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Influence of Festival Activities on Enterprise Production Behavior: A Case Study of the China Bamboo Culture Festival

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Abstract: At the present stage, China's ecological civilization construction has entered a strategic period focusing on carbon reduction, which is also a critical period for achieving the improvement of ecological environment quality. The prosperity of bamboo culture and the development of the bamboo industry are of great significance in promoting the construction of an ecological civilization in China. Festival activities often have lasting impacts on the development of the host city. They not only promote urban development but also spur the growth of local enterprises in related industries. However, these impacts have been rarely explored by researchers. This paper analyzes how festival activities influence the behavior of host city enterprises from the perspective of stakeholders with a theoretical model. Taking the China Bamboo Culture Festival as an example, micro-data on bamboo enterprises in 1999–2015 were collected from the Chinese Industrial Enterprise Database and analyzed with a theoretical model to empirically verify the influence of the festival over the production behavior of bamboo enterprises. The research shows that the China Bamboo Culture Festival has a significant positive impact on the total output value and total factor productivity of bamboo product enterprises, which in turn affects the production behavior of the enterprises. In the host province/city, the enterprises that engaged in the festival surpassed the other enterprises by 1.0764% in terms of gross output; export enterprises were less affected by the festival than domestic market enterprises. The China Bamboo Culture Festival makes bamboo enterprises more sustainable and competitive in the industry, and the holding of festival activities enhances the sustainable development capabilities of enterprises by improving their business environment. In addition, significant differences were observed between enterprises in different geographical locations, of different ownerships, and in different subdivided industries. Enterprises in the eastern region are least affected by the China Bamboo Culture Festival, while those in the western region are the most impacted; those in the central region fall in the middle by the degree of influence. Bamboo, rattan, palm, and grass products are influenced by the China Bamboo Culture Festival, while the production of other manufacturing industries is basically unaffected.

Keywords: festival activities; enterprises; production behavior; stakeholders; China Bamboo Culture Festival

1. Introduction

Many large festivals are held every year around the world, such as Oktoberfest Bavaria, the Great British Beer Festival [1], World Port Days in Rotterdam [2], as well as various music, film, art, and cultural festivals across the globe [3]. Festivals have become one of the attractive factors of global cities [4], bringing new impetus to urban tourism and economic development [5]. They also play a role in increasing local gross domestic product (GDP), expanding the scale of industrial capital, improving infrastructure, attracting domestic and

foreign investors and traders [1,6], boosting employment and income [3], and polishing the image of the city, thereby stimulating the overall development of society [7].

Most of the previous studies on festivals are based on the consumer perspective, exploring the influence mechanism of festivals on consumers, which are mainly carried out in terms of participant behavior, economic contribution, and comprehensive benefits. Some scholars [8] have explored the influence of festival scenes on tourists' cultural identity, satisfaction, and behavioral intentions and concluded that event logos, scene design, others' external emotions, program content, and program arrangements have a significant positive impact on tourists' cultural identity and satisfaction and that cultural identity has a significant positive impact on their satisfaction and behavioral intentions (Zhang Jing, 2023). Some scholars have also considered the economic contribution perspective, arguing that the total expenditure generated by tourists inside and outside the festival venues can be estimated by conducting consumer research to further measure its impact on the local economy, including the employment opportunities created and GVA contribution, so as to effectively analyze the economic contribution of festivals to the local economy by using the classic Social Accounting Matrix (SAM) multiplier method [1,6] (Apostolakis and Viskadouraki, 2017; Saayman et al., 2013). Meanwhile, some scholars [9] have also analyzed the path and mechanism of the impact of festivals on city image in detail by taking Qingdao International Beer Industry as an example (Jia Xiaoni, 2023). Some researchers probed into festival activities from the perspective of enterprises. Through a quantitative analysis, Gunawan and Anshori [10] discovered that the Japanese Culture Festival achieved competitive advantage with the uniqueness of Japanese culture, which is able to make the costs in the enterprise production process more efficient. Hong and Min [11] carried out a structured questionnaire survey on visitors to a local festival in South Korea, confirmed the effect of festival service quality on the sales increase of local start-up companies, and suggested local governments should improve local image in order to boost sales.

The research on festival activities generally adopts field surveys on individuals from diverse backgrounds, as well as experts and scholars, and tries to evaluate comprehensive values. However, the conclusions that are derived could be relatively subjective and may result in a loss of objective authenticity (Choi et al., 2020) [12]. In actuality, the economic impact of festival activities constitutes only a fraction of their total impact, and therefore, social, cultural, and other aspects deserve greater attention (Getz, 2008) [13]. These aspects have garnered increasing attention in recent years. The impact of large activities is extensive and enduring. Thus, research in this area should encompass a broad scope and concentrate on the long-term benefits. Currently, there is no literature that scrutinizes the impact of festival activities on enterprise behavior from a micro perspective. A comprehensive assessment of the effects of festival activities is the only means to fully comprehend the importance of these events and to maximize the potential benefits they offer.

