

The Impact of the Double Reduction Policy on the Academic Performance of Middle School Students

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Abstract: In the past decade or so, Chinese primary and secondary school students generally face tremendous academic pressure such as a variety of extracurricular training, heavy homework, and a variety of exams. According to Ren et al. (2016), primary and secondary school students in China need to spend more than three hours a day on homework and tuition in addition to seven to eight hours of classes. This is because when students finish the nine-year compulsory education level students need to enter different levels of high schools based on their final exam results (Xue and Makela, 2024). These problems seriously hinder the overall development and physical and mental health of primary and secondary school students. Therefore, in July 2021, China's Central Office issued the 'Double Reduction' policy, which aims to reduce the burden of homework and extracurricular tutoring for primary and secondary school students in China's compulsory education. It aims to reduce the burden of homework and extracurricular tutoring for primary and secondary school students in China's compulsory education, by reducing the amount of homework they have to do, and by reducing the variety of tutorials and home-school co-operation to address the heavy burden of schoolwork and stress on students. This reform has very important implications for the education sector in China. The policy will not only affect the education sector but also its related businesses. However, the impact of the 'double reduction' policy on students' performance is a major theoretical topic, and its objective impact needs to be analysed through rigorous empirical research.

Keywords: Double Reduction Policy, Middle School Students, Academic Performance.

1. Introduction

According to the existing research results, the impact of the 'double-decrease' policy on students' academic performance is two-fold. On the one hand, an analysis of the academic records of 500 different students shows that students' performance in some subjects that rely on practice to reinforce knowledge, such as Mathematics, declined significantly compared to their performance before the Double Minus policy (Sun, 2024). However, according to Wang et al. (2022), students' anxiety and depression decreased after the implementation of the Double-Down policy, suggesting that the policy can help students reduce mental health problems. There is a paucity of research on the impact of the policy on student achievement, with some studies focusing on student achievement in a particular subject or on student mental health. Therefore, these results highlight the importance of comprehensive analyses and enquiry.

Research on the 'double-decrease' policy not only helps to solve the main problems faced by students in compulsory education, but also helps to objectively evaluate the impact of the 'double-decrease' policy and thus promote more effective reforms in the field of education in China. This study is dedicated to dissecting the impact of the implementation of the 'double-decrease' policy on the academic performance of secondary school students from different regions and backgrounds. At the same time, the dissection and study of the policy also helps to explore the issue of educational equity in China. For example, the implementation of the 'double-decrease' model has prompted schools to pay more attention to the issues of students' physical and mental health and development, which has enabled schools with more advanced teaching equipment and quality educational resources to provide more activities and programmes for students' all-

round physical and mental development. In contrast, schools in economically disadvantaged areas are unable to meet these requirements due to a lack of resources, which leads to a decline in the quality of teaching and learning (Xue and Li, 2022). In addition, some of the recommendations of this study may provide some reference for policy makers in China.

2. Research Aim

The main purpose of this study is to systematically analyse the impact of the 'double reduction' policy enacted by the Chinese government in the field of education on the academic performance of secondary school students. Existing research has shown that the implementation of the 'Double Reduction' policy has had a significant impact on curriculum compression and academic reform in China (Yuan, 2024). In order to gain a more in-depth and comprehensive understanding of the impact of this policy in many ways, the following research questions need to be addressed. Firstly, two issues need to be examined in the quantitative part of the study. Firstly, how has the academic performance of secondary school students changed since the implementation of the Double Reduction Policy? Secondly, has the impact of the policy been more pronounced in specific subjects such as Mathematics, Physics and Chemistry? However, three questions need to be examined in the qualitative part of the study. Firstly, what are the differences in the impact of the Double-Down policy between rural and urban areas? Secondly, what will happen to students with different academic performance as a result of the policy? And finally. What are the differences in the effects of the policy in areas where teaching resources and teacher quality vary.

