

SURVEY ON FAMILY EDUCATION EXPENDITURE DURING THE COVID-19 EPIDEMIC

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ABSTRACT. *This survey focuses on family education expenditures during the “COVID-19 period” and mainly investigates the changes in the family education expenditures. The study found that monetary education expenditures have increased and decreased, and they are influenced by factors such as children’s learning level, parents’ educational level, and urban-rural differences. Affected by the epidemic, non-monetary education expenditures have increased.*

Keywords: COVID-19, Monetary education expenditure, Non-monetary education expenditure

1. Introduction. During the COVID-19, the Ministry of Education issued a call for “suspended class, ongoing learning” to all primary, middle and high schools across the country, and online teaching entered thousands of households and started a home learning model. The home learning model is not simply a change in the place of study; it will have a certain impact on many aspects such as family education expenditure. Family education expenditure includes monetary education expenditure and non-monetary education expenditure. The former mainly includes tuition, miscellaneous fees, the additional expenses for accommodation, transportation, books, clothing, etc. The latter mainly includes the time, energy and patience that students must pay for their education, and time and energy which parents expense for their children’s education. Previous studies have shown that family education expenditures are distributed in a “U” shape due to different stages of education. However, it changed during the epidemic. In the work of [1], factors such as children’s education stage, urban and rural background, and family income are under a greater impact on family education expenditure. Therefore, this article focuses on the family education expenditure of children’s home study mode during the epidemic, and analyzes the changes in education expenditure during the epidemic from the perspective of monetary expenditure and non-monetary expenditure of education expenditure. Through investigation and research, suggestions are made for the problems found in family education. On the one hand, it captures real-time data information on changes in family education expenditures during the special background of the new crown epidemic, and provides first-hand information for first-level social governance. On the other hand, it provides new ideas for relevant departments in grassroots social governance, through analysis and research data. This article will start with monetary education expenditure, analyze the increase and decrease of monetary education expenditure from the perspective of factors such as children’s learning level, parents’ education level and urban and rural background, and analyze the changes in non-monetary education expenditure. The specific research path is shown in Figure 1.

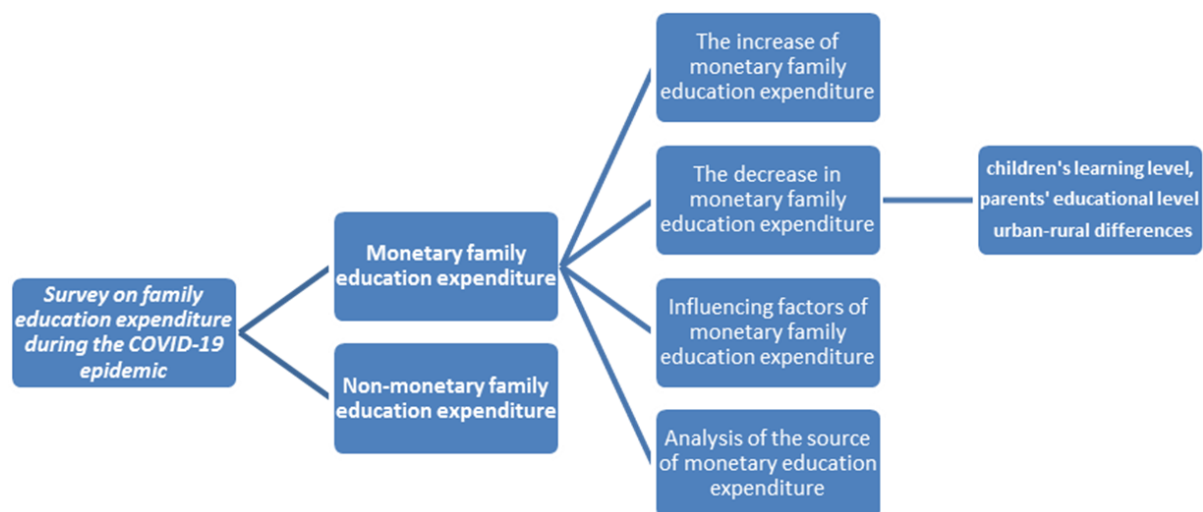


FIGURE 1. Path analysis diagram

2. Monetary Family Education Expenditure. During the epidemic, monetary family education expenditures both increased and decreased, and were affected by children's learning level, parents' education level and urban and rural background.

