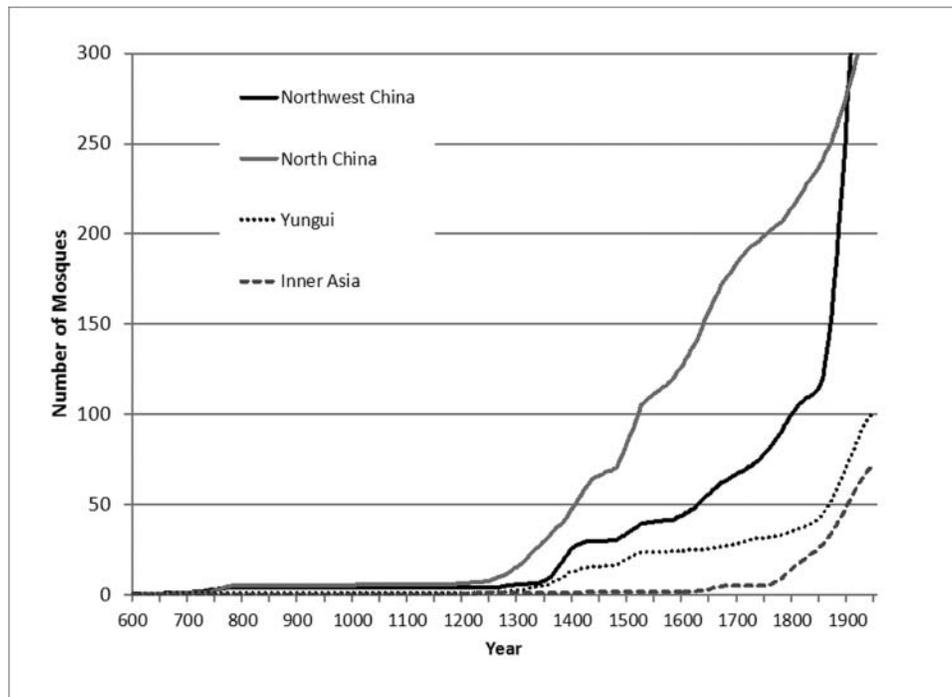


FIGURE 6. Cumulative number of mosques founded, by macroregion.

consideration (Figure 6), it is important to note that the early growth of Islam in north China during the Tang and Song periods mostly occurred in core areas when compared to China’s physiographic macroregions (Figure 7). In all subsequent periods, the regional development of Islam occurred more in socioeconomically peripheral rather than

core areas of China. As we have noted, our sources are most likely to over-represent mosques in modern major cities and Chinese-speaking regions. Our analysis may not have identified earlier Muslim clusters in the far west, but nonetheless, we have been able to highlight concentrations of mosques in socioeconomically peripheral areas of China Proper that are likely to have been underrepresented in the source data.

From this perspective, it appears that the earliest mosques were established in the cosmopolitan capitals and trading destinations of China’s core regions, but as early as the Yuan dynasty (1279–1368), mosques increasingly appeared in peripheral zones. This suggests an even earlier shift from the predominance of Muslims as traders in major cities to a spread in the appeal of Islam in the rural peripheries of the Han core cultural and economic zones. The later reascent Sufi movements of northwest China with their links to Persia and Arabia likely benefited from their peripheral locations when compared to the traditional Chinese Gedimu form of Islam that developed in north China. Compared with an analysis by administrative jurisdictions, there was generally a weaker ability of Han civil and cultural institutions to enforce Confucian orthodoxy outside of the core urban centers through various historical periods.

Future research on these historical, cultural, and religious developments should reference Chinese gazetteers, inscriptions, and other archival sources to corroborate the dates used here and identify mosques that may not have been

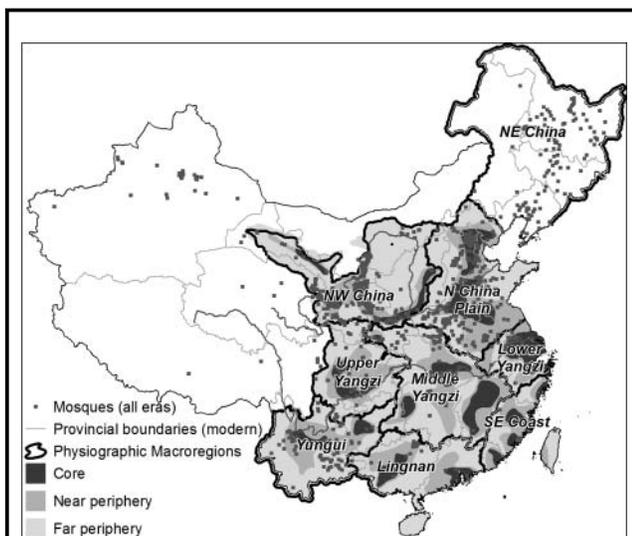


FIGURE 7. Mosques across all time periods, in relation to physiographic macroregions.

included in our sources. Comparing each individual mosque location with the imperial administrative status of the city or town at the time of the mosque's establishment will help to further explicate the interaction between the orthodox Confucian apparatus and the practice of Islam. These steps will take us closer to constructing a more nuanced geohistorical model of how Chinese state-building efforts affected local Muslim societies in relation to regional-scale cultural and socioeconomic patterns.