The China Bamboo Culture Festival is a highly acclaimed event approved by the Leading Group of the National Clean-up and Standardization of Celebrations, Seminars, and Forums and is one of only two festivals reserved by the State Forestry and Grassland Administration. It is renowned as the most significant, top-level, and globally influential bamboo festival in China, having been successfully celebrated eleven times as of 2021. This festival holds a significant place as a cultural and industrial event, energizing the development of the bamboo industry while promoting the rich cultural value of bamboo in China. Given China's dual carbon goals of "carbon peaking" and "carbon neutrality" and concerns about timber safety, the bamboo industry emerges as an ideal alternative. China boasts abundant bamboo resources and a robust bamboo industry, with notable accomplishments in bamboo forest cultivation and processing technology. Bamboo has been a pivotal component of Asian culture and civilization, profoundly influencing various aspects of production and daily life for centuries. During the China Bamboo Culture Festival, the host city invites both domestic and foreign clientele, organizing economic and trade fairs, hosting specialized academic seminars, holding the China International Bamboo Industry Expo, and conducting large-scale cultural events centered around a specific theme.

These activities bolster the regional investment climate, strengthen linkages and exchanges with foreign economies, enhance regional visibility, and promote the development of the regional economy and bamboo industry [14].

Through a literature review, this section finds that domestic and foreign scholars have conducted many studies on the impact of festival activities on consumers, and there are relatively many studies on festival activities, but there are still some deficiencies: First, in the existing research, there is little literature to explore the impact of festival activities on enterprises, and there is no literature to link festival activities with enterprise production behavior for analysis. Secondly, most of the existing research on festival activities is based on the analysis of questionnaire survey data. The results obtained by this method are easily disturbed by factors such as the emotional ups and downs of the respondents, resulting in large errors. At the same time, there are few articles at home and abroad based on the Chinese Bamboo Culture Festival to explore its impact.

Therefore, this study concentrates on the connection between festival activities and enterprise production behavior, commencing with theoretical analysis to scrutinize the relationship between the behavior of diverse stakeholders involved in festival activities and enterprise production behavior. Drawing on the theoretical analysis, the authors employed the China Bamboo Culture Festival as an example to construct panel data and examine the relationship between the festival and the production behavior of bamboo enterprises. Overall, this paper examines the impact of festival activities on enterprise production via theoretical and empirical analysis, summing up the law of the impact and offering insight for festival organizers to better support enterprise production.

In comparison to the existing literature, this paper offers potential contributions in the following aspects. Firstly, a fresh research perspective is presented on the examination of enterprise production. This paper explores how the behavior of the government and consumers influences enterprise production behavior throughout the preparation and hosting of festival activities from the perspective of stakeholders. Secondly, a comprehensive analysis was carried out on a distinctive bamboo cultural festival in the bamboo industry, and the impact of the festival on the production behavior of bamboo enterprises was assessed empirically, revealing the development laws of festival activities. On this basis, the future development of festival activities is predicted with high accuracy.

The remainder of this paper is organized as follows: Section 2 analyzes the mechanism of festival activities impacting production behavior from the perspective of stakeholders, establishes a theoretical model, and presents economic hypotheses; Section 3 introduces the research methodology, including data sources, econometric model, and variable selection; Section 4 carries out an empirical analysis with the China Bamboo Culture Festival as an example, involving basic regression, heterogeneity tests, robustness tests, and endogeneity discussion; Section 5 summarizes the findings of this paper and makes suggestions for further research.

2. Theoretical Analysis

Building on the current research, this paper aims to incorporate festival activity factors into the analysis framework of enterprise production (the theoretical analysis framework is shown in Figure 1) and elucidate the mechanism of the influence of festival activities on enterprise production behavior from a stakeholder perspective. In the following paragraphs, the mechanism of action will be briefly discussed for better empirical analysis.
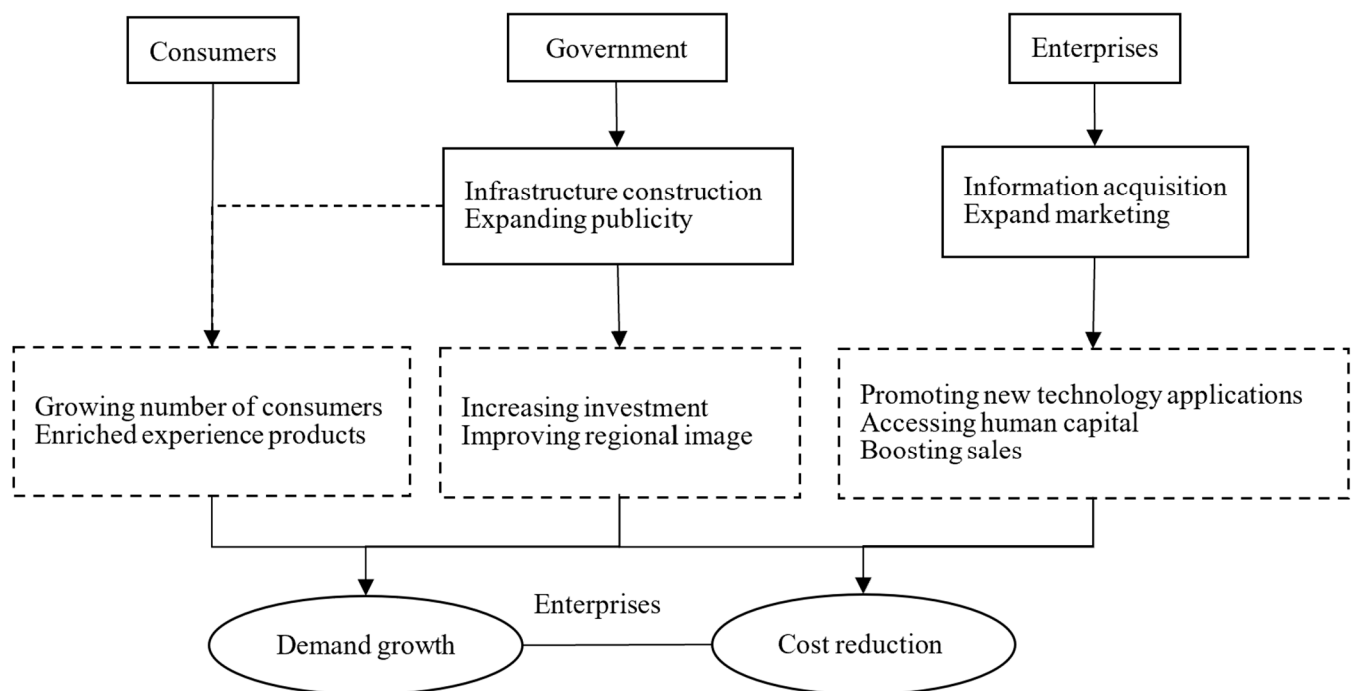
Figure 1. Theoretical analysis framework for the influence of festival activities on enterprise production behavior.

