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Shadow Education in China: An Analytical Discussion from a Supply and Demand Perspective

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Abstract

Nowadays, private tutoring, also called shadow education, is received by students worldwide, and this behavior is particularly common in China. Students and tutors can satisfy their own needs simultaneously in this process. However, this practice also brings problems as the industry grows steadily. Previous scholars mainly focus on data results and policies to improve when researching this topic; nonetheless, the economic factors and effects are equally important. The current paper investigates the factors shaping the demand and supply of shadow education in China. Our finding suggests the demand of the public and suppliers' willingness to provide an evolvable market environment for private tutoring. Some inefficiencies and financial problems are also discussed. Combining the technological change that shaped this industry, future studies could emphasize the supply side and the interaction within the shadow education market.

Keywords: Shadow education, China Education, Demand and Supply

1 Introduction

Education has always been an important issue that can affect a country's future development. Except for the government-supported public schools, there are many more ways to receive education in this developing world. Among them, private supplementary tutoring, also called "shadow education," is probably the most popular one adopted by numerous families. The scale of private supplementary tutoring has grown significantly over the past years, especially in Asia. Nowadays, most private tutoring has the characteristic of fee-charging and being out of school. This type of shadow education is used by roughly one-third of all 15-year-old students worldwide, representing 64 different nations and economies (Byun, Chung, and Baker, 2018, pp. 18-19). Although this phenomenon has existed for a long time, it happened only on a small scale and did not draw public and government attention in earlier decades; however, it soon spread widely and covered most countries worldwide (Bray, 2013, p. 19).

China has the second largest population in the world and a large education system. Combined with many factors, such as economic growth and cultural value, Chinese parents are eager to pursue higher education for their children, which fueled the expansion of the private supplementary education system. Because of various problems brought about by private tutoring, regulating policies are in need. Instead of the entire shadow education industry, policies in China usually focus on one particular problem brought by it. Nevertheless, starting from the end of 2017, the regulations were tightened, and policymakers realized the

importance of reducing students' workload received from private tutoring (Liu, 2018, pp. 144–145).

Previous researchers mainly focus on education and politics when addressing the problem derived from largescale private tutoring in China. However, the analysis of specific economic side factors, which considers China's situation and characteristics, is relatively insufficient. Besides, in recent years, the pandemic and technological improvements in online studying also have led to a new trend in this sector, which was rarely considered in previous studies. Before focusing on the improvements in the education system, it is necessary to fully comprehend the reason behind such a prevalent behavior. To help to build a complete overview of the situation of China's shadow education and enable future researchers to get the whole picture of this topic, this paper first explains the widely accepted definition of private supplementary tutoring according to Bray (1999), then summarizes the factors affecting the demand and supply of shadow education market under the background of China. Finally, the present paper discusses the impacts of private tutoring on the education market and households.

2 Definition

A clear definition is necessary before the analysis to prevent blurred understanding when evaluating shadow education. Commonly, the definition of private supplementary tutoring has three main parameters (Bray, 1999, p. 20).

The first is privateness. The "private" here does not refer to a one-to-one relationship between tutor and student.

The tutoring should involve a money transaction; the process is fee-charging. This term can be better understood by linking it with "private good" in economics. The second is supplementation. In addition to normal school content, students may receive knowledge based on their textbooks or relevant additional materials. The purpose of students attending tutoring is to follow or surpass their peers. The last parameter is an academic subject. Students study the subjects which are involved in the formal examinations. Mathematics, language, and science are most representative of this parameter. The skills related to personal interest, such as sports or dances, are excluded from the discussion in this paper.

Despite these parameters being accurate and clear, the topic still has some ambiguities. Zhang and Bray (2020, p. 324) suggested that even when discussing only in English, this field's vocabulary can be debatable. For instance, the word "supplementary" can cause a different understanding. Some scholars elaborate their studies based on the prerequisite that the contents of private supplementary tutoring only involve formal teaching materials. In contrast, others include the one teaching extensive knowledge, which is more challenging. Moreover, wording can vary across countries and regions. The synonym for private supplementary education contains "cram school," "extra classes," "tutoring," and "studies." These phrases are familiar to the public in different regions.