2.1. The increase of monetary family education expenditure. The survey found that most of the newly increased education expenditures are online remedial costs and cost of electronic equipment. In the sample data recovered, the newly increase educational expenditures of families with two or more children are apportioned and averaged. The processing results are presented in Table 1. Online remedial costs and electronic equipment fee accounted for 72% of newly increase education expenditures.

The composition of educational expenditures will be different when students learn at different levels. This paper analyzes the education expenditure of preschool group, middle and primary school group, and university group (including college students and graduate

TABLE 1. Monetary family education expenditure status

| Item (Unit: Yuan) | Urban-rural differences | | Children's learning level | | | Parents' education level | | |
|---|-------------------------|-------|---------------------------|-----------|---------------------------|--------------------------|-------------------|-------------------|
| | Mean | Urban | Rural | Preschool | Middle and primary school | University group | Below high school | Above high school |
| The increase of monetary family education expenditure | | | | | | | | |
| Online remedial costs | 3331 | 3460 | 3198 | 3097 | 3464 | 3038 | 3650 | 3143 |
| Cost of school supplies | 568 | 625 | 508 | 496 | 613 | 459 | 498 | 609 |
| Cost of electronic equipment | 2822 | 2730 | 2919 | 2478 | 3101 | 2082 | 2610 | 2947 |
| Cost of recreation and sport | 386 | 323 | 451 | 489 | 412 | 199 | 353 | 405 |
| Communication expense | 408 | 371 | 448 | 325 | 411 | 468 | 356 | 439 |
| Lost income and transportation expenses | 815 | 612 | 1028 | 1306 | 882 | 152 | 825 | 810 |
| Health pack cost | 155 | 150 | 160 | 150 | 150 | 177 | 118 | 177 |
| Summary | 8485 | 8271 | 8712 | 8341 | 9033 | 6575 | 8410 | 8530 |
| The decrease in monetary family education expenditure | | | | | | | | |
| Offline remedial fees | 1173 | 1313 | 1019 | 1493 | 1215 | 747 | 1190 | 1163 |
| Transportation expenses | 195 | 222 | 167 | 132 | 170 | 341 | 169 | 210 |
| Accommodation expenses | 1050 | 835 | 1274 | 896 | 1051 | 1177 | 963 | 1101 |
| Cost of childcare | 688 | 522 | 860 | 970 | 720 | 329 | 423 | 844 |
| Summary | 3106 | 2892 | 3320 | 3491 | 3156 | 2594 | 2745 | 3318 |

students). The analysis results show that, regardless of online remedial costs and electronic equipment costs, preschool children and middle and primary school students spend more on the lost income and transportation expenses, mainly because preschool children and middle and primary school students need parents' care and companionship. At the same time, the learning of elementary and intermediate school students may require parental supervision. College students and postgraduates spend more on cost of school supplies and communication expense which may be related to the repurchase of school supplies and more use of the Internet. From the perspective of the total expenditure of the newly increase education expenditure, the expenditure of primary and secondary school students is greater than that of preschool children than that of universities and graduate students.

The newly increase education expenditure is also affected by the difference between urban and rural areas. For urban families, they will pay more for online remedial costs and school supplies. For rural families, they will pay more for electronic equipment, cost of recreation and sport, communication expenses and lost income than urban families. The difference between online remedial costs and school supplies fees may be related to the price difference between urban and rural areas. The difference in electronic equipment fees is that rural families purchase new computers, printers and other equipment to ensure their children's study. The difference in communication costs is due to the fact that rural families upgrade or install new network equipment for their children's online lessons. In general, the newly increase education expenditure of rural households is greater than that of urban households.

The education level of parents will also affect monetary education expenditures. We grouped according to the education level of the parents, and divided the data of parents whose education is high school and below into one group, and the rest data into one group. For the low-educated group, these families will pay more for online remedial costs and lost income, while the high-educated families will pay more for school supplies, electronic equipment, cost of recreation and sport, communication expenses and health packages cost. However, the total number of new education expenditures is roughly flat.

