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Abstract

This paper uses a national-scale data spanning nine years (2009-2017) to depict the relations and changes between the higher education(HE) structure and industrial structure in China. We find that the Service sector is the most capable of absorbing graduates while the Agriculture sector is the least, which corresponds with the structure of GDP in China. However, there has been a displacement amplitude between industrial and HE structure in China and the conditions between regions and industries are distinct. IT & finance industry and more prosperous regions attract most graduates while other less-developed areas suffer from a loss of human resources and “Reverse Subsidies”. Besides, over-education phenomenon exists in China and the cultivation of college students’ ability in China cannot meet with the requirements of labor market very well.

Key words: HE Structure, Industrial Structure, College Graduates, China

Introduction

Since China’s Twelfth Five-year Plan, the economy in China has entered into a “New Normal” stage and experienced a transformation of economy in which industrial structure gradually optimizes and upgrades. Nowadays, the Service sector has become a backbone of the national economy and also absorbs most college graduates. Figure 1 and figure 2 show respectively the economy growth and industry structure in china.

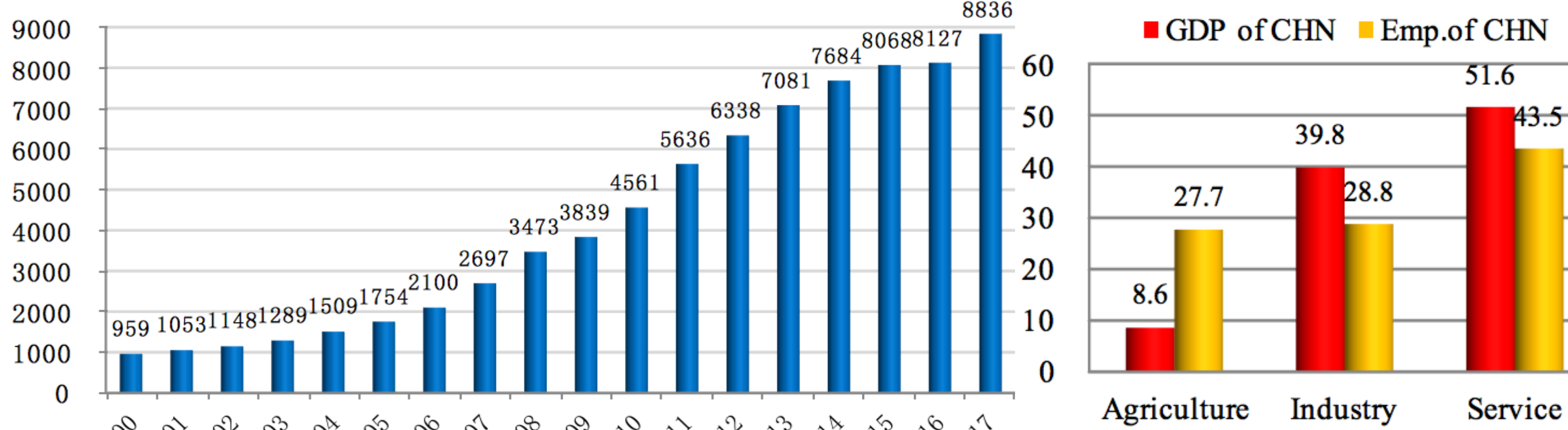


Fig. 1 GDP per capita in China : 2000-2017 (USD)

Fig. 2 Industry Structure in 2016 (%)

China has also seen a dramatic expansion of opportunity for higher education since 1999, and as a result, the number of college graduates has risen from 0.9 million to 8.2 million in nearly two decades. (see Figure3)

