

# The Impact of Ice and Snow Sports Infrastructure Development on the Sports Industry in Western China

*Xiangkun Liang*

Ningxia Normal University, Ningxia, China

243164765@qq.com

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**Abstract.** This research investigates the effect of winter sports infrastructure development on sports sector in western China, mainly in three provinces, Xinjiang, Qinghai and Gansu. Infrastructure for winter sports has always been slow to develop in these regions as compared with more mature regions in Eastern China. This study considers the economic and social benefits such infrastructure generates: employment, tourism and more participation in winter sports. It is a mixed-methods study, collecting primary data from city councillors, urban infrastructure builders, sports experts and secondary data from tourism and economic factors. Results show that the investment in ski resorts, ice rinks and snowboard parks resulted in higher levels of tourism, employment and sport. But off-season usage and sustainability still aren't in place. The paper report that the short-term economic benefits of infrastructure investment are obvious, but seasonal demand dynamics and the sports culture are both key to long-term winter sports sustainability in Western China. The results are helpful for policymakers and stakeholders planning to create an inclusive winter sports system in the developing world.

**Keywords:** winter sports, infrastructure development, sports industry, economic impact, tourism, job creation

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## 1. Introduction

Winter sports have been growing enormously worldwide, due to improvements in infrastructure and the popularity of sports such as skiing, snowboarding, and ice skating. China's buildings of winter sports infrastructure is now a strategic imperative in the wake of the success of its bid to host the 2022 Winter Olympics. But the focus has been on the east (Beijing, Harbin), with infrastructure projects in the west (Xinjiang, Qinghai, Gansu) left behind. These areas, while geographically primed to winter sports thanks to mountains and harsh winters, have had difficult times building the infrastructure to accommodate a strong winter sports market. This dissertation studies the infrastructure in establishing winter sports in western China and its economic and social implications. Specifically, it considers the influence of ski resorts, ice arenas and snowboarding terrain parks on local economies, employment, tourism and participation in winter sports. It also examines the issues these regions have regarding infrastructure investments, isolation and skilled labour [1]. Through data gathered from local governments, infrastructure operators and industry experts, this paper will present a perspective of the current winter sports infrastructure in Xinjiang, Qinghai and Gansu and what it could deliver to turn the regions into major winter sports hub. It is a mixed-methods study examining the economic consequences of infrastructure investment and the social implications, such as how it contributes to better local living standards and greater community cohesiveness. In the end, the study aims to contribute data that will help guide policy and investments in winter sports infrastructure in western China to make these areas better and able to leverage their natural resources and address the issues of sustainability and seasonality in winter sports.

## 2. Literature Review

### 2.1. The Infrastructure Impact of the Sports Industry

Infrastructure has played a central role in shaping the sports industry, as well as the academic literature. And infrastructure is important in both providing the scope and accessibility of sports services, as well as in elite sport participation and grassroots development. Not only does it facilitate sports consumption, but also generates wider economic benefits. Specifically, modern sporting venues, such as stadiums, arenas and a sports centre for niche sports such as ice and snow sports can lead to job creation,

tourism and the recognition of a location as sports city. These economic advantages flow through the local and regional economies to propel business activity, including hotels, transportation, retail and other businesses. Ski resorts, ice rinks and snowboarding parks, especially in winter sports, require special infrastructures in order to serve visitors, both domestic and international [2]. And, particularly in areas that receive severe winters, this type of infrastructure has come to be seen as an integral part of the marketing and survival of a competitive winter sport market.

## 2.2. Winter Sports Infrastructure in western China

The infrastructure of winter sports in Western China has been relatively slow compared with the more developed regions in the east. The physical prowess of region such as Xinjiang, Qinghai and Gansu have meant that these regions have lacked the right infrastructure for both tourists and winter sports participants. In these areas, the scarcity of modern ski resorts, ice skating parks and snowboard parks has stifled the full growth of the winter sports industry. Isolation, high initial investment costs, and lack of skilled labour are some of the main challenges that hinder infrastructure development. Figure 1 depicts a glimpse of the kind of infrastructure being built in western China, as a snowboarder takes to the mountain at a new ski resort [3]. It speaks to the potential of these areas to become prominent winter sports destinations, as long as infrastructure building remains a challenge. Additionally, most of the existing facilities fall far short of international standards, further constraining their popularity for domestic and foreign tourists. These infrastructure challenges will be critical if winter sports can develop and become viable in this area. Surviving these challenges would open up immense economic and social opportunities, drawing in more investment, increasing regional tourism, and sports.