The metaphor "shadow education" is used because this sector imitates regular formal schooling (Bray and Lykins, 2012). The word "shadow" here has multiple implications. The changing pattern of shadow education is similar to formal education, expanding simultaneously with formal one. This metaphor is also appropriate because shadows originated from the original object. Researchers can view shadow education from either positive or negative dimensions.

3 Demand

The scale of private tutoring

Shadow education in China has a large scale as it has the largest population in the world in past years. Due to the difficulties of statistical analysis, the data indicating the magnitude of private tutoring is scarce. Several statistics show the scale of shadow education in China.

- 1. According to China Family Panel Studies (CFPS), in 2012, 24.6% of 4625 students attended private tutoring out of school. In provincial capital or municipality, this rate even reaches 56.1% (Xue, 2014).
- 2. According to the China Household Finance Survey (CHFS), over 0.49 trillion CNY worth of tutoring services were purchased annually by 48% of students in primary and secondary schools at an average cost of 2,697 CNY

(Liu, 2018, pp. 1-2).

- 3. From the data from CFPS in 2014 and 2016, 11.38% of students in primary and secondary schools received private tutoring in the sample of 3984 students. The author Liu (2020, p. 23) suggested that this rate is relatively low because it is the average value of middle and primary school students. This group of students is relatively young; if the research object included high school students, the value would be higher.
- 4. In 2018, CFPS showed that 72.2% of the total 461 junior middle school students and 70% of the total 227 senior high school students attend tutoring (Xue and Zuo, 2021, p. 17).
- 5. In 2013-2014, the National Survey Research Center at Renmin University of China (NSRC) collected data showing that only 65.46% of 9410 secondary school students did not attend private tutoring in Literature, English, and Mathematics in the past year (Li, 2021, p. 404).

Perception of parents

The parents' awareness that investing in education can yield significant returns through successful performance on important exams and admission to prestigious secondary schools and universities is the primary driver of the demand for primary tutoring (Bray and Lykins, 2012, p. 23). The return on higher education is so considerable that most parents reckon it deserves the investment in an earlier stage. More and more parents realize the importance of education, which results in higher anticipation for young children. The effectiveness of such tutoring can be affected by many factors, such as students' willingness to learn, the length of time, students' original performance, and the number of students in the class. Nevertheless, some parents often do not pay attention to these problems because of their lack of experience.

Parents' motivation to sign up for tutoring for their child can be different according to their child's performance. Generally, the purpose of supplementary education can be remedial or enrichment. For high-performing students, parents want to extend students' knowledge base and further widen the gap between their children and other students. On the other hand, students who cannot follow up the pace of others need to spend extra time to make up the difference. Moreover, students in the middle are pushed to enhance their grades and squeezed through the gate that labels them "excellent students" (Liu and Bray, 2017)

The education system in China

The education system in China also contributes to the prosperity of the shadow education industry. Zhang and Bray (2018, p. 6) noted that Middle-class families fiercely compete for admission to elite colleges through the high-stakes National College Entrance Test (Gaokao). The

Grade 9 examination (Zhongkao), which determines entrance to elite upper secondary schools, is impacted by competition and stress at this level. In turn, this examination impacts lower secondary and even primary school admissions policies. The Gaokao is an academic test administered annually in China and is comparable to the SAT in the United States. It is regarded as the most significant exam a student will ever take because it determines whether they will be admitted to a university and which university they can enroll in. The quality of education students receive at primary, secondary, or high school can directly affect their academic achievement and decide their future. Consequently, the transition points between each level are particularly important to parents, which motivates them to invest in private tutoring.

Moreover, fierce competition with the entrance of universities also exerts pressure on families. The data for 2022 shows that graduates in high school level education are about 12 million, but the entrants of undergraduates is only 4.4 million, which means the rest of the high school students should either study in Vocational Undergraduate or find a job after they graduate from high school (Ministry of Education of the People's Republic of China, 2022a). With the limited opportunities to enroll in a university, parents often panic about their child's future, which is why the competition in education started earlier and earlier.