Firstly, from a business perspective, hosting festivals in the region adds a competitive advantage for local businesses. Festivals are excellent low-cost marketing opportunities for local businesses. During the event, local businesses can sell their products to customers and perhaps secure large orders. In addition, events allow business owners to more easily interact with peers and experts, thus gaining more information about new technologies and labor. This plays an important role in adjusting the business and, to some extent, influences the future production behavior of the firms.

Secondly, from the consumer's point of view, festivals bring a rich experience to consumers, and their consumer demand is expanded, which increases the incentive for enterprises to produce. Festivals are known as "experience machines" as the diverse and plentiful experiences offered are the main draw for many consumers [15] (Ngurawan et al., 2016). Consumer consumption motivation is closely related to the theme of the activities (Choe et al., 2017) [16]. The primary goals of tourism managers and policy makers are enriching tourism products and developing specific festival activities and attractions which can attract more consumers to have a new experience during the festival. Hence, consumers are more willing to purchase products recommended at festivals, making enterprises more enthusiastic about production.

Thirdly, from the point of view of local governments or event organizers, their hosting of festivals indirectly stimulates business production. Festival information, program, atmosphere, and staff are crucial predictors of festivalgoers' emotions (Selmi et al., 2021) [17]. To hold festivals smoothly and have the ability to receive tourists, local governments and event organizers often invest heavily in infrastructure development and expand publicity efforts, thereby improving the image of the city and attracting investment (Prokopis Christou, 2015) [18]. The input and output of holding a large-scale event can not only generate economic benefits based on the event itself but, more importantly, promote the development of local industries and increase political influence.

To sum up, due to the participation of local people, nearby cities and tourists, enterprises, and governments concerned with industrial development in festivals, a new impetus is brought to the local economic and commercial development, which directly or indirectly stimulates the production behavior of enterprises. This kind of stimulation to production

behavior mainly comes from two aspects. First, the holding of festival activities directly reduces the marketing cost and the cost of obtaining information. Second, the holding of festival activities expands the demand for products to a certain extent, enables enterprises to obtain differentiation, and increases their competitive advantage. These effects can be reflected by the company's industrial output value. The specific explanation is as follows: increased demand and reduced costs mean that the size of the company will expand. The size of the enterprise can be expressed by the total fixed assets. The expansion of enterprise scale promotes production, which means that it is necessary to improve the production efficiency of enterprises to adapt to this change and also means that more production workers are needed to carry out production. The specific performance indicators are the number of employees at the end of the year and the total factor productivity of enterprises. However, the direction of the theoretical mechanism described in this paper has not been determined. Therefore, this article from the third quarter, with the Chinese bamboo culture festival as a case, is an empirical study of its effect.

3. Methodology

3.1. Data Sources

The research data were collected from the Chinese Industrial Enterprise Database, and the data matching the years and cities hosting the festival were collected (Table 1). The bamboo industry output value data of the province where the matching enterprises are located come from the *China Forestry Yearbooks*. As for the bamboo and rattan processing and manufacturing enterprises in China, including all state-owned and non-state-owned bamboo and rattan processing and manufacturing ones above the designated size (i.e., the annual main business income is equal to or greater than RMB 5 million), the relevant data from 1998 to 2015 were obtained from the following subdivided industries in the "Wood processing and wood, bamboo, rattan, palm, and straw products industry" (industry code: 20) of the Chinese Industrial Enterprise Database: bamboo, rattan, palm, and straw products manufacturing; bamboo and rattan furniture manufacturing; wood and bamboo pulp manufacturing; forest culture and management; and wood and bamboo harvesting machinery manufacturing.

Table 1. Information on China Bamboo Culture Festival.

Festival	Year	Location	Theme
1st China Bamboo Culture Festival	1997	Anji, Zhejiang Province	Carry forward bamboo culture, develop bamboo industry, promote bamboo economy, and present the bamboo town of China to the world.
2nd China Bamboo Culture Festival	1999	Yiyang, Hunan Province	Carry forward bamboo culture and develop bamboo industry.
3rd China Bamboo Culture Festival	2001	Yibin, Sichuan Province	Carry forward bamboo culture, develop bamboo industry, and promote bamboo economy.
4th China Bamboo Culture Festival	2003	Xianning, Hubei Province	Carry forward bamboo culture, promote bamboo economy, and build a moderately prosperous society in all respects.
5th China Bamboo Culture Festival	2006	Wuyishan, Fujian Province	Carry forward bamboo culture, promote bamboo economy, and build new countryside.
6th China Bamboo Culture Festival	2011	Yichun, Jiangxi Province	Carry forward bamboo culture and pursue low-carbon lifestyle.

