The Rebirth of Shadow Education: An Analysis of the Changes in Students' Participation in Xi'an Under the Double Reduction Policy

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Abstract

Amid escalating concerns regarding excessive peer pressures and the proliferation of shadow education in China, the Double Reduction Policy emerged, which fostered a more balanced educational ecosystem. This study delves into the transformation of student participation in private tutoring services in Xi'an City, subsequent to the implementation of this policy. To conduct this research, we designed comprehensive questionnaires tailored to Xi'an's primary and secondary schools and employed a stratified random sampling method to select 300 educators and 300 parents from the compulsory education system. Utilizing SPSS 26.0 software and employing a variety of quantitative analysis methods, such as Analysis of Variance to identify trends and significant changes. A profound transformation was found in Xi'an's educational landscape post-policy implementation. A notable 33% decrease in the total number of educational institutions was observed, with academic tutoring institutions experiencing a steeper decline of 37%, while non-academic, interest-driven institutions surged by 33%. This shift also altered the proportion of academic-focused institutions decreasing from 94% to 88%. Notably, approximately 70% of parents reported a substantial reduction in stress and anxiety related to their children's education. The results highlight the importance of promoting a more diverse and balanced educational ecosystem that prioritizes students' holistic development, while also acknowledging the shared perspectives among teachers and parents regarding the policy's impact. However, the study's scope was confined to Xi'an City. Future research could expand the geographical scope, incorporate objective measures, and investigate the long-term impacts of the Double Reduction Policy on student outcomes and educational equity.

Keywords: shadow education, Double Reduction Policy, triangulation analysis, private tutoring



Introduction

Shadow education is widely viewed as a potential issue by governments worldwide, often creating a "win-lose" scenario with public education (Bray, 2010; Du, 2024; Park et al., 2016). In East Asia, influenced by the "imperial examination" culture, exams are crucial for selection and social stratification in China. The limitations of public education in addressing academic competition have led to the growth of private tutoring and a substantial shadow education sector (Jansen et al., 2023). This sector includes private tutoring, remedial learning, cram schools, and online courses (Kim, 2013; Ma et al., 2022). The expansion of shadow education intensifies competition with public education, increases academic and financial burdens, and prompts government intervention. Policies such as banning or restricting shadow education often fall short of meeting students' needs and achieving immediate results (Byun et al., 2018; Lee et al., 2010; Liang et al., 2022; Zhang & Bray, 2020). Despite efforts by countries like Japan and South Korea to curb its growth, the rise of online learning during the COVID-19 pandemic has accelerated shadow education's expansion (Piao & Hwang, 2021).

Addressing shadow education requires a new approach. On April 26, 2021, China's Ministry of Education issued the "Opinions on Further Reducing the Burden of Homework and Off-campus Training for Students in the Period of Compulsory Education" (the Double Reduction Policy). This policy aims to regulate private tutoring institutions by enhancing public education quality, signaling a challenge to shadow education. However, the policy also allows for private institutions to address specific needs, such as developing interests or comprehensive abilities, by focusing on non-academic subjects. This approach does not entirely ban shadow education but encourages its transformation, permitting the growth of tutorials in areas like art and sports, while phasing out those focused solely on academic subjects.

Three years after implementing the Double Reduction Policy, China's shadow education has evolved into a complement to public education, with both sectors reinforcing each other. This study explores whether shadow education has "regained its vitality" by examining its changes before and after the policy's introduction. Using Jacques Lacan's theory of the "Other," which considers the Other as a reference frame encompassing the linguistic and symbolic system influencing self-recognition (Le Séminaire de Jacques Lacan, Livre III, 1981), this research goes beyond analyzing private tutoring and students in Xi'an. It also includes teachers and parents, investigating their perspectives on the Double Reduction Policy as "Others" to provide a comprehensive view of the changes in China's shadow education.