3. Research Design

Based on the above research questions, and with reference

to the existing relevant research, this paper needs to analyse the research using a mixed research method (Wei, 2024). This method combines qualitative and quantitative data to present a holistic picture of the impact of the 'double-decrease' policy (Sun, 2024).

In the quantitative phase of the study, it will analyse the trend of students' performance since the implementation of the "Double Minus" policy and whether the impact has been more pronounced in certain subjects (e.g., Physics, Chemistry, etc.). Firstly, despite China's increased public investment in education, inequalities in education between rural and urban areas still exist, both in terms of software and hardware, and there are significant differences between rural and urban schools (Xue, 2015). So dividing the study by region can ensure that the results of the study are more reliable. In this study, a sample of 4000 students will be selected through stratified randomisation from 20 secondary schools in rural and 40 secondary schools in urban areas with different economic status to analyse their overall performance in such standardised exams and tests as well as their performance in individual subjects such as Mathematics, Chemistry, and Physics in the year before and the year after the implementation of the policy. The 4000 students will be able to 4,000 students provided the statistical power to analyse differences in academic performance and stratified sampling ensured diversity of data across districts. Since stratified random sampling was used in the study according to Howell et al. (2020), this method allowed the researcher to stratify the sample according to different regional characteristics and thus make the sample more representative of the region. In addition, the collection of student achievement on standardised tests provides a consistent standard for analysing the academic performance of students from different regions, allows for comparisons to be made between different groups of students rather than just one school or region, and reduces the subjective bias of the teachers making the assessment results more realistic and objective (Bloom and Hastings, 1981, p. 182). 1981, p. 182). At the same time.

On the other hand, the qualitative phase of the study involves analysing the differences in the impact of the 'double-decrease' policy on rural and urban schools, and how students with different academic levels are affected by the policy. Finally, it will explore the impact of the Double-Down policy in areas with different school resources and teacher quality. Meanwhile, the qualitative data collection will last for six months, divided into three phases of two months each. In the first phase, students, parents, and administrators will be interviewed and classroom observations will be conducted to obtain more valuable information and data. In the second phase, interviews will continue to be conducted with students, parents, and administrators. In phase three, a second classroom observation will be conducted. Once these three tasks are completed, the data will be compiled and analysed.

Firstly, similar to (Sun, 2024), one-to-one interviews with students, parents and school administrators will be conducted using the interview method, which is an open-ended, semi-structured interview designed to allow the researcher to collect data in greater depth. The study will be conducted with a total of forty students, twenty students from rural and forty students from urban areas, which will also include twenty high achievers and twenty low achievers. Twenty parents who have different economic status in the society. Finally there were ten administrators who came to work in different schools. According to Knott et al. (2022) it was shown that semi-

structured interviews not only allowed for a more in-depth collection of information from the participants but also ensured the validity of the information collected. This enabled the study to better gather the personal views of participants from different regions on the implementation of the Double-Down policy, which also helped to understand the impact of the policy under different conditions and the perceptions of students with different academic achievements and how they were affected by the policy.

Secondly, the qualitative research process will be discussed using focus groups where forty participants will be divided into two groups. Each group will be moderated by the researcher and will be composed of 10 parents and 5 students from disadvantaged and backward areas and 5 students from urban areas. This methodology will require each member of the group to actively discuss and voice their thoughts on the changes observed after the implementation of the Double-Down policy and reflect on their own actual experiences as a way of presenting a collective interpretation of the impact of the policy at the collective level. ONyumba et al. (2018) mentioned in their study that In their study, ONyumba et al. (2018) mentioned that in-depth research on social issues is often conducted using focus group discussions, where each participant is encouraged to express a different point of view and a large amount of qualitative data can be obtained. This methodology is important in order to gain an in-depth understanding of the collective impact of the Double-Down policy in different contexts.