Table 1. *Cont.*

Festival	Year	Location	Theme
7th China Bamboo Culture Festival	2012	Yixing, Jiangsu Province	Carry forward bamboo culture, develop bamboo industry, and promote green growth.
8th China Bamboo Culture Festival	2014	Huangshan, Anhui Province	Carry forward bamboo culture, develop bamboo industry, and build beautiful countryside.
9th China Bamboo Culture Festival	2016	Meishan, Sichuan Province	Carry forward bamboo culture, develop bamboo industry, and fulfill the Chinese Dream.
10th China Bamboo Culture Festival	2018	Yiyang, Hunan Province	Carry forward Chinese bamboo culture and build beautiful new homes.
11th China Bamboo Culture Festival	2021	Yibin, Sichuan Province	Bamboos promise a beautiful China and promote rural revitalization.

3.2. Variable Selection

3.2.1. Explained Variables

The explained variable of this study is the total industrial output value of bamboo enterprises. Profit is the basis for the survival and development of enterprises, which provides funds and resources for enterprises. The ultimate goal of enterprise production is to maximize profits, to meet the needs of society by creating value, and to further enhance the scale and level of enterprise production. The total industrial output value is the total amount of industrial products sold or available for sale produced by enterprises in the form of currency in a certain period of time, which can most intuitively reflect the total scale and total level of industrial production in a certain period of time. Therefore, this paper selects the total industrial output value as the dependent variable of this study. (The meaning and symbols of the variables contained in the model are shown in Table 2).

Table 2. Meaning and signs of variables.

Variable	Sign	Definition
Gross industrial output	Y_{it}	Gross industrial output of enterprise i in year t, current prices (RMB 1000)
Province	reg_{it}	Bamboo production in local province of enterprise i in year t
Enterprise TFP	tfp_{it}	Total factor productivity of enterprise i in year t
Year-end number of employees	l_{it}	Total number of employees in enterprise i at the end of year t (persons)
Total fixed assets	k_{it}	Total fixed assets of enterprise i in year t (RMB 1000)
China Bamboo Culture Festival	cul_{it}	Dummy variable: whether the local city of enterprise i hosted China Bamboo Culture Festival in year t; if yes, the value is 1; otherwise, the value is 0.
Year of holding the festival	$time_{it}$	The year when the local city of enterprise i hosted China Bamboo Culture Festival

3.2.2. Explanatory Variables

By referring to the research of scholars such as Fan Lixia [19], Yu Jiamei [20], and Chen Yiqun [21], this paper selects and examines six factors that affect the total industrial output value of enterprises, which are:

(1) Province/autonomous region/municipality directly under the central government (hereinafter referred to as province):

The geographical environment of the hosting city often plays a role in determining the theme of festival activities (Ma and Lew, 2012) [22]. Local festivals have the potential to attract tourists by utilizing regional local characteristics and various historical, cultural, and artistic resources. As a result, the geographical environment plays a critical role in local festival success (Choi et al., 2021) [23]. Given the differences in resource endowments, there are significant variations in the development of the bamboo industry across Chinese provinces, with geographical factors representing one of the critical determinants affecting bamboo enterprise production. In this study, the "Province" index is measured by the output of the bamboo industry (unit: 10,000 pieces) in the local province of the enterprise. The data were obtained from the *China Forestry Yearbooks* and the yearbooks of various provinces.

(2) Total factor productivity (TFP) of an enterprise:

This index mirrors the efficiency of enterprise production activities within a certain period. Here, the TFP of an enterprise is measured by the generalized method of moments (GMM) (Blundell and Bond, 2000) [24]: $tfp = \ln y - \_b[\ln l] \times [\ln l] - \_b[\ln k] \times [\ln k]$. To a certain extent, the GMM method solves the weak instruments problem when the lagged terms of levels are used as instruments, making the estimation more efficient. It has become an important method for estimating the production function.

(3) Year-end number of employees:

This index reflects the total number of employees actually engaged in production and operation activities in the enterprise at the end of the year.

(4) Total fixed assets:

The total fixed assets of an enterprise represents the scale of that enterprise.

(5) China Bamboo Culture Festival:

The value of this dummy variable is determined as follows: if the enterprise participated in the China Bamboo Culture Festival, the value is 1; otherwise, the value is 0.

(6) Year of holding the festival:

This paper measures the long-term impact of the China Bamboo Culture Festival on enterprise production by the year of holding the festival, that is, the year when the local city hosted the festival.

3.3. Descriptive Statistics

Table 3 presents the descriptive statistics of the main variables. In the "new" new trade theory, whether an enterprise exports or not is regarded as a factor affecting enterprise production Melitz (2003) [25]. Therefore, this paper simultaneously observes the production behavior of export enterprises and domestic market enterprises. It can be seen that the local provinces of domestic market enterprises hosted the China Bamboo Culture Festival more times and for longer durations than those of export enterprises. From the perspective of enterprise performance, export enterprises realized higher gross output and TFP, employed more people, and boasted more fixed assets than domestic market enterprises. Meanwhile, the local provinces of export enterprises produced less bamboo than domestic market enterprises.

