



Stockholm School of Economics
Department of Economics
5350 Thesis in Economics
Academic Year 2023-2024

Education, Age Cohort, and The Status Quo of Microentrepreneurs: Evidence from Chinese “Double Innovation” Reform

Qingrong Wu (42442)

Abstract:

This paper examines the effectiveness of the Chinese “Double Innovation” Reform and “Entrepreneurship Leading” Policy on labor outcomes using Chinese Family Panel Studies (CFPS) from 2010 to 2020. The study employs fuzzy regression discontinuity design and difference-in-difference models to analyze their effects on high educational degrees, self-employment, and salaried employment. Findings show that the Chinese “Double Innovation” Reform is ineffective in motivating young cohorts to become microentrepreneurs, while the “Entrepreneurship Leading” Policy has a short-term effect rather than being effective for a long period in encouraging young cohorts who also have tertiary educational degrees to be self-employed. Finally, the paper contributes empirical insights and explores mechanisms, providing a foundation for future policy research at the same time.

Keywords: *Young Cohort, Self-employment, High Education, Difference in Difference Model, Fuzzy Regression Discontinuity Design, Policy Focused Study*

Supervisor: Celine Zipfel

Date submitted: January 24, 2024

Date examined: December 13, 2023

Discussant: Olof de Blanche (24693)

Examiner: Kelly Ragan

Stockholm School of Economics
Department of Economics
5350 Thesis in Economics
Academic Year 2023-2024

Acknowledgement

I want to express my sincere gratitude to my supervisor, Celine Zipfel who gave me strong support on my thesis. She is patient, kind and always encourages me to continue my research and provide extensive support to help me on my thesis. Every time when I met with her, I would feel that without her help, I could not finish and give a good thesis defense to my classmates and examiners. I am grateful to meet her.

1 Introduction

One prominent facet of labor market evolution pertains to the escalating prevalence of wage-based employment, where an expanding labor force is absorbed into large corporate entities as salaried employees. According to Fini et al. (2022), country-level estimates suggest that 26% of the graduates opted for self-employment, whereas the remaining 74% chose to take on salaried positions. Meanwhile, Kamei and Nakamura (2022) concluded that drawing upon the level of concentration in urban chemical industrialization, the analysis of Ethiopian data underscores the significance of transitioning from an economy that was dominated by self-employment to an economy that most people are employed in large companies as waged workers. This transition is particularly pivotal for fostering economic development, especially within the context of developing nations (Kamei and Nakamura, 2022).

Being consistent with this transitional trend, China's burgeoning labor demand exerts considerable pressure on various demographic groups in their quest for employment, notably impacting the younger generation. More importantly, the intricate employment structure issue currently confronting China accentuates a particular dimension that merits in-depth examination. As the realms of global development and technology continue to advance, a burgeoning entrepreneurial void has emerged in the Chinese economic landscape, necessitating a proactive response from the younger generation. However, the Chinese young cohort has a proclivity towards joining large corporate establishments to secure lucrative salaries rather than starting their own companies for being self-employed against the backdrop of wage-based employment on the trend of the labor market. In light of the above pressing challenges, it is evident that China necessitates a set of pertinent policies and reforms aimed at rectifying the labor market's structural imbalances. These initiatives should be tailored to stimulate entrepreneurial activities among the younger demographic, fostering the emergence of microenterprises and innovative startups, with the ultimate goal of effectively addressing the voids within the Chinese economic landscape.

In late 2014, the central government of China introduced the Chinese “Double Innovation” Reform, a nationwide initiative that gained substantial traction across various provinces. This

reform is devised to invigorate entrepreneurial endeavors among the youth, fostering a conducive entrepreneurial environment, instituting subsidies, and associated incentives to facilitate young entrepreneurs, and affording a more adaptable and accessible platform for entrepreneurship (The State Council in China, 2014). The first document issued within the framework of this reform is the “Entrepreneurship Leading” Policy, jointly developed by the Ministry of Commerce in China and other pertinent governmental bodies, spanning the years 2014 to 2017 (The State Council in China, 2014). Significantly, this policy targets not only the younger generation but also underscores the necessity for individuals to possess higher educational qualifications to avail themselves of the benefits with six aspects, including incorporating the dissemination of entrepreneurship education, enhancing entrepreneurship training programs, facilitating business registration and bank account setup, offering diverse financial assistance avenues, supporting access to commercial premises, and reinforcing public services catering to entrepreneurship (The State Council in China, 2014).

This paper aims to explore both the effect of the Chinese “Double Innovation” Reform and “Entrepreneurship Leading” Policy on different outcomes of interests, including high educational degrees, self-employment, and wage employment. The selected data in this paper is Chinese Family Panel Studies (CFPS) individual data every two years from 2010 to 2020, which could show an inclusive period before and after the Chinese “Double Innovation” Reform and “Entrepreneurship Leading” Policy, as well as could be seen as a representative data set to do research in China. The research’s motivation arises from exploring variation and next, it employed fuzzy regression discontinuity design and difference-in-difference model as methodology to answer the research questions with relevant graphs and regression results. Finally, I explore policy implications and mechanisms behind these two events, as well as the mentioned externality for future research.

There are several main findings from my research. Firstly, the Chinese “Double Innovation” Reform is ineffective in motivating young cohorts to be self-employed while young cohorts and individuals who have high educational degrees still prefer to work in paid occupations. Secondly, within the period of this reform, there is a significantly positive correlation between graduating from high educational institutes and being employed as a waged worker while owning a high

educational degree is significantly reduced the willingness of being self-employed. Next, through explaining the effects of owning high educational degrees on the share of self-employment and the share of waged workers, it motivates me to investigate the differential effects of the “Entrepreneurship Leading” Policy between individuals in the treatment group who belong to young cohorts with high educational degree and individuals in the control group. What this estimation finds is that the “Entrepreneurship Leading” Policy has short-term effects in encouraging young cohorts who have tertiary educational degrees to be self-employed, but it could not change the labor structure for a long time after the effective period of this policy. The contribution from this paper not only provides a convincing estimation of the specific reform and policy but also fills the research gaps as well as explores mechanisms behind reform and policy implications. Finally, this paper could also replicate other Chinese policies to some extent.

The whole structure of this literature is constructed as follows. The second part summarizes previous literature and research that focus on labor, education, and the methodology being employed in the event study while mentioning research gaps existing in the mentioned literature as well. Then, the third part of this paper contains information about data selection and the definition of variables, providing the foundation of the next section of methodology including fuzzy regression discontinuity design and difference-in-difference model. Furthermore, the research discusses results and mechanisms containing the chosen outcomes of interest, as well as policy implications under this policy-focused study. The section on conclusion and externality is the final part of this paper.

2 Literature Review

This section is the part of literature review based on previous research on papers on Chinese economic development focusing on Chinese reforms and policies, as well as existing research gaps.

Economists are gradually discovering the importance of studying China's policies and the corresponding changes, the results of which can help optimize subsequent economic policies for development and can also be extended to areas of diversification that we did not expect. Mertha

(2009) started to explore whether a Chinese leader's capacity has an impact on changes in local hydropower policy outcomes and he found that the results of his literature could extend to the field of European trade talk. Ferdinand (2016) emphasizes that the "One Belt, One Road" initiative, which is a transnational economic belt initiated by China, not only brings huge impacts on Asian international trade but also changes the economic connection between European countries with US trading.