Method

Our research focuses on students, teachers, and parents in the compulsory education sector in Xi'an City, conducting an empirical study to explore the situations before and after the implementation of the Double Reduction Policy. Leveraging sample data and employing econometric statistical methods, we have unveiled the transformations and implications of shadow education within the region under the Double Reduction Policy. In terms of methodology, we adopt a triangulation approach, which entails utilizing three distinct research methods to arrive at consistent findings. Specifically, the primary research methods employed in this study are as follows:

(A) Data Analysis of Existing Statistical Resources: We conducted data analysis on statistical resources such as Xi'an's basic education database and the statistical yearbook of the Shaanxi Provincial Department of Education. This approach provides a quantitative foundation for our investigation.

(B) In-Depth Interviews With Relevant Stakeholders: Based on information gathered from private tutoring institutions, we categorized them into large, medium, and small sizes according to their standard areas. From each category, one institution was randomly selected, and we conducted in-depth interviews with ten individuals associated with these institutions. These interviews aimed to capture the changes in each sampled institution before and after the implementation of the Double Reduction Policy.

(C) Questionnaire Survey on Attitudes Towards Shadow Education: We utilized a questionnaire survey to investigate the attitudes of 300 teachers and 300 parents from primary and secondary schools in Xi'an's compulsory education stage towards shadow education. This method allowed us to gather a broad range of perspectives and insights into the impact of the policy on stakeholders directly involved in the education system.

Result

Overview of Shadow Education in Xi'an Before and After the Implementation of the Double Reduction Policy

Based on the official statistics from Shaanxi Province and Xi'an City, prior to the introduction of the Double Reduction Policy, the total number of private tutoring institutions stood at 54, among which 51 were subject-based and 3 were non-subject-based. Following the implementation of the policy, the total count of private tutoring institutions decreased to 36, comprising 32 subject-based institutions and 4 non-subject-based ones. According to current statistical data, shadow education in Xi'an is predominantly comprised of subject-based private tutoring institutions, which are thus the primary focus of regulatory efforts. Consequently, as the number of non-subject-based private tutoring institutions continues to rise, an overall declining trend is observed in the total number of shadow education entities. Specifically, the overall growth rate of private tutoring institutions is -33%, with a -37% decline in subject-based institutions and a 33% increase in non-subject-based institutions. The proportion of subject-based private tutoring institutions and a 38%.

To delve into the regulatory response to subject-based shadow education post-policy implementation by the Xi'an Education Bureau, we have analyzed the compliance situation as presented in Table 1. All subject-based private tutoring institutions are found to be in compliance with the stipulated information disclosure requirements, with an 82.3% registration rate. The cancellation rates for subject-based and non-subject-based institutions are respectively 17.6% and 0.

Regulatory Type	Number	Comprehensive Approach	Number	Complaint Channels	Number	Resolution Methods	Number
Closure and Rectification	51	Violations	5	Mayor's Hotline	4	Refund of Tuition Fees	0
Information Gathering	42	Interviews	13	Reports	2	Refund of Rental Fees	0
Re-registrati on	1	Cancellation	7				
		Automatic Cancellation	2				

 Table 1: Changes in Subject-Based Shadow Education Institutions in Xi'an After

 the Introduction of the Policy

As can be seen from Table 1, after the policy was issued, significant changes have occurred in shadow education in Xi'an. The proportion of subject-based private tutoring institutions decreased from 94% to 88%, while the number of non-subject-based private tutoring institutions increased by 33%. These results indicate that while the number of subject-based private tutoring institutions has decreased, the number of non-subject-based private tutoring institutions has increased, marking a transformation of shadow education in Xi'an to a certain extent.

Behavioral Choices of Parents and Subject-Based Private Tutoring

According to the sample survey results from various schools in Xi'an, as detailed in Table 2, after the implementation of the Double Reduction Policy, the SSAI (School-based After-School Activity Institution) transformed from a subject-based training institution offering Chinese, mathematics, and English courses to a non-subject-based institution, and it is the only educational institution that has successfully undergone this transformation. However, its student enrollment and teaching staff have both shown a marked downward trend. Meanwhile, the number of students and teachers in non-subject-based institutions is zero, indicating that they have ceased operations.

