



Article Ski Tourism: A Case Study as a Booster for the Economic Development of Chongli, in China

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Abstract: Chongli, an internationally renowned ski mecca, is famous for hosting the 2022 Winter Olympics. As a booster of local economic development, ski tourism facilitates Chongli in moving away from poverty, and provides a new model for the economic development of other impoverished areas in China. The aim of this research is to analyze the impact of ski tourism in Chongli on local economic development in detail, to clarify the relationship between ski tourism and its related industries, and propose improvement measures, using the methods of the literature review, Delphi and investigation. This paper presents a detailed analysis of indicators which reflect ski tourism and its economic development, and calculates the degree of influence of skiing tourism on local economic development. The results show that, except for transportation, storage and postal services, the local economy of Chongli is positively affected by the income of ski tourism and the number of ski tourists. The influence coefficient of ski tourism has exceeded the average level of social influence. Based on the place of ski tourism in Chongli, some strategies, such as extending the industrial chain and improving product quality to strengthen the economic impact of ski tourism, are proposed.

Keywords: ski tourism; economic development; influence coefficient; Chongli; China

1. Introduction

The skiing is not only a professional sport, but also a leisure–travel activity that fascinates countless enthusiasts. The huge consumer demand and supply opportunities generated by ski-related services have promoted the development of many local economies. In some countries and regions, skiing and its related industries have become an important booster for local economic development.

In China, interest in skiing has only developed since the 1990s, especially with the Asian Winter Games in 1996. Skiing previously was compared to horse riding and golf: reserved for happy few. According to Weinreb Wyatt [1], in 1996 there were less than 10,000 skiers in China.

For the Chinese government, the development of skiing has been a means to find a solution to the economic problems of the Northeast, resulting from the deindustrialization of the area to show that China is no longer "the factory of the world" [2].

Chongli, a deeply impoverished county attached to Zhangjiakou City, was able to move away from poverty in 2014 as a result of ski tourism, and gradually developed into an internationally renowned ski resort. This was especially noted after obtaining the right to host the 2022 Winter Olympics in July 2015; under the dual stimulation of national policies and the Winter Olympics, ski tourism developed rapidly and has become a pillar industry in Chongli, and even in Zhangjiakou city [3].



Citation: Li, J.; Cernaianu, S.; Sobry, C.; Liu, X. Ski Tourism: A Case Study as a Booster for the Economic Development of Chongli, in China. *Sustainability* **2021**, *13*, 13318. https:// doi.org/10.3390/su132313318

Academic Editor: Fabio Carlucci

Received: 27 October 2021 Accepted: 24 November 2021 Published: 1 December 2021

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Using local resources, developing the characteristic industries, and realizing substantial and sustainable economic growth, Chongli has set a good example for poor areas in China, and across the world. However, because of the lack of a clear understanding of its status, role and impact on the local economy, Chongli ski tourism did not arouse widespread academic attention before the successful bid for the 2022 Winter Olympics. Now that Chongli, through ski tourism, has removed itself from poverty and eventually developed into an international ski mecca, questions regarding these issues are raised: which aspects of Chongli's economy have been affected by ski tourism? What is the degree of influence? Without these answers, there would be a lack of theoretical support in the making of local policies and long-term development plans, and it would also be difficult to provide reference for other similar regions.

Therefore, according to Chongli's characteristics, this article analyzes the impact of Chongli ski tourism on local economic development in detail, clarifies the relationship between ski tourism and its related industries, and proposes improvement measures. We provide some theoretical and practical references for administrative managers, ski resorts managers and scholars.

1.1. Literature Review

Research on ski tourism which shows the characteristics of enthusiasm for winter sports research at a high level of socio-economic development is mostly seen in developed countries, and regions such as Western Europe—where the ski tourism originated—the United States and Japan. Many European countries have also founded ski industry research associations and ski federations, such as the Swiss Davence Ski Consulting Agency, the French Ski Federation, Alps company, etc., which have established the link, named "pool", between the national ski federation and ski goods producers (skis, shoes, clothes, etc.). As a result of what they have provided to the federation, it has become easier to improve the level of the skiers. When the world and Olympic champions became very famous, ski tourism began to develop and, of course, these companies earned a large amount of money. Now, there are no more "pools". Famous brands provide products to champions, especially those who will influence consumers to buy new products, clothes and all kinds of equipment. This has promoted the rapid development of the ski industry in Europe. In the United States, there are dozens of ski industry research institutions. Some university departments on economics or sport also develop special skiing research projects. For example, the Snow Sports Industries America (SIA), established in 1954, publishes an industry survey report every year, which has become an important data basis for guiding the ski industry. In State of the Industry 2007 [4], SIA published its intelligence report specifically for women. E. John B. Allen [5] traced the history of skiing as a recreational and competitive activity in the USA. Hudson [6] conducted continuous research on the coordination of ski resort planning and regional economies, and carried out exemplary planning at a global scale. Although the development of the ski industry in various countries has experienced ups and downs, especially in the past 20 years when Europe and Japan experienced a decline in revenue, and ski resorts operated with less profits, the developments in the United States were kept stable, thanks to their planning and layout [7]. In Japan, combined with the revitalization of the mountain economy, the ski industry is divided into several categories according to business projects, and each individual category has a corresponding organization. The refined research and practice of the ski industry is at a first-class level in the world [8].