Many kinds of literature on development economics related to China focus more on various fields such as poverty, education, labor, age cohort, and firm performance along with analyzing specific events and policies for testing effectiveness. Securing poor residuals to jump out of poverty traps is the first research area to take into consideration in Chinese development economic. Meng (2013) collected a panel data set and employed the first difference model and regression discontinuity design to explore the effects of "China's 8-7 plan of poverty alleviation program" which was settled between 1994 and 2000 on the growth of rural income. This paper's result reflects the significant effectiveness of this poverty alleviation program and the importance of initial endowment for each individual to be away from poverty traps. After the Chinese 8-7 plan, the "China Targeted Poverty Alleviation Policy" was announced in the year of 2014 which is an improved reform through diversified stages to secure the poor people's living standards. Li. et al (2020) improved the methodology by using a fuzzy regression discontinuity design to define the threshold based on previous literature on the economic field of poverty and emphasized the significant effectiveness of this program on the labor income of poor people. However, there is a problem in that "China Targeted Poverty Alleviation Policy" did not create a long-run effect since it only had a significant correlation in the years 2016 and 2017 while in 2018, the final testing year in this paper, its regression result is insignificant (Li. et al, 2020). "Retirement Consumption Puzzle" is an issue for rural aging generations, which was considered by the Chinese central government through the announcement of the "New Rural Pension Program". Wang (2017) employed a two-way fixed effect and regression discontinuity design to explore the effect of that program on the saving and consumption of rural residuals in the group of individuals above the age of 60 as well as individuals under the age of 60. He found that after considering the selection biases, that policy

is insignificant to improve consumption and saving for older rural people. For education, Chu and Meng (2017) employed regression discontinuity design to explore the effects of “the 1999 Higher Education Expansion Policy” on years of education, family income, and return on education between urban and rural residuals, giving the conclusion that although it is significantly effective to increase the year of education in both groups of people and returns on rural education is higher than that on urban education, that cannot finally reduce the urban-to-rural income difference. In terms of firm performance, Chen (2023) caught the most recent trend of firm innovative policy named “Chinese Innovative City Policy” and explored that it significantly motivated firms to operate cross-countries innovation, especially for those firms which own high ability to scientific research and competition through generalized difference in difference model. At the same time, it is well known that higher education is normally connected with firm innovative performance thus the combining research of these two fields is also popular among Chinese researchers. Pan et al. (2020) found that in the realm of business enterprises, the influence of high education varies across different sectors. Specifically, a greater abundance of high-education institutions is observed to exert an adverse effect on the promotion of business innovation and entrepreneurship. This relationship is notably connected with the tendency for highly educated labor forces to be predominantly engaged with larger corporate entities. Nevertheless, within the high-tech industries, the impact of higher education takes on a substantially constructive role, substantially enhancing the prospects for innovation and entrepreneurial activities in this domain. Through an above review of previous literature, firstly it is clear that Chinese policies are not always effective under the worry about selection biases and other situations. It is difficult to extend the same model to different Chinese policies even if those papers are researched in the same economic field. Secondly, difference in difference and regression discontinuity design are two popular theoretical methodologies among economists on policy-focused study within reviewed literature.

Recently, research on development economic has gone to an advanced stage. Increasing study on education, firms, and labor structure is a recent trend and central issue for developing economists. Most of the papers in this economic field did research on large companies while a few of the literature on small firms and their owners. Darmadi (2013) studies the effects of the

educational level of board members on financial performances in firms in Indonesia, designing separate regression for different occupations on board such as CEO and management board members, and finding a positive correlation between high education and firm financial performances. Cho and Yuan (2021) studied the correlation between executive, gender, and education on firm performance in China and stated that executive education would positively increase the market value of companies while executive gender does not matter more on the same outcomes of interests. However, Boubaker et al. (2020) explore the different results in France which show there is an insignificant effect of educational level on firm financial decisions but the quality of education of CEOs such as graduation from top-rank colleges matters more. In 2023, an economic study showed that innovative public policy for Peruvian manufacturing firms could stimulate highly educated workers to join and improve production and firm innovation (Seclen-Luna & Alvarez-Salazar, 2023). There are several papers doing research on self-employment and education from other countries such as the study of Ahn and Winters (2023). They explored the causal effects of formal education on the success of starting a business through simple ordinary linear regression by utilizing a two-stage least squares (2SLS) regression approach, where instrumental variables are employed to account for an individual's educational attainment, specifically through the use of the average years of schooling among mothers belonging to the same birth state, birth year, and ancestral group as the individual in question, and finally ended with the results that high education would increase the probability of being self-employed among women while males are nearly unaffected by the level of education (Ahn and Winters, 2023). One research in India shows different results with the paper of Ahn and Winters (2023), and researchers found that higher education would decrease the willingness to become self-employed workers but in the high-wealth classes in society, owning high educational degree could motivate those high-class people shifting into being microentrepreneurs (Tamvada et al., 2022).

The motivations of this paper come from three relevant literature. According to the study of Zhang et.al (2021), they utilized a data set with dynamic entry and exiting share of self-employment to state that governmental policies which add more investment in education would increase the shares of self-employed workers and motivate local innovation. One governmental

action is establishing entrepreneurship courses in high educational institutions. The study by Breznitz and Zhang (2022) analyzed this educational change and found that setting entrepreneurship courses can lead more individuals to start their own companies, especially for highly educated people and they would more likely attribute to the high-tech field. The second meaningful literature is the research of Backman et.al (2019) which emphasizes the importance of connections between age cohorts and entrepreneurship. Backman et.al (2019) studied the effects of different age cohorts (senior and young entrepreneurship) on innovative level of enterprises, providing a broad view that not only young and old ages matter in self-employment, but also different generations contribute to the choice of being self-employed or being salaried jobs. Finally, Ma and Li (2022) analyzed the Chinese “Double Innovation” Reform to explore the mechanism of being self-employed workers in China and they concluded that this reform is ineffective on being self-employment. What this paper improves based on the paper of Ma and Li (2022) is not only considering young cohorts throughout the whole reform but also it should explore the first announcement named the “Entrepreneurship Leading” Policy which affects highly educated young cohorts rather than just young generations to combine education and age cohort to state the effectiveness.

In conclusion, according to previous research on Chinese policy and reforms, this paper fills the research gaps and refines the research methodology. With consideration on connecting different fields in a policy-focused study, the Chinese “Double Innovation” Reform and its first announcement “Entrepreneurship Leading” Policy combine education, age cohorts, and labor structure at the same time which provides meaningful aims to find the effectiveness of Chinese policies. Moreover, exploring both the Difference in Difference Model and Regression Discontinuity Design could provide results in studying the specific policy more clearly and correctly. The part of methodology includes the Difference in Difference Model and Fuzzy Regression Discontinuity Design under a six-year unbalanced panel data set to study the Chinese “Double Innovation” Reform and “Entrepreneurship Leading” Policy.

3 Data

It is necessary to use a representative dataset at the individual level when doing research in China. This paper used Chinese Family Panel Studies (CFPS) representative individual data every two years from 2010 to 2020, which is an unbalanced panel dataset with 209,333 observations in total. CFPS endeavors to capture and depict the intricate tapestry of socio-economic, demographic, educational, and health transformations occurring across China (Wu et.al, 2021). This extensive, nationwide, interdisciplinary longitudinal initiative is dedicated to meticulously gathering data at the microcosmic levels of individuals, households, and communities. Its overarching purpose is to delve into the multifaceted dimensions of well-being, encompassing both economic and non-economic facets, pertaining to the populace of China (Wu et.al, 2021). Furthermore, it scrutinizes a diverse spectrum of research domains, such as economic engagements, educational achievements, familial affiliations, population mobility, and healthcare, thereby contributing to a holistic understanding of China's evolving societal landscape.

