

# Econometric Analysis of the Impact of the "One Belt and One Road" Strategic Concept on the Development of the Secondary Industry

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**Abstract**—The "One Belt and One Road Initiative" has brought new opportunities to the development of various industries in China. At the same time, it has provided a new path for solving the problem of overcapacity, and achieved a new situation of cooperation and win-win with all countries in the "One Belt and One Road" region. With the continuous adjustment of the trade pattern, the requirements for China's products to go abroad are getting higher and higher. This paper includes mining industry (excluding mining auxiliary activities), manufacturing (excluding metal products mechanical and equipment repair industry), and electricity. The secondary industry, including heat, gas and water production and supply, and construction, analyzes the impact of GDP on the implementation of the "One Belt and One Road initiative", and gives the development layout of various industries within the secondary industry and reasonable advice to make better use of the quality resources that the initiative brings.

**Keywords**—"One Belt and One Road"; secondary industry; development layout

## I. INTRODUCTION

In the "One Belt and One Road" International Cooperation Summit Forum in 2017, countries clearly stated that the countries along the "One Belt and One Road" have different resource endowments, complement each other in economic development, and have great potential and space for cooperation [1]. It is proposed to promote the economic development and social progress of all countries through policy communication, facility connectivity, trade smoothness, capital finance, and people's heart. Forty years since the reform and opening up, China's products have been constantly going abroad and facing a wider overseas market. At the same time, it cannot be ignored that there are still many problems in product export and industrial upgrading and transformation; the more structural problems in the development of various industries, the more prominent it is, the provision of structural reforms on the supply side and the resolution of overcapacity have become the primary tasks of China's industrial development at this stage [2].

The emergence of "One Belt and One Road" has developed a new market for domestic surplus capacity,

which not only solves the internal needs of other countries, but also promotes the flow of excess capacity in China [3]. At the same time, with the rapid development of the economy, the level of demand for industries and products in various countries. The higher the value plays a vital role in accelerating China's industrial transformation and product upgrading. Under such a background, combined with the current situation of economic development, it analyzes the internal development of China's secondary industry and promotes the development of the secondary industry in line with the trend of economic development, which is becoming very important.

## II. ECONOMETRIC ANALYSIS OF THE IMPACT OF THE "ONE BELT AND ONE ROAD" STRATEGIC CONCEPT ON THE DEVELOPMENT OF THE SECONDARY INDUSTRY

### A. Econometric Analysis of Quarterly Industry and GDP Added Value from 2009 to 2018

In order to better study the impact of the "One Belt, One Road" strategic concept on the development of the secondary industry, the quarterly data of the added value of the secondary industry and the gross domestic product from 2009 to 2018 were selected, and analyzed in the context of the "One Belt and One Road" [4]. The added value of the secondary industry has a clearer impact on GDP. Among them, the added value of the secondary industry refers to the final result of the production activities of the secondary industry in a country (or region) calculated by the market price in a certain period of time. (see "Table I")

TABLE I. QUARTERLY INDUSTRY AND GDP ADDED VALUE FROM 2009 TO 2018 (BILLION)

Years		Second industry added value	GDP
2009	Q <sub>1</sub>	37062.4	74053.1
	Q <sub>2</sub>	37615	83981.3
	Q <sub>3</sub>	38534.6	90014.1
	Q <sub>4</sub>	41535.9	101032.8
2010	Q1	39365.2	87616.7
	Q2	47423	99532.4
	Q3	48907.2	106238.7
	Q4	55934.3	119642.5

