

The Impact of the Promotion of Temple Development on the Economic Situation of the City

Jiayu Wang^{1,a,*}

¹*United World College South East Asia, Singapore
a. sophiewang080114@gmail.com*

**corresponding author*

Abstract: This paper examines the multifaceted economic contributions of Buddhist temples in Singapore, focusing on their ability to generate tax revenue, attract tourists, and attract immigrants. Using sociological and statistical methods, including regression analysis, the study quantifies the direct economic impact of temples, such as their role in increasing tax revenue, boosting tourism, and enhancing the attractiveness of the city-state as a hub for immigrants. In addition, the study delves into the indirect impact of these religious sites, in particular their role in promoting social cohesion, preserving cultural heritage and promoting community engagement. In Singapore, Buddhist temples are not only an integral part of the city's religious and spiritual life, but also part of the socio-cultural fabric, providing important services such as educational programs, charity work and Spaces for intercultural exchange. These contributions reflect the temple's deep-rooted influence on the local community and the wider social framework. However, the paper raises concerns about the growing problem of over-commercialization of religious sites, especially in China, where the trend is more pronounced.

Keywords: Buddhist temples, economic development, cultural heritage, religious migration, spiritual tourism.

1. Introduction

The relationship between urban religious sites and economic development is a fascinating area of study. As a multi-cultural and multi-religious city-state, Singapore offers a unique perspective on the contribution of religious institutions to the urban economy. The article focuses on Buddhism because Buddhists represent the largest religious group in Singapore, comprising 31% of the population, and Buddhist temples are widely distributed across the city. Additionally, the substantial income and extensive prospering holdings of some large Buddhist temples highlight their economic significance. This paper examines Buddhist temples in Singapore, employing sociology methodology and statistical analysis. By adjusting for inflation to estimate annual reports, using linear regression to predict the unknown profits of certain temples and conducting in person surveys at temples, the study explores their role in increasing tax revenue, attracting immigrants and supporting the local economy.

2. Overview of Buddhist Temples in Singapore

The history of Buddhism in Singapore has a long history, and its development is closely linked to Singapore's status as an international trading port and a meeting point of diverse cultures. From ancient times, cultural exchanges between the Malay Peninsula and India, Southeast Asia and China gradually introduced Buddhist ideas to Singapore. Historians generally agree that Singapore was influenced by Indian culture, including Brahmanism and Buddhism, around 400 or 500 B.C [1]. In more recent times, with the influx of a large number of Chinese and Thai immigrants, northern Mahayana Buddhism rapidly spread and took root in Singapore [2, 3]. These immigrants not only brought the Buddhist faith, but also established many Buddhist temples and became the backbone of the development of Buddhism in Singapore.

In Singapore, Buddhist temples are not only the centre of religious activities, but also an important platform for community culture, spiritual nourishment, and social services. The temple has enriched the spiritual life of believers and promoted cross-cultural exchanges and integration by holding various activities such as religious celebrations and meditation courses. At the same time, the temple also actively participates in social charities [4], such as poverty alleviation, educational support, medical assistance, etc., making positive contributions to the development and progress of the community. In addition, Buddhist temples, through the establishment of Buddhist colleges, the publication of Buddhist books and other activities, provide believers and the public with an in-depth understanding of Buddhist teachings and experience Buddhist culture. It has enhanced people's sense of identity and belonging to Buddhist culture, and also promoted the prosperity and development of diverse cultures in Singapore [5].

3. The Direct Contribution of Buddhist Temples to the Economy of Singapore

3.1. Attracting Immigrants

Singapore's Buddhist temples play a significant role in its economy by attracting immigrants drawn to the city's religious tolerance, rich Buddhist resources, and social opportunities [2,3]. These temples serve as community hubs where newcomers can establish social connections, explore career opportunities, and integrate into society, supported by temple activities and resources [6].

The involvement of immigrants in temple activities extends to financial contributions. Their economic contributions further bolster Singapore's prosperity, contributing to government revenues that support public services and infrastructure development, thereby creating a cycle of benefit and growth [7].

3.2. Tax Contributions

Table 1: Buddhist temples in Singapore their status.

Burmese Buddhist Temple	IPC
Palelai Buddhist Temple	IPC
Sakya Muni Buddha Gaya Temple	
Sri Lankaramaya Buddhist Temple	
Wat Ananda Metyarama Thai Buddhist Temple	
Ti-Sarana Buddhist Association	IPC
Vipassana Meditation Centre	
Buddha of Medicine Welfare Society	IPC
Buddha Tooth Relic Temple and Museum	IPC

Table 1: (continued).