Table 1 below presents some summary statistics. The reason why it is unbalanced arises from the difficulties of tracking the same individuals every year by researchers. *Pweight* is the weighted variable which is the probability weight denoting the inverse of the probability that this sample will be drawn according to the sampling method. In each estimating year, *Pweight* is individual-level cross-sectional full sample probability weights rather than Individual-level resampling probability weights. Since CFPS started to not consider the weight of the subsample in the year 2018 and 2020, they mention that it is not comparable to use the weight of the subsample in the previous years with the full sample weight in the year 2018 and 2020 according to the formal document of “Annual database presentation and data clean-up report” in the year of 2018 and 2020 (Wu et.al, 2021).

Table 1 Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Year	209240	2014.901	3.303	2010	2020
Birth Year	205686	1970.022	18.111	1900	2011
Years of Education	199270	7.458	4.841	0	24
Education Level	202330	2.654	1.371	1	8
High Education	202330	.0955321	.2939492	0	1
Young Cohort	205686	.2626285	.4400633	0	1
POST_2014	209330	.6688673	.4706218	0	1
Type of Employment	147904	2	1.021	0	3
Self-Employment	147904	.0964409	.295196	0	1
Wage Worker	147904	.3827483	.4860593	0	1
Age	209207	45.019	17.881	9	110
Gender	204968	.497	.5	0	1
Urban	201070	.473	.499	0	1
Pweight	196102	22460.876	29147.74	.005	248649

In detail, *Education Level* is the variable which ranks from 1 to 5 (1 for no education, 2 for primary schools, 3 for junior high schools, 4 for senior high schools, 5 for polytechnic colleges, 6 for bachelor's degree, 7 for master's degree and 8 for doctor's degree). *High Education* is the dummy variable which equals to 1 if the individual's education level is over than 4. *Young Cohort* equals to 1 if individuals born in or after the year of 1985. Finally, *High Educated Young Cohort* equals to 1 if individuals own both high educational degrees and also belong to young cohorts. For *Type of Employment*, it owns status of working types including unemployment (0), waged jobs (1), non-agriculture self-employment (2), and agriculture employment (3 & 4). *Self – Employment* and *Wage Worker* are two dummy variables

being generated from the variable *Type of Employment* for further analysis in this paper. *Gender* equals to 1 if the individual's gender is male, and the variable of *Urban* equals to 1 if the individual live in an urban area.

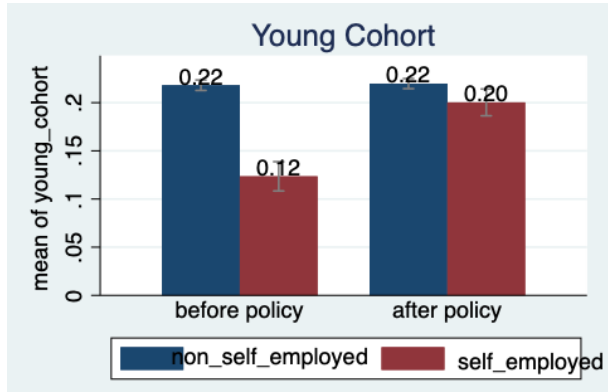


Figure 1 Difference of Young Cohorts

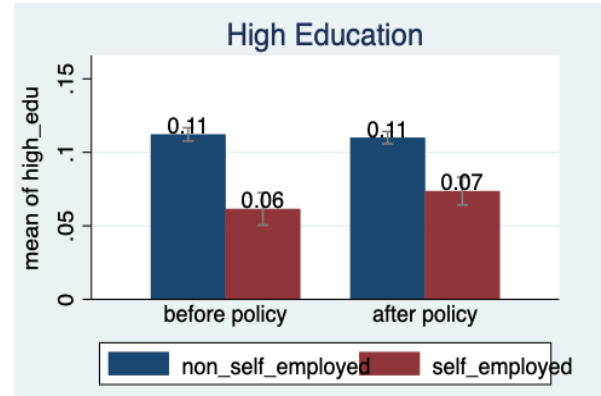


Figure 2 Difference of High Educated Individuals

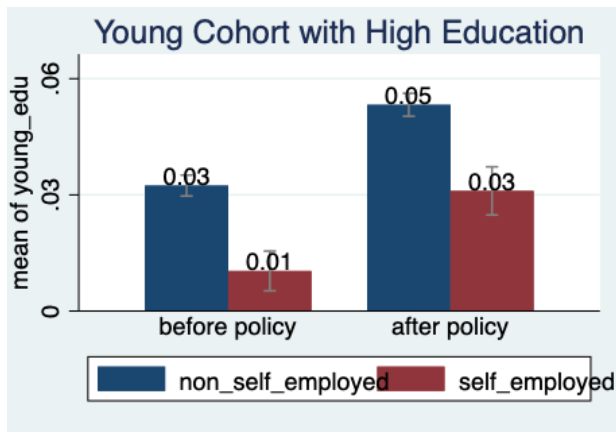


Figure 3 Difference of High Educated Young Cohorts

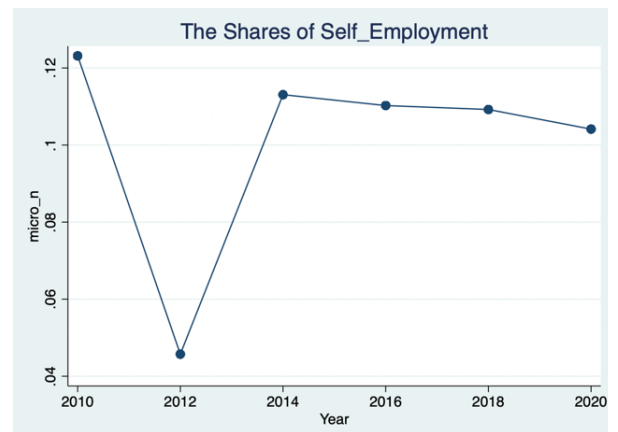


Figure 4 The Shares of Self-Employment

Figures 1 to 3 are graphs for the statistical difference divided by pre- and post-reform in the year of 2014 along with the descriptive estimation in Table 2. In general, young cohorts, high educational degrees, and highly educated young cohorts will significantly reduce the share of self-employment with -0.0356, -0.0646, and -0.0633 respectively. However, we could see several statistical changes with the publishment of the Chinese “Double Innovation” Reform which motivated me to investigate the effectiveness of this reform with theoretical methodology.

In Figure 1, there is no difference in weighted average shares of young cohorts between the two periods for non-self-employed groups while the difference in the same variable for self-

employed groups is 0.08, showing more young cohorts join to start their firms. It will increase significantly with 4.12 percentage points for those young cohorts to become self-employed after the year 2014 when announcing Chinese “Double Innovation” Reform. In Figure 2 which shows the variation in the share of high education, there is nearly no difference for the group of people who do not work as self-employed workers with a weighted average of 0.11 while the share of high education for the self-employed group increased slightly from 0.06 to 0.07. This result is not significant in the estimated results in Table 2 which initially gives the evidence that highly educated people still prefer to work as salaried workers. Comparing the pre- and post-periods, there is an increasing number of young cohorts with high education entering to become self-employed from 0.01 to 0.03 in Figure 3 while results in Table 2 show that it is insignificant for this reform to encourage highly educated young cohorts to be employed as self-employed workers. The statistical change in the percentage of being self-employed is shown in Figure 4. After the reform, percentages of self-employment increased dramatically and kept at a relatively high level compared with the period before this reform which motivates this policy-focused research.