Table 3. Descriptive statistics of variables.

Variable	All Samples			Export Enterprises			Domestic Market Enterprises		
	Observations	Mean	Standard Deviation	Observations	Mean	Standard Deviation	Observations	Mean	Standard Deviation
Y_{it}	11,361	46,161.23	113,462.00	5549	40,116.93	109,881.40	5812	51,932.02	116,495.30
reg_{it}	11,361	12,959.95	14,472.97	5549	10,401.78	10,879.00	5812	15,402.35	16,860.54
tfp_{it}	11,361	4.94	0.95	5549	5.59	0.87	5812	4.63	0.99
l_{it}	11,361	191.86	308.87	5549	206.36	338.72	5812	178.02	276.70
k_{it}	11,361	9870.72	70,461.45	5549	6426.79	20,761.84	5812	13,158.81	96,291.75
cul_{it}	11,361	0.02	0.15	5549	0.01	0.11	5812	0.03	0.17
$time_{it}$	11,361	3.36	4.64	5549	2.98	4.43	5812	3.73	4.80

3.4. Econometric Model

To test the influence of the China Bamboo Culture Festival on the industrial production behavior of bamboo enterprises, this paper establishes the following basic econometric model:

$$y_{it} = \beta_0 + \beta_1 regit + \beta_2 tfp_{it} + \beta_3 l_{it} + \beta_4 k_{it} + \beta_5 cul_{it} + \beta_6 time_{it} + \varepsilon_{it} \tag{1}$$

The selected data form a time series. To eliminate heteroscedasticity, this paper basically linearizes the time data through logarithmic transform, resulting in the following model:

$$\ln y_{it} = \beta_0 + \beta_1 \ln regit + \beta_2 \ln tfp_{it} + \beta_3 \ln l_{it} + \beta_4 \ln k_{it} + \beta_5 cul_{it} + \beta_6 \ln time_{it} + \varepsilon_{it} \tag{2}$$

where i is the serial number of the enterprise; t is the year; y_{it} is the industrial output of the enterprise; β_0 is a constant term; β_1 is the parameter to be estimated; ε_{it} is a random disturbance term.

4. Empirical Results and Tests

4.1. Basic Regression

After comparing the mixed ordinary least squares (OLS) estimation, the random effects model, and the fixed effects model, the Hausman test strongly rejected the null hypothesis. That is why the fixed effects model was selected for estimation.

It can be seen from Table 4 that the Bamboo Culture Festival has always had a significant positive impact on the total output value of bamboo enterprises, indicating that the Bamboo Culture Festival can indeed significantly increase the total output value of enterprises and then have an impact on the production behavior of enterprises.

From the perspective of the whole sample, it can be found that the total output value of the enterprises holding the Bamboo Culture Festival in the province/city is 1.0764% higher than that of the enterprises not holding the Bamboo Culture Festival. From the analysis of different types of enterprises, it can be found that export enterprises are less affected by the Bamboo Culture Festival than domestic enterprises.

From the overall regression results, it can be seen that the bamboo production of the province/city where the enterprise is located has a positive impact on the gross domestic product of the enterprise, but the degree of impact is not great. Other factors have a positive impact on the total output value of the enterprise. The most influential factor is the total factor productivity of the enterprise, followed by the total fixed assets and the employees at the end of the year. Whether the Bamboo Culture Festival is held locally and the time of the Bamboo Culture Festival have little positive impact on the total output value of the enterprise.

Table 4. Results of fixed effects regression.

Variable	All Samples	Export Enterprises	Domestic Market Enterprises
$\ln reg_{it}$	0.0154 ***	0.0185 ***	−0.0028
	(0.0047)	(0.0050)	(0.0077)
$\ln tfp_{it}$	4.2956 ***	4.5107 ***	4.2367 ***
	(0.0159)	(0.0204)	(0.0237)
$\ln l_{it}$	0.2631 ***	0.2524 ***	0.2634 ***
	(0.0030)	(0.0037)	(0.0045)
$\ln k_{it}$	0.4515 ***	0.4589 ***	0.4508 ***
	(0.0024)	(0.0028)	(0.0038)
cul_{it}	0.0764 ***	0.0277 *	0.1170 ***
	(0.0114)	(0.0163)	(0.0154)
$\ln time_{it}$	0.0772 ***	0.0267 ***	0.1192 ***
	(0.0064)	(0.0073)	(0.0101)
Observations	11361	5549	5812

Note: Standard deviations are in parentheses; *** $p < 0.01$ * $p < 0.1$.

4.2. Heterogeneity Test

The results of the fixed effects regression show that the China Bamboo Culture Festival has significantly promoted the gross output of enterprises. The question is whether this promoting effect is heterogenous. In the bamboo industry, enterprise development bears obvious regional differences. To fully reveal the heterogeneous impact of the China Bamboo Culture Festival on the gross output of enterprises, this paper carries out a discussion from three aspects: geographical location, enterprise ownership, and subdivided industry.