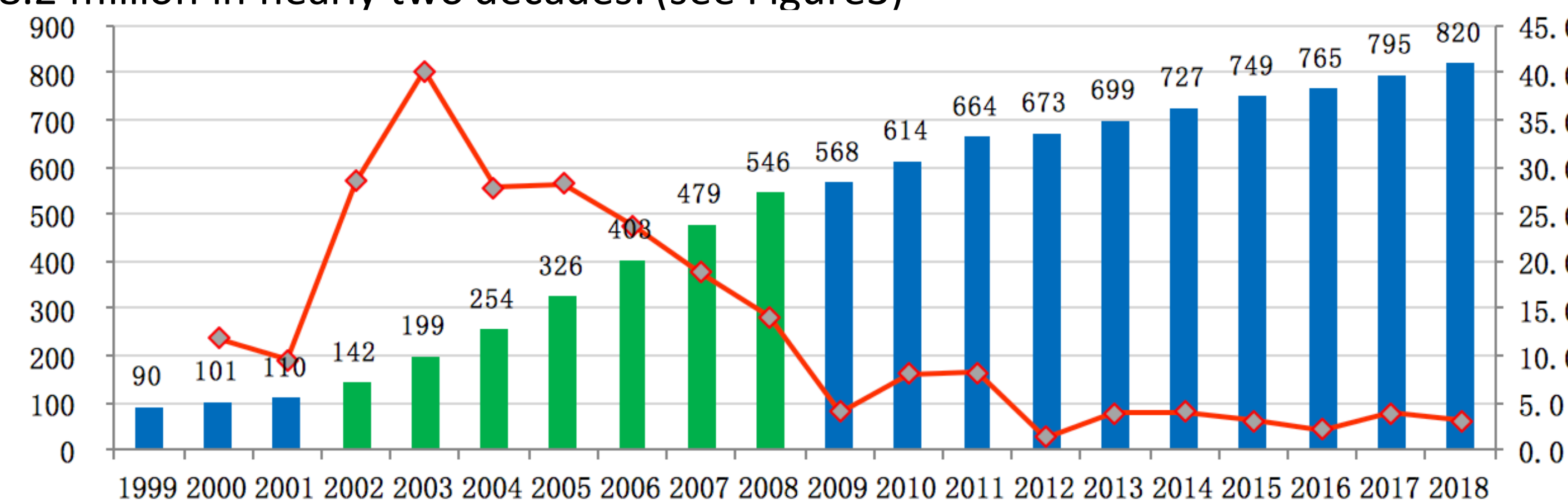


Fig. 3 The number of Chinese College Graduates (10thousand)

Data

This paper focuses on the relations between the higher education structure and industrial structure in China. On one hand, China’s economic development has a significant impact on the graduates’ selection of industry, and the wage gap that exists between industries is an expanding trend. On the other hand, the mismatch between the education structure and China’s industrial structure is noticeable. Data used in this paper cover a series of rich information of Chinese college graduates, making it available and reliable to depict the relations and changings.

- This paper uses data from 2009-2017, mainly from the latest 2017 National College Graduates Employment Survey (NCGES is carried out by Graduate School of Education, Peking University every other year, and it records graduates’ demographic characteristics, family backgrounds, scholarly performance, perception and activities with regard to job search, and final outlets including job location and starting salaries). The sample size of the each survey is about 15-22 thousand.
- Supplementary data from policy documents and the China Statistical Yearbook

Results & Conclusions

Placement rate and Employment Distribution

We could see from Table 1 that the proportion of college graduates with employment confirmed has hovered above and below 40% , and that the percentage of graduates choosing further study (either within and outside the mainland of China) is a rising trend recently. Table 2 shows that the Service sector is the most capable of absorbing graduates while the Agriculture sector is the least. And from 2009 to 2017, the percentage of graduates working in secondary industries such as Manufacturing, Utilities, Mining and quarrying has decreased whereas the finance industries on employment increased largest by 6.6%.

Segmentation of China’s Labor Market

- Starting salary level(monthly) in 2017
No.1. IT (6220 RMB) No.2.Scientific research (5947 RMB) No.3.Finance (5657 RMB)
- Prosperous industries and regions (Eastern areas and big cities) attract most graduates and thus qualification inflation has emerged in these segmental labor markets while other less-developed areas suffer from a loss of human resources.

HE Structure VS Demand from China’s Labor Market

Since the expansion of higher education in China, the scale of master and PhD students has grown more rapidly compared with the number of undergraduates and polytechnic students. Consequently, graduates with a Master’s degree have the highest occurrence of over-education (see Table 3). Meanwhile, in 2017, only 19.4% of graduate students report there is strong correlation between their major and occupational category, while there are 43.4% of the graduates whose major is not very correlated or has no correlation with their job. Table 4 summarizes the displacement amplitude between industry structure, employment structure and major structure. Moreover, graduates don’t think they have benefit a lot from higher education in terms of English proficiency, financial literacy, computer skills, innovation, international vision and decision-making. The cultivation of college students’ ability in China couldn’t meet with the requirements of the labor market very well.