Table 2 The Descriptive Estimation on The Share of Self-Employment

	Self-Employment		
	(1)	(2)	(3)
Young Cohort	-0.0356*** (-14.34)		
Young Cohort * POST_2014	0.0412*** (11.90)		
High Education		-0.0646*** (-17.14)	
High Education * POST_2014		0.00888 (1.92)	
High Educated Young Cohort			-0.0633*** (-11.35)
High Educated Young Cohort * POST_2014			0.0119 (1.82)
POST_2014	0.0293*** (16.84)	0.0328*** (19.12)	0.0340*** (20.61) (1.82)
Urban	0.0659*** (41.04)	0.0767*** (43.74)	0.0708*** (42.28)
Gender	0.0280*** (18.24)	0.0288*** (18.23)	0.0281*** (17.75)
_cons	0.0339*** (22.60)	0.0333*** (22.18)	0.0320*** (21.67)
N	143787	138086	138070

t statistics in parentheses

* p < 0.05, ** p < 0.01, *** p < 0.001

4 Methodology

This paper uses fuzzy regression discontinuity design a Difference in Difference model to explore the effects of the Chinese “Double Innovation” Reform and “Entrepreneurship Leading” Policy on

high education, self-employment, and wage employment. Our first research question is “Does the Chinese ‘Double Innovation’ Reform affect the choice of holding high educational degrees, being self-employed, and being employed as wage workers?”, and I investigate with the use of a fuzzy regression discontinuity design. For analyzing the effects of having high educational degrees on two different types of employment which connects labor and education together, we run a simple OLS regression, and this aims to transmit for the analysis of “Entrepreneurship Leading” Policy which taking consideration on adding high educational degrees as one additional condition to receive benefits from this policy. The results of those two above regressions could explain whether the Chinese “Double Innovation” Reform is effective or not, as well as showing which type of employment is preferred by people with high educational degrees. Linking educational level, age cohorts, and types of employment lays the groundwork for the second part of my empirical analysis, involving a difference in difference model. The second question is “Does the ‘Entrepreneurship Leading’ Policy within this reform affect the choice of being self-employed for the highly educated young cohort?” and the results from the Difference in Difference Model would answer this question.

The timeline of the Chinese “Double Innovation” Reform and “Entrepreneurship Leading” Policy is as follows. In the year of 2014, it is the start of the Chinese “Double Innovation” Reform and “Entrepreneurship Leading” Policy. Chinese “Double Innovation” Reform continues until the end of the estimated period in 2020 while the effective period of the “Entrepreneurship Leading” Policy is only between 2014 and 2017 which is mentioned in the part of introduction. In terms of Regression Discontinuity Design, our selected period is between 2014 to 2020 to make sure that all of those chosen samples are treated under the Chinese “Double Innovation” Reform. Furthermore, when considering the design of difference in difference model, the specification includes all of those separate 6 years.

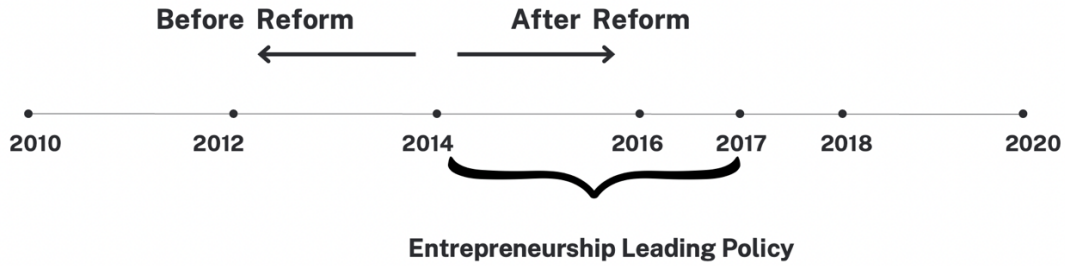


Figure 5 The Estimating Timeline

4.1 Fuzzy Regression Discontinuity Design

First, I use a Fuzzy Regression Discontinuity Design to find the discontinuity for outcomes of interests when individuals benefit from Chinese “Double Innovation” Reform and also explore the effect of high education on the choice of being self-employed workers and salaried workers. The Chinese “Double Innovation” Reform targeted young cohorts who were born after the year of 1985. However, considering individuals could also get benefits from the Chinese “Double Innovation” Reform even if they are not in young cohorts, this design should use fuzzy RDD to test the effects of this reform on three outcomes of interests. For example, in scenarios where an individual in the old cohort and an individual in the young generation start a small firm together, with the young cohort benefiting from ongoing reforms, the individual from the older generation could also partake in the advantages stemming from this reform.

Furthermore, the Fuzzy Regression Discontinuity Design in this paper restricts samples between 2014 and 2020 because this is the period under the environment of Chinese “Double Innovation” Reform. Additionally, I restrict the samples to individuals who were born before or in the year of 1992. This ensures that individuals are adults in the sample available to work formally and cannot change their status of high educational level in a general situation that most individuals who can enter into high educational institutes graduate when they are 22 years old. This allows me to isolate the effect of the reform on the propensity to change self-employment and wage employment independently from the effect on higher educational attainment.

This Regression Discontinuity Design analysis relies on those identified assumptions. The

first assumption is that there is no measurement bias when measuring the running variable. The second assumption is individuals in samples cannot manipulate the running variables by themselves to enter into control or treated groups. Since the running variable is the difference between individuals' birth years and the year 1985, it is nearly impossible for subjects to report the wrong birth years when CFPS surveyed to collect the data of birth years due to the authenticity of the information on identity cards. The only measurement bias comes from research in CFPS if they make mistakes in entering the wrong data. In conclusion, the above reasonable insights could alleviate concerns that this paper's fuzzy regression discontinuity design does not satisfy these two initial assumptions.

The Effect of Reform on High Education, Self-Employment, and Wage Employment

Before exploring the effect of high education on different types of employment as an initial analysis of the 2014 policy, this regression is designed to find the discontinuity in three outcomes of interest including high education, self-employment, and wage employment under the environment of Chinese "Double Innovation" Reform restricting samples of this regression between 2014 and 2020. The below specification is a 2SLS regression for estimating the influence of the Chinese "Double Innovation" Reform on outcomes of interest.

$$D_i = \alpha_1 + \beta_1 Z_i + \delta_1 Z_i * D_i + \sigma X_i + \varepsilon_{1,i} \quad (1)$$

$$Y_i = \alpha_2 + \beta_2 D_i + \delta_2 Z_i * D_i + \gamma X_i + \varepsilon_{2,i} \quad (2)$$

In this specification, Y_i is outcomes of interest for each individual i , including high education, self-employment, and wage employment.

$$D_i = \begin{cases} 1, & \text{if individual } i \text{ born in or after 1985} \\ 0, & \text{if individual } i \text{ born before 1985} \end{cases}$$

D_i is the treated variable which is instrumented by the running variable Z_i , and it equals to 1 if individuals belong to the group of young cohorts born in or after the year of 1985 who can receive the benefits from the Chinese "Double Innovation" Reform. In detail, $Z_i = \text{Birth Year} - 1985$, which is the difference between individuals' birth year and the threshold of the young cohort. In

the Chinese “Double Innovation” Reform, the policy benefits young cohorts. An additional dimension of concern within my research design pertains to the delineation of the “young cohort”. Given that our dataset extends until the year 2020, it is imperative to establish a meaningful threshold for defining the upper age limit of this cohort, representing the eldest birth year that can be considered part of the young cohort. In accordance with “The Middle- and Long-term Youth Development Plan” which was revised in 2017, the overarching objective of instituting a “youth development policy system and work mechanism” was slated for completion in the year 2020 (The State Council in China, 2017). At that juncture, individuals within the young cohort were characterized by ages ranging from 14 to 35 (The State Council in China, 2017). Therefore, for this study, we adopt this definition as a point of reference, encompassing those born post-1985 as constituents of young cohorts.