Insufficient mainstream schooling and the large class size are other drivers for students attending supplementary tutoring. The data in 2021 shows that there are still 7225 oversized classes with 56 or more students in China Junior high schools (Ministry of Education of the People's Republic of China, 2022b). Although the number of such classes has improved over the years, the number of students in each class is still large. Parents usually prefer smaller courses. Smaller class sizes could enable instructors to use a more interactive teaching style, giving learners more chances to ask questions and get clarification. Families might believe tutoring is the only option to guarantee individualized instruction if mainstream classes stay overcrowded (Bray, 2022, p. 8)). With personal interaction, tutors can make a customized schedule for students, which is often more effective than the education students receive at school.

Global trend

The rapidly changing global community can push the expansion of the private supplementary tutoring industry. Globalization has promoted the development and cultural exchange between countries, leading to a rising demand for language skills. English is particularly popular among all foreign languages (Park et al., 2016, p. 10). Most students are asked to pass the CET-4 or CET-6 in China (College English Test), so parents tend to choose to

let their children learn the language at a lower level of education to lay a solid foundation.

Besides, the education quality is gradually increasing across the world. The previous argument shows that one of the reasons that students engage in private tutoring is the relatively poor school education quality. However, some researchers suggest increasing equality may result in more private tutoring. Park et al. (2016, p. 9) concluded that It becomes more challenging for middle-class parents to influence formal schooling processes to their children's advantage as social class demands equal educational opportunity and higher school quality rise within and between countries. Instead, parents look for private sources of learning for their children.

The one-child policy in China

China's government published a one-child policy between 1980 and 2015. This policy may also be a reason for extensive private tutoring. Each family was restricted to having only one child. Otherwise, they should pay the fine. Most families comply with this rule, so they value more on this single child and invest more in them; parents are willing to make educational investments in their only child. However, each family may have over four children in the past, and even feeding these children could be a problem. In the poor area, people consider a child a labor source, which can help with housework and reduce economic pressure on parents.

3. Supply

Market situation

Private tutoring can be classified with different modes, including the form of teaching (online or offline), the teacher's educational background, the providers (individuals or institution), the scale of the company (global or local), and the stage of teaching (during the semester or in holidays). The diverse suppliers indicate that shadow education is relatively competitive, and the market entry barrier is low. This is also one of the reasons why this market can expand continuously. In China, Xue and Fang (2019, pp. 93–94) suggest that the proportion and expenditure of students' participation in after-school tutoring increased year by year, but all indicators slightly decreased in 2016, which might be the effect of the burden-reduction policy.

3-3-stages development

Feng (2021) suggested three main stages of development of China's private supplementary education system, which are explained in the following paragraphs.

Shadow education emerged in the 1980s when China's political structure gradually changed to a market economy, and the "reform and opening-up policy" was proposed. In 1977, China's National College Entrance Examination

(NCEE) was reformed, and at the same time, the financial structure of education changed. Fewer schools received sufficient funds from the government. The demand for private tutoring suddenly grew, accompanied by a higher supply, as teachers faced financial difficulties and searched for additional income. At this point, the dominant form of tutoring was provided by schools. Except for parents' and teachers' demands, the schools were also willing to organize additional lessons because they needed to achieve the quality requirement of the government. However, this form is restricted by the government and gradually diminished since fee-paying teaching was considered unethical.

From 1990 to 2000, shadow education has undergone a stage of industrialization. The economic growth and expanding university enrollment allowed the shadow education industry to grow tremendously. Commercial companies mainly provided the lessons. By 2016, the market value of China's private tutoring business in primary and secondary education had reached 800 billion RMB (The Chinese Society of Education, 2016). The strong competition in this industry eventually led to the emergence and capitalization of a few successful companies.

Beyond the 2000s, the listed tutoring corporations on international stock markets showed that the tutoring industry in China was primarily capitalized in the new millennium. However, in 2021, following the publication of regulations requiring all businesses offering curriculum tutoring to register as nonprofits, some of China's largest publicly traded education companies saw significant losses in value as investors abandoned them. The online education and test preparation company Koolearn Technology, whose stock fell 33% on that Monday, stated that it anticipated the new regulations to "have a material adverse impact" on its business (Stevenson, 2021).