Finally, this study analyses and determines the impact of the Double-Down policy on the overall quality of the classroom through the method of classroom observation (both in terms of student classroom engagement and the effectiveness of teacher practice). Understanding how teachers' pedagogical practices have changed since the implementation of the policy and in what ways the policy has reduced students' classroom workload is its most important aim. Classrooms in grades 7 to 9 in schools in different districts were the main application of the observation method. According to Hein (1991), Piaget's theory of constructivism states that learning requires the individual to be in active contact with the external environment. Therefore, by observing classroom activities, the researcher was able to understand how the implementation of the Double-Down policy affected students' learning and classroom engagement in different districts.

Although the combination of quantitative and qualitative research was able to provide a more comprehensive analysis of the impact of the 'Double Reduction' policy on secondary school students' performance, there were some limitations.

In the process of stratified sampling of schools in both rural and urban areas, the fact that some schools in the backward areas could not fulfil the conditions for participation in the study or that some schools were unwilling to participate in the study would result in the selection of schools or students that were not representative of the population, thus reducing the reliability of the results of the study. Sampling bias is a frequent problem in the research process, when the sampling method is systematically biased in favour of certain characteristics, it will lead to a lack of representativeness of the sample, and such sampling bias will lead to errors in the results of the study and reduce the accuracy of the results. (Groves, 2006). At the same time, sampling bias can be caused by selecting a sample size that is too small or too large (Cochran 1977). Therefore, this problem can be addressed in

this study by increasing the sample size selected. Specifically this can be done by selecting schools in more provinces to ensure that the data collected is more representative. In addition to this, temporal differences in the data collected for the study can also lead to biased results.’ The Double Minus policy was only implemented in the last two years, and this study was limited in capturing the long-term effects of the policy on student achievement, so that the data collected could only show the short-term effects. This issue would have prevented this study from analysing the long term effects of the implementation of the Double-Down policy on students. However, according to Graziotti et al. (2012) it is possible to increase retention by maintaining regular contact with participants and emphasising the importance of the study, whilst at the same time collecting data by making reasonable arrangements to meet with participants. Therefore, in this study, long-term data can be obtained by following up with the participating secondary school students over a long period of time, e.g., conducting home visits and surveys with the participating secondary school students after three to five years can also provide further insights into the long-term impact of the ‘double-decrease’ policy, and incentives can be provided to the participating students, such as Incentives can also be provided to participating students through incentives such as certain tuition fee subsidies to ensure that students continue to participate in the study so that the researcher can have access to long-term data. Finally, the observation method used in qualitative research can also be influenced by the subjectivity of the observer. The researcher’s subjective awareness can interfere with his/her understanding of the observed phenomena and thus the way the data is interpreted. O’Connor and Joffe (2020) stated that multiple coders can be arranged to cross-validate the collected data aiming to enhance the reliability and consistency of the data. Therefore, in the course of this study, the information and data obtained can be validated and analysed through triangulation by setting up multiple coders. The likelihood of bias in the results of the study will be drastically reduced in this way, and learning and practising the knowledge and skills of objective observation techniques cannot be ignored for the researcher.

4. Data Analysis

Based on the mixed research methodology used in the research design section, the quantitative and qualitative data will be analysed in different ways. Firstly, in terms of quantitative data, descriptive statistics were used to profile and summarise the overall scores collected from students on standardised tests including mean, median, standard deviation and percentage. This allowed for the identification of ‘trends in student achievement before and after the Double-Down Policy’. The focus was on the performance of students in key subjects such as Mathematics, Physics and Chemistry from Years 7 to 9 to determine trends in their performance. Schmoker et al. (2004) stated that the use of descriptive statistics in the field of education for data analysis is very important in analysing trends. Therefore, descriptive statistics can be of great help in determining trends in student performance before and after the implementation of the Double-Decrease policy. Secondly, a paired t-test will be conducted on the students’ performance in individual subjects before and after the implementation of the policy. The purpose of this test is to observe the changes in the examination scores to determine whether the “Double Minus” policy has had a significant impact on the students’

performance, especially in certain subjects such as Mathematics and Physics, which rely on a lot of practice to consolidate their knowledge. Similar data analysis methods were used in this study as in previous studies. Inferential statistics such as t-tests and regression analyses were used to determine the significance of the observed changes and gaps (Sun, 2024).

