
Quantitative Studies on the Historical Development of Chinese Taoist Temples since 1911

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Abstract: *Taoism, a native religion in China, had its remarkable history almost two thousand years ago, having originated in the Eastern Han dynasty. Focusing on the period of Modern China from 1911 to 2004, this article maps the historical development of Chinese Taoist temples from quantitative, spatial, comparative, historical and religious perspectives. Selecting three cities surrounding the three famous Taoist temples in the eastern, central and western regions of China as the case studies, this article first discusses the growth patterns of Taoist temples and their religious functions. This article further examines the changing characteristics of Taoist temples in the three regions of China, covering thirty-one provinces in China with a variety of visualized maps, figures and tables. Furthermore, this article summarizes national patterns of Taoist temple construction, based upon the updated official data. In addition, a comparative study is conducted through a growth comparison between Taoist temples, religious sites of other Chinese religions and some socioeconomic factors. This article concludes that the fluctuations of Taoist temple development reflect the historical evolution of Chinese*

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regimes, religious policies and socioeconomic development. Thus, this article may provide additional references to observe and understand the four major eras of Modern China, including the Republican China (1911-1949), Mao's China (1949-1976), Deng's China (1978-1992) and Jiang Zemin's China (1992-2004).

Key Words: *Taoist Temple; Religious Site; Religious Market; Growth Pattern; Modern China*

1. Introduction

Originated in the Eastern Han dynasty (AD 126-144), Chinese Taoism is the only native religion in China because Buddhism was created in India and Confucianism is an ideology, instead of a religion (Creel 1982; Su 2013; Bing 2004; Palmer & Liu 2012). As a holy place for religious worship and other cultural ceremonies of Taoist priests, the Taoist temple functions as a window to observing the development of Taoism in China (Shuo 2009; Katz 1993; Goossaert 2009; Xun 2009). Thus, mapping the development of Chinese Taoist temples from 1911 to 2004 is imperative to understand China's native religion, political development and socioeconomic progress.

Focusing on the changing Taoist temples since 1911, this article selects six different years (1911, 1949, 1966, 1978, 1992 and 2004) as historical markers to track the different patterns of Taoist temples. These six key years represent critical political and economic landmarks in modern China. For instance, the Republic of China was founded in 1911 and the People's Republic of China was established in 1949. Led by Mao's Communist Party, the Cultural Revolution became evident in 1966, when Mao's China initiated massive anti-religious movements. After the death of Mao in 1976, China underwent a political transition. Mao still dominated China's development under the leadership of President Hua Guofeng from 1976 to 1978. Deng Xiaoping kicked off economic reform and the open door policy in 1978--which is also when Chinese religions, including Taoism--began to enjoy their relative freedom and exceptional expansion. However, after 1992, Deng Xiaoping was losing his dominance due to the Tiananmen incident of 1989 and his

health. As the new leader of China, President Jiang Zemin began to persecute some religious groups, such as Falun Gong in 1999, and discouraged the construction of religious sites in China. Jiang resigned from his position as president of China and head of the Communist Party, but still severed as the commander-in-chief of the Chinese military until 2004. For this reason, our last researched time period is 2004.

Therefore, our research covers the four political regimes in modern China, including the Republican China (1911-1949), Mao's China (1949-1978), Deng's China (1978-1992) and Jiang's China (1992-2004) (Bergere 1997; Vepa 2003; Vogel 2011; Nathan 1999). Given that there is less separation of church and state with Chinese characters in China, it is vital to understand religious development through political regimes and dictators (Potter 2003; Yang 2006; Yang 1961; Madsen 2010).

This article chooses three representative areas where the famous Taoist temples are located, before discussing the changing patterns of Taoist temples in the three regions of China and finally summarizing the general picture of national Taoist temples from 1911 to 2004. In addition to historical and religious perspectives, this article uses comparative methods to address the differences between Taoist temples, other religions' religious sites and other socioeconomic factors in China, in an effort to better understand the unique patterns of Taoist temple expansion. Meanwhile, instead of using qualitative methods, this article focuses on quantitative and spatial perspectives to statistically calculate and spatially visualize the ups and downs of Taoist temple construction over the past century. Our pioneering effort combines historical, religious, statistical, spatial and comparative disciplines to study Chinese Taoist temples since 1911.

2. Data and Methodology

Our collection of data primarily relied on the official data published by *2004 China's Economic Census Data with GIS Maps* (China Census Bureau, 2005), which was validated

and integrated into our research by our team at Purdue University and University of Michigan. All data has been visualized and posted on an innovative website, Spatial Explorer of Religion (China Data Center, 2014), supported by the Henry Luce Foundation grants. Unless mentioned specifically, the data cited by this article are all from the aforementioned book and website. According to the official data, there were 4,938 Chinese Taoist temples in the nation in 2004. However, the data does not cover all individual cities and counties throughout the period of 1911 to 2004. Thus, we have to select the years in which data are available for some specific cities while doing case studies.

In addition to main data on Taoist temples, we benefited from other official data from the 2000 China census (National Bureau of Statistics of China, 2001), data about the urbanization and the ratio of urban population (National Bureau of Statistics of China, 2014), GDP per capita information (National Bureau of Statistics of China, 2005) and the number of Chinese universities and colleges (National Bureau of Statistics of China, 2004).

In regard to the research methodology, we mainly utilize statistical methods to calculate the changing numbers, general growth rates and average annual growth rates of Taoist temples, as demonstrated by various tables and figures. Meanwhile, we make use of spatial methods to visualize the shifting locations of Taoist temples in different places during different periods, as illustrated by a variety of maps. Adding religious sites of other main religions in China, this comparative study is functional in revealing the rankings of Taoist temple construction among other religions' religious sites, such as Protestant churches, Buddhist temples, Islamic mosques, and Catholic churches.

For further comparative study on the correlations between religious sites and socioeconomic factors, it is essential to examine some relevant indicators, such as the population growth rates, higher education institutions, GDP per capita and urbanization. Meanwhile, in an attempt to map changing patterns of Taoist temples since 1911, a historical perspective was necessary to study the

periodization of Taoist temple development during the six different periods. Similarly, discussing the relationship between church and state and between religion and society requires religious perspective in order to understand the interactions of Chinese politics, society, economy and religion in the past one hundred years. Therefore, this article benefits from interdisciplinary research methods to share quantitative, spatial, comparative, historical and religious viewpoints on the study of the Chinese Taoist temple.