Incentive of providers

Private tutoring providers vary a lot, including college students, mainstream teachers, online companies, and numerous institutions. As stated above, the main provider gradually changed from mainstream teachers doing parttime jobs to full-time tutors trained by institutions. For mainstream teachers, low income is the main reason for providing private tutoring. A study in China shows that the average salary in the education industry is much lower than that of other knowledge-intensive industries, only accounting for 56.8% percent of that of the finance industry. Besides, the average salary of college teachers in Canada, Italy, South Africa, India, and the United States exceeded 6,000 US dollars per month. In comparison, China was only 720 US dollars per month, ranking third from the bottom (Guo, 2022, pp. 56–57). Students or other self-employed teachers also provide tutoring as their extra form of earning. For small or big institutions, the startup cost of this industry is relatively low; the main costs only include the teaching space and workers. The rent for teaching areas may vary in different cities. However, since these institutions generally broadcast information through the internet or the old customers and parents often prioritize the teaching quality and reputation, the fitment and appearance are far less significant. Therefore, most small institutions locate in normal office buildings, so the cost of this capital is low.

Technology improvement and innovation

The developing technology is also a factor that molds the private tutoring market. Shadow education is more adaptable to new technologies due to its flexibility. In a competitive market, innovation is crucial to a company's survival, so leaders (or individuals) are forced to keep up with the market trend. The ability to identify opportunities can decide the future market position of an organization. Besides, compared to schools, institutions or individuals are smaller in scale and more independent, so even if they make the wrong decision, the costs, and consequences are bearable (Zhang and Bray, 2020, pp. 329–330). The innovation of shadow education providers can be seen from their multiple teaching patterns, especially the big and small institutions.

One of the common modes consists of two classes in the schedule. Normally, students will have a formal class session, followed by a self-study class, so they can finish homework signed by teachers on time. In the self-study classes, the teacher assistant, or "xue guan," will supervise students to ensure they are studying efficiently; these assistants are also responsible for checking the assignments. Judging from the efficiency of this method, tutors can undoubtedly save time and prepare for more classes, students will be more attentive when accomplishing the tasks, so their learning outcome may be improved. Besides, the teacher assistants are not required to be as knowledgeable as tutors; this job is a good choice for a part-time job for some college students, so employers can also cut the wage expenses. However, the actual difference in efficiency still depends on the operating situation.

Due to COVID-19, the online education pattern has been used extensively, which also brings an opportunity to shadow education. The government regulations forced mainstream schools to adopt online teaching, as did the tutoring classes. In this process, online teaching gradually matured, and students became more familiar with this form of teaching. Although schools have gradually returned to normal track, online tutoring has become a new manner in shadow education. This manner has some obvious advantages.

For students who attend the classes, the time and monetary

cost of transportation is reduced, and there are more choices for students in remote areas, where educational choice is not diversiform. Moreover, students absent from classes can keep up with other students by watching the recorded video. This enhances convenience and flexibility when there's a conflicting schedule. Similar to the providers, the cost of renting the classrooms is saved. The capacity of the lecture can further diversify, and student numbers range from hundreds to one. In addition, the regional barrier is removed for both students and tutors, so the customer base is enlarged. Some parents would choose more reputable lecturers in other locations. Nevertheless, the massive online study will not remain after COVID-19 as it cannot replace the position of traditional classroom education. However, the experiences can help providers to be more conversant when utilizing the online study technique. Some institutions may record open classes for both advertising and selling purposes.

4. Economic effects

Efficiencies

Allocating resources efficiently is a fundamental aim for economists and business operators. Every company evaluates its performance termly, researchers also made numerous cost-benefit analyses of different samples, but efficiency does not merely refer to the cost and profits in an organization. Instead, the whole industry can be seen as an entirety.

Theoretically, mainstream schooling can be seen as a market failure, which refers to "the failure of the market to allocate resources efficiently." It results in allocative inefficiency (Ellie, 1901, pp. 147–148). Education is a typical example of market failure with a positive externality, so the government provides schooling directly. In reality, formal schools are not flexible. They are mainly shaped by political and historical factors. The public schools rely on government funding and lack the incentive to improve efficiency and lower costs. Also, the consumers, mainly ordinary families, should send their children to school because of the nine-year compulsory education policy. Despite there may be more than one public school in an area, schools still do not need to worry about the source of students.

To some extent, the private tutoring market is more efficient than mainstream schooling because of the competitive market. The business operator is eager to use advertising and marketing strategies to attract consumers; profit is the most powerful driving force for these profit organizations. When running a business, the schedule, tutor allocation, and classroom distribution are deliberated.