One concern in defining the dummy variable of higher education is whether the degree of polytechnic college or job-specific education institutes belongs to the group of higher education under the treatment of the Chinese “Double Innovation” Reform and “Entrepreneurship Leading” Policy in 2014. The Ministry of Chinese Education has released a comprehensive statistical report about the nation's educational accomplishments, which delineated the existence of 3,013 institutions specifically dedicated to the domain of higher education within the country (Chinese Ministry of Education, 2023). Among this multitude of institutions, 1,239 were traditional colleges, complemented by 32 polytechnic colleges. Furthermore, there were 1,489 specialized higher vocational education institutes, and, not to be overlooked, a total of 253 institutions designed to cater to the needs of adult higher education (Chinese Ministry of Education, 2023). This announcement provides strong evidence to define the dummy variable of high education, equal to 1 if individuals hold a degree equal to or over than polytechnic college. In terms of defining self-employment and wage employment, in the selected CFPS dataset, there are four different statuses of types of employment including unemployment, waged jobs, non-agricultural self-employment, and agricultural employment. One concern when defining the different group of self-employments is if Home-grown agricultural self-operation, being categorized into the group of agricultural employment, belongs to self-employment under the reform and policy. According to Zhang et.al

(2021), self-employment is defined as an important working type of non-agricultural employment. Thus, when comparing the group of self-employed workers and waged workers, waged jobs and non-agriculture self-employment are two samples that should be taken into consideration.

X_i are control variables which mainly control gender and urban in this paper. It is convinced that these two control variables are important to be added to this specification. Firstly, much literature shows a significant correlation between gender and working types as well as educational level. Hundley, G. (2001) stated that not only women are less willing to be self-employed but self-employed females earn less profits compared with self-employed males. Ferrín, M. (2023) also emphasized that women cannot get in touch with enough opportunities to start their own companies, and at the same time, they would like to stay in the occupation of waged employment rather than take risks to be self-employed. Secondly for correlating gender with education, it is apparent that China faces the situation on inequality of gender when entering into a higher educational level. Zeng, J. et al. (2014) mentioned that although gender inequality has been narrowed in the area of educational attainment since the 1980s, some difficulties for female to enter into higher educational level still exists with the research across both time and space in China. In terms of the variable of urban, individuals who are raised in urban areas consistently achieve greater levels of human capital in comparison to their counterparts in rural regions, when considering observed cognitive abilities and a range of family characteristics (van Maarseveen, 2021). Also, for correlations between working types and birthplaces, large corporations and high-paying jobs are more likely to be concentrated in areas of strong economic development, and urban residents are more likely to have access to such information and opportunities to start their businesses than their rural counterparts.

4.2 The Effect of High Education on Self-Employment and Wage Employment

The below specification is a OLS regression for estimating the influence of owning a high educational degree on the choice of self-employment and wage employment which are two analyzed types of employment in this paper. I also restricted the samples to individuals who were born before or in the year 1992 to ensure there was no change in individuals' high educational

levels.

$$W_i = \alpha + \beta H_i + \rho X_i + \varepsilon_i \quad (3)$$

W_i are two outcomes of interests including self-employment and wage employment. H_i is the dummy variable which equals to one if the individual belongs to high education. X_i are control variables which mainly control gender and urban in this paper, being same with the previous specification.

4.3 Difference in Difference Model

This paper estimates the effect of the “Entrepreneurship Leading” Policy with a difference in difference model that compares young cohorts with high educational degrees with other individuals. In particular, considering an individual-level regression which is written below, where $POST_2014_t$ equals to 1 for years after or in 2014.

$$S_{it} = \lambda_t + \beta_0 (High\ Educated\ Young\ Cohort)_i + \beta_1 POST_2014_t * (High\ Educated\ Young\ Cohort)_i + \tau X_{it} + \varepsilon_{it} \quad (4)$$

S_{it} is the dummy variable of *Self employment*, and *High Educated Young Cohort* defined as individuals who own both degrees of high education and belong to young cohorts. λ_t is the year fixed effect every two years from the year 2010 to 2020. X_{it} are control variables in this specification including gender and urban, which is meaningful to include in this model and discussed already in the part of Fuzzy Regression Discontinuity Design.

The identification assumption is the treatment effect could be fully attributed to the impact of the “Entrepreneurship Leading” Policy on the propensity of tertiary educated graduates in the young cohort to enter self-employment. The sample is restricted to individuals born in or before the year 1992 to make sure in the first period 2014, individuals already graduated with bachelor’s degrees. Without this restriction, it might see a larger group of highly educated people in the young cohort after the year 2014 as one consequence of the reform which violates the identification

assumption of the Difference in Difference Model.

5 Results

This section shows the results from Fuzzy Regression Discontinuity Design and Difference in Difference Model. Firstly, I report findings from 2SLS regression on high education, self-employment, and wage employment. Then to connect owning high educational degrees with two different types of employment, the second instrumental variables regression is analyzed to explore the effect of high education on two different types of employment. Finally, it shows the results of the Difference in Difference Model to reflect the effectiveness of the “Entrepreneurship Leading” Policy on shares of self-employment with the highly educated young cohort as the treated group, as well as making sure it follows a parallel trend assumption.

5.1 Results from Fuzzy Regression Discontinuity Design

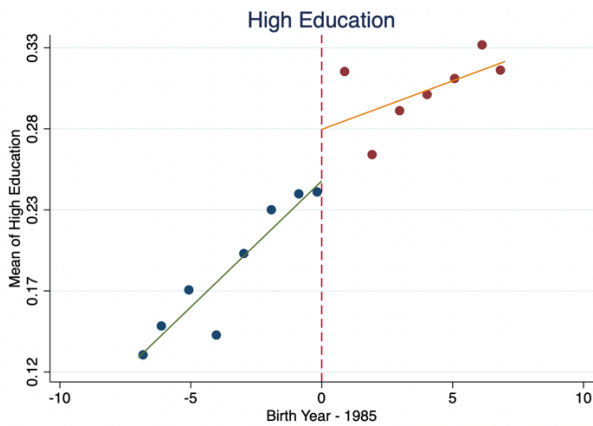


Figure 6 Fuzzy RDD in High Education



Figure 7 Fuzzy RDD in Self-employment



Figure 8 Fuzzy RDD in Wage Employment

Figures 6 to 8 are Fuzzy Regression Discontinuity Design graphs for three different outcomes of interests, with the discontinuous threshold setting at birth year equal to 1985. The mean of self-employment (wage employment) is generated by dividing the number of self-employment (wage employment) by the total number of working individuals (the sum of self-employed, waged, and agricultural individuals). I restrict samples who were born between the years 1978 and 1992 to the baseline birth year 1985 symmetrically. From these three graphs, for the variable of wage employment, there is a clear discontinuity at the threshold, meaning that people born near or after 1985 are more likely to be employed as wage workers while the jump is not significant in the variable of self-employment. Considering Figure 6, it is not clear if there is a discontinuity at the threshold for the variable of high educational degree since if excluding the point in the birth year of 1986, the graph is nearly continuous.