4.2.1. Geographic Location

Currently, there are about 20,000 bamboo processing enterprises in China, and ten million people are directly employed in the bamboo industry. According to the database of China's industrial enterprises, by the end of 2020, the total output value of China's bamboo industry amounted to RMB 319.899 billion. The distribution of bamboo enterprises in the country shows obvious differences, and the eastern coastal region is the main distribution area of bamboo enterprises in China. Among them, Zhejiang Province ranks first in the number of bamboo enterprises, accounting for 23% of the total number of bamboo enterprises in China; Fujian Province ranks second, accounting for 17% of the total number of bamboo enterprises in China; followed by Sichuan Province, Shandong Province, Guangdong Province, and Jiangxi Province. The number and ranking of bamboo enterprises are shown in Table 5.

Table 5. Main distribution regions and number of bamboo enterprises in China.

Rankings	Provinces	Number of Bamboo Enterprises Per
1	Zhejiang Province	4000
2	Fujian Province	2956
3	Sichuan Province	2600
4	Shandong Province	2261
5	Guangdong Province	2243
6	Jiangxi Province	1400

Table 6 reports the impact of the China Bamboo Culture Festival on the gross output of enterprises in the three major regions of China. Significant regional differences can be observed in the impact of the China Bamboo Culture Festival on enterprise production

in China. Specifically, the festival has a relatively weak influence on enterprises in the eastern region compared to those in the central and western regions. Enterprises in the central region face greater constraints due to limited regional bamboo resources compared to those in the eastern and western regions. Notably, the productivity of enterprises is a critical factor influencing their total output, with enterprises in the eastern region having the greatest impact, followed by those in the western region, and those in the central region having the least impact.

Table 6. Heterogenous test results considering geographical location.

Variable	Eastern Region	Central Region	Western Region
$\ln reg_{it}$	0.0061 (0.0052)	0.0278 ** (0.0119)	0.0036 (0.0125)
$\ln tfp_{it}$	4.4825 *** (0.0180)	3.9771 *** (0.0334)	4.2029 *** (0.0860)
$\ln l_{it}$	0.2546 *** (0.0031)	0.2810 *** (0.0079)	0.2103 *** (0.0176)
$\ln k_{it}$	0.4521 *** (0.0025)	0.4652 *** (0.0062)	0.5299 *** (0.0140)
cul_{it}	0.0349 ** (0.0126)	0.1303 *** (0.0240)	0.4137 *** (0.0840)
$\ln time_{it}$	0.0653 *** (0.0064)	0.1110 *** (0.0173)	0.1009 *** (0.0332)
Observations	6759	2260	286/314

Note: Standard deviations are in parentheses; *** $p < 0.01$, ** $p < 0.05$.

4.2.2. Enterprise Ownership

In terms of ownership, the bamboo enterprises in China are mainly private companies (52.87%). The bamboo enterprises of other ownerships make up only 36.49%. The enterprises owned by Hong Kong/Macao/Taiwan shareholders (hereinafter referred to as HK/MC/TW enterprises), state-owned enterprises, collectively-owned enterprises, and foreign-owned enterprises only account for a small fraction. Table 7 reports the regression results on the impact of the China Bamboo Culture Festival on the gross output of bamboo enterprises of different ownerships.

Table 7. Regression results of heterogenous test considering enterprise ownership.

Variable	HK/MC/TW-Owned Enterprises	State-Owned Enterprises	Collectively-Owned Enterprises	Other Enterprises	Private-Owned Enterprises	Foreign-Owned Enterprises
$\ln reg_{it}$	0.0634 * (0.0326)	−0.1330 ** (0.0590)	−0.0128 (0.0220)	0.0131 ** (0.0064)	0.0384 *** (0.0066)	0.0411 (0.0345)
$\ln tfp_{it}$	4.8272 *** (0.0530)	2.4496 *** (0.1347)	5.6013 *** (0.0697)	3.6402 *** (0.0316)	4.7974 *** (0.0155)	4.5453 *** (0.0700)
$\ln l_{it}$	0.2606 *** (0.0090)	0.2348 *** (0.0386)	0.2483 *** (0.0079)	0.2547 *** (0.0065)	0.2525 *** (0.0027)	0.2435 *** (0.0123)
$\ln k_{it}$	0.4652 *** (0.0069)	0.5499 *** (0.0529)	0.5129 *** (0.0106)	0.3913 *** (0.0052)	0.4660 *** (0.0022)	0.5173 *** (0.0130)
cul_{it}	0.0354 (0.0257)	0.0991 (0.1860)	0.0129 (0.0486)	−0.0660 * (0.0375)	0.0148 (0.0092)	0.0965 *** (0.0345)
$\ln time_{it}$	−0.0134 (0.0225)	−0.4746 ** (0.2055)	−0.03567 (0.0332)	0.0585 *** (0.0158)	0.0231 *** (0.0067)	0.1149 *** (0.0281)
Observations	442/384	228/165	156/134	4630/3373	5518/4969	387/280

Note: Standard deviations are in parentheses; *** $p < 0.01$, ** $p < 0.05$, and * $p < 0.1$.

4.2.3. Subdivided Industry

In terms of subdivided industries, the majority (89.33%) of China's bamboo enterprises fall into the category of bamboo, rattan, palm, and straw products manufacturing, and not many engaged in other manufacturing genres. As shown in Table 8, bamboo, rattan, palm, and straw products manufacturing is affected by the China Bamboo Culture Festival, while the other genres are not much influenced by the festival.

Table 8. Heterogenous test results considering subdivided industry.

