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## **How Does Public Assistance Affect Family Expenditures?**

### **The Case of Urban China**

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**Abstract:**

Using newly available national household survey data and a propensity score matching method, this paper examines the effects of urban China's primary public assistance program – Minimum Living Standard Assistance (MLSA) – on family expenditures. Expenditures are an important yet understudied indicator of family material well-being. We examine not only total family expenditures but also ten major expenditure categories and more detailed expenditure patterns. In doing so, we try to identify families' consumption priorities among making ends meet (e.g., paying for food, clothing, rent, utilities), investing in human capital (e.g., spending on education and health), and improving life quality (e.g., purchasing leisure, facilities and services). We find that MLSA participation significantly improved families' spending on tuition and fees for non-compulsory education, medicine and other miscellaneous health-related expenses, and transportation, but it did not significantly affect family expenditures on food, clothing, housing and utilities, communication, or alcohol and tobacco. The fact that these poor families prioritize human capital investment suggests that, while it is important to continue MLSA to sustain their basic living standards, efforts should be made to provide direct education support and health insurance coverage to enable these families to start to catch up with their more advantageous peers.

## **Introduction**

Since the early 1990s, a group of the new urban poor has emerged in China as the result of a series of economic and social policy reforms. On the one hand, during the market reform process, many state-owned and collective enterprises went bankrupt and others had massive layoffs in an attempt to improve economic productivity and efficiency, yielding a sharply rising unemployment rate in urban China. On the other hand, a series of social policy changes in the urban areas have focused on shifting the welfare burden from employers to employees to facilitate market economy reforms. The state-owned and collective enterprises, which were the major providers of social benefits, needed to lower costs and improve productivity. As a result, urban social benefits have transformed from their original broad coverage and generous provision to a marginal role in the lives of families, shrinking from 44 percent of total household income in 1988 to only a quarter in 2002 (Gao and Riskin, in press).

Consequentially, the new urban poor have been left behind by both market competition and social protection. To lift the economic well-being of this group and to prevent potential social unrest, the government launched the Minimum Living Standard Assistance (MLSA) program to serve as a last resort for the urban poor. The program was initiated in several cities in the early 1990s and adopted nationwide in 1999. As the major public assistance program in urban China, MLSA has developed rapidly. The number of MLSA beneficiaries rose from 0.89 million in 1997 to 2.66 million in 1999. The central government enacted a regulation in 1999 to require all cities to implement MLSA. Since then the number of participants increased dramatically and has remained around 22.40 million since 2003 (Ministry of Civil Affairs [MCA], 2006a). Recent empirical work identifies MLSA as the only progressively distributed

social benefit in urban China that targets the poor and reduces income inequality (Gao and Riskin, in press).

A set of recent studies have examined the anti-poverty effectiveness of MLSA using income to measure poverty (Chen, Ravallion, and Wang, 2006; Du and Park, 2006; Gao, Garfinkel, and Zhai, 2007; Gustafsson and Deng, 2007; Wang, 2007). They found that MLSA has some modest impacts on poverty reduction among the participants, but these effects are limited by its partial coverage and delivery. In this paper, we provide new evidence on the effects of MLSA participation on family expenditures, another important yet understudied aspect of economic well-being that has drawn increasing attention from poverty researchers (for example, see Blank, 2006; Davis, 2005; Haskins, 2001; Kaushal, Gao, and Waldfogel, 2007; Meyer and Sullivan, 2003, 2004, 2006; Wong and Yu, 2002).

We first examine if MLSA lifts the levels of total family expenditure and ten major expenditure categories among the participants. We further investigate families' detailed expenditure patterns to understand how MLSA participation affects their consumption decisions. Do families use MLSA money to make ends meet (e.g., paying for food, clothing, rent, utilities, transportation), invest in human capital (e.g., spending on education and health), or improve life quality (e.g., purchasing leisure, facilities and services)? On the one hand, families in such desperate situations may pay for basic necessities before investing in human capital and improving life quality. On the other hand, these families often aspire for enhanced life opportunities – particularly for their children – and thus may prioritize investing in human capital. This may be especially true in transition economies like China where opportunities continuously emerge and education is increasingly rewarded in the labor market.

Selection bias has been a constant challenge for sorting out the effects of program participation in observational studies (Dehejia and Wahba, 1999; Du and Park, 2006; Hill, Waldfogel, and Brooks-Gunn, 2002; Jalan and Ravallion, 2003). Specifically, participants may be systematically different from non-participants, which may bias the estimation of the “true effects” of the program. For example, in anti-poverty public assistance programs, participants on average are poorer than non-participants. Participants may also be more disadvantaged than non-participants in many other respects, all of which could confound the estimation of program effects. To address the issue of selection bias, this paper adopts a propensity score matching (PSM) method. PSM has been increasingly used in program evaluation research in recent years. It aims to identify comparable non-participants who have similar observed characteristics to those of participants. The effects of program participation are thus estimated by comparing outcomes of the participants with those of their “matched” non-participant peers. As a result, the validity of estimation is much increased.

Until recently, the lack of national household survey data has limited empirical investigations on the impact of MLSA (Leung, 2006). This paper is among the first studies that use large-scale household survey data to provide empirical evidence and address this knowledge gap. We use the newly available China Household Income Project (CHIP) 2002 urban dataset. CHIP covers 77 cities representing various geographic regions and developmental stages. It contains rich information on household demographics, income sources, and MLSA participation. In particular, the CHIP survey asks detailed questions on family expenditures, which enables us to study the effects of MLSA participation on not only the overall expenditure level, but also detailed expenditure patterns. This study therefore reveals how MLSA affect families’ consumption decisions and how they prioritize various consumption items.

It should be noted that another important transition during China's reform period has been the migration tide from rural to urban areas. The number of migrants jumped from 18 million in 1989 to 70 million in 1993 and to 150 million by 2004 (Liang, 2001; Zhu and Zhou, 2005). Migrants now make up 11 percent of the national population and more than 20 percent of urban residents. However, due to the lack of registered local city resident status, they are not entitled to MLSA benefits and thus are excluded from this analysis. This exclusion is a huge omission. If the migrants had been allowed access to MLSA, it is estimated that at least 15 million (about 10 percent of all migrants) would have been eligible.<sup>1</sup> Further, excluding migrants also overestimates poverty outcomes in urban China as migrants on average earn much less than their peers who have urban registration status. For instance, in 2002, the average migrant household's income was only two thirds of that among those with urban registration status (Khan and Riskin, 2005).

## **Policy Background and Previous Research**

### *Establishment History*

A combination of increased unemployment, low wages, inadequate pensions, and rampant inflation yielded a growing number of urban poor in China in the early 1990s (Gao, 2006; Guan, 2005; Leung, 2006; Saunders and Shang, 2001). To establish a basic safety net for this group, Shanghai initiated its MLSA in 1993. The city government set up the assistance lines and committed a financial budget. Based on the successful experience in Shanghai, the Ministry of Civil Affairs in 1994 encouraged other cities to adopt this program. In 1995, 12 cities

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<sup>1</sup> This is based on the authors' calculations using the CHIP 2002 migrant data. This figure, however, is likely to be an underestimate because it is very possible that the CHIP 2002 migrant sample represents a relatively better-off subgroup than the overall migrant population in China. Families in provincial capital cities were more likely to be in the sample, and within a given city, those who had more stable employment and better economic conditions—namely those living in resident communities rather than in city margins, construction sites, or slums—were more likely to be selected. In general, migrants in smaller cities and living in less stable conditions tend to have lower incomes.

established MLSA. The number increased to 116 cities in 1996 and 334 cities in 1997. By October 1999, all 668 cities and 1,689 counties had implemented MLSA (Information Office of the State Council [IOSC], 2002, 2004; Leung, 2006).