**Figure 1.** Skiing in Altay, Xinjiang (Source: China.org.cn)

## 2.3. Impact of Sports Infrastructure on the Economy and Society

The construction of sports infrastructure has broad economic and social implications. The immediate economic benefits are evident in the employment opportunities in the construction and repair of sporting venues, as well as the backbone industries surrounding sports such as tourism, hospitality, and retail. Often, infrastructure projects also attract foreign investments that fuel local economies. The greater appeal of a place as a sports destination can lead to longer-term economic development through tourism and business investment. Beyond the commercial, there are also significant social implications of sports infrastructure development. It contributes to the enhancement of the life of the people by offering them access to excellent recreational and sporting amenities [4]. These enhancement to the local infrastructure can also help to strengthen community cohesiveness, improve wellbeing and encourage more social interaction. In areas such as western China, where access to recreational activities was once constrained, modern sports facilities could contribute significantly to enhancing residents' wellbeing and connecting urban and rural communities.

## 3. Research Methodology

### 3.1. Data Collection and Sources

In this research, the mixed methods approach is both qualitative and quantitative research methods. Main data were gathered through interviews with local government officials, infrastructure developers and experts in Western China. Secondary information

came from government reports, industry publications and research literature on winter sports infrastructure and with its economic implications [5]. We obtained quantitative tourism incomes, sports participation and economic indicators from China's National Bureau of Statistics and provincial data from the respective provinces.

### 3.2. Analytical Framework

To understand the impact of winter sports infrastructure on sports, this paper uses an economic impact and a policy framework. The economic impact analysis measures the direct, indirect and induced effects of infrastructure projects on local economies such as employment, tax revenues, and shifting consumer spending patterns. The policy analysis measures the effectiveness of government policies, subsidies and regulation in stimulating or discouraging winter sports infrastructure building in western China [6].

### 3.3. Case Study Selection

In order to investigate infrastructure development and its consequences in greater detail, three regions were chosen as case studies: Xinjiang, Qinghai and Gansu. The provinces were selected based on their potential to develop winter sports, geography and previous infrastructure investments. We collected data from the tourism boards, municipalities and sport federations for each region to gain comprehensive understanding of where the winter sports infrastructure stands today and how it affects the regional sports community [7]. The table below (Table 1) shows the most significant statistics for these regions such as number of ski resorts, ice rinks, tourism revenue, employment and sports rates.

**Table 1.** Winter Sports Infrastructure Data for Xinjiang, Qinghai, and Gansu

Region	Ski Resorts	Ice Rinks	Tourism Revenue (in Million RMB)	Job Creation (Number of Jobs)	Sports Participation Rate (%)
Xinjiang	4	6	150	3000	45
Qinghai	2	3	100	2000	30
Gansu	3	5	120	2500	35

## 4. Experimental Process

### 4.1. Infrastructure Investment and Construction

First up in the experiment was to check how much money was invested into winter sports infrastructure in the selected regions. This was to check government reports on infrastructure development, like the building of ski resorts, ice-rinks and so on. This research also considered how these projects are funded – whether by public subsidy, private investments or public-private collaboration. In Xinjiang, for instance, the Chinese government has spent more than 1.5 billion yuan to build three major ski resorts in the last five years [8]. In Qinghai and Gansu, the same investment was done, with a greater accessibility and sustainability. Below Table 2 shows the Investment in Ski resorts, Tourism, Sports and economic impact of infrastructure development for selected areas.