Regarding the role of ski resorts in promoting local economic development, Wikler's research focused on the promotion of ski tourism in Oregon, the United States [9]. In 2019, the National Ski Areas Association (NSAA) announced that in the 2018/2019 season, the total number of skiers to the United States exceeded 59 million (since the NSAA began to record the number of visitors in 1978/1979, it ranked fourth in the 2018/2019 season). This number is an increase of nearly 11%, compared with the total number of 53.3 million in the 2017/2018 season. The abundant snowfall and continuous improvement in experience has

resulted in an increase in the number of ski tourists across the United States. Most are in southwestern Pacific and Rocky Mountains areas, which increased by 22.9% and 15.6%, respectively, compared with the previous season. Such a large skiing group is bound to have a profound impact on the local economic and social development [10]. Lasanta and Laguna regarded ski tourism in the Spanish Pyrenees as an example to study the effect of ski resorts on the balanced economic development of the Mediterranean mountains [11]. Pütz and Gallati etc. found that the economic benefits of ski resorts in Switzerland played a central role in the economy of Davos, in which the winter tourism revenue accounts for 26% of the total tourism revenue [12]. Matti established that tourism created \$13.5 billion revenue for Columbia, Canada in 2012. Among them, the income from ski areas accounted for about 9% of the total tourism revenue. The ski resorts there attract nearly 20 million ski tourists every year, coming from all over the world. Therefore, ski tourism is regarded as an important source of Columbia's economic income [13].

In recent years, although data collection in the industry is not always well-organized and the annual number of visitors may vary because of the weather conditions, it was estimated that the total number of ski visitors in the world was approximately 400 million, which had been stable for the past 15 years. However, from a partial perspective, on one hand the growth of major mature markets has slowed down (excluding the sharp decline in Japan), whereas on the other hand, some new markets are emerging. It is worth mentioning that the situation in Japan and South Korea is not optimistic. The number of ski tourists in South Korea has experienced a continuous decline for six years until 2018/19. The number of ski tourists in Japan remained at half that level about 20 years ago, in the 2016/17 and 2017/18 seasons, and then fell again in 2018/19. Due to the bad weather conditions and the lack of snow, Iceland and Scotland have also experienced very bad seasons [14].

With the development of ski training centers, including ski simulators, dry slopes, and more indoor ski halls, China has established a strong skiing infrastructure, even though it has not yet reached its full potential. However, the ski industry is not mature enough, and has not found a golden way to introduce skiing to beginners. Therefore, it becomes an important obstacle to generate high-level return-customers. This has also been an unsolved pain point for the skiing destinations in Europe and North America, over the past 20 years. Despite this weakness, China's ski industry has continued to grow and exceeded 20 million ski tourists in 2018/19 [15].

In the past, China's ski industry was mainly located in the three northeastern provinces, including Heilongjiang, Jilin, and Liaoning provinces, as seen in the studies of Zu [8], Zhang and Tong [16], Cheng [17]. In recent years, under the influence of national policies and the 2022 Winter Olympics, many ski resorts were established in Hebei province, where the skiing events will be held for the 2022 Winter Olympics. Among them, the construction of the Chongli ski resort was the most concentrated, with the largest scale and the highest specifications in China [15] (see Figure 1).

Most of the economic-skiing research on China are descriptive studies, which involve development status and countermeasures, resource value and system construction, product development and innovation and sustainable development. Li [18] described the development status and existing problems of ice and snow tourism through SWOT analysis, and then established development strategies. Guo [19] related the advantages of the Heilongjiang Province in developing ice and snow tourism, and the problems existing in the development process. Zhang [20] conducted research on the economic effects of ice and snow tourism in the Northeast, and suggested regulation goals and paths. Wang [21] also carried out research on the sustainable development of ice and snow tourism in Heilongjiang Province. Unfortunately, there is very little research on Chongli's ski tourism; there is only the publicities and reports from various media, involving the construction of the Winter Olympics venues and the information of mass ice and snow sports, which cannot be considered academic research. Until 2020, there has not been any literary research on the quantitative analysis or any special studies on the economic impact of ski tourism in the Chongli District. Obviously, Chongli's ski industry, driving the development of the



local economy, has become the leading industry; however, theoretical research has not kept pace with actual development.

Figure 1. 2010–2019 number of tourists and tourism income in Chongli (Chongli Culture and Tourism Bureau, 2011–2020).

1.2. Skiing Tourism in Chongli

Chongli, a county where 80% of the 105.5 thousand residents are farmers, is located in the northwestern part of the Hebei Province, in the transitional zone between the Inner Mongolia Plateau and the North China Plain. The total area of the region is 2334 square kilometers, and the altitude extends from 814 m to 2174 m. Most areas consist of middle and low mountains, and the mountain slopes are mostly between 5 to 35 degrees. The snow storage period is more than 150 days from November to March, and the snow quality is high. It is known as "the most ideal natural ski area in North China". In 2015, it was named the first batch of "carbon sink cities" by the China Green Carbon Foundation, and won the China–Europe Green and Smart City Technology Promotion Award. In 2016, it was named a national leisure agriculture and rural tourism demonstration county. The unique geographical location and superior climatic conditions of the area have laid a solid foundation for the development of ski tourism [22].

