The "Double Reduction" Policy and the Restructuring of Urban-Rural Household Education Expenditure in China

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***Abstract*—Private tutoring has been the fastest-growing component of household education spending in China and the one with the widest urban-rural gap. In July 2021 the central government introduced the "Double Reduction" policy, which imposed strict controls on academic tutoring for students in compulsory education. This study divides household education expenditure into academic tutoring, non-academic tutoring, and school-based after-school services. It draws on published results from four waves of a national household survey on education finance conducted between 2017 and 2023, on policy documents, and on empirical studies published since 2021 to examine changes in the level, composition, and urban-rural distribution of spending. Participation in academic tutoring fell from 36.1% to 13.5%, but total household education spending did not decline, and the combined share of tutoring in household education spending remained broadly stable. Spending shifted from academic to non-academic tutoring and from private providers to school-based services. Before the policy, average academic tutoring spending per urban student was about 7.5 times that per rural student, so the direct effects of the policy were concentrated in cities. The relative urban-rural gap in per-student spending appears to have narrowed, but the even larger gap in non-academic tutoring may become a new form of inequality. The study recommends improving after-school services in rural schools, regulating non-academic tutoring, and reforming student assessment.**

***Keywords*—double reduction policy, household education expenditure, shadow education, expenditure structure, urban-rural gap**

I. Introduction

Since the early 2000s, rising household incomes and intense competition for admission to selective schools have fuelled a rapid expansion of private supplementary tutoring in China, widely known in the international literature as shadow education. In 2017, 47.2% of primary and secondary students in China took part in some form of out-of-school education, 37.8% attended academic tutoring, and students who attended academic tutoring spent an average of about 5021 yuan a year on it [1]. Tutoring may raise the achievement of some students, but it also adds to study loads and household budgets. Because access depends heavily on family income and place of residence, it is widely regarded as a channel that widens gaps in educational opportunity between urban and rural areas and between social classes [2, 3].

In July 2021, the General Office of the Communist Party of China Central Committee and the General Office of the State Council issued the Opinions on Further Reducing the Burden of Homework and Off-campus Training for Students in Compulsory Education, hereafter the "Double Reduction" policy. The policy set the goal of reducing these burdens effectively within one year and significantly within three years. It stopped approval of new academic tutoring institutions serving students in compulsory education, required existing institutions to re-register as non-profit organizations, and prohibited academic tutoring on public holidays, weekends, and during school vacations. At the same time, it required schools to provide after-school services that, in principle, end no earlier than the local end of the working day [4]. It was the most direct and concentrated policy intervention in household education spending in recent years.

More than five years after implementation, most discussion of the policy has focused on student workload, achievement, and the tutoring industry itself. Less attention has been paid to the composition of household education spending. A key question remains open: when the supply of academic tutoring is forcibly reduced, do households reduce their investment in education, or do they redirect it to other channels? Further, because urban and rural households differed greatly in their use of tutoring before the policy, did the policy affect the two groups in the same way, and did it narrow the urban-rural gap in household education investment or simply change its form?

This study makes three contributions. First, it moves from the level of spending to its composition, distinguishing academic tutoring, non-academic tutoring, and school-based after-school services. Second, it introduces the concept of policy exposure, based on

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pre-policy differences in tutoring participation and spending, to explain why the effects of the policy were asymmetric between urban and rural areas. Third, by combining evidence from several sources, it shows that the policy may have had a dual effect on urban-rural inequality: the average gap appears to be narrowing while a new form of gap is emerging. Section II reviews the literature. Section III describes the policy background and develops the analytical framework. Section IV describes the data and method. Section V presents and discusses the results, and Section VI concludes.

II. Literature Review

A. Determinants of Demand for Shadow Education

Bray [2] offered one of the first systematic definitions of shadow education, noting that it mimics the school curriculum, grows as schooling expands, and is largely paid for privately by households. Later comparative research showed that demand is shaped by the intensity of examination-based selection, the quality of schooling, household socioeconomic status, and cultural beliefs, and that shadow education has continued to expand worldwide [5].

Studies in China consistently find that household socioeconomic status is a key determinant of participation in and spending on tutoring. Using the 2012 wave of the China Family Panel Studies, Xue [3] found that students from more advantaged families and those living in large and medium-sized cities were more likely to receive tutoring, and that tutoring raised mathematics scores. Xue [3] further argued that as compulsory education became more equal across schools, educational competition shifted from schooling to shadow education, which became an important channel for maintaining intergenerational class differences. Yang and Xu [6] found that household information capital, measured by the mother's internet use, was positively associated with school choice, tutoring participation, and discretionary education spending. Demand for shadow education is thus clearly stratified by class and location.