Institution Name	Operating Status	Teachers & Stud	lents Before,	Teachers & Students under the Double Reduction Policy		
	operating status	Teachers	Students	Teachers	Students	
SSAI	Transformed into	22 100		12	22	
	Non-Subject-Based Training	22	100	12	25	
XXW	Ceased Operation	12	70	0	0	
SG	Ceased Operation	7	30	0	0	

Table 2: Sample Survey Data of Subject-Based Institutions

As evident from Table 2, since the implementation of the Double Reduction Policy, shadow education institutions have suffered significant setbacks, with a sharp decline in the number of teachers and students, leading to a marked reduction in institutional profitability. Even those institutions attempting to transform face immense challenges, and few have managed to successfully complete the transition. For those that have succeeded, the number of teachers

and students has still decreased significantly, making it difficult for these institutions to survive and ultimately leading to the possibility of cessation of operations. This demonstrates that one of the primary objectives of the Double Reduction Policy – to reduce the burden of extracurricular training on students – has been largely achieved.

Changes in Fees for Sample Subject-Based Institutions

This paper adopts the method of field research to collect data on fees before and after the implementation of the Double Reduction Policy, and conducts a statistical analysis of fees across different classes, as detailed in Table 3. Taking grades as the unit of analysis, we investigate the changes in tuition fees for various subject-based institutions in District X. For junior high school students enrolled in one-on-one classes, tuition fees have increased by 66.7%. Among all, the fees for after-school tutoring classes for primary school students have seen the largest increase, reaching 300%. Moreover, after the implementation of the Double Reduction Policy, there have emerged "contract classes" and "one-on-one classes" with extremely high tuition fees.

	Doul	ble subtraction fi	ont	nt Double subtraction			
Crada	One-to-one	The bottom	Evening	One-to-one	Agreement	Evening	
Grade		class in a	auxiliary		class	auxiliary	
		kindergarten	shift			shift	
Junior high	60/h			100/h	200/h		
school							
Primary		500/m	500/m	70/h	240/h	200/h	
school							

Table 3: Xi'an City Discipline Private Supplementary Education Institutions Charge Statistics

After the implementation of the Double Reduction Policy, as evident from the results in Table 3, private tuition fees for academic disciplines surged dramatically, accompanied by the emergence of novel tutoring methodologies. This surge in fees might stem from the fact that these institutions are brazenly defying the policy, taking significant risks, and engaging in potentially illegal activities. Despite the state's explicit directive to shut down private remedial institutions, they persist in offering remedial classes, altering their approaches to circumvent the stipulated regulations.

According to the data presented in Tables 2 and 3, the initial impact of the Double Reduction Policy in Xi'an City is discernible. Although the number of extracurricular remedial institutions has decreased, extracurricular training has adapted and evolved into alternative forms, such as "one-on-one" tutoring and "homework assistance," with prices escalating several folds. However, it's important to note that the aforementioned figures solely capture subject-specific charges and fail to encompass non-subject-related expenses. Consequently, the full extent of how the Double Reduction Policy has influenced the evolution of cram schools and its implications for Xi'an's primary and secondary school students warrants further investigation and exploration.

Empirical Analysis of Primary and Secondary Schools Participating in Extracurricular Activity Classes in Xi'an City Under the Policy of the Double Reduction Policy

This study takes primary and secondary schools in a certain area of Xi'an City as the research object, and investigates the extracurricular activities carried out in primary and secondary schools. Using the questionnaire method, this paper investigates the implementation of the "double reduction" policy in Xi'an City, including public, private, urban area, development zone, rural, urban-rural integration schools, etc. A total of 400 questionnaires were distributed and 300 were recovered, with an effective rate of 75%.

An analysis of variance, also known as an "analysis of variance" or "F-test," is a significant test for the mean difference between two or more samples. The essence of variance analysis is to test a hypothesis when the variance of several normal populations is the same. On this basis, the variance analysis of variables is divided into single variance analysis and multi-factor variance analysis. In this paper, "identity" is the only variable, and "identity" includes "teacher" and "parent." Therefore, one-way ANOVA was used in this paper.