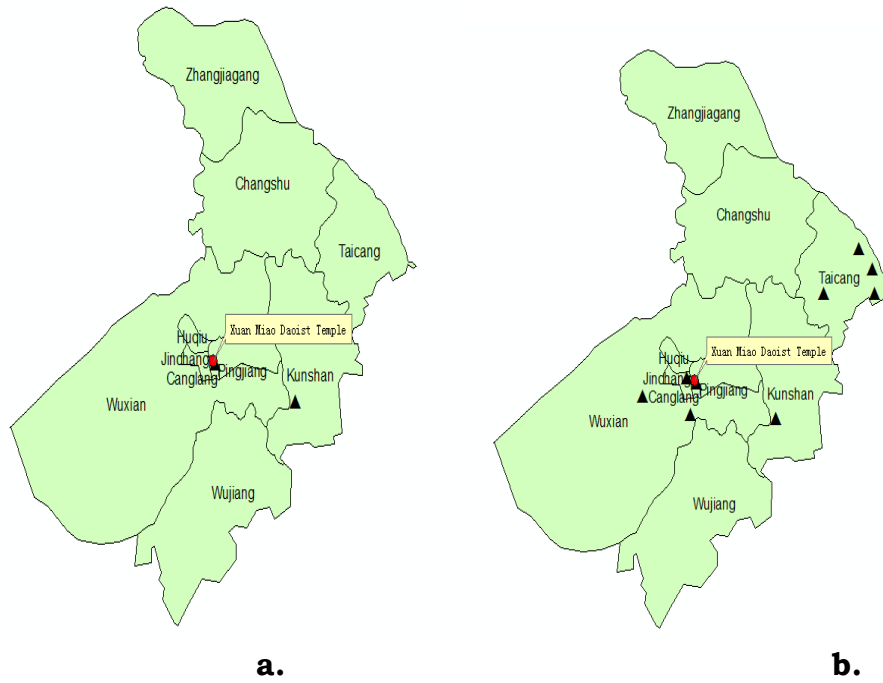
3. Case Studies on the Taoist Temples

There are over one dozen famous Taoist temples in today's China. To assist our case study of Taoist temples, we have carefully selected three renowned temples, covering three different regions of China, including: 1) the Xuanmiao Temple in Suzhou city of Jiangsu province located in the eastern region (Xuanmiaoguan 2014; Wang 2000); 2) the Wudang Temple in Shiyan city of Hubei province in the central region (Zhu 2006; China Wudang 2014); and the Yuequan Temple in Tianshui city of Gansu province, located in the western region of China (Ting 2006; Liu 2011). In light of incomplete data prior to 1992, our case studies on the specific areas of famous Taoist temples only select the years of 1992 and 2004.

Map 1 below illustrates the changing locations of Taoist temples in Suzhou city, where the Xuanmiao Temple is located in 1992 and 2004. As clearly shown, the number of temples increased from three to eleven, expanding to both west and northeast directions. The round, red dot represents the location of the Xuanmiao Temple.

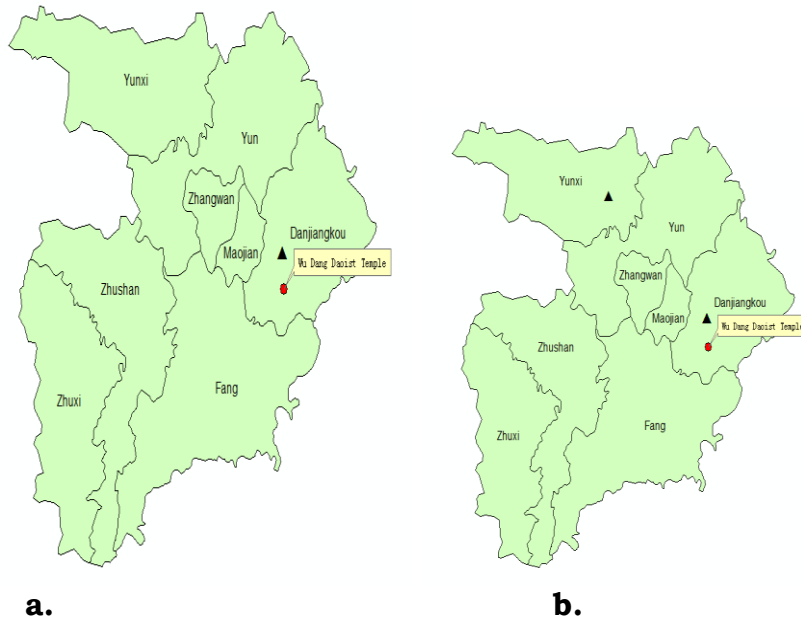
Map 1. Maps of Taoist Temples in Suzhou City of Jiangsu Province in 1992 (a) and 2004 (b)

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Likewise, located in central China, Shiyan city changed the locations of Taoist temples surrounding the Wudang Temple from 1992 to 2004, but it only added two more temples during the twelve-year period. The Wudang Temple is identified by a round, red dot on Map 2 below.

Map 2. Maps of Taoist Temples in Shiyan City of Hubei Province in 1992 (a) and 2004 (b)



Surrounding the Yuquan Temple, Tianshui city in west China witnessed dramatic growth of Taoist temples from 1992 to 2004 (see Map 3). Located in the center of city, the Yuquan Temple has played a critical role in promoting the expansion of Taoist temples to the rest of city, doubling the number of temples from 26 to 49 within only 12 years.