Meanwhile, for qualitative data thematic analysis, comparative analysis and triangulation will be used. Xu and Zammit (2020) study pointed out that The study points out that the use of thematic analysis is characterised by flexibility, comprehensiveness and systematicity, and that this methodology is well suited to be applied in educational research. Therefore thematic analysis of interview transcripts, classroom observations and focus interviews will enable the three issues of the qualitative study to be analysed from the perspective of the subjective experiences of students, parents and school administrators from different backgrounds and regions. Second, comparative analyses of qualitative data from focus groups and interviews were able to demonstrate the impact of the Double-Down policy on schools in different districts and differences in student academic achievement, as discussed in Bingham et al. (2019), where the purpose of comparative analyses is to determine the causal relationship between educational policies and specific outcomes under different conditions. causal relationships. Meanwhile, The triangulation method of cross-checking quantitative data with qualitative data is of significant help in drawing reliable conclusions from the study.

5. Conclusion

This research project aims to systematically analyse the impact of the ‘double-decrease’ policy on the academic performance of secondary school students in China, with the main objective of assessing the differences in the impact of the policy under different conditions and circumstances. The study adopts a mixed-methods approach, combining qualitative and quantitative research methods and utilising a variety of data analysis tools. These methods enhance the validity as well as the reliability of the findings. Finally, this study expects to provide some reference value for the reform of China’s education policy, which in turn will contribute to the improvement of China’s education system.

References

- [1] Bingham, A. J., Dean, S., & Castillo, J. (2019). Qualitative comparative analysis in educational policy research: Procedures, processes, and possibilities. *Methodological Innovations*, 12(2). <https://doi.org/10.1177/2059799119840982>
- [2] Cochran 1977 Sampling Techniques : Free download, borrow, and streaming : Internet Archive. (2023, January 9). Internet Archive. <https://archive.org/details/cochran-1977-sampling-techniques/mode/2up?q=Causes+of+Sampling+Bias>
- [3] Evaluation to improve learning. (n.d.). Google Books. https://books.google.co.uk/books?redir_esc=y&hl=zh-CN&id=IshpmwM4YUIC&focus=searchwithinvolume&q=the+importance+of+objective+assessments+in+measuring+learning+outcomes
- [4] Evaluation to improve learning: Bloom, Benjamin S. (Benjamin Samuel), 1913-1999 : Free Download, Borrow, and Streaming : Internet Archive. (1981). Internet Archive.