B. Policy Shocks and Household Education Spending

A growing body of research has evaluated the "Double Reduction" policy. Using four waves of the China Institute for Educational Finance Research Household Survey, Wei [7] found that participation in and spending on academic tutoring fell significantly after the policy, that non-academic tutoring showed no significant change, and that participation in and spending on school-based after-school services rose significantly. Using a national survey of parents conducted in early 2022, Meng *et al.* [8] found that weekly hours of academic tutoring fell by about 0.683 and monthly household education spending fell by about 280.9 yuan in the first semester after the policy, while non-academic tutoring showed no significant change. Using China Family Panel Studies data from 2010 to 2022 and a propensity score matching difference-in-differences design, Xue and Cai [9] found that participation in academic tutoring declined, but that total household tutoring spending did not change significantly, and that households with different incomes and occupations responded in different directions.

Other studies examine unintended consequences. In a mixed-methods study, Liu and Bray [10] found that some parents continued to buy tutoring through hidden channels at higher prices, showing considerable continuity of demand despite the change in supply. A systematic review of 23 empirical studies by Yu *et al.* [11] concluded that the explicit goals of the policy had largely been met, but that urban middle-class families experienced an increase rather than a decrease in burden, county-town families saw some relief, and rural families saw little change. Qian *et al.* [12] analyzed the competing narratives used to explain why the policy was introduced.

C. Urban–Rural Inequality in Household Education Investment

The urban–rural gap in household education investment is a long-standing concern in research on educational equity in China. In 2017, per-student household education spending on preschool, primary, and secondary education was about 10,100 yuan in urban areas and 3936 yuan in rural areas, and participation in academic tutoring was 44.8% among urban students compared with 21.8% among rural students [1]. The gap reflects not only income but also access to tutoring markets: rural areas have fewer providers and a narrower range of services, and non-academic tutoring is particularly scarce.

In sum, existing research has established that the policy curbed academic tutoring, but two gaps remain. Most studies examine a single spending item rather than considering academic tutoring, non-academic tutoring, and after-school services together within one structure. In addition, urban-rural differences are usually treated as a control variable or a side issue, and there is little systematic explanation of asymmetric urban-rural effects based on pre-policy exposure. This study seeks to address both gaps.

III. Institutional Background and Analytical Framework

A. Policy Background

The "Double Reduction" policy did not appear in isolation. In 2018, the General Office of the State Council issued guidelines on regulating off-campus training institutions, which set standards for their establishment, content, schedules, and fees [13]. In 2019, the Ministry of Education and other departments issued separate rules for online tutoring. Unlike these earlier measures, which focused on regulation, the 2021 policy directly reduced the supply of academic tutoring through a halt to new approvals, conversion to non-profit status, a ban on capital-market financing, and restrictions on tutoring hours, while offering school-based after-school services as an alternative. The policy also stopped approval of new academic tutoring institutions for upper-secondary students and stated that existing ones should be managed with reference to the same provisions [4], so upper-secondary education was indirectly affected as well.

B. Key Concepts

In this study, household education investment is measured by the monetary expenditure that households incur for their children's education. Much household education spending has a consumption component, and directly estimating returns on investment is not feasible, so measuring investment through expenditure is standard practice in this field. The structure of household education investment refers to the share of each type of spending in total household education spending. The study focuses on three types of spending directly related to the policy: academic tutoring, non-academic tutoring such as sports, arts, and science activities, and school-based after-school services. Urban and rural areas are defined as in the original surveys cited.

C. Theoretical Framework and Propositions

This study draws on human capital theory and the logic of positional competition to explain how households reallocate education spending under a supply constraint imposed by policy. Human capital theory treats education spending as an investment in children's future earnings, made under the joint influence of expected returns and budget constraints [14, 15]. Restricting the supply of a particular educational service changes the set of choices available to households, which then reallocate spending within the new set. Hirsch [16] argued that education is a positional good whose value depends largely on the holder's relative position. As long as the selection mechanism for school admission remains unchanged, households will keep trying to secure a relative advantage for their children. Lareau's [17] work on concerted cultivation likewise shows that middle-class families invest in organized extracurricular activities to build their children's cultural capital.