The development of ski tourism in Chongli has gone through roughly four stages:

- The initial stage—in the winter of 1996, under the guidance of authoritative experts on both the site selection and the construction of the ski slopes, the Saibei Ski Resort began trial operation, which marked the beginning of the development of ski tourism in the Chongli District. The annual per capita income of farmers was less than 1200 yuan (\$145), which is still a typical impoverished county.
- 2. The growing stage—in 2003, Wanlong Ski Resort, the first open ski resort in China, was completed, which marked the continuous development and growth of ski tourism in Chongli. In the following years, many domestic and foreign investors discovered business opportunities here and began to invest substantially. The cold snow became "hot economy".
- 3. The metamorphosis stage—in 2008, the Genting Ski Resort was jointly built by the Genting Group and Excellence Group of Malaysia, which realized the transformation of ski tourism. Since then, the skiing economy has rapidly become the first pillar industry of Chongli. Under the strong pull of the skiing economy, some related industries, such as sightseeing, agriculture, farmer accommodation, rural experience, ski schools, etc., have rapidly developed into wealthy industries that increase agricultural efficiency and farmers' income. According to statistics, at least one-sixth of the

farmers in Chongli are engaged in the ski industry [23]. In 2008, the annual per capita income of farmers was 2918 yuan (\$400). In 2013, the per capita net income of farmers in Chongli County reached 6071 yuan (\$965), which was more than twice that of 2008, and more than five times that of 1996 [24]. In 2014, based on stable and sustained economic growth, Chongli officially withdrew from the ranks of poverty-stricken counties, and no longer needed national policies of financial support.

4. The leap stage—in July 2015, after China's successful bid for the Winter Olympics, the Taiwu Ski Resort was put into operation in the snow season of the same year. As the venue for the Winter Olympics, Chongli has caught considerable attention from the government and investors. Moreover, ski tourism has entered a stage of leap development. By 2020, the annual per capita disposable income of urban residents was 37,525 yuan (\$5440), and the annual per capita disposable income of rural residents was 13,296 yuan (\$1928) [25], which exceeded the official moderate prosperous standard of living. China's moderate prosperous standards on incomes are as follows: the annual per capita disposable income of rural residents reaches to 18,000 yuan (\$2610), and the annual per capita disposable income of rural residents reaches to 8000 yuan (\$1160) [26].

At present, the Chongli District has built seven well-known domestic ski resorts in Wanlong, Genting, Duolemeidi, Great Wall Ridge, Taiwu, Fulong, and Cuiyun Mountain [27], which have together 117 high, middle and primary ski slopes, with a total length of 86.8 km, and 34 magic carpets and ropeways with a total length of 24.4 km. The ski resort has the capacity of 40,000 visitors per hour and more than one million tourists per snow season. The 116 hotels and restaurants, including 23 star-rated hotels, can receive more than 50,000 tourists per day [22]. The new Nordic Center cross-country skiing field, the Nordic Center ski-jumping field and the biathlon center for the Winter Olympics, which all concentrate in the ice and snow town of Prince Edward City, have formed the largest ski resort cluster within a radius of 10 km in China.

The seven major ski resorts represent the overall situation of Chongli ski tourism. For this reason, this research analyzes the data from these ski resorts and local economies to discover the status and influence of ski tourism in the national economy of Chongli.

2. Materials and Methods

Based on the changes in Chongli's economic growth and the special role of ski tourism in this economic development, adopting the Delphi method with two rounds of investigation, we selected 2 ski tourism indicators and 11 economic indicators, to analyze their logical relationship. The two indicators of ski tourism were: the income of ski tourism and related industries and the number of ski tourists; the 11 economic indicators were: the fixed asset investment in the whole society, GDP, primary sector (agriculture, forestry, fisheries), secondary sector (industry), tertiary sector (service), total fiscal revenue, accommodation and catering industry, construction industry, transportation, storage and postal industry, manufacturing industry, wholesale and retail industry. The statistics calculations of economic indicators among these are based on the 2005 and 2010 constant prices [28]. Affected by the factors of both the 2022 Winter Olympics, since the successful bid in 2015, and COVID-19 in 2020, Chongli's economy has shown abnormal development in recent years. Thus, this study selected data from before 2015 to analyze the impact of ski tourism on Chongli's economy.

The data were obtained from different databases, such as China National Knowledge Infrastructure (CNKI), SpringerLink, Web of Science, and ScienceDirect. Additionally, some important data are from government economic statistics departments.

In addition to the literature, data were also obtained through the on-site investigation of seven ski resorts in Chongli, and through consultations with relevant personnel from the governmental agencies and ski resorts. Combined with the characteristics of Chongli's economic development, the selected indicators of ski tourism and the 11 indicators of economic development were admitted by respondents in the process of the investigation, providing practical support for calculating the economic influence coefficient of ski tourism.