**Table 2.** Impact of Winter Sports Infrastructure Development on Key Metrics

Region	Investment in Ski Resorts (in Million RMB)	Tourism Growth (%)	Sports Participation Growth (%)	Employment Growth (%)	Business Revenue Growth (%)
Xinjiang	1500	35	40	15	10
Qinghai	800	20	30	10	8
Gansu	1000	25	35	12	9

### 4.2. Sports Participation and Tourism Metrics

Then it was data-collection on sports participation and tourism metrics of those regions. This was done through polling of the population, tourists and sports fans, and from the data on tourism compiled by local government departments. In Xinjiang, for example, ski tourists have grown 35% per year since the big infrastructure construction completed in 2018. Locals also took more ice and snow sports seriously, especially at the younger age, as new equipment became cheaper and more readily available.

### 4.3. Economic Impact Assessment

The last step in the experimental design was to do an economic impact study, which measures the wider impacts of infrastructure investment. This was done by estimating direct, indirect and induced economic effects of winter sports infrastructure with input-output models. As the first results show, the creation of a big ski resort in Gansu increased employment in the local community by 15% and local business revenues by 10%, mostly due to tourism and hospitality services.

## 5. Results and Discussion

### 5.1. Economic Growth and Job Creation

Results confirm that investing in winter sports infrastructure in western China benefited local economic development and employment. Regions where new ski resorts and ice-skating rinks have opened have seen employment rates climb dramatically, especially in hospitality, retail and construction. In Qinghai, for example, the development of a new ski resort in 2019 added more than 2,000 direct jobs and 5,000 more indirect jobs in tourism and services. This creation of employment has been an economic energiser for the region and has reduced regional unemployment. In Table 3 below, we present the main data regarding employment, tourism and sport activity in the selected regions [9].

### 5.2. Increased Sports Participation and Tourism

A further finding from the research is that infrastructure development was positive in relation to increased sports and tourism. A lack of quality sports facilities meant increased numbers of locals taking up winter sports, especially in regions that used to lack such facilities. And also, the tourist trade in areas that with new winter sports facilities is increasing significantly, from both domestic and foreign tourists. Tourists visiting Gansu increased by 25 per cent in 2020, after a new ski resort in the province was completed, data from the Gansu Tourism Board shows.

### 5.3. Long-term Sustainability Challenges

There are obvious short-term economic returns to infrastructure construction, but there are also major obstacles to long-term sustainability, as the study indicates. Most of the main issues are that there is not enough demand for spaces outside the peak seasons and therefore the economic ROI on the investment is poor [10]. Table 3 also shows off-season utilization levels in the region was selected, which is still low. Moreover, industry sustainability will be contingent upon continued investment in training, marketing and public relations to create a winter sports culture here. These concerns should be regulated if the winter sports industry in Western China is to sustainably develop.

**Table 3.** Economic Impact and Sports Participation Data for Xinjiang, Qinghai, and Gansu

Region	Job Creation (Direct Jobs)	Job Creation (Indirect Jobs)	Tourism Growth (%)	Sports Participation Growth (%)	Off-Season Utilization (%)
Xinjiang	3000	5000	35	40	30
Qinghai	2000	4000	25	30	25
Gansu	2500	4500	30	35	28

## 6. Conclusion

The investment in winter sports infrastructure in western China has been very beneficial to the local economy – job creation, tourism, sports participation among others. Regions such as Xinjiang, Qinghai and Gansu, with their natural winter sports advantages, have shown a good deal of promise once the infrastructure is there. Ski resorts, ice-rinks and snowboard parks created jobs directly (in terms of employment at the resorts) and indirectly (in terms of developing local industries including tourism, retail and transportation). What's more, these infrastructure developments have led to an energised sport participation, especially among youth, and regional tourism. But the research also points to several barriers to sustaining winter sports in the region in the long term. Using facilities in the off-season is still a big problem with most facilities unoccupied other than the busy time of the year. For that to be addressed, ongoing training, marketing and community outreach are vital so that the infrastructure is in place to keep the door open 24/7 and build a long-term winter sports culture. Furthermore, government regulations and incentives for private sector participation and regional disparities in development will ensure long-term success of winter sports in western China. Overall, there are clearly direct economic and social returns to be had but, more than anything else, policymakers and stakeholders

must ensure that a long-term, culturally entrenched winter sports sector is developed for the next few seasons beyond the seasonal highs.

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