2.2. The decrease in monetary family education expenditure. The survey found that most of the reduced education expenditures were the offline remedial fees and accommodation expenses. In the sample data recovered, the reduced educational expenditures of families with two or more children are apportioned and averaged. The results of the treatment are given in Table 1. Offline remedial fees and accommodation expenses accounted for nearly 72% of the reduced education expenditure reduction.

The reduction in education expenditures of preschool children is greater than that of middle and primary school students than college students and graduate students. Regardless of offline remedial fees and accommodation expenses, the main reduction in educational expenditures for preschool group or middle and primary school group is the cost of childcare, while the reduction in education expenditures for college students and postgraduates is transportation expenses. For urban families, the main reduction in education expenditures is offline remedial fees and transportation expenses; for rural families, the main reductions are accommodation expenses and cost of childcare. Families with high-educated parents reduce more accommodation expenses and cost of childcare than those with low-educated parents. In terms of reduction education expenditures, families with parents with high education have reduced education expenditures more than families with parents with low education.

On the basis of reducing education spending, the Ministry of Education has put forward requirements for student refunds and subsidies, requiring all relevant education departments to reduce or exempt tuition and accommodation fees, or issue temporary living allowances, in order to increase protection against diseases and those affected by the epidemic. In this survey, families with parents working in hospitals received the highest

proportion of subsidies, which were about 100%, and families with parents working in the service industry received a higher proportion of refunds, at 58%.

2.3. Influencing factors of monetary family education expenditure. We refer readers to [2,3], family income, and head education, head age, family size, number of school-age children and living in urban areas are the most important factors affecting education expenditure in Sudan. Moreover, our country's education expenditure is mainly affected by the parents' educational background, the number of children, the education stage of the children, and the residence of the family. In this paper, according to the fact that the urban and rural background is taken as the regional feature, children's learning level as the child's feature, and parents' education level as the parent's feature we establish the equation as follows:

$$E_{NEW} = \alpha_0 + \alpha_1 * R + \alpha_2 * C_1 + \alpha_3 * C_2 + \alpha_4 * P + \varepsilon$$

Among them, E_{NEW} refers to monetary family education expenditure for children's study during the epidemic. α_0 is a constant term, α_1 is the influence coefficients of urban-rural difference characteristics on E_{NEW} ; α_2 - α_3 are the influence coefficients of child characteristics on E_{NEW} ; α_4 is the influence coefficients of parental characteristics on E_{NEW} . R is the education expenditure of households in urban households compared with rural households. C_1 indicates education expenditures in middle and primary school group than preschool group; C_2 indicates education expenditures that university group spend more than preschool group. P indicates education expenditures that parents with a high school degree or above spent more than parents whose education is below high school. The regression coefficients of regional characteristics, child characteristics and parental characteristics are shown in Table 2.

TABLE 2. Regression coefficient table

| Influence factors | Regression coefficient |
|-------------------|------------------------|
| R | -3359.9 |
| P | -4507.61 |
| C_1 | 452.442 |
| C_2 | -803.259 |

Through regression analysis and fitting quantification, the regression equation is obtained as:

$$E_{NEW} = -1430.6 - 3359.9 * R + 452.442 * C_1 - 803.259 * C_2 - 4507.61 * P + \varepsilon$$

Different from previous analytical results, the regional characteristics, the characteristics of children and the characteristics of parents have changed during the new crown epidemic.

The regional characteristics mainly explain the urban-rural difference between the increased education expenditure and the reduced education expenditure. During the epidemic, families in counties and rural areas will pay more education expenditures than families in provincial capitals, prefecture-level cities, and county-level cities. From the previous analysis, this may be related to rural families purchasing additional electronic equipment and networks to ensure their children's learning. In the long run, public education expenditure can permanently reduce the education cost of rural residents. In the work of [4], the inverted U-shaped relationship implied by empirical evidence shows that our country's current public education expenditure is far from optimal, which indicates that our country should increase public education expenditure, especially for rural residents.

Child's features mainly explain the difference in the net education expenditure required by different learning stages during the epidemic. Compared with families with children

in kindergartens, families with children in universities will pay less for schooling during the epidemic, while families with children in elementary and middle schools will pay more for education during the epidemic. In addition, the schoolwork burden of primary and middle school students is heavier than that of college students and preschool children.