In modern economic society, the production activities of any kind of industry would inevitably affect and be affected by the production activities of other industries, through the ripple effect of the interconnection between industries. In economics, the degree to which one industry influences other industries is usually called influence power. If the influence coefficient is bigger than 1, this means that the impact of the degree of the production activity in the industry, to the other industry, exceeds the social average level of influence. Thus, the research on the influence power of Chongli's ski tourism on the local industries is divided into three levels, to form the Leontief inverse matrix:

- 1. The first level is the output value of the tertiary sector and the output value of the primary and secondary sectors, in order to calculate the degree of influence of the tertiary sector and other industries;
- 2. The second level is the output value of the tourism industry and the output value of the wholesale and retail industry, accommodation and catering industry, transportation, storage and postal industry, in order to calculate the degree of influence of the tourism industry and other tertiary industries;
- 3. The third level is the output value of ski tourism and related industries and the output value of other natural and cultural landscape tourism, in order to calculate the degree of influence of the ski tourism industry and other tourism industries in Chongli.

We calculated the influence coefficient with the following formula of Leontief (as cited in [29–31]):

$$F_{j} = \frac{\sum_{i=1}^{n} \overline{b_{ij}}}{\frac{1}{n} \sum_{i=1}^{n} \sum_{j=1}^{n} \overline{b_{ij}}} (j = 1, 2, 3, \ldots)$$
(1)

where:

 F_j represents the influence coefficient; $\sum_{i=1}^{n} \overline{b_{ij}}$ represents the sum of an output value;

 $\frac{1}{n}\sum_{i=1}^{n}\sum_{j=1}^{n}\overline{b_{ij}}$ represents the average value of the sum of each output value.

3. Results

3.1. Number of Tourists and Tourism Income

Beginning in 1996, Chongli's tourism has formed a main brand with "winter skiing", and gradually developed from one-season tours to four-season tours. From 2010 to 2019, the number of tourists and tourism income in Chongli has continued to increase. In 2010, the whole district received 830 thousand tourists, and the comprehensive tourism income was 498 million yuan (75.28 million USD). In 2019, the district received 4420 thousand tourists (see Figure 1), and the comprehensive tourism income was 3330 million yuan (482.71 million USD). In the past 10 years, the number of tourists has increased by 432.53%, and the comprehensive tourism income increased by 568.67% (541.22% in dollars, considering changes in the exchange rate between China and the United States).

Chongli's tourism development is attributed to ski tourism; before 2015, the main source of Chongli tourism income was ski tourism (see Figure 2). Since the successful bid for the Winter Olympics in 2015, Chongli's tourism income has continued to grow at a high speed between 2016 and 2019. While ski tourism has entered a period of steady growth, the effects of tourism in the four seasons on the economy are beginning to appear.



Figure 2. 2008–2020 tourism income and ski tourism income in Chongli (Chongli Culture and Tourism Bureau, Zhangjiakou Bureau of Statistics).

In 2020, it was estimated that in Chongli, there should be 4700 thousand tourists and 3610 million yuan (\$523 million) in tourism income. However, affected by COVID-19, the actual numbers were 2810 thousand tourists, and 2005 million yuan (\$291 million) in tourism income. The number of tourists was reduced by 40.21% (1890 thousand tourists) and tourism income was reduced by 44.46% (1605 million yuan–\$232 million) more than expected. Among them, the number of ski tourists was reduced by 55.28% (1632 thousand ski tourists), and ski tourism income reduced by 50% (1060 million yuan–\$154 million) [31] (see Table 1). Due to the difference in value caused by COVID-19, these values cannot be used for trending statistics in this study. However, from the opposite side, this further proves the influence of ski tourism on the entire tourism industry in Chongli.

Table 1. Difference of tourism and ski tourism between estimates and actuality in 2020 (adapted from Chongli Culture and Tourism Bureau, Zhangjiakou Bureau of Statistics).

| | | Estimated Value | Actual Value | Difference | Difference (%) |
|-------------|---|-----------------|--------------|------------------|---|
| Tourism | Tourist (thousand) Tourism income (million yuan) | 4700 3610 | 2810 2005 | $-1890 \\ -1605$ | $\begin{array}{c} -40.21 \\ -44.46 \end{array}$ |
| Ski tourism | Ski tourist (thousand) Ski tourism income | 2952 2120 | 1320 1060 | $-1632 \\ -1060$ | $-55.28 \\ -50.00$ |

3.2. The Promotional Effect of Ski Tourism on the Regional Economy in Chongli

The proportion of income from ski tourism and its related industries, and its development trend in Chongli, are shown clearly through the comparison of GDP data, data for the output value of the tertiary sector, and data for the income of ski tourism and related industries in Chongli from 2008 to 2015 [24] (see Figure 3).



Figure 3. Proportion of the income of ski tourism and related industries in the national economy, from 2008 to 2015, in Chongli (Chongli Culture and Tourism Bureau, Zhangjiakou City Economic Statistics Yearbook 2009–2016). (Basic data in Tables A1 and A2).

