

Original Paper

doi: [10.15826/recon.2018.4.2.010](https://doi.org/10.15826/recon.2018.4.2.010)**The role of industrial factors in socio-economic development of Sichuan province in the context of *one belt, one road* initiative**Oksana O. Akhmetzianova^a, Irina D. Turgel^b^a Harbin Institute of Technology, Harbin, China; email: oksanochka-star@mail.ru ✉^b Ural Federal University, Ekaterinburg, Russia; email: i.d.turgel@urfu.ru**ABSTRACT**

Sichuan Province is an important junction area connecting south-western, north-western and central regions of China. For decades, the socio-economic development of this region has been the focus of major effort on the part of the Chinese government. At the moment, the regional authorities of Sichuan seek to maximize the region's potential within the framework of the *One Belt, One Road* Initiative. However, despite the abundance of mineral and other natural resources, modern transport infrastructure, and significant GDP growth, the province faces a number of challenges, primarily in the sphere of domestic and international economic cooperation. Sichuan is also suffering from the massive outflow of workforce to other regions and countries. In this article, we discuss the key industrial factors that determine the socio-economic development of Sichuan. Our analysis of the available statistical data has shown that the region's participation in *One Belt, One Road* Initiative would allow it to strengthen its position on the national and international arena, attract new investors and improve its competitive advantage in comparison with the coastal regions of China. Another viable option for the regional government would be to establish a special economic zone, which means building an appropriate infrastructure or reconstructing the already existing facilities, offering tax-and-tariff incentives, and introducing simplified bureaucratic procedures.

KEYWORDSdevelopment, industrial factors, transportation, special economic zone, *One Belt, One Road* Initiative**FOR CITATION**

Akhmetzianova, O. O. & Turgel, I. D. (2018) The role of industrial factors in socio-economic development of Sichuan province in the context of *one belt, one road* initiative. *R-economy*, 4(2), 67–71. doi: 10.15826/recon.2018.4.2.010

**Роль индустриальных факторов
в социально-экономическом развитии провинции Сычуань
в контексте инициативы «Один пояс – один путь»**

О. О. Ахметзянова^a, И. Д. Тургель^b^a Харбинский политехнический университет, Харбин, Китай; email: oksanochka-star@mail.ru ✉^b Уральский федеральный университет, Екатеринбург, Россия; email: i.d.turgel@urfu.ru**РЕЗЮМЕ**

Провинция Сычуань является важным районом, соединяющим юго-западные, северо-западные и центральные районы Китая. На протяжении десятилетий социально-экономическое развитие этого региона было в центре внимания китайского правительства. В настоящий момент, региональные власти провинции Сычуань стремятся максимально использовать потенциал региона в рамках инициативы «Один пояс, один путь». Однако, несмотря на обилие минеральных и других природных ресурсов, современную транспортную инфраструктуру и значительный рост ВРП, перед областью стоит ряд проблем, прежде всего в сфере внутреннего и международного экономического сотрудничества. Сычуань также страдает от массового оттока рабочей силы в другие регионы и страны. В этой статье обсуждаются ключевые промышленные факторы, определяющие социально-экономическое развитие провинции Сычуань. Наш анализ статистических данных показал, что участие региона в инициативе «Один пояс, один путь» позволит ему укрепить свои позиции на национальной и международной арене, привлечь новых инвесторов и улучшить свои конкурентные преимущества по сравнению с прибрежными регионами Китая. Другим жизнеспособным вариантом для регионального правительства было бы создание особой экономической зоны, которая заключается в создании соответствующей инфраструктуры или реконструкции уже существующих объектов, предоставлении налоговых и тарифных стимулов и введении упрощенных бюрократических процедур.

КЛЮЧЕВЫЕ СЛОВА

развитие регионов, промышленные факторы, транспорт, особая экономическая зона, инициатива «Один пояс, один путь»

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Introduction

Sichuan Province, located in Western China, consists of two separate regions. In the east, there is a large Sichuan basin, covering about 40% of Sichuan's total land area of 48,500 square kilometers. Sichuan Province is a significant junction area between south-western, north-western, and central regions of China. In addition, it provides an important traffic corridor between southern and central China, its south-western and north-western parts. In a more general sense, this province may be seen as a bridge between Central, Southern and South-Eastern Asia [1]. Sichuan Province serves as an important strategic point that connects the so-called Economic Belts of the *Silk Road Initiative* and the *Maritime Silk Road*. This province has a large population and is rich in various resources.