Years		Second industry added value	GDP
2011	Q1	47195	104641.3
	Q2	56884.8	119174.3
	Q3	58623.5	126981.6
	Q4	64335.5	138503.3
2012	Q1	52317.4	117593.9
	Q2	61434.1	131682.5
	Q3	62257.3	138622.2
	Q4	68634.5	152468.9
2013	Q1	55862.3	129747
	Q2	65131.3	143967
	Q3	66750	152905.3
	Q4	74212.5	168625.1
2014	Q1	59221.5	140618.3
	Q2	69541.1	156461.3
	Q3	71024.7	165711.9
	Q4	77784.5	181182.5
2015	Q1	60724.7	150986.7
	Q2	71147.4	168503
	Q3	71665.3	176710.4
	Q4	78502.9	192851.9
2016	Q1	61385.1	161456.3
	Q2	73730.7	180615
	Q3	75639	190362.7
	Q4	85792.9	211151.4
2017	Q1	70084.4	180385.3
	Q2	83128.5	200558.7
	Q3	85232.9	211595.5
	Q4	96176.7	234582.2
2018	Q1	77451.3	198783.1

<sup>a</sup>. Note: Data from National Bureau of Statistics of China

In the period of economic transition, the impact of policy changes on economic development can be reflected by introducing dummy variables [5]. We can see “Fig. 1” below, the relationship between the added value of the secondary

industry and GDP has occurred before and after the “One Belt and One Road” initiative. Obvious changes, the introduction of dummy variables, selected the third quarter of 2013 as a turning point, because China launched the "One Belt and One Road" initiative in September 2013, introducing the dummy variable D, D = 0 indicates that the “One Belt and One Road” Initiative is not implemented; D = 1 indicates the implementation of the Belt and Road Initiative; establish a regression model:

$$Y=C+\alpha X+\beta X*DD+\gamma*DD$$

X indicates the added value of the secondary industry; Y stands for GDP.

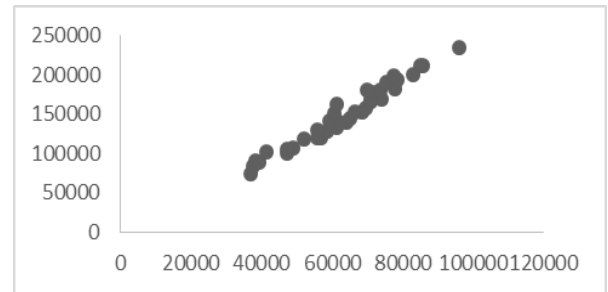


Fig. 1. Scatter plot of the added value of the secondary industry and GDP in each quarter.

Through the processing of relevant measurement software:

TABLE II. PARAMETER ESTIMATION

Variable	Coefficient	Std. Error	t-Statistic	Prob.
X	2.136392	0.147203	14.51323	0.0000
DD	-6705.519	14265.35	-0.470056	0.6414
C	3294.848	7821.446	0.421258	0.6763
X*DD	0.339380	0.217170	1.562739	0.1277
R-squared	0.977769	Mean dependent var		148366.0
Adjusted R-squared	0.975748	S.D. dependent var		40407.09
S.E. of regression	6292.556	Akaike info criterion		20.43393
Sum squared resid	1.31E+09	Schwarz criterion		20.60808
Log likelihood	-374.0277	Hannan-Quinn criter.		20.49533
F-statistic	483.8144	Durbin-Watson stat		1.295918
Prob(F-statistic)	0.000000			

Conclude:

$$Y=3294.848+2.136392X+0.339380X*DD-6705.519*DD$$

The t-Statistic value of each parameter is 0.42, 14.51, 1.56, -0.47 in order.

**B. Conclusion**

It can be seen that the coefficients of DD and X\*DD are significant, indicating that the slopes and intercepts of the

regression line before and after the “One Belt and One Road” initiative have changed significantly, that is, structural changes have occurred in the first two periods. On the one hand, it confirms the promotion effect of the “One Belt and One Road Initiative” on China's economic development; at the same time, it also has certain theoretical prediction significance. In the future, when the added value of the secondary industry reaches a certain level, it can be evaluated that the GDP is in the “One Belt and One Road”, the value of the strategy, with reference.

The development of various industries relies more and more on high technology to improve efficiency and resource utilization. The research and development cost of new technologies is too high, and high-quality labor is also inseparable. The obvious level of innovation of domestic enterprises is not many, the core level of technology needs to rely on foreign countries, and heavy import pressures force the company's independent research and development to become powerless.