Conditions for Use of One-Way ANOVA. A prerequisite for using one-way ANOVA is that the sample meets normality and variance consistency.

Normality means that a set of observed data is normal, and its characteristics are normal. Therefore, Kolmogorov-Sminov method is selected in this paper, because the number of samples is greater than 50, and the normality test results of each variable are shown in Table 4. When the significance is 0.05, the significance degree of each variable exceeds 0.05, and each variable can be considered to conform to the normal distribution.

Table 4: Kolmogorov-Sminovtest						
Observed variables	Statistics	Degree of freedom	Significance			
Teacher	0.076	120	0.200			
Patriarch	0.058	120	0.090			

It can be seen from Table 4 that at the significance level of 0.05, since 0.200 > 0.05 and 0.090 > 0.05, the significance level exceeds 0.05, indicating that both observed variables meet the conditions of normal distribution.

The test for homogeneity of variance tests whether the total variance observed for a test factor at two or more levels is the same. Moreover, because this article uses the single factor horizontal design plan, therefore uses the F test method, as shown in table 5.

Table 5: Test for Homogeneity of Table Variance						
Levin statistics	DOF 1	Degree of Freedom 2	Significance			
1.661	1	119	0.179			

As shown in Table 5, at the significance level of 0.05, since 0.179 > 0.05, it can be considered that the variances of the test factors are equal at both levels, satisfying the prerequisite requirements for the use of one-way ANOVA. In conclusion, the sample data were tested for normality and variance, and the sample data met the preconditions for using ANOVA, so one-way ANOVA could be performed.

	Table 6: One-Way ANOVA							
	Square sum	Degree of	Mean square	F	Significance			
		freedom						
Between	0.734	1	0.734	0.961	0.252			
groups								
Intra-class	90.948	119	0.764					
Aggregate	91.682	120						

Analysis of variance (ANOVA) was performed using SPSS26.0 software. The final test analysis results show that the P value of the difference between teachers and parents is greater than 0.05, so it can be considered that there is no significant difference between teachers and parents, that is, whether parents or teachers show consistency in the questionnaire data, indicating that these two groups have the same attitude towards the questionnaire survey, and we regard them as one group for analysis.

Multiple Regression Analysis. In this paper, multivariate regression is used to further process the data where is the regression coefficient to be estimated and is the random error term.

$$Y = \beta_0 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \varepsilon$$
(1)

Firstly, the influencing factors before the implementation of the Double Reduction Policy are analyzed. X_1 is the time of subject tutoring before the Double Reduction Policy, X_2 is the time of non-subject tutoring before the Double Reduction Policy, X_3 is the comparison of family expenses before the Double Reduction Policy, X_4 is whether parents feel anxious about education problems before the Double Reduction Policy, and the dependent variable *Y* is the degree of understanding of the Double Reduction Policy.

Table 7: Regression Analysis Results								
	Denor	malization	t		p-value			
	coe	efficient						
Constant (quan	tity)	2.079						
Subject Durati	ion -	0.021	-0.49	9	0.618			
Non-discipline du	ration -	0.019	-0.44	8	0.655			
Charge against re	venue).086	1.94′	7	0.045			
Anxiety	().055	1.320	0	0.188			
		Table 8: M	Iodel Summary					
R	R ²	Adj	usted R ²	Model Error	DW value			
				RMSE				
0.134	0.018		0.005	0.452	1.941			
	Table 9: ANOVA							
	Square sum	df	Mean square	F	p-value			
regression	3.234	4	0.809	1.407	0.0232			
residual	175.866	296	0.575.					
aggregate	179.100	300						