As shown in Figure 3, the proportion of income from ski tourism and related industries in GDP in Chongli declined in 2011 (18.96%), but increased in the rest of the years. This proportion became increasingly larger, reaching 41.71% in 2015. The income of ski tourism and its related industries accounted for an increasing proportion of the tertiary sector, showing an upward trend year by year. In 2012, this proportion reached 93.93%. In 2013, 2014, and 2015, the income of ski tourism and its related industries even exceeded the output value of the tertiary sector, accounting for 125.70%, 148.99%, and 177.18%, which indicated that the ski tourism industry in Chongli was not only driving the development of the tertiary sector (such as accommodation and catering, wholesale and retail, transportation, warehousing and postal industries, etc.) but driving the development of secondary industries, such as ski resort construction, ski facilities and related product manufacturing, hotel construction, etc. In official statistics, tourism and sports tourism incomes are combined (see Table A2). These incomes include those classified in the tertiary sector and those classified in other sectors. Therefore, it is reasonable that their respective income has been greater than that of the tertiary sector, since 2013. Sports tourism is classified as the tertiary sector in terms of attributes, and therefore this research made an analysis of its proportion against GDP and the tertiary sector. The result proves that an industrial chain led by ski tourism has formed shape in Chongli. The skiing tourism industry has a huge promotional effect on the regional economy.

3.3. The Correlation between Ski Tourism and Regional Economy in Chongli

In order to see there is a statistical relationship between the ski tourism industry and the regional economy in Chongli, several Pearson's correlations were run (see Table 2). The values of the variables included in these calculations are shown in Appendix A Tables A1–A4.

| Indexes | Income of Ski Tourism and Related Industries | | | Number of Ski Tourists | | |
|---|---|------------------|-----------------|------------------------|------------------|-----------------|
| | r | R-Squared | <i>p</i> -Value | r | R-Squared | <i>p</i> -Value |
| Fixed asset investment in the whole society | 0.967 | 0.935 | 0.001 | 0.967 | 0.935 | 0.001 |
| GDP | 0.904 | 0.817 | 0.002 | 0.905 | 0.819 | 0.002 |
| Primary sect or (agriculture, forestry, fisheries) | 0.884 | 0.781 | 0.004 | 0.887 | 0.787 | 0.003 |
| Secondary sector (industry) | 0.900 | 0.810 | 0.002 | 0.902 | 0.814 | 0.002 |
| Tertiary sector (service) | 0.926 | 0.857 | 0.001 | 0.927 | 0.859 | 0.001 |
| Total fiscal revenue | 0.838 | 0.702 | 0.009 | 0.840 | 0.706 | 0.009 |
| Accommodation and catering | 0.883 | 0.780 | 0.004 | 0.884 | 0.781 | 0.004 |
| Construction | 0.953 | 0.908 | 0.001 | 0.954 | 0.910 | 0.001 |
| Manufacturing | 0.890 | 0.792 | 0.003 | 0.890 | 0.792 | 0.003 |
| Wholesale and retail | 0.960 | 0.922 | 0.001 | 0.959 | 0.920 | 0.001 |
| Transportation, storage and postal service | 0.664 | 0.441 | 0.072 | 0.668 | 0.446 | 0.070 |

Table 2. Correlation of indexes between ski tourism and local economy in Chongli.

As shown in Table 2, we found a strong positive correlation (r > 0.8) that was highly statistically significant (p < 0.005) between the variables, with the coefficient of determination R-squared greater than 0.7. Therefore, more than 70% of the variance in the dependent variable was explained by the independent variable. Only the variable of transportation, storage and the postal industry was an exception, in which the correlation with the core indexes of ski tourism was moderate, but not statistically significant (r = 0.664, p = 0.072; r = 0.668, p = 0.07).

The results reflect that the regional economy of Chongli has obviously been positively affected by ski tourism, especially in the fields of the fixed asset investment of the whole society, the construction industry, and the wholesale and retail industry. The non-significant statistical relationship between ski tourism and the transportation, storage and postal service was mainly because of the remote location of Chongli, inconvenient transportation and undeveloped logistics. It should be noted that there was no railway in Chongli until 2020.

3.4. The Influence Coefficient

According to the Formula (1) presented above, the influence coefficient refers to the sum of the j-th column of the Leontief inverse matrix, divided by the average of the sum of all the columns of the Leontief inverse matrix [29]. Therefore, using the data from the Table A1, we calculated the influence coefficient for the 2008–2015 interval, taking the primary sector as an example.

$$F_j = \frac{\sum_{i=1}^n \overline{b_{ij}}}{\frac{1}{n} \sum_{i=1}^n \sum_{j=1}^n \overline{b_{ij}}}$$

The sum of the output value of the primary sector The average value of the sum of the output values of primary sector, secondary sector, and tertiary sector

 $= \frac{4101.92}{\frac{4101.92+11,303.21+4997.73}{2}} = 0.6$

In the same way, we calculated the influence coefficient of the other indicators.