Cheng Beng Buddhist Society	
Foo Hai Ch'an Monastery	IPC
Hai Inn Temple	IPC
Hua Inn Temple	
Hua Giam Si	
Jin Long Si Temple	IPC
Kong Meng San Phor Kark See Monastery	IPC
Kwan Meng San Phor Kark See Monastery	
Kwan Im Thong Hood Cho Temple	IPC
Poh Ern Shih Temple	
Singapore Buddhist Lodge	IPC
Tai Pei Yuen	IPC
Tzu Chi Singapore	
Amitabha Buddhist Centre	IPC
Drigar Thubten Dargye Ling	
Karma Kagyud Buddhist Centre	IPC
Thekchen Choling	IPC
Buddhist Library	

In Singapore, as an important non-profit organization (NPO), the tax status of Buddhist temples not only affects their operation and development, but also has a positive impact on the economic development of Singapore. Table 1 shows the total 27 Buddhist temples in Singapore, and 15 of them benefit from tax-exempt status due to their Institution of Public Character (IPC) designation. However, the remaining 12 temples are subject to taxation under Singapore's tax laws, directly contributing to the government revenue. These funds support public infrastructure, social welfare programs, education, and healthcare, thereby fostering steady growth in the overall economy.

Table 2: Reference data for regression line.

	Name of the temple	Income (year)	Income in 2023 (adjust for inflation) (SGD)	Number of floors times area (square meters)
1	Buddha Tooth Relic Temple and Museum	22,889,000 (2021)	25,450,920	4,630
2	Buddhist Compassion Relief Tzu-Chi Foundation	16,384,362 (2023)	16,384,362	9,921.875
3	Golden Pagoda Buddhist Temple	4,036,876 (2023)	4,036,876	1,174,793
4	Dharama Drum (Singapore)	172,415 (2023)	172,415	4,509.641

To more accurately assess the tax contribution of Buddhist temples to the Singapore economy, this study used a regression analysis method to calculate the annual income range of all temples in Singapore based on data from four temples with known years of establishment, annual income and total area. The linear regression formula:

$$y_i = \beta + \alpha_1 x_{1,i} + \alpha_2 x_{2,i}$$

In the formula, i is the index of each variable and y_i is the dependent variable, which refers to the predicted income of each temple. β is the intercept, and α_1 and α_2 are coefficients. x_1 refers to the age of the temple, while x_2 refers to the number of floors times the area of the temple.

Although this method has some limitations (such as small data sample size), it provides a foundational framework for estimation. On this basis, we can further estimate the total amount of tax contributed by those temples that are subject to taxation, thereby gaining a more comprehensive understanding of their role in economic development. Of the four temples, income data for three were collected in 2023, while one had data from 2021, which was adjusted to 2023 values based on inflation to finalize the regression analysis.

In this regression analysis, a linear regression model was built to examine how temple income is affected by temple age and size. The area variable is expressed as the product of the number of floors and the area, with the age and area of the temple as the independent variable and the income as the dependent variable. Through the model, the regression coefficients for each independent variable were estimated: temple age and area. These coefficients represent the marginal effect of each independent variable on temple revenue. The results can help to understand the extent to which temple age and size contribute to income and determine whether these factors significantly affect a temple's economic performance.

Table 3: Non-IPC Buddhist temples and their predicted income (The code for the linear regression is in the appendix).

	Name of the temple	Floors	Floor space (square meters)	Number of floors times area (square meters)	Age	Income
1	Sakya Muni Buddha Gaya Temple	3	382.442	1,147.325	97	37,275,860
2	Sri Lankaramaya Buddhist Temple	3	1,508.32	4,453.497	104	48,535,080
3	Wat Ananda Metyarama Thai Buddhist Temple	3	1,495.918	4,487.755	104	48,610,740
4	Vipassana Meditation Center	NA		3,576.923		
5	Cheng Beng Buddhist Society	3	1,192.31	3,576.923	63	23,423,850
6	Hua Giam Si	7	375.047	2,625.33	24	-722,571.8
7	Jin Long Si Temple	3	1,283.2	3,849.609	83	35,331,070
8	Kwan Yin Chan Lin	7	327.705	2,293.935	33	3,632,676
9	Poh Ern Shih Temple	4	837.574	3,350.295	82	33,662,970
10	Drigar Thubten Dargye Ling	2	281.481	562.962	17	-9,234,540
11	Buddhist Librar	2	438.281	876.562	42	5,589,276