In addition, in terms of the most favored manufacturing industry, compared with the high-level manufacturing industry in developed countries, its foreign direct investment and corporate transnational operations have already reached a considerable scale, while China's manufacturing industry has a small scale of foreign investment. In the process of realizing the smooth transfer of domestic manufacturing enterprises, they still face greater difficulties.

### *C. Manufacturing in the Secondary Industry in Exports Dominates*

The "One Belt and One Road" initiative has opened up a new market for China's industrial development. All industries and enterprises have also fully utilized their own advantages to actively integrate into the economic development environment. According to the number of foreign-invested enterprises in foreign trade in 2013-2016, within the secondary industry, foreign trade, the most popular is still the manufacturing industry. With the gradual implementation of the "Made in China 2025" strategy, China's manufacturing industry is still promising in the "One Belt and One Road" region. With the continuous updating of technology, it will be beneficial to promote high-speed railways. Cooperation in international equipment manufacturing in aerospace, power equipment and marine engineering will give full play to the advantages of China's manufacturing and strive for more export market share and cooperative production opportunities in the "Belt and Road" region.

In addition, the surplus production capacity in the domestic manufacturing industry is a major obstacle to the current economic development. To complete the development from labor-intensive to technology-intensive industries, it is necessary to continuously innovate the technology and expand and improve the market, and transfer excess capacity to turn the burden of heavy chemical industry in the country into high-quality overseas capital.

### III. SOME RECOMMENDATIONS

On the basis of analyzing the markets of countries along the "One Belt and One Road" route, China should draw lessons from the relevant excellent models of overseas industrial transfer of the United States and Japan, combine the current situation of China's industrial development, clarify the development advantages and resource endowments of various industries, and explore and innovate overseas development models of industries in line with China's national conditions.

Through the mode of market orientation, it can take advantage of industry in China, such as high-speed railway and engineering machinery manufacturing industry through industry associations to complete transfer abroad, which is mainly composed of the core technology in our country to realize production system foundation, also want to combine the current situation of the development of local industry and advantage, industry better and faster integration into the local economy in our country; By virtue of the marginal cost model of Japan, industries with greater survival pressure in China will be transferred through direct investment, so that they can be utilized to the maximum extent, and at the same time conducive to the development of other domestic industries.

The emergence of "One Belt and One Road" strategy has brought new markets to the development of various industries. While solving the problem of excess capacity at home, it has also met the needs of surrounding countries, which is conducive to the stable and effective development of the international economic market. Driven by the "One Belt and One Road" strategy, the development situation of China's secondary industry is relatively clear.

In view of that fact that the overcapacity of the low - end equipment manufacturing industry and the weak competitiveness of high-end equipment manufacturing industry in China, the manufacturing enterprises in China should focus on upgrade their scientific and technological level and form a strong core competitive power by independent innovation. In turn, that world economy will eventually move toward the direction of higher science and technology, which will be the theme of future development.

### IV. CONCLUSION

The development of the secondary industry has always been a very important part of China's national economy. The imbalance of internal industry development may directly lead to the slow development of the secondary industry, which in turn affects the speed of domestic economic development. At this stage, the implementation of various policies is to inject a strong nutrient to better solve the problem of overcapacity and promote the transformation of industrial structure. All industries should fully recognize their own deficiencies, take the initiative to make up for the shortcomings, and actively respond to relevant national industrial policies the call for the industry to "go out" healthier.

The "One Belt and One Road" strategy undoubtedly provides a new opportunity for the development of domestic industries. At the moment when risks and opportunities coexist, each industry within the secondary industry must steadily take every step to achieve more stable and stable development; With the support, industrial enterprises clarify their own advantages, make up for the disadvantages, combine the status quo of industrial development, and form an effective leading industry; on the basis of drawing on the excellent experience of other countries, they will embark on a road of industrial development in line with Chinese characteristics.

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