As depicted in Table 3, the impact of the tertiary sector on other industries (F = 0.73) was lower than the social average level, reflecting that the development of the tertiary sector in Chongli is still relatively backward, it is especially far behind the secondary sector (1.66) and should be developed vigorously.

(2)

| | Influence Coefficient |
|------------------|-----------------------|
| Primary sector | 0.60 |
| Secondary sector | 1.66 |
| Tertiary sector | 0.73 |

Table 3. Influence coefficient of primary sector, secondary sector, and tertiary sector in Chongli.

Note: the original data are between 2008 and 2015.

Tourism is an important part of the tertiary sector, but because the income from tourism is comprehensive, it includes part of the income from the primary sector and the secondary sector. Since 2011, tourism revenue has exceeded the output value of the tertiary sector in Chongli. Therefore, we cannot calculate the influence coefficient of tourism within the scope of the tertiary sector. Based on the reality of Chongli's economic backwardness before 2015, its tertiary sector was mainly composed of accommodation and catering, wholesale and retail, transportation, storage and postal services and tourism. We refer to the research of Choi, J., Kim and Choi, S. [30] and Sun [31] to compare the influence coefficients among four. The impact of tourism on the other three sectors was relatively high (F = 3.13) (see Table 4), and the impact of ski tourism on other tourism industries was also beyond the social average (F = 1.63) (see Table 5).

Table 4. Influence coefficient of tourism, accommodation and catering, wholesale and retail industry, transportation, storage and postal service.

| | Influence Coefficient |
|--|-----------------------|
| Tourism | 3.13 |
| Accommodation and catering | 0.15 |
| Wholesale and retail trade | 0.14 |
| Transportation, storage and postal service | 0.57 |
| Note: the original data are between 2010 and 2015. | |

Table 5. Influence coefficient of ski tourism and other tourism industries.

| | Influence Coefficient |
|---------------|-----------------------|
| Ski tourism | 1.63 |
| Other tourism | 0.37 |
| | |

Note: the original data are between 2010 and 2015.

Tourism is an important pillar for the development of the tertiary sector in Chongli, and ski tourism has played an important role in promoting economic development. This means that tourism and ski tourism have become the characteristics of the development of the tertiary sector, and Chongli's local economic development should focus on them to expand the field, thereby enhancing the competitiveness of the industry.

4. Strategies to Improve the Economic Impact of Ski Tourism in Chongli

Studies have shown that both the income of ski tourism and the growth rate in Chongli have gradually increased and that ski tourism, which has produced a huge boost to the local economy, occupies an increasingly important position in the regional economy. However, compared with Western developed countries, Japan, South Korea and even some domestic ski regions, the development of ski tourism in Chongli is still in its infancy. Therefore, it should refer to the countries and regions where ski tourism is better and combine its own characteristics to develop the strategies for improving the economic impact of ski tourism in Chongli. It should be focused on the chain of ski tourism and quality of ski products and services.

4.1. Extend the Ski Tourism Chain and Create "Ski+" Industrial Layout in Chongli

During the field investigation, it was found that in the construction of major wellknown ski resorts in Chongli, in addition to the infrastructure construction of ski slopes, magic carpets and ropeways, some ski resorts were also equipped with convenient facilities, such as high-speed gondola lifts and high-speed chair lifts, double chair lifts, big haulage ropeways, and entertainment projects such as single boards, double boards, children's boards, snowmobiles, snow flying saucers and other facilities, as well as providing catering, accommodation, training and other services. All ski resorts have their own target consumption groups. For example, Wanlong Ski Resort is the first choice for intermediate and advanced skiers, whereas the Genting Ski Resort is for high-end consumers, and Great Wall Ridge Ski Resort for mass fitness. However, their exploitation and construction were not based on their own characteristics, which made for "blind comparison", disorderly competition, serious low-level repetitive construction, insufficient horizontal development, and insufficient vertical depth. Therefore, it is necessary to extend the ski tourism chain, broaden the combination with other industries according to its own characteristics and create a "ski+" industrial layout. Chongli ski tourism can learn from the experience of the United States, Canada, Japan, South Korea, Heilongjiang, and other locations which have developed rapidly and systematically, for example by expanding into skiing festivals, skiing competitions, skiing-surrounding industries, etc. By creating the "ski +" industrial layout, enriching ski tourism products, and actively extending the ski tourism chain in Chongli, it can become "multi-industry simultaneously", a resource of integration. Only ski tourism can offer the full advantages of this multi-industry concept, increasing the output value of ski tourism and improving its economic impact.

4.2. Comprehensively Improve the Quality of Ski Tourism Products and Services, and Build an International Ski Tourism Brand

With the development of the economy and the progress of society, people are paying more and more attention to quality of life, and consequently the requirements for high quality products is increasing. Quality is key to attracting and retaining tourists. So, how to improve the quality and create an international brand of ski tourism of Chongli? Specific measures can be adopted.

First of all, strengthen the government's management. Government departments must set strict standards for the construction of ski resort facilities, strengthen the market access system and avoid disorderly competition. At the same time, the government should establish the economic status of ski tourism, increase capital investment and effectively supervise the injection of funds. It should also encourage the development of ski tourism characteristic projects, set up a ski tourism special fund, provide guidance in accordance with national standards, and provide policy support for the development of ski tourism.