Map 3. Maps of Taoist Temples in Tianshui City of Gansu Province in 1992 (a) and 2004 (b)

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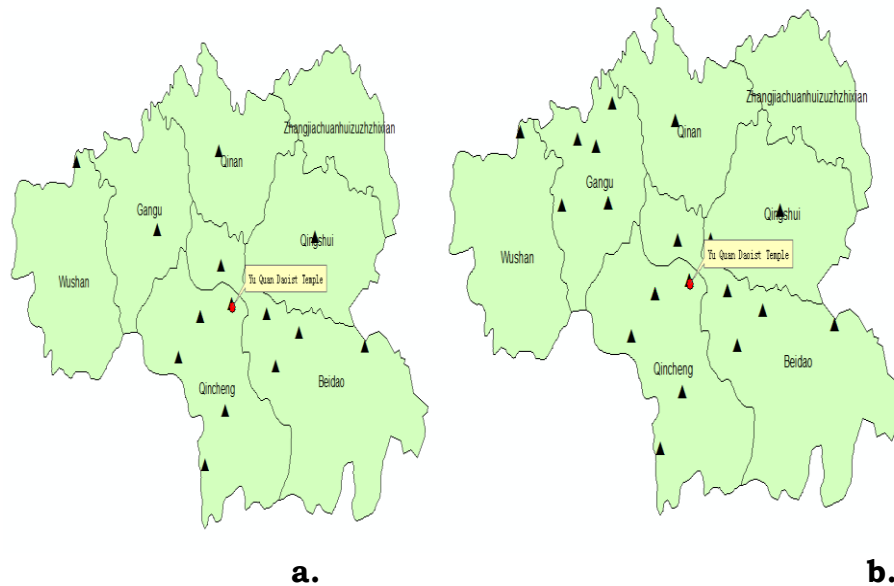


Table 1 below statistically shows the changing numbers of Taoist temples in the three cities in 1992 and 2004.

Table 1. Changing Number of Taoist Temples in the Three Cities (1992 and 2004)

Year Region	1992	2004
Shiyuan City	4	6
Suzhou City	3	11
Tianshui City	26	49

Although Tianshui city had the largest number of temples in 2004 (49), Suzhou city had the highest growth rate (267%) (see Table 2).

Table 2. The Growth Rates of the Taoist Temples in the Three Cities from 1992 to 2004

Region \ Year	1992-2004
Shiyan City	50%
Suzhou City	267%
Tianshui City	88%

In particular, the average annual growth rate was notable in Suzhou city, where the number of Taoist temples increased by 11.4% on average in the years from 1992 to 2004 (see Table 3).

Table 3. The Average Annual Growth Rates in the Three Cities (1992-2004)

Region \ Year	1992-2004
Shiyan City	3.4%
Suzhou City	11.4%
Tianshui City	5.4%

Mapping the development of Taoist temples in the selected cities around the three famous Taoist temples is important for further study in the regional and national picture of Taoist temple expansion. Cases from the three cities demonstrate that the growth of Taoist temples kept impressive momentum by growing in numbers and multiple directions of their extension. Serving as the center of Taoism and Taoist believers in the area, the famous Taoist temples have peculiar roles in stimulating and promoting the development of regional Taoist temples (Piao 2010; Chan 2005; Zhu 2008).

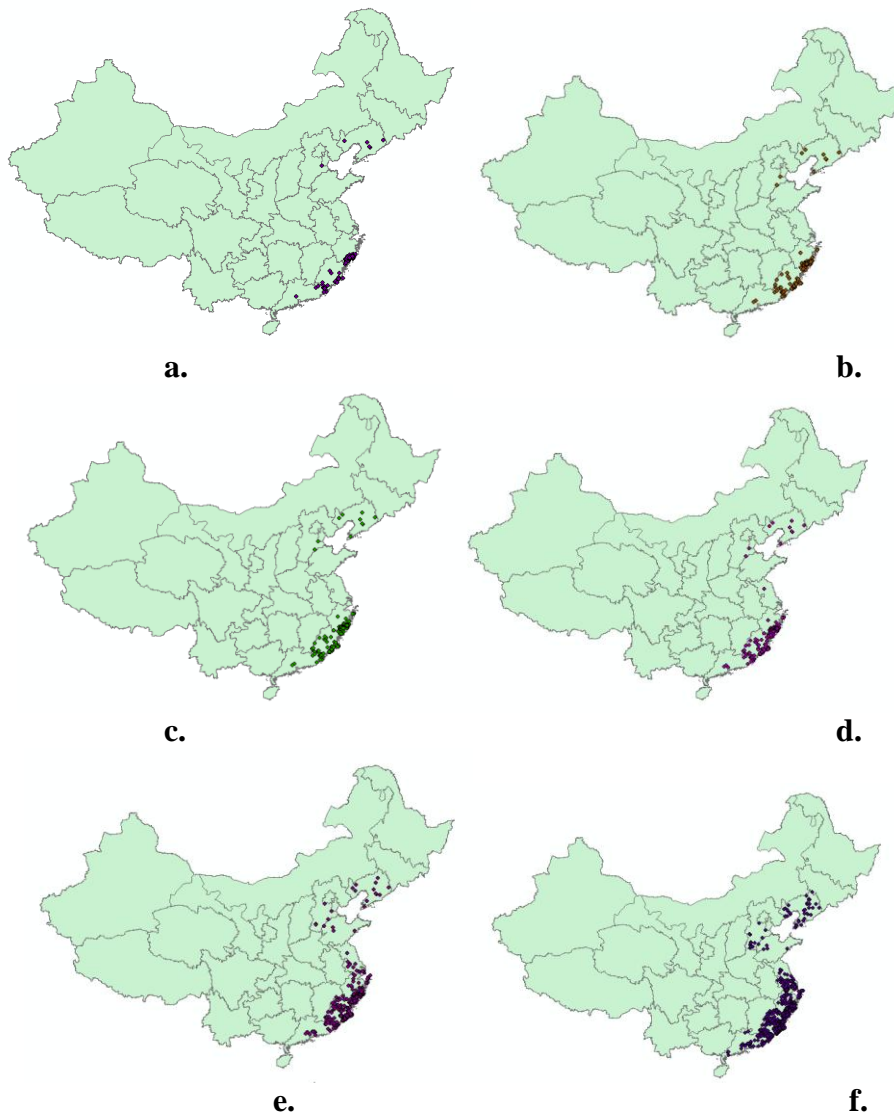
4. The Changing Regional and National Patterns of the Taoist Temples

Mainland China is comprised of three regions: east, central and west China. Specifically, east China includes 11 provinces and municipalities such as Zhejiang, Fujian, Shanghai, Liaoning, Jiangsu, Beijing, Shandong, Hebei,