As can be seen from the table above, at the significance level of 0.05, only household expenditures affect the understanding of the Double Reduction Policy. The formula of the model is: Understanding degree = 2.079-0.021*Duration of attending discipline tutorial classes before the Double Reduction Policy -0.019* Duration of attending art activity classes before the Double Reduction Policy +0.086* Proportion of your family expenses before the Double Reduction Policy +0.055* Whether you are anxious about your children's education problems before the Double Reduction Policy. The square value of R of the model is 0.018, which means that the time spent on subject tutoring classes before the Double Reduction Policy, the time spent on art classes before the Double Reduction Policy, the proportion of your family expenses before the Double Reduction Policy, and whether you are anxious about your child's education before the Double Reduction Policy can explain the 1.8% change in your understanding of the Double Reduction Policy. When F-test is performed on the model, it is found that the model passes the F-test (F = 1.407, p = 0.0232 0.05), that is, the length of time you participate in subject tutoring classes before the Double Reduction Policy, the length of time you participate in art activity classes before the Double Reduction Policy, the proportion of your family expenses before the Double Reduction Policy, and whether you are anxious about your children's education before the Double Reduction Policy will have an impact on your understanding of the Double Reduction Policy.

Secondly, it analyzes the influencing factors after the implementation of the Double Reduction Policy, which is the subject tutoring time after the Double Reduction Policy, T_2 is the non-subject time after the Double Reduction Policy, T_3 is the comparison of family expenses after the Double Reduction Policy, T_4 is whether parents feel anxious about education problems after the Double Reduction Policy, and the dependent variable *Y* is the degree of understanding of the Double Reduction Policy.

	Table 10: Reg	gression Anal	ysis Results	
	Denormalizatio	n	t	p-value
	coefficient			
Constant (quantity)	1.853			
Subject Duration	0.016		0.363	0.032
Non-discipline duration	-0.071		-1.570	0.048
Charge against revenue	-0.027		-0.603	0.046
Anxiety	0.006	0.006 0.147		0.044
	Table 1	1: Model Sun	nmary	
R	\mathbb{R}^2	Adjusted R ²	Model Error	DW value
			RMSE	

0.098	0.032	0.016		0.755	1.977			
Table 12: ANOVA								
	Square sum	df	Mean square	F	p-value			
Regression	1.721	4	0.430	0.742	0.046			
Residual	177.379	296	0.580.					
Aggregate	179.100	300						

It can be seen from the above table that under the condition of significance level 0.05, the four variables will affect the degree of understanding of the Double Reduction Policy, namely,

the length of time to participate in subject remedial classes after implementation, the length of time to participate in art activity classes after implementation, the proportion of your family expenses, and whether you feel anxious about your children's education problems after the Double Reduction Policy. Take these factors as independent variables, and take your understanding of the Double Reduction Policy as dependent variables, so as to conduct linear regression analysis. As can be seen from the above table, the formula of the model is: your understanding of the Double Reduction Policy = $1.853 + 0.016^*$ the time spent on subject remedial classes after the Double Reduction Policy -0.071 the time spent on art activity classes after the Double Reduction Policy -0.027* the proportion of your family expenses after the Double Reduction Policy + 0.006* whether you feel anxious about your child's education problems after the Double Reduction Policy. The square value of the model R is 0.032, which means the time spent on subject remedial classes after the Double Reduction Policy, the time spent on art activity classes after the Double Reduction Policy, the proportion of your family expenses after the Double Reduction Policy, whether you feel anxious about your child's education problems after the Double Reduction Policy, which can explain the 3.2% change in your understanding of the Double Reduction Policy. When F-testing the model, we found that the model passed F-test (F = 0.742, p = 0.046 < 0.05), that is to say, the time spent in subject tutoring classes after the Double Reduction Policy, the time spent in art classes after the Double Reduction Policy, the proportion of family expenses after the Double Reduction Policy, and whether you feel anxious about your children's education problems after the Double Reduction Policy will have a certain influence on your understanding of the **Double Reduction Policy.**

Through the above analysis, it can be seen that after the implementation of the Double Reduction Policy, students 'remedial time for subjects has decreased significantly, while the remedial time for non-subjects has increased significantly, while the proportion of family expenses has also changed, and the proportion of professional training expenses has decreased significantly. Moreover, after the implementation of the Double Reduction Policy, most parents' anxiety has been alleviated. It shows that after the implementation of the Double Reduction Policy, the situation of primary and middle school students participating in extracurricular activities has changed obviously, and the Double Reduction Policy has played a positive role.