Secondly, focus on talent training. Qualified universities and colleges could establish a course with the major of "ski tourism"; the Chongli district government and ski resorts actively recruit comprehensive talents with knowledge of skiing and tourism. The ski resort regularly organizes special learning for practitioners to improve overall quality and build the high-quality service teams.

Third, promote brand building. Brand awareness must be enhanced to establish the best ski tourism image, integrate characteristic culture into ski tourism, and increase publicity with the help of the opportunities of the media during the 2022 Winter Olympics [32].

Fourth, strengthen safety protection. The government departments of Chongli should formulate standardized management systems and regulations, increase the supervision of ski resorts and ensure that ski resorts have safety protection measures. The ski resort must ensure the perfection of the infrastructure, and every practitioner should abide by professional ethics, strengthening the sense of responsibility and service. In addition, the ski resort operators must understand the conditions of skiers and guide them to use the facilities correctly, especially to improve their safety awareness and ability.

5. Limitations and Future Research

This research has some limitations concerning the source of data collection. Before 2014, Chongli's economy was very backward, and it was a poverty-stricken county in the country. Its economic indicators have not received the attention of government de-

partments, so the data before 2008 are missing. In order to move away from this poverty, Chongli has vigorously developed tourism, and the government began to take note of the changes in tourism development data. In 2008, there were official statistics on ski tourism income, and in 2010, there were official statistics on tourism income.

Therefore, in this research, only a few feasible methods were used because of the limitation of the available information, which could weaken some results. In the future, after obtaining enough information, combining the characteristics of the actual development of ski tourism in Chongli, more methods and more accurate measurements could be used in the field of the economic impact of ski tourism.

6. Conclusions

In 2015, Zhangjiakou and Beijing won the bid to organize the 2022 Winter Olympic Games. This will be organized on three sites: Beijing, Yanqing (90 km from Beijing) and Zhangjiakou or, more precisely, Chongli, somewhat farther (174 km from Beijing). Very large investments were made under the impetus of the central government, relayed by the regional government, to develop winter sports equipment and to open up the North East with the construction of a highway, and a high-speed train in connection with Beijing.

From our study, which is specifically concerned with Chongli, a county that has been poor, and seen its economic situation radically transformed by the investments made in the ski tourism sector, under the impetus of national and regional governments, it was found that there was a high degree of positive correlation between ski tourism and the regional economy in Chongli. Except for the transportation, storage and postal industries, all other regional economy indexes have been positively affected by the income of ski tourism and its related industries, and the number of ski tourists.

The secondary sector has also had a relatively large economic impact on Chongli; however, the development of the tertiary sector is still relatively lagging. It is necessary to further strengthen the development of the tertiary sector—tourism has a huge impact on the tertiary sector, and ski tourism has a significant impact on tourism. Therefore, the development of the local economy in Chongli should be characterized by ski tourism, and the extended industrial chain around skiing.

The strategy to improve the economic impact of ski tourism is to extend the industrial chain, create a "ski +" industrial layout, improve the quality of products and services, and to build a national ski tourism first-line brand.

However, a number of points remain to be studied in order to provide answers, so that the county of Chongli can achieve a long-lasting sustainable development, and avoid following the path of Japan where, after a few years of success, skiing has already had a sharp decline. As written above, the development of the local economy in Chongli should be characterized by ski tourism and the extended industrial chain around skiing.

Resorts are created solely for ski and winter tourism. This was the case in France for a long time, with ski resorts being used only during winter. This approach is not cost-effective. With such management, it is not easy for a resort to find its financial balance. Some Chinese investors have already given up.

The second problem is the competition between the resorts in a market which has suddenly exploded, but seems to have an insecure future. Growth will probably continue up to the 2030s, mainly fed by the populations of big cities, such as Beijing, and the locals, but after this the future is unclear.

How to obtain Chinese winter tourists' fidelity? Skiing has no tradition or culture in China, and trying skiing is mostly a matter of social status and social standing. Skiing is not seen as a sport, but rather as a social activity.

Other issues should be subject to scientific analysis, such as the supply of water in a region that is in dire need, the treatment of waste-water and refuse, and the supply of energy. There are many of these kinds of issues in countries where the Olympic Games have been used to develop the skiing industry, where it has taken several decades before being, at least partially, solved. Author Contributions: Conceptualization, J.L. and X.L.; methodology, J.L., S.C. and X.L.; validation, J.L., S.C., C.S. and X.L.; formal analysis, J.L. and X.L.; investigation, J.L. and X.L.; resources, X.L. and C.S.; data curation, X.L.; writing—original draft preparation, J.L., S.C., C.S. and X.L.; writing—review and editing, J.L., S.C. and X.L.; visualization, S.C.; supervision, C.S.; project administration, X.L. and J.L.; funding acquisition, X.L. All authors have read and agreed to the published version of the manuscript.