To regulate MLSA across the country, the central government in 1999 enacted the Regulation on Assuring Urban Residents' Minimum Standard of Living (hereafter "the Regulation"). The Regulation stipulated that urban residents whose household *per capita* income was lower than the local minimum living standard line were entitled to basic assistance from the local government. The Regulation prescribed that all local governments include MLSA expenses in their city budget. The central government may provide financial support to cities with difficulty (IOSC, 2002, 2004; Leung, 2003).

#### *Assistance Lines*

The MLSA assistance lines are set up by city governments following general guidelines issued by the central government to reflect the local minimum living standards. These lines are set as a monthly amount in yuan. In principle, the assistance line should be computed according to the local minimum standard of living, which is based on local average *per capita* income and basic consumption needs. According to the Regulation, the assistance should cover basic food, clothing, and shelter needs, taking into consideration utility, medical care, and tuition expenses (Hong, 2005a; Ru *et al.*, 2002). In reality, however, the determination of the assistance lines is often restricted by local governments' financing capacity (Du and Park 2006). As a result, the assistance lines in many less developed cities tend to be lower than what is required to fulfill families' actual basic needs (Guan, 2005).

To implement the central government's guidelines for determining the assistance lines, city governments have generally taken four different approaches. First, some cities have

conducted household surveys to collect data on income and consumption needs and then determined the local MLSA lines accordingly. Second, some cities facilitated thorough discussions among relevant government departments, including civil affairs, finance, statistics, consumer prices, and so forth, to determine the appropriate assistance lines. Local fiscal capacity has often been a major concern for cities using this approach. Third, some cities have simply established assistance lines similar to those adopted by their neighbor cities. City governments have sometimes used the minimum wage and subsidies for the unemployed as references, arguing that the minimum living assistance line should be lower than these other existing assistance standards. Fourth, many city governments have used a combination of the three approaches specified above. The rationale for choosing a certain assistance line using this approach is the least well documented (Hong, 2005a).

As a result, the assistance lines vary substantially across cities, even within the same province. For example, the highest assistance line in 2002 was 320 yuan in Nanhai city of Guangdong province, and the lowest line was 52 yuan in Lingshui county of Hainan province. The widest gap in assistance lines across cities within the same province was 224 yuan in Fujian province, and the narrowest gap existed in Qinghai province at only 20 yuan. In general, the assistance lines of the more developed areas are higher than those in economically laggard areas, and the lines of large cities are higher than medium and small cities, while the counties usually have the lowest assistance lines (Hong, 2005a).

The assistance lines have been adjusted annually according to changes in consumer prices and local governments' financial capacities. Some cities have raised their assistance lines constantly, while some others had to lower their lines. For example, among the provincial capital cities, the assistance line in Nanjing increased from 180 yuan in 1999 to 220 yuan in 2002 and



246 yuan in 2006, an increase of 37 percent over the entire period. In contrast, the assistance line in Harbin increased from 1999 to 2002 (from 182 yuan to 200 yuan), but dropped to only 143 yuan in 2006, a decrease of over 20 percent during the period.<sup>2</sup> Beijing and Shanghai both increased their assistance lines by 14 percent over the same period, with assistance lines of 310 yuan and 320 yuan in 2006, respectively (Hong, 2005a; MCA, 2006b). These lines, however, remain low relative to average income. In 2003, the average assistance line throughout the country was only 14 percent of the average wage and 23 percent of the average *per capita* disposable income of urban residents (Leung, 2006).

### *Eligibility Rules*

In principle, any urban resident whose family's *per capita* income is lower than the local MLSA line is entitled to the benefits. However, the Regulation differentiates two groups of beneficiaries (Hong, 2005a; Leung, 2006). The first group is made up of the traditional recipients of social assistance; that is, those without an income source, working capability, or legal guardian or supporter (otherwise known as the "Three No's"). This group can receive the full amount of benefits offered by the local assistance line. The second group is the newly emerged urban poor, including families with financial difficulties due to unemployment, those who are unemployed but ineligible for unemployment benefits or whose time-limited unemployment benefits are terminated, and pensioners with inadequate income. This group often has family members who are in their working ages and/or have some level of income. Their entitled benefit amount is the local assistance line less their total household income.

As a strictly means-tested program, the MLSA conducts two tests for families' eligibility (Hong, 2005a). The first is a financial investigation. The value of an eligible family's total financial resources, including income and assets, must be below the local assistance line. MLSA

adopts a very inclusive income definition to decide each family's eligibility. Household income is measured as cash income from any source, including earnings, social benefits, and private transfers. Savings and stocks are also counted as part of income. However, due to difficulties of income measurement, some other indicators, such as financial assets, employment, health status, and housing conditions, are also considered (Chen, Ravallion, and Wang, 2006; Du and Park, 2006). Many cities also take into account ownership of durable goods. For example, Beijing has specified that families who own luxury goods such as a vehicle, motorcycle, cell phone, or who have pets, are ineligible for MLSA benefits (Hong, 2005a).

The second eligibility test concerns residency status and family formation (Hong, 2005a). Only members who have official local urban residency status are eligible. Cities treat adult children who still live with parents in the same household differently: some consider them members of the family and some treat them separately, while some others have not yet established specific rules regarding such cases.

With respect to the form of assistance, most cities provide MLSA subsidies. A very small number of cities used to provide in-kind goods such as food and clothing, but this practice has been gradually eliminated (Hong, 2005a). Some cities also provide in-kind services such as health care and school enrollment as part of their MLSA benefits (Chen, Ravallion, and Wang, 2006).

### *Characteristics of Participants*

Unemployment, low wages, inadequate pensions, and other hardships such as health problems have been identified as the major factors associated with MLSA participation (Leung, 2006; Hong, 2005a). The MCA reports that, in 2002, over half of MLSA recipients were unemployed (either laid-off or nominally on the job roster but not working or receiving any

income). Another 10 percent had low wages and 5 percent were retired. About 30 percent received MLSA because they had family members who were unemployed, had low wages, or were retired. An additional 5 percent of recipients were of the traditional “Three No’s” (Hong, 2005b). A national survey of 10,000 MLSA recipients conducted by the MCA in 2003 indicated that 34 percent of these households had disabled members, and 65 percent had chronically sick members (Leung, 2006). In a study of five major cities in 2003, Tang (2004) found that 53 percent of all MLSA recipients were unemployed and 12 percent were retired, chronically sick, or disabled.<sup>2</sup>

In addition to the socioeconomic disadvantages identified above, some demographic characteristics, such as low education, larger household size, and not being a Communist Party member, have also been linked to MLSA participation. For instance, Du and Park (2006) found that, when controlling for household *per capita* income before any public transfers, families with low education, a crowded living space, and poor health status were more likely to receive MLSA. Chen, Ravallion, and Wang (2006) found that, after controlling for household *per capita* income and conditions of dwelling, MLSA participation was more likely for households who had lower financial wealth and larger sizes and whose heads were retired, working at home, unemployed, or who had poor educational achievement or a disability or sickness.