- https://archive.org/details/evaluationtoimpr0000bloo?utm_source=chatgpt.com
- [5] Graziotti, A. L., Hammond, J., Messinger, D. S., Bann, C. M., Miller-Loncar, C., Twomey, J. E., Bursi, C., Woldt, E., Nelson, J. A., Fleischmann, D., & Alexander, B. (2012). Maintaining participation and momentum in longitudinal research involving High-Risk families. *Journal of Nursing Scholarship*, 44(2), 120–126. <https://doi.org/10.1111/j.1547-5069.2012.01439.x>
 - [6] Groves, R. M. (2006). Nonresponse rates and nonresponse bias in household surveys. *The Public Opinion Quarterly*, 70(5), 646–675. <https://www.jstor.org/stable/4124220>
 - [7] Hein, G. (1991). Constructivist learning theory. In CECA (International Committee of Museum Educators) Conference, CECA (International Committee of Museum Educators) Conference [Conference-proceeding]. https://beta.edtechpolicy.org/AAASGW/Session2/const_inquiry_paper.pdf
 - [8] Howell, C. R., Su, W., Nassel, A. F., Agne, A. A., & Cherrington, A. L. (2020). Area based stratified random sampling using geospatial technology in a community-based survey. *BMC Public Health*, 20(1). <https://doi.org/10.1186/s12889-020-09793-0>
 - [9] Knott, E., Rao, A. H., Summers, K., & Teeger, C. (2022). Interviews in the social sciences. *Nature Reviews Methods Primers*, 2(1). <https://doi.org/10.1038/s43586-022-00150-6>
 - [10] O'Connor, C., & Joffe, H. (2020). Intercoder reliability in Qualitative Research: Debates and practical guidelines. *International Journal of Qualitative Methods*, 19. <https://doi.org/10.1177/1609406919899220>
 - [11] ONyumba, T., Wilson, K., Derrick, C. J., & Mukherjee, N. (2018). The use of focus group discussion methodology: Insights from two decades of application in conservation. *Methods in Ecology and Evolution*, 9(1), 20–32. <https://doi.org/10.1111/2041-210x.12860>
 - [12] Ren, H., Zhou, Z., Liu, W., Wang, X., & Yin, Z. (2016). Excessive homework, inadequate sleep, physical inactivity and screen viewing time are major contributors to high paediatric obesity. *Acta Paediatrica*, 106(1), 120–127. <https://doi.org/10.1111/apa.13640>
 - [13] Schmoker, 1999, North Central Regional Educational Laboratory, Fitzpatrick, M., Margolin, J., Learning Point Associates, Holcomb, 1999, & Sargent, 2003. (2004). Using data to guide school improvement. In *Notes & Reflections*. <https://files.eric.ed.gov/fulltext/ED518630.pdf>
 - [14] Sun, Y. (2024, September 23). Analyzing the impact of the “Double Reduction” policy on Student Well-Being and Academic performance in urban China. https://www.paradigmexpress.org/rae/article/view/1308?utm_source=chatgpt.com
 - [15] Wang, D., Chen, X., Ma, Z., Liu, X., & Fan, F. (2022). Has the “Double Reduction” policy relieved stress? A follow-up study on Chinese adolescents. *Child and Adolescent Psychiatry and Mental Health*, 16(1). <https://doi.org/10.1186/s13034-022-00530-6>
 - [16] Wei, W. (2024). The impact of the double reduction policy on the academic achievements of Chinese secondary school students in mathematics: A case study of Yuncheng city, Shanxi province. *SHS Web of Conferences*, 187, 02004. <https://doi.org/10.1051/shsconf/202418702004>
 - [17] Xu, W., & Zammit, K. (2020). Applying Thematic Analysis to Education: A hybrid approach to interpreting data in practitioner research. *International Journal of Qualitative Methods*, 19. <https://doi.org/10.1177/1609406920918810>
 - [18] Xue, D. Z. & X. L. & J. (2015). Education Inequality between Rural and Urban Areas of the People’s Republic of China, Migrants’ Children Education, and Some Implications. [ideas.repec.org](https://ideas.repec.org/a/tpr/adbadr/v31y2015i2p196-224.html). <https://ideas.repec.org/a/tpr/adbadr/v31y2015i2p196-224.html>
 - [19] Xue, E., & Li, J. (2022). What is the value essence of “double reduction” (Shuang Jian) policy in China? A policy narrative perspective. *Educational Philosophy and Theory*, 55(7), 787–796. <https://doi.org/10.1080/00131857.2022.2040481>
 - [20] Xue, X., & Makela, C. (2024). Double reduction educational policy: Impacts on grades 1-9 compulsory education in China. *International Journal of Chinese Education*, 13(2). <https://doi.org/10.1177/2212585x241270236>
 - [21] Yuan, J. (2024). Exploring the impact of the ‘Double Reduction’ policy on academic performance and comprehensive abilities. *Journal of Education and Educational Research*, 7(1), 153–156. <https://doi.org/10.54097/zjcz8z60>