Table 3 shows the size and age of all temples that are not on the IPC list and predicts the likely income of these temples by linear regression. However, as mentioned before, the small sample size will lead to some anomalies, including two instances of negative income estimates. By summing the total income excluding negative value with errors and applying the 17% corporate income tax rate mandated in Singapore [8], we estimate that the annual tax revenue from Buddhist temples in Singapore is approximately 38.42 million Singapore Dollars, which is 0.0057% of the Gross Domestic Product of Singapore in 2023.

3.3. Tourism promotion

In Singapore, temples maintain a balance between modernity and tradition in addition to promoting cultural heritage and spiritual tourism. Tourists are drawn to these temples not only for religious purposes, but also to appreciate the architectural, historical and cultural significance. Temples help deepen understanding of local customs and values and promote cultural diversity. In addition, their free admission and affordable thread incense (less than US \$3 or US \$2) make it more accessible to local worshippers and international visitors. This balance between cultural preservation and tourism supports both the cultural vitality of the city and its economy.

In contrast, Chinese temples, such as Jing 'an Temple in Shanghai, also attract a large number of domestic and foreign tourists. These temples are important cultural landmarks, boosting tourism and the local economy through ticket sales, incense, donations, and temple-related merchandise such as lighting bracelets and lighting kits. However, commercialization has raised concerns. However, over-commercialization has raised concerns, as it may affect the original cultural and religious significance of these temples. For example, the high cost of visiting Jing 'an Temple (around 70 yuan or \$10) and buying items such as bracelets (no less than 900 yuan or \$128) has sparked complaints about over-commercialization. shifting focus from spiritual and cultural practices to profit-making. These higher prices are in stark contrast to more accessible practices in Singapore, highlighting the differences in temples' contributions to the local economy and the potential for over-commercialized development in some cases.

4. The indirect contribution of Buddhist temples to the economy in Singapore

The indirect contribution of Buddhist temples to Singapore's economy is not only in terms of economic activity, but also in strengthening community cohesion. The temple serves as a hub for social interaction, bringing together diverse groups, including natives and immigrants, to foster a sense of belonging and shared values. By organising cultural events, festivals and religious ceremonies, temples promote social harmony and mutual understanding among different ethnic groups and cultures [9, 10].

In addition to religious activities, temples often initiate educational programs and cultural preservation efforts, attracting the participation of local residents and immigrants. These initiatives not only help bridge generational differences and preserve cultural heritage, but also provide migrants with opportunities to engage with local communities, learn new skills and better integrate into society. As such, temples have played an important role in promoting social cohesion and social progress, indirectly contributing to Singapore's social stability and economic prosperity.

5. Conclusion

This article explores the contribution of Buddhist temples in Singapore to the economic development of the city, revealing how these religious sites contribute to the prosperity of the local economy through both direct and indirect means. Research shows that Buddhist temples not only play an

important economic role in attracting immigrants, increasing tax revenue and promoting tourism, but also play an important indirect role in strengthening community cohesion, promoting social harmony and promoting social progress. By attracting immigrants and supporting the local economy, these temples have contributed positively to Singapore's multicultural and economic growth. However, the study also points to the over-commercialization of temples in economic development, which may diminish their original cultural and religious significance. Therefore, how to balance the religious function of temples with their economic impact will be an important direction for future research and policy making.

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Appendix

Appendix 1. Code for linear regression

```
Regression income of temples on Area and Age of temple
[1]: import statsmodels.api as sm
import pandas as pd

[2]: # Data
y = [22889000, 16384362, 4036876, 172415] # income
x1 = [58, 22, 32, 20] # Age
x2 = [4630, 9921.875, 1174.793, 4509.641] # number of floors times area

[3]: # Create a DataFrame
df = pd.DataFrame({'x1': x1, 'x2': x2})

The linear regression formula should be:

$$y_i = \beta + \alpha_1 x_{1,i} + \alpha_2 x_{2,i}$$


[22]: # Add a constant to the predictors
X = sm.add_constant(df)

[23]: # Fit the regression model (OLS = ordinary least squares)
model = sm.OLS(y, X).fit()

[24]: # Print the regression table
print(model.summary())
```