Using CHIP 2002 data, Gustafsson and Deng (2007) found that MLSA receipt was positively related to joblessness among household members, lack of financial assets, and household expenditure burden (measured by the number of children and older persons without pensions relative to the number of working members and older persons receiving pensions). Higher educational achievement for the household head and membership in the Communist Party reduced the probability of receiving MLSA. They also found that the probability of receiving

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<sup>2</sup> Another 26 percent of the recipients were children in this study.

MLSA varies greatly across cities; for example, city-level employment rates and average income adversely affected the probability of receiving MLSA.

*Effects of MLSA Participation on Poverty and Consumption*

Recent studies have found that MLSA participation has some modest impacts on poverty reduction, but these effects are limited by its partial coverage and delivery. Further, MLSA has had a larger impact on reducing poverty gap and severity than on the poverty rate (Chen, Ravallion, and Wang, 2006; Du and Park, 2006; Gao, Garfinkel, and Zhai, 2007; Gustafsson and Deng, 2007; Wang, 2007).

Specifically, using a poverty line developed by Khan (2004) according to the minimum food intake required to sustain energy, Gustafsson and Deng (2007) found that MLSA reduced poverty rate (or head count ratio) by 16 percent among its participants and by 5 percent among all urban households. More significantly, poverty gap (measured by the mean income shortfall relative to the poverty line as a proportion to the line) was narrowed by 29 percent and poverty severity (measured by the squared poverty gap so that individual poverty gaps are weighted by the gaps themselves) was reduced by 38 percent among MLSA participants. Using NBS survey data from the 35 largest cities in China, Chen, Ravallion, and Wang (2006) discovered that, for participants, MLSA lowered the poverty rate by 20 percent, poverty depth (as measured by the poverty gap index) by 29 percent, and poverty severity by 37 percent.<sup>3</sup>

However, these anti-poverty impacts have been limited by MLSA's partial coverage and delivery. Existing studies have identified that only between 28 to 51 percent of MLSA eligible families were actual beneficiaries (Chen, Ravallion, and Wang, 2006; Du and Park, 2006; Gao,

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<sup>3</sup> These figures were not directly reported by the authors and are calculated by us based on results reported in Table 2 of the Chen, Ravallion, and Wang (2006) paper. Percent of poverty reduction is calculated as the difference between the pre- and post-MLSA poverty outcomes divided by the pre-MLSA outcomes. The same method was used in Gustafsson and Deng (2007).

Garfinkel, and Zhai, 2007; Wang, 2007). Further, even if families participated in MLSA, they often did not receive the full amount of benefits to which they were entitled. Using the CHIP 2002 data, a recent study found that the eligible MLSA participating families on average only received a quarter of the full amount they were entitled to (169 yuan out of 679 yuan), yielding a large benefit receipt gap. This gap was wider in the least developed western region relative to the more developed central and eastern regions (Gao, Garfinkel, and Zhai, 2007).

What would happen if full coverage and delivery of MLSA were provided? Gao, Garfinkel, and Zhai (2007) simulated the poverty reduction outcomes given these conditions were met. They found that full coverage and delivery significantly enhance the anti-poverty effectiveness of MLSA, more than doubling the observed poverty reduction effects. More specifically, using the minimum food energy requirement poverty line as adopted by Gustafsson and Deng (2007), full rather than partial coverage and delivery reduced poverty rate among eligible participants by an additional 4 percent. Reductions in poverty gap and poverty severity were even more dramatic at an additional 43 and 49 percent, respectively. Therefore, full coverage and delivery prove to be essential in ensuring a more powerful anti-poverty role of MLSA. Nevertheless, this potential impact was unrealized, and even if realized, would be unable to eliminate poverty.

Expenditures are an important indicator of families' material well-being but have been much understudied. Researchers studying China and other countries have argued that examining expenditure may be superior to income in order to accurately measure poverty and family economic well-being (for example, see Blank, 2006; Davis, 2005; Haskins, 2001; Meyer and Sullivan, 2003, 2004, 2006; Wong and Yu, 2002). This argument is especially relevant when

examining poverty and economic well-being in low-income countries and among low-income populations such as China's MLSA recipients.

To date, there has been only one study that directly explored the effects of MLSA participation on family expenditures. Using data collected from five big cities (Shanghai, Wuhan, Shenyang, Fuzhou, and Xi'an) in 2001 and 2005 and a PSM approach, Du and Park (2006) found that MLSA increased recipients' consumption on education and food, but not health. More specifically, MLSA participation increased families' education expenditure by 7% and food expenditure by 3-4%, as measured by the shares of these items in total household expenditure. However, MLSA participation did not significantly affect the level of household per capita health expenditure. The authors did not specify why health expenditure was measured differently from education and food. Thus it is unclear how the measurement difference could have affected the estimated effects. Other important expenditure items such as housing, transportation, leisure were not examined in this study.

Our paper builds upon this recent study to provide a comprehensive examination of the effects of MLSA participation on family expenditures. In particular, we not only study the three major expenditure categories (i.e., education, food, and health) explored by Du and Park (2006), but also examine total family expenditure, other six major categories, and various detailed expenditure items. We also estimate the effect sizes in both absolute and relative terms: The effects of MLSA participation on expenditures are first estimated as level changes (in yuan); these effects in absolute terms are then compared against the average expenditure level among all participants to gauge their relative sizes (in percentage).

## **Data and Methods**

This paper uses the China Household Income Project (CHIP) 2002 urban survey data. CHIP is a national, cross-sectional study collectively designed by a team of Chinese and Western scholars and conducted by the Institute of Economics at the Chinese Academy of Social Sciences. It provides detailed information on demographics, income, and expenditures. Samples of the CHIP study were drawn from larger NBS samples using a multistage stratified probability sampling method. To generate a nationally representative sample, CHIP includes sample provinces from eastern, central, and western regions of China. More specifically, the Beijing municipality and the provinces Liaoning, Jiangsu, and Guangdong represent the eastern region; the provinces Shanxi, Anhui, Henan, and Hubei represent the central region; and the Chongqing municipality and the provinces Sichuan, Yunnan, and Gansu represent the western region. The CHIP 2002 urban sample contains 77 cities, 12 of which are municipalities or provincial capital cities. The dataset has a sample size of 6,835 households and 20,632 individuals.

This paper examines the effects of MLSA participation on family expenditures. MLSA participation was directly asked about in the CHIP study. If any member of a household received MLSA in 2002, all members of the household are considered to be MLSA participants. Overall 240 households in 58 cities participated in MLSA. Family expenditures are classified to ten major categories – food; clothing; housing and utilities; transportation and communication; education; health; leisure; facilities and services; alcohol and tobacco; and miscellaneous. The sum of these expenditure items measures household total expenditure. Expenditures are assumed to be equally shared among family members and measured as household per capita values. As a robustness test, we adopt another widely used equivalence scale (i.e., square root of household size) to see if the results based on household per capita values hold. All expenditures are measured as annual amounts.