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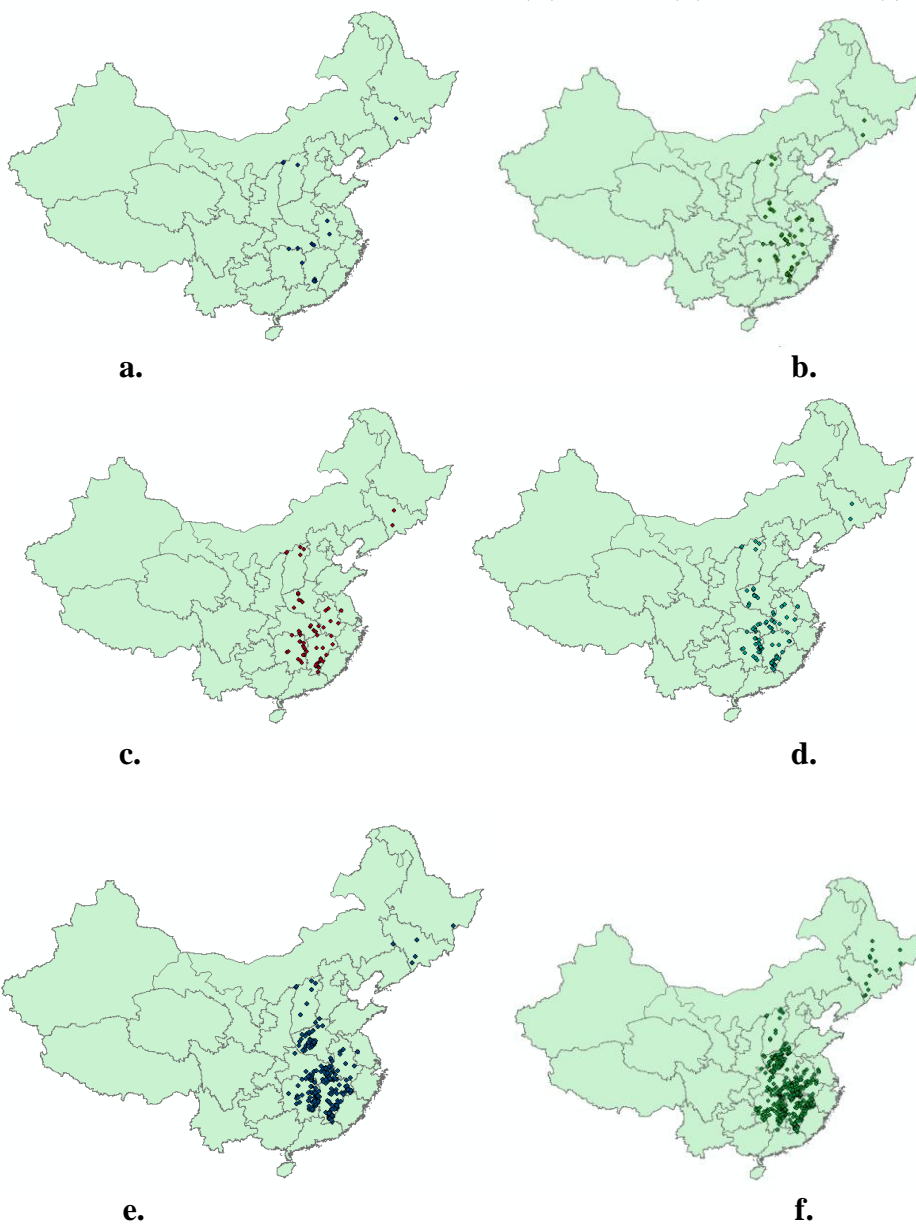
Guangdong, Tianjin and Hainan. Map 4 below shows the changing locations of Taoist temples in the six historical periods (1911, 1949, 1966, 1978, 1992 and 2004). Apparently, the largest number and most popular areas of Taoist sites are concentrated in east China. 2004 represents the peak year in terms of the number of temples and the area coverage of temples

Map 4. Maps of the East China's Taoist Temples in 1911 (a), 1949 (b), 1966 (c), 1978 (d), 1992 (e) and 2004 (f)



Another region of China, central China, covers eight provinces and municipalities, including Henan, Anhui, Heilongjiang, Jilin, Hubei, Shanxi, Jiangxi and Hunan. Map 5 below provides the six maps of changing Taoist temples during the six different time periods since 1911.

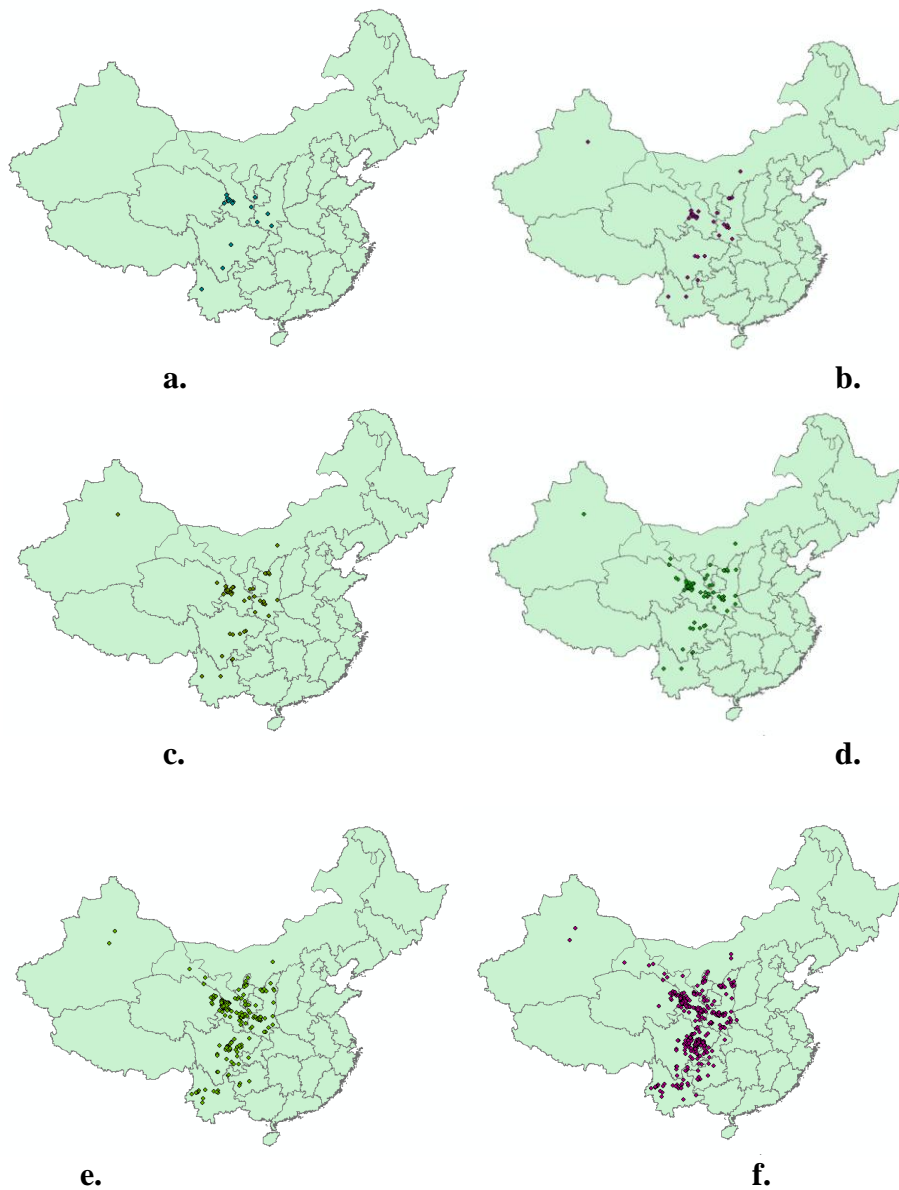
Map 5. Maps of the Central China's Taoist Temples in 1911 (a), 1949 (b), 1966 (c), 1978 (d), 1992 (e) and 2004 (f)