Table 13: Difference Comparison of the Impact of the Double Reduction Policy							
	(N = 143)	(N = 157)					
	Double subtraction	After double	t	Р			
	(M + SD)	subtraction (M + SD)					
Subject-based	17.63 ± 5.44	20.76 ± 7.3661	2.235	0.039			
Non-academic category	18.88 ± 4.92	17.98 ± 5.5887	2.298	0.024			
Extracurricular activity class	36.51 ± 10.36	38.74 ± 12.9248	2.463	0.008			

Analysis of Changes in Extracurricular Activity Classes in Primary and Secondary Schools in Xi'an City. According to the questionnaire data, statistical analysis was carried out and the following conclusions were drawn:

It can be seen from the above table that, under the condition of significance of 0.05, the Double Reduction Policy has a significant effect on both subject and non-subject courses (P < 0.05), and the total score after the Double Reduction Policy is higher than that before the "double minus" policy. This may be related to the fact that the subjects of the study are

primary and middle school students. First, primary and secondary school students are not mature enough to feel the pressure of further education and do not realize the importance of education. Therefore, once the state stipulates that they should reduce homework or even complete homework, they will immediately cooperate. Second, many primary and secondary school students attend tutorial classes because of pressure from their parents, who show little interest in them. Under the Double Reduction Policy, many students switch from professional tutorial classes to non-professional tutorial classes. Third, in childhood, primary and secondary school students prefer their childhood to be happy, because they do not want to be occupied by heavy homework and endless tutoring, so under this system, their scores are higher than before.

On the whole, the Double Reduction Policy has a great impact on students "academic performance, and after the implementation of the Double Reduction Policy, students" comprehensive scores are higher than before the Double Reduction Policy, indicating that *The Double Reduction Policy* has achieved a relatively good burden reduction effect.

Correlation Analysis Between the Double Reduction Policy and Family Education Expenditure Type. Pearson correlation: A measure of the relationship between two variables, between-1 and 1. The result is the quotient of the covariance and standard deviation of the two variables. The covariance between two sets X, Y is calculated as:

$$COV(X,Y) = \frac{1}{n-1} \left[\sum_{i=1}^{n} \left(X_i - \overline{X} \right) \left(Y_i - \overline{Y} \right) \right]$$
(2)

Formula for Pearson correlation coefficient:

$$COV(X,Y) = \frac{COV(X,Y)}{\sigma_X \sigma_Y} = \frac{\sum_{i=1}^n (X_i - \overline{X})(Y_i - \overline{Y})}{\sqrt{\sum_{i=1}^n (X_i - \overline{X})^2 \sum_{i=1}^n (Y_i - \overline{Y})^2}}$$
(3)

		Double-subtraction	
	Number of households	policy impact	Р
		correlation coefficient	
Subject-based	300	-0.0478	0.000
Non-academic category	300	0.0367	0.000
Recreational activities	300	0.0483	0.000
Family dinner party	300	0.0289	0.000

Table 14: Correlation Ana	lysis	of Each	Dimension	of Hou	sehold	Expenditur
	~					

From the data in Table 14, it can be seen that at the significance level of 0.05, all household expenditures are significantly correlated with the Double Reduction Policy, while only the correlation coefficient between subject expenditures and the Double Reduction Policy is-0.0478. It can be seen from the data of subject expenditure that parents and primary and secondary school students pay more attention to the Double Reduction Policy, and under the policy of the Double Reduction Policy, the number of subjects participating in remedial

courses is obviously reduced. Moreover, there has been a marked increase in the number of participants in non-academic training courses, which indicates that parents are paying more and more attention to their children's education and hope that their children can obtain all-round development and no longer be limited to textbook knowledge. Moreover, from the current situation, entertainment consumption and family dinner consumption are related to the Double Reduction Policy, which means that after the implementation of the Double Reduction Policy, primary and secondary school students have more spare time and can have more time to participate in some leisure activities and family dinners.