## Funding

This study is based, in part, on work supported by the U.S. National Science Foundation under grant number 0740998: *The Changing Geography of Islam in China: A Survey of Historic Urban Neighborhoods and Rural Enclaves in Relation to New Settlement Patterns* (P.I. Karl E. Ryavec, 2008–10).

## NOTE

1. For orientation, the maps that follow show modern-day provincial boundaries and courses of the Yellow and Yangzi rivers. Labels indicate cities and regions mentioned in the text for each time period.

## REFERENCES

- Atwill, D. G. 2005. *The Chinese sultanate: Islam, ethnicity, and the Panthay rebellion in southwest China, 1856–1873*. Stanford: Stanford University Press.
- Bai, S. 2003. *Zhongguo Huihui Minzu Shi (A history of the Huihui nationality in China)*. Beijing: Zhonghua Shuju.
- Benite, Z. B.-D. 2004. From “Literati” to “Ulama”: The origins of Chinese Muslim nationalist historiography. *Nationalism and Ethnic Politics* 9:83–109. <http://dx.doi.org/10.1080/13537110390444131>
- Diamond, J. 1997. *Guns, germs, and steel: The fates of human societies*. New York: W. W. Norton and Company.
- Endicott-West, E. 1989. *Mongolian rule in China: Local administration in the Yuan Dynasty*. Cambridge: Harvard University Press.
- Garnaut, A. 2006. China's Islamic heritage. *China Heritage Quarterly* 5. [www.chinaheritagequarterly.org/editorial.php?issue=005](http://www.chinaheritagequarterly.org/editorial.php?issue=005).
- Gaubatz, P. 1998. Mosques and markets: Traditional urban form on China's northwestern frontiers. *Traditional Dwellings and Settlement Review* 9 (2): 7–21.
- Gladney, D. 1996. *Muslim Chinese: Ethnic nationalism in the people's republic*. Cambridge: Harvard University Press, Council on East Asian Studies.
- Gladney, D. 2004. *Dislocating China: Muslims, minorities, and other subaltern subjects*. Chicago: University of Chicago Press.
- Jenks, G. F. 1977. *Optimal data classification for choropleth maps*. Lawrence, KS: University of Kansas Press.
- Kaplan, D. H. and S. R. Holloway. 2001. Scaling ethnic segregation: Causal processes and contingent outcomes in Chinese residential patterns. *GeoJournal* 53:59–70. <http://dx.doi.org/10.1023/A:1015822117915>
- Lipman, J. N. 1998. *Familiar strangers: A history of Muslims in northwest China*. Seattle: University of Washington Press.
- Ma, T. 2000. *Zhongguo Yisilan Jiaopai yu Menhuan Zhidu Shilue (Chinese Islamic sects and the organization system of Sufi orders)*. Yinchuan: Ningxia Renmin Chubanshe (Ningxia Peoples' Press).
- Murata, S., W. C. Chittick, and T. Weiming. 2009. *The sage learning of Liu Zhi: Islamic thought in Confucian terms*. Cambridge: Harvard University Press.
- Pomeranz, K. 2000. *The Great Divergence: China, Europe, and the making of the modern world economy*. Princeton: Princeton University Press.
- Skinner, G. W. 1964–5. Marketing and social structure in rural China. *The Journal of Asian Studies* 24 (1–3): 3–43.
- Skinner, G. W. 1985. Presidential address: The structure of Chinese history. *The Journal of Asian Studies* 44:271–92. doi: 10.2307/2055923
- Skinner, G. W., Ed. 1977. *The city in late imperial China*. Stanford: Stanford University Press.
- Skinner, G. W., M. Henderson, and J. Yuan. 2000. China's fertility transition through regional space. *Social Science History* 24:613–52. doi: 10.1215/01455532-24-3-613
- Sun, Y. 1924. *San Min Chu I (The three principles of the people)*. Shanghai: Institute of Pacific Relations.
- Wu, J. Ed. 1995. *Zhongguo Qingzhensi Zonglan (Compendium of mosques in China)*. Yinchuan: Ningxia Renmin Chubanshe (Ningxia Peoples' Press).
- Wu, J. Ed. 2008. *Zhongguo Qingzhensi Zonglan Shibian (Supplemental Compendium of Mosques in China)*. Yinchuan: Ningxia Renmin Chubanshe (Ningxia Peoples' Press).
- Wu, J., D. Tong, and K. Ryavec. 2013. Spatial analysis and GIS modeling of regional religious systems in China: Conceptualization and initial experiment. In *Chinese history in geographical perspective*, ed. Y. Du and J. Kyong-McClain, 179–96. Lanham: Lexington Books.