In the recent years, the province's economic strength has increased significantly and Sichuan ranks high among other Chinese regions by GDP. It is virtually an economic powerhouse of western China. Technological industries and emerging pilot-type service industries enhance agricultural modernization, scientific and technological innovation [2].

In terms of its transport infrastructure, Sichuan has managed to accomplish a major breakthrough: twenty road channels have already been completed, while the other thirteen are currently under construction. Shuangliu International Airport has turned Chengdu into the *Fourth Aviation City in China*. In 2013, thirteen airports were built with the passenger turnover over 37 million. The expressway mileage has reached 5,046 km while the total road mileage exceeded 300,000 km. Chengdu European high-speed rail accounts for 40% of China's total volume of railway freight towards Europe [3].

One of the serious challenges that Sichuan Province has to address nowadays is that it is lacking in domestic and international cooperation. This situation stems from the lingering negative effect of the international financial crisis and the poor business environment.

The data we use in this research is provided by *Input-Output Manuals of Chinese Provinces*. This reference book consists of matrices which provide data on the production volume for each province. In addition, it includes world and domestic commercial activity output for 21 tradable and 10 non-tradable industries in 1982–2015. We also obtained the data on Sichuan Province by analyzing the *Industrial Statistical Yearbook (SSB)*.

The province's development problems were investigated by Christopher A. McNally in his paper *Sichuan: Driving Capitalist Development Westward*. He argues that the Chinese government's *Open Up the West* campaign has failed to achieve one of its primary goals in this province: to decrease the huge development gap between resource-poor and resource-abundant areas. Simultaneously, Sichuan's physical infrastructure is growing intensively, accelerating the national consolidation of the province's economy and society.

David S. G. Goodman points out that "as a result of these different emphases, the campaign encompasses a wide range of development policies, ranging from mainstream efforts to ameliorate physical infrastructure to endeavours to manage human resources better and improve the rule of law" [3].

The role of industrial factors in the socio-economic development of Sichuan Province

Regional development is a complex, multi-level process, which can be approached from different social and economic perspectives. Effective and efficient economic development depends on such industrial factors as government policy, transport network, raw materials, geography, labor, and industrial inertia [4].

For example, the increased concentration of the transport system and highly connected networks are usually associated with a high degree of development. If transport infrastructure is efficient, it provides the area with multiple economic and social opportunities, which, in turn, enhance employment, investment and availability of markets. Inefficiency of the region's transport system can lead to missed opportunities and lower living standards. At the aggregate level, an efficient transport system decreases the costs in many economic sectors, while inefficient transport network increases these costs.

Many government programs have been implemented in the province in the recent years, in particular the *Western Development Strategy*, which comprises objectives for the development of telecommunications, transport, energy and hydropower plants; attraction of foreign investment, reforestation, promotion of education, and measures to retain qualified workforce and prevent *brain drain*. By 2006, 1 trillion yuan had been spent on infrastructural construction in Western China [6].

It is worth noting that the Chinese government, following in the footsteps of Deng Xiaoping, injected massive funds to boost Sichuan's development. Deng Xiaoping started market reforms in Sichuan in 1978 as an effort to alleviate poverty in the province. The government in a similar way reorganized Sichuan Province in 1997. Chongqing municipality was separated from the rest of the province to create a new political and administrative entity that could transition to market economy, [7]. At the moment, Sichuan Province is involved into the thirteenth national Five-Year Plan (2016–2020) aimed at building a moderately prosperous society while promoting sustainable economic and social development [3].

When the Chinese government put forward "One Belt, One Road" Initiative, Sichuan Province joined this project. The regional authorities have also been implementing policies that focus on interprovincial investment as well as specific industries such as transportation infrastructure and software.

The improvement of the transportation system in Sichuan was largely achieved through large-scale state funding. A comprehensive transport network involving air, rail, road, and water transportations connects all parts of the province with Chengdu, the capital city and hub. Thus, Sichuan Province has a state-of-the-art transport system and is now a major transport juncture in the south-west of China. One of the four largest airports in China is Shuangliu International Airport located in Chengdu. In total, Sichuan Province has thirteen airports. Railway plays a vital role in Sichuan's transport network: there are currently five major railways connecting the region's towns and cities with other provinces. The region also benefits from its well-developed network of expressways and inland water network.