Table 3 The Effect of The Chinese “Double Innovation” Reform on Self-employment, High Education, and Wage Employment

	(1)	(2)	(3)
	Self-Employment	High Education	Wage Employment
<i>D</i>	-0.0235 (-1.37)	0.122*** (6.85)	0.127*** (5.89)
<i>D * Z</i>	-0.00628* (-2.03)	0.000398 (0.11)	0.0116** (2.94)
Gender	0.0233*** (2.71)	-0.000903 (-0.09)	0.0378*** (3.46)
Urban	0.0333*** (3.93)	0.205*** (22.26)	0.231*** (21.24)
_cons	0.145*** (15.47)	0.0440*** (-1.65)	0.399*** (32.72)
N	23601	25435	23601

t statistics in parentheses

* p < 0.05, ** p < 0.01, *** p < 0.001

Table 3 is the estimation of three outcomes of interests through 2SLS. Column 1 is the effect of this reform on the choice of being self-employed. Under the Chinese “Double Innovation” Reform, there is an insignificant increase in the probability of becoming a self-employed worker with a negative 2.35 percentage points when compared with the other two outcomes of interests. When individuals belong to the treated groups, the younger they are born, the less probability they want to be self-employed significantly with a negative 0.628 percentage point. Being male increases the willingness to be self-employed with the figure of 0.0233 significantly and living in urban is also significant to increase the share of being self-employed with 0.0333. In terms of the result on high education in Column 2, the reform has positive effects on owning high education which implies that young cohorts are more likely to have high educational degrees with a positive 12.2%. For the variable of wage employment in Column 3, under the reform, an increase of 12.7 %

probability for individuals could be expected to be employed as wage workers. In conclusion, the Chinese “Double Innovation” Reform which focuses on young cohorts to provide benefits and subsidies has insignificant impacts on motivating young cohorts to start their firms and become self-employed which is consistent with the previous study by Ma and Li (2022). At the same time, it could be seen that there is a significantly positive correlation between this reform and high education as well as the choice of being employed as wage workers, which means that individuals who were born near or after the year 1985 would have a higher probability to own high educational degrees and become waged employees. Under the treatment of this reform, young cohorts are still willing to be employed as wage workers, aligning with the general developing trend in developing countries that more waged jobs are consistent with more young cohorts joining large firms to be salaried workers, proving that Chinese “Double Innovation” Reform is ineffective if focusing on only providing benefits for young cohorts and cannot have sufficient motivation on treated residuals to start their firms and finally fill the market gap.

Regression results of the effects of high educational degrees on self-employment and wage employment are shown in Table 4. There is a significantly decrease on the choice of being self-employed if individuals own high educational degrees with negative 0.0988 while compared with the results of wage employment it has totally different result showing. Column 2 in Table 4 reflects that there is a significant increase in the probability of being employed as wage workers if individuals graduate from high educational institutes with 0.282. In conclusion from Table 4, owning a high educational degree could not encourage individuals to be self-employed during the whole period of the Chinese “Double Innovation” Reform (from 2014 to 2020 in the estimating timeline). Thus, it is meaningful to analyze the estimation from the Difference in Difference Model which finds the effectiveness of the “Entrepreneurship Leading” Policy, the first announcement at the beginning of the Chinese “Double Innovation” Reform. Since the effective period of this policy is only from 2014 to 2017, it is reasonable that the policy motivating individuals who not only belong to young cohorts but also own high educational degrees, could not have an effective impact through all of the estimated periods if the results are consistent with it.

Table 4 The Effect of High Education on Self-employment and Wage Employment

	(1)	(2)
	Self-Employment	Wage Employment
High Education	-0.0988*** (-9.91)	0.282*** (24.73)
Gender	0.0211* (2.43)	0.0440*** (4.06)
Urban	0.0563*** (6.08)	0.171*** (14.78)
_cons	0.132*** (17.94)	0.452*** (45.30)
N	23115	23115

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

5.2 Results from Difference in Difference Design

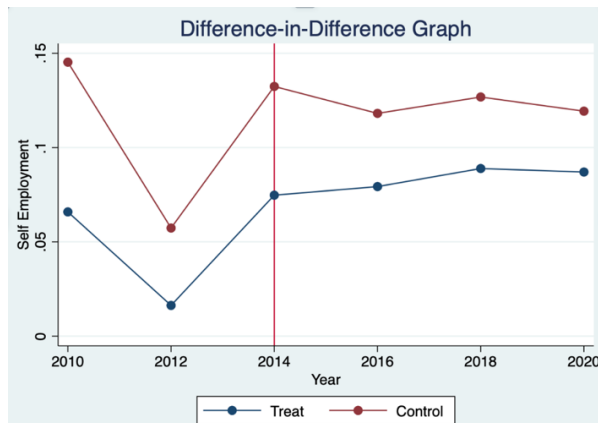


Figure 9: Trends for Treated Group and Control Group

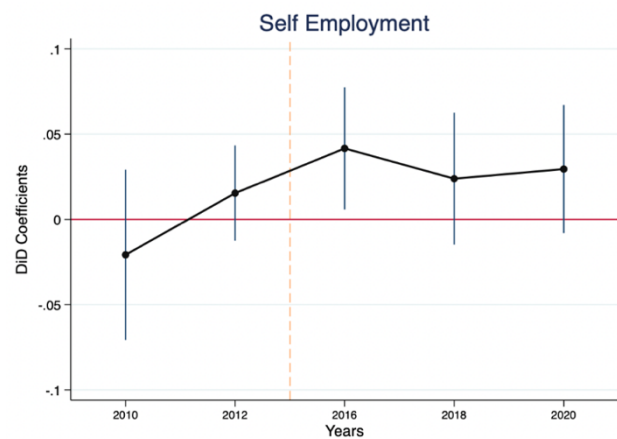


Figure 10: DiD Coefficients

Figure 9 is the trend graph for this difference in difference design with high-educated young cohort as treated groups and other individuals as control groups. Before analyzing regression results, before the announcement of the 2014 “Entrepreneurship Leading” Policy, it seemed to follow the

same trend for both control and treated groups. After this policy came out, it is clear that in 2016, the share of self-employment decreased in the control group while it had a slight increase in the treated group comparably. However, when the time goes into 2018 and 2020, the two groups showed a similar trend again.

Through estimating results from specification and testing for the parallel trend assumption, Figure 10 shows the graph of coefficients for this Difference in Difference Design. In this paper, the target variable is the share of being self-employed. I set the year 2014 to become the omitted category, and it is reasonable to include the estimated year before and after 2014 rather than including the baseline year. The pre-period before the announcement of the policy (the years 2010 and 2012) satisfies the parallel trend assumption along with the facts that the Difference in Difference coefficients interacts with $\gamma = 0$ in Figure 10, meaning that the target variables in the treatment and control groups trended in the same direction before the policy occurred. Furthermore, after the policy came out in 2014, the result time after 2 years in 2016 shows that with the treatment of this policy, the share of being self-employed among highly educated young cohorts in this year significantly increases with a positive Difference in Difference coefficient away from $\gamma = 0$ in Figure 10. However, after the year of 2016, the coefficients of this difference in difference design in the years of 2018 and 2020 are insignificant which means that the policy is no longer effective after the end of the policy. Table 5 shows the estimated results of the policy's effect on the share of self-employment. In general, there is a significant decrease in the share of self-employment if individuals belong to young cohorts with high educational degrees with a negative 6.71 percentage point. After the announcement of the "Entrepreneurship Leading" Policy, there is an insignificant effect in the long-term period for highly educated young cohorts to become self-employed with a negative 0.456 percentage point which nearly equals zero. Comparing the insignificant results from the last two estimating years (the years 2018 and 2020) with the significant coefficient on the effect of the "Entrepreneurship Leading" Policy in the year 2016 in Figure 10, and noting again that the effectiveness of the "Entrepreneurship Leading" Policy is between 2014 and 2017, it could conclude that "Entrepreneurship Leading" Policy has short-run effects on motivating young cohorts with advanced education to be self-employed while after the end of the effective period of

this policy, it could not retain such influence as a long-run effect.