Combining these perspectives, households may respond to a reduced supply of academic tutoring in three ways: by reducing total education spending, by shifting to permitted alternatives such as non-academic tutoring and after-school services, or by moving to hidden channels such as private one-to-one tutors. Which response dominates depends on competitive motivation, income, and local market conditions. Three propositions follow:

Proposition 1: Participation in and spending on academic tutoring decline after the policy, but total household education spending does not decline proportionately; the policy changes the direction rather than the willingness to invest.

Proposition 2: Household education spending shifts from academic tutoring to non-academic tutoring and school-based after-school services.

Proposition 3: The direct effect of the policy depends on pre-policy exposure to academic tutoring. Urban households, with high exposure, are more affected; rural households, with a low base, are less affected. The average urban-rural gap may therefore narrow, but a new gap may emerge in alternative channels.

IV. Methodology

This study uses a comparative analysis of published survey results combined with an integration of evidence from published studies. Three types of sources are used. The first is published results from the China Institute for Educational Finance Research Household Survey (CIEFR-HS), conducted by Peking University. Its first wave in 2017 covered 40,011 households in 353 districts and counties across 29 provinces, and later waves in 2019, 2021, and 2023 covered 34,643, 22,027, and 26,804 households respectively [18]. The 2021 wave was conducted in two batches, the first in July–September 2021 before the policy took effect and the second in June–September 2022 after it, which allows a before-and-after comparison [7]. The second source is policy documents, including the 2021 policy and earlier regulations. The third is empirical studies published since 2021, used to cross-check findings and provide evidence on urban-rural and income differences.

The analysis proceeds in three steps. First, it compares participation rates, per-student spending, and spending shares before and after the policy to identify changes in the level and composition of spending. Second, it constructs a measure of policy exposure, defined as the pre-policy participation rate for a type of tutoring multiplied by average spending among participants. This approximates average spending per student on that type of tutoring and is used to compare the potential strength of the policy's effect on urban and rural households. Third, it uses heterogeneity results from published studies to discuss changes in the urban-rural gap.

The data are published aggregate results rather than individual-level microdata. The analysis is therefore descriptive and interpretive: it identifies patterns of change consistent with the policy, not strictly causal effects. All causal estimates reported are taken from the original studies. Because sources differ in their definitions, including the grades covered, whether non-participants are included, and the survey years, definitions are stated for each statistic, and changes over time are compared only within the same source.

V. Results and Discussion

A. Pre-policy Baseline: Large Differences in Exposure

Table I shows household education spending and tutoring in urban and rural areas in 2017, before the policy. Urban students were 2.06 times as likely as rural students to attend academic tutoring, and urban participants spent 3.65 times as much on it. The gap in non-academic tutoring was even larger, with a participation ratio of 5.37.

Multiplying the participation rate by spending per participant gives an approximation of average spending per student, which this study calls policy exposure. On this basis, exposure to academic tutoring was about 2581 yuan per urban student (0.448 × 5762) and about 344 yuan per rural student (0.218 × 1580), a ratio of about 7.5. In other words, before the policy, academic tutoring was mainly an urban spending item, and the rural base was very low. The direct effects of the policy were therefore bound to be

concentrated in cities. The same calculation gives exposure to non-academic tutoring of about 1071 yuan per urban student and about 91 yuan per rural student, a ratio of about 11.7. This gap is even wider than for academic tutoring, which matters for understanding the shift in spending after the policy.

TABLE I. URBAN AND RURAL HOUSEHOLD EDUCATION SPENDING AND TUTORING, 2017

Indicator	National	Urban	Rural	U/R ratio
Per-student household education spending, preschool to upper secondary (yuan)	8143	10,100	3936	2.57
Academic tutoring participation (%)	37.8	44.8	21.8	2.06
Academic tutoring spending per participant (yuan)	5021	5762	1580	3.65
Non-academic tutoring participation (%)	21.7	29.0	5.4	5.37
Non-academic tutoring spending per participant (yuan)	3554	3694	1692	2.18

Source: Compiled from published results of the 2017 CIEFR-HS [1]; ratios calculated by the author. Urban per-student spending is reported in the source as 10,100 yuan, rounded to the nearest hundred. Non-academic tutoring is labelled interest-oriented tutoring in the source.

B. Level of Spending: Academic Tutoring Fell, Total Spending Did Not

Table II summarizes the main policy-related indicators from the four CIEFR-HS waves. Participation in academic tutoring fell from 36.1% in 2017 to 16.5% in 2022 and 13.5% in 2023, a decline of 22.6 percentage points or about 63%. Per-student spending on academic tutoring fell from 1777 yuan to 1350 yuan, a decline of about 24%. Difference-in-differences estimates based on these data show that the policy reduced participation in academic tutoring by 0.062 and log spending by 0.579, both statistically significant [7].