The analysis revealed that among parents of lower primary school students (Grades 1-3), a significant 54.3% expressed a sentiment of "mixed relaxation and heightened worry," believing that while children are able to complete their homework in school, this still elicits much concern. A further 22.5% manifested more pronounced anxiety, asserting that they "dare not adopt a laid-back attitude," while 17.6% expressed a sense of relief, noting that "the burden on their children has been alleviated." This anxiety among lower-grade parents primarily stems from concerns over the development of their children's study habits, fearing that homework completion in school may lead to procrastination and an increased number of errors. Transitioning to upper primary school (Grades 4-6), a notable 59.8% of parents echoed a sentiment of "convenience amidst persistent worry," with this proportion exceeding the overall average by 5%. Here, 20.4% continued to grapple with anxiety, admitting they "dare not relinquish their vigilance," while 14.8% welcomed the change, reporting a "genuine sense of joy as their children's burden lightened." High-grade parents' concerns shifted towards "insufficient homework volume," fearing their children might fall behind, lacking insight into their learning methods, and observing a perceived decline in academic performance.

During the junior secondary school phase, parental sentiments evolved, with 43% reporting a blend of "relaxedness and residual anxiety," acknowledging their children's ability to finish homework at school but still harboring significant worries. Notably, the proportion of parents who confessed to feeling "anxious and hesitant to adopt a passive stance" rose to 30.3%. Some parents commented on the extended time their children spent on homework upon returning home, further underscoring the complexities of this educational transition. These findings are summarized in Table 15.

		8		5		
Lower grades (1-3)		Senior grades (4-6)		Junior high school		
Easy	54.3%	easy	59.8%	easy	43.0%	
Anxiety	22.5%	anxiety	20.4%	anxiety	30.3%	
Feel happy	17.6%	feel happy	14.8%	feel happy	26.7%	

 Table 15: Different Grades' Feelings Towards the Double Reduction Policy

The implementation of double minus policies has indeed alleviated parental anxiety to varying degrees. Specifically, 32.2% of parents reported experiencing partial relief from their anxiety, while 30.6% stated that they felt a significant reduction in their worries. Furthermore, a promising 7.7% of parents declared that they were no longer anxious, testament to the positive impact of these measures. However, it is worth noting that 15.6% of parents expressed an increase in anxiety, highlighting the need for continued monitoring and support. As depicted in Figure 1, the effectiveness of double subtraction in mitigating anxiety appears to be more pronounced among parents of elementary school students compared to those of

junior high school students. This observation underscores the importance of tailoring educational interventions to the unique needs and challenges faced by different age groups.



Figure 1: Parents' Anxiety Response to the Double Reduction Policy

Conclusion

This study's mixed-methods analysis of Xi'an's educational landscape reveals significant policy-induced transformations in shadow education dynamics, with convergent evidence from educators, parents, and quantitative data. Key findings emerge as follows:

Structural Shift in Extracurricular Offerings

A pronounced diversification of after-school activities accompanies the decline in traditional academic tutoring. While subject-based institutions declined by 37%, non-academic entities expanded by 33%, with arts, sports, and cultural programs emerging as popular alternatives. This shift aligns with the policy's objective to foster well-rounded development, as evidenced by the 38.8% of primary school students now engaged in artistic pursuits and 22.4% of secondary students participating in extracurricular cultural activities.

Financial Reprioritization and Domestic Well-being

Household expenditure patterns demonstrate strategic reallocation: academic tutoring budgets decreased substantially, while investments in non-subject enrichment rose correspondingly. Concurrently, 7.7% of parents reported complete alleviation of educational anxiety, with 54.5% expressing relief and 16.9% noting measurable improvements in family life quality. This financial pivot underscores a broader societal recalibration toward balancing scholastic achievement with holistic child development.

Pedagogical and Lifestyle Transitions

The policy's "double reduction" mechanism effectively curtailed after-school academic sessions, prompting a 33% overall decline in shadow education institutions. Qualitative insights reveal that 59.8% of primary school parents and 43% of secondary school parents perceive mixed benefits—relief from homework burdens yet lingering concerns about learning gaps. Meanwhile, increased green space engagement and family bonding time reflect emergent lifestyle adaptations conducive to child welfare.

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