We first investigate if MLSA lifts the level of total family expenditure of the participants. Next, we examine the effects of MLSA participation on the ten major expenditure categories. Specifically, do families use MLSA money to make ends meet (e.g., paying for food, clothing, rent, utilities, transportation), invest in human capital (e.g., spending on education and health), improve life quality (e.g., purchasing leisure, facilities, and services), or consume alcohol or tobacco?

Further, we explore detailed expenditure patterns to understand how MLSA participation affects families' more specific consumption decisions. In particular, detailed expenditure patterns on food, housing, transportation and communication, education, health, and alcohol and tobacco are examined. Among food expenses, we investigate whether families tend to consume food prepared at home or eat away from home due to MLSA participation. Among food items bought to be cooked at home, we examine whether MLSA helps change families' nutrition structure by spending differently on various items, including cereal and edible oil; meat, eggs, and seafood; vegetable and fruits; sauce and seasoning; sugar; non-alcoholic beverage; and other food at home. Housing expenses include rent, utilities, housing service, and housing purchase or construction. Transportation and communication expenses are examined separately. Detailed education expenses include school books and tuition and fees. We further distinguish tuition and fees spent on compulsory education, non-compulsory education, nursery and kindergarten, adult education, home tutoring, training classes, school lodging fees, and other educational activities. Health expenditures are specified as payments for medicine, nutritious supplements, medical care fees paid, and other health-related expenses. Alcohol and tobacco expenses are also examined separately.



To address the issue of selection bias in estimating the effects of MLSA participation, we adopt a propensity score matching (PSM) method. PSM has been increasingly used in program evaluation research during recent years (Dehejia and Wahba, 1999; Du and Park, 2006; Hill, Waldfogel, and Brooks-Gunn, 2002; Jalan and Ravallion, 2003). It uses observed covariates to estimate the probability of treatment (i.e., the propensity score) and then, for members in the treatment group (i.e., those who participated in the program), identifies the “matched” members in the control group (i.e., those who did not participate in the program) with the closest propensity scores. Under the assumption that the predictive covariates are the only confounding variables, those with similar propensity scores can be conceptualized as randomly assigned to the treatment or control groups in an experiment. It should be noted that PSM takes account of selection on observables only.

The PSM in this study is carried out in three stages. In the first stage, observed variables of household social-demographics are used to predict the probability of receiving MLSA (i.e., propensity score) for each household. The propensity of MLSA receipt ( $MLSA$ ) for household  $i$  in city  $c$  is estimated by Equation (1) using a logistic regression model:

$$\Pr(MLSA_{ic} = 1 | \sum X_{ic}, \phi) \quad (1)$$

where  $\sum X_{ic}$  is a sum of the factors that capture household social-demographics which possibly influence the propensity of MLSA participation. These observed social-demographics include household head’s age, education level, employment status, self-rated health condition, marital status, and Chinese Communist Party (CCP) membership; and household characteristics including household per capita annual income (in 100 yuan) prior to MLSA receipt; whether household has children under age 18 or persons at age 60 or older; number of other adults between ages 18-59; and whether there is any household member with serious illness.  $\phi$  is a

city-specific fixed effect. Since the eligibility, financing, and implementation of MLSA vary significantly across cities, using city-fixed effects in the predictive model can capture unobserved city level factors in determining MLSA participation.

The results of the logistic regression model used to predict MLSA participation are shown in Appendix Table 1. Compared to families whose household heads had bad self-rated health, those with heads in better health conditions were significantly less likely to receive MLSA. Households whose heads were unemployed were more likely to receive MLSA than those with employed heads. An increase in household income tended to reduce the probability of receiving MLSA. Households that had at least one member with serious illness were more likely to receive MLSA.

In the second stage, we identify non-participants that can be matched with the MLSA participants. Based on their propensity scores predicted by Equation (1), MLSA participants and their “neighbors” who resided in the same cities and whose propensity scores are mathematically proximal to theirs are matched using one-to-one matching without replacement. Under the assumption that the predictors in Equation (1) are the only confounding variables, these matched households have similar observed social-demographics and thus can be conceptualized as randomly assigned to the treatment (i.e., MLSA participants) or control group (i.e., non-MLSA participants).

Table 1 shows the changes of balance on the means of household social-demographics before and after the second stage of PSM. Overall the distribution of household social-demographics improves significantly in balance between MLAS participants and non-participants from the full sample to the matched sample. MLSA participants and non-participants in the matched sample are strikingly similar and have little difference on these social-

demographic characteristics. Specifically, compared to MLSA non-participants in the full sample, non-participants in the matched sample and MLSA participants were more likely to have household heads with lower education, unemployed, in bad health condition, unmarried, and to have lower annual income and at least one member with serious illness. Such evidence shows that the predictive model in Equation (1) is able to identify a comparable control group for MLSA participants and thus may increase the validity in estimating the effects of MLSA participation.

[Table 1 about here]

In the third stage, the effects of MLSA participation on family expenditures are estimated by comparing the expenditures of participants with their matched non-participant peers in the same cities, controlling for household social-demographics, as presented in Equation (2) using ordinary least squares (OLS) regressions:

$$O_{ic} = \beta_0 + \beta_1 M_{ic} + \beta_2 X_{ic} + \psi_c + \xi \quad (2)$$

where  $O_{ic}$  represents the outcome (i.e., family expenditures) of individual household  $i$  in city  $c$ ;  $M_{ic}$  stands for a binary variable of MLSA participation;  $X_{ic}$  is a vector of household social-demographics, as detailed in Equation (1);  $\psi_c$  represents the city fixed effects; and  $\xi$  is a random error term. The standard errors of OLS regression coefficients are adjusted for city clustering using Huber-White robust estimates.

Although the predictive model substantially increases the balance of observed household social-demographics between MLSA participants and non-participants, it is important to note that unobservable factors may bias the estimation in both directions. On the one hand, the more motivated and those with more social resources may be more likely to become MLSA recipients, even if their income levels were similar to those of some non-participants. MLSA participation

may in turn strengthen the participants' motivations and efforts to achieve more opportunities and better life conditions. On the other hand, as a strictly means-tested anti-poverty program, the targeting of MLSA could be associated with stigma and thus impair the participants' morale and actual chances of obtaining work or education. Since none of these factors are observable, we are unable to control for them in our estimations. It is a limitation borne by most observational program evaluation studies. How to address it is therefore a common challenge that needs to be explored in future work.

## **Results**

### *Total Family Expenditures and Major Categories*

Table 2 presents the estimated effects of MLSA participation on household per capita total family expenditure and ten major expenditure categories. Column (a) shows the regression coefficients (with standard errors in parentheses) based on the PSM models. Column (b) contains the level of average expenditure amounts (in annual *yuan*) among all MLSA participants. Column (c) presents the relative effect sizes of the estimated regression coefficients as a percentage of the average expenditure levels among all participants, calculated as the ratios of coefficients in Column (a) to Column (b).

The first row in Table 2 shows that, overall, MLSA participation significantly increased families' total expenditure by 267 yuan per capita per year, which accounted for 7% of the average total family expenditure of 3,763 yuan. The average household per capita MLSA benefits was 275 yuan, indicating that about 97% of the income gains due to MLSA transfers was spent by families, with the remaining minimal portion (i.e., 8 yuan) either saved or used for paying off debt.