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Moreover, west China includes 12 provinces: Yunnan, Chongqing, Shaanxi, Sichuan, Gansu, Guizhou, Xinjiang, Neimenggu (Inner Mongolia), Ningxia, Qinghai, Guangxi and Xizang (Tibet). Its Taoist temple locations are demonstrated by Map 6 below.

Map 6. Maps of the West China's Taoist Temples in 1911 (a), 1949 (b), 1966 (c), 1978 (d), 1992 (e) and 2004 (f)



In addition to the spatial visualization of Taoist temple locations since 1911, Table 4 below reveals the statistical information concerning the numbers and growth rates of Taoist temples in the three regions of China from 1911 to 2004. Compared to the other two regions in the six historical years since 1911, east China had the largest number of Taoist temples. For instance, east China's temples accounted for 80% of the total number of national temples in 1911 (198 vs. 249), but its percentage of total national temples reduced to 69% in 2004 (3,143 vs. 4,938). This signifies that since 1911, most Taoist temples have been concentrated in the eastern region of China, but Taoist temple construction gradually expanded to other regions in the past century.

Table 4. Number of Taoist Temples in East, Central and West China (1911-2004)

Year Region	1911	1949	1966	1978	1992	2004	Growth Rate (1911-2004)
East China	198	369	567	704	1,369	3,143	1,487%
Central China	22	62	93	131	389	875	3,877%
West China	29	62	88	134	572	920	3,072%

Meanwhile, Table 4 above shows that central China had the highest growth rate from 1911 to 2004 at 3,877% (22 vs. 875), but Table 5 below demonstrates inconsistent growth rates during the different periods. Central China had the highest growth rate only during the years of Republican China (1911-1949) (182%). However, east China had the highest temple growth rates during the first period of Mao's China (1949-1966) (54%) and Jiang's China (1992-2004) (130%), while west China had the fastest temple growth during the second phase of Mao's China (1966-1978) (52%) and Deng's China (1978-1992) (327%).

In addition, Table 5 illustrates that the fastest growth period for all three regions was the period under Deng's Xiaoping's leadership (1978-1992). At this time, eastern, central and western regions of China witnessed the growth of

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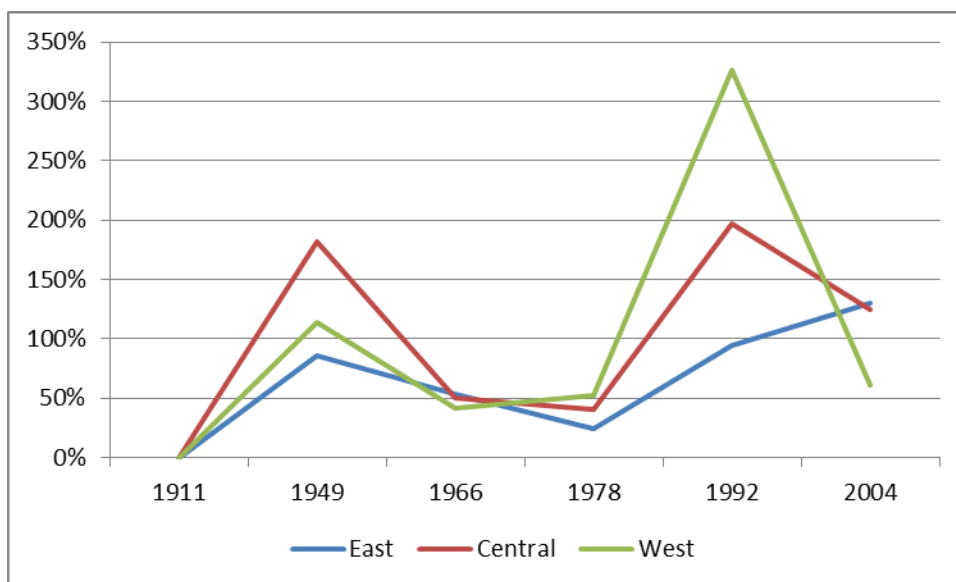
Taoist temples by 94%, 197% and 327%, respectively. Interestingly, the devastating Cultural Revolution (1966-1976) did not stop the growth of Taoist temple construction. Instead, all three regions had significant expansion of temples at the growth rates of 24%, 41% and 52%, respectively.