OLS Regression Results

Dep. Variable:	y	R-squared:	0.960
Model:	OLS	Adj. R-squared:	0.951
Method:	Least Squares	F-statistic:	3.082
Date:	Wed, 03 Jul 2024	Prob (F-statistic):	0.374
Time:	21:05:58	Log-Likelihood:	-65.861
No. Observations:	4	AIC:	137.7
Df Residuals:	1	BIC:	136.9
Df Model:	2		
Covariance Type:	nonrobust		

	coef	std err	t	P> t	[0.025	0.975]
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```
const -2.009e+07 1.3e+07 -1.549 0.365 -1.85e+08 1.45e+08
x1 8.652e+05 2.64e+05 2.139 0.278 -2.79e+06 3.92e+06
x2 2298.7451 1590.363 1.493 0.308 -1.25e+04 1.7e+04
Omnibus: nan Durbin-Watson: 1.881
Prob(Omnibus): nan Jarque-Bera (JB): 0.536
Skew: -0.739 Prob(JB): 0.766
Kurtosis: 1.990 Cond. No. 2.25e+04

Notes:
[1] Standard Errors assume that the covariance matrix of the errors is correctly
specified.
[2] The condition number is large, 2.25e+04. This might indicate that there are
strong multicollinearity or other numerical problems.
/home/roningha/anaconda3/lib/python3.10/site-
packages/statsmodels/stats/stattools.py:74: ValueWarning: omni_nortest is not
valid with less than 8 observations; 4 samples were given.
warn("omni_nortest is not valid with less than 8 observations; %i "
H0: alpha = 0
We typically need (P > |t|) < 0.05, which means we have 95% confidence to reject H0
F: H0: alpha = alpha_0 = 0

[3]: # Now data prints
new_data = pd.DataFrame({'x1': [145, 61, 46, 33, 89,
96, 140, 139, 90, 84,
39, 43, 23, 97, 104,
104, 45, 24, 45, 39,
82, 17, 43],
'x2': [4136.580, 1342.911, 2456.747, 2636.363, 7743.
13888.664, 2088.956, 3494.809, 10454.320, 4332.
-363,
1636.563, 2633.333, 1389.062, 1147.328, 4463.
4487.756, 3876.923, 2625.330, 3848.609, 2283.939,
3380.205, 942.962, 676.563]})