Variable	Bamboo and Rattan Furniture Manufacturing	Bamboo, Rattan, Palm, and Straw Products Manufacturing	Wood and Bamboo Pulp Manufacturing	Forest Culture and Management, and Wood and Bamboo Harvesting Machinery Manufacturing
$\ln reg_{it}$	−0.0025 (0.0160)	0.0176 *** (0.0049)	−0.0207 (0.0241)	0.0772 * (0.0383)
$\ln tfp_{it}$	4.7523 *** (0.0459)	4.2516 *** (0.0169)	5.3728 *** (0.1787)	4.5634 *** (0.0834)
$\ln l_{it}$	0.2402 *** (0.0079)	0.2641 *** (0.0033)	0.2368 *** (0.0349)	0.2520 *** (0.0130)
$\ln k_{it}$	0.4892 *** (0.0074)	0.4466 *** (0.0026)	0.5858 *** (0.0624)	0.4984 *** (0.0157)
cul_{it}	−0.0382 (0.0488)	0.0823 *** (0.0118)	-	−0.0390 (0.0851)
$\ln time_{it}$	0.0237 (0.0307)	0.0829 *** (0.0066)	−0.0085 (0.0275)	−0.0793 (0.1746)
Observations	899	10337	184	152

Note: Standard deviations are in parentheses; *** $p < 0.01$, * $p < 0.1$.

4.3. Robustness Test

A robustness test was implemented with another estimation method. Based on the fixed effects model, the individual differences were eliminated using the first-order difference method before performing the test again. Table 9 shows the regression results using the first-order difference method. The coefficient of the China Bamboo Culture Festival is still significantly positive at the 1% level, indicating that the research conclusions are robust in terms of the estimation method.

Table 9. Results of first-order difference regression.

Variable	All Samples	Export Enterprises	Domestic Market Enterprises
$\ln reg_{it}D1.$	0.0053 (0.0034)	0.0103 * (0.0059)	0.0041 (0.0049)
$\ln tfp_{it}D1.$	4.1486 *** (0.1686)	3.8748 *** (0.3115)	4.3958 *** (0.0644)
$\ln l_{it}D1.$	0.2290 *** (0.0058)	0.2268 *** (0.0095)	0.2328 *** (0.0046)
$\ln k_{it}D1.$	0.4170 *** (0.0139)	0.3920 *** (0.0255)	0.4402 *** (0.0074)
$cul_{it}D1.$	0.0508 *** (0.0136)	0.0516 *** (0.0190)	0.0355 *** (0.0105)
$\ln time_{it}D1.$	0.1281 *** (0.0291)	0.1311 *** (0.0387)	0.0937 *** (0.0155)
Observations	11361	5549	5812

Note: Standard deviations are in parentheses; *** $p < 0.01$, * $p < 0.1$.

The basic logic of the empirical research part of this section is summarized as follows: First, the total sample is regressed using a fixed effects model to observe how the Bamboo Culture Festival affects the gross enterprise product. Second, heterogeneity is analyzed in terms of geographic location, type of firm ownership, and type of industry in order to examine the impact that cultural festivals have on gross firm product more comprehensively. Finally, the model is tested for robustness. The first-order difference method is introduced to eliminate individual differences, and the model is tested again.

5. Discussion and Conclusions

5.1. Discussion

The development of the bamboo industry is closely related to the availability of bamboo resources in a given region, and its level of development depends on the endowment of bamboo resources in the region. Modern bamboo product production and utilization technologies are expected to replace high-emission materials such as wood, concrete, and steel, as well as energy and chemical resources such as coal and petroleum, by means of expanding yield, improving quality, increasing product carbon sequestration, and extending product life. At this stage, bamboo production in China has developed from traditional, simple, and low-value-added processing to high-precision and deep processing. The utilization of bamboo material has also expanded from traditional to non-traditional fields. At present, there are hundreds of series and nearly ten thousand kinds of bamboo products in China which are widely used in the fields of construction, decoration, furniture, papermaking, packaging, transportation, medicine, food, textile, chemical industry, electronics, national defense, and aerospace.

This study has a certain theoretical significance. First of all, this paper analyzes the impact of festivals on the production behavior of enterprises from the perspective of stakeholders; selects the total industrial output value of enterprises as the explanatory variable and the Bamboo Culture Festival as the main explanatory variable; takes the time of the Bamboo Culture Festival, the bamboo production of the province where the enterprise is located, the enterprise's total factor productivity, the enterprise's total fixed assets, and the number of employed people at the end of the year as the other explanatory variables; and constructs a production behavior theoretical framework.

This study also has some practical significance in promoting the management and development of enterprises. The organization of festivals will not only have a tangible impact on the development of the enterprise but also have an intangible impact on the enterprise, such as creating a sustainable business environment for the enterprise and improving the visibility of the enterprise. This paper precisely explores the factors brought about by festivals that have nothing to do with the event itself but can have a more lasting impact on the enterprise. These factors can contribute to the differentiation of enterprises to a certain extent and are one of the important means for enterprises to further gain competitive advantages.