[Table 2 about here]

Among the major expenditure categories, MLSA participation most significantly enabled families to invest in human capital, i.e., to spend more on education and health. Specifically, household per capita education expenditure was lifted by 111 yuan (or 27%). Meanwhile, household per capita expenditure on health was also raised by 107 yuan (or 33%) as a result of MLSA participation. These findings suggest that families devoted most of their total expenditure increase (218 yuan out of 267 yuan, or 82%) due to MLSA participation to investing in human capital, with half spent on education and the other half on health. In addition, miscellaneous expenditure per capita was also increased by 37 yuan or 28% among MLSA participants compared to non-participants.

Some statistically insignificant results suggest the direction and magnitudes of the effects of MLSA participation on certain other expenditure categories. Most notably, among the expenses aimed at improving life quality, MLSA participants tended to spend less on leisure (40 yuan or 24%) and more on facilities and services (28 yuan or 15%) than non-participants. Among the expenses for making ends meet, MLSA participants tended to spend slightly more on transportation and communication (18 yuan or 7%), housing and utilities (13 yuan or 4%), and food (4 yuan or 0.27%), but less on clothing (16 yuan or 5%) compared to non-participants. In addition, MLSA participants also tended to spend slightly more on alcohol and tobacco (6 yuan or 4%) than non-participants. These results are statistically insignificant and thus are only suggestive of the direction and magnitudes of the effects.

The full regression results on household per capita total family expenditures and the ten major expenditure categories are shown in Appendix Table 2. The estimates in the first row are the same as those shown in Column (a) of Table 2. The rows below present the estimates on social-demographics and reveal the statistically significant predictors even after the participants

and non-participants have been matched. Among household head characteristics, we find that household heads' education levels and health conditions were positively linked to spending on leisure. Education was also positively related to spending on clothing. However, better health conditions were connected with more spending on alcohol and tobacco. Compared to households with employed heads, those whose heads were retired tended to have higher total family expenditures, including more on food, facilities and services, transportation and communication, and alcohol and tobacco, but unemployment of household heads did not appear to significantly affect families' expenditure levels. Households with unwed heads tended to spend less on food and facilities and services than those with married heads.

At the household level, not surprisingly, we find that increase in household per capita income was positively related to total and all major categories of family expenditures. An increase of 100 yuan in household per capita income lifted total family expenditure by 47 yuan. Among the major categories, the biggest increase due to income increase was on food expenditure (15 yuan for a 100-yuan increase in per capita income). Households with children under age 18 tended to have more expenses on clothing but less on food and health. Having older persons (60 or older) in household was associated with less total expenditure, including less expenditures on leisure, clothing, facilities and services, transportation and communication, and alcohol and tobacco. Having at least one member with serious illness in household tended to increase total family expenditures, most notably in health, leisure, and transportation and communication.

#### *Detailed Expenditure Patterns*

How did MLSA participation affect families' specific consumption choices? In this section, we further examine families' detailed per capita expenditure patterns on food, housing,

transportation and communication, education, health, and alcohol and tobacco. This analysis allows us to examine how families prioritize their competing goals of making ends meet, investing in human capital, and improving life quality utilizing the MLSA money. Table 3 presents these results in a format similar to that of Table 2.

[Table 3 about here]

Overall, MLSA participation significantly increased family expenditures on tuition and fees for non-compulsory education, medicine and other miscellaneous health-related expenses, and transportation, but had no significant impact on detailed items of food, housing, or alcohol and tobacco. These results further confirm that, when spending the money from MLSA, recipients placed high priority on investing in human capital, including on education (mostly for higher education) and health (mostly for medicine), rather than making ends meet or improving life quality.

Specifically, close to three-quarters of the increase in total education expenditure (111 yuan) was from that in tuition and fees for non-compulsory education (81 yuan, an increase of 38%), which included high school, vocational and technology schools, and higher education, with the remaining one-fourth spent on school books and other tuitions and fees. The full regression results (not shown in table) indicated that non-compulsory education expenditure was higher if there were more adults between ages 18-59 but lower if children under age 18 were present, both of which were statistically significant. Therefore, it is mostly likely that the majority of non-compulsory tuition and fees went to higher education or vocational/technology school education for adult children in order to improve their future life opportunities and to better prepare them in the competitive market economy. Effects on other components of education expenditures were trivial in size and statistically insignificant.

Among health expenditures, the majority (64%) of the total increase due to MLSA participation (107 yuan) were spent on medicine (68 yuan), accounting for 32% of participants' average per capita expenditure on medicine. There was also an increase of 12 yuan (or 93%) on miscellaneous health-related expenditures. In contrast, no statistically significant increases in nutritious supplements or medical care fees paid were found.

In addition, MLSA participation also significantly increased families' expenditure on transportation, but not communication. Specifically, transportation expenditure was lifted by 25 yuan per capita per year, which accounted for 28% of participants' average expenditure on transportation. This increase was likely due to the increased costs of transportation for more education and health related activities, which together accounted for 81% of the increased expenditures due to MLSA participation. Furthermore, the increase in transportation expenditures may also have been used for improved work efforts, such as commuting to and from work or traveling around to look for job opportunities.

#### *Sensitivity Test*

To examine whether the results reported above are robust, we run the same models using household equivalized expenditures (i.e., total household expenditures divided by square root of household size) instead of household per capita expenditures as outcome variables. These results are reported in Tables 4 and 5 in parallel format to Tables 2 and 3, respectively. This sensitivity test shows that the results reported above indeed hold: MLSA participation significantly improved families' total expenditure and spending on tuition and fees for non-compulsory education, medicine and other miscellaneous health-related expenses, and transportation, but it did not significantly affect family expenditures on food, clothing, housing and utilities, communication, alcohol and tobacco, or other specific education and health items. For



expenditure categories or items that were significantly improved by MLSA participation, their relative effect sizes (presented in Columns (c) of Tables 4 and 5 as measured by the ratios of coefficients in Columns (a) to Columns (b) and interpreted as percentage changes) were very similar to the results when household per capita expenditures were used (as shown in Tables 2 and 3).

[Tables 4 and 5 about here]

### **Conclusion and Discussion**

Using newly available national household survey data and a propensity score matching method, this paper examines the effects of urban China's primary public assistance program – Minimum Living Standard Assistance (MLSA) – on family expenditures. Expenditures are an important yet understudied indicator of family material well-being. We examine not only total family expenditures but also ten major expenditure categories and more detailed expenditure patterns. Findings reveal that MLSA participation significantly improved families' spending on tuition and fees for non-compulsory education, medicine and other miscellaneous health-related expenses, and transportation, but it did not significantly affect family expenditures on food, clothing, housing and utilities, communication, or alcohol and tobacco. These results hold robust whether we use household per capita or equivalized (using the square root of household size as the equivalence scale) expenditures as the outcome variables.

These findings suggest that families participating in MLSA prioritized the use of expenditures to invest in human capital (i.e., spending on education and health) rather than to make ends meet (e.g., paying for food, clothing, rent, utilities) or improve life quality (e.g., purchasing leisure, facilities and services). Overall, more than 80% of the increase in total family expenditures due to MLSA was spent on education and health. Specifically, nearly three quarters

of the education expenses were spent on higher education or vocational/technology school education for adult children. Out-of-pocket payment for medicine was another major source of expenditure, accounting for a quarter of the total increase in expenditures and more than half of the increase in total health expenditures enabled by MLSA money. Almost 10% of the increased total expenditure went to transportation.