	2009	2011	2013	2015	2017
(1) Employment confirmed	34.5	43.3	43.5	33.3	38.8
(2) Further study within China	18.3	13.7	14	18.6	20.4
(3) Going outside mainland China	3.2	2.6	2.8	5.8	5.9
(4) Self-employed	3.3	4.3	2.6	4.7	5
(5) Starting a business	2.4	3.2	2.1	4.6	4.7
(6) Other flexible employment	5.4	5.1	7	16.1	9.7
(7) Unemployed	26.4	21.9	23.4	12.8	10.1
(8) Not employed, intends further study	3.1	2.4	2	2.2	3
(9) Other temporarily not employed	2.2	2.1	1.8	1.3	1.4
(10) Other (please specify)	1.2	1.5	0.9	0.7	0.9

Table 1. Basic Employment Status of Chinese Graduates (%)

Industry sector	2009	2011	2013	2015	2017	2017-2009
Agriculture	2.7	2.5	3.0	5.4	3.9	1.2
Mining and quarrying	2.6	2.3	2.2	1.9	2.2	-0.4
Manufacturing	18.2	16.6	13.9	10.4	11.2	-7.0
Utilities	9.1	4.7	5.5	4.5	3.4	-5.7
Construction	7.0	6.7	11.5	6.7	9.8	2.8
Transport, storage, and postal services	2.8	3.8	3.1	4.0	2.9	0.1
Information transfer, computer services, and software	10.7	11.6	11.1	10.8	11.8	1.1
Wholesale and retail trades	2.6	3.3	3.1	4.1	3.5	0.9
Accommodation and catering	1.4	3.2	1.5	1.9	1.9	0.5
Finance	6.3	11.3	13.0	15.2	12.9	6.6
Real estate	1.4	2.9	3.3	2.7	3.3	1.9
Leasing and commercial services	2.2	3.0	2.0	2.7	3.3	1.1
Scientific research, polytechnic services and geological prospecting	6.1	2.1	3.6	4.0	3.5	-2.6
Administration of water, environment, and public facilities	0.7	0.3	0.7	1.0	0.7	0.0
Resident and other services	1.1	0.9	0.9	1.0	1.2	0.1
Education	8.1	9.6	5.0	9.1	9.2	1.1
Health care, social insurance / welfare	2.9	2.3	4.9	2.3	2.3	-0.6
Culture, sports, and entertainment	1.2	1.9	2.0	2.1	3.4	2.2
Public administration and social organizations	5.1	2.3	3.0	3.1	4.1	-1.0
Others	7.8	8.7	6.7	7.1	5.5	-2.3

Table 2. Employment Distribution by Industrial Category(%)

Attained	Required					
	PhD	Master	Undergraduate	Polytechnic	Senior high	Junior high
Polytechnic	1.9	2.1	24.0	61.4	8.3	2.2
Undergraduate	1.1	9.0	78.3	8.7	2.2	0.8
Academic master	1.2	58.0	37.0	2.6	0.9	0.3
Professional master	2.1	61.9	33.3	1.8	0.6	0.3
PhD	67.7	16.2	9.1	1.0	4.0	2.0

Table 3. Incidence of Education-level Mismatch (2017)(%)¹

Industry Sectors	GDP	Emp (A)	Emp (G)	Major	displacement amplitude			
					GDP-Emp(A)	GDP-Major	Emp(G)-Major	Emp(A)-Emp(G)
agriculture	8.6	27.7	3.9	1.8	-19.1	6.8	2.1	23.8
industry	39.8	28.8	26.6	41	11.0	-1.2	-14.4	2.2
service	51.6	43.5	69.5	57.2	8.1	-5.6	12.3	-26.0

Table 4. Industrial-Employment-Major Structure Comparison(%)²

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Notes

- Table 3 describes the incidence of education-level mismatch in our 2017 survey, which is based on graduates’ self assessment. Numbers highlighted as yellow and blue represent the incidence of over-education and under-education respectively, and green represents that one’s education level matches with the job.
- Emp(A) represents employment distribution among the whole society; Emp(G) represents employment distribution among graduate students.

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