5.2. Conclusions

The Bamboo Culture Festival can increase the sustainable competitiveness of bamboo enterprises in the industry. The holding of festival activities has created the ability for sustainable development for the business environment of enterprises. Taking the Bamboo Culture Festival as an example, this paper studies the influence of the Bamboo Culture Festival on the production behavior of bamboo enterprises through a theoretical model and empirical analysis. Finally, it is concluded that Bamboo Culture Festivals can significantly promote the total output value of bamboo enterprises, and this conclusion is not contrary to the conclusions of other existing works in the literature. Specifically, the results of this study can be summarized as follows:

The holding of the Bamboo Culture Festival has a positive effect on the production of bamboo enterprises and can significantly improve the gross domestic product of bamboo enterprises. The gross domestic product of the enterprises holding the Bamboo Culture

Festival in the province/city is 1.0764% higher than that of the enterprises not holding the Bamboo Culture Festival, and at the same time, the Bamboo Cultural Festival also has a significant positive impact on the total factor productivity of enterprises.

From the perspective of comparison between enterprises, the impact of the Bamboo Culture Festival on export enterprises is less than that of domestic enterprises.

From the perspective of geographical location, there are significant differences in enterprises with different geographical locations, enterprise ownership types, and industry types. The enterprises in the eastern region are least affected by the Bamboo Culture Festival, followed by the enterprises in the central region, and the enterprises in the western region are most affected by the Bamboo Culture Festival. Bamboo, rattan, palm, and grass products are affected by the Bamboo Culture Festival, while other manufacturing industries are basically not affected by the Bamboo Culture Festival.

Although this paper has made some contributions in terms of theory and practice, there are still some limitations, and further research is needed in the future. First, from the perspective of structure, the logic of this paper is relatively clear, but there is still some room for adjustment in the division of chapters, and there are also some deficiencies in the theoretical analysis part of the article. In the future, we will refer to the articles of Feng Ye [26], Zhang Xiaoheng [27], Zhang Qing [28], Zhu Min [29], and other scholars to further adjust and supplement the structure and chapters of the article. Second, from the perspective of entry, it would increase the practical significance of the article if we started from the consumer's point of view and added research on the economic and management aspects of festivals. Third, from the perspective of the research object, the empirical study of this paper is limited to the Bamboo Culture Festival, and it is beneficial to corroborate the theoretical analysis of this paper by adding more empirical studies of festivals. Fourth, from the point of view of data selection, the bamboo enterprise data used in this paper are still affected by the limitations of the database, and empirical research can be carried out based on the tracking research of key enterprises in the future.

5.3. Policy Recommendations

Against the backdrop of global consensus on green and low-carbon development, the Chinese government has emphasized the need for the country to achieve carbon peaking and carbon neutrality as an integral part of its high-quality development strategy. The bamboo industry offers a unique blend of economic, ecological, social, and cultural benefits, making it a major contributor to achieving these dual carbon targets. Building on previous research findings, this paper puts forward policy recommendations from three perspectives: government, industry, and enterprises.

From the perspective of government, local governments across the country should step up support for the China Bamboo Culture Festival, as it has been shown by our empirical analysis to have a positive effect on stimulating enterprise output. Every local government should therefore boost publicity and support for the festival, utilizing its guiding and demonstrative role to create a more sustainable production and development environment. This entails three main aspects.

Firstly, top-level design should be strengthened. The government must create overall plans for the festival and the construction of the bamboo culture industry, as well as a policy environment and mechanisms that stimulate the vitality of the bamboo culture industry market. The cultural depth, artistic feeling, and popularity of the event should be enhanced through diversified forms such as competitions, exhibitions, and performances, making the event interesting and interactive. Moreover, the government should continuously enrich the denotation and connotation of the China Bamboo Culture Festival to attract more consumers and stimulate greater shopping needs.

Secondly, it is necessary to enhance the efficiency of publicity. The COVID-19 pandemic has significantly impacted people's lifestyles and consumption patterns, thereby increasing their awareness of the pivotal role played by healthcare and fitness in enhancing the quality of life. To ensure the successful execution of the China Bamboo Culture Festival,

it is crucial to give considerable attention to online publicity channels and update media communication channels, highlighting the significance of bamboo products in the health sector. By leveraging media promotions, particularly through new media and self-media marketing interactions, it is possible to amplify the festival's popularity, reputation, and public participation.

Thirdly, it is necessary to formulate policies based on local circumstances. Empirical test results have revealed that the central and western regions have fewer bamboo enterprises than the eastern region, making the externalities of holding the China Bamboo Culture Festival more significant in this region. Thus, it is imperative for the government to leverage local characteristics and resource advantages based on the specific local conditions to improve the efficiency of the bamboo cultural industry. Moreover, it is essential to develop a unique bamboo product series and extend its value chain.

From the perspective of industry, there is a need to expedite the development of competitive bamboo industry clusters and foster the establishment of bamboo industry brands. Since the inception of the first festival in 1997, China has successfully hosted eleven China Bamboo Culture Festivals. Industry organizations can leverage these festivals to create diversified values, stimulate the formation of industrial chains, optimize and reorganize supply-side reforms, enhance support to leading enterprises, actively cultivate superior bamboo product brands, and drive the high-quality development of China's bamboo industry.

From the perspective of enterprises, it is crucial for them to fully capitalize on the positive effects of the local China Bamboo Culture Festival. Holding such a festival can enhance the business environment of enterprises and boost their sustainable development capabilities. Therefore, enterprises must align production and operation with their operating characteristics and industry competition, plan for the long term, and assist local government agencies and industry organizations in promoting related product exhibitions and festivals. By making the best use of the spillover effects resulting from these activities, enterprises can optimize their production behavior.

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