Human capital, especially education attainment, has become increasingly important in China's rapidly developing market economy. Higher education levels are often associated with higher earnings and improved life opportunities. However, China's higher education reform in 1997 drastically increased the tuition and fees for higher education from the previously very low charges. Since then, higher education institutions nationwide had much more autonomy in setting their own tuition levels. As a result, higher education has become very expensive and extremely hard for low-income families to afford. Therefore, the MLSA money may directly enable these poor families to pay for higher education for their children in order to better prepare them in the labor market. They may also use this as a tool to prevent the generational transmission of poverty.

At the same time, urban China's health care system, which used to be nearly universally provided at very low cost, has largely shifted to the private sector since the economic reforms. Except for the small proportion that has public health insurance, patients mostly pay out of pockets for medicine and treatments. With the dramatic rise in medicine prices and hospital charges, health care disparities have become a major public concern. Low-income families often can not afford high-quality health care and delay taking medicine or visiting a doctor to avoid "unnecessary" payments. MLSA subsidies therefore can help these families to pay for urgent health care needs, especially among those whose members have serious illness.

Additionally, MLSA participation also helped increase families' transportation expenditure. This could be because families need transportation to carry out their education and health related activities. They may also use this money to facilitate work efforts, such as commuting to and from work or traveling around to look for job opportunities.

The finding that MLSA participation did not significantly help families to make ends meet is intriguing but may be unsurprising. It could be that these families' basic needs for food, clothing, or housing and utilities had already been met. After all, the first step of Deng Xiaoping's famous "three-step" (*sanbu zou*) development strategy aimed at meeting the basic survival needs (literally "solving the problem of food, clothing, and shelter" or *jiejue wenbao wenti*) by 1990. The Chinese government claimed that this goal had been largely achieved as of 2000. If families were in desperate situations to meet these basic needs, they would have used MLSA money to purchase these items. However, it is important to note that these expenses on making ends meet (including food, clothing, housing, and utilities) still accounted for more than half (57%) of the MLSA participants' total family expenditures.

Findings from this paper indicate that MLSA participation enabled families to invest more in human capital through paying for education and health care. Although this is a positive outcome of MLSA, it reveals the great unmet needs on education and health care among these families. Therefore, policies specifically designed to support education and health care among urban China's low-income families are needed. For example, given the very high cost for higher education, there need to be creations and expansions in subsidies and scholarships for students from these families to study in colleges and universities. A health insurance program specifically designed to cover the cost of health care for these poor families are also needed. At the same

time, it is important that MLSA continues to be carried out to ensure families not only to meet the basic living standards but also to have some freedom in deciding their consumption priorities.

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**Table 1: Descriptive Statistics by MLSA Participation and Sample**

	Full Sample Non-Participants (N=6,595)	Matched Sample Non-Participants (N=240)	MLSA Participants (N=240)
<i>Household Head Characteristics</i>			
Age	47.92 (3.12)	48.69 (5.35)	48.15 (5.18)
Education Level			
Primary or less	0.07 (0.06)	0.15 (0.22)	0.16 (0.27)
Middle school	0.28 (0.09)	0.38 (0.32)	0.37 (0.32)
High or tech school	0.37 (0.08)	0.35 (0.32)	0.37 (0.36)
2-year college or higher	0.27 (0.09)	0.11 (0.25)	0.10 (0.22)
Employment Status			
Employed	0.72 (0.13)	0.63 (0.34)	0.55 (0.34)
Retired	0.24 (0.12)	0.16 (0.22)	0.21 (0.28)
Unemployed	0.04 (0.03)	0.21 (0.29)	0.24 (0.29)
Self-rated Health Condition			
Very healthy	0.22 (0.14)	0.18 (0.28)	0.15 (0.24)
Healthy	0.40 (0.09)	0.32 (0.30)	0.34 (0.31)
So-so	0.33 (0.10)	0.34 (0.29)	0.32 (0.31)
Bad	0.06 (0.04)	0.17 (0.23)	0.19 (0.27)
Unmarried	0.05 (0.03)	0.15 (0.24)	0.11 (0.24)
Communist Party (CCP) Member	0.39 (0.09)	0.21 (0.26)	0.23 (0.32)
<i>Household Characteristics</i>			
Per Capita Annual Income (in 100 yuan)	86.73 (28.46)	44.45 (18.79)	40.01 (19.94)
With Children under Age 18	0.52 (0.15)	0.52 (0.29)	0.53 (0.34)
With Persons 60 or Older	0.23 (0.10)	0.22 (0.28)	0.28 (0.29)
Number of Adults Aged 18-59	2.14 (0.20)	2.37 (0.37)	2.29 (0.42)
At Least One Member with Serious Illness	0.12 (0.06)	0.20 (0.24)	0.22 (0.27)

Notes: Means with standard deviations in parentheses.

**Table 2: Effects of MLSA Participation on Household per Capita Total Family Expenditure and Major Categories**

	(a) Effect of MLSA Participation (in annual yuan)		(b) Average Expenditure Level among Participants (in annual yuan)	(c) Relative Effect Size of MLSA Participation =Coeff./ <b>(b)</b> %
	Coeff.	(SE)		
Total Family Expenditure	267.27	(135.54)+	3762.53	7.10
<i>Major Categories</i>				
<i>Make Ends Meet</i>				
Food	4.02	(49.79)	1509.56	0.27
Clothing	-15.82	(20.82)	293.29	-5.39
Housing and Utilities	12.65	(29.65)	338.79	3.73
Transportation/Communication	18.49	(31.82)	251.92	7.34
<i>Invest in Human Capital</i>				
Education	110.94	(38.95)**	415.50	26.70
Health	106.52	(42.76)*	322.34	33.05
<i>Improve Life Quality</i>				
Leisure	-39.93	(48.56)	165.94	-24.06
Facilities and Services	27.71	(30.96)	184.83	14.99
Alcohol and Tobacco	6.02	(15.56)	149.99	4.01
Miscellaneous	36.66	(16.48)*	130.39	28.12

Notes: The first column contains the dependent variables, grouped by purpose of expenditure. In column (a), estimates in each row are from a separate regression model run among the matched sample. All regressions controlled for household head characteristics including age, education level, employment status, self-rated health condition, marital status, Chinese Communist Party (CCP) membership, and household level characteristics including per capital annual income, presence of children (under age 18), presence of older persons (60 or older), number of other adults (between ages 18-59), and presence of at least one member with serious illness. Sample size is 480 households, with half being MLSA participants and the other half their matched non-participant peers. Robust standard errors in parentheses; \*\* p<0.01, \* p<0.05, + p<0.10