Table 5. The Growth Rates of Taoist Temples in East, Central, and West China (1911-2004)

Year Region	1911	1949	1966	1978	1992	2004
East China	N/A	86%	54%	24%	94%	130%
Central China	N/A	182%	50%	41%	197%	125%
West China	N/A	114%	42%	52%	327%	61%

Another key indicator shown by Table 5 is that west China experienced an exceptionally unsteady escalation of temples from 1978 to 2004. While western Taoist temples increased from 1978 to 1992 by 327%, it significantly reduced its growth rate to 61% in the years of 1992 to 2004. This dramatic fluctuation can be demonstrated clearly by Figure 1 below (see green line). Qualitative and policy studies are needed to explain why west China had such a unique trend.

Figure 1. The Different Growth Rates of Taoist Temples in East, Central, and West China (1911-2004)



Furthermore, focusing on the average annual growth rate, Mao's China (1949-1978) was ranked as the lowest period of temple growth in all three regions. Also, the growth rate of temples in Mao's China was also lower than the average growth rate of the whole period of Modern China (1911-2004) (see Table 6 below). By contrast, both Deng's China (1978-1992) and Jiang's China (1992-2004) had the highest average annual growth rate.

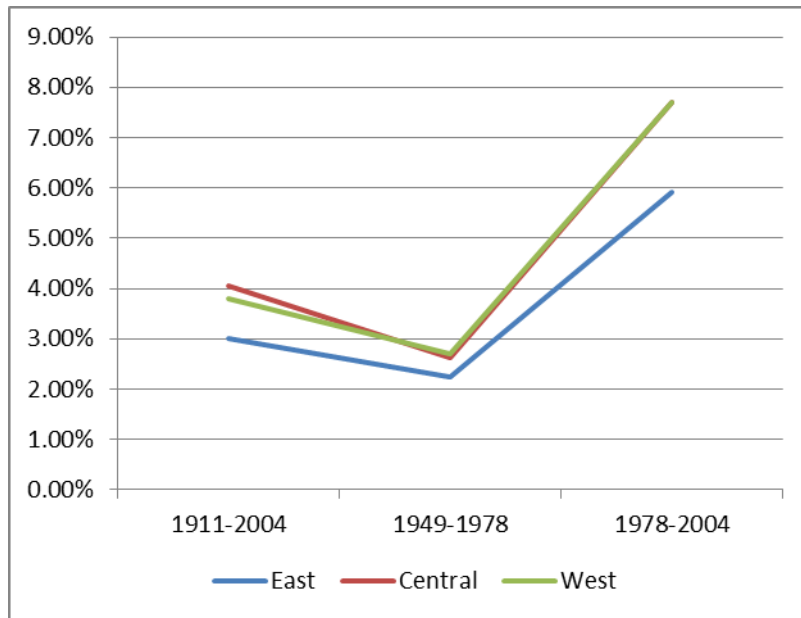
Table 6. The Average Annual Growth Rate of Taoist Temples in the Three Regions of China (1911-2004)

Year Region	1911-2004	1949-1978	1978-2004
East	3.02%	2.25%	5.92%
Central	4.04%	2.61%	7.69%
West	3.79%	2.69%	7.69%

Figure 2 below illustrates much clearer developing patterns for the growth of temples in the three regions, which shared similar directions of temple construction during the same time periods.

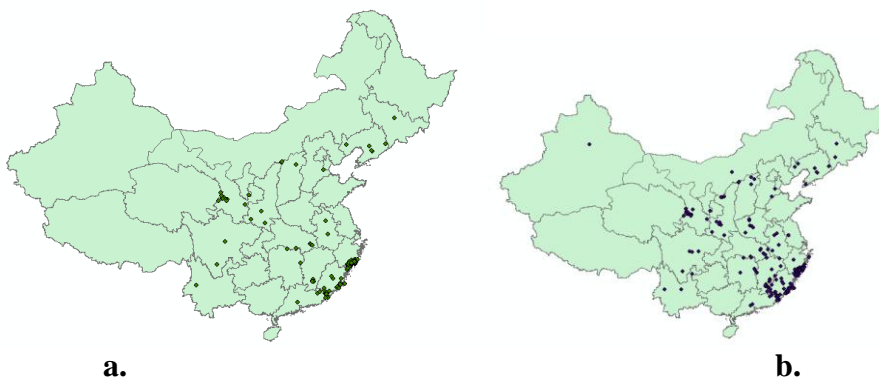
Figure 2. The Patterns of Average Annual Growth

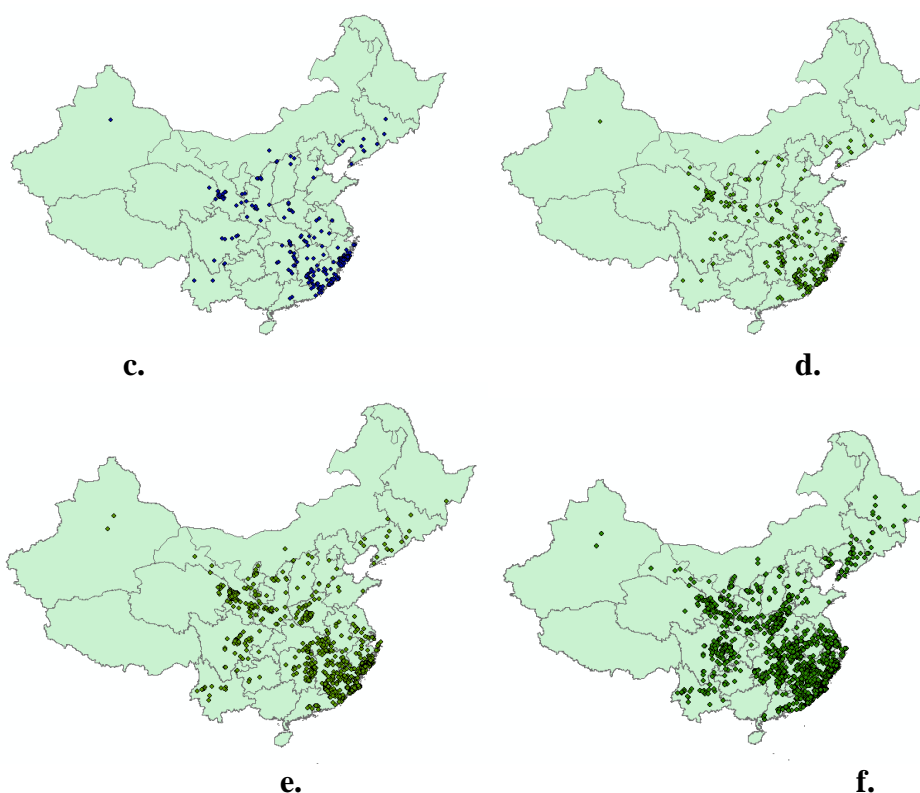
of Taoist Temples in the Three Regions of China (1911-2004)



Based upon the case studies of the three cities and the three regions of China, it is feasible to summarize the general characteristics of the national development of Taoist temples from 1911 to 2004. Map 8 shows the six small maps which visualize the changing locations of Taoist temples in the whole nation during the six historical years.