TABLE II. HOUSEHOLD TUTORING AND AFTER-SCHOOL SERVICES BEFORE AND AFTER THE POLICY

Indicator	2017	2019	2022	2023
Academic tutoring participation (%)	36.1	—	16.5	13.5
Academic tutoring spending per student (yuan)	1,777	—	—	1,350
Academic tutoring share of household education spending (%)	10.5	—	—	8.4
Non-academic tutoring spending per student (yuan)	633	—	—	914
Non-academic tutoring share of household education spending (%)	4.6	—	—	8.1
After-school service participation (%)	—	25.0	—	30.8
After-school service share of household education spending (%)	—	3.5	—	7.8

Source: Wei [7], figures from the main text. A dash indicates that the source does not report the figure. After-school service participation was 31.6% in 2021. A few figures in the source's table differ from its main text; main-text figures are used here.

However, the contraction of academic tutoring did not reduce total household education spending. Per-student household education spending reached 11,086 yuan in the 2022–2023 school year, 29% higher than in 2018–2019 [18]. Meng *et al.* [8] found that monthly household education spending fell by about 280.9 yuan, or 11.5% of the pre-policy mean of 2,452 yuan, in the first semester after the policy, but this reflects the early, short-term response. Xue and Cai [9] found no significant change in total household tutoring spending. Taken together, the policy may have curbed household spending in the short term, but over a longer period households did not reduce their overall investment in education because of restrictions on academic tutoring. Proposition 1 is broadly supported.

C. Composition of Spending: From Academic to Non-academic, From Outside to Inside School

The structural changes in Table II are even more revealing. The share of academic tutoring in household education spending fell from 10.5% to 8.4%, while the share of non-academic tutoring rose from 4.6% to 8.1%, with per-student spending on non-academic tutoring rising from 633 to 914 yuan, an increase of about 44%. The combined share of the two types of tutoring rose slightly, from 15.1% to 16.5%. The ratio of non-academic to academic tutoring spending per student rose from 0.36 in 2017 to 0.68 in 2023, showing the growing weight of non-academic tutoring in household tutoring investment.

At the same time, school-based after-school services became a new item of household education spending. Participation rose from 25.0% in 2019 to 30.8% in 2023, and their share of spending rose from 3.5% to 7.8%. Difference-in-differences estimates show that the policy increased participation in after-school services by 0.061 and log spending by 0.367, both significant [7].

These changes show a three-way adjustment in household education spending. The share of academic tutoring was squeezed; part of the freed-up spending moved to non-academic tutoring, and part was absorbed by school-based after-school services. This is consistent with Proposition 2 and with the logic of positional competition: as long as the basic structure of competition for school admission is unchanged, the motivation to secure a relative advantage does not disappear but seeks new outlets within what the policy permits. However, the difference-in-differences estimate for non-academic tutoring is not significant [7], which suggests that its rising share may also reflect long-term trends outside the policy, such as the greater weight given to physical education in entrance examinations and broader acceptance of well-rounded education. It should not be attributed entirely to the policy. In addition, the hidden tutoring documented by Liu and Bray [10] is difficult to capture in survey data, so the actual decline in academic tutoring may be overstated.

D. Urban-Rural Distribution: Narrowing Average Gap and an Emerging New Gap

Published data do not yet report post-policy tutoring participation and spending separately for urban and rural areas, so this study examines changes in the urban–rural gap indirectly from three angles.

First, exposure indicates that the direct effects of the policy were concentrated in cities. Urban exposure to academic tutoring was about 7.5 times rural exposure before the policy. Even if urban and rural households reduced academic tutoring by the same proportion, the absolute reduction would be far larger for urban

households. With a low base, rural households faced a clear floor effect, and there was little room for the policy to reduce their spending. The review by Yu *et al.* [11] likewise found little change for rural families and some relief for county-town families.

Second, the relative urban-rural gap in per-student household education spending shows signs of narrowing. The urban-rural ratio was 2.57 in 2017 (10,100 versus 3936 yuan) [1] and 1.60 in the 2022–2023 school year (12,845 versus 8047 yuan) [18]. The absolute gap fell from about 6164 yuan to about 4798 yuan. Over this period, rural per-student spending rose by about 104% and urban spending by about 27%. This is consistent with Proposition 3. However, the two figures do not cover exactly the same grades, and urbanization, the expansion of rural boarding schools, and price changes were also at work, so the narrowing cannot simply be attributed to the policy. It is supporting evidence consistent with the direction of the policy's effect.