Funding: This research was funded by HEBEI PROVICIAL DEPARTMENT OF HUMAN RE-SOURCES AND SOCIAL SECURITY, grant number C201400121.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: The data presented in this study are available on request from the corresponding authors. The data are not publicly available due to their use in future research, which include more variables and comparisons.

Acknowledgments: In this article, the annual data of incomes and tourist numbers of tourism and ski tourism was provided by Chongli Culture and Tourism Bureau. The annual data of the fixed asset investment in the whole society and the total fiscal revenue comes from Chongli Finance Bureau.

Conflicts of Interest: The authors declare no conflict of interest. The funder had no role in the design of the study; in the collection, analyses, or interpretation of data; in the writing of the manuscript, or in the decision to publish the results.

Appendix A

Table A1. GDP of Chongli from 2008 to 2015 (million yuan) (Zhangjiakou City Economic Statistics Yearbooks from 2009 to 2016).

| | Primary Sector | Seco | ondary Sector (Indu | | Total (Primary + | | |
|-----------------|--|---------------------------|--------------------------|---------------------------|------------------------------|-------------------------------------|--|
| Year | (Agriculture, Forestry, Fisheries) | Manufacturing Industry | Construction Industry | Total Secondary Sector | Tertiary Sector (Service) | Secondary + Tertiary Sectors) | |
| 2008 | 253.08 | 465.08 | 109.24 | 574.32 | 379.24 | 1206.64 | |
| 2009 | 264.19 | 529.06 | 134.36 | 663.42 | 389.78 | 1317.39 | |
| 2010 | 336.59 | 675.92 | 171.58 | 847.5 | 452.28 | 1636.37 | |
| 2011 | 585.05 | 1222.75 | 269.66 | 1492.41 | 628.26 | 2705.72 | |
| 2012 | 597.92 | 1372.91 | 323.96 | 1696.87 | 713.32 | 3008.11 | |
| 2013 | 647.32 | 1592.57 | 345.64 | 1938.21 | 780.41 | 3365.94 | |
| 2014 | 683.78 | 1619.59 | 382.58 | 2002.17 | 785.27 | 3471.22 | |
| 2015 | 733.99 | 1634.37 | 453.94 | 2088.31 | 869.17 | 3691.47 | |
| Total 2008–2015 | 4101.92 | 9112.25 | 2190.96 | 11,303.21 | 4997.73 | 20,402.86 | |
| Total 2010–2015 | 3584.65 | 8118.11 | 1947.36 | 10,065.47 | 4228.71 | 17,878.83 | |

| | Ter | tiary Sector (Servi | ice) | | Tourism Income * | | |
|-----------------|----------------------------|----------------------------------|---|---------------------------------------|------------------|-----------------------|--|
| Year | Transportation, Storage | Wholesale and Retail Industry | Accommodation and Catering Industry | Total Tertiary Sector (Service) | Total | Ski Tourism Income | |
| 2008 | 78.27 | 35.06 | 17.53 | 379.24 | _ | 231 | |
| 2009 | 96.59 | 33.4 | 20.19 | 389.78 | _ | 287 | |
| 2010 | 126.42 | 34.99 | 23.45 | 452.28 | 498 | 408 | |
| 2011 | 201.8 | 46.98 | 35.66 | 628.26 | 689 | 512.97 | |
| 2012 | 225.29 | 50.72 | 38.9 | 713.32 | 837 | 670.02 | |
| 2013 | 250.89 | 54.7 | 42.6 | 780.41 | 1100 | 980.98 | |
| 2014 | 192.53 | 53.64 | 80.72 | 785.27 | 1410 | 1169.97 | |
| 2015 | 198.91 | 56.84 | 89.75 | 869.17 | 1960 | 1540 | |
| Total 2008-2015 | 1370.7 | 366.33 | 348.8 | 4997.73 | _ | 5799.93 | |
| Total 2010–2015 | 1195.84 | 297.87 | 311.08 | 4228.71 | 6494 | 5281.94 | |

Table A2. Tertiary sector and tourism income of Chongli from 2008 to 2015 (million yuan)*.

(* The income data of the tourism and ski tourism comes from Chongli Culture and Tourism Bureau, 2020; the others come from Zhangjiakou City Economic Statistics Yearbooks from 2009 to 2016; Chongli's tourism income has been counted since 2010.)

Table A3. Total Fiscal Revenue of Chongli from 2008 to 2015(million yuan) (Chongli Finance Bureau, 2009–2016).

| | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 |
|-------------------|--------|--------|--------|--------|--------|--------|--------|--------|
| Fiscal revenue | 500.80 | 618.00 | 638.00 | 591.10 | 613.86 | 580.00 | 591.10 | 607.97 |

Table A4. Fixed Asset Investment in the Whole Society of Chongli from 2005 to 2015 (million Yuan) (Chongli Finance Bureau, 2009–2016).

| | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 |
|----------------------------|---------|---------|---------|---------|---------|---------|---------|---------|
| Fixed asset- investment | 1523.48 | 2302.19 | 3080.73 | 3548.02 | 4741.47 | 5727.71 | 7378.85 | 7361.67 |

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