Map 8. The Spatial Maps of Changing Taoist Temples in China in 1911 (a), 1949 (b), 1966 (c), 1978 (d), 1992 (e) and 2004 (f)





The statistical information shows that the national growth rate of Taoist temples (1,924%) was lower than that of central and west China (3,877% and 3,072%), but higher than that of east China from 1911 to 2004 (1,487%) (see Table 6).

Table 6. Number of Taoist Temples in China (1911-2004)

Region \ Year	1911	1949	1966	1978	1992	2004	Growth Rate (1911-2004)
China	244	493	748	969	2,330	4,938	1,924%
East China	198	369	567	704	1,369	3,143	1,487%
Central China	22	62	93	131	389	875	3,877%
West China	29	62	88	134	572	920	3,072%

While focusing on the eras of Deng's China (1978-1992) and Jiang's China (1992-2004), with an exception of east China, all other regions and the nation as a whole have revealed that growth rates reduced when compared with Deng's China (see Table 7). This may demonstrate the exceptional growth of Taoist temple construction gradually lost momentum after 1992.

Table 7. Comparative Growth Rates of Taoist Temples between the Three Cities, the Three Regions and the Whole Nation from 1978 to 2004

Year Locations	1978-1992	1992-2004
East China	94%	130%
Central China	197%	125%
West China	327%	61%
China	140%	112%

5. Changing Correlations between the Taoist Temples, Religious Sites of Other Religions and Socioeconomic Factors

Studying the religious sites of other Chinese religions may be helpful in explaining the exceptional patterns of Taoist temple development. Thus, we calculated the changing numbers of Protestant churches, Buddhist temples, Islamic mosques, Catholic churches and Taoist temples in China from 1911 to 2004, as demonstrated by Table 8 below.

Table 8. The Comparative Growth Rates of the Religious Sites for the Five Religions in China (1911-2004)

Year Religious Site	1911	1949	1966	1978	1992	2004	Growth Rate (1911-2004) (Unit: time)
Taoist Temple	244	493	748	969	2,330	4,938	19.23
Buddhist Temple	1,650	2,357	3,032	3,595	8,624	16,676	9.11
Protestant Church	116	369	635	889	5,718	14,509	124.08
Catholic Church	135	255	317	355	1,095	2,419	16.92
Islamic Mosque	3,781	9,014	11,318	14,286	29,651	34,305	8.07

Table 8 above shows the growth rate of Taoist sites (19.23 times) stayed in the second ranking, compared with other religious sites of four main religions in China from 1911 to 2004. Yet in regard to the number of religious sites, the Taoist temples were ranked fourth (4,938) during the same period - only higher than that of Catholic churches (2,419).

During the eras of Deng's China and Jiang's China from 1978 to 2004, Taoist temple growth reduced from the second to the third ranking in both Deng and Jiang's China. This was because the Catholic Church suppressed the growth rate of Taoist temple construction after 1978. However, both Taoist and Buddhist temples shared similar growth patterns (141% vs. 140% during Deng's China and 112% vs. 93% during Jiang's China) (see Table 9 below). This may illustrate that as Chinese or Asian native religions, both Taoism and Buddhism experienced comparable government regulations, religious demand and supply and financial support.

Table 9. The Comparative Growth Rate of Religious Sites for the Five Major Religions in China (1978-2004)

Year Locations	1978-1992	1992-2004
Taoist Temple	141%	112%
Protestant Church	543%	154%
Catholic Church	208%	121%
Buddhist Temple	140%	93%
Islamic Mosque	108%	16%

While studying the average annual growth rates of religious sites for all five major Chinese religions since 1911, Table 10 below reveals meaningful information. First, with respect to the average annual growth rates from 1911 to 2004, the Taoist temple held the second position (3.29%), lower than that of the Protestant churches (5.33%) and higher than that of Catholic churches (3.15%). Second, while the religious sites for the other four religions all reduced their annual growth rates during Jiang's China, the Taoist

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temple kept similar growth rates between Deng's China (6.47%) and Jiang's China (6.46%). This may prove that the momentum of Taoist temple growth is still very impressive in the 21st century.