Table 5 The Effect of “Entrepreneurship Leading” Policy on Self-employment

	Self-Employment
High Educated Young Cohort	-0.0671*** (-8.36)
High Educated Young Cohort * POST_2014	-0.00456 (-0.38)
Urban	0.0648*** (23.52)
Gender	0.0381*** (13.80)
Year Fixed Effect	YES
_Cons	0.0773*** (22.64)
N	123877

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

In conclusion, the result of the Fuzzy Regression Discontinuity Design estimates that the whole reform of Chinese “Double Innovation” is ineffective in encouraging young cohorts to be self-employed. Under such reform when individuals belong to young cohorts, they still prefer to work as waged workers rather than starting their own companies. Also, from the estimation of the effects of a high educational degree on two different types of employment within the periods of this reform, high educational degrees increase significantly on shares of waged workers while there is also an insignificant effect on self-employment. Moving to the specific policy at the beginning of the reform, in contrast, the “Entrepreneurship Leading” policy has a significantly positive but only short-term effect on being self-employed workers for the group of young generations who graduated from high educational institutions. Holding those estimated results, finding the substantial mechanisms behind the whole reform and the first policy, as well as getting policy implications is necessary to analyze the policy-focused study.

6 Mechanisms and Policy Implications

With methodology and estimating results, the Chinese “Double Innovation” Reform is ineffective in motivating young cohorts to be self-employed during the whole estimating period while as the first announcement within this reform, the “Entrepreneurship Leading” Policy is effective in a short-term period during its effective period (2014-2017) with the treatment on young cohort who also own high educational degrees. In general, I could emphasize that highly educated young generations are those people who would be motivated to become self-employed if they received long-term benefits and subsidies from relevant reforms and policies. In 2015, a survey on the “Entrepreneurial Enthusiasm of College Graduates” made by Phoenix Weekly News (2015) emphasized that self-employment is not a national action which means that if the Chinese government needs to increase the rate of self-employment to fill the market gaps, it is necessary to select targeted policy beneficiaries rather than subsidize entrepreneurship for the whole population. However, even if the Chinese government screens for highly educated young cohorts as the key support individuals, the effectiveness of the reform and policies is still ineffective in my research. In this section, mechanisms will be discussed behind the evidence as well as other explanations for exploring why young cohorts and highly educated people still prefer to work as waged workers under the background of the Chinese “Double Innovation” Reform and “Entrepreneurship Leading” Policy.

6.1 Mechanism

The Risk Aversion for High Educated Individuals. -- One possible mechanism for why the whole reform is ineffective comes from the risk aversion when choosing types of employment for highly educated individuals. Noting again the results from the effects of high educational degrees on self-employment and waged employment, highly educated people still prefer to work in paid positions rather than starting their own companies. Those people graduating from advanced educational institutes, spend a lot of time which contains large opportunity costs within the educational period. When graduating from school and needing to choose a type of employment between self-employment and waged employment, their aversion to risk is over than benefits they can receive

from self-employment. In general view, the way to get salaries from wage employment is stabler for high educational individuals compared with getting profits from self-employment. Even if successful self-employment can create a relatively huge number of monetary profits, it contains higher risk which perhaps leads people to lose plenty of money. That could explain why highly educated individuals still want to be employed as waged workers even if they are in a better environment of self-employment.

Lack of Benefits in Policy Provided for High Educated Young Cohorts. – Another explanation for the ineffectiveness of the Chinese “Double Innovation” Reform and “Entrepreneurship Leading” Policy is to lack of benefits provided by the reform. Monetary benefits and subsidies are too small to motivate young cohorts to become self-employed workers and could also explain why the “Entrepreneurship Leading” Policy only has a short-run effect for high educated young generation to start a company. Zhao, Wu, and Ye (2023) focused on exploring the effectiveness of the Chinese “Double Innovation” Reform on different factors for small and medium-sized firms and divided the benefits from this reform into subsidies and tax reductions. They found that only policy subsidies provided for enterprises are effective in promoting the willingness to become self-employed while tax reduction could not have significant effects. Specifically, under the “Entrepreneurship Leading” Policy, there are three main benefits that high-educated young generation could get. The first benefit is that for small micro-enterprises founded by graduates with high educational degrees, implement tax incentives with a 50% reduction in enterprise income tax and temporary exemption from value-added tax and business tax for monthly sales of no more than 20,000 yuan, by the regulations (The State Council in China, 2014). The second benefit is providing financial support to highly educated people starting their businesses as well as setting up angel investment and venture capital funds which focus on supporting the entrepreneurship of advanced educational individuals (The State Council in China, 2014). Furthermore, providing relevant entrepreneurship training courses online for high-educated young cohorts is a non-monetary way of this policy (The State Council in China, 2014). If monetary incentives are not enough to support new self-employed workers continuously, they will not choose to continue operation after the effective period of this policy even those highly educated young cohorts are

motivated to be self-employed. Cieřlik and van Stel (2023) explored that self-employed workers often face increased uncertainty compared to traditional employees regarding the continuity of their work, adding to their financial instability. Thus, one of the reasons why there is only a short-term effect brought by the “Entrepreneurship Leading” Policy is the lack of monetary benefits provided for highly educated young cohorts which will make them choose to exit the self-employed market after the effective policy’s period.

6.2 Policy Implications

With the discussion about the mechanism, how to improve future policies and reforms on simulating the share of self-employment is the next step after estimating results and mechanism. According to Marinic (2016), The initial understanding of self-employment is individual’ motivations and one of the most important motivations for the young generation is avoiding being unemployed workers. However, this motivation could not bring an innovative and efficient change to the Chinese self-employment market. The digital and new energy industries are two huge gaps in the current Chinese startup market which needs young cohorts to bring such high-tech skills. Thus, screening policy beneficiaries through entrepreneurial motivation is a prerequisite for future entrepreneurship reforms and policies. Secondly, Westerveld (2012) emphasized that even in the context of an optimal entrepreneurial environment, distinct demographic cohorts exhibit substantial variations in their entrepreneurial methodologies and behaviors. The stabilization of entrepreneurial groups within a mature market necessitates the implementation of tailored policies designed to safeguard the distinct interests and dynamics inherent to each group (Westerveld, 2012). What we conclude is that establishing different motivated policies for different groups of self-employment is important for policymakers. Then, with the result from the short-term effects of the “Entrepreneurship Leading” Policy, it is necessary to make sure that the longevity of the policy focuses on highly educated young cohorts and also increases the amount of monetary support to create long-term financial stability to ensure the operation of startups. Schneck (2023) analyzed that during huge economic shocks such as the pandemic crisis, self-employed people were extremely stressed about income losses compared with waged workers which caused a large share of microentrepreneurs to exit from self-employed markets.

7 Conclusions

This paper uses fuzzy regression discontinuity design and difference in difference model to explore the effectiveness of the Chinese “Double Innovation” Reform and “Entrepreneurship Leading” Policy. The main results show that firstly, the Chinese “Double Innovation” Reform is ineffective in encouraging young cohorts to become self-employed during the whole treated period from the year of 2014 to 2020. Secondly, young cohorts are still willing to work as waged employees and at the same time under the environment of this reform, and people who own high educational degrees would also prefer to work in paid positions rather than starting their enterprises. Finally, although the whole reform was ineffective, the “Entrepreneurship Leading” Policy, which was the first announcement of the Chinese “Double Innovation” Reform in 2014 and ran through 2017, was effective in the year of 2016 to encourage young cohorts who also own advanced educational degrees to join into self-employment. However, it is ineffective for a long-term period between 2014 and 2020 in the whole estimated period.