**Table 3: Effects of MLSA Participation on Household per Capita Detailed Expenditure Patterns**

	(a) Effect of MLSA Participation (in annual <i>yuan</i> )		(b) Average Expenditure Level among Participants (in annual <i>yuan</i> )	(c) Relative Effect Size of MLSA Participation = $Coeff./(b)$ %
	<i>Coeff.</i>	<i>(SE)</i>		
Total Food Expenditure	4.02	(49.79)	1509.56	0.27
Food away from home	1.09	(29.06)	225.80	0.48
Food at home	2.93	(40.12)	1283.75	0.23
Cereal and edible oil	15.08	(12.64)	303.88	4.96
Meat, eggs, and seafood	-14.35	(20.94)	478.67	-3.00
Vegetable and fruits	8.02	(9.26)	191.01	4.20
Sauce and seasoning	1.40	(1.56)	32.38	4.32
Sugar	-0.46	(1.63)	18.77	-2.45
Non-alcoholic beverage	2.36	(3.93)	33.59	7.03
Other food at home	-9.13	(11.78)	225.46	-4.05
Total Housing Expenditure	12.65	(29.65)	338.79	3.73
Rent	19.32	(12.03)	42.24	45.74
Utilities	12.11	(13.27)	276.78	4.38
Housing service	0.59	(2.05)	12.42	4.75
Housing purchase or construction	-19.37	(22.24)	7.35	-263.54
Total Transportation/Communication	18.49	(31.82)	251.92	7.34
Transportation	24.75	(10.20)*	88.93	27.83
Communication	-6.25	(24.82)	162.99	-3.83
Total Education Expenditure	110.94	(38.95)**	415.50	26.70
School books	0.48	(5.42)	33.29	1.44
Tuition and fees	110.46	(36.71)**	382.21	28.90
For compulsory education	0.09	(9.98)	77.09	0.12
For non-compulsory education	81.01	(38.15)*	213.14	38.01
Nursery and kindergarten	1.22	(4.67)	10.41	11.72
Adult education	7.78	(5.95)	12.09	64.35
Home tutoring	-2.53	(2.77)	4.83	-52.38
Training class	8.98	(5.70)	23.49	38.23
School lodging fees	4.33	(4.27)	7.01	61.77
Other education	9.57	(15.33)	34.14	28.03
Total Health Expenditure	106.52	(42.76)*	322.34	33.05
Medicine	67.86	(22.53)**	211.41	32.10
Nutritious supplements	5.66	(4.93)	14.57	38.85
Medical care fees paid	21.40	(25.81)	83.82	25.53
Other health	11.60	(4.95)*	12.54	92.50
Total Alcohol and Tobacco Expenditure	6.02	(15.56)	149.99	4.01
Alcohol	8.79	(6.12)	47.63	18.45
Tobacco	-2.77	(11.79)	102.36	-2.71

See notes under Table 2. In column (a), robust standard errors in parentheses; \*\*  $p < 0.01$ , \*  $p < 0.05$ , +  $p < 0.10$

**Table 4: Effects of MLSA Participation on Household Equivalized Total Family Expenditure and Major Categories**

	(a) Effect of MLSA Participation (in annual yuan)		(b) Average Expenditure Level among Participants (in annual yuan)	(c) Relative Effect Size of MLSA Participation =Coeff./ <b>(b)</b> %
	Coeff.	(SE)		
Total Family Expenditure	367.54	(220.65)+	6539.45	5.62
<i>Major Categories</i>				
<i>Make Ends Meet</i>				
Food	-29.23	(78.50)	2626.65	-1.11
Clothing	-31.46	(34.41)	509.82	-6.17
Housing and Utilities	11.87	(50.16)	587.10	2.02
Transportation/Communication	23.28	(51.82)	434.05	5.36
<i>Invest in Human Capital</i>				
Education	179.23	(63.07)**	728.76	24.59
Health	183.57	(71.96)*	561.97	32.67
<i>Improve Life Quality</i>				
Leisure	-71.34	(79.54)	287.97	-24.77
Facilities and Services	40.18	(52.12)	317.44	12.66
Alcohol and Tobacco	0.30	(27.07)	257.56	0.12
Miscellaneous	61.14	(30.23)*	228.13	26.80

See notes under Table 2. In column (a), robust standard errors in parentheses; \*\* p<0.01, \* p<0.05, + p<0.10

**Table 5: Effects of MLSA Participation on Household Equivalized Detailed Expenditure Patterns**

	(a) Effect of MLSA Participation (in annual <i>yuan</i> )		(b) Average Expenditure Level among Participants (in annual <i>yuan</i> )	(c) Relative Effect Size of MLSA Participation = $Coeff./(b)$ %
	<i>Coeff.</i>	( <i>SE</i> )		
Total Food Expenditure	-29.23	(78.50)	2626.65	-1.11
Food away from home	0.05	(49.11)	394.38	0.01
Food at home	-29.28	(63.34)	2232.27	-1.31
Cereal and edible oil	19.29	(21.77)	530.54	3.64
Meat, eggs, and seafood	-35.86	(34.34)	831.74	-4.31
Vegetable and fruits	6.77	(14.90)	330.46	2.05
Sauce and seasoning	1.44	(2.73)	56.45	2.55
Sugar	-1.36	(2.75)	32.48	-4.19
Non-alcoholic beverage	3.58	(6.38)	57.93	6.18
Other food at home	-23.14	(20.00)	392.67	-5.89
Total Housing Expenditure	11.87	(50.16)	587.10	2.02
Rent	31.37	(19.29)	71.84	43.67
Utilities	12.14	(21.83)	480.13	2.53
Housing service	1.10	(3.48)	21.83	5.04
Housing purchase or construction	-32.74	(38.51)	13.30	-246.17
Total Transportation/Communication	23.28	(51.82)	434.05	5.36
Transportation	40.04	(17.13)*	153.26	26.13
Communication	-16.76	(39.86)	280.79	-5.97
Total Education Expenditure	179.23	(63.07)**	728.76	24.59
School books	-0.08	(9.33)	58.26	-0.14
Tuition and fees	179.30	(59.67)**	670.50	26.74
For compulsory education	-0.66	(17.57)	137.91	-0.48
For non-compulsory education	135.06	(61.01)*	370.19	36.48
Nursery and kindergarten	1.55	(9.31)	19.85	7.81
Adult education	13.03	(10.61)	21.45	60.75
Home tutoring	-4.87	(4.92)	8.65	-56.30
Training class	13.82	(10.25)	41.38	33.40
School lodging fees	7.62	(7.37)	12.37	61.60
Other education	13.75	(26.76)	58.69	23.43
Total Health Expenditure	183.57	(71.96)*	561.97	32.67
Medicine	118.69	(39.32)**	370.81	32.01
Nutritious supplements	6.58	(6.68)	23.12	28.46
Medical care fees paid	39.78	(43.34)	147.56	26.96
Other health	18.52	(7.62)*	20.47	90.47
Total Alcohol and Tobacco Expenditure	0.30	(27.07)	257.56	0.12
Alcohol	13.82	(10.41)	83.16	16.62
Tobacco	-13.52	(20.88)	174.41	-7.75

See notes under Table 2. In column (a), robust standard errors in parentheses; \*\*  $p < 0.01$ , \*  $p < 0.05$ , +  $p < 0.10$

**Appendix Table 1: Results from Logistic Regression Model Used to Identify the Matched Sample for MLSA Participants**

	Odds Ratio	Std. Err.	z	P>z
<i><u>Household Head Characteristics</u></i>				
Age	1.01	0.01	0.51	0.609
Education Level (Primary School or Less Omitted)				
Middle school	0.97	0.24	-0.12	0.904
High or tech school	0.89	0.24	-0.45	0.655
2-year college or higher	0.78	0.27	-0.72	0.471
Employment Status (Employed Omitted)				
Retired	0.77	0.19	-1.08	0.278
Unemployed	2.63	0.58	4.35	0.000
Self-rated Health Condition (Bad Health Omitted)				
Very healthy	0.48	0.13	-2.63	0.009
Healthy	0.52	0.13	-2.72	0.007
So-so	0.54	0.13	-2.59	0.010
Unmarried	2.15	0.55	2.97	0.003
Chinese Communist Party (CCP) Member	0.78	0.15	-1.30	0.193
<i><u>Household Characteristics</u></i>				
Per Capita Annual Income (in 100 yuan)	0.95	0.00	-12.19	0.000
With Children under Age 18	0.81	0.14	-1.21	0.226
With Persons 60 or Older	0.90	0.21	-0.45	0.653
Number of Adults Aged 18-59	1.01	0.11	0.14	0.892
At Least One Member with Serious Illness	1.67	0.32	2.70	0.007

Notes: Total sample size is 6,835 households; Pseudo  $R^2 = 0.2959$ .