Third, alternative channels suggest that the urban-rural gap may take a new form. The non-academic tutoring to which household spending has shifted is precisely the area with the largest urban-rural gap: in 2017, the urban-rural ratio was 5.37 for participation and about 11.7 for exposure. Non-academic tutoring providers are scarce in rural areas. Urban households can relatively easily redirect spending from academic tutoring to arts, sports, and science activities, while rural households lack such alternatives. As the gap in academic tutoring narrows, the gap in non-academic tutoring may widen, shifting urban-rural inequality in education investment from academic tutoring to enrichment activities.

E. Supplementary Evidence on Income and Class

Urban-rural and income differences are closely intertwined, and evidence on income helps to interpret the urban-rural pattern. Estimates by income quintile show that the policy significantly affected households between the 60th and 80th percentiles of per capita income, mainly through academic tutoring, while households below the 60th percentile and in the top 20% showed no significant effect. Only households in the top 20% significantly increased participation in and spending on after-school services [7]. Meng *et al.* [8] found that spending fell more in households where parents had at most a bachelor's degree, and changed little in households where a parent held a graduate degree. Xue and Cai [9] found that tutoring spending fell in low-income households but rose in households headed by managers and professionals.

Together, this evidence suggests that the policy constrained middle-income households most, while high-income and highly educated households were able to maintain or even increase their investment through non-academic tutoring, hidden channels, or higher-quality after-school services. The same mechanism operates within cities. The policy may therefore narrow the average urban–rural gap while allowing class differences within cities to persist in less visible ways.

F. Mechanisms

The results point to three mechanisms. The first is a supply constraint: the supply of academic tutoring was directly reduced, changing the choice set available to households, which is the immediate cause of the decline in academic tutoring. The second is substitution: the motivation for positional competition persists, and households shift spending to permitted non-academic tutoring and after-school services, with the capacity to substitute depending on income and local markets. The third is a base effect: urban and rural households had different pre-policy exposure, so the policy affected them with different intensity, and rural households were less affected because of their low base. Together, these mechanisms produce an overall pattern of contraction in academic tutoring, stable total spending, structural reallocation, and a change in the form of the urban-rural gap.

VI. Conclusion

Combining published CIEFR-HS results, policy documents, and existing empirical studies, this study examined the effect of the "Double Reduction" policy on the structure of urban and rural household education investment and reached three conclusions. First, the policy significantly curbed participation in and spending on academic tutoring, but total household education spending did not fall and the combined share of tutoring remained broadly stable; the policy mainly changed the direction rather than the willingness to invest. Second, household education spending shifted from academic to non-academic tutoring and from private providers to school-based after-school services. Third, because urban households were far more exposed to academic tutoring before the policy, its direct effects were concentrated in cities. The relative urban–rural gap in per-student spending shows signs of narrowing, but non-academic tutoring, the area with the largest urban–rural gap, has become a new direction for household investment, and the gap may shift from academic tutoring to enrichment activities.

These findings have four policy implications. First, improving after-school services in rural schools should be a priority as the policy is deepened. These services are the main alternative educational resource for rural families, and earmarked funding, county-level teacher deployment, and community resources could be used to add sports, arts, and science content. Second, non-academic tutoring should be brought under routine regulation of fees, prepayments, and quality standards so that it does not become a new arena for an educational arms race. Third, reform of examinations, admissions, and student assessment should continue. The reallocation of spending shows that competitive pressure originates in the selection system itself, and only by reducing competition at that end can the pressure on household education spending be eased fundamentally. Fourth, large household surveys should report tutoring and after-school spending separately by urban and rural area and by grade, to support future evaluation.

This study has three limitations. First, it relies on published aggregate data and cannot control for household characteristics or directly estimate urban–rural heterogeneity in the policy effect. Future research could use CIEFR-HS or China Family Panel Studies microdata to estimate a triple-difference model interacting compulsory-education enrollment, the post-policy period, and rural residence. Second, household education spending is self-reported and subject to recall error, and spending on hidden tutoring may be underreported. Third, the policy period coincided with the COVID-19 pandemic, continued urbanization, and demographic change, and these factors cannot be fully separated from the policy.

CONFLICT OF INTEREST

The author declares no conflict of interest.

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