However, the private tutoring market might bring inefficiency to the education system. From the perspective of mainstream teachers, who also provide private tutoring classes after school, most of their audience is students in their school or class. These teachers may deliberately avoid teaching students advanced knowledge and force them to participate in private tutoring. Such practice was common without regulation; teachers expressed their intention directly to parents. This is also why mainstream teachers are considered unethical if they provide supplementary classes after school (Liu, 2018, p. 144; Bray, 2022, pp. 12-13). Even if teachers do not lower the quality on purpose, their energy and time are limited. Considering the situation in China, most public school teachers have to prepare for class, correct homework, and have meetings daily, and headteachers have even more duties. So preparing for additional classes will reduce the time they originally spent on in-school classes and indirectly influence the teaching quality. The inefficiency is not only caused by teachers but also by students who attend supplementary classes. Like teachers, students may be tired after attending tutoring and finishing massive amounts of homework. Moreover, students who have remedial tutoring may be absent-minded in class since they know the knowledge will be covered again in the tutoring class. Repetitive class content is a waste of resources. So the existence of supplementary tutoring may lower the efficiency of the formal education system.

Moreover, inefficiencies also arise from the loss of information. Because a large portion of supplemental tutoring is semiformal, it may be challenging to evaluate its effectiveness. Many countries have tutoring businesses that purposefully exaggerate the value of their services to draw customers (Bray and Lykins, 2012, p. 71).

Financial burden

The substantial costs of private tutoring bring a heavy burden to some families. The average expenditure on shadow education is affected by multiple factors, which include the number of children in a family, the family income, the type of school, the regional difference, etc. In a survey conducted by Bray (2013) in 16 secondary schools in Hong Kong, when students were asked whether the cost of tutoring is a burden to their family, 34.1% agreed, and 17.3% strongly agreed. The cost of tutoring per student among households with estimated monthly incomes of more than HK\$15,000 was estimated to account for between 2.3% and 8.8% of their income, and for households with estimated incomes between HK\$4,000 and HK\$5,999, this number ranges from 20.3% to 30.5%, it is obvious that a part of households is struggling with expensive tutoring fees. Moreover, according to the data of CFPS, the total average expenditure on tutoring in 2010, 2012, 2014, and 2016 was 1279.45, 2227.23, 2807.58, and 2311.97 yuan, respectively (Xue and Fang, 2019). However, this value varies across the different stages of education. The expenditure of primary school

students is significantly less than in the higher stage. Specifically, the expenditure reached 7421.3 and 7196.19 yuan for middle and high school students in 2018 (Xue and Zuo, 2021). When parents choose to invest in their child, there are opportunity costs involved in this process. Families would have a better quality of life if they spent the money elsewhere, especially lower-income families.

5. Conclusion

Shadow education is an industry that developed rapidly worldwide over the past decades. While it brings private benefits to students and tutors, this growing phenomenon also intensifies the fierce competition in China's education system and aggravates social inequality.

This paper provides a summary of the situation of private tutoring in China. It summarizes factors that affect the demand and supply in the shadow education industry based on related research. However, most arguments are related to economics. The individual mental-related factors and effects are not the focus of this paper.

From the view of the demand for shadow education, the decisions are mainly made by parents, who believe their children's education is worthy of being invested in. The fierce competition in China, the previous policies, and globalization help build a befitting growing environment for shadow education. On the supply side, the low income of China's mainstream teachers, technological improvement, and the pandemic all contribute to the expansion of this industry. After COVID-19, the online teaching model has been accepted on a larger scale, especially for students in remote areas. Whether this trend will continue in the future is waiting to be confirmed.

On the macro level, private supplementary tutoring has caused inefficiency in the education system. On a smaller scale, families, particularly the low-income group, may suffer from the heavy financial burden created by it. With a clearer understanding of the underlying cause of the large-scale tutoring phenomenon, we can address this problem more comprehensively.

To sum up, most present scholars in China tend to investigate the results and effects of shadow education by collecting data on students. However, few have proposed new theories or models regarding this area. Also, suppliers' perspective has not drawn much attention, and the market characteristics are worth examining. Future studies could focus on the returns and costs of shadow education suppliers. Delving into interactions between different groups could help to deepen the understanding of the social impact of private tutoring.

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