# Add a constant to the new data (required for the intercept)
new_data_with_const = sm.add_constant(new_data)

# Make predictions
predictions = model.predict(new_data_with_const)
print(predictions)

0 7.327205e+07
1 1.735900e+07
2 1.247098e+07
3 4.830762e+06
4 4.732252e+07
5 6.374420e+07
6 6.365685e+07
7 5.885299e+07
8 5.387592e+07
9 4.261638e+07
10 3.308971e+06
11 9.813907e+06
12 -4.239293e+06
13 3.727586e+07
14 4.853508e+07
15 4.861074e+07
16 2.342385e+07
17 -7.225718e+05
18 3.533107e+07
19 3.632676e+06
20 3.366297e+07
21 -9.234540e+06
22 5.589276e+06
dtype: float64
```

Appendix 2. Interviews

Jing'an Temple - Shanghai, China

Interviewee 1: Young Qingdao female, tourist

Q: As a tourist, why did you choose to visit the temple? What made you choose this temple?

A: I've always been interested in temples, especially those in big cities. One of the things that attracted me to Jing 'an Temple was its unique location - in the heart of a commercial part of Shanghai, surrounded by three shopping malls. I was curious about how the temple maintained its religious and cultural atmosphere in such an environment. At the same time, I also want to experience what kind of spiritual land and cultural experience a temple can provide for people in a bustling city. This strong contrast made me decide to visit here.

Q: Have you ever been to a temple elsewhere? If so, could you share your impressions of it? Do you feel any difference compared to the temples here?

A: Yes, I have been to several temples in Qingdao. Compared with Jing 'an Temple, the temple in Qingdao gives me the feeling that it is more open and friendly to the people. For example, I was impressed that the temples there are generally free to enter. Moreover, the cultural and creative products and surrounding souvenirs sold in the temple are also relatively affordable. Overall, the cost performance is higher than Jing 'an Temple.

Q: In addition to the differences in tickets and prices, what do you think are the differences between these temples and Jing 'an Temple in terms of the size or style of the temple?

A: In terms of specifications, the overall scale of temples in Qingdao may not be as grand as Jing 'an Temple, but they are more natural and rustic in design, which may be due to their different surroundings and historical backgrounds. In terms of methods, I noticed that the activities of Qingdao temples were more integrated with the local community, such as some Buddhist cultural activities and public welfare projects, which made the temple more closely connected with the surrounding community.

Interviewee 2: University exchange student from White Russia

Q: How did you learn about Jing 'an Temple? Have you visited temples in other countries before? If so, could you share the differences between those temples and Jing 'an Temple?

A: I learned about Jing 'an Temple by searching "Top 10 Tourist attractions in Shanghai" on Google. Before I came here, I went to temples in Thailand. Compared with Jing'an Temple, the architectural style and atmosphere of Thai temples are very different. Thai temples are usually more ornate, colourful and very elaborate, giving a very sacred and warm feeling. The architectural style of Jing 'an Temple is relatively simple and atmospheric, and the atmosphere is more solemn and solemn. In both of these different atmospheres, I felt the unique cultural and historical background of the temple, which is one of the reasons why I enjoy visiting temples everywhere.

Longhua Temple - Shanghai, China

Interviewee 1: A Taiwanese grandmother who devoted to studying Buddhism

Q: You seem to know a lot about Buddhist temples. Can you tell us about your observations of Buddhist temples in different places?

A: Temples in Japan are usually relatively small and well laid out, giving a sense of tranquillity and elegance. Japanese temples tend to focus on Zen, and many will incorporate garden design, which is perfect for meditation.

The temples of Southeast Asia, in places like Thailand, Burma, and Cambodia, are more magnificent, colourful, and decorated with gold. People there see the temple as a part of life, and it is common to see locals praying for blessings and laying flowers in the temple.

As for Chinese temples, they are usually larger in scale and stately and majestic in architectural style. Chinese temples usually have a long history, many of them are hundreds or even thousands of years of historical heritage, carrying rich cultural and religious connotations. Whether in terms of architectural structure, sculpture art, or overall layout, Chinese temples all reflect a profound cultural accumulation, giving people a solemn religious atmosphere.

Interviewee 2: Middle-aged female in Anhui, China

Q: You work in Shanghai and I heard that you often go to the temple to rest during lunch break while working near the temple. Have you observed anything special?

A: Yes, I often go to Jing 'an Temple to rest during my lunch break. The environment here is peaceful and allows me to relax for a while. I noticed that especially during the college entrance examination season or some specific times, such as around the Spring Festival, a large number of people come to the temple to pray. Everyone goes to the temple to pray for good luck and keep their families safe.

Q: Do you go to temples in other places to pray? Do you think these temples have any impact on the economic and tourism development of the city?

A: Yes, I myself sometimes fly to some temples that I find especially miraculous. Like going to Jiuhua Mountain, the temple there I think is very effective. In fact, I think these temple blessing activities have really promoted the economic and tourism development of the city. Because many people, like me, go to temples outside the city to pray for their blessings, this drives the consumption of transportation, accommodation, catering and other aspects. Moreover, popular scenic spots like Jing 'an Temple also attract many tourists, which is helpful to the economic development and tourism of the city.

Sakya Muni Buddha Gaya Temple - Singapore

Interviewee: Then temple staff

Q: This time coincides with the Mid-Autumn Festival, I see that the temple is holding a charity sale. Is this kind of activity every important festival?

A: Yes, the Mid-Autumn Festival is an important traditional festival here, and the temple will hold a charity sale every year at this time. We will sell some mooncakes, handicrafts, and some blessing supplies, and the proceeds will be used to support the daily operation of the temple and charity projects. Not only the Mid-Autumn Festival, but also a very important festival, the temple will hold similar activities, and everyone is very enthusiastic about participating.

Q: I just bought a set of incense sticks, but I see that there are many different types in it. Can you explain the specific process?

A : Of course, this is actually part of our daily work. Many people come to the temple to worship Buddha and offer incense, but some may not know the proper way to offer incense. We will explain in detail when they buy incense, and show them how to properly apply incense. We have also specially made a map showing the whole route and steps of incense worship, so that people will not be confused, but also respect and understand the Buddhist etiquette, and this positive impact will make more people willing to visit the temple and participate in our activities.