**Appendix Table 2: Full Regression Results of Effects of MLSA Participation on Household per Capita Total Family Expenditure and Major Categories**

	Total	Food	Clothing	Housing	Trans&comm	Education	Health	Leisure	Facilities	Alc&Tob	Misc.
MLSA Participation	267.27+ (135.54)	4.02 (49.79)	-15.82 (20.82)	12.65 (29.65)	18.49 (31.82)	110.94** (38.95)	106.52* (42.76)	-39.93 (48.56)	27.71 (30.96)	6.02 (15.56)	36.66* (16.48)
<i>Household Head Characteristics</i>											
Age	-9.64 (10.53)	-3.70 (3.57)	-2.23 (1.79)	-0.38 (1.23)	-3.48 (2.19)	-2.93 (5.12)	1.44 (2.60)	1.66 (2.34)	1.48 (1.31)	-1.07 (1.16)	-0.42 (1.18)
Education Level (Primary School or Less Omitted)											
Middle school	-99.26 (174.95)	-87.47 (66.01)	-5.30 (33.03)	-12.02 (53.21)	-5.82 (39.27)	-29.28 (94.77)	-3.73 (42.58)	40.30 (70.48)	-3.00 (52.13)	2.27 (24.50)	4.79 (20.11)
High or tech school	-50.40 (240.37)	-90.32 (73.40)	27.39 (46.15)	-34.27 (50.75)	20.09 (51.19)	-23.18 (121.95)	37.67 (69.93)	31.20 (57.97)	16.06 (49.48)	-34.71 (33.35)	-0.32 (23.35)
2-year college or higher	216.16 (357.90)	-37.99 (146.25)	142.35* (54.95)	-25.21 (63.73)	62.16 (49.21)	-149.88 (184.82)	-17.95 (81.15)	194.78* (84.20)	132.39 (100.69)	-31.98 (36.91)	-52.51* (25.69)
Employment Status (Employed Omitted)											
Retired	519.79* (248.94)	185.74* (81.27)	11.85 (49.26)	55.02 (41.30)	74.51+ (42.74)	-173.06+ (91.08)	157.24 (118.61)	68.02 (49.92)	78.16* (33.48)	47.23+ (24.52)	15.07 (25.11)
Unemployed	242.14 (255.74)	54.45 (58.23)	49.86 (36.09)	32.26 (27.47)	75.35+ (44.96)	-76.48 (93.09)	8.47 (45.47)	61.42 (69.39)	29.80 (33.38)	-17.92 (20.00)	24.93 (18.24)
Self-rated Health Condition (Bad Health Omitted)											
Very healthy	530.33 (363.88)	121.90 (92.19)	53.92 (58.21)	65.91 (48.84)	32.23 (54.04)	29.26 (77.25)	-15.44 (100.40)	151.47+ (88.00)	29.03 (58.61)	55.74* (26.38)	6.32 (27.24)
Healthy	179.62 (243.80)	20.84 (81.46)	19.58 (40.42)	89.97 (55.47)	-9.10 (31.38)	76.44 (59.04)	-55.14 (52.99)	53.91 (62.14)	5.17 (28.52)	10.39 (23.96)	-32.43 (38.72)
So-so	236.22 (222.87)	22.25 (87.33)	5.94 (36.37)	55.13 (40.61)	-18.48 (30.12)	176.44** (65.81)	-70.74 (51.64)	60.18 (63.60)	1.45 (39.38)	18.00 (25.55)	-13.96 (28.49)
Unmarried	-250.74 (214.76)	-158.31+ (93.78)	38.64 (51.73)	-34.04 (35.93)	37.88 (54.21)	26.55 (68.28)	-47.26 (61.63)	-27.02 (48.80)	-58.04* (26.32)	-21.04 (33.85)	-8.11 (20.79)
Communist Party (CCP) Member	348.41 (237.30)	95.43 (74.90)	53.02 (37.96)	-11.59 (33.61)	49.76 (58.29)	130.67 (80.35)	-10.29 (56.27)	2.93 (60.25)	-22.16 (50.18)	18.88 (25.40)	41.77 (31.74)
<i>Household Characteristics</i>											
Per Capita Annual Income (in 100 yuan)	47.30** (4.85)	15.33** (1.50)	5.05** (0.80)	2.83** (0.74)	4.45** (1.03)	4.26* (1.68)	3.31** (0.87)	5.41** (1.34)	2.67** (0.88)	1.89** (0.46)	2.11** (0.55)
With Children under Age 18	-203.77 (221.59)	-148.56* (58.27)	45.81+ (23.65)	-14.71 (34.87)	-48.93 (41.65)	61.22 (76.80)	-84.49* (35.31)	32.65 (58.98)	-27.55 (34.88)	-33.46 (22.97)	14.26 (20.22)
With Persons 60 or Older	-579.85* (228.59)	-48.51 (64.77)	-75.55* (35.39)	-27.91 (31.53)	-64.17+ (35.96)	-40.70 (63.88)	-38.60 (63.36)	-138.71* (59.47)	-66.52+ (35.55)	-51.07* (21.40)	-28.11 (23.12)
Number of Adults Aged 18-59	-196.14+ (113.51)	-117.56** (31.47)	-22.85 (15.27)	-42.95* (17.26)	0.91 (21.20)	62.48 (37.77)	-56.79 (50.41)	-11.54 (27.77)	-14.11 (18.86)	-7.37 (13.08)	13.63 (11.26)
At Least One Member with Serious Illness	574.49** (153.21)	48.38 (54.41)	15.29 (32.41)	0.50 (38.61)	48.77+ (26.03)	-22.27 (55.60)	345.68** (89.37)	104.58+ (54.65)	25.05 (36.92)	10.59 (21.34)	-2.08 (16.21)
Constant	2,246.69* (870.92)	1,403.97** (226.05)	193.31+ (113.12)	292.08* (129.89)	199.31 (191.24)	84.17 (358.75)	125.13 (135.17)	-203.89 (208.28)	1.43 (115.16)	151.81 (96.49)	-0.63 (79.07)
R-squared	0.46	0.44	0.31	0.09	0.22	0.09	0.18	0.14	0.10	0.12	0.10

Notes: Sample size is 480 households in 58 cities; robust standard errors in parentheses; \*\* p&lt;0.01, \* p&lt;0.05, + p&lt;0.10