An abundant supply of local raw materials and the high quality of water in the province are important input factors for food and beverage production. Only 4.7% of raw materials used in Sichuan's chemical industry are imported. Sichuan ranks high in the country in terms of guaranteed reserves of solid minerals such as vanadium, titanium, sandstone, clay, and so on.

Rich deposits of minerals are used as sources of raw materials in power, metallurgical and chemical industries, production of building materials and in other important fields, which makes Sichuan Province an important industrial centre

[1]. The province is also known for its coal production [8]. Sichuan's deposits of rare and rare-earth metals are bountiful. Lithium and strontium, both of which are extracted in Sichuan, play an important role in Chinese economy. Moreover, Sichuan is famous for its gold and silver.

Sichuan Province is located in the tropical zone and has abundant biological resources. The region is characterized by the diversity of landscapes (upland, mountains, hills, plains, etc) and climatic conditions, animal and plant life. Sichuan is considered the second-large forest area in the country with its 7.46 million hectares of forests [2]. The variety of soil types make the region's area suitable for cultivation of diverse crops.

There are more than 1,400 rivers in Sichuan, with the majority of rivers flowing through gorges, which turns them into massive sources of hydraulic power. The area of the basin of 343 rivers exceeds 500 sq. km. The total amount of water consumption in the rivers is about 300 billion cubic meters [3].

Human capital in the region is to a great extent determined by the quality of education provided there. At the moment, the education system in the province comprises primary, secondary and higher education. There are also advanced training and retraining opportunities for adult learners. At the end of 2015, in Sichuan there were 43 general higher education institutions with 180 thousand students and 10 thousand graduate students. There are 209 specialized high schools with 257 students; 4,375, general high schools with about 3 million students; 45 thousand elementary schools with 8 million pupils. Compulsory education in Sichuan includes nine years of training, which has allowed the region to eliminate illiteracy among its population [11]. Higher education institutions are, for example, Sichuan University, Southwest Scientific and Technical University. Five of the region's higher education institutions participate in the state *211 Project* [1]. Thus, a conclusion can be made that Sichuan Province has a significant potential regarding skilled labour.

Since 1982, there has been a considerable outflow of workforce from Sichuan province to western regions of the country (see Table 1). Even though the rate of emigration varied at different times, the general trend persisted [8]. Sichuan traditionally is the largest supplier of labor abroad. In 2000, the volume of signed contracts for contract works and labor services abroad was 345 million

US dollars. 10 million workers annually leave the Province of Sichuan. Therefore, *brain drain* is one of the most serious problems that the province faces nowadays [1].

Table 1

Distribution of emigrants from China by province, %

Province	1982	1990	1995	2000	2015
Central and South					
Henan	2.82	0.25	2.42	1.12	2.28
Hubei	4.65	0.66	0.89	0.89	0.86
Hunan	4.16	1.11	0.72	0.66	0.57
Guangdong	5.18	6.73	3.05	3.37	3.20
Guangxi	1.01	0.37	0.64	0.47	0.36
Hainan			0.25	0.10	0.10
South-West					
Sichuan	8.04	1.44	2.46	1.50	1.13
Guizhou	2.76	0.21	0.13	0.09	0.04
Yunnan	1.39	0.78	0.25	29.0	3.00
Tibet		0.04	0.13	0.02	0.02

Industrial inertia is ascribed to the persistent residence of an industry in a location, after the initial locational factors have ceased to exist. Sichuan Province’s market size and its position in China, its amplexness of resources, the accessibility and modest labor cost, academic and production infrastructure create favourable conditions for the development of a number of diverse industries. Sichuan Province is ideally placed in the market, itself being a practicable substitute for coastal places as an enticing low expenses contribution site [9]. Although the province’s functional setting can be defined as conducive regarding such factors as conditions for depositors, there is a need for further improvements in this respect that would boost its attractiveness and stimulate the inflow of FDI. The past experience has shown that most foreign investors opt for the establishment of manufacturing enterprises in economic development zones that offer clear and precise rights to use the land and opportunities for more productive handling of operational threats. In the development of many Sichuan’s economic development zones, a number of problems arise such as the lack of land suitable for construction and Chinese land use/ownership laws, creating difficulties for operation of individual investors [2]. Moreover, while Sichuan is often described as a tempting market in the west of China, it has quite a long way to go in becoming one of the major economic centres to be able to compete with coastal provinces and enter world markets.

In 2017, the volume of investment was nearly 2 trillion yuan. Such rapid industrial development, undoubtedly, increases the number of jobs in the region [11].