Parental characteristics mainly explain whether parents' educational background will affect their children's educational investment. The regression results are shown that families with parents' educational background below high school pay more for education than parents with a high school degree or above. The reason is as mentioned above, regardless of the parents' educational background, education expenditures are almost the same, while the families of parents with high education will reduce more expenditure.

2.4. Analysis of the source of monetary education expenditure. We refer readers to [5,6], the sharing of education costs is gradually shifting families, and family income and savings are the main sources of funds for family education expenditures. When the family income level is low, the family's marginal propensity to consume for children's education is low, and the increased educational expenditure is mainly used for basic school expenditures. During the epidemic, "suspended class, ongoing learning" requires electronic equipment, network, new teaching materials, and new stationery. Unlike the past, basic education expenditures no longer meet the learning requirements of children. In order to investigate whether low income, no income and low savings families would consider other education sources of education during the epidemic, the survey analyzes the content related to the burden of education (during the epidemic, children's education expenditures put financial pressure on families). The analysis results show that when the significance level is 0.01, the Pearson correlation coefficient of borrowing to the burden of education is 0.443. It can be seen that the use of loan as the sources of education expenditure has a moderate correlation with the burden of education. Therefore, when families face low income or zero income or little savings, they will choose to borrow money to relieve the pressure on their children going to school.

3. Non-Monetary Family Education Expenditure. We refer readers to [7], under the original education model, some parents are busy with making money, busy with work, and ignore their children's learning, leaving the burden of their children's education to the teacher, so that family education does not perform its due function. At this time, the investment in non-monetary household education expenditure is insufficient. During the epidemic, education has entered the "digital and networked" era. The optimal allocation of educational resources, education efficiency and effectiveness will be significantly improved. However, according to survey data, about 86% of parents believe that the "suspended class, ongoing learning" model has a certain impact on their children's learning status and learning efficiency. Most of these parents believe that online teaching is inefficient and affects children's vision. This means that when their children study at home, parents not only need to tutor their children with their studies, but also control the time when their children use mobile phones and the Internet in order to protect their eyesight and health while completing the study plan. When studying at home makes it impossible for students to digest and absorb new knowledge, parents need to guide their children in their studies, patiently accompany their children to study together, and help their children to solve their learning questions and life puzzles. At the same time, parents should chat and play with their children to compensate for the company they used to be busy with work. At this time, the family's non-monetary education expenditure increased. Through the time when their children study at home, parents should realize that their children's education should not be the "full responsibility" of the school and teachers. Only family education can help their children grow better and increase the investment of non-monetary family education expenditures reasonably.

4. **Conclusions.** In terms of changes in monetary family education expenditures, the main increase in family education expenditures is online remedial costs and cost of electronic equipment. Moreover, accommodation expenses and offline remedial fees is mainly reduced. In terms of the factors affecting monetary family education expenditures, rural families paid more education expenditures than urban families, such as electronic equipment, cost of recreation and sport, communication expenses and lost income. Parents with a high school degree or below will pay more for education. Compared with families with children in kindergartens, families with children in universities will pay less for schooling during the epidemic, while families with children in elementary and middle schools will pay more for education. Among them, preschool children and primary and middle school students spend more on lost income and transportation expenses, and college students and graduate students spend more on costs of school supplies and communication costs. Research on the sources of education expenditures shows that when the family is in a low-income or low-saving situation, parents may choose to use loans to finance their children's education expenditures. In terms of changes in non-monetary family education expenditures, during the epidemic period, non-monetary family education expenditures have increased. The main reason for the increase is that parents spend more time, patience and energy for their children's study.

The survey results reflect the problems of children's education expenditure during the epidemic. First, during the epidemic, rural households paid more monetary education expenditures but reduced monetary education expenditures less; it brought economic pressure to some low-income rural families. Second, how can parents effectively utilize and control electronic devices when their children use them. Online education may become a new trend in education, but it is a double-edged sword for students. Online education has got rid of the constraints of regional or time, and has also achieved educational equity at a certain level. However, children need to face electronic devices for a long time, which will have an irreversible impact on students' vision and cervical spine. When children are addicted to electronic devices, how to control their use of electronic devices is a serious problem.

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