I also investigate the possible mechanisms and policy implications of estimating results. In terms of highly educated individuals, the attitude towards risk and opportunity costs will let them still want to choose paid jobs rather than taking risks to start their own companies. Secondly, the ineffectiveness of the Chinese “Double Innovation” Reform perhaps due to the lack of monetary benefits and subsidies. At the same time, for individuals who got benefits under the “Entrepreneurship Leading” Policy, the lack of monetary benefits could also be a reason for them not to continue their startups after the effective period of this policy. With those explanations and considering the future policies, the government should make sure that those policy beneficiaries’ motivation is not just trying to avoid being unemployed and that their startups need to fill the Chinese market gaps to some extent. Furthermore, policymakers should be aware that entrepreneurship policy subsidies for only one group of microentrepreneurs are incomplete, we should consider the needs of multiple groups to stimulate the potential entrepreneurial vitality in all aspects. Finally, increasing monetary benefits to ensure financial stability is necessary to keep those highly educated young generations staying in the self-employed market permanently. The

contribution of this paper will be useful to future research in the relevant policy-focused study and the analyzed policy should be announced in countries which is similar to the labor and educational situation in China. Furthermore, what this paper also wants to emphasize is the difference between the whole reform and the specific policy within this reform. Even if it could not be effective when looking at the entire reform influencing the society, policies included in the reform might be effective in a limited period which can be used to inform and improve subsequent policies.

8 Reference List

- Ahn, K. & Winters, J. V. (2023) Does education enhance entrepreneurship? Small business economics. [Online] 61 (2), 717–743.
- Backman, M. et al. (eds.) (2019) Handbook of research on entrepreneurship and aging. Northampton: Edward Elgar Publishing.
- Boubaker, S. et al. (2020) Does the CEO elite education affect firm hedging policies? The Quarterly review of economics and finance. [Online] 77340–354.
- Breznitz, S. M. & Zhang, Q. (2022) Entrepreneurship education and firm creation. Regional studies. [Online] 56 (6), 940–955.
- Chen, K. et al. (2023) Government support and cross-border innovation: The effect of China's innovative city policy on Chinese firms' patenting in the United States. Production and operations management. [Online] 32 (6), 1793–1811.
- Chinese Ministry of Education. (2023). Statistical Report on China's Educational Achievements in 2022. Ministry of Education of the People's Republic of China. URL: http://en.moe.gov.cn/documents/reports/202304/t20230403_1054100.html
- Cho, E. & Yuan, Y. (2021) Executive Education, Gender, And Firm Performance: Evidence From China. Journal of applied business research. [Online] 37 (6), 195–204.
- Chu Shuai, Meng Fanqiang. College Enrollment Expansion in China and The Difference Return of Education between Urban and Rural: Based on Regression Discontinuity Design[J]. South China Journal of Economics, 2017, 36(10): 16-35
- Cieřlik, J. & van Stel, A. (2023) Solo self-employment—Key policy challenges. Journal of economic surveys. [Online]
- Darmadi, S. (2013) Board members' education and firm performance: evidence from a developing

economy. *International journal of commerce and management*. [Online] 23 (2), 113–135.

FERDINAND, P. (2016) Westward ho—the China dream and ‘one belt, one road’: Chinese foreign policy under Xi Jinping. *International affairs* (London). [Online] 92 (4), 941–957.

Ferrín, M. (2023) Self-Employed Women in Europe: Lack of Opportunity or Forced by Necessity? *Work, employment, and society*. [Online] 37 (3), 625–644.

Fini, R. et al. (2022) University graduates’ early career decisions and interregional mobility: self-employment versus salaried job. *Regional studies*. [Online] 56 (6), 972–988.

Hundley, G. (2001) Why women earn less than men in self-employment. *Journal of labor research*. [Online] 22 (4), 817–829.

Kamei, A. & Nakamura, S. (2022) Urban Agglomerations and Wage and Self-employment Jobs in Ethiopia. *The Journal of development studies*. [Online] 58 (9), 1693–1710.

Li, Fanghua, Zhang, Yangyang, & Zheng, Xinye. (2020). Evaluation of the Effectiveness of Precision Poverty Alleviation Policies: Based on Micro-Tracking Data of Impoverished Populations. *Economic Research*, 55(8), 171-187.

Ma, X. & Li, S. (2022) Self-employment in Urban China: Entrepreneurship or Disguised Unemployment? *China & world economy*. [Online] 30 (1), 166–195.

Marinic, P. (2016) ‘Entrepreneurship: Opportunity for Young Generation’, in *European Conference on Innovation and Entrepreneurship*. 2016 Reading: Academic Conferences International Limited. pp. 1024-.

Mertha, A. (2009) “Fragmented Authoritarianism 2.0”: Political Pluralization in the Chinese Policy Process. *The China Quarterly* (London). [Online] 200 (200), 995–1012.

Pan, X. et al. (2020) Does higher education promote firm innovation in China? *Sustainability* (Basel, Switzerland). [Online] 12 (18), 7326-.

Phoenix Weekly. (2015, March). Survey on the Entrepreneurial Enthusiasm of College Students. [Online] Available at: <https://www.cdclib.org/libmag/detail.htm?i=700&n=45&t=2> [Accessed: 10th of November 2023]

Schneck, S. (2023) Income loss among the self-employed: implications for individual wellbeing and pandemic policy measures. *Review of economics of the household*. [Online] 21 (1), 37–57.

Seclen-Luna, J. P. & Alvarez-Salazar, J. (2023) Are Peruvian manufacturing firms' product-based or service-based businesses? Effects of innovation activities, employee level of education and firm size. *Technology analysis & strategic management*. [Online] 35 (7), 799–812.

Shiri M. Breznitz & Qiantao Zhang (2022) Entrepreneurship education and firm creation, *Regional Studies*, 56:6, 940-955, DOI: 10.1080/00343404.2021.1878127

Tamvada, J. P. et al. (2022) Education, social identity, and self-employment over time: evidence from a developing country. *Small business economics*. [Online] 59 (4), 1449–1468.

The State Council in China (2014). General Office of the State Council on Doing a Good Job in the 2014 National Ordinary Notice on the Employment and Entrepreneurship Work of Graduates of Colleges and Universities. Ministry of Education of the People's Republic of China. URL: https://www.gov.cn/zhengce/content/2014-05/13/content_8802.htm

The State Council in China (2017). The Middle- and Long-term Youth Development Plan. Ministry of Education of the People's Republic of China. URL: https://www.gov.cn/zhengce/2017-04/13/content_5185555.htm#1

van Maarseveen, R. (2021) The urban–rural education gap: do cities indeed make us smarter? *Journal of economic geography*. [Online] 21 (5), 683–714.

Wang Xuguang. Does the New Rural Pension Program Improve the Residents' Consumption Levels: A Study Based on CFPS Database[J]. *South China Journal of Economics*, 2017, 36(1): 1-12.

Westerveld, M. (2012) The ‘New’ Self-Employed: An Issue for Social Policy? *European journal of social security*. [Online] 14 (3), 156–173.

Wu, Q., Dai, L., Zhen, Q., Gu, L., Wang, Y., & Lü, P. (2021). Introduction and Data Cleaning Report for the 2018 China Family Panel Studies. Retrieved from <http://iss.pku.edu.cn/cfps/docs/20210802130405399192.pdf>.

Zeng, J. et al. (2014) Gender inequality in education in China: A meta-regression analysis. *Contemporary economic policy*. [Online] 32 (2), 474–491.

Zhang, T. et al. (2021) Self-employment of Chinese rural labor force: Subsistence or opportunity? —An empirical study based on nationally representative micro-survey data. *Journal of Asian economics*. [Online] 77101397-.

Zhao, K., Wu, W., & Ye, J. (2023). The impact of “Mass Entrepreneurship and Innovation” policy on SMEs’ innovation: Using quasi-natural experiments. *Bulletin of Economic Research*, 75, 348–365. <https://doi-org.ez.hhs.se/10.1111/boer.12359>