As Table 2 shows, Sichuan has abundant natural resources and an advanced production sector. Chengdu, the capital city of Sichuan Province, is a vibrant commercial center. The province is one of China’s main agricultural regions growing rice, wheat, rapeseed, citrus fruit, peach, sugar cane, sweet potato and herbs.

Table 2

SWOT Analysis of Industrial Factors

Strengths	Weaknesses
Well-functioning transportation system (railways, highways, roads, waterways, air lines) Sichuan has a complex and varied topography with mountains and plateaus Human capital	Socio-economic problems Geographical location: no access to the ocean <i>Brain drain</i> to the eastern part of China
Opportunities	Threats
Diversity of national economic policies. Developed transportation system The province processes its own resources instead of selling them to other regions. Sichuan is located at the crossroads of the Silk Road and the Yangtze River Economic Belt Attraction of highly qualified staff back to the province	Possible deterioration of transport system due to its inefficient use Non-renewable resources Impeded market access to Eastern China <i>Brain drain</i> to other regions

Conclusion

Our analysis of the key industrial factors that determine the socio-economic development of Sichuan Province has shown that in the current conditions, the region would benefit from the establishment of a special economic zone, which would allow it to attract new investors and increase the share of tax revenues to the regional budget. Moreover, a special economic zone would ensure more balanced development of the region, enhance its competitiveness and business infrastructure, create new jobs and thus raise the living standards of the regional population [12]. To establish a special economic zone, the regional authorities need to build and/or reconstruct appropriate engineering, transport and social infrastructure; lower administrative barriers; simplify the bureaucratic procedures, creating single window clearance mechanisms; offer tax-and-tariff incentives and a flexible system of loans [1; 12].

References

1. McNally, C. A. (2014). Sichuan: Driving Capitalist Development Westward. *The China Quarterly*, 178, 426–447. doi: [10.1017/S0305741004000244](https://doi.org/10.1017/S0305741004000244).
2. Sichuan, S. (2012). *Benchmarking FDI Competitiveness in China's Sichuan Province*. The World Bank Group. Retrieved from www.ipanet.net/snapshot_sichuan
3. Goodman, D. S. G. (2010). The Politics of the West: Equality, Nation-Building, and Colonization. *Provincial China*, 7(2), 127–150. doi: [10.1080/1326761032000176096](https://doi.org/10.1080/1326761032000176096).
4. Gavrilov, Z. G. (2012) *Regional Economy. Regional Development: Purposes, Criterion and Methods of Management*. Moscow: Yuniti-Dana.
5. Bhattarai, K. (2015) What Factors Decide the Location of a Manufacturing Industry. *Insights Online Prelims Test Series*, 15, 3–15.
6. Chen Dongsheng (2013). Open Up the West and Sustainable Development. *Provincial China*, 11, 254–257.
7. Bhattarai, K. & Chen, N. (2014). Rural Urban Income and Consumption Gaps Across Provinces of China, 1978–2008. *Advances in Economics and Business*, 2(2), 70–77. doi: [10.13189/aeb.2014.020202](https://doi.org/10.13189/aeb.2014.020202).
8. Yang Wenhua (2015). Sichuan and the Opening of China's West. *Great Western Development*, 32, 364–371.
9. Zhang Zhongwei (2015). Emphasize Large Restricting. *Great Western Development*, 32, 153–164.
10. Zhou Yongkag (2013). To Discuss the New Step Forward. *A Strategic Guide to Great Western Development*, 15, 138.
11. Liang, Z. & Morooka, H. (2004). Recent Trends of Emigration from China: 1982–2000. *Recent Trends of Emigration*, 42(3), 145–164. doi: [10.1111/j.0020-7985.2004.00292.x](https://doi.org/10.1111/j.0020-7985.2004.00292.x).
12. Musina, S. (2016) Industrial Parks as a Factor of Development of Regions. *Molodoy ucheny*, 4, 458–461.
13. Yu., N., de Roo, G., de Jong, M. & Storm, S. (2016) Does the Expansion of a Motorway Network Lead to Economic Agglomeration? Evidence from China. *Transport Policy*, 45, 218–227. doi: [10.1016/j.tranpol.2015.03.014](https://doi.org/10.1016/j.tranpol.2015.03.014).
14. Amiti, M. (1999). Specialization Patterns in Europe. *Weltwirtschaftliches Archiv*, 135(4), 573–593.
15. Rodrigue, J. P. (2016). Transport Systems. *Hofstra-Geo*, 20, 255–300.

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