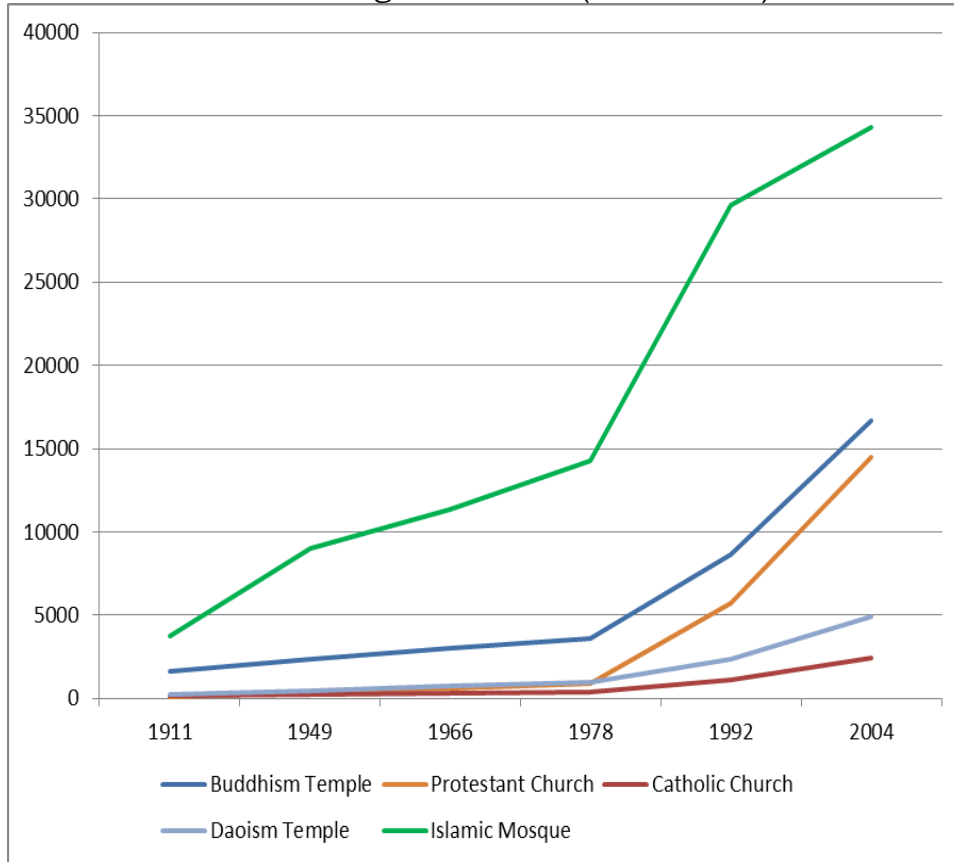
Finally, comparing the periods between the Republican China (1911-1949) and the Cultural Revolution 1966-1978): on the one hand, the Protestant churches, Catholic churches and Islamic temples endured their worst growth period during the Cultural Revolution. On the other hand, both Taoist and Buddhist temples had a much faster growth pace during the Cultural Revolution (2.18% and 1.43%) when compared to statistics from the Republican China time period (1.87% and 0.94%). This may inspire scholars to study whether Mao's governmental religious regulations and religious market during the national cultural catastrophe from 1966 to 1978 were much better than that of the Republican China for the development of the two native religions.

Table 10. Average Annual Growth Rates of Religious Sites for the Five Religions

Religious Sites	1911-2004	1911-1949	1949-1966	1966-1978	1978-1992	1992-2004
Taoist Temple	3.29%	1.87%	2.48%	2.18%	6.47%	6.46%
Islamic Mosque	2.40%	2.31%	1.35%	1.96%	5.35%	1.22%
Catholic Church	3.15%	1.69%	1.29%	0.95%	8.38%	6.83%
Protestant Church	5.33%	3.09%	3.24%	2.84%	14.22%	8.07%
Buddhist Temple	2.49%	0.94%	1.49%	1.43%	6.45%	5.42%

Figure 3 below shows the general patterns of Taoist temple development since 1911.

Figure 3. The Patterns of Taoist Temples and other Religion Sites Changes in China (1911-2004)



In addition to comparing the differences between the religious sites for five religions, it may provide added value to discuss the correlations between Taoist temple development and other socioeconomic factors, such as the growth rates of population, urbanization, GDP per capita and higher education institutions. Given that some socioeconomic data is not available before 1966, we focused our comparative study on the period from 1966 to 2004.

Table 11 below shows that the growth rates of Taoist temples were higher than that of total population, higher education institutions and urbanization from 1966 to 2004.

Table 11. Comparative Growth Rates between the Taoist Temples and Other Social Economic Factors (1966-2004)

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Factor \ Year	1966	1978	1992	2004	Growth Rates
Taoist Temples	748	969	2,330	4,938	560%
Total Population (100,000)	7,454	9,626	5,748	12,999	74%
GDP Per Capita (RMB)	893	1,366	3,940	10,954	1,127%
Higher Education School Number	434	598	1,053	1,731	299%
Ratio of Urban Population to Rural Population	17.9%	17.9%	27.5%	41.8%	134%

Interestingly enough, when analyzing the average annual growth rates, Taoist temple development almost matched the growth of the other four socioeconomic factors from 1966 to 2004. The exception being for the population growth (-3.62%) from 1978 to 1992, due to Deng Xiaoping's one child policy starting in 1979 (Fong 2004; Short 1998; Wang 2005) (see Table 12 below).

Table 12. Comparative Average Annual Growth Rates between the Religious Sites of Five Main Religions and Other Socioeconomic Factors

Factor \ Year	1966-1978	1978-1992	1992-2004
Taoist Temples	2.18%	6.47%	6.46%
Total Population (100,000)	2.15%	-3.62%	7.04%
GDP Per Capita (RMB)	3.61%	7.86%	8.89%
Higher Education School Number	2.71%	4.12%	4.23%
Ratio of Urban Population	0.00%	3.11%	3.55%

With respect to the coefficient, Table 13 confirms that Taoist temple development had the closest correlations with Buddhist temple growth (0.9990) and had relatively lowest connections with the population growth (0.6646).

Table 13. The Coefficient between the Taoist Temples and other Religious Sites and Socioeconomic Factors

	Number of Taoist Temples
Total Population (100,000)	0.6646
Islamic Mosques	0.9274
Higher Education School Number	0.9940
Protestant Church	0.9955
GDP Per Capita (RMB)	0.9969
Ratio of Urban Population (%)	0.9980
Catholic Church	0.9983
Buddhist Temple	0.9990

6. Conclusion

Mapping the development of Chinese Taoist temple development since 1911 demonstrated the unique patterns for cities surrounding the famous Taoist temples, the three regions covering thirty-one provinces and whole nation. Since 1911, the ups and downs of Taoist temple construction reflect the political and socioeconomic milestones of the Republican China, Mao's China, Deng's China and Jiang's China. Four politically strong men, Jiang Jieshi, Mao Zedong, Deng Xiaoping and Jiang Zemin, played important roles in regulating Chinese religious policies in general and Taoist sites in particular (Sautman 1992; Stewart 2001; Cabestan 2012; Lampton 2014). Our study attests that while Protestant, Catholic and Islamic sites suffered a great deal during Mao's China, both Taoist and Buddhist temples experienced a relatively easy time, as their growth rates were higher than that of the Republican China led by Jiang Jieshi.

Given the fact that our study focuses on a quantitative perspective, we cannot emphasize qualitative reasons for the changing patterns of Taoist temples in Modern China or the role of political leaders in religious development. However, our study may encourage scholars to address the empirical and theory-driven issues related to the roles of Taoist temple development in Taoism, religious regulations, religious

market, urbanization, economic development and social stability. Needless to say, we need to take extra efforts to conduct both qualitative and quantitative studies on the study of